

PROCESSED DATA FROM
THE STRONG-MOTION RECORDS
OF THE IMPERIAL VALLEY EARTHQUAKE
OF
15 OCTOBER 1979

— FINAL RESULTS —
1983

CALIFORNIA DEPARTMENT OF CONSERVATION
DIVISION OF MINES AND GEOLOGY

SPECIAL PUBLICATION 65





STATE OF CALIFORNIA
GEORGE DEUKMEJIAN
GOVERNOR

THE RESOURCES AGENCY
GORDON K. VAN VLECK
SECRETARY FOR RESOURCES

DEPARTMENT OF CONSERVATION
Don L. Blubaugh,
DIRECTOR

DIVISION OF MINES AND GEOLOGY
JAMES F. DAVIS
STATE GEOLOGIST

SPECIAL PUBLICATION 65

PROCESSED DATA FROM
THE STRONG-MOTION RECORDS
OF THE IMPERIAL VALLEY EARTHQUAKE
OF
15 OCTOBER 1979

1983

By

L.D. PORTER*

California Division of Mines and Geology
Office of Strong Motion Studies

OFFICE OF STRONG-MOTION STUDIES
CALIFORNIA DEPARTMENT OF CONSERVATION
DIVISION OF MINES AND GEOLOGY
2811 "O" STREET
SACRAMENTO, CA 95816

*Presently with Sohio Petroleum Company of San Francisco

CONTENTS

	Page
INTRODUCTION.....	1
EARTHQUAKE CHARACTERISTICS.....	1
STATION DESCRIPTIONS.....	1
Meloland Overpass Bridge.....	5
Imperial County Services Building.....	5
Freefield Station Near the Imperial County Services Building.....	7
Westmorland and Niland Freefield Stations.....	7
RECORDS, DIGITIZATION AND PROCESSING.....	8
1. Uncorrected Accelerograms.....	9
2. Corrected Accelerations, Velocities, Displacements.....	11
3. Response Spectra.....	12
4. Fourier Spectra by FFT.....	12
5. Duration Spectra.....	12
6. Spectra of Amplitude Sustained for any Given Number of Cycles.....	12
REFERENCES.....	19
APPENDIX. Computer plots of processing.....	23
E1 Centro - Rt. 8/Meloland overcrossing.....	24
E1 Centro - Imperial County Services Building.....	125
E1 Centro - Imperial County Center - Ground.....	226
Westmorland.....	249
Niland.....	272
Westmorland (Aftershock).....	295

ILLUSTRATIONS

Figure 1.	Location map of CDMG stations and October 15, 1979 earthquake epicenter in Imperial Valley.....	2
Figure 2.	El Centro - Route 8/Meloland overpass Instrumentation scheme.....	4
Figure 3.	El Centro - Imperial County Services Blvd. instrumentation scheme.....	6

TABLES

Table 1.	Epicentral, focal, and fault distances (km).....	3
Table 2.	Digitized measurements from the Rt. 8/Meloland overcrossing record.....	14
Table 3.	Digitized measurements from the Imperial County Services Bldg. record.....	15
Table 4.	Record data and instrumental constants.....	16
Table 5.	Variable sensitivities.....	17
Table 6.	Peak values of processed data.....	18

INTRODUCTION

This report contains summaries and plots of the results of completed processing performed on the six most significant strong-motion records obtained at five California Division of Mines and Geology (CDMG) accelerograph stations during the Imperial Valley earthquake of 15 October 1979.

Information on all the CDMG strong-motion records recovered from this earthquake as well as on the CDMG accelerograph stations from which these records were obtained was published by CDMG in 1980 in its Preliminary Report 26. Copies of Preliminary Report 26 as well as additional copies of this report are available from California Division of Mines and Geology, Office of Strong Motion Studies, 2811 "O" Street, Sacramento, California 95816.

Digital data of the processed records corresponding to the plots of the Volume 1, 2, and 3 (uncorrected data, corrected data, and Fourier and response spectra, respectively) may be obtained on magnetic tape from CDMG at the above address.

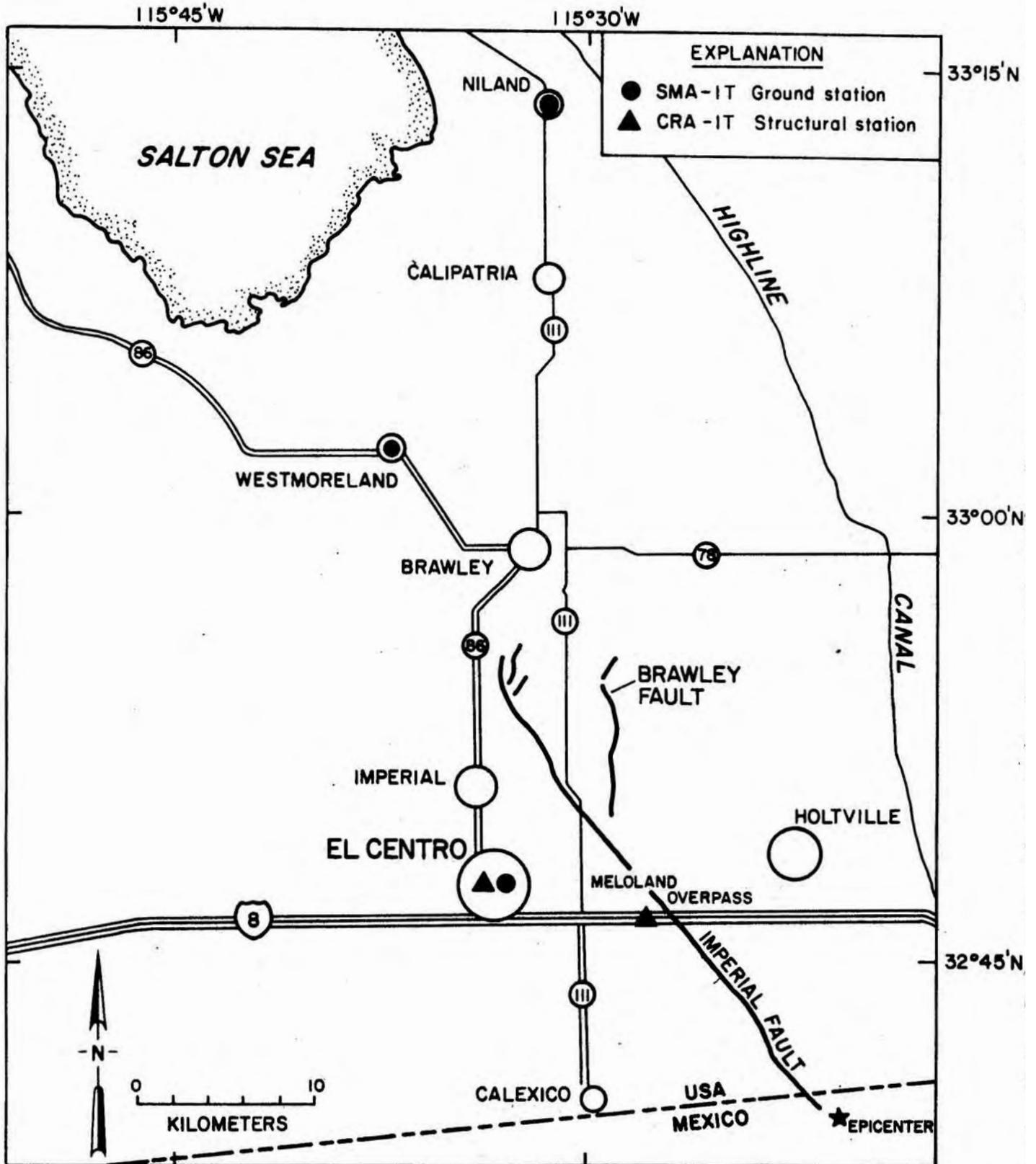
Processed data of additional records of this earthquake may be found in U.S. Geological Survey Open-File Report 80-703 (Brady and others, 1980).

EARTHQUAKE CHARACTERISTICS

A moderate-magnitude earthquake ($M_L = 6.6$, California Institute of Technology, Seismology Laboratory) occurred at 16:17 (PDT) on 15 October 1979, approximately 15.5 km east-southeast of Calexico, California (Figure 1). The main shock, a 12 km focal depth event centered in Baja, California, was located at 32.63°N latitude and 115.33°W longitude (Brady and others, 1980). The earthquake was generated by right-lateral slip on the northwest trending Imperial fault, and produced approximately 30 km of surface rupture that extends northward from the international border into the United States.

STATION DESCRIPTIONS

As stated above, strong-motion records for the Imperial Valley earthquake were obtained at five CDMG accelerograph stations. These five stations were: (1) the Meloland overpass bridge; (2) the Imperial County Services Building; (3) a freefield station near the County Services Building; and (4 and 5) the Westmorland and Niland freefield stations. Table 1 presents the distances from each of these stations to the epicenter of the Imperial Valley earthquake, to its focal point, and to the nearest point on the fault trace associated with the earthquake.



1. Location map for 15 October 1979 Imperial County Earthquake. The CDMG stations as well as the epicenter are indicated.

TABLE 1: EPICENTRAL, FOCAL, AND FAULT DISTANCES (km)

Station	Epicentral distance	Focal ¹ distance	Fault ² distance
El Centro - Rt. 8/Meloland overcrossing	19	23	0.5
El Centro - Imperial County Services Bldg	28	31	7.3
El Centro - Imperial County Center Ground	28	31	7.2
Westmorland	53	54	13
Niland	70	71	34

1 focal depth = 12 km (Brady and others, 1980)

2 Distance to the nearest point on the fault trace associated with the 1979 Imperial Valley earthquake, from the CDMG Alquist-Priolo special studies maps for the El Centro and Brawley quadrangles.

**El Centro
ROUTE 8/MELOLAND OVERPASS
Strong Motion Instrumentation Scheme**

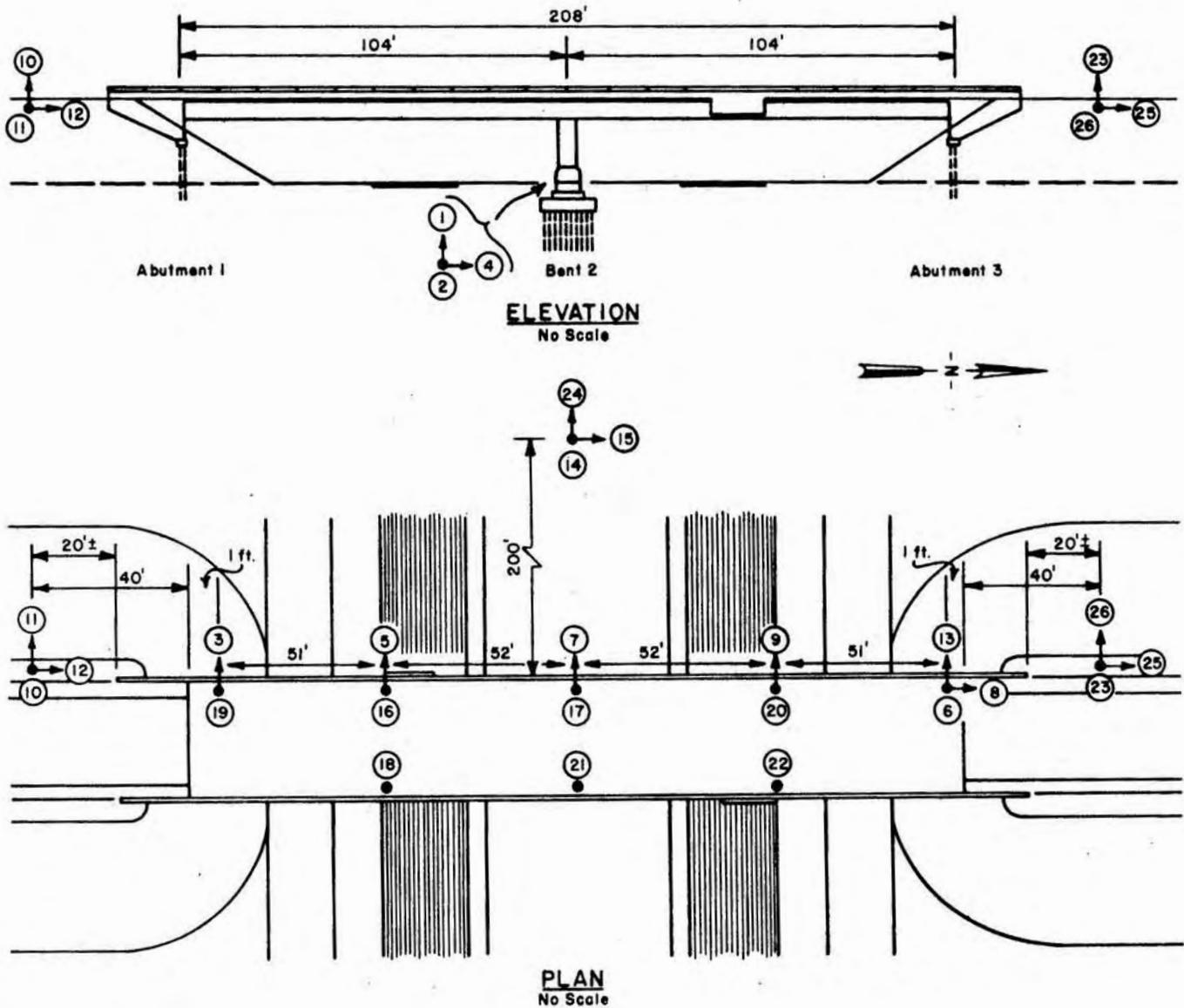


Figure 2

2. Location and orientation of recording channels at El Centro Route 8/
Meloland overpass bridge.

Meloland Overpass Bridge

The Meloland overpass bridge on Route 8 (CDMG Station No. 01336) is made up of two spans of continuous, reinforced concrete, three-cell box girder that are supported by open-ended diaphragm abutments and a single 5-foot diameter reinforced concrete column, all on reinforced concrete piles. The two spans are about 104 feet each and there is no skew (Figure 2). The bridge was designed in 1968-69 by the California Department of Transportation, using the 1968 California Division of Highways criteria. It was built in 1971. The bridge is located approximately 0.5 km southwest of the trace of the Imperial fault and 21.4 km northwest of the epicenter.

In November 1978 the bridge and three adjacent ground sites were instrumented with two 13-channel accelerograph systems. The two systems were installed in accordance with the bridge strong-motion instrumentation guidelines and data analysis procedures developed at the U.S. Geological Survey (Raggett and Rojahn, 1978). The instrumentation is maintained by the CDMG's Office of Strong Motion Studies.

Although both systems operated during the earthquake, only one of the systems (channels 14 through 26) provided a record that was considered complete and of a quality sufficiently high to warrant digitization and processing. The record from the other system (channels 1 through 13) was flawed by several short (fraction of a second) instrument stalls.

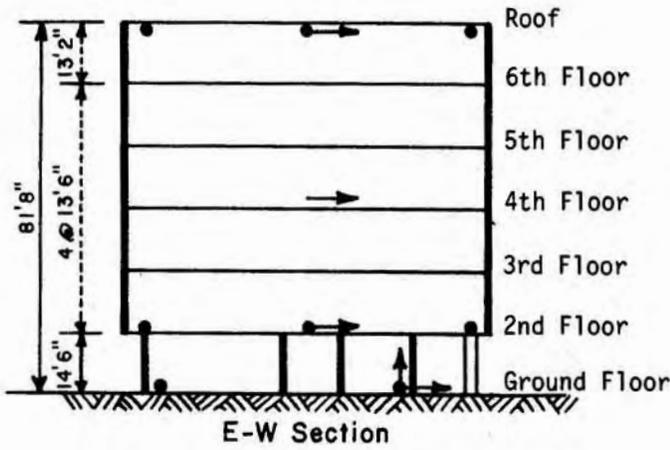
Although the bridge sustained no significant structural damage during the earthquake, the strong-motion records from the bridge constitute an important data set. This is the first occasion on which strong-motion data have been obtained from an extensively instrumented structure located less than 1 km from the surface rupture zone of a damaging earthquake. Because of these unusual features several analyses of the recovered records were performed or were underway at the time this report was being prepared for publication (Cramer Lisiecki, 1982; Werner, 1983).

Imperial County Services Building

The County services building (CDMG Station No. 01260) was a six-story, reinforced-concrete, frame-and-shear-wall structure supported on concrete piles. It was designed according to the requirements of the 1967 edition of the Uniform Building Code (UBC). The building was completed in 1971.

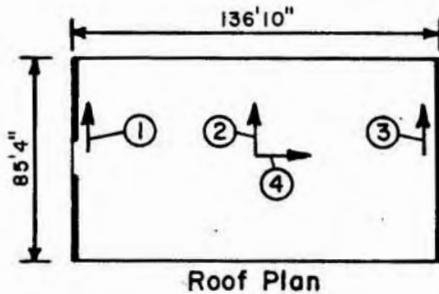
The building was 125 feet long (five 25-foot-long bays) in the east-west direction, 75 feet wide (three 25-foot-long bays) in the north-south direction, and about 82 two feet high (see Figure 3). Shear walls in the north-south direction and a movement-resisting frame in the east-west direction provided lateral-force resistance. The vertical loads were resisted by reinforced concrete slabs, pan joists, girders and columns.

IMPERIAL VALLEY EARTHQUAKE
15 OCTOBER 1979
EL CENTRO COUNTY SERVICES BUILDING
STRONG-MOTION INSTRUMENTATION SCHEME



INSTALLATION NOTES:

Accelerometers 1 through 4 attached to underside of roof slab; accelerometers 5 through 13 attached to topside of slabs. Horizontal starter adjacent and parallel to accelerometer 4. Vertical starter adjacent to triaxial package on ground floor.



RECORDER TRACE ORDER:

- Accelerometer 1
- Fixed trace -
- Accelerometer 2
- Accelerometer 3
- Fixed Trace -
- Accelerometer 4
- Accelerometer 5
- Fixed trace -
- Accelerometer 6
- .
- .
- Accelerometer 13
- Fixed trace -

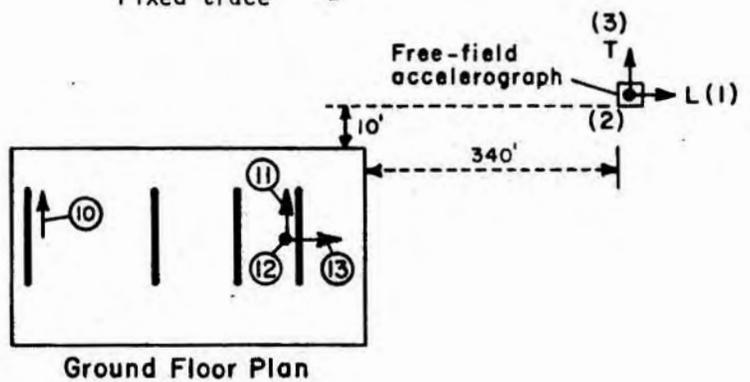
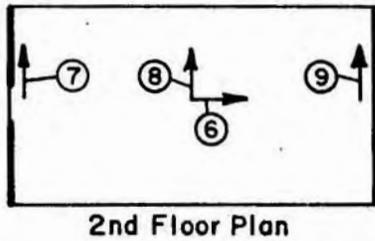
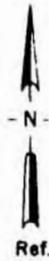
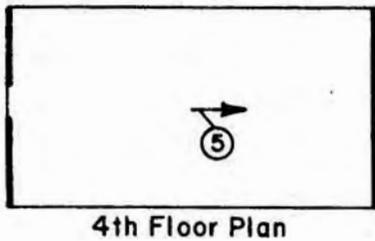


Figure 3

3. Location and orientation of recording channels at El Centro Imperial County Services Bldg.

Thirteen accelerometers tied into a central recorder were placed as shown on Figure 3. The recorder was equipped with radio-time-signal synchronization.

During the earthquake the building suffered severe structural damage. Its repair was deemed infeasible and the structure was demolished. The strong-motion records recovered from the building after the earthquake represent the first set of records obtained from an extensively instrumented building that sustained major structural damage during an earthquake. For this reason, the records are of considerable interest to scientists and engineers, and numerous studies of building response have been performed (Allawh, 1979; Altman, 1982; Etemadieh, 1982; Hall, 1983; Krieger and Sozen, 1983; and Pauschke and others, 1981).

Freefield Station Near the Imperial County Services Building

A triaxial freefield accelerograph mounted on a 1.2 m x 1.2 m concrete pad was located 100 m east of the Imperial County Services Building (CDMG Station No. 01335). During the earthquake this station recorded ground motion. The recorder is equipped with radio-time-signal synchronization.

Westmorland and Niland Freefield Stations

Both the Westmorland station (CDMG Station No. 11369) and the Niland station (CDMG Station No. 11023) consist of a SMA-1 recorder mounted on a concrete slab on grade ("free field") inside a one-story fire station building. Both recorders are equipped with radio-time-signal synchronization.

RECORDS, DIGITIZATION AND PROCESSING

The six records analyzed in this report were recovered from the instruments within a few days of the event and developed at the CDMG Office of Strong Motion Studies. Copies were made for initial studies and for digitizing. Table 2 lists the data for the stations and instruments. Table 6 includes maximum accelerations scaled from the original records. Components are designated as to the direction (azimuthal if horizontal) of positive instrument case acceleration (that is, ground acceleration if the instrument is measuring ground motion). Positive accelerations, together with positive velocity and displacement in later analyses, are located above the time axis on the original recording and in all plots. Positive directions of horizontal components are indicated in Figures 2 and 3.

Five of the records are 57-58 seconds long because the accelerographs are designed to operate for one minute after trigger. One record is 90 seconds long due apparently to the resetting of the timing circuit by aftershocks. As a consequence of the lengths of the records and their unusual signal content, the standardized programs developed and installed by the U.S. Geological Survey at the computer center of the Lawrence Berkeley Laboratory were modified in three specific ways:

1. The maximum processable record length was extended to 60 seconds.
2. Angular sensitivities were used to give a more accurate treatment of the behavior of the central recording instruments.
3. The corrected data density was doubled from 50 to 100 pts/sec.

The records were digitized from contact prints of the originals by IOM-TOWILL of Santa Clara, California, on a trace-following laser scanner. The digitizer's least count is one micrometer (10^{-6}m) and its RMS error in digitizing a straight line of the photographic quality of the traces on these records is approximately 10 micrometers (Fletcher and others, 1979). For comparative purposes, the largest peak-to-peak excursions on the original records are approximately 40 mm. Each record was digitized in several sections, or frames, of 10 cm length, and subsequently reassembled to recover a total record duration of approximately 57 seconds (Porter and others, 1979).

Because the width of the CRA records (17.5 cm) recovered at the Meloland overpass and at the Imperial County Services Building exceeded the width of the digitizer work table (6 cm), special handling during digitizing and reassembly of these records was required. The method used is an extension of the one developed for the handling of the 1979 Coyote Lake earthquake records (Porter and others, 1983):

1. The record was divided into four panels with three overlap zones. One reference trace was located in each overlap zone and was thus common to each pair of adjacent panels.
2. Butting lines were drawn perpendicular to the traces at 9.5 cm intervals from the trace onsets, so that each panel was divided into frames of 10 cm length. Six frames per panel were used in the case of the Meloland overpass record, while nine frames per panel were required to cover the record from the Imperial County Services Building.
3. The composite record was synchronized by shifting the panels to match the time coordinates of the first butting line--which incidentally coincided with the time of maximum signal activity. The time shifts (values in square brackets, Tables 2 and 3) varied between 61 and 283 micrometers.

The internal consistency of the method is shown by the relatively small differences (values in parentheses, Table 2 and 3) in the separations between the butting lines as measured in the doubly-digitized overlap zones. In the case of the first and fifth butting lines, the differences ranged between 7 to 91 micrometers. The total separation in this instance is 38 cm; the differences correspond to a maximum of one part in 4200.

Much of the analysis in the first four of the following sections is similar to that of the Caltech data reports (Hudson, 1976) and the data reports of the U.S. Geological Survey since 1971. A brief description is included here of analysis steps or of notations that are not covered in the above.

1. Uncorrected Accelerograms

The digitized reference traces are subtracted from the data traces, and the digitized time marks are used to determine the time scale. The instrument sensitivities scale the ordinates to accelerations. The components are specified by the direction of positive acceleration of the instrument case (that is, ground acceleration, for a ground-level instrument) and this positive acceleration is plotted herein above the time axis. This convention, using azimuthal bearings for horizontal components, has been in effect with the USGS since 1978. Table 6 contains the maximum accelerations for each component from this digitized data.

A special procedure was used where desirable, particularly for the records from the 13-channel central recorders, to remove nonlinearities induced by the recording system. This modification takes into account two effects:

1. The oblique recording of the galvanometers on the film. The presence of the effect is denoted by the slight deviations from the perpendicular of the galvanometer light beams for zero signal. The deviations can be as large as 7-8°, and the relative correction due to this effect can be as great as 3 percent.

2. The differences in sensitivities for positive and negative tilt tests. The differences can range as high as five percent.

This method of calibration was used for the record from the Imperial County Services Building (Table 5).

The theory behind this approach is based on the following assumptions:

- a. The angular deflection β of the galvinometer light beam is proportional to the acceleration a ,

$$B = k a,$$

where B is measured with respect to A_0 , the calibration angle for zero signal. A_0 is measured with respect to the normal to the film.

- b. The factor of proportionality k contains an additional small dependence on the acceleration,

$$k = k_0 + k_1 a,$$

where k_0 and k_1 are the zero- and first-order perturbation constants.

- c. The film and galvinometer coordinate systems are linked by the relation that the angle for the average amplitude over the entire length of the record is the same as A_0 , the calibration angle for zero signal.

The solutions for the constants in terms of the calibration angles are:

$$k_0 = (B_0^+ + B_0^-)/2g,$$

and

$$k_1 = (B_0^+ - B_0^-)2g^2,$$

where B_0^+ and B_0^- are the angular deflections for $a = +g$ and $a = -g$. The formula

$$a = (B/k_0)/[1 + (1 + 4k_1B/k_0^2)^{1/2}]$$

gives the acceleration a for the angular deflection B , while the relation

$$B = \text{arc tan} [(D/L) + \tan A_0] - A_0$$

converts the film deflection D into B . L is the distance between the galvinometer and the film. In the case of central recording instruments $L = 17.788$ cm. For the central recorder in the Imperial County Services Building, separate calculations have shown that the combination of the two effects can produce a resultant correction that can reach 4.2 percent in the case of certain traces.

Discrepancies between values for the peak acceleration when scaled from the original record or from the digitized version are due to two reasons, namely the different interpretation given to the peak's shape by the staff and the laser digitizer (or its operator), and the different placement of the zero acceleration axis by the staff and the computer program removing the mean acceleration value. A discrepancy of 0.02 g corresponds to 0.36 mm on the original film.

2. Corrected Accelerations, Velocities, Displacements

The corrections performed include the following:

- a. High frequency Ormsby filtering (low pass) on data at 200 pts/sec with a ramp falling linearly from 23 to 25 Hz.
- b. Instrument correction using the natural period and damping, performed on both 50 and 100 pts/sec data.
- c. The baseline correction using a low frequency Ormsby filter (high-pass) with a ramp rising linearly from 0.03 to 0.17 Hz.
- d. Corrected velocity and displacement, including initial values, are derived during the baseline correction.

The selection of the filter parameters, namely the cutoff frequency f_c and the roll-off termination frequency f_T , used in the low-frequency filtering during c. above was based on the following discussion (Basili and Brady, 1978):

- a. Low-frequency cut-off f_c .
For the stations closest to the epicenter it was noted that the onset and termination times for the main seismic pulse are 5 sec and 11 sec, respectively. The difference, or duration of the large-amplitude signal, is 6 sec and thus the low-frequency cut-off is

$$f_c = 1/6 \text{ sec} = 0.17 \text{ Hz.}$$

- b. Low-frequency termination f_T .
The duration of the active signal portion of the near-epicentral records generally does not exceed 30 sec. Since the processed records are nearly 60 sec long, the usual criterion of not allowing the longest period retained to exceed one-third of the record duration, or 20 sec, can be extended without conflict to include all of the active signal. The low-frequency termination is thus

$$f_T = 1/30 \text{ sec} = 0.03 \text{ hz.}$$

The same filter settings were used throughout the data set to allow the retention of the complete range of frequencies for the stations closest to the epicenter. For the stations furthest removed (Niland and Westmorland, 70 and 53 km epicentral distance, respectively) the corrected displacements exhibit moderate amplitude signals over the entire record length. This persistence is legitimate and not an artifact of the processing technique (Brady and others, 1982).

The corrected accelerations, velocities, and displacements in the plotted data are positive when in the direction of the listed components. The peak values are listed in Table 6.

3. Response Spectra

The linear plots and the tripartite log-log plots of response spectra have been calculated from data at 100 pts/sec, for the slight advantage to be gained in the accuracy of the high frequency components. The Fourier amplitude spectrum appears in the linear plots, calculated at the same period values as the response spectra. The long period content is removed with a ramp starting at 5.9 sec and finishing at 33.3 sec. The data tape contains response spectra calculations at 100 pts/sec.

4. Fourier Spectra by FFT

These spectra are plotted on both linear and log-log axes to accent the particular characteristics at each end of the spectrum. The location of both the low and high frequency ramps are indicated by the positions of f_c and f_T in each case.

5. Duration Spectra

The contour plot of the velocity response envelope spectrum indicates at which times the envelope of the velocity response of a 5 percent-damped oscillator passes through various levels of velocity. The periods of the oscillators chosen are in the range 0.05 to 4 sec and their response for the entire duration of the record is used in preparing the plots. The discrete velocity levels, as defined by the contour intervals, are suitable fractions of the peak velocity response.

The duration spectrum is obtained from this velocity response envelope spectrum by adding the total time for which the velocity envelope is greater than each velocity level. A series of radial straight lines is drawn on this spectrum to indicate the number of cycles of oscillation for any oscillator, so that the duration can be quoted in cycles. Although not labelled specifically, these lines represent 1, 2, 4, 8 ... cycles, as can be readily be seen from the axes. Corrected data at 50 pts/sec were used in these calculations.

6. Spectra of Amplitudes Sustained for Any Given Number of Cycles

From the duration spectra discussed in section 5 it is possible to plot for a duration equal to a particular number of cycles, both the relative displacement response amplitude (or, more specifically, the envelope amplitude) sustained or exceeded and the fraction of the maximum amplitude that this relative displacement amplitude represents.

The required amplitudes are selected from the envelope plot by drawing a horizontal line on the plot with a cumulative length, below the envelope, equal to the number of cycles desired (Perez, 1979). A tripartite description of displacement, velocity, and acceleration amplitudes could also be plotted in the same way the response spectrum is portrayed, assuming only that the response is approximately sinusoidal.

In the plots reproduced here, the topmost curve is the maximum response in the response spectra (explained in section 3) but with 5 percent damping, while under this curve are drawn the curves for the amplitudes sustained for one complete cycle and for 2, 4, 8, 16 and 32 cycles. These additional six spectral curves give a fairly comprehensive coverage for most of the amplitudes that occur during the history of the response. Corrected data at 50 pts/sec were used in calculating these plots.

TABLE 2
 DIGITIZED MEASUREMENTS FROM THE
 EL CENTRO ROUTE 8 / MELOLAND OVERCROSSING RECORD
 IMPERIAL VALLEY EARTHQUAKE OF 15 OCTOBER 1979

Panel Reference Trace	Butting Line Intersections and Differences (micrometers)									
	Time shift	Butting Line 1	Difference	Butting Line 2	Difference	Butting Line 3	Difference	Butting Line 4	Difference	Butting Line 5
1	[92]	93408	94639	188047	95111	283158	95190	378348	95964	474312
Difference between panels		-92		-96 (-4)		-165 (-73)		-116 (-24)		-167 (-75)
2	[0]	93500	94643	188143	95180	283323	95141	378464	96105	474479
2		93535	94657	188192	95126	283318	95196	378514	95975	474489
Difference between panels		73		75 (-2)		68 (-5)		91 (18)		113 (40)
3	[73]	93462	94655	188117	95133	283250	95173	378423	95953	474376
3		93462		188136		283288		378468		474394
4		93461	94694	188155	95172	283327	95185	378512	95899	474411
Difference between panels		55		53 (-2)		31 (-24)		50 (-5)		-36 (-91)
4	[128]	93406	94696	188102	95194	283296	95166	378462	95974	474436
5		93444		188088		283308		378482		474401
6		93480	94595	188075	95244	283319	95181	378500	95869	474369
Difference between panels		13		-12 (-25)		-32 (-45)		-58 (-71)		35 (22)
5	[140]	93467	94620	188087	95264	283351	95207	378558	95776	474334
7		93474		188170		283439		378589		474465

values in parentheses show the differences in the time coordinate between adjacent panels after the panels are shifted to remove the differences at the first butting line. values in square brackets give the shift in the time coordinate needed to synchronize the panels at the first butting line.

TABLE 3

DIGITIZED MEASUREMENTS FROM THE
EL CENTRO IMPERIAL COUNTY SERVICES BUILDING RECORD
IMPERIAL VALLEY EARTHQUAKE OF 15 OCTOBER 1979

Panel Reference Trace	Butting Line Intersections and Differences (micrometers)									
	Time shift	Butting Line 1	Difference	Butting Line 2	Difference	Butting Line 3	Difference	Butting Line 4	Difference	Butting Line 5
1	[0]	93605		189024		284118		379025		474475
2		93619	95440	189059	95138	284197	94903	379100	95440	474540
Difference between panels		61		50 (-9)		52 (-8)		45 (-16)		54 (-7)
2	[61]	93558	95451	189009	95136	284145	94910	379055	95431	474486
3		93579		189041		284210		379126		474555
4		93601	95474	189075	95202	284277	94923	379200	95427	474627
Difference between panels		147		147 (0)		135 (-12)		138 (-9)		110 (-37)
3	[208]	93454	95474	188928	95214	284142	94920	379062	95455	474517
5		93470		188952		284207		379137		474580
6		93489	95489	188978	95297	284275	94941	379216	95430	474646
Difference between panels		74		82 (8)		66 (-8)		63 (-11)		62 (-12)
4	[283]	93415	95481	188896	95313	284209	94944	379153	95431	474584
7		93441		188927		284228		379200		474625

values in parentheses show the differences in the time coordinate between adjacent panels after the panels are shifted to remove the differences at the first butting line.
values in square brackets give the shift in the time coordinate needed to synchronize the panels at the first butting line.

TABLE 4: STATION DATA AND INSTRUMENT CONSTANTS

S T A T I O N N A M E	T I O N C D M G n u m b e r	C o o r d i n a t e s	C o m p o n e n t		S e n s i t. (m m / g)	N a t. F r e q. (H z)	D a m p i n g f r a c t i o n	D i g i t i z e d l e n g t h (s e c)
			N o.	A z i m. (d e g r e e)				
El Centro - Rt 8/Meloland overcrossing	01336	32.773 N 115.448 W	14	UP	18.1	50.6	.61	58
			15	360	17.6	52.3	.66	
			16	UP	17.7	51.7	.63	
			17	UP	17.4	50.9	.61	
			18	UP	18.0	52.5	.63	
			19	UP	17.6	52.4	.62	
			20	UP	17.4	53.3	.62	
			21	UP	18.1	50.7	.64	
			22	UP	18.0*	50.7	.61	
			23	UP	17.5	51.9	.66	
			24	270	17.4	52.8	.64	
			25	360	17.3	50.7	.64	
			26	270	17.1	51.0	.64	
El Centro - Imperial County Services Bldg	01260	32.793 N 115.563 W	1	360	18.2	52.8	.66	57
			2	360	18.4	53.6	.65	
			3	360	17.4	53.2	.63	
			4	90	18.4	52.9	.64	
			5	90	17.1	50.8	.63	
			6	90	18.2	52.1	.61	
			7	360	18.6	54.8	.65	
			8	360	18.2	54.2	.64	
			9	360	17.2	51.8	.64	
			10	360	17.4	53.0	.64	
			11	360	18.4	54.5	.67	
			12	UP	18.3	51.5	.66	
			13	90	18.5	54.0	.67	
El Centro - Imperial County Center - Ground	01335	32.793 N 115.562 W	1	92	17.7	26.6	.579	57
			2	UP	18.4	26.2	.581	
			3	2	17.9	26.6	.627	
Westmorland	11369	33.037 N 115.623 W	1	180	18.4	25.5	.572	57
			2	UP	17.0	25.5	.591	
			3	90	17.2	25.5	.600	
Niland	11023	33.239 N 115.512 W	1	90	17.5	26.7	.559	57
			2	UP	17.6	26.4	.565	
			3	360	18.9	25.8	.575	

* estimated

TABLE 5

Imperial County Services Building
Imperial Valley Earthquake of 15 October 1979
Variable Sensitivities

Trace No.	FBA Sensitivities (mm)	A°	B+°	B-°
1	+18.80 -17.90	7.513	5.854	5.725
2	+18.40 -18.50	5.212	5.806	5.947
3	+17.50 -17.60	2.859	5.580	5.667
4	+18.90 -19.10	5.053	5.965	6.142
5	+15.75 -15.80	2.795	5.028	5.088
6	+18.00 -18.00	0.403	5.776	5.785
7	+18.40 -18.60	4.021	5.838	5.986
8	+18.30 -18.30	1.585	5.855	5.889
9	+16.80 -17.20	-0.957	5.405	5.515
10	+17.70 -17.80	0.032	5.685	5.653
11	+18.70 -18.60	-2.361	6.020	5.936
12	L(+)-18.90, T(+)-17.70 L(-)-18.60, T(-)-19.50	-4.525	5.980*	5.980
13	+18.10 -18.80	-7.260	5.794	5.863

* assumed value, because the tilt test for this component could not be performed (vertical orientation).

TABLE 6: PEAK VALUES OF PROCESSED DATA

STATION	COMPONENT		MAX. ACCELERATION			MAX. VELOCITY (cm/sec)	MAX. DISP (cm)
	Number	Orientation	scaled (g)	digitized (g)	corrected (cm/sec ²)		
El Centro - Rt 8/Meloland overcrossing	14	UP	.231	.256	225.1	29.34	8.93
	15	360°	.318	.318	305.0	71.65	21.53
	16	UP	.503	.485	472.0	37.19	8.31
	17	UP	.225	.231	223.9	30.32	8.47
	18	UP	.443	.448	428.6	35.24	8.63
	19	UP	.212	.210	200.4	28.46	8.25
	20	UP	.447	.449	450.9	36.70	8.67
	21	UP	.229	.273	261.8	34.61	9.92
	22	UP	.408	.400	392.4	30.43	7.68
	23	UP	.251	.241	227.1	28.77	8.09
	24	270°	.296	.297	292.7	90.94	32.57
	25	360°	.350	.348	332.9	79.58	22.32
	26	270°	.385	.384	375.8	96.53	37.55
El Centro - Imperial County Services Bldg	1	360°	.557	.546	531.3	62.80	17.36
	2	360°	.565	.566	551.6	63.55	17.58
	3	360°	.588	.584	569.4	72.54	18.92
	4	90°	.481	.460	443.9	98.14	33.46
	5	90°	.260	.274	258.2	83.32	29.57
	6	90°	.291	.285	268.5	74.88	28.48
	7	360°	.358	.363	355.8	44.72	16.98
	8	360°	.319	.316	307.4	45.67	17.06
	9	360°	.767	.645	641.9	51.53	14.50
	10	360°	.347	.337	330.6	43.26	14.52
	11	360°	.291	.290	284.0	42.42	16.04
	12	UP	.186	.184	174.3	16.19	7.01
	13	90°	.319	.327	325.0	64.59	27.41
El Centro - Imperial County Center - Ground	1	92°	.237	.237	231.4	64.38	28.24
	2	UP	.266	.251	230.9	17.40	7.98
	3	2°	.243	.213	209.0	36.20	16.43
Westmorland	1	180°	.106	.112	107.4	21.13	7.44
	2	UP	.085	.086	84.4	7.09	2.59
	3	90°	.081	.076	73.0	19.79	12.35
aftershock*	1	180°	.161	.156	141.8	10.14	2.62
	2	UP	.120	.117	94.5	2.79	0.92
	3	90°	.088	.114	110.0	11.44	6.14
Niland	1	90°	.100	.111	106.1	12.16	5.30
	2	UP	.028	.035	33.2	3.95	1.93
	3	360°	.074	.070	66.3	8.04	4.01

* Time of Aftershock recorded by Westmorland station is unknown.

REFERENCES

- Allawh, Nabil, 1979, A study of the behavior of the Imperial County Services Building during 1979 Imperial Valley earthquake: CE 299 Report, SESM Division of Civil Engineering, University of California, Berkeley, California.
- Altman, Rodrigo, 1982, Elastic time history analysis of the Imperial County Services Building seismic performance: CE 299 Report, SESM Division of Civil Engineering, University of California, Berkeley, California.
- Basili, M., and Brady, A.G., 1978, Low-frequency filtering and the selection of limits for accelerogram corrections: European Conference on Earthquake Engineering, 6th, Dubrovnik, Yugoslavia, 1978, Proceedings, p. 251-258.
- Brady, A.G., Mork, P.N., Perez, V., and Porter, L.D., Processed data from the Gilroy array and Coyote Creek records from the Coyote Lake earthquake of 6 August 1979: CDMG Preliminary Report 24; U.S. Geological Survey Open-File Report 81-42.
- Brady, A.G., Perez, V., and Mork, P.N., 1980, The Imperial Valley earthquake, October 15, 1979: U.S. Geological Survey Open-File Report 80-703.
- Brady, A.G., Perez, V., and Mork, P.N., 1982, Digitization and processing of main-shock ground-motion data from the U.S. Geological Survey accelerograph network: U.S. Geological Survey Professional Paper 1254, p. 385-406.
- Carr, A.J., Moss, P.J., and Pardoan, G.C., 1978, Imperial County Services Building - elastic and inelastic response analyses: Department of Civil Engineering, Research Report ISSN 0110-3326, University of Canterbury, Christchurch, New Zealand.
- Cramer Lisiecki, L.C., 1982, Analysis of the Meloland Overcrossing response to the October 15, 1979 Imperial Valley earthquake: School of Engineering, University of California, Irvine, California.
- Etemadieh, Farhad, 1982, Response analysis of the Imperial County Services Building during 1979 Imperial Valley earthquake: CE 299 Report, SESM Division of Civil Engineering, University of California, Berkeley, California.
- Fletcher, J.B., Brady, A.G., and Hanks, T.C., 1979, Strong-motion accelerograms of the Oroville, California, aftershocks: data processing and the aftershock of 0350 August 6, 1975: Bulletin of the Seismological Society of America, v. 70, no. 1, p. 243-267.

- Hall, J.F., 1983, Engineering features and studies from the Imperial County earthquake of October 15, 1979: California Institute of Technology (under preparation).
- Hudson, D.E., 1976, Strong-motion earthquake accelerograms; index volume: Earthquake Engineering Research Laboratory Report EERL 76-02, California Institute of Technology, Pasadena.
- Kreger, M.E., and Sozen, M., 1983, Elementary study of the response of the Imperial County Services Building: Structural Series, University of Illinois, Urbana, Illinois (under preparation).
- McJunkin, R.D., and Ragsdale, J.T., 1980 Compilation of strong-motion records and preliminary data from the Imperial Valley earthquake of 15 October 1979: CDMG Preliminary Report 26.
- Pardoen, G.C., 1978, Analytical and experimental investigation of structural response-the Imperial County Services Building: School of Engineering, University of California, Irvine Final Report - PFR78-22863.
- Pauschke, J.M., Oliveria, C.S., Shah, H.C., and Zsutty, T.C., 1981, A preliminary investigation of the dynamic response of the Imperial County Services Building during the October 15, 1979 Imperial Valley earthquake: The John A. Blume Earthquake Engineering Center, Stanford University, Stanford, California.
- Porter, L.D., 1982 Data processing procedures for main-shock motions recorded by the California Division of Mines and Geology strong-motion network: U.S. Geological Survey, Professional Paper 1254, p. 407-431.
- Porter, L.D., Brady, A.G., Mork, P.N., and Perez, V., 1983, Processed data from the San Juan Bautista 101/156 separation bridge and the San Juan Bautista freefield records, Coyote Lake earthquake 6 August 1979: CDMG Special Publication 64.
- Porter, L.D., Brady, A.G., and Roseman, W.R., 1979, Computer reassembly of multi-frame accelerograms (abstract): Seismological Society of America Annual Meeting, Golden, Colorado.
- Ragget, J.D., and Rojahn, C., 1978, Use and interpretation of strong-motion records from highway bridges: Federal Highway Administration Report No. FHWA-RD-78-158, 168 p.
- Real, C.R., McJunkin, R.D., and Leivas, E., 1979, Effects of Imperial Valley earthquake, California Division of Mines and Geology, California Geology, December, p. 259-265.
- Rojahn, C. and Ragsdale, J.T., 1980, Strong-motion records from the Imperial County Services Building, El Centro, in Leeds, D.J., editor, Imperial County, California, earthquake, October 15,

1979: Berkeley, California Earthquake Engineering Research Institute reconnaissance report, p. 173-184.

Rojahn, C.R., and Matthiesen, R.B., 1977, Earthquake response and instrumentation of buildings: Journal of the Technical Council, American Society of Civil Engineers, V. 103 no. TC 1, p. 1-12.

Werner, S., 1983, Seismic response characteristics of Meloland road overpass during 1979 Imperial Valley earthquake: Agbabian Associates, El Segundo (under preparation).

APPENDIX

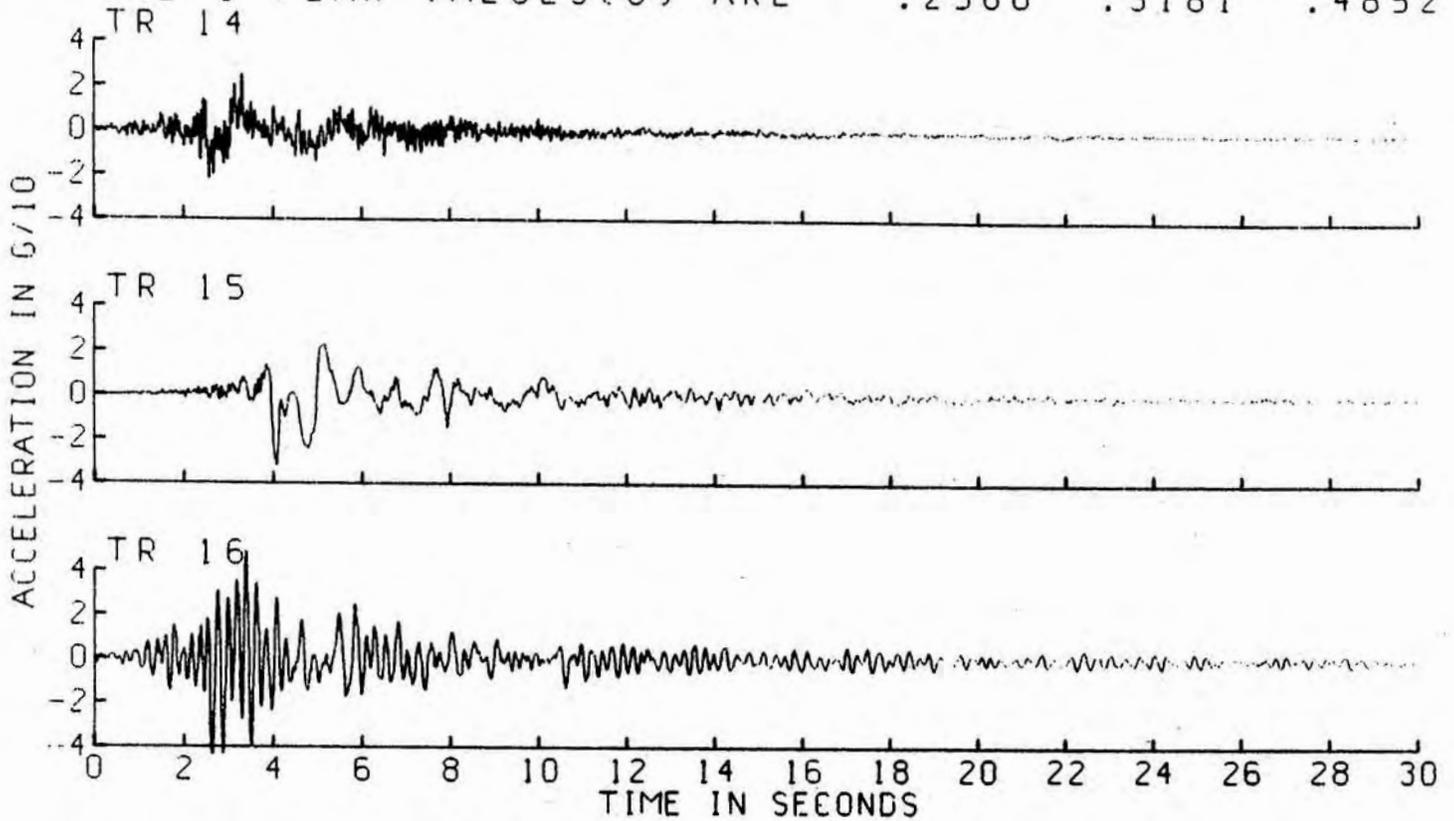
The appendix contains computer plots of the following processings of each accelerogram:

- uncorrected accelerogram (57 or 58 sec. and 15 sec. duration);
- corrected acceleration, velocity and displacement (56 sec. duration);
- response spectrum (tripartite);
- Fourier amplitude spectrum (log scale and linear scale).
- duration spectra
- spectra of amplitudes sustained for any given number of cycles

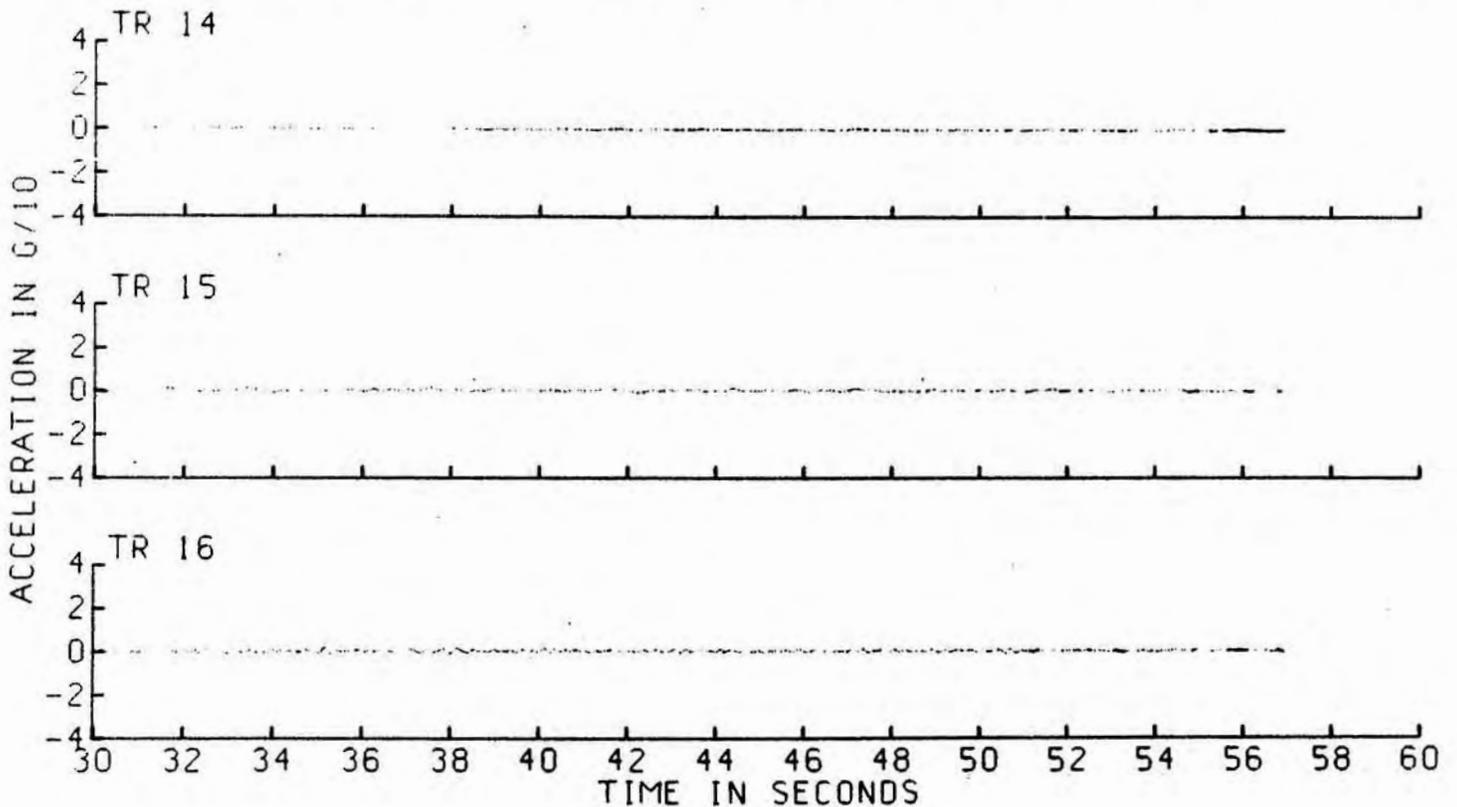
24

UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
THE 3 PEAK VALUES(G) ARE .2560 .3181 .4852



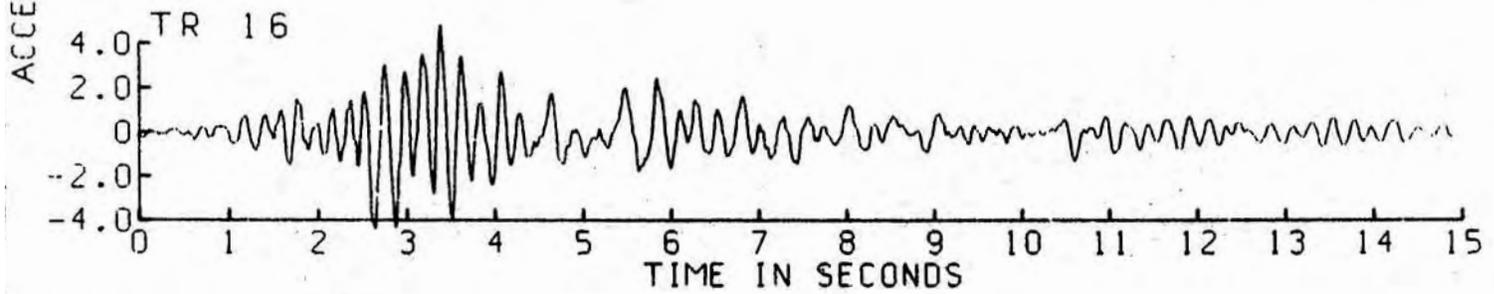
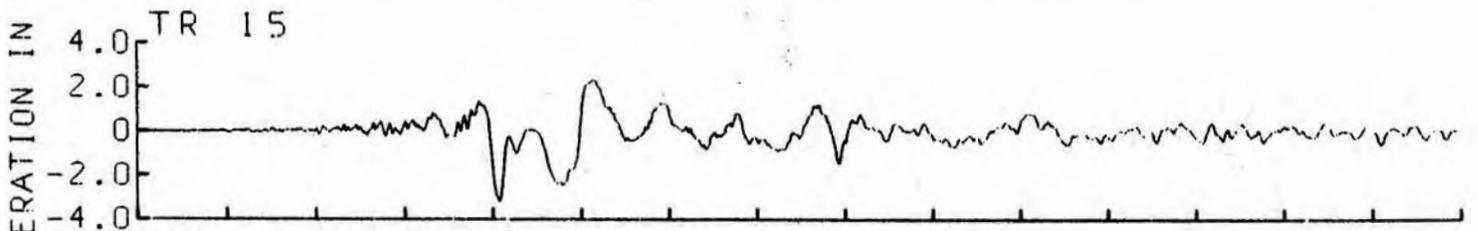
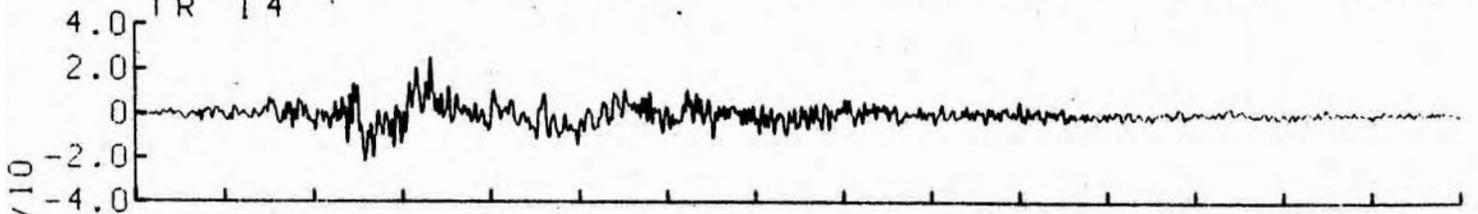
15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165



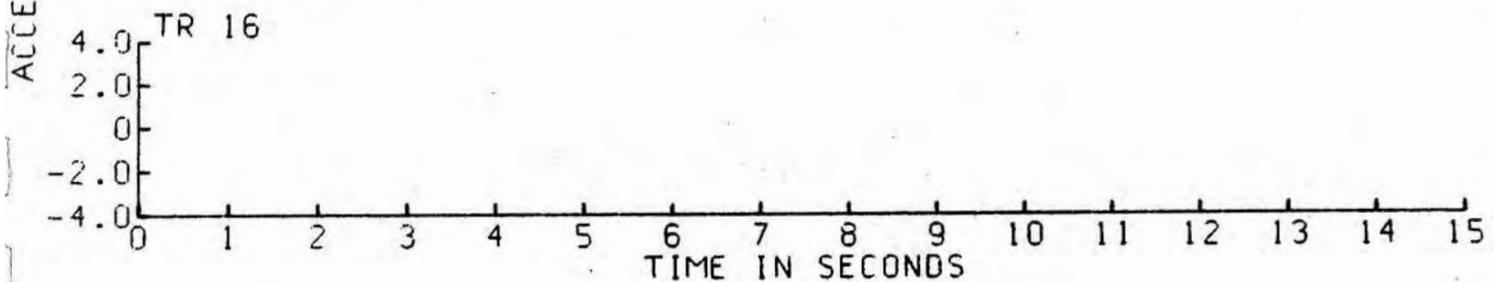
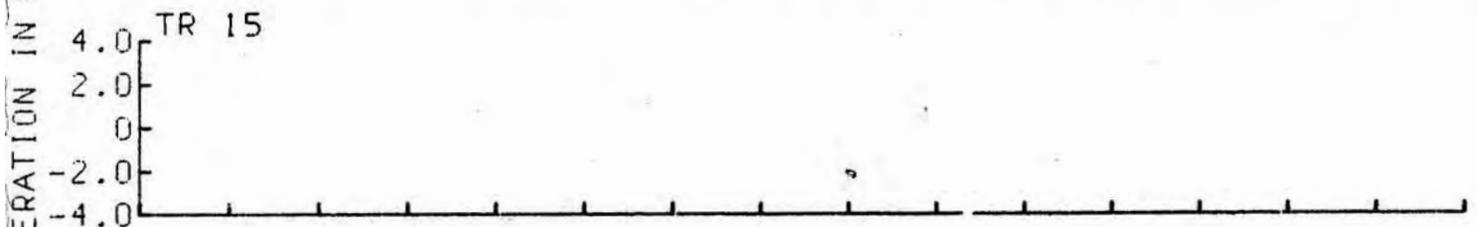
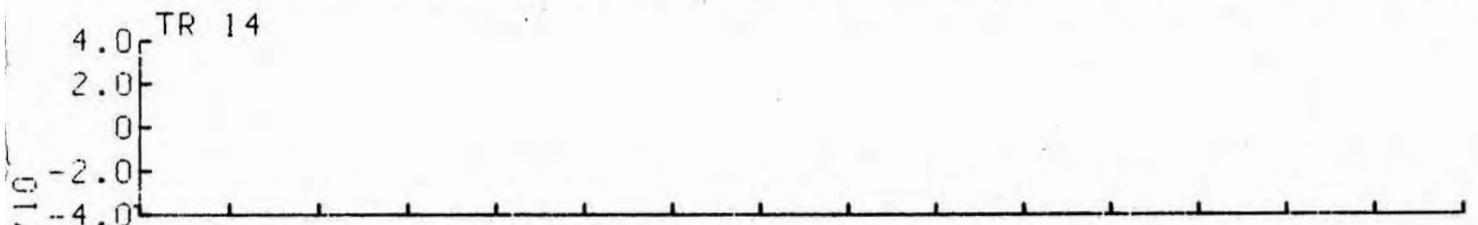
UNCORRECTED ACCELEROGRAM

25

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
THE 3 PEAK VALUES(G) ARE .2560 .3181 .4852
TR 14



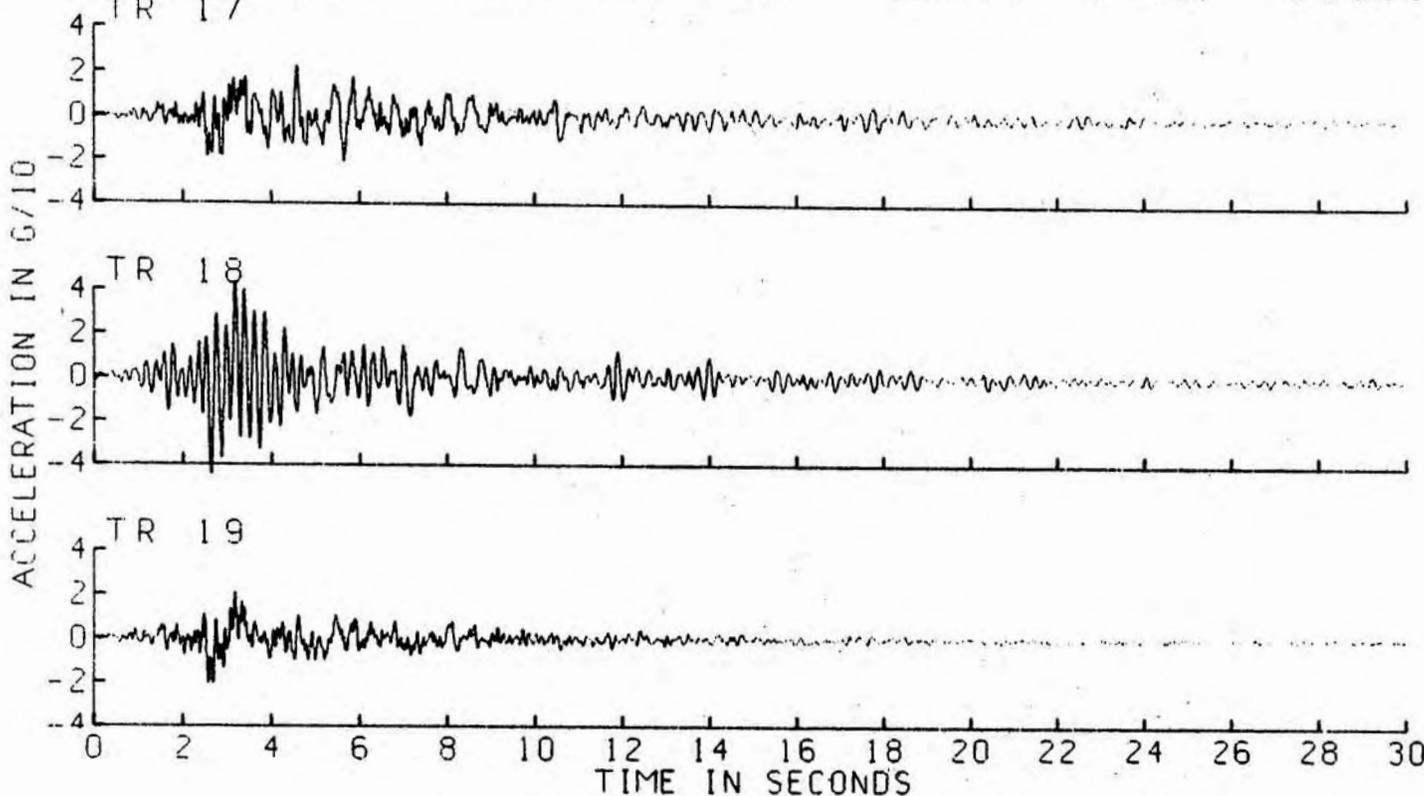
15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165



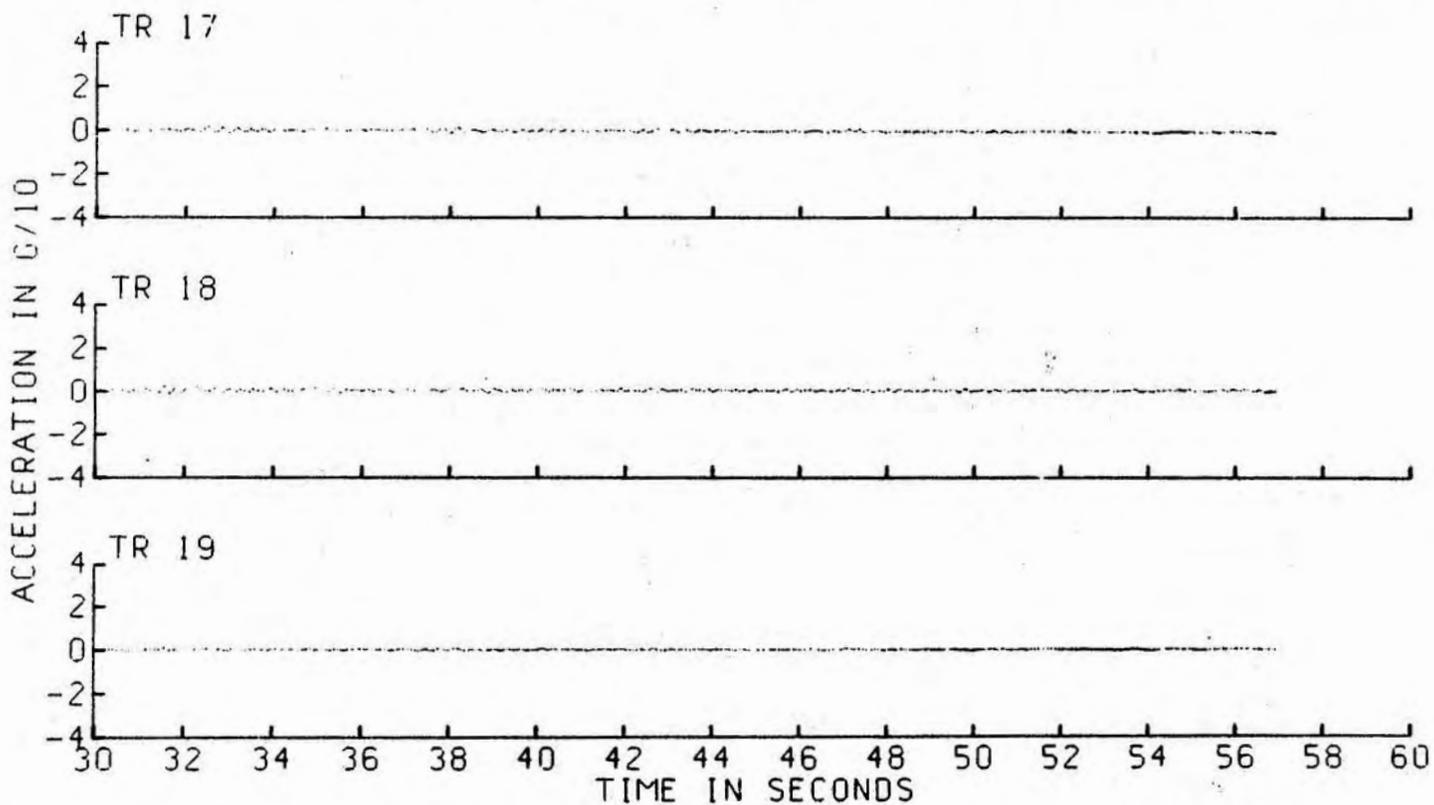
26

UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
THE 3 PEAK VALUES(G) ARE .2314 .4457 .2101
TR 17

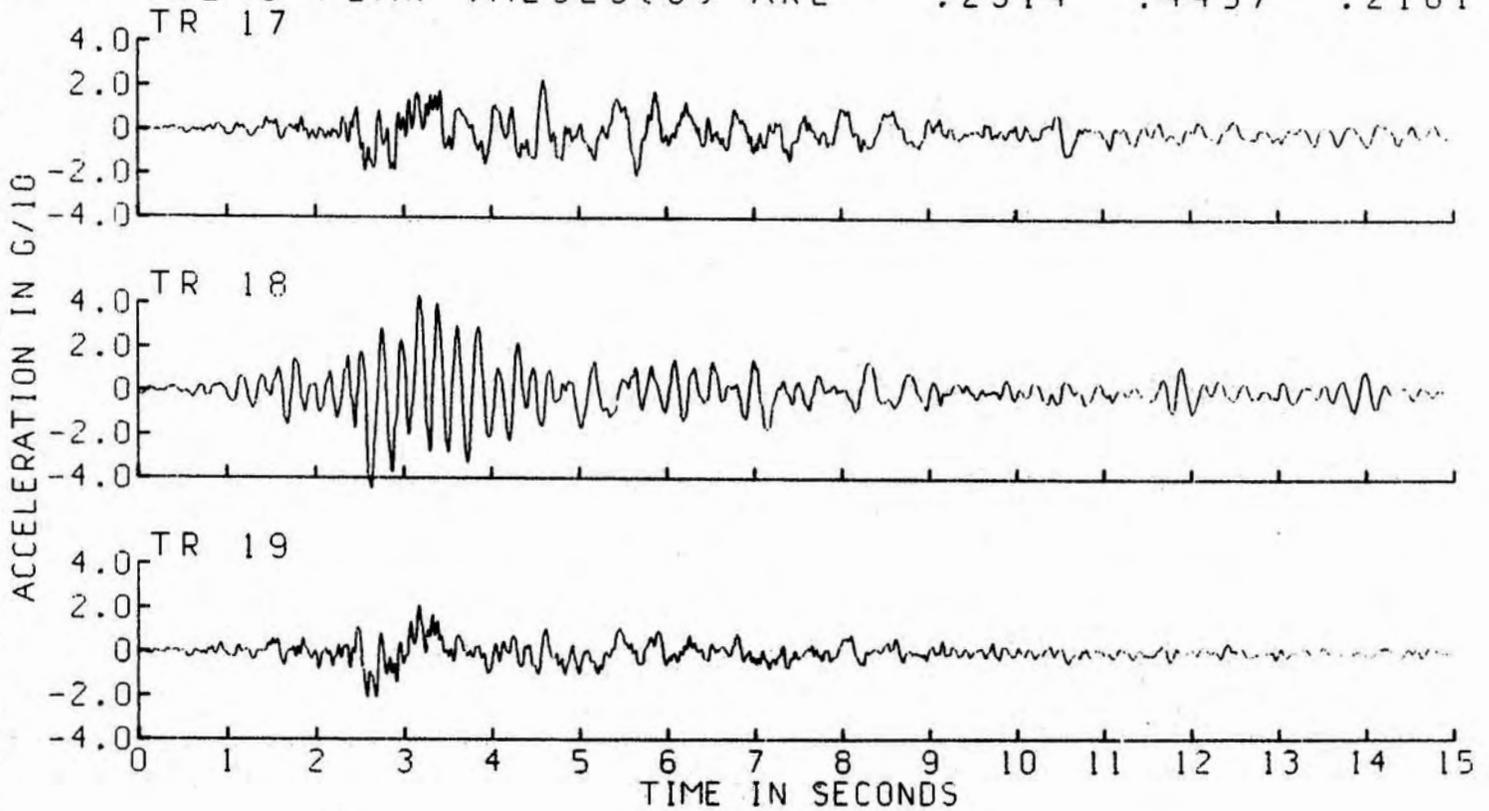


15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

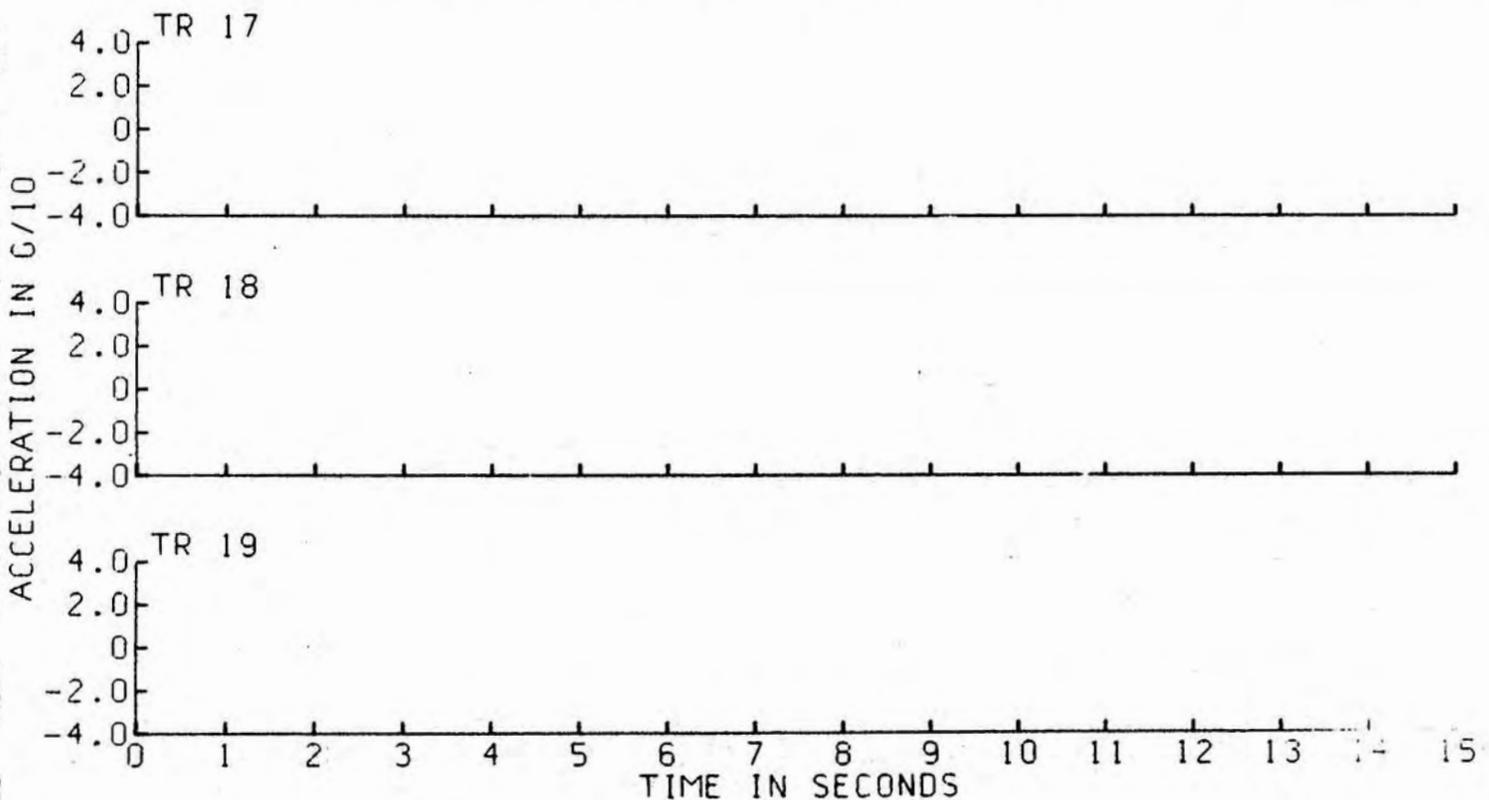


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
THE 3 PEAK VALUES(G) ARE .2314 .4457 .2101

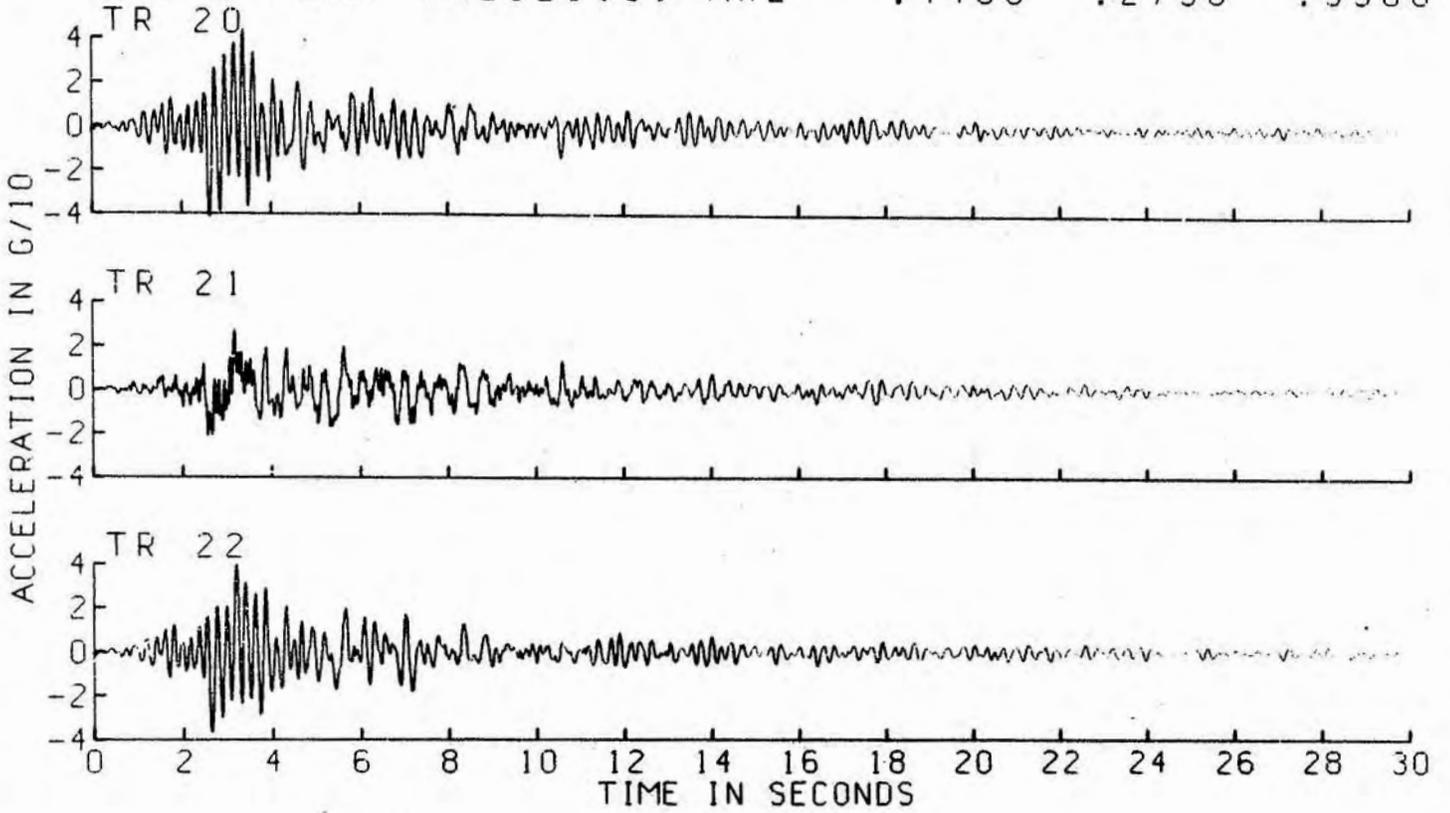


15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

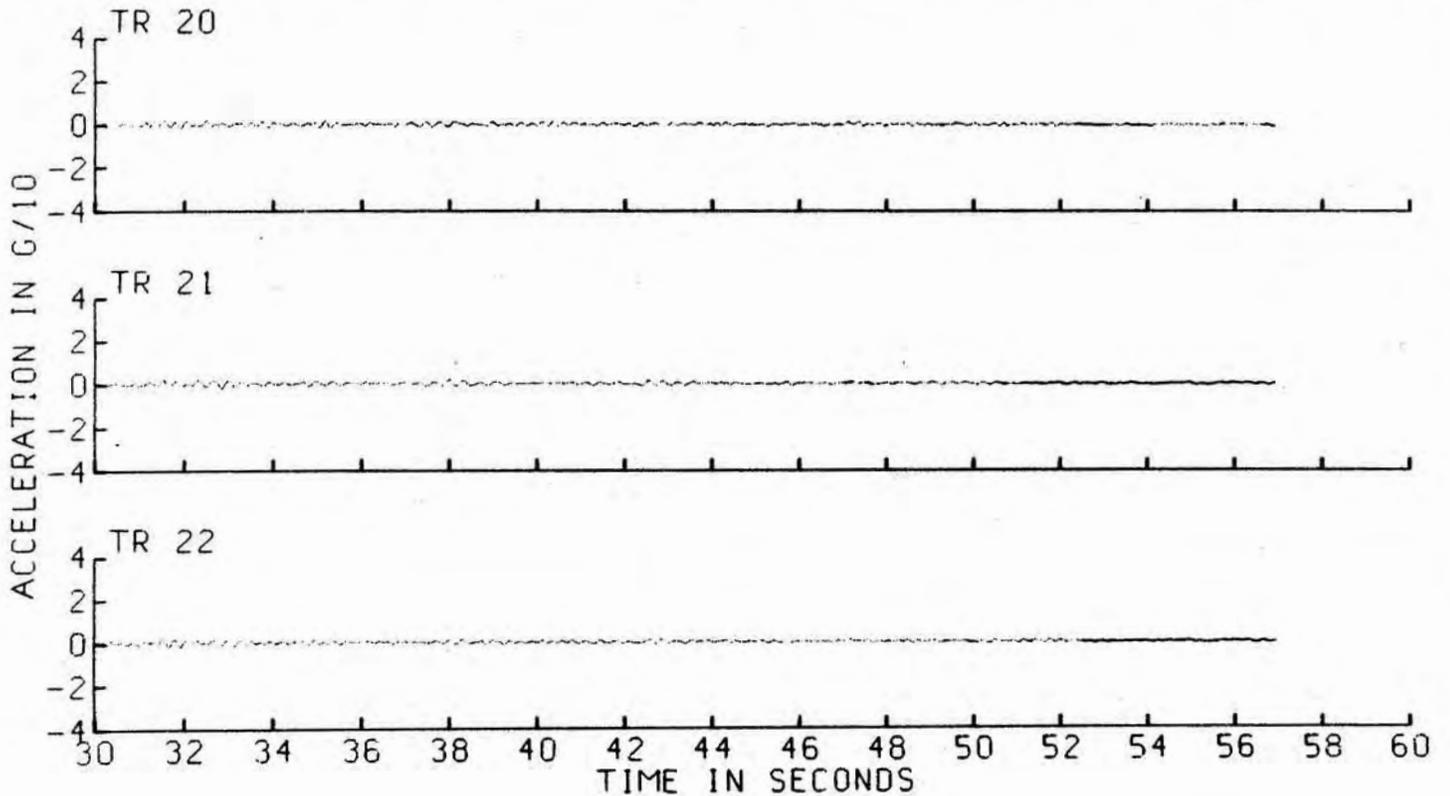


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
THE 3 PEAK VALUES(G) ARE .4486 .2730 .3988

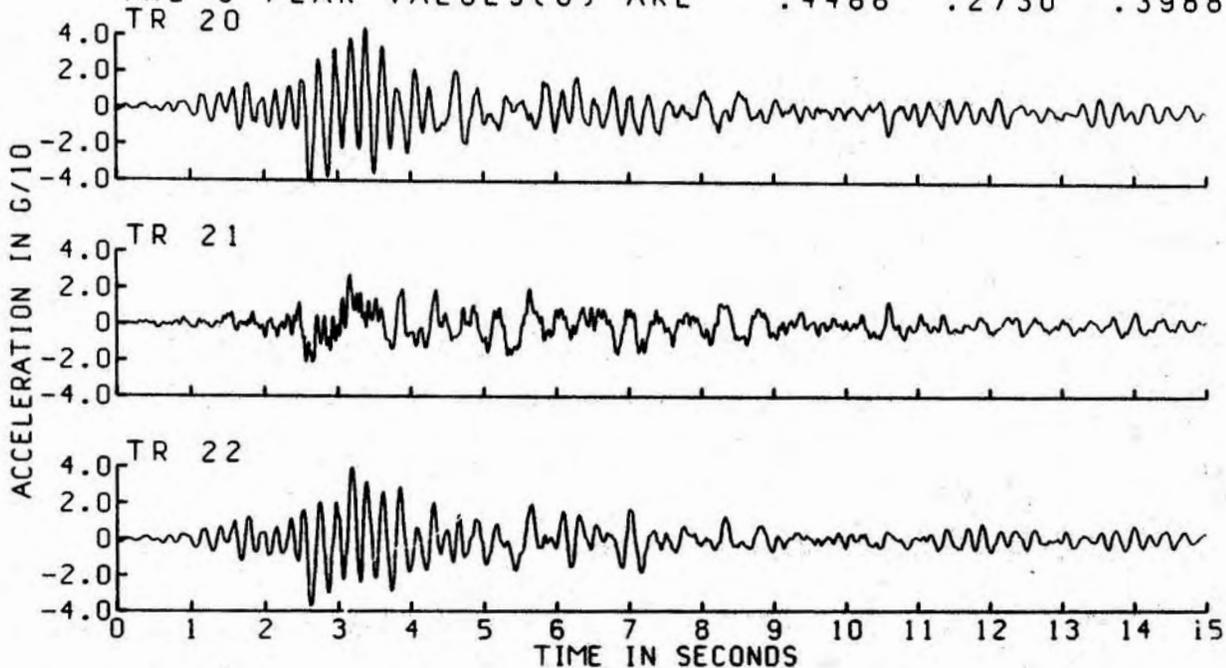


15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

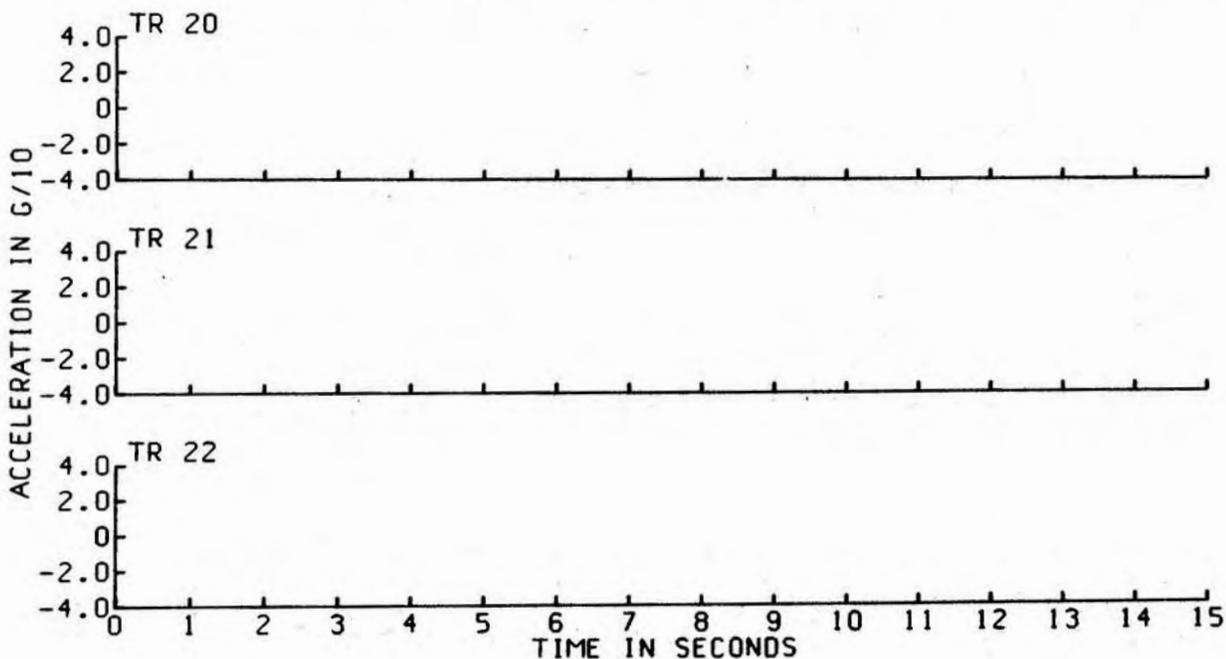


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
THE 3 PEAK VALUES(G) ARE .4486 .2730 .3988

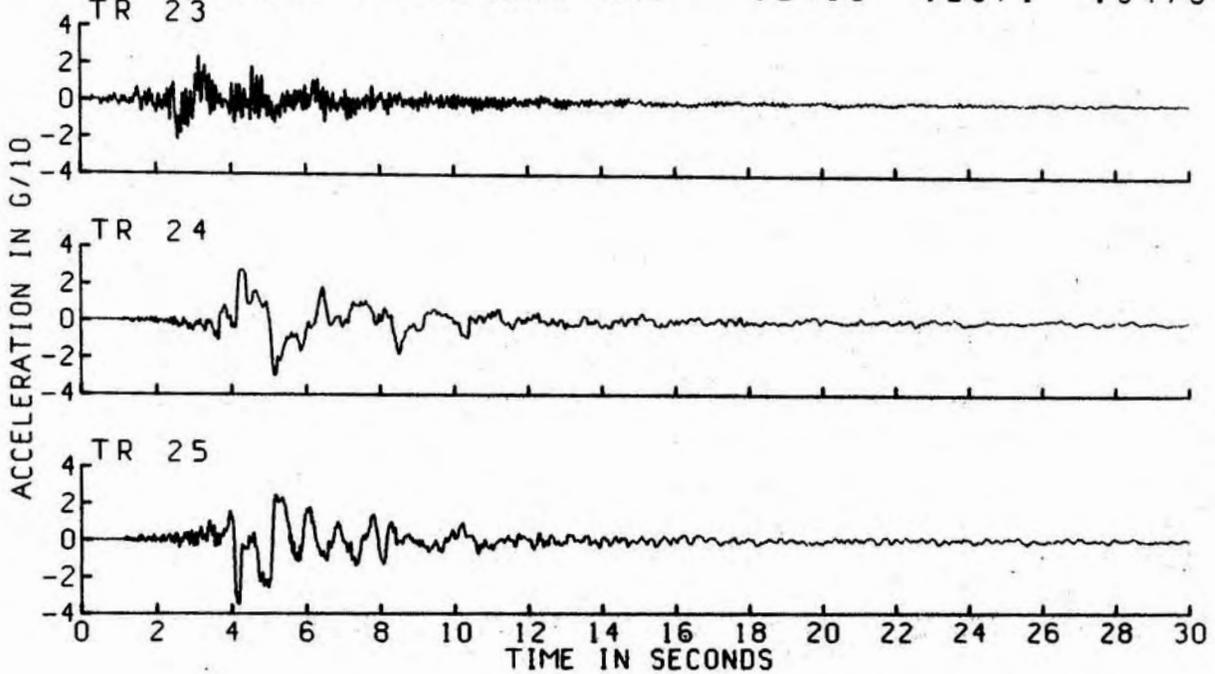


15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

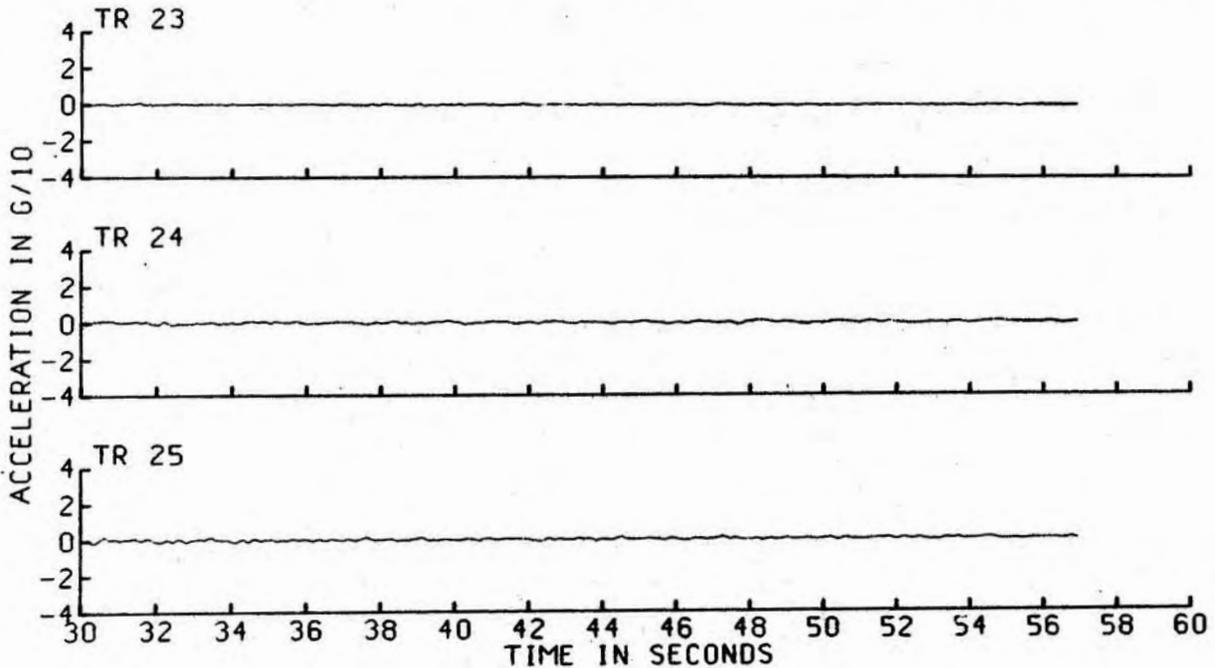


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
THE 3 PEAK VALUES(G) ARE .2408 .2971 .3476

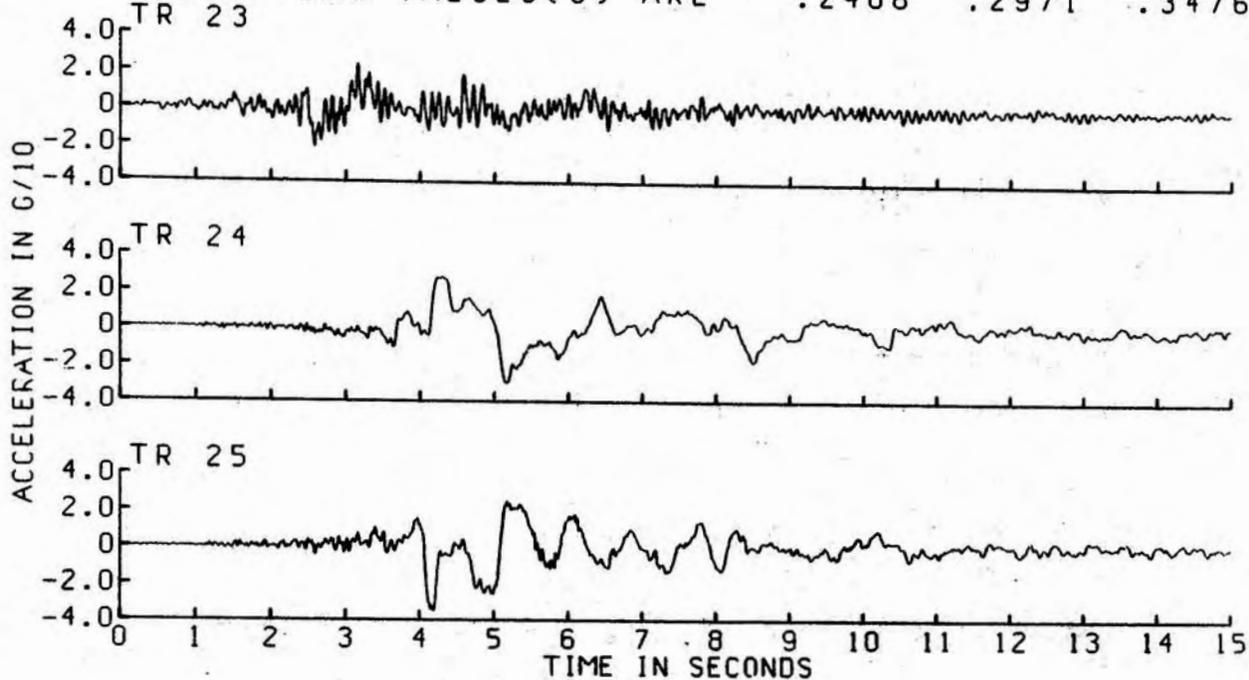


15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

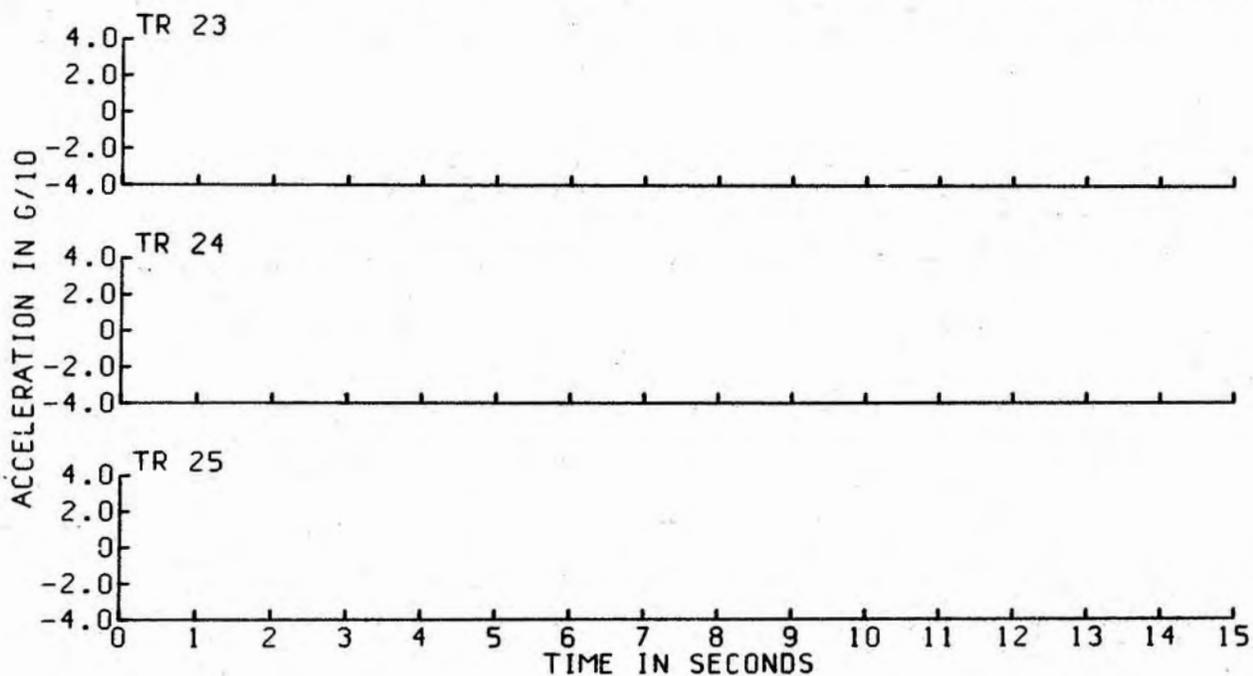


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
 THE 3 PEAK VALUES(G) ARE .2408 .2971 .3476



15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

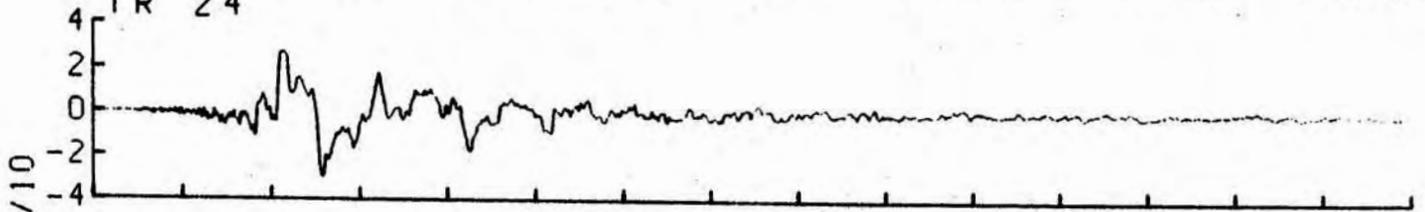


UNCORRECTED ACCELEROGRAM

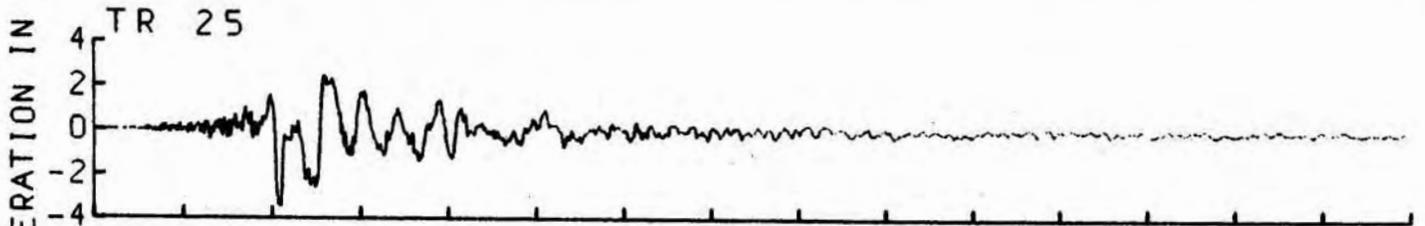
15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

THE 3 PEAK VALUES(G) ARE .2971 .3476 .3839

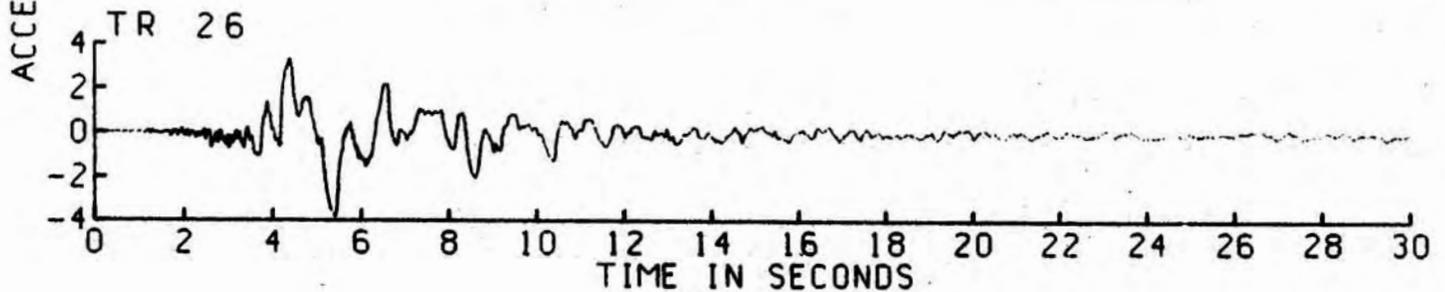
TR 24



TR 25

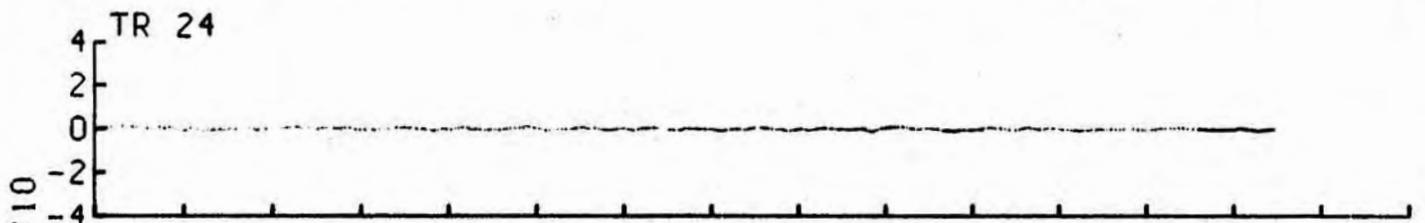


TR 26

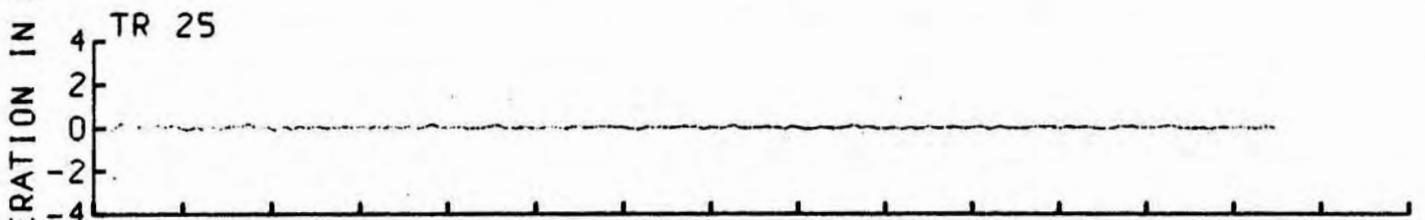


15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

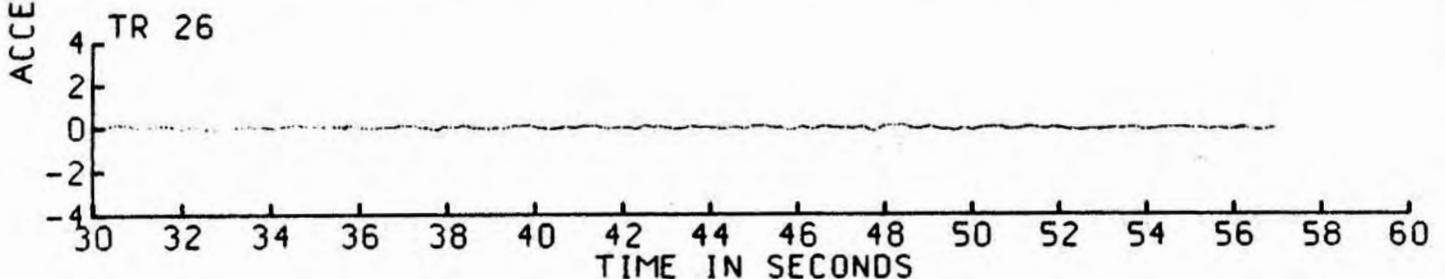
TR 24



TR 25



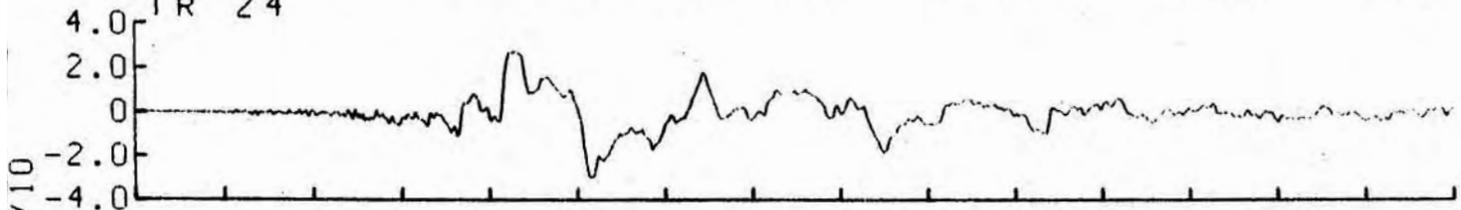
TR 26



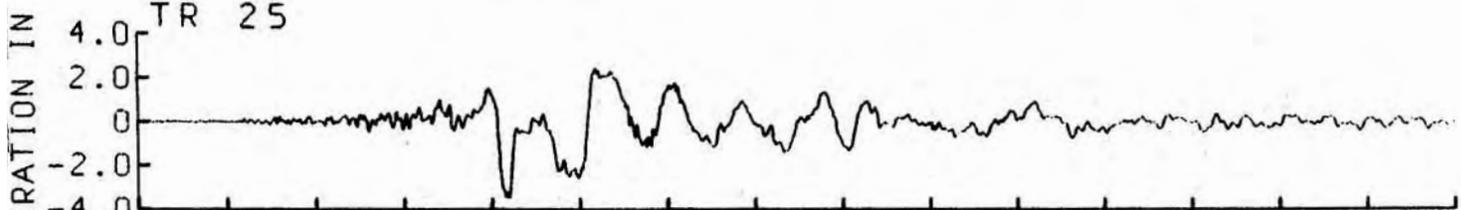
UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165
THE 3 PEAK VALUES(G) ARE .2971 .3476 .3839

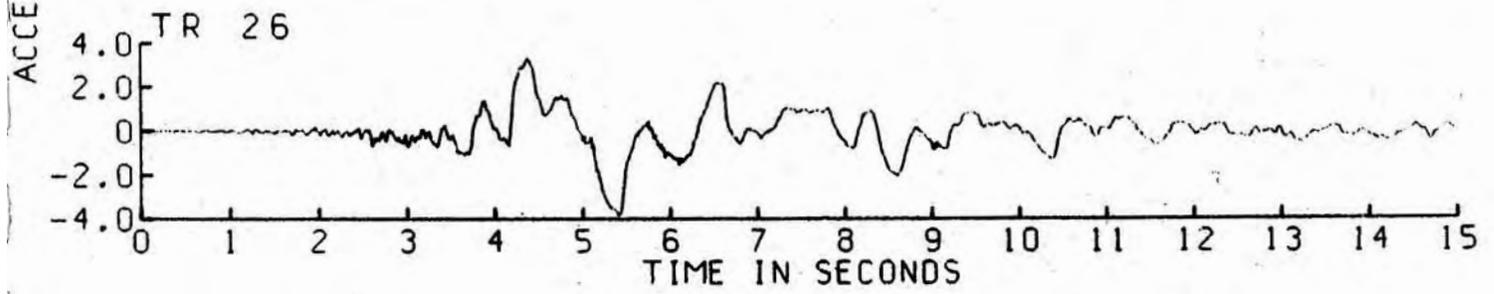
TR 24



TR 25

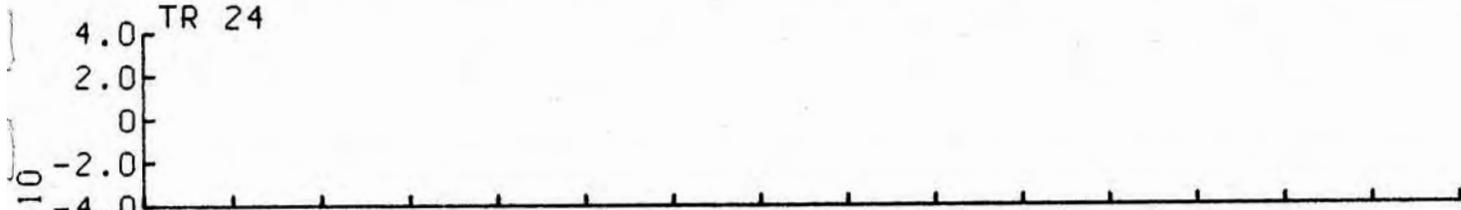


TR 26

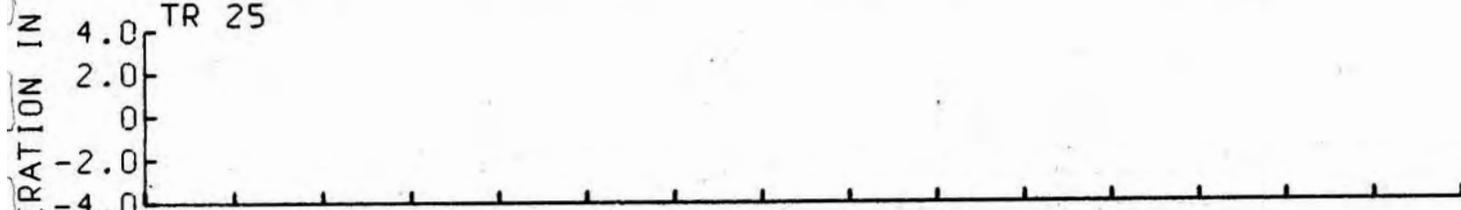


15 OCT 1979 2317 UTC DMG 336 MELOLAND SLV CRA 165

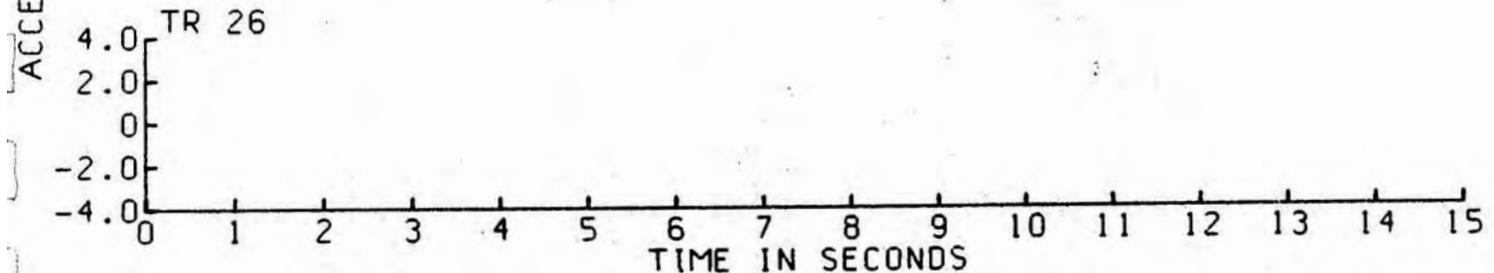
TR 24



TR 25



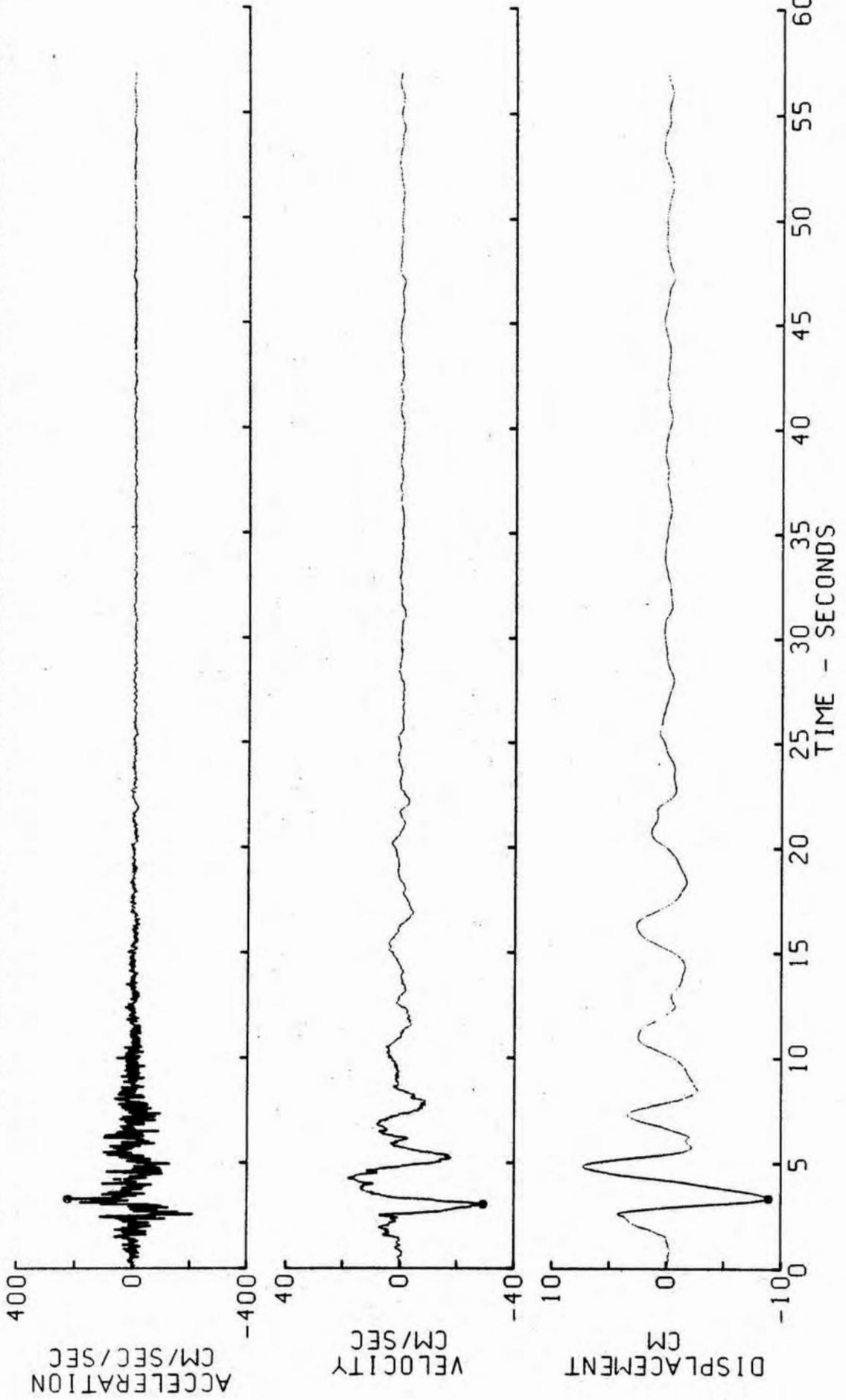
TR 26



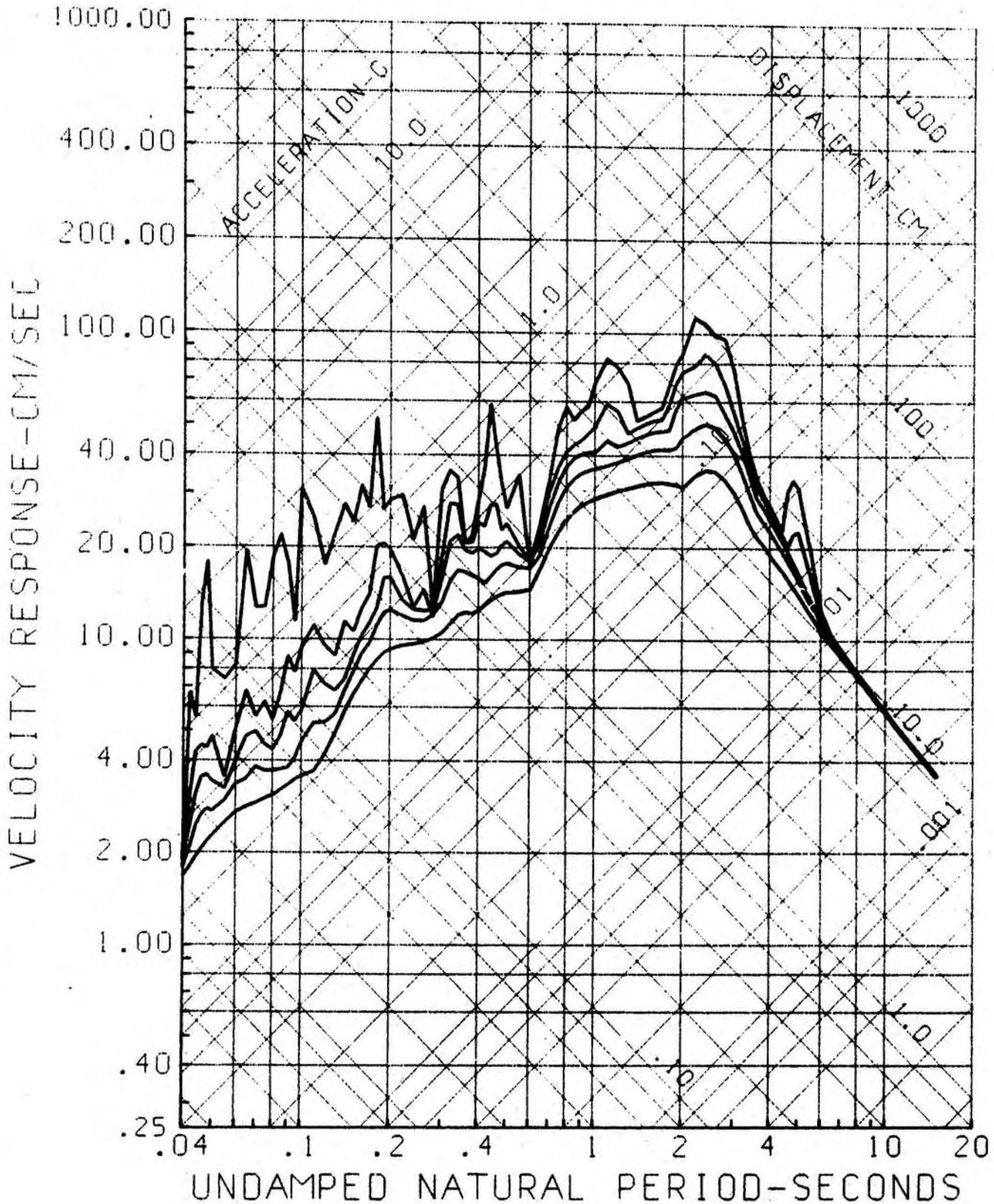
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC

DMG 336 MELOLAND SLV CRA 165 TR 14 U/GRND/W MED

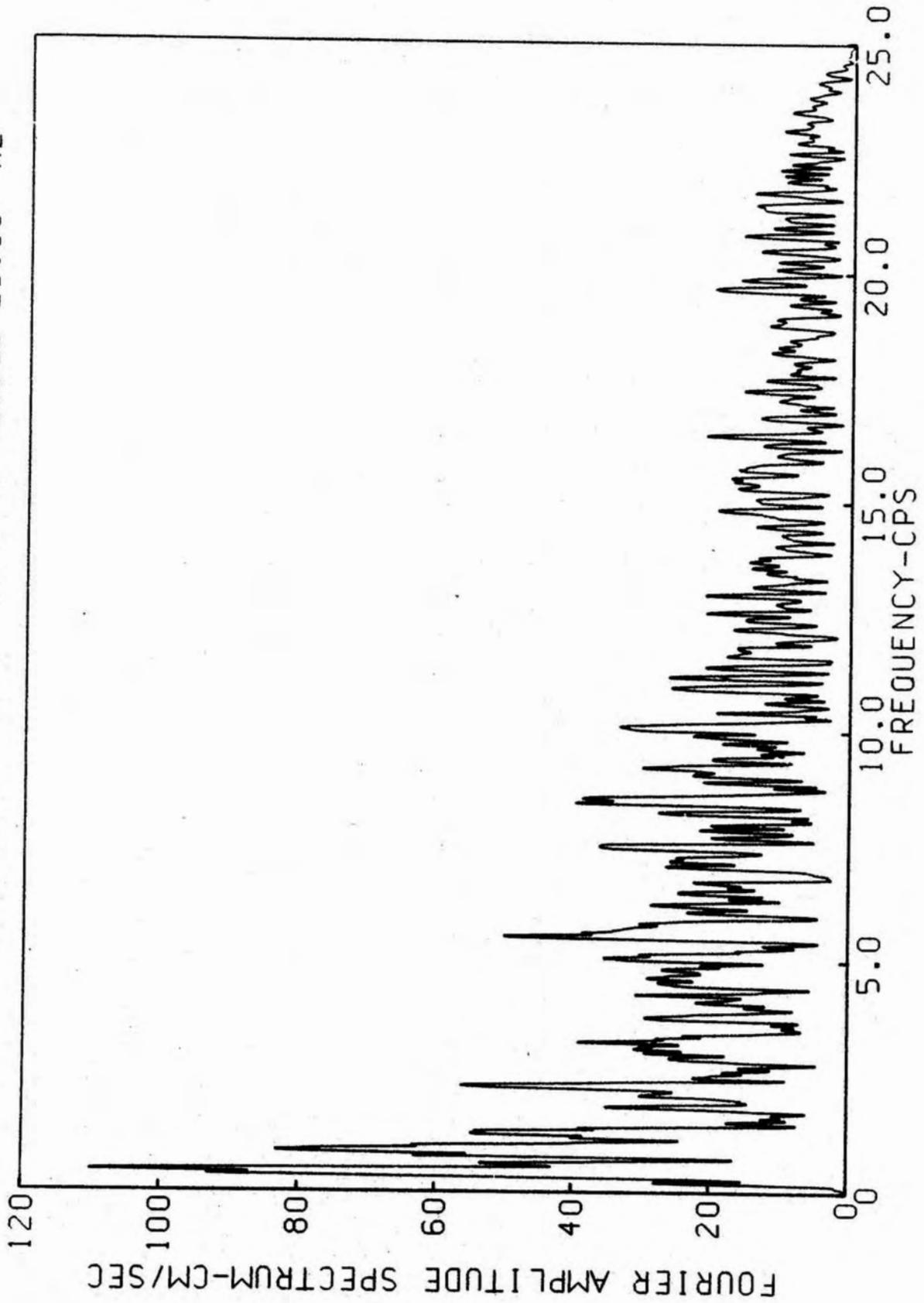
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
* PEAK VALUES ACCEL=225.1 CM/SEC/SEC, VELOCITY=-29.34 CM/SEC, DISPL=-8.930 CM



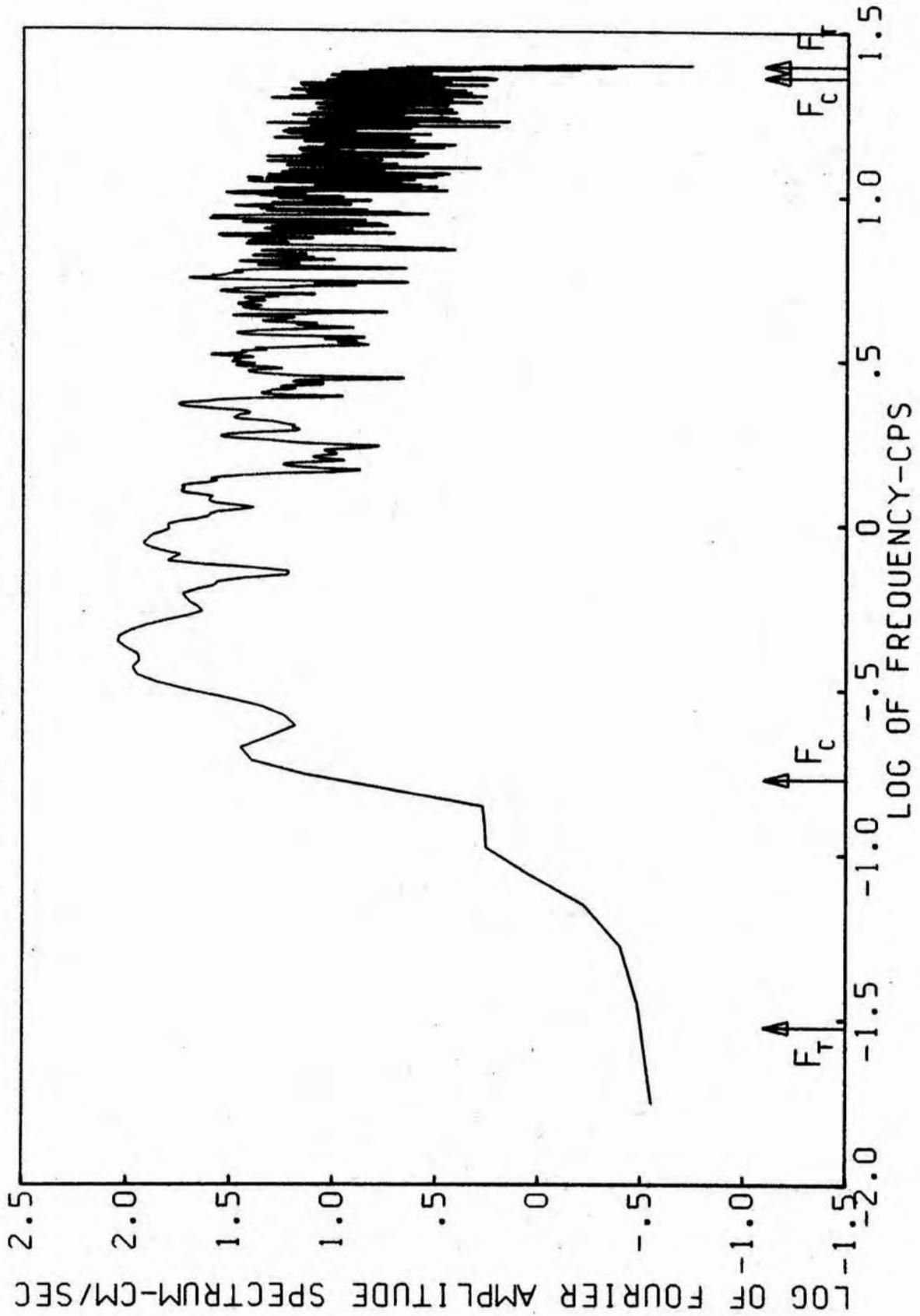
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 14
 0.2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 14 U/GRND/W MED
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



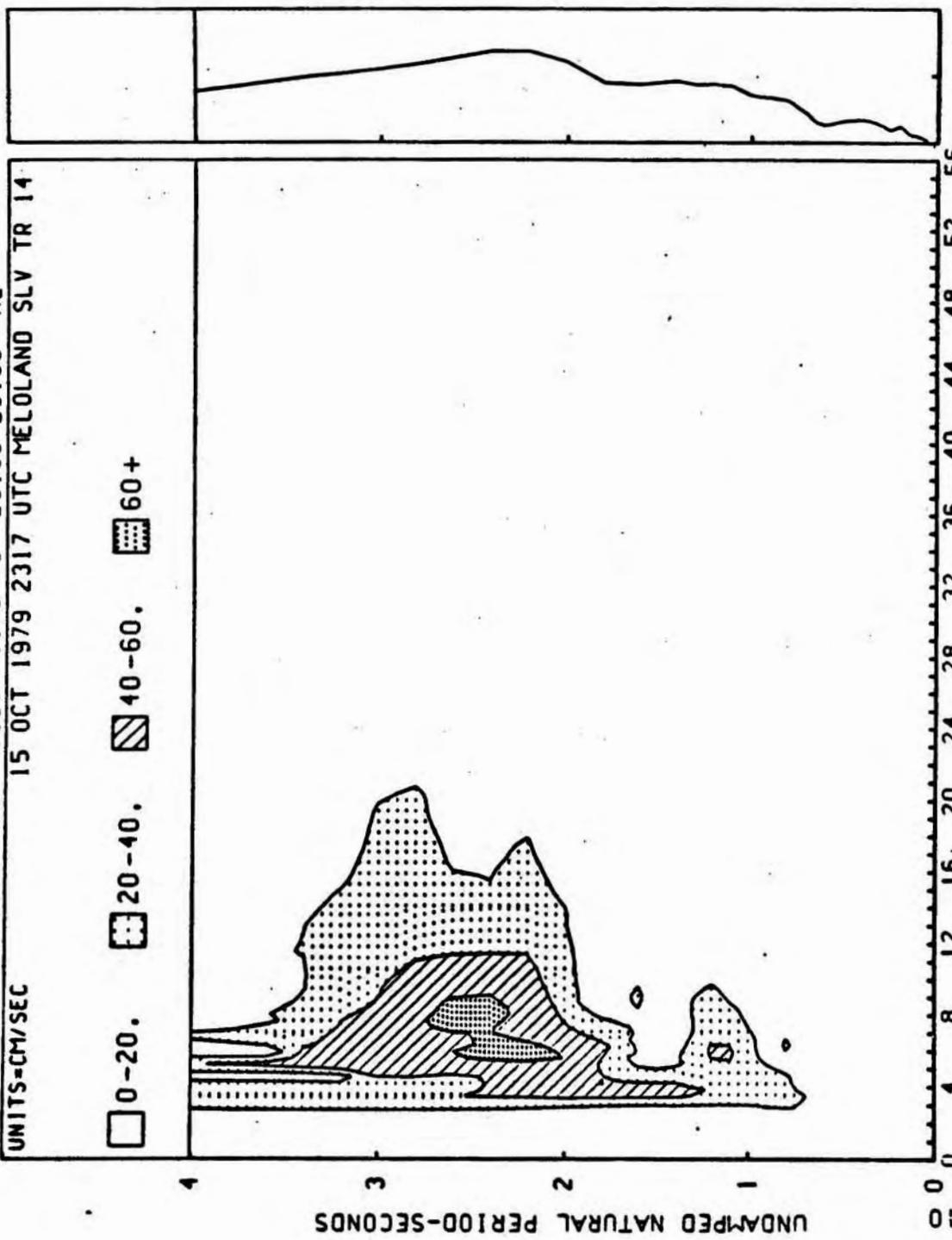
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 14 U/GRND/W MED
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

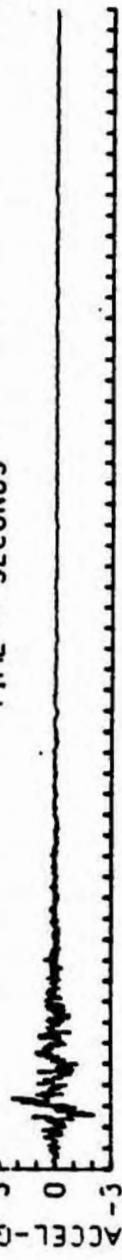
UNITS-CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 14

- 0-20.
- ▨ 20-40.
- ▩ 40-60.
- ▩ 60+

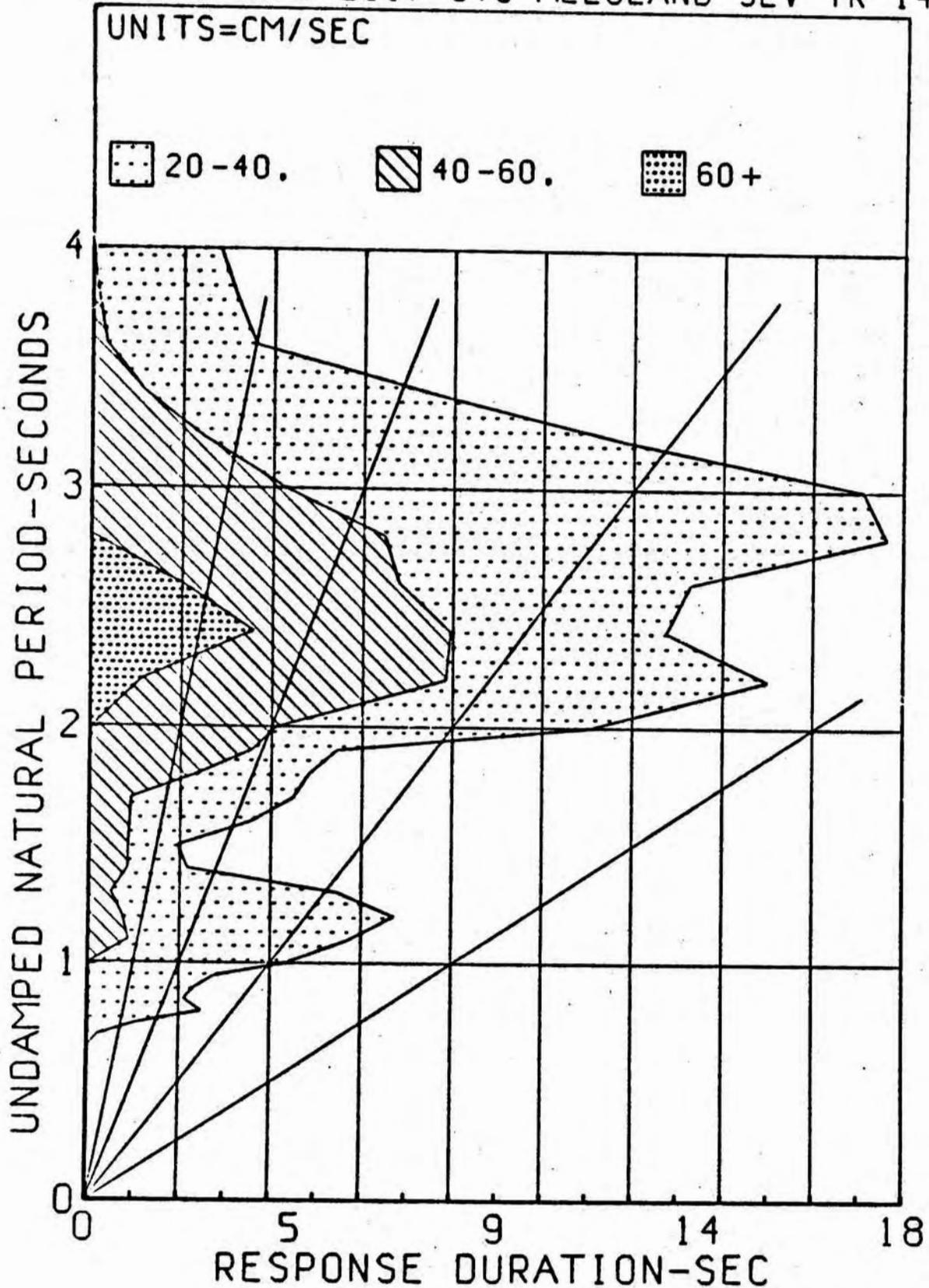


0 50 100
VELOCITY
CM/SEC

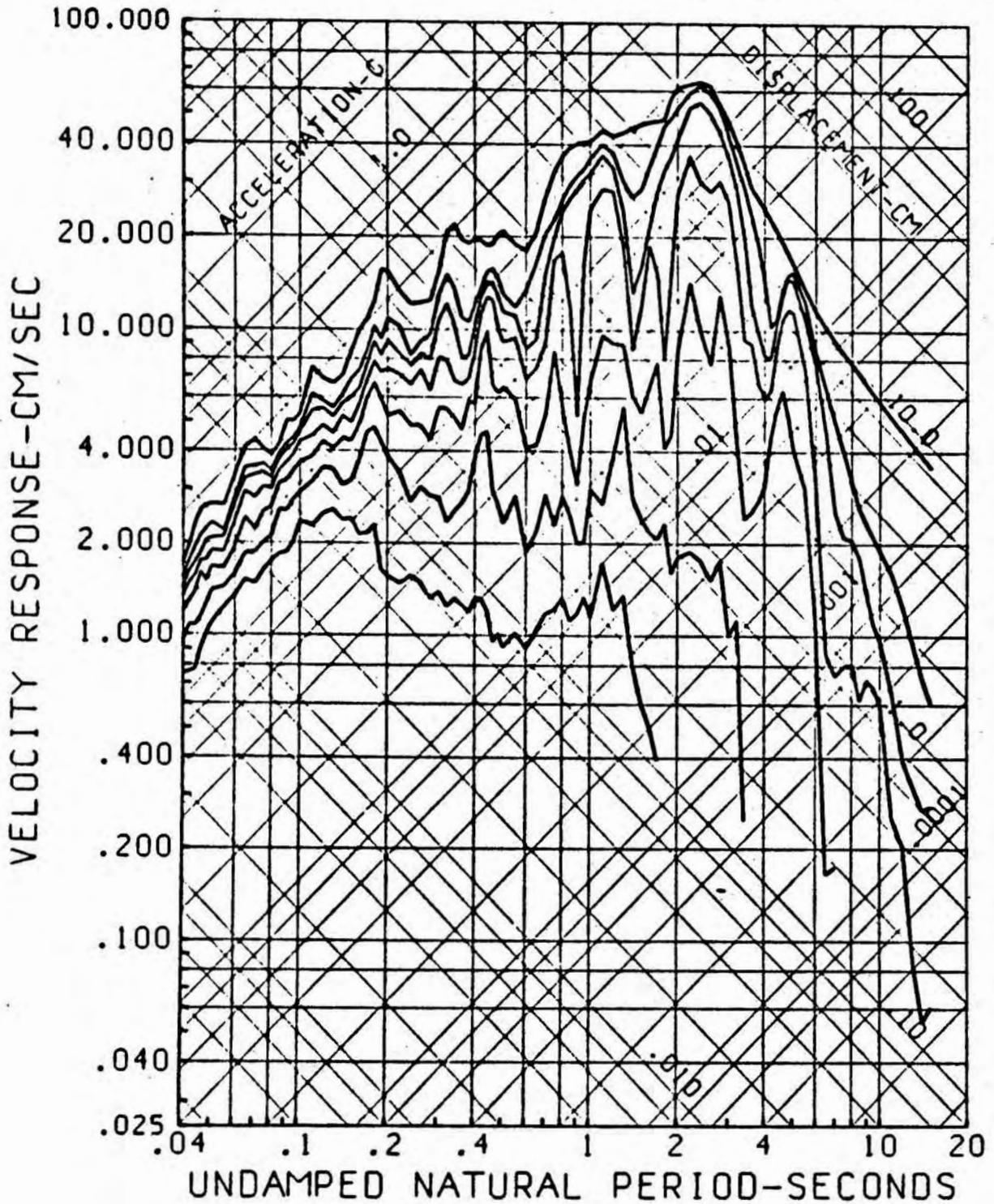
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56
TIME - SECONDS



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC MELOLAND SLV TR 14



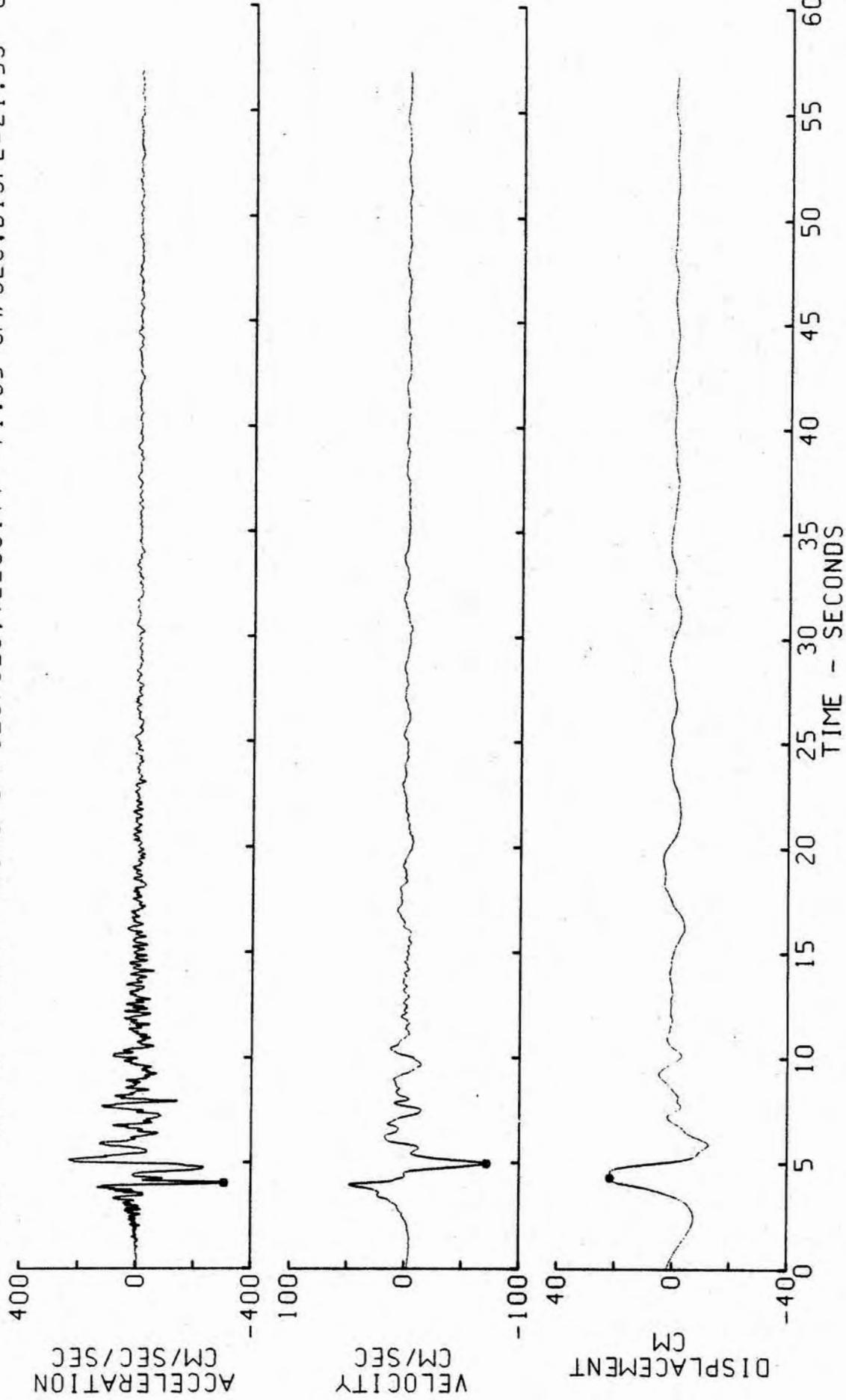
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 14
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



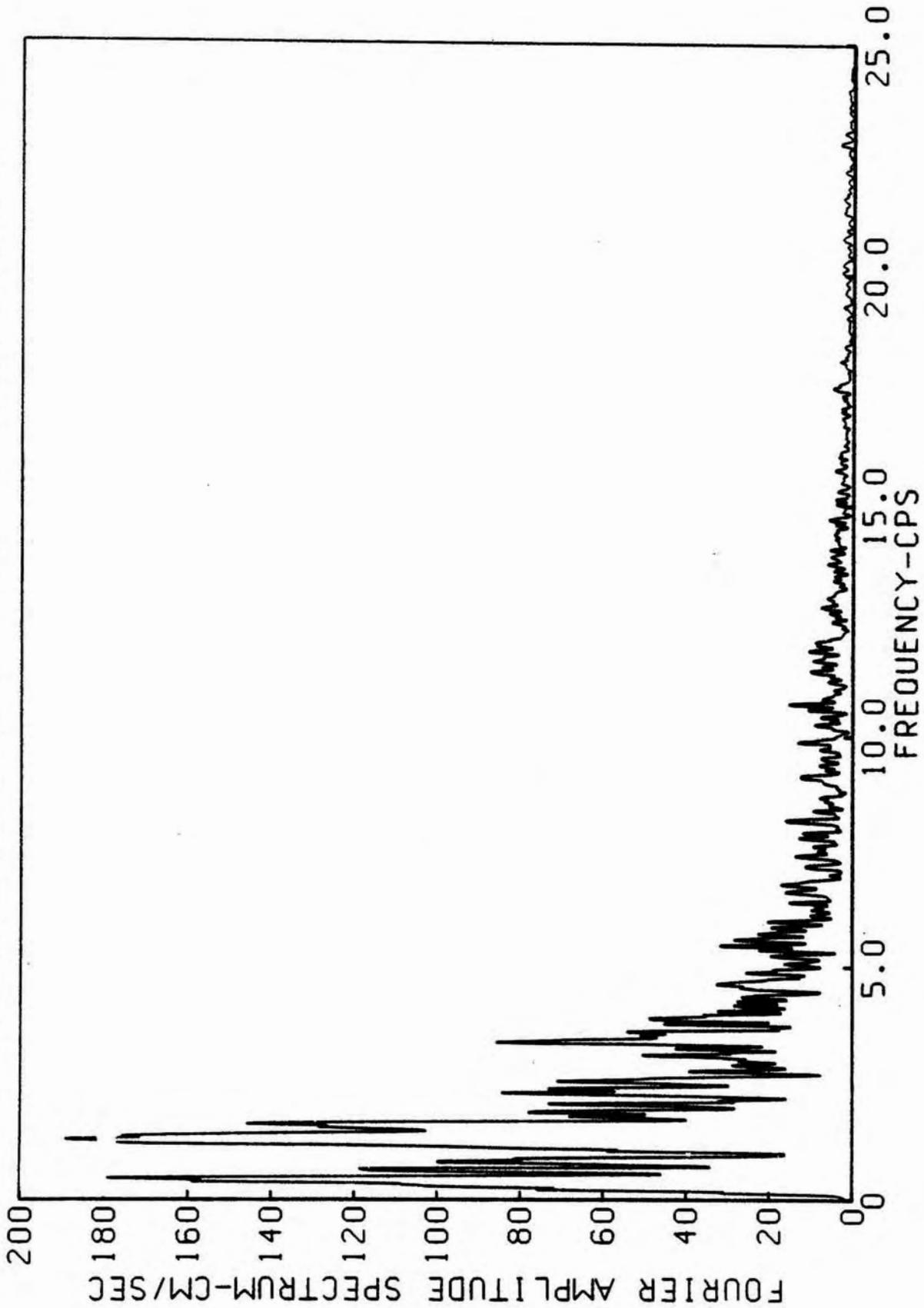
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 15 N/GRND/W MED

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

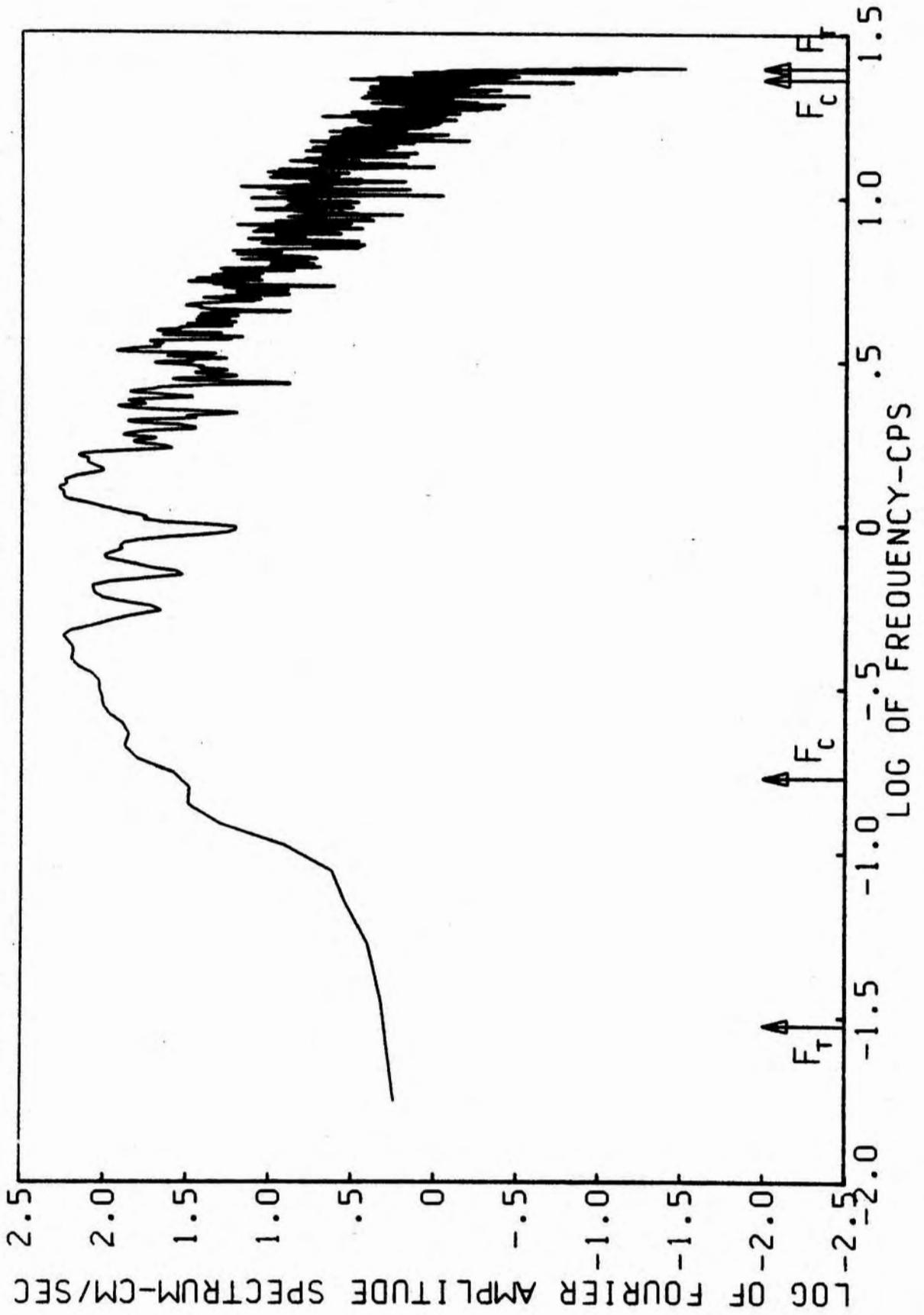
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=-305.0 CM/SEC/SEC, VELOCITY=-71.65 CM/SEC, DISPL=21.53 CM



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMC 336 MELOLAND SLV CRA 165 TR 15 N/GRND/W MED
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 15 N/GRND/W MED
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

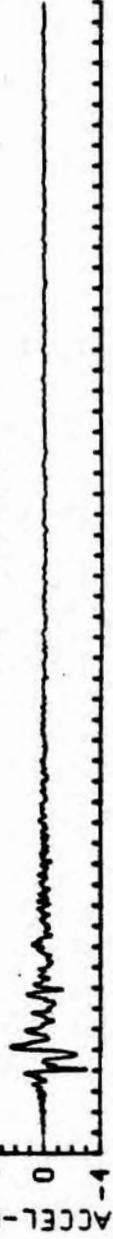
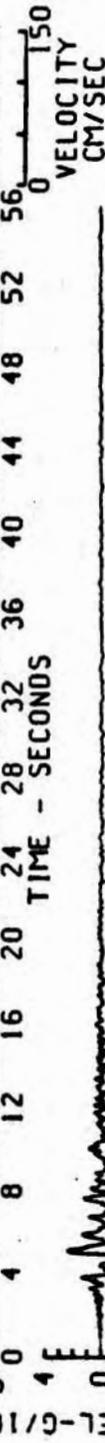
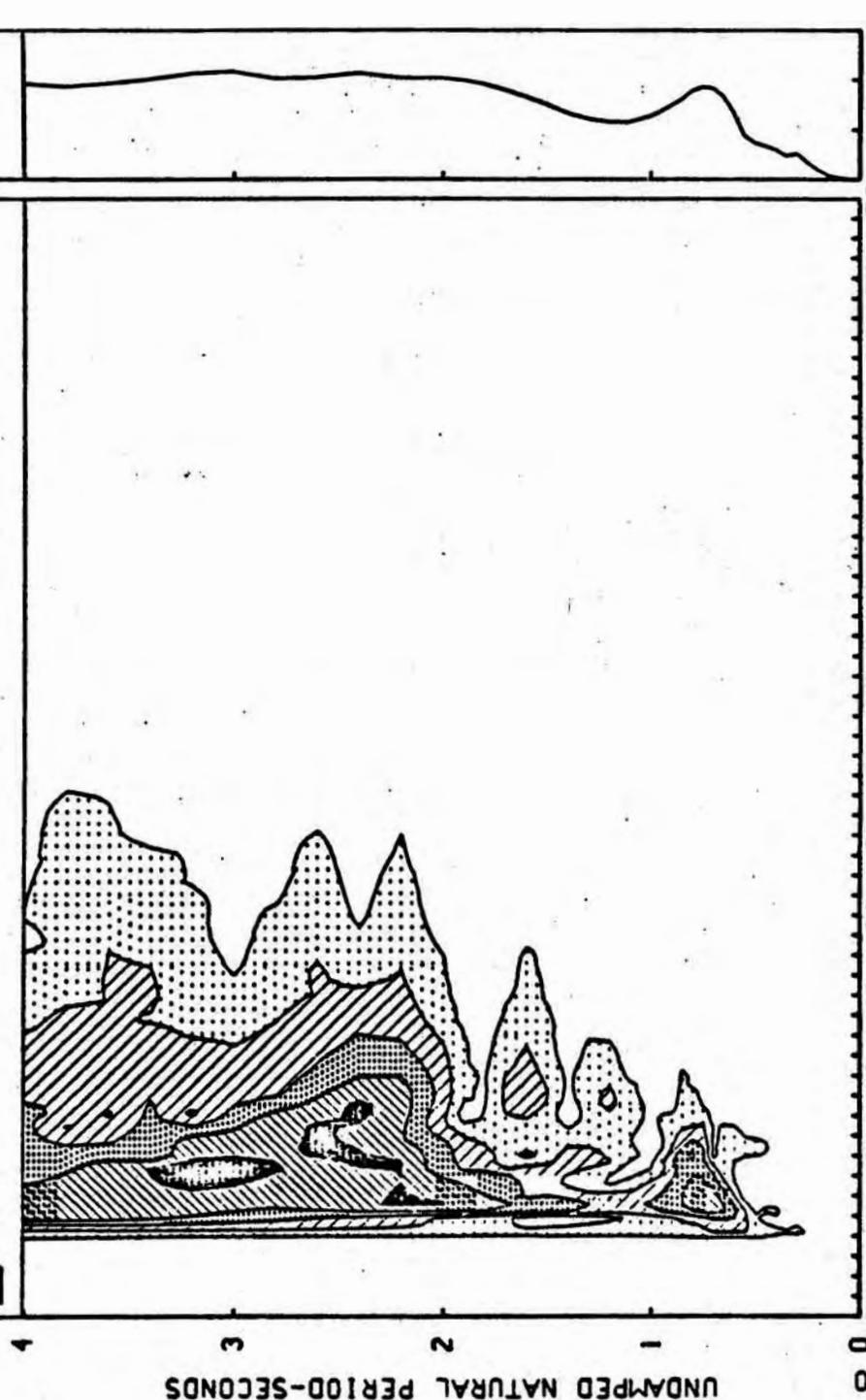


VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING

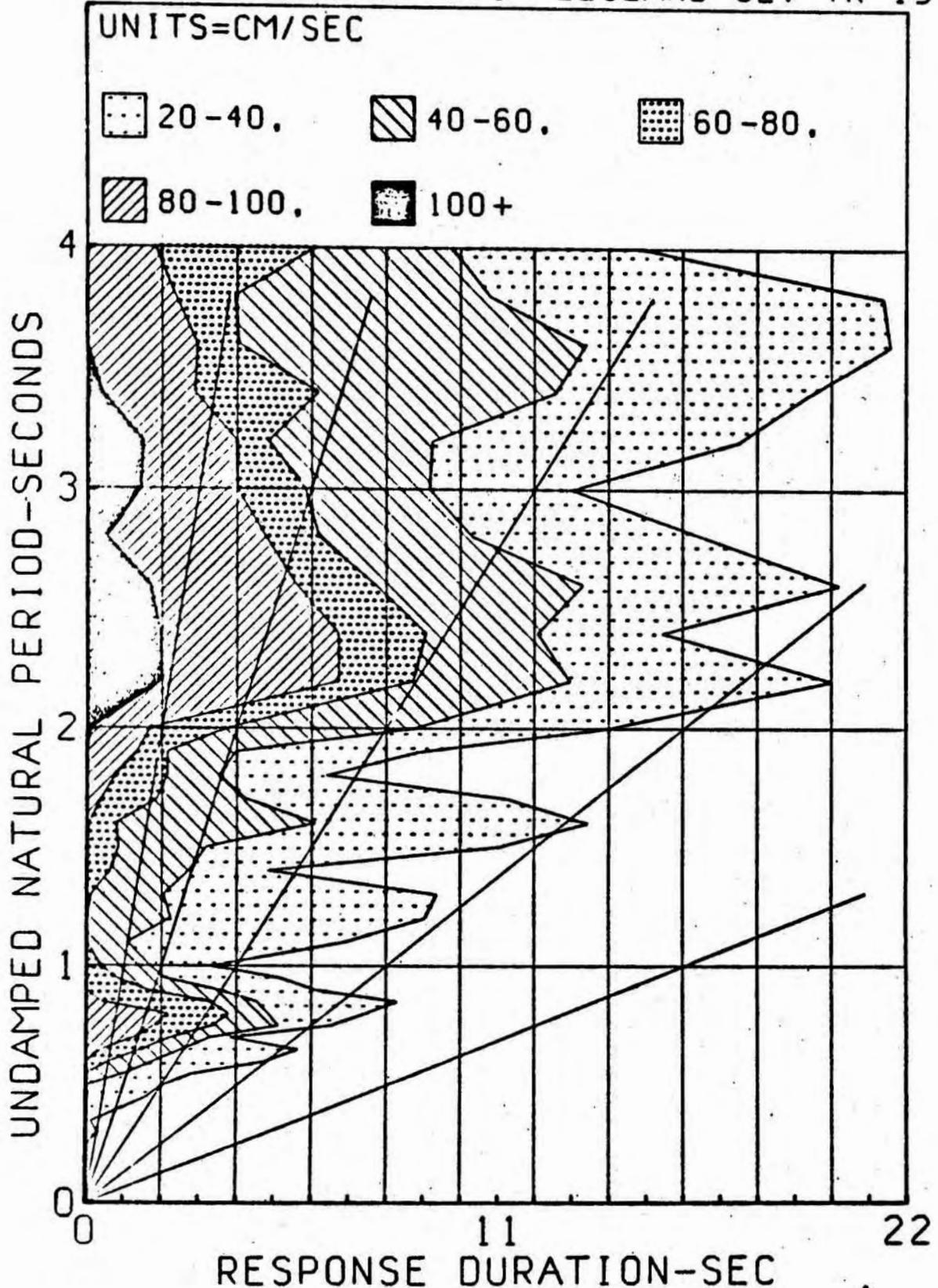
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 15

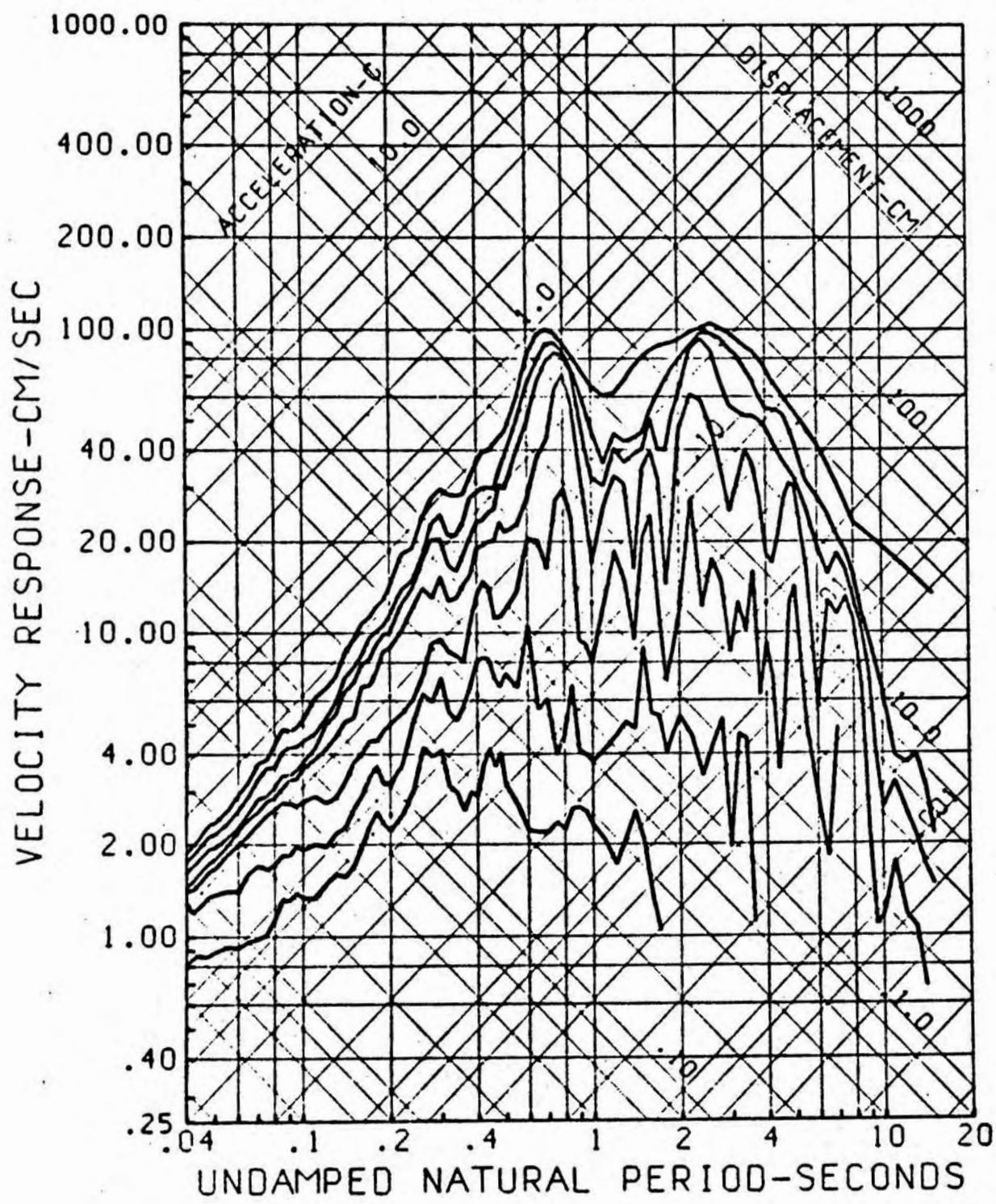
- 0-20.
- 20-40.
- 40-60.
- 60-80.
- 80-100.
- 100+



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC MELOLAND SLV TR 15



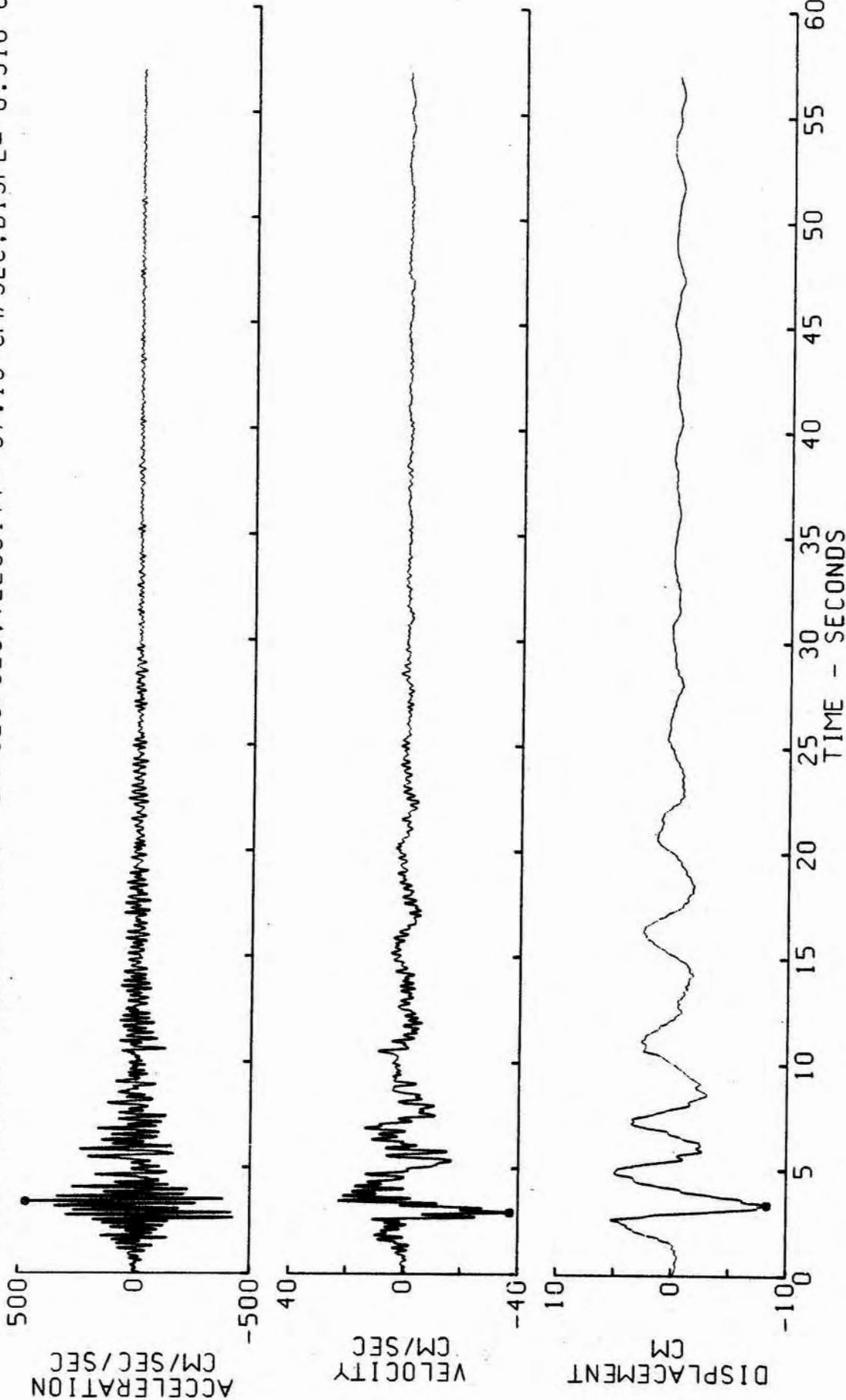
SPECTRA OF AMPLITUDES SUSTAINED
FOR ANY GIVEN NUMBER OF CYCLES
15 OCT 1979 2317 UTC MELOLAND SLV TR 15
5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



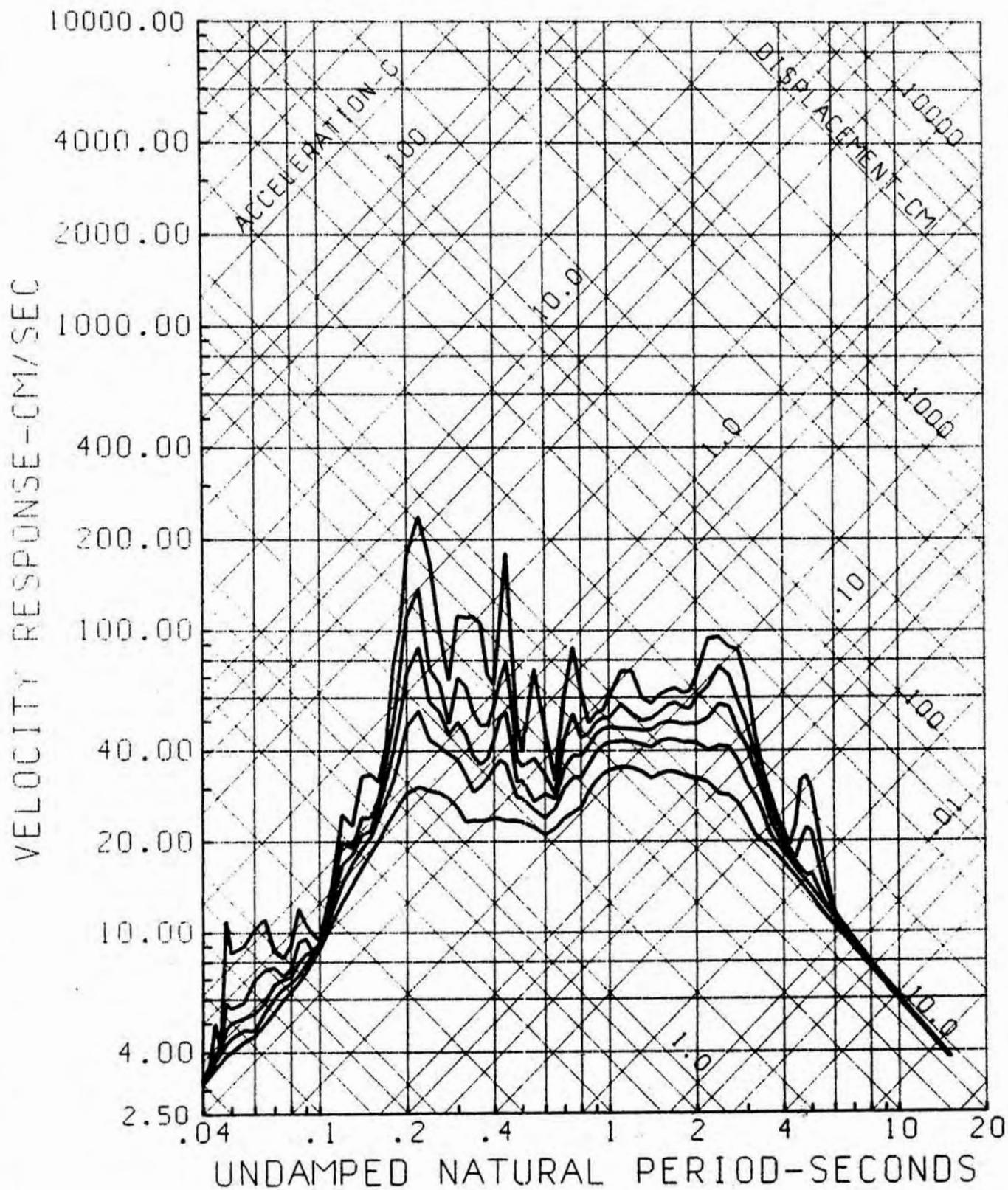
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 16 U/GRDR/SCTRW

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

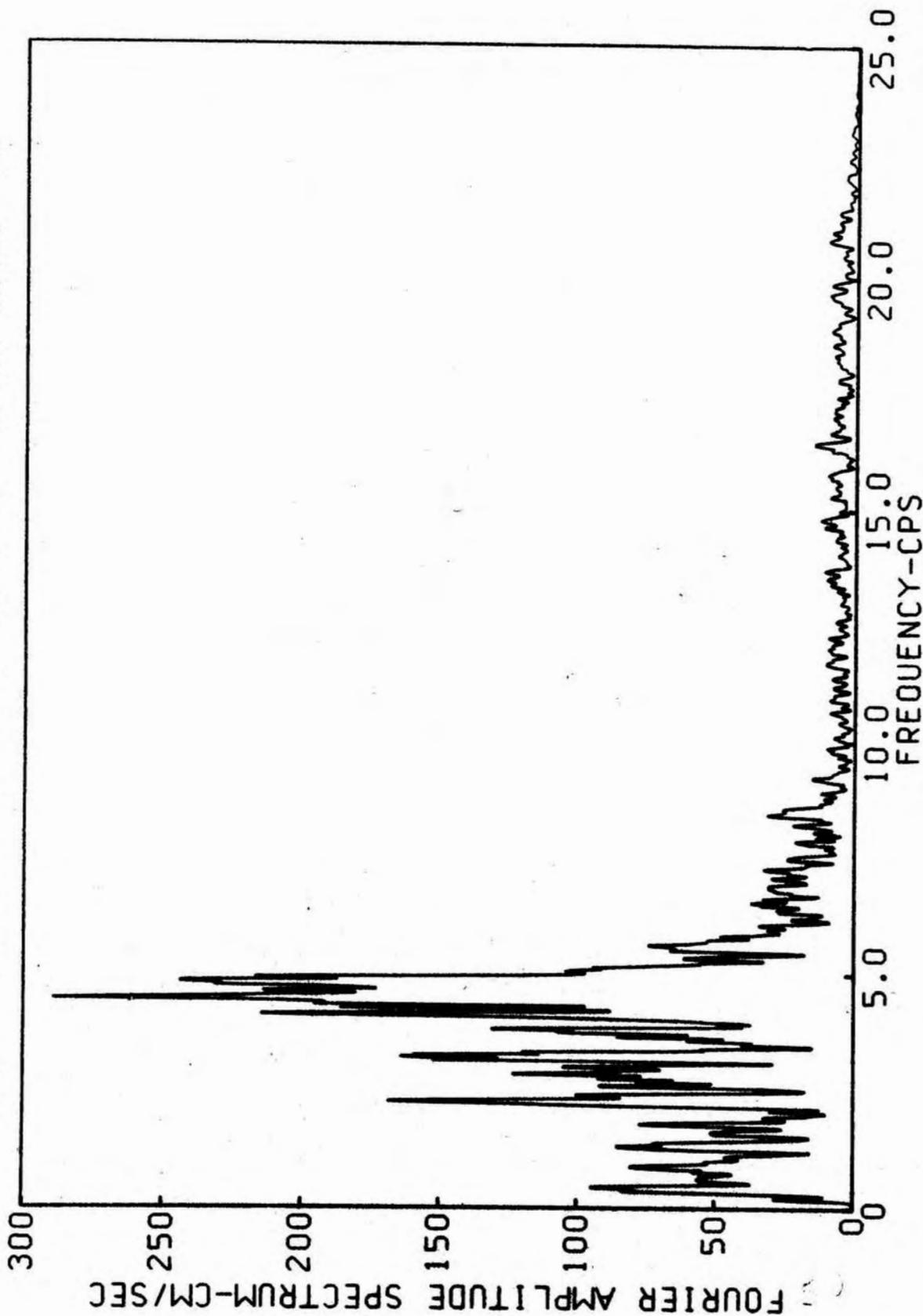
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=472.0 CM/SEC/SEC, VELOCITY=-37.19 CM/SEC, DISPL=-8.310 CM



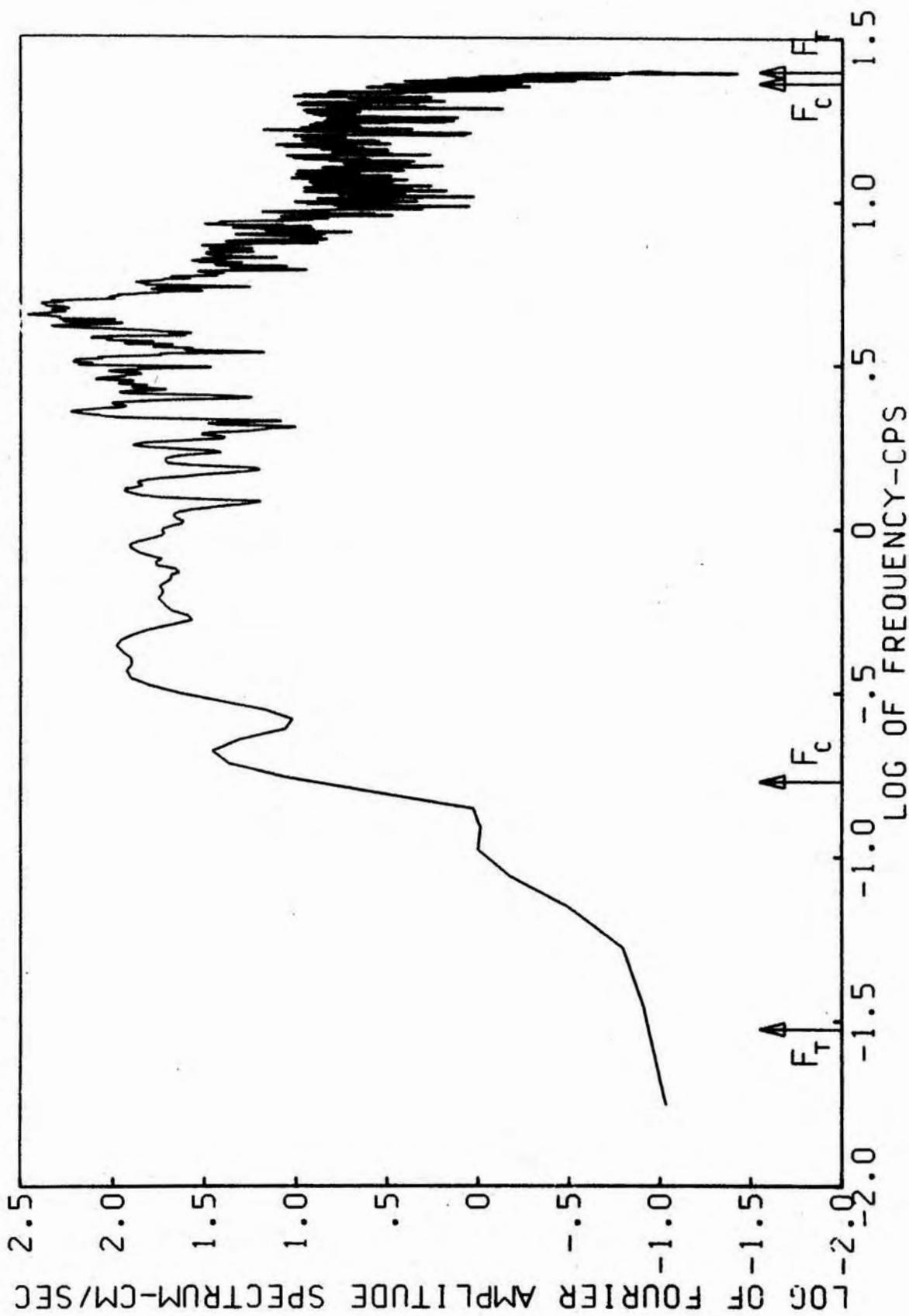
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 16
 0.2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



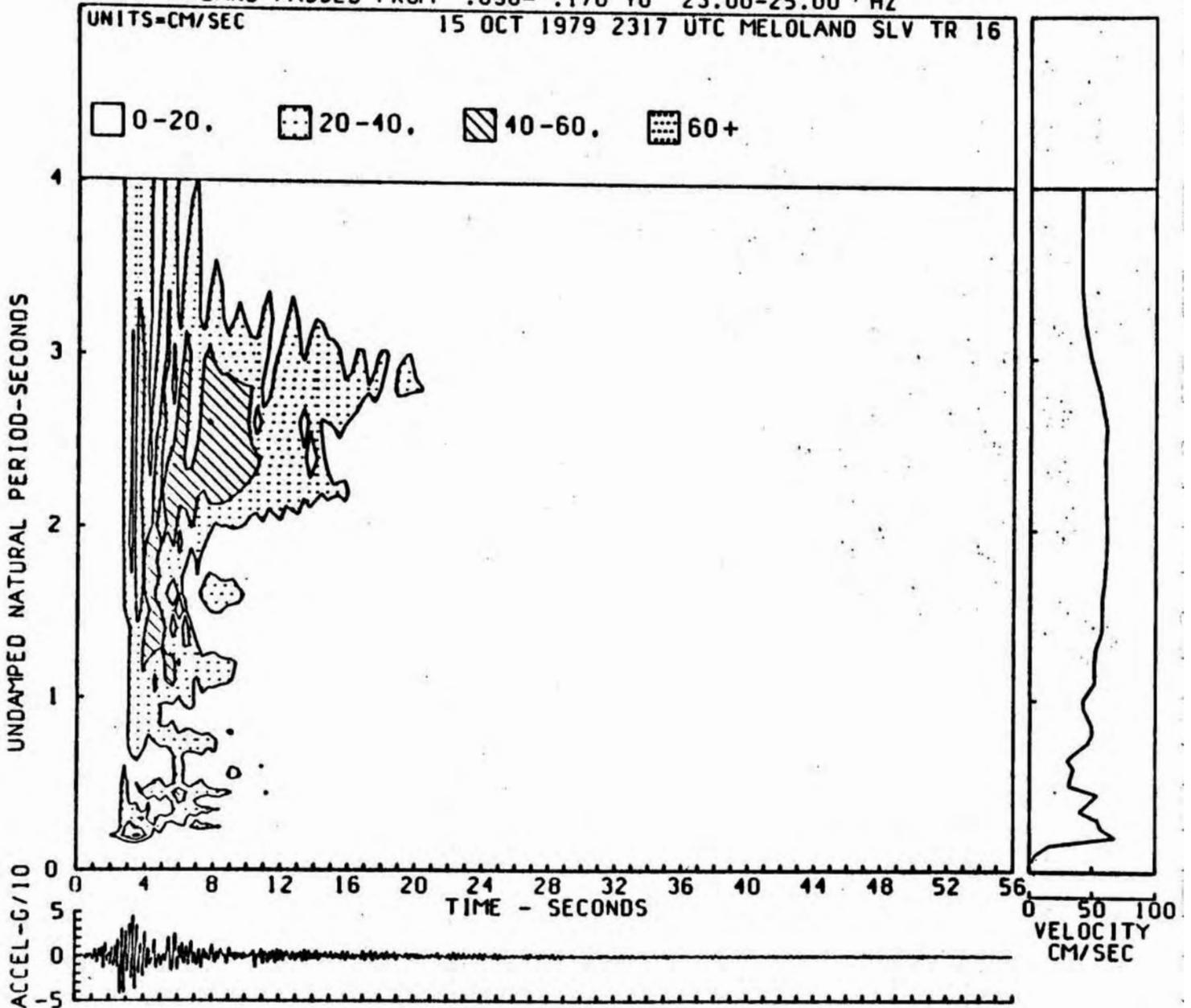
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 16 U/GRDR/SCTRW
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



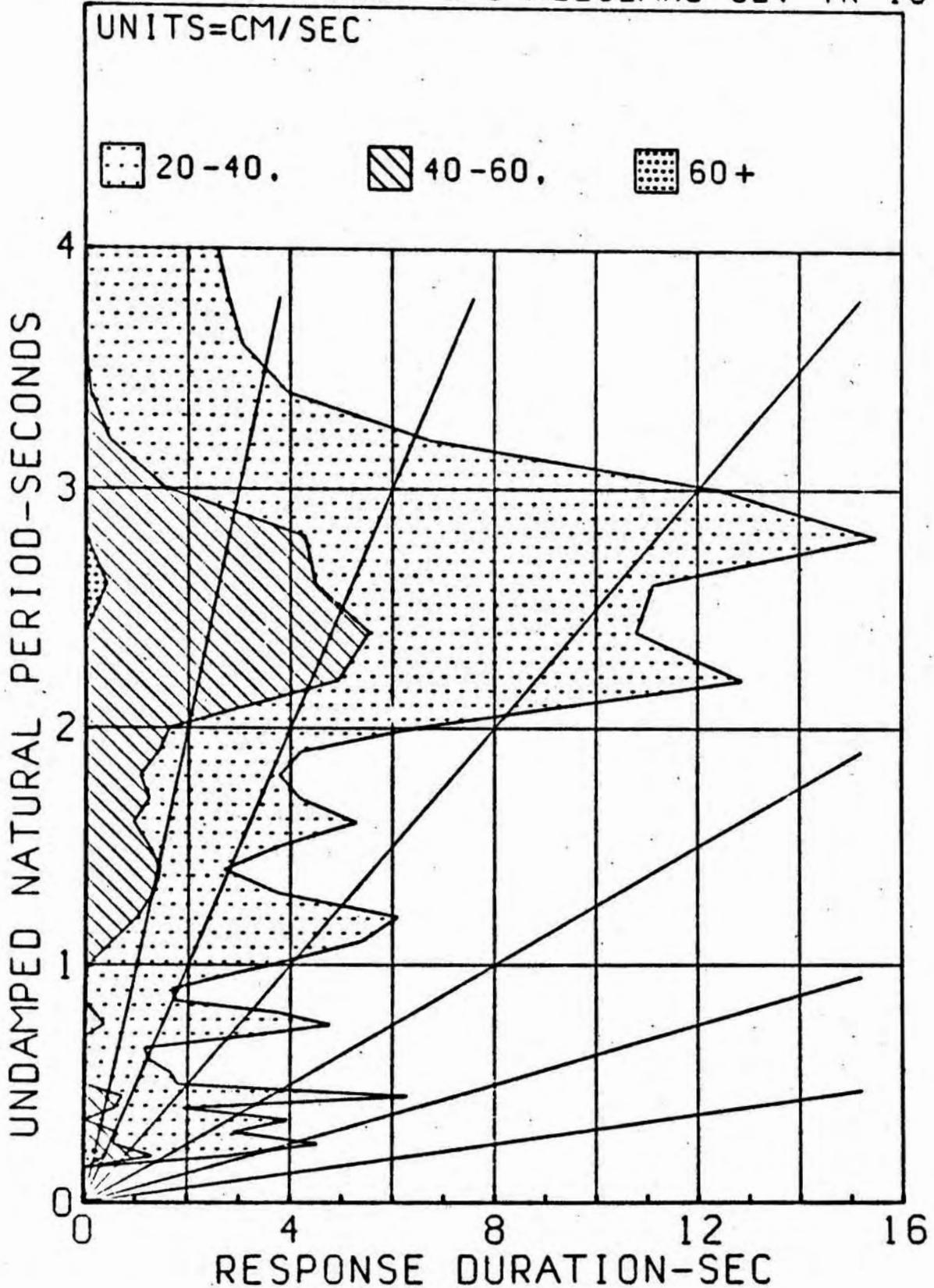
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 16 U/GRDR/SCTRW
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



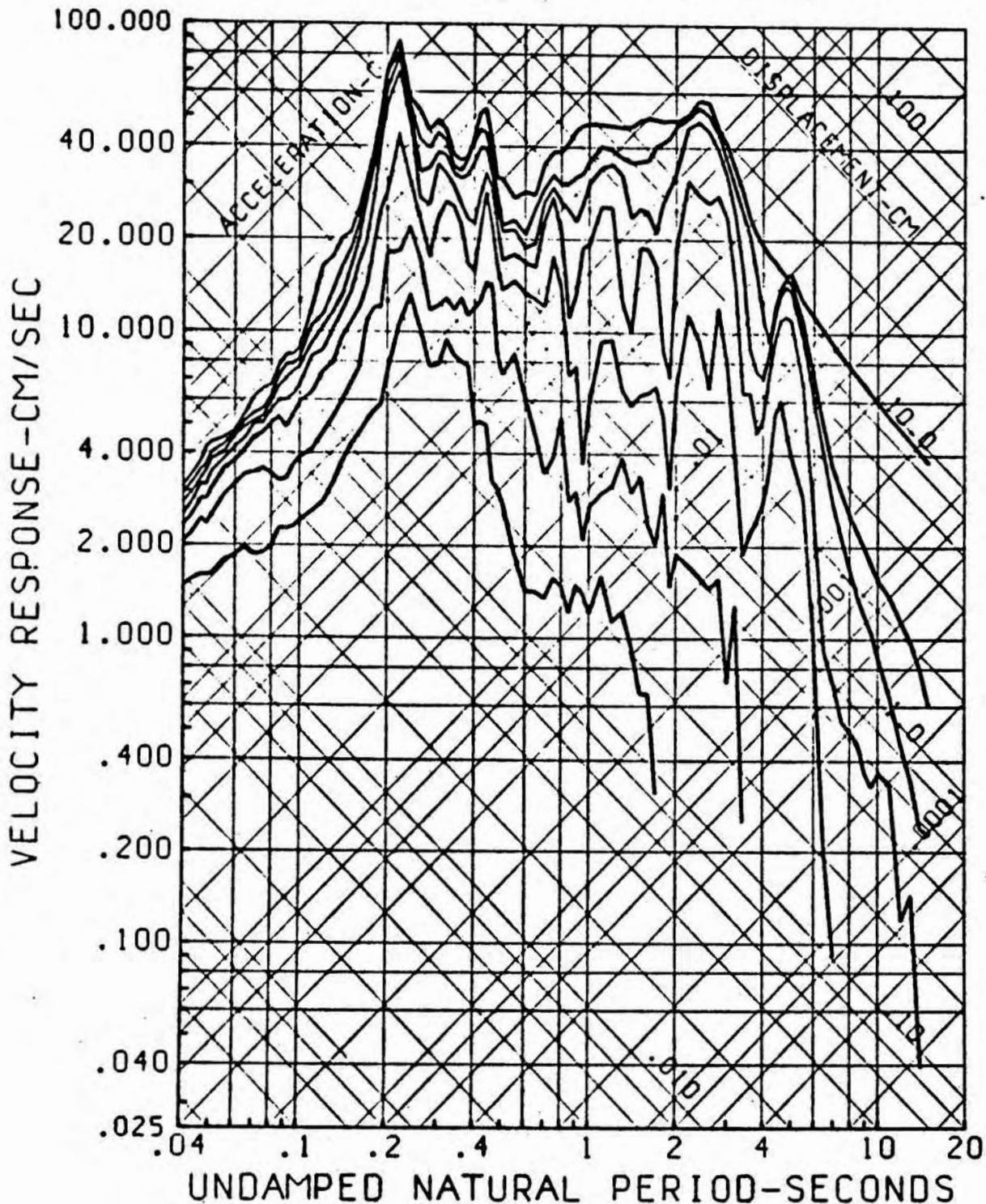
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC MELOLAND SLV TR 16



SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 16
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



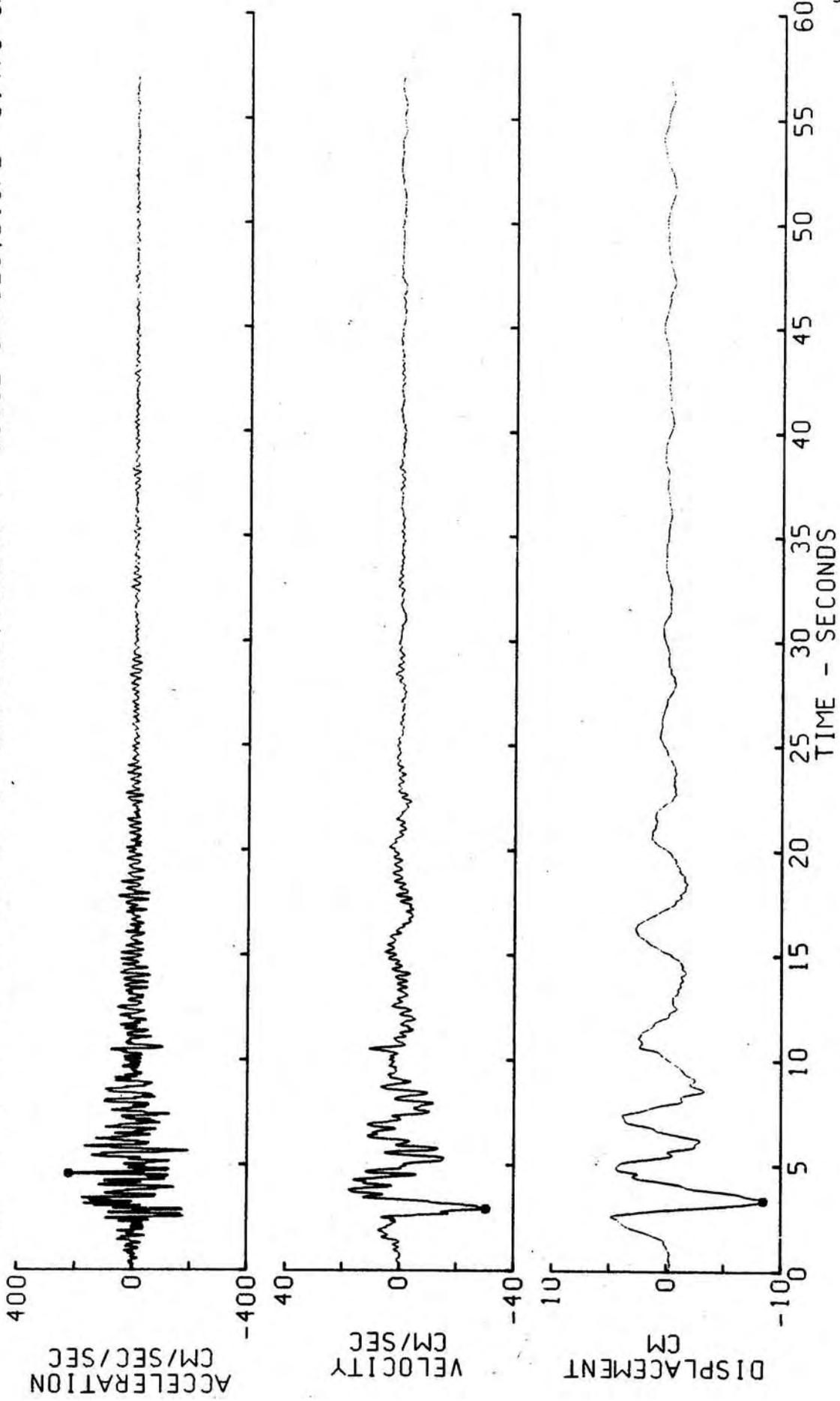
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC

DMG 336 MELOLAND SLV CRA 165 TR 17 U/GRDR/BENTW

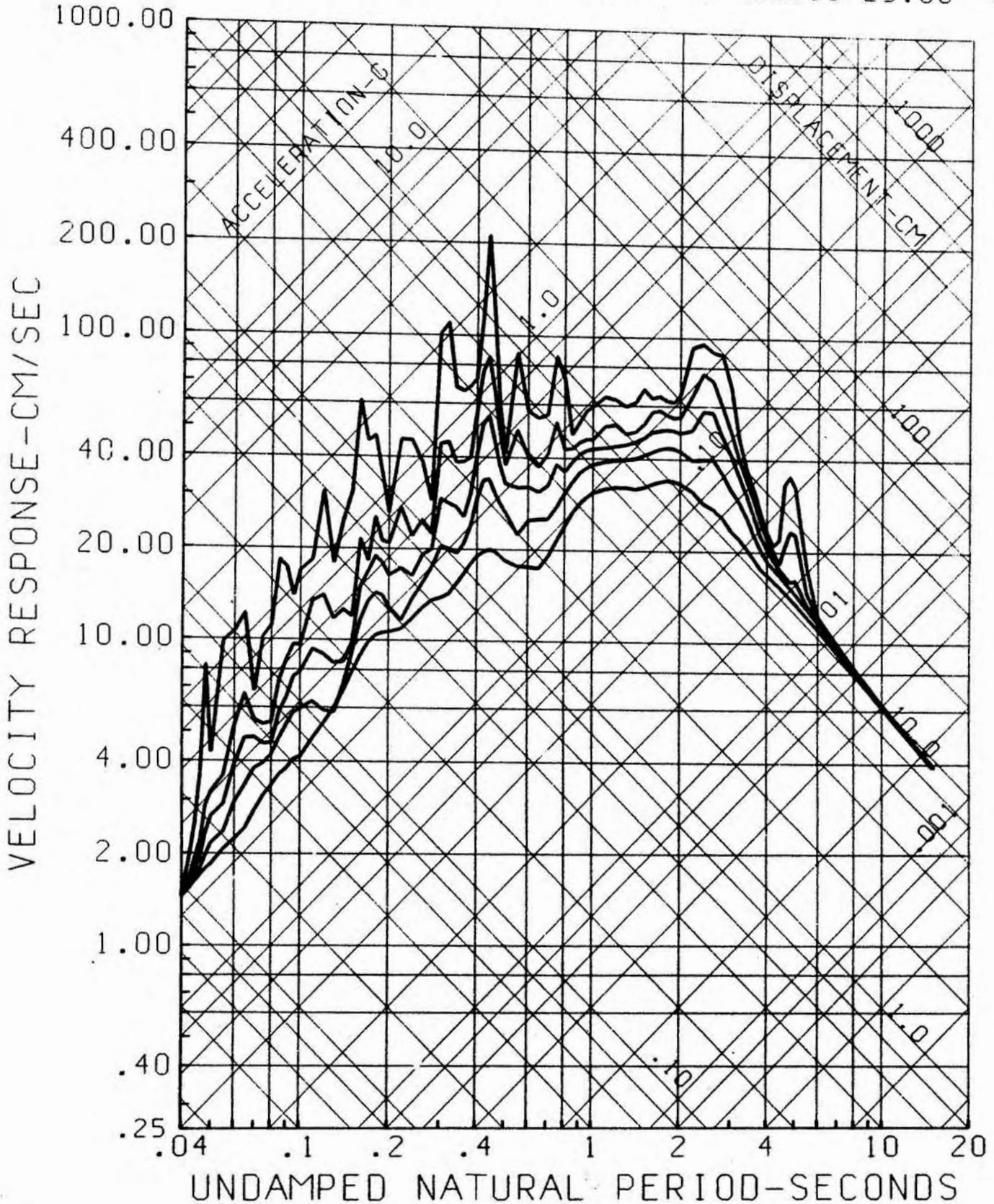
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC

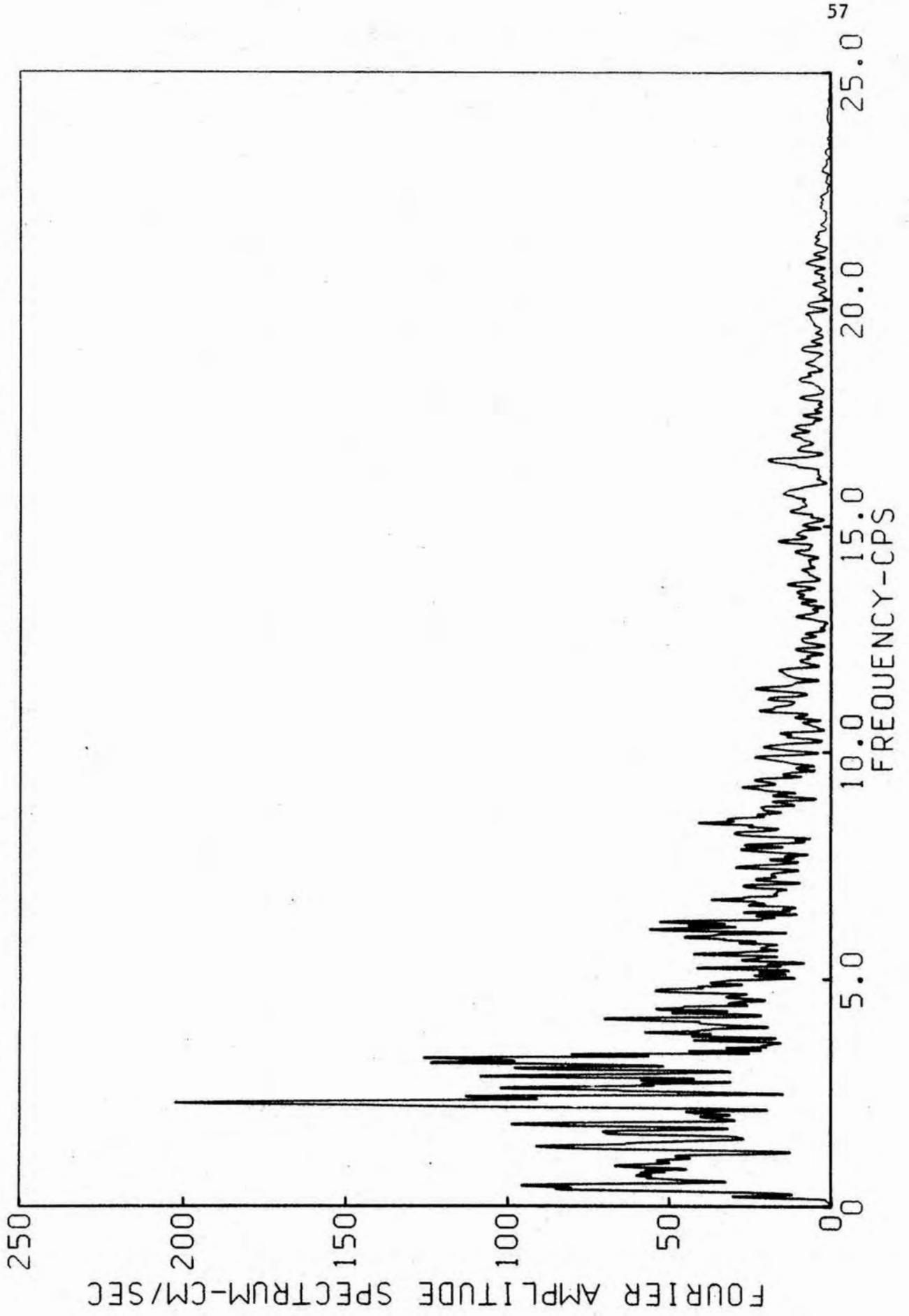
• PEAK VALUES ACCEL=223.9 CM/SEC/SEC, VELOCITY=-30.32 CM/SEC, DISPL=-8.470 CM



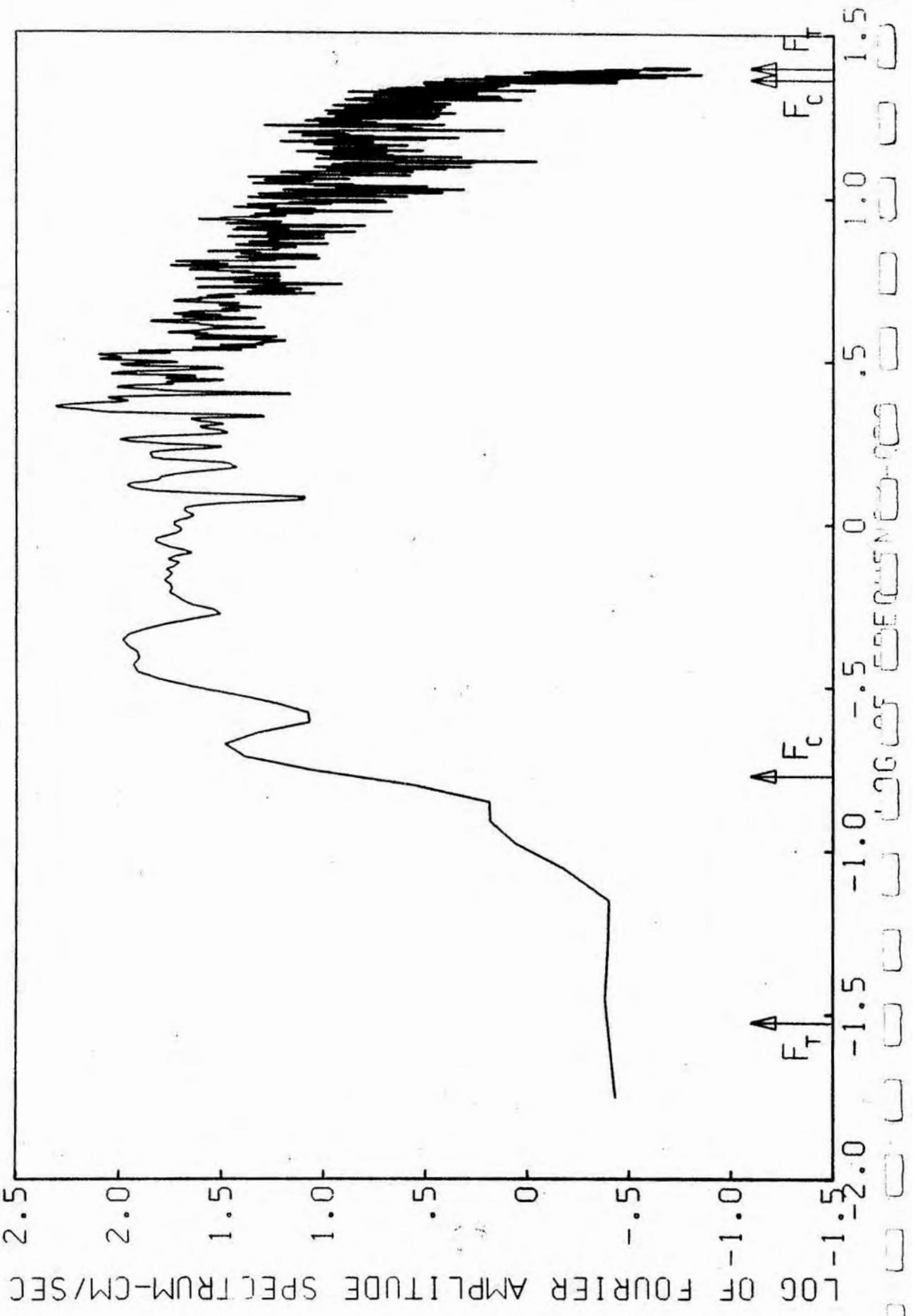
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELULAND SLV TR 17
 0.2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 17 U/GRDR/BENTW
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



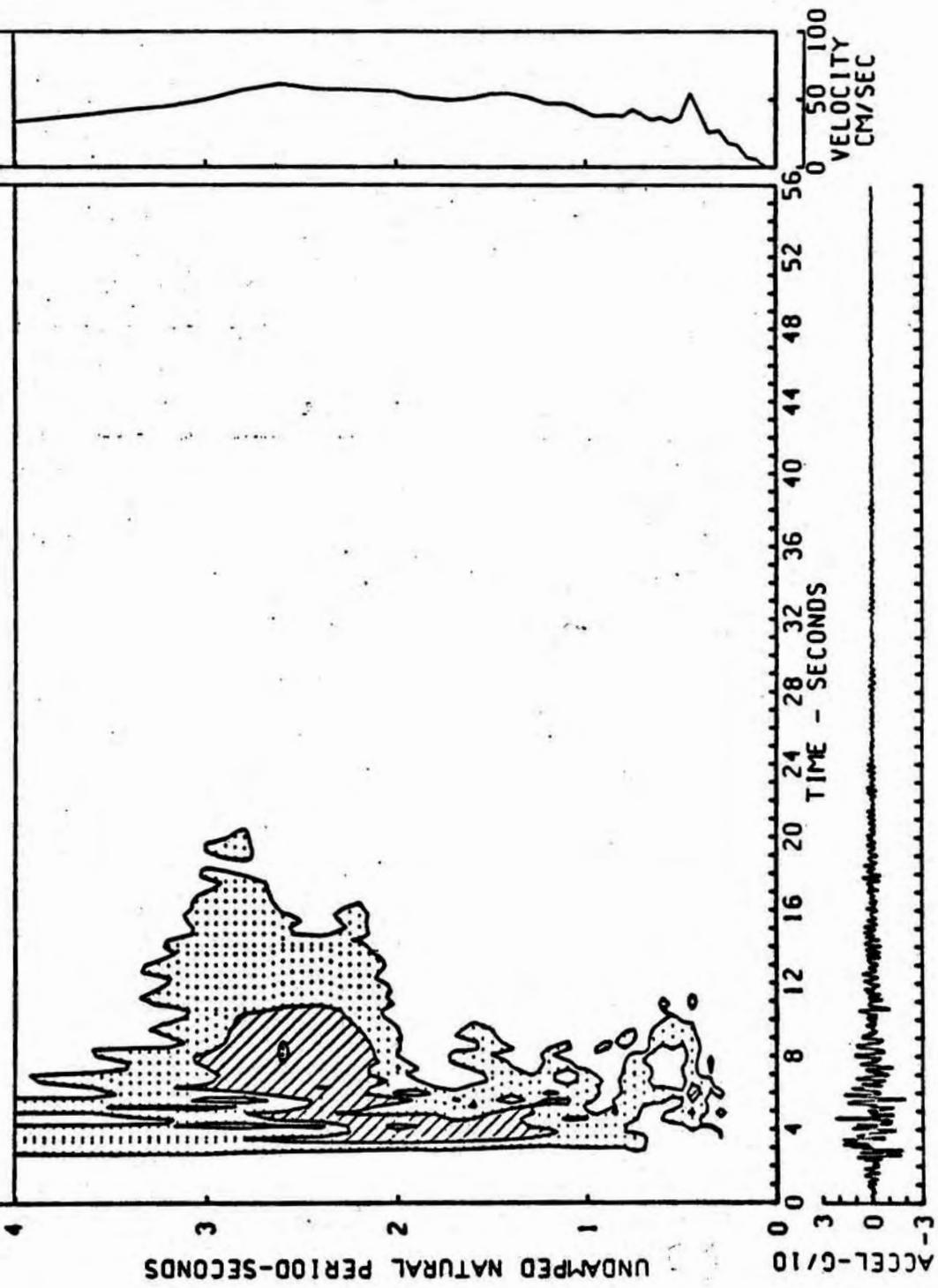
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 17 U/GRDR/BENTW
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



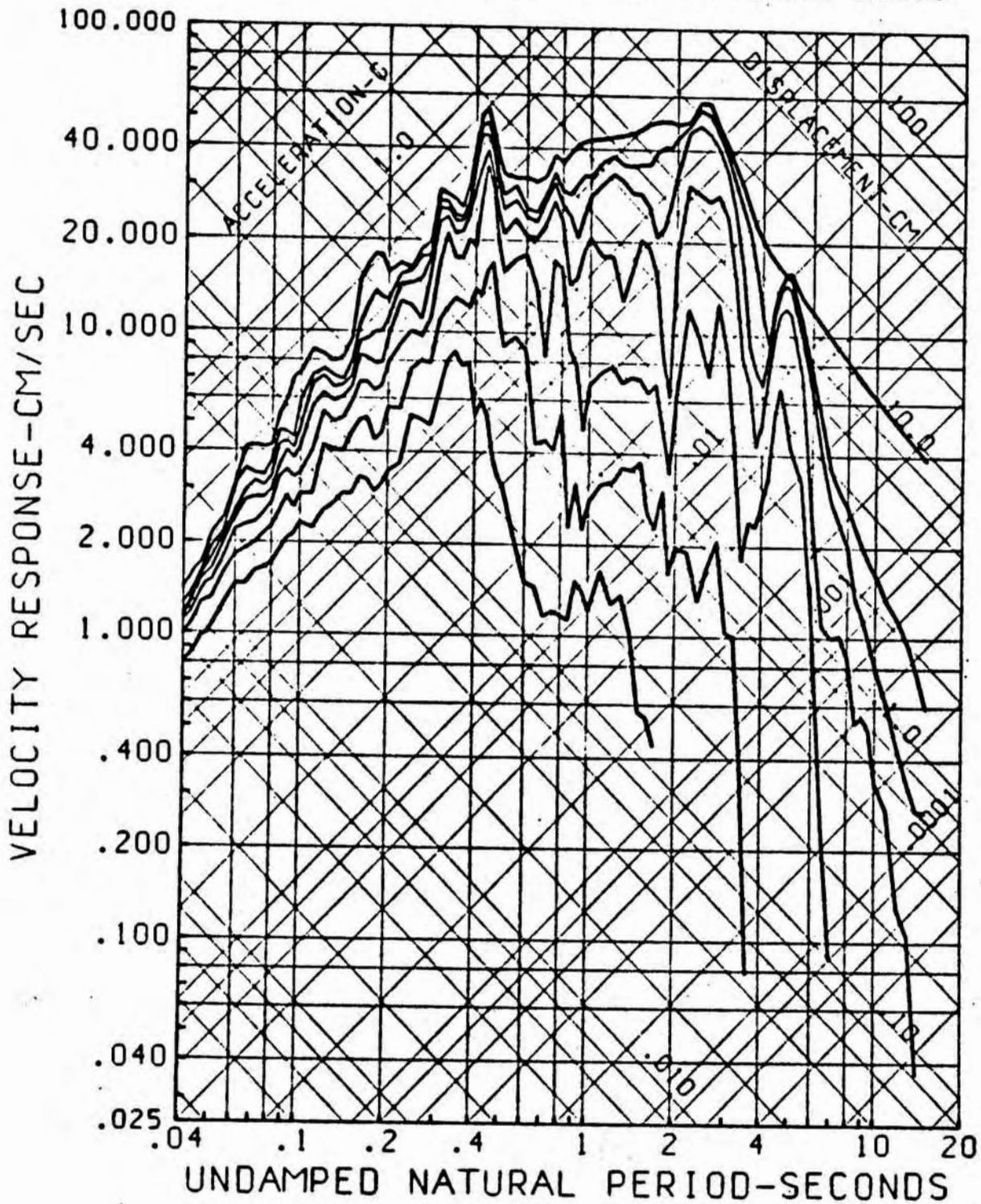
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 17

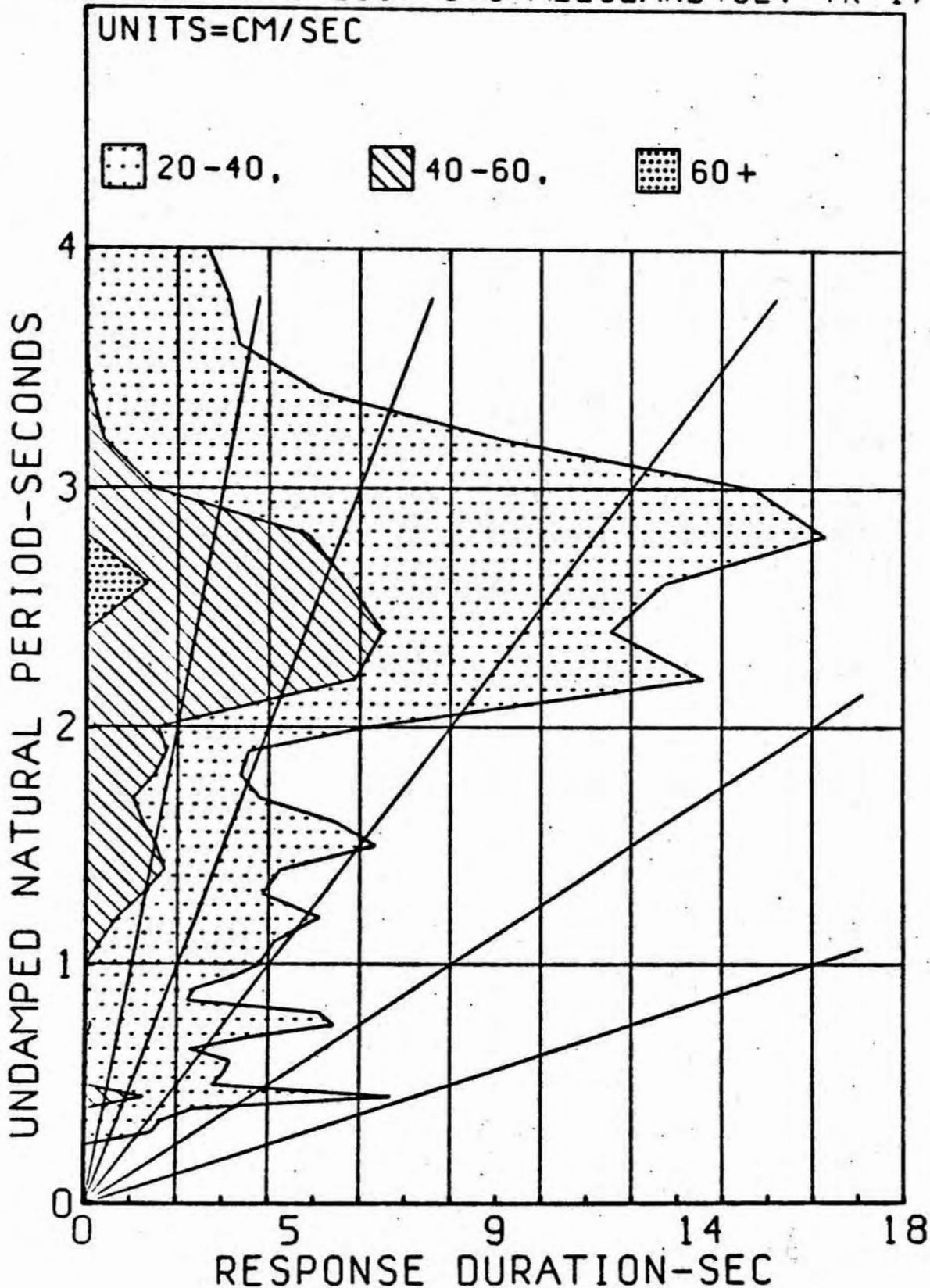
- 0-20.
- ▨ 20-40.
- ▩ 40-60.
- ▩ 60+



SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 17
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

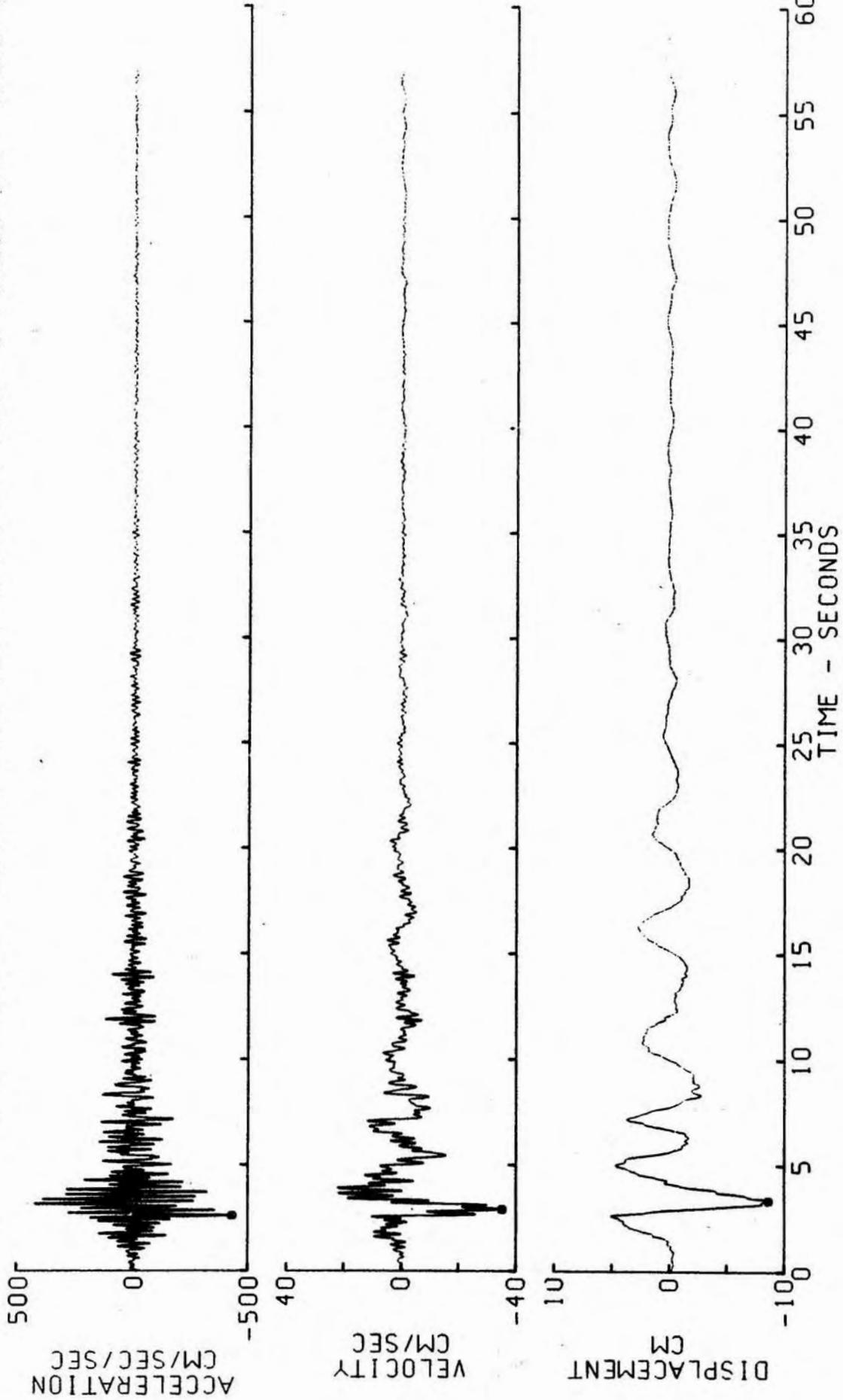


DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC MELOLAND SLV TR 17

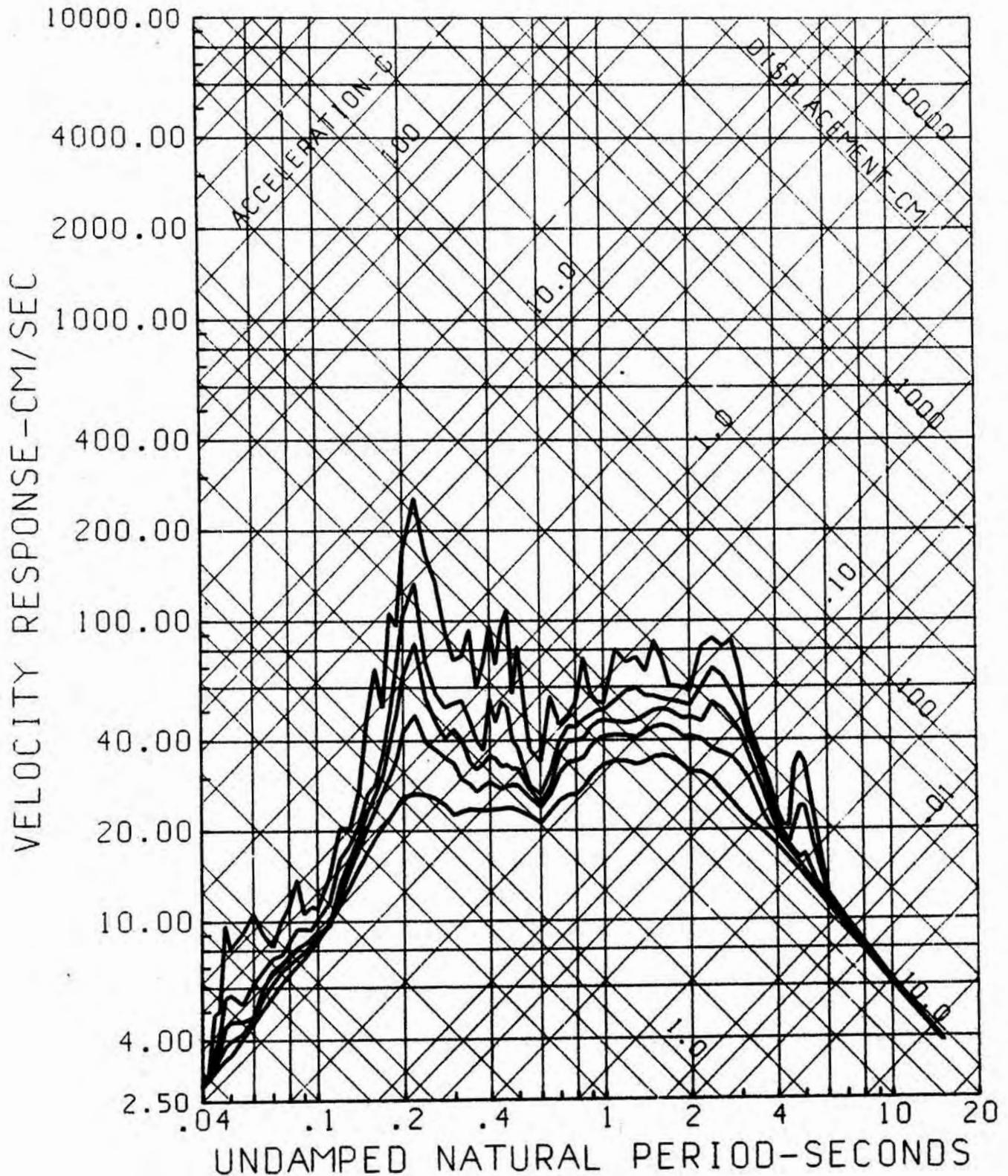


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 18 U/CRDR/SCTRE

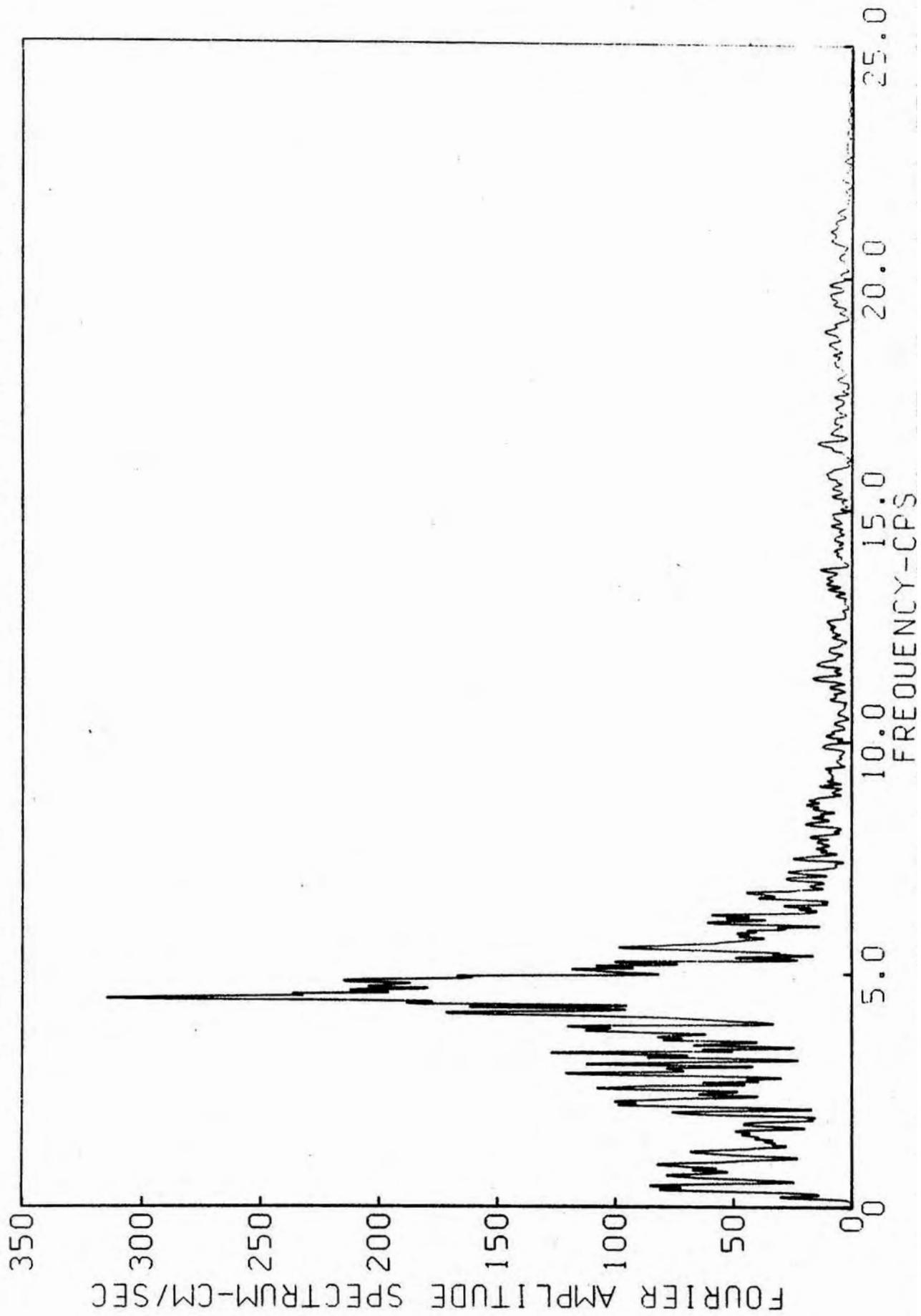
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=-428.6 CM/SEC/SEC, VELOCITY=-35.24 CM/SEC, DISPL=-8.630 CM



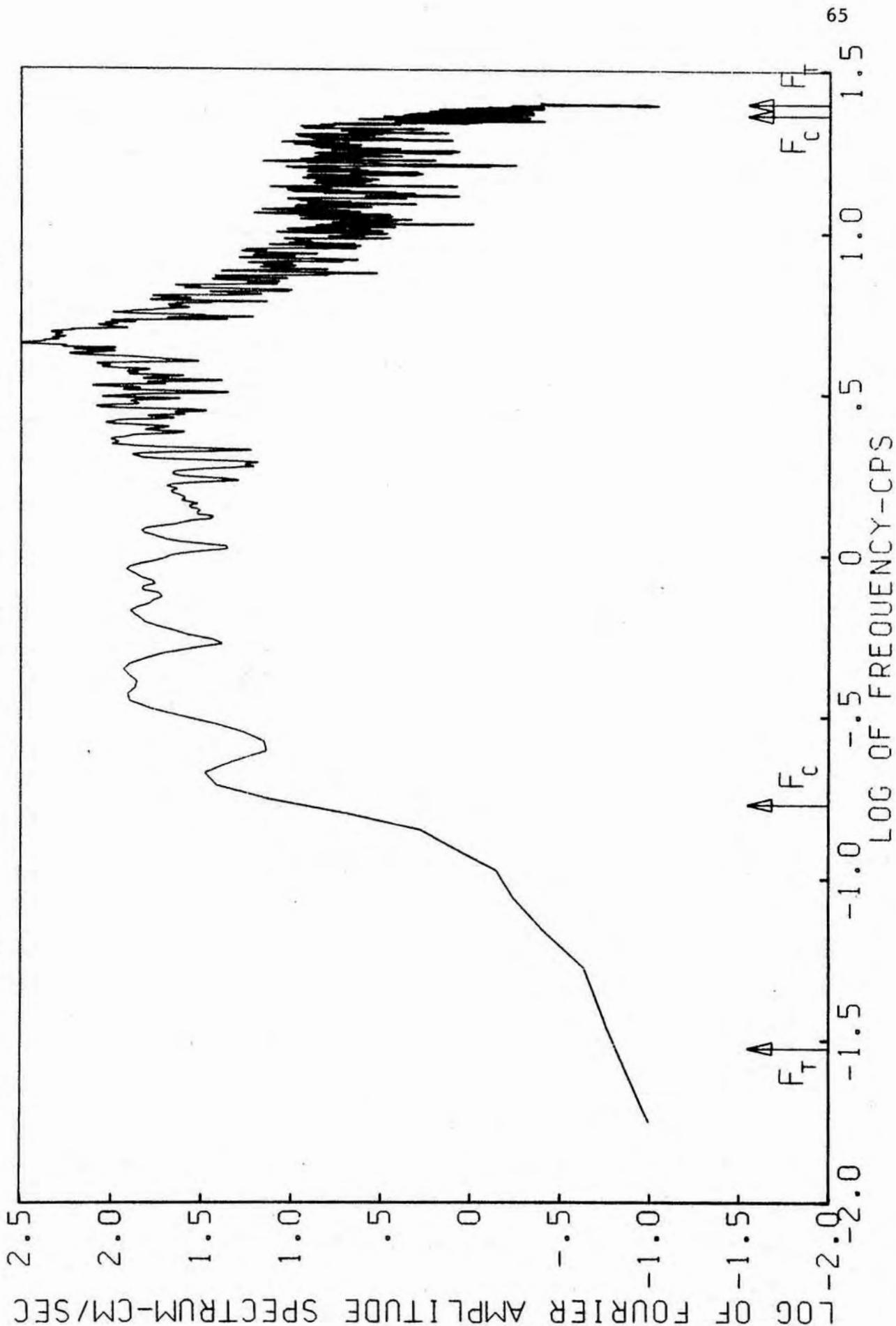
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 18
 0, 2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



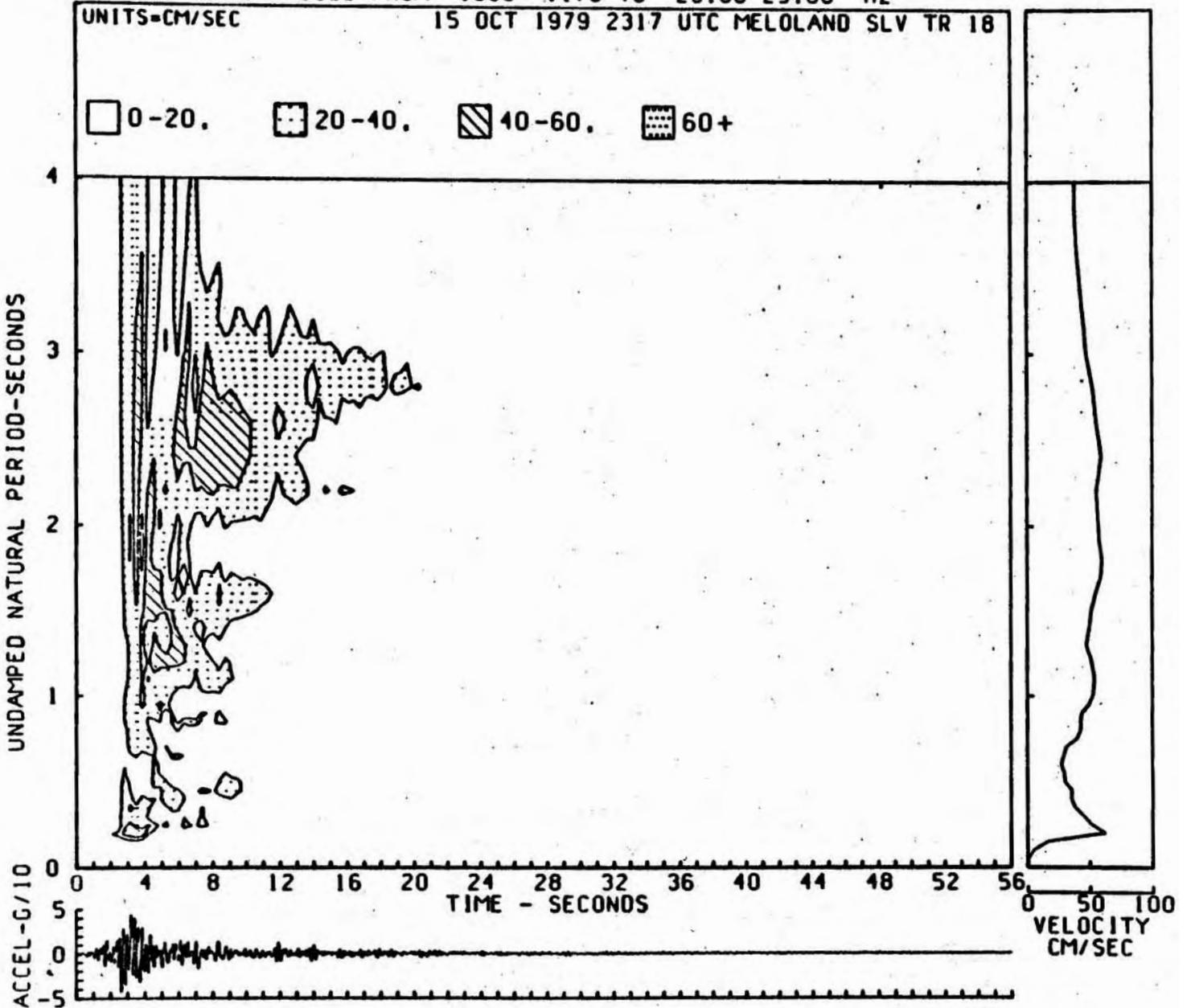
64
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 18 U/GRDR/SCTRE
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



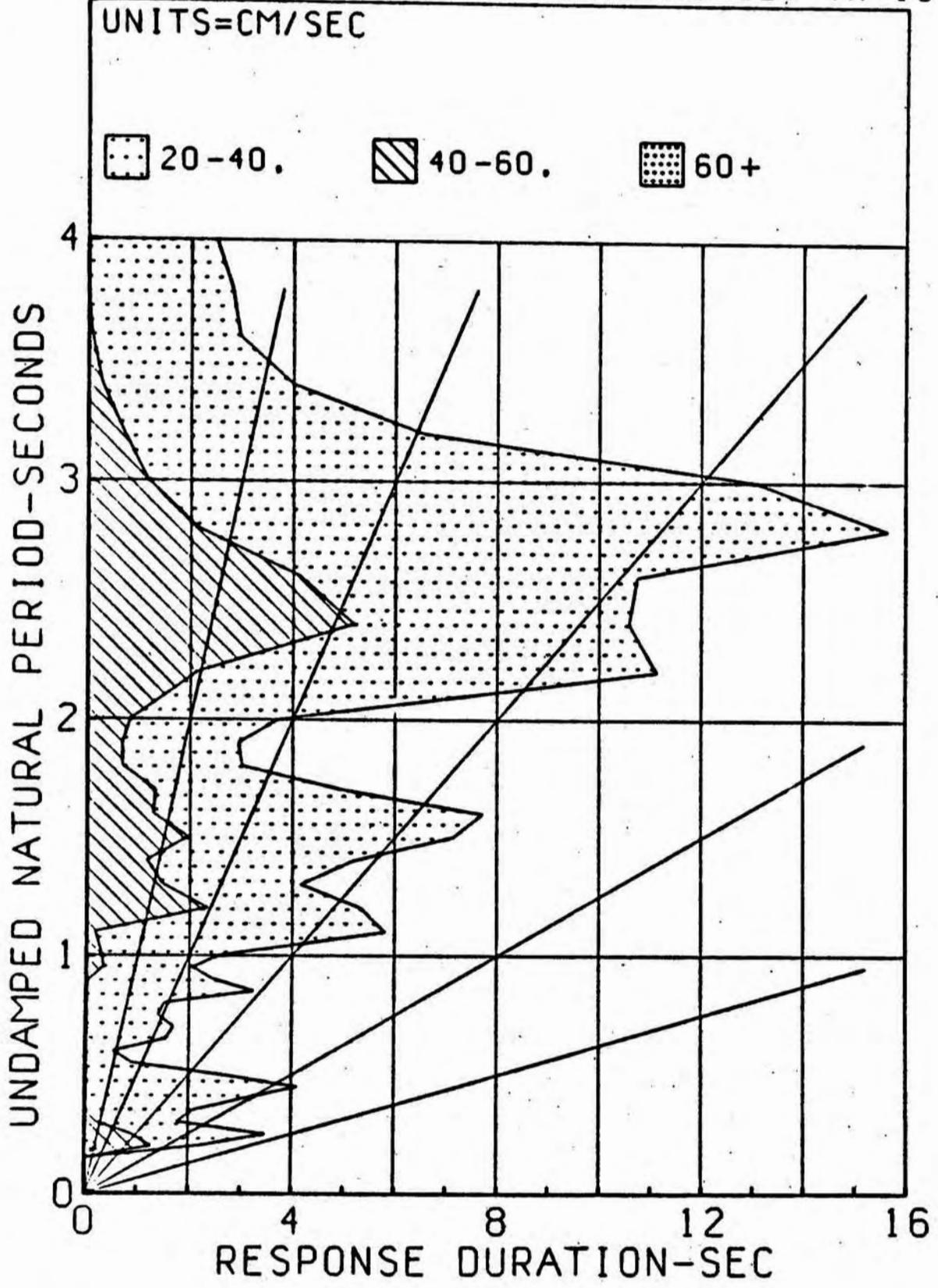
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 18 U/GRDR/SCTRE
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



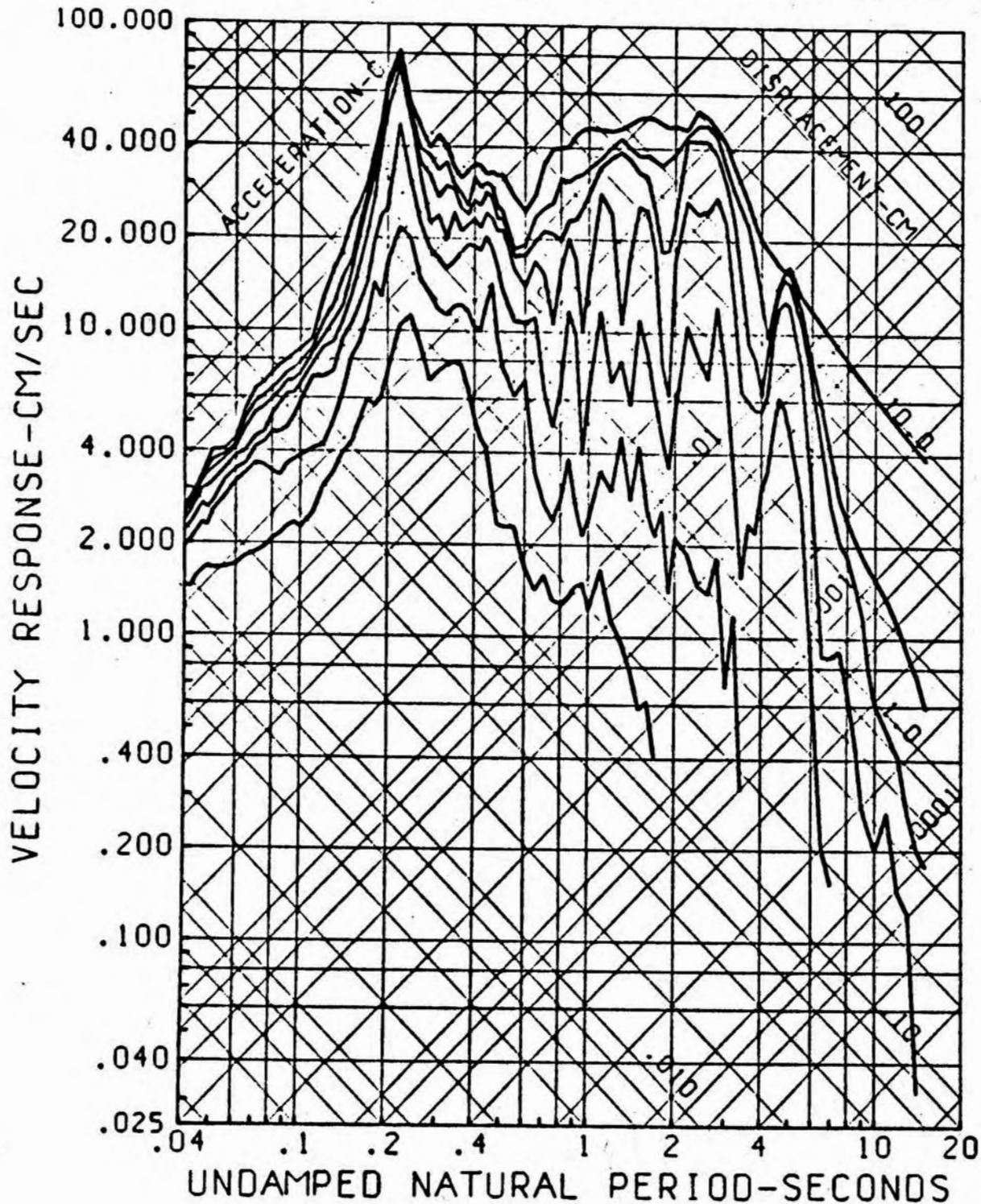
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE .5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC MELOLAND SLV TR 18



SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 18
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

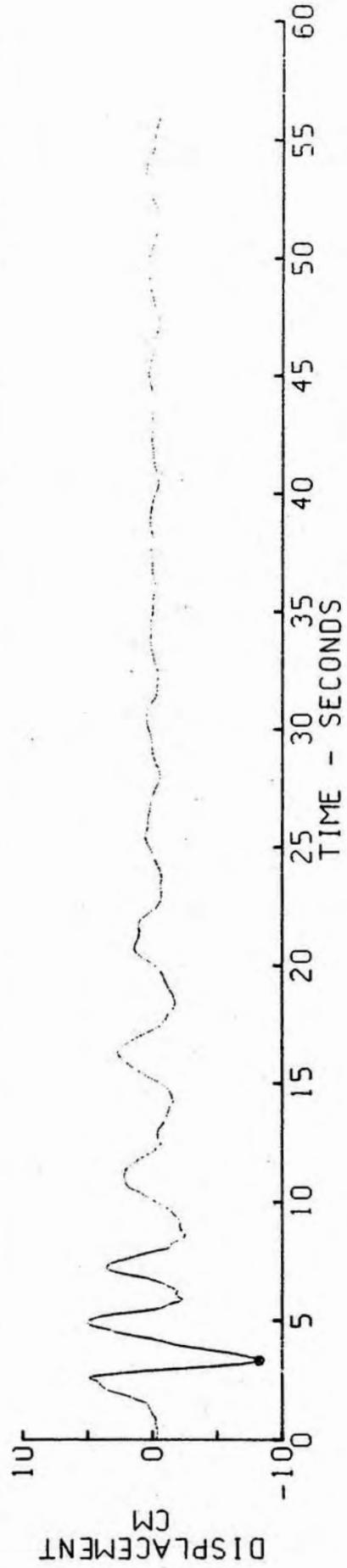
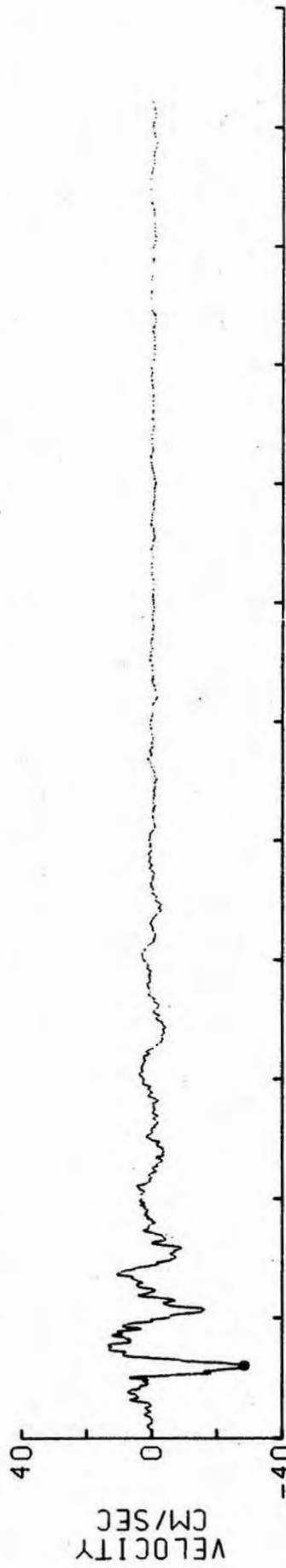
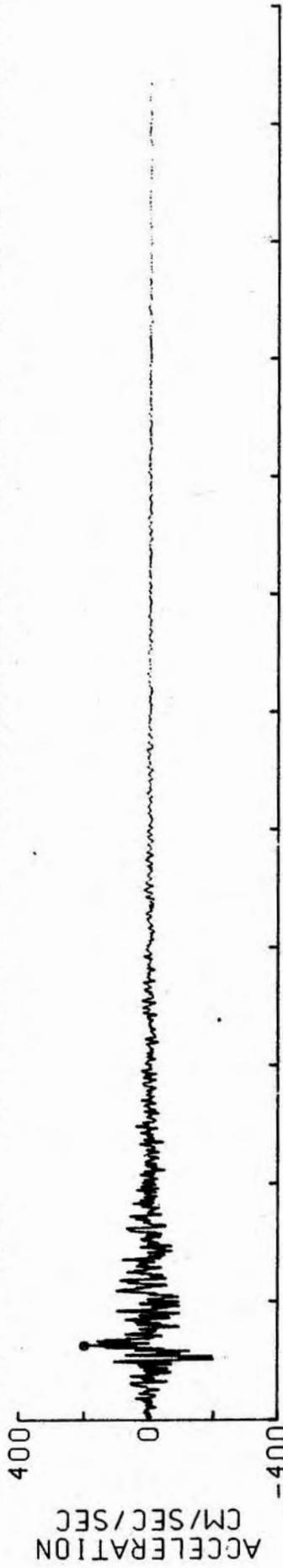


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC

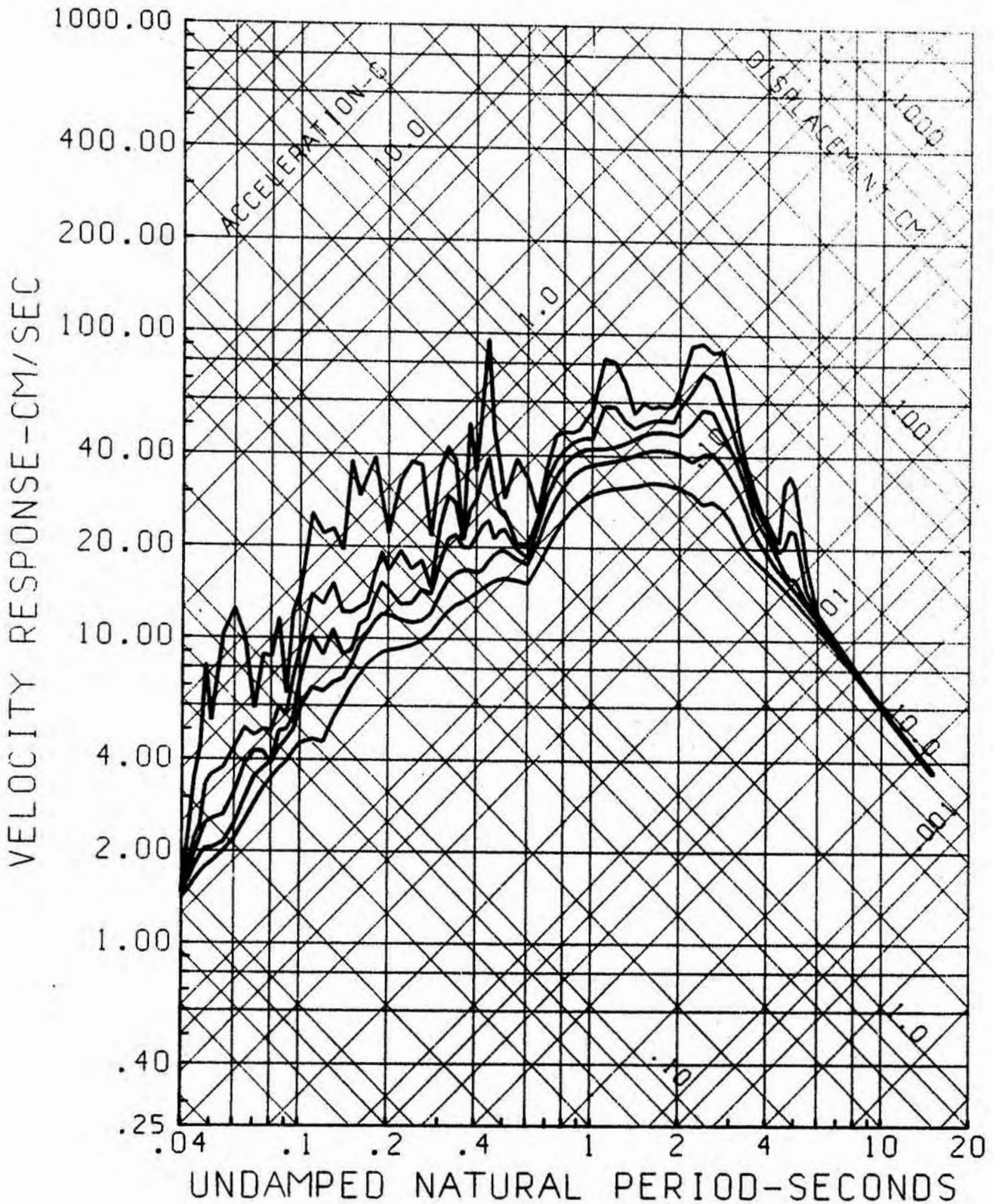
DMG 336 MELOLAND SLV CRA 165 TR 19 U/GRDR/SENDW

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

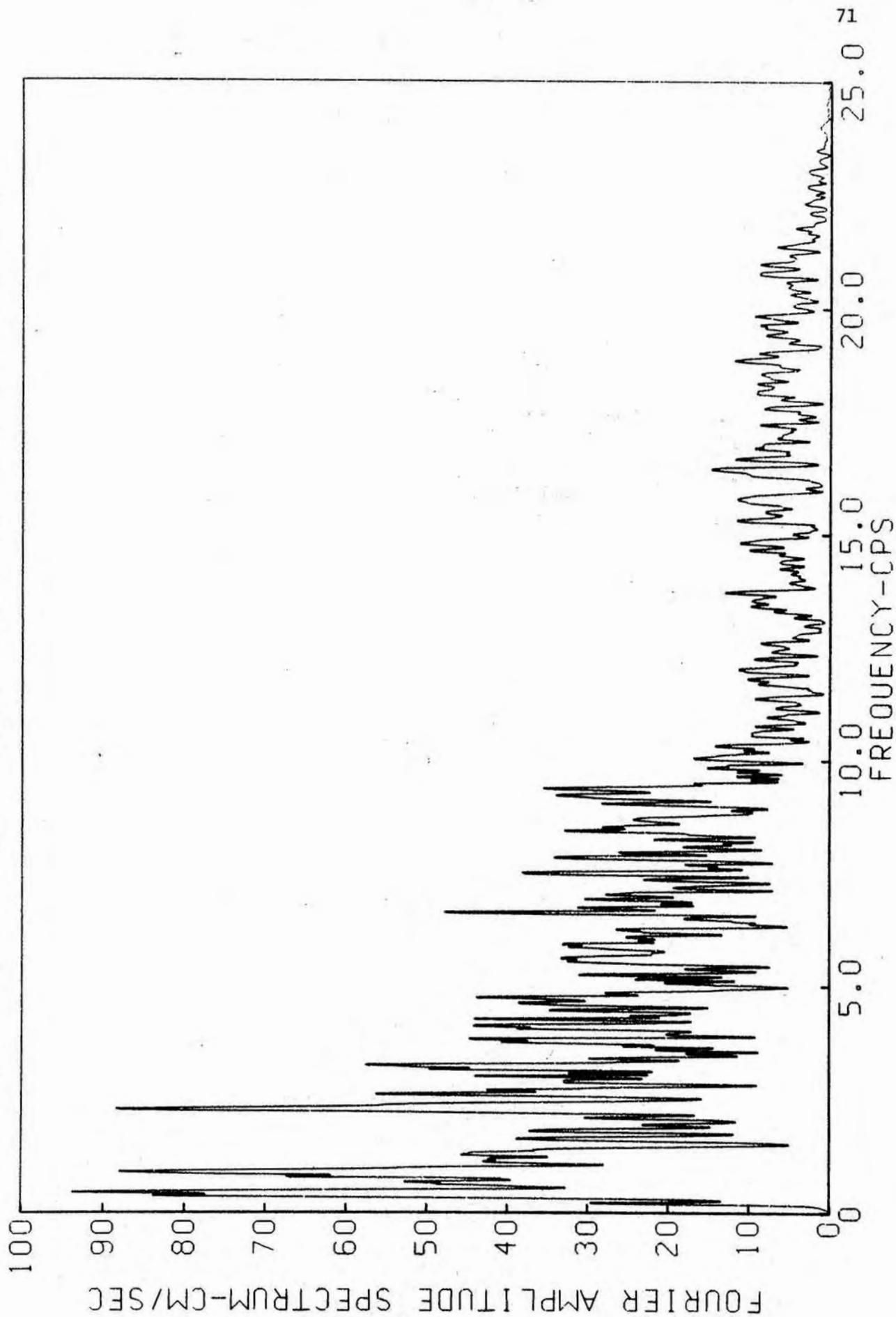
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=200.4 CM/SEC/SEC, VELOCITY=-28.46 CM/SEC, DISPL=-8.250 CM



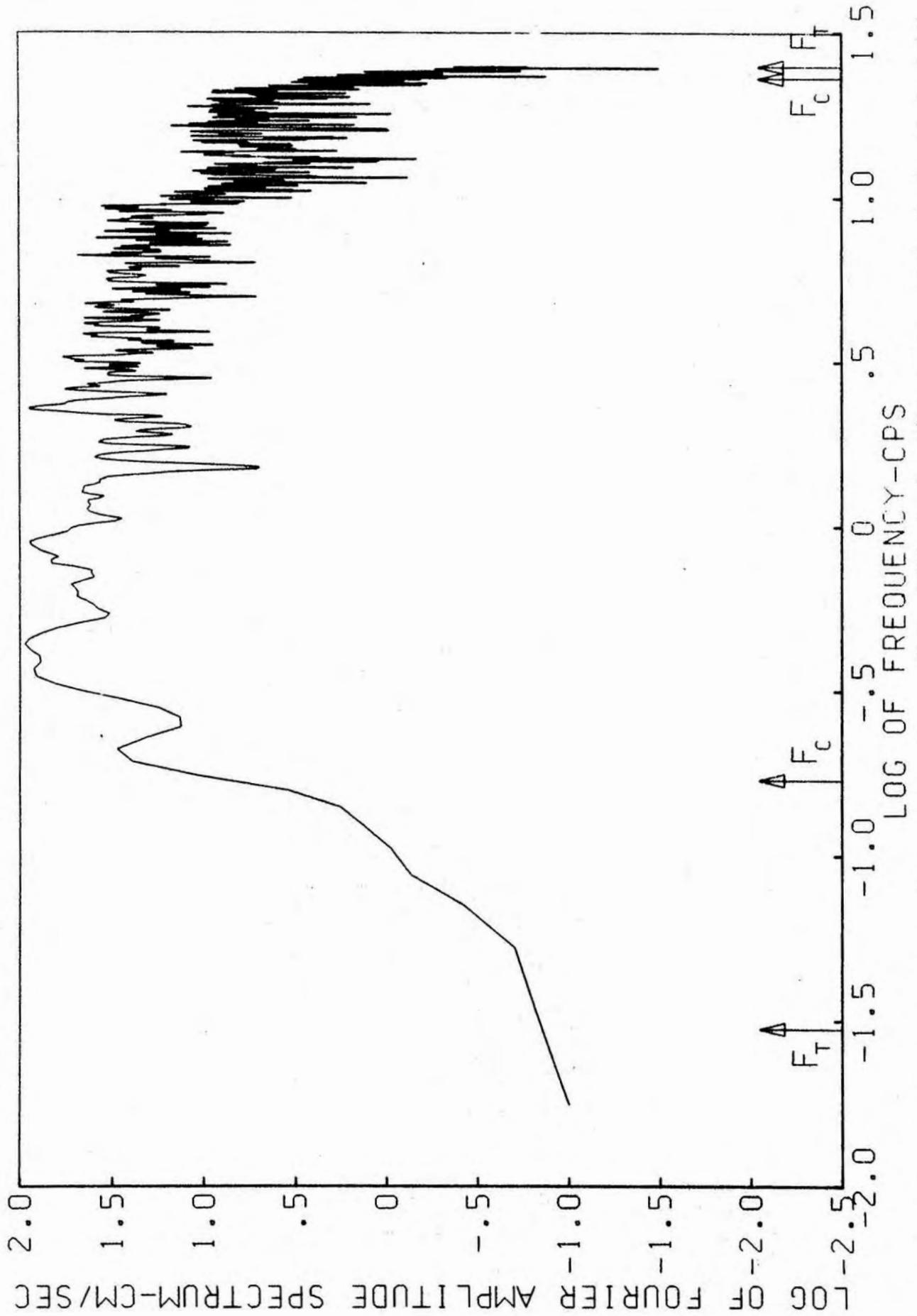
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 19
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 19 U/GRDR/SENDW
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

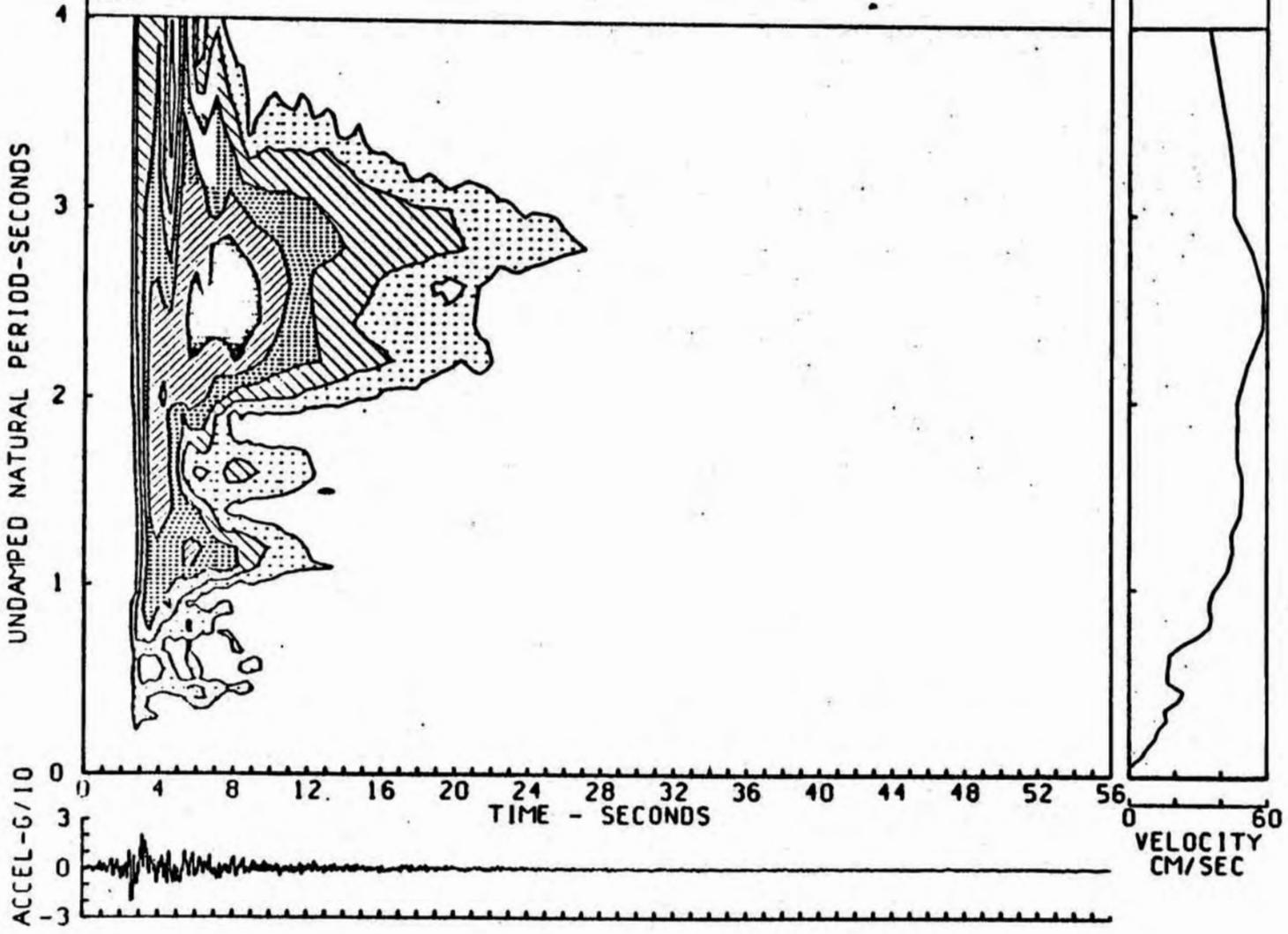
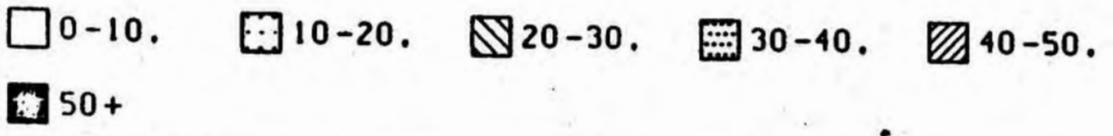


FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 19 U/GRDR/SENDW
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

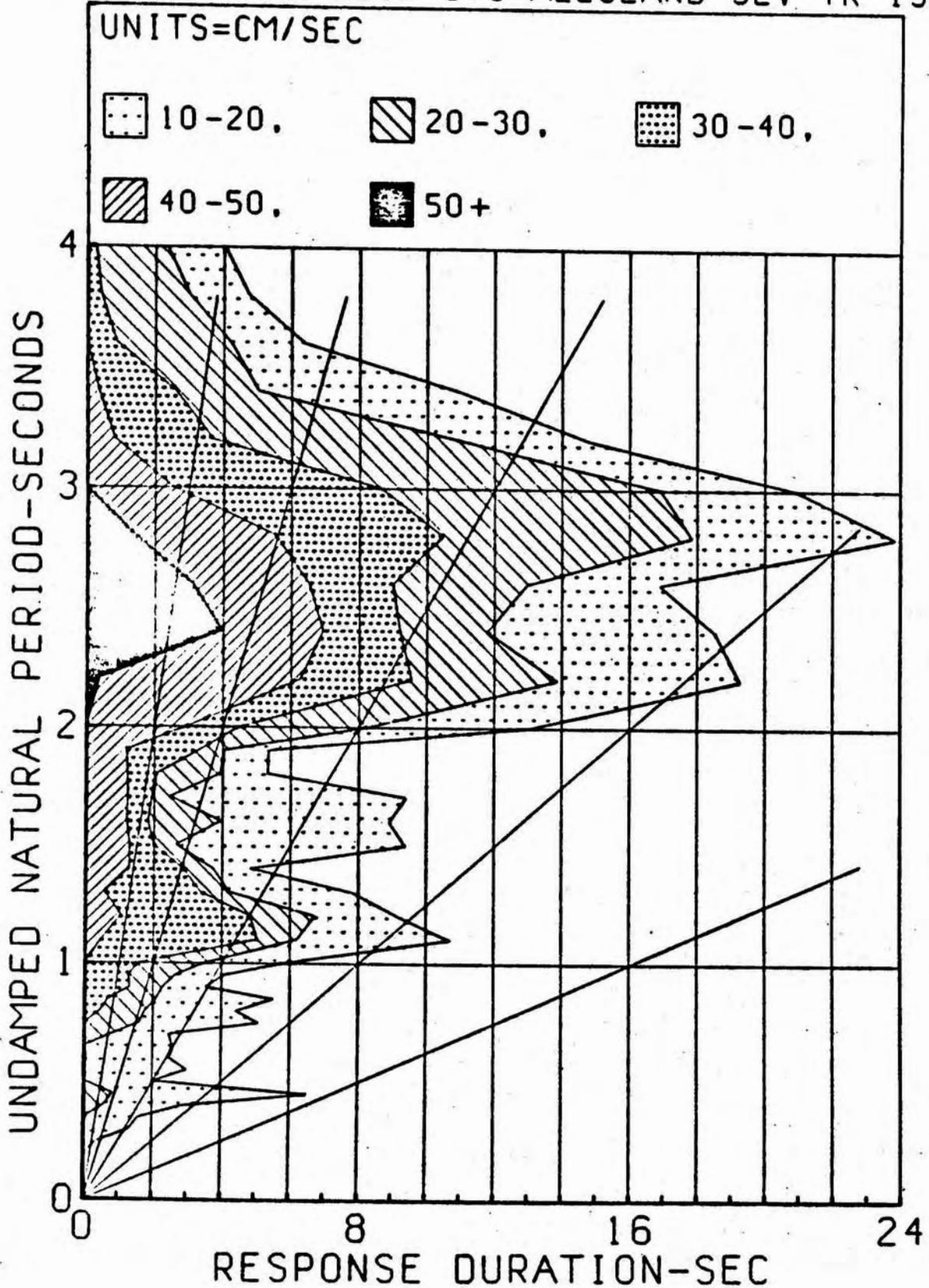


VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

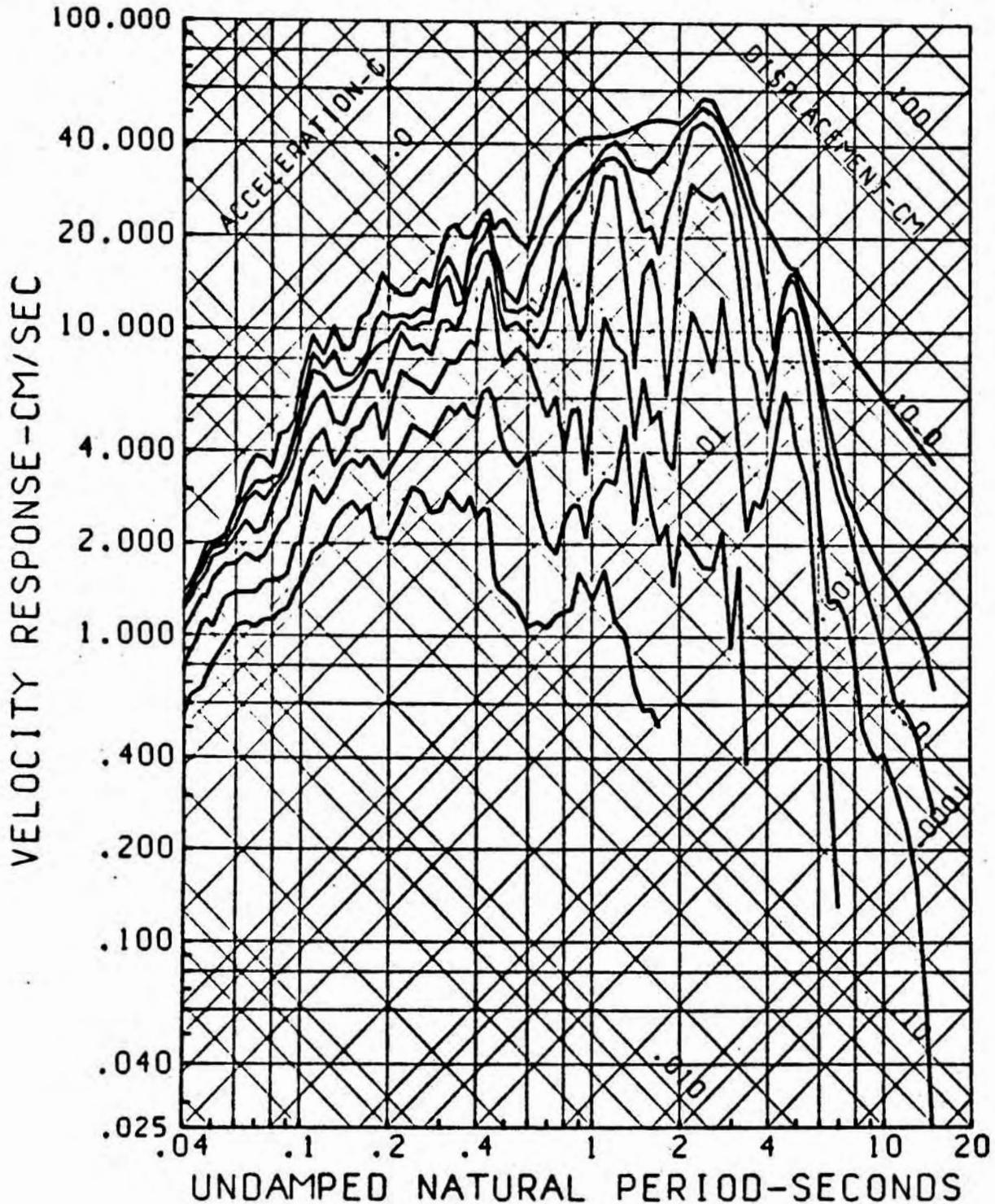
UNITS=CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 19



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC MELOLAND SLV TR 19



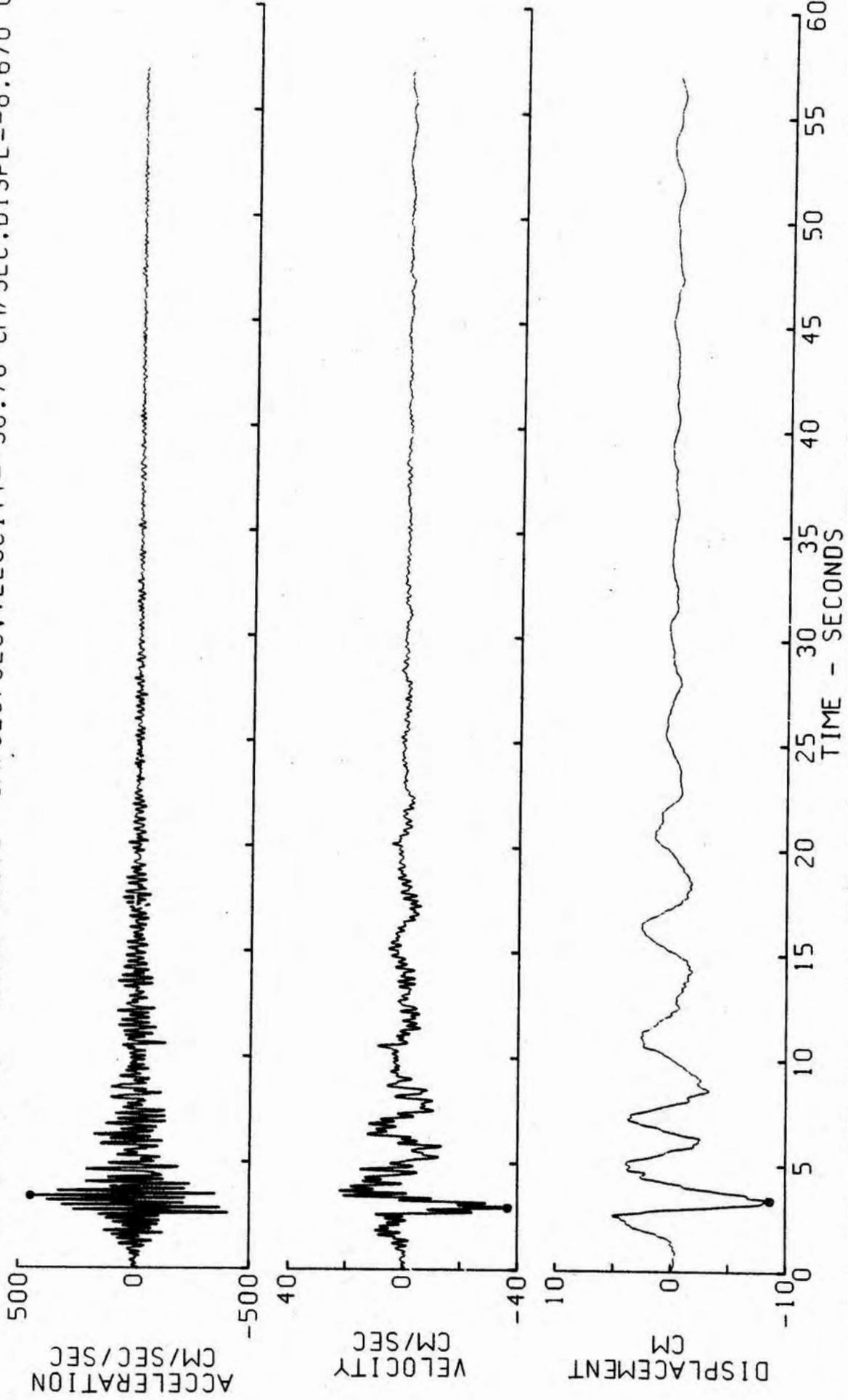
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 19
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



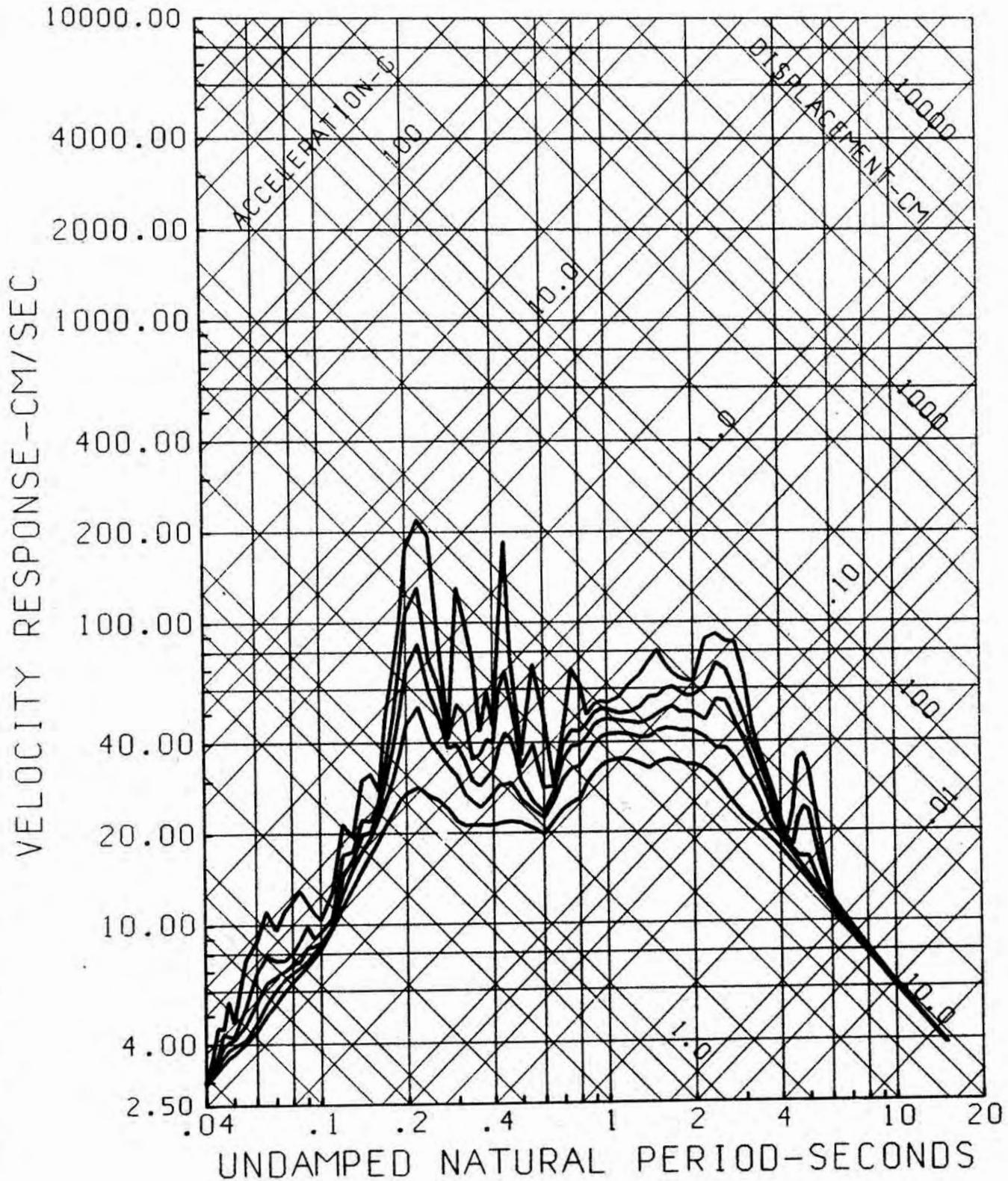
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 20 U/GRDR/NCTR W

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

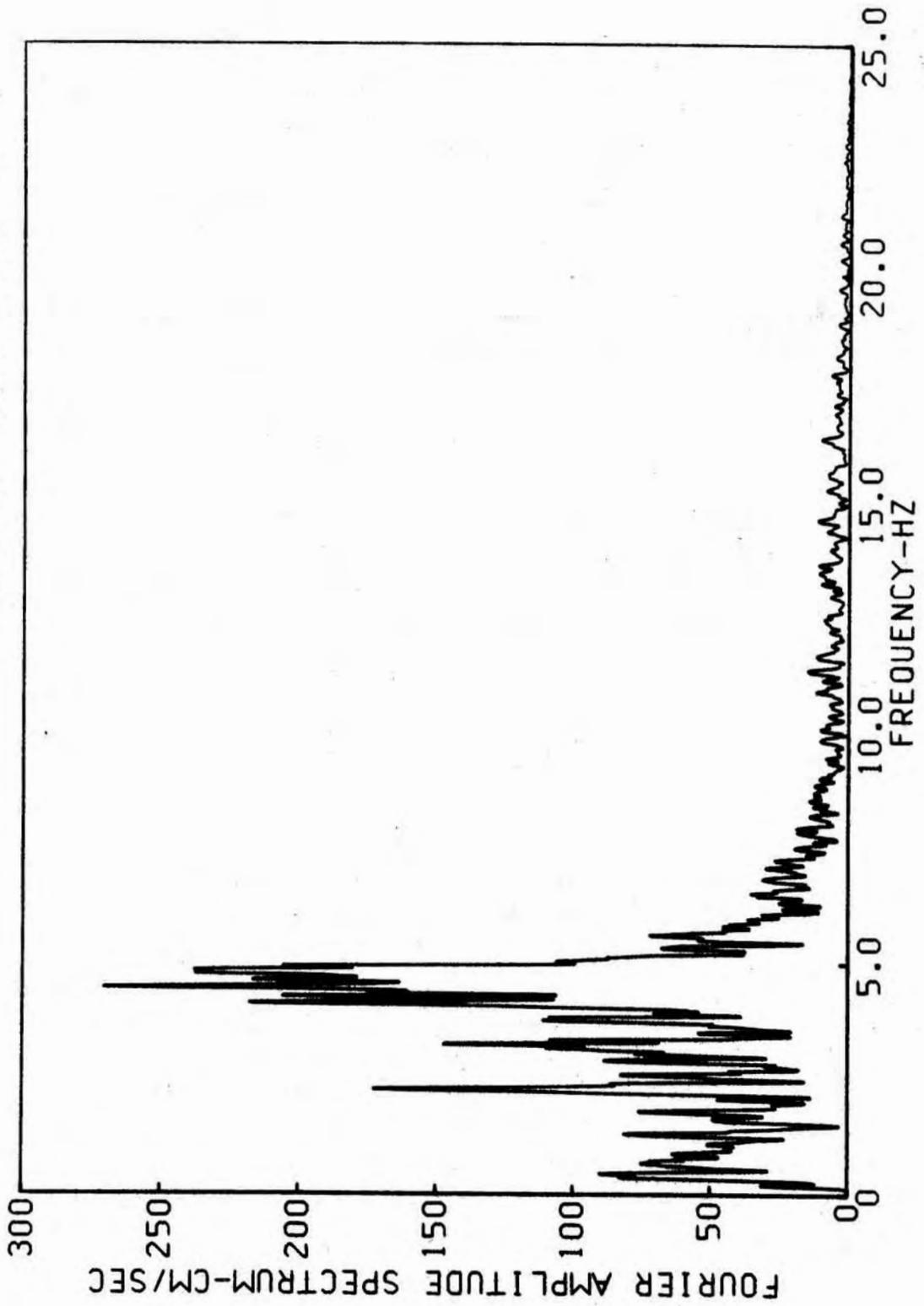
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=450.9 CM/SEC/SEC, VELOCITY=-36.70 CM/SEC, DISPL=-8.670 CM



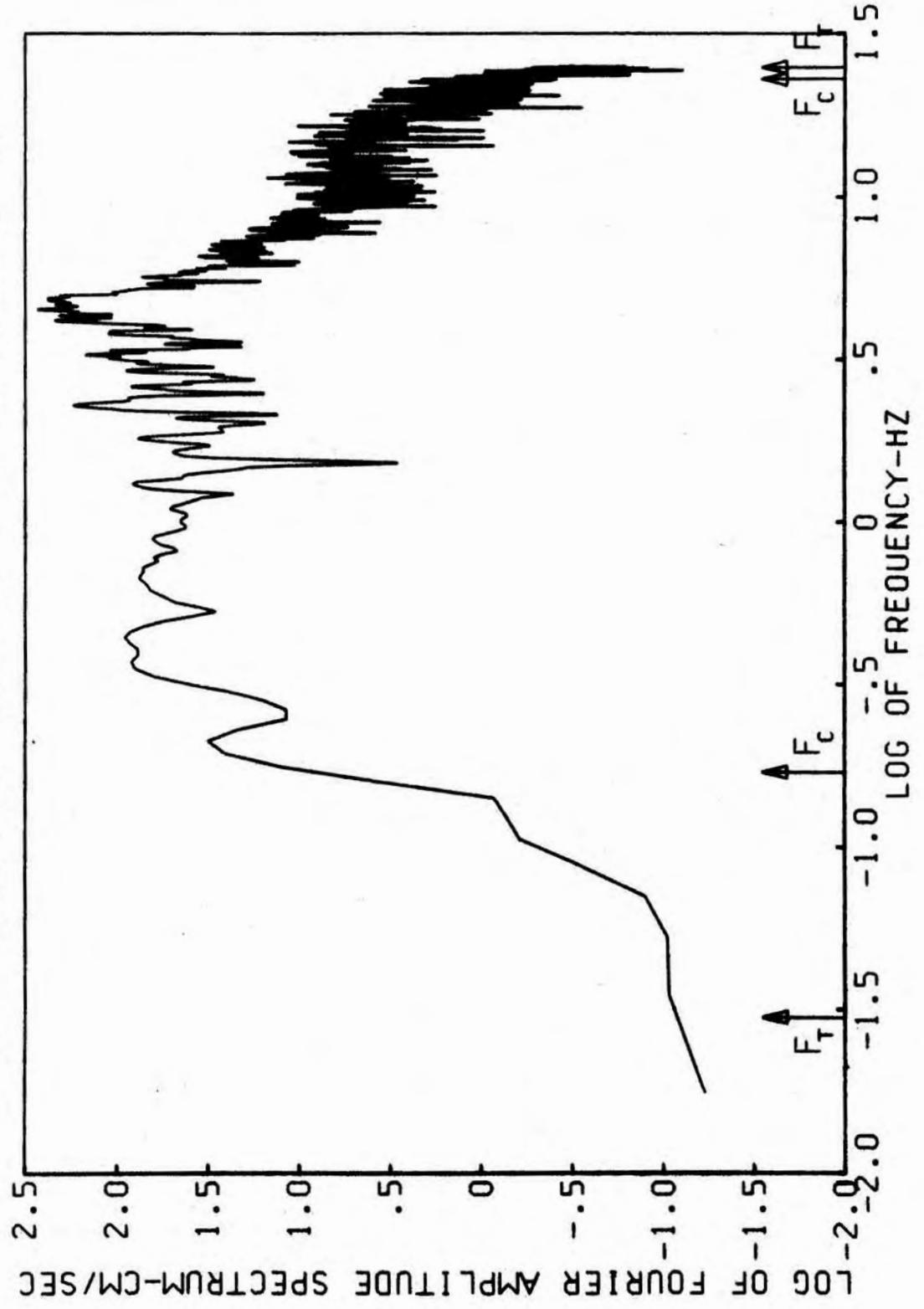
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 20
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 20 U/GRDR/NCTR
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



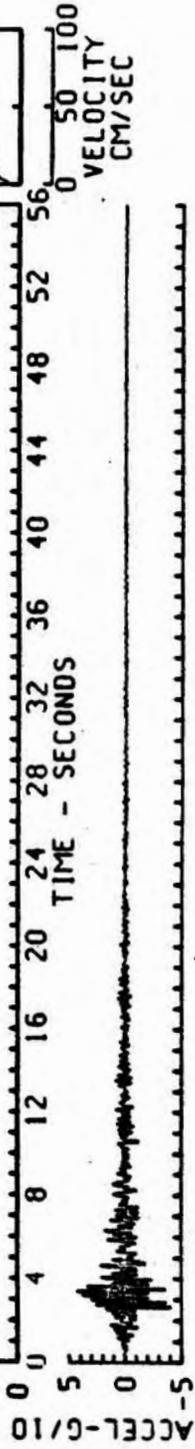
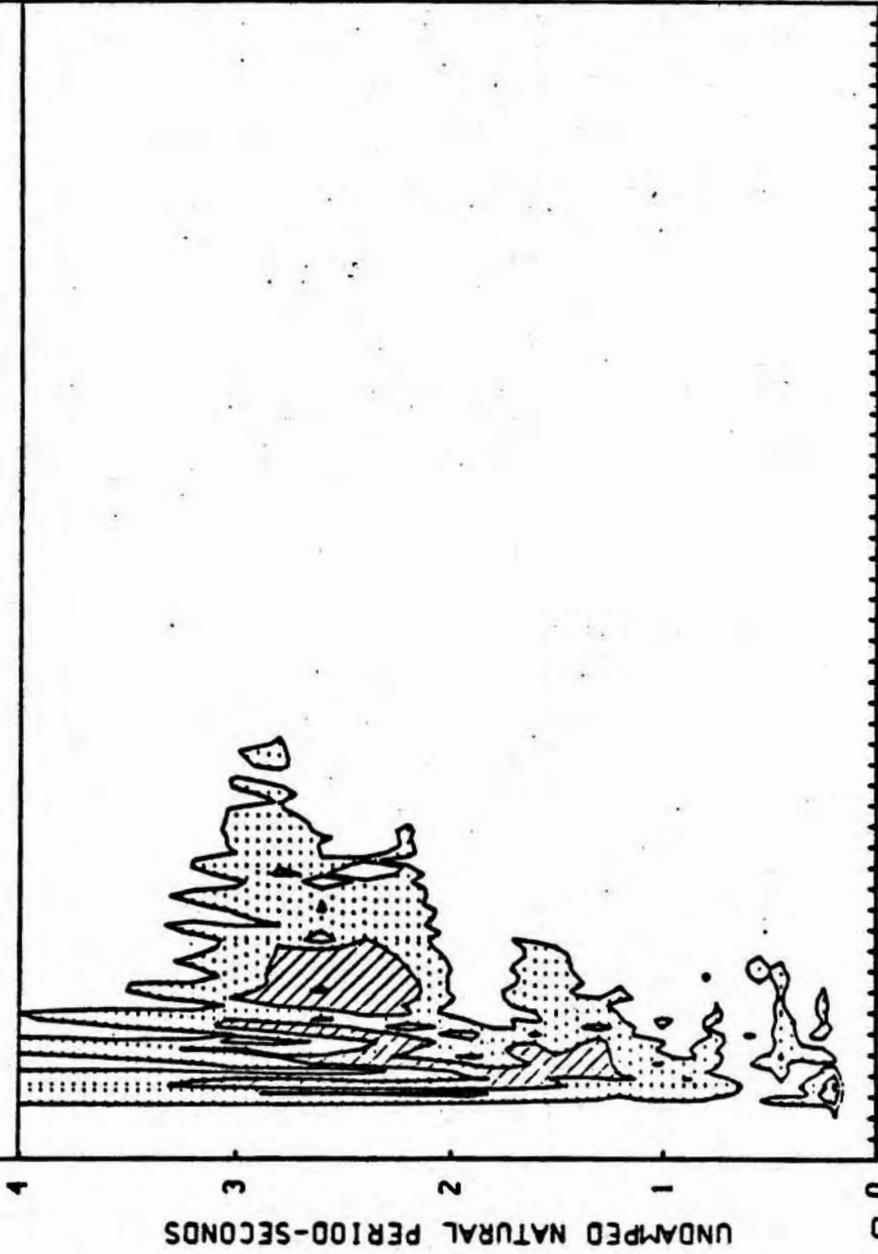
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA., EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 20 U/GRDR/NCTR
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



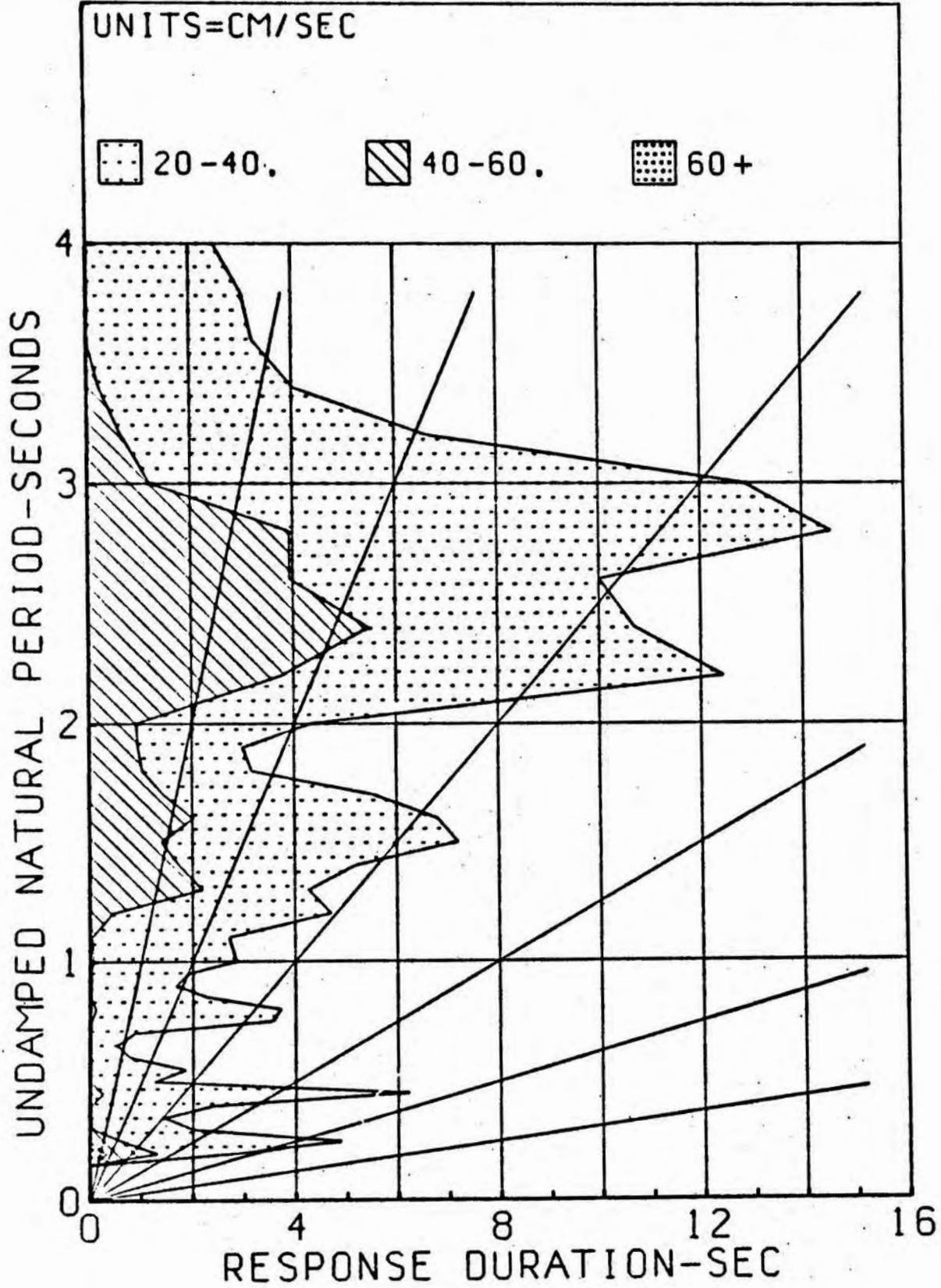
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 20

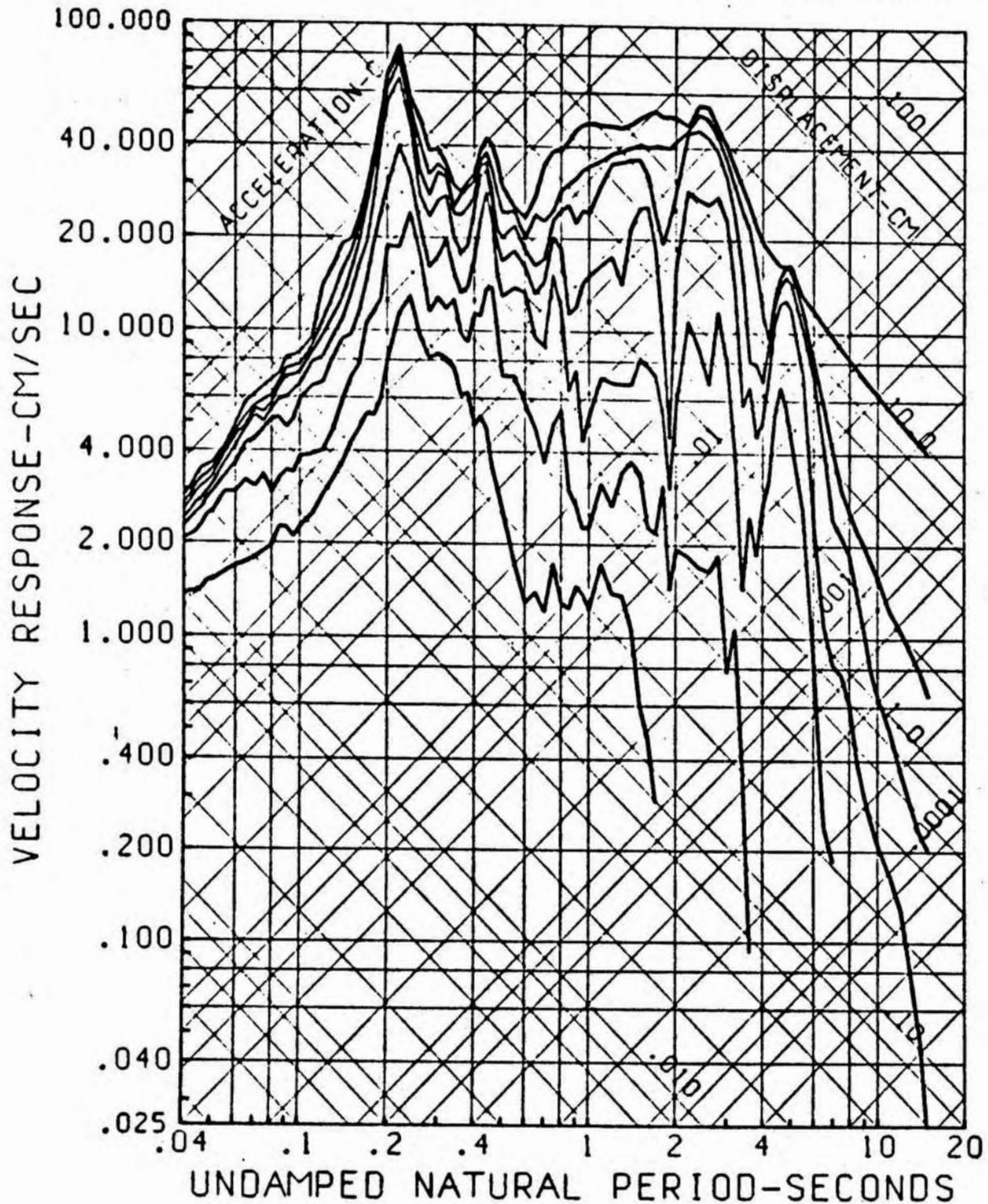
- 0-20.
- ▨ 20-40.
- ▩ 40-60.
- ▩ 60+



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC MELOLAND SLV TR 20



SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 20
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

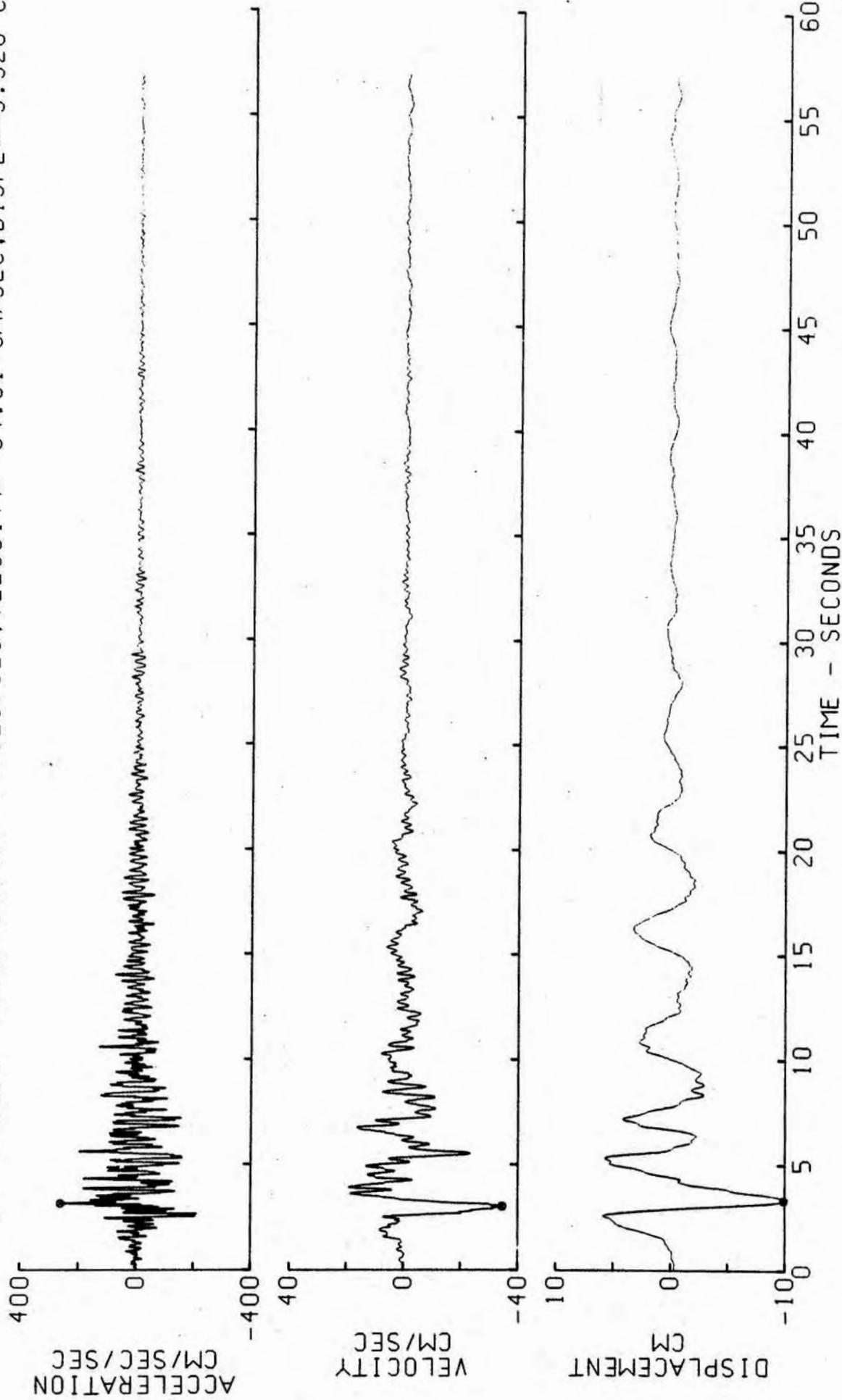


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC

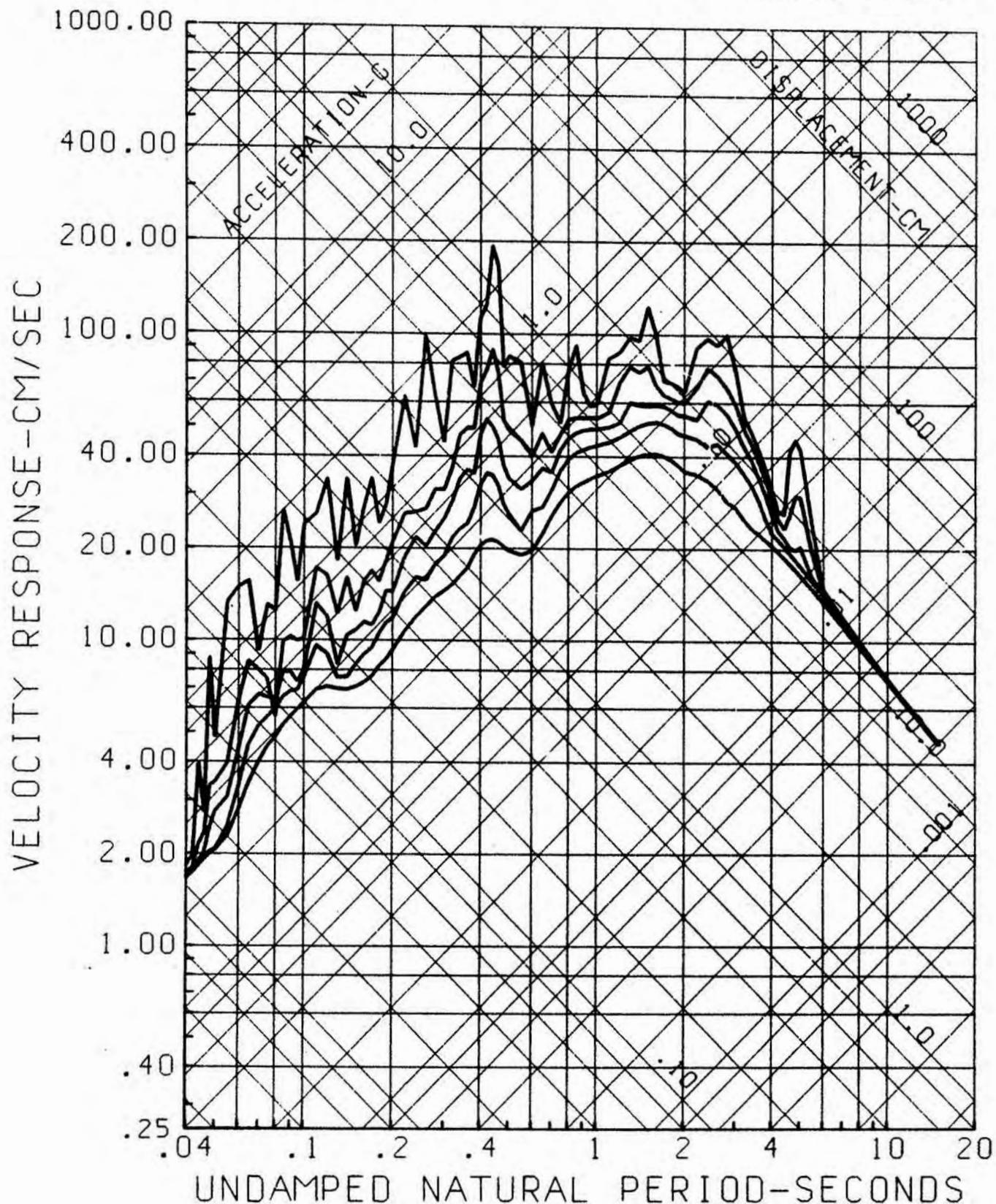
DMG 336 MELOLAND SLV CRA 165 TR 21 U/GRDR/BENTE

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

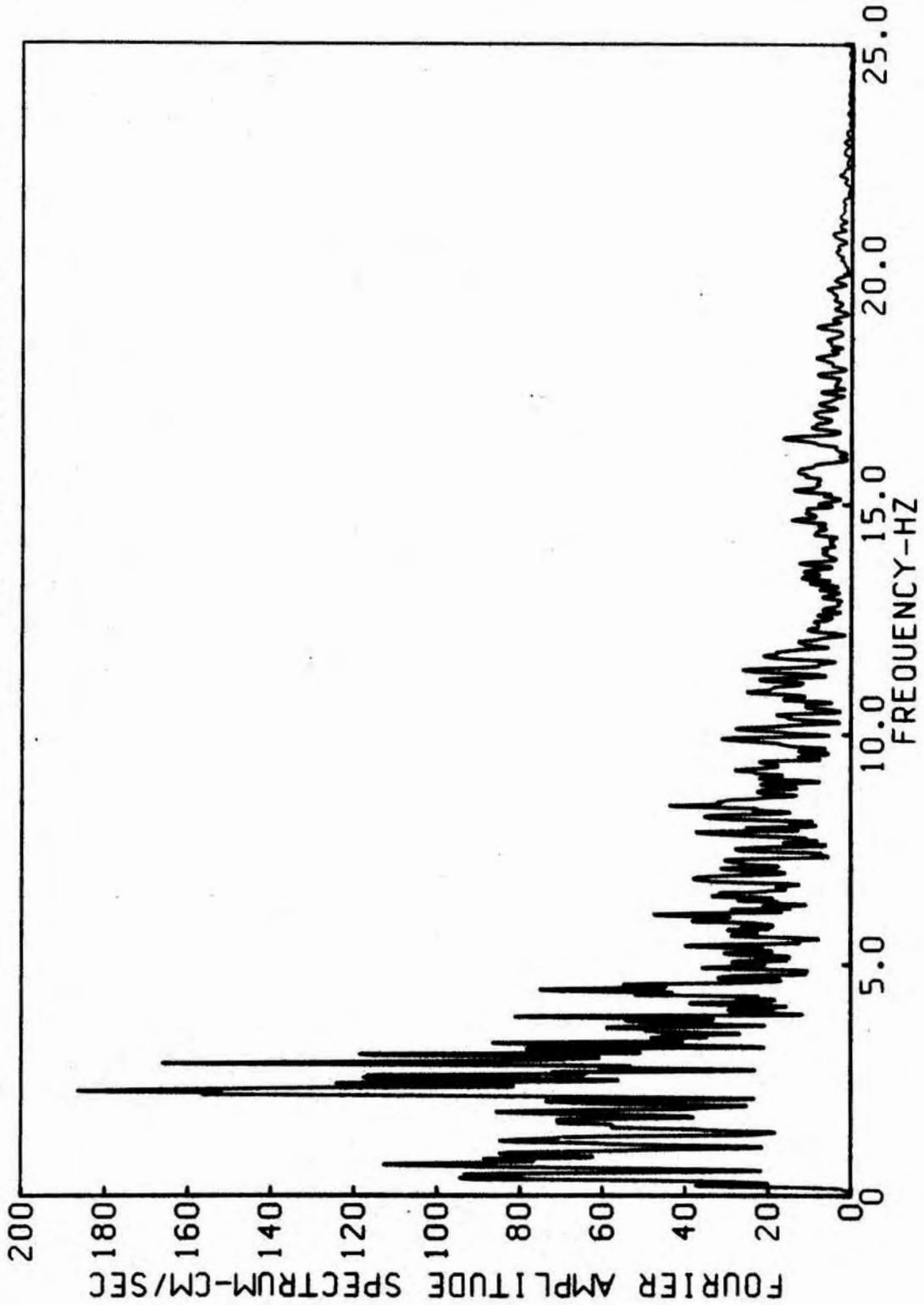
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=261.8 CM/SEC/SEC, VELOCITY=-34.61 CM/SEC, DISPL=-9.920 CM



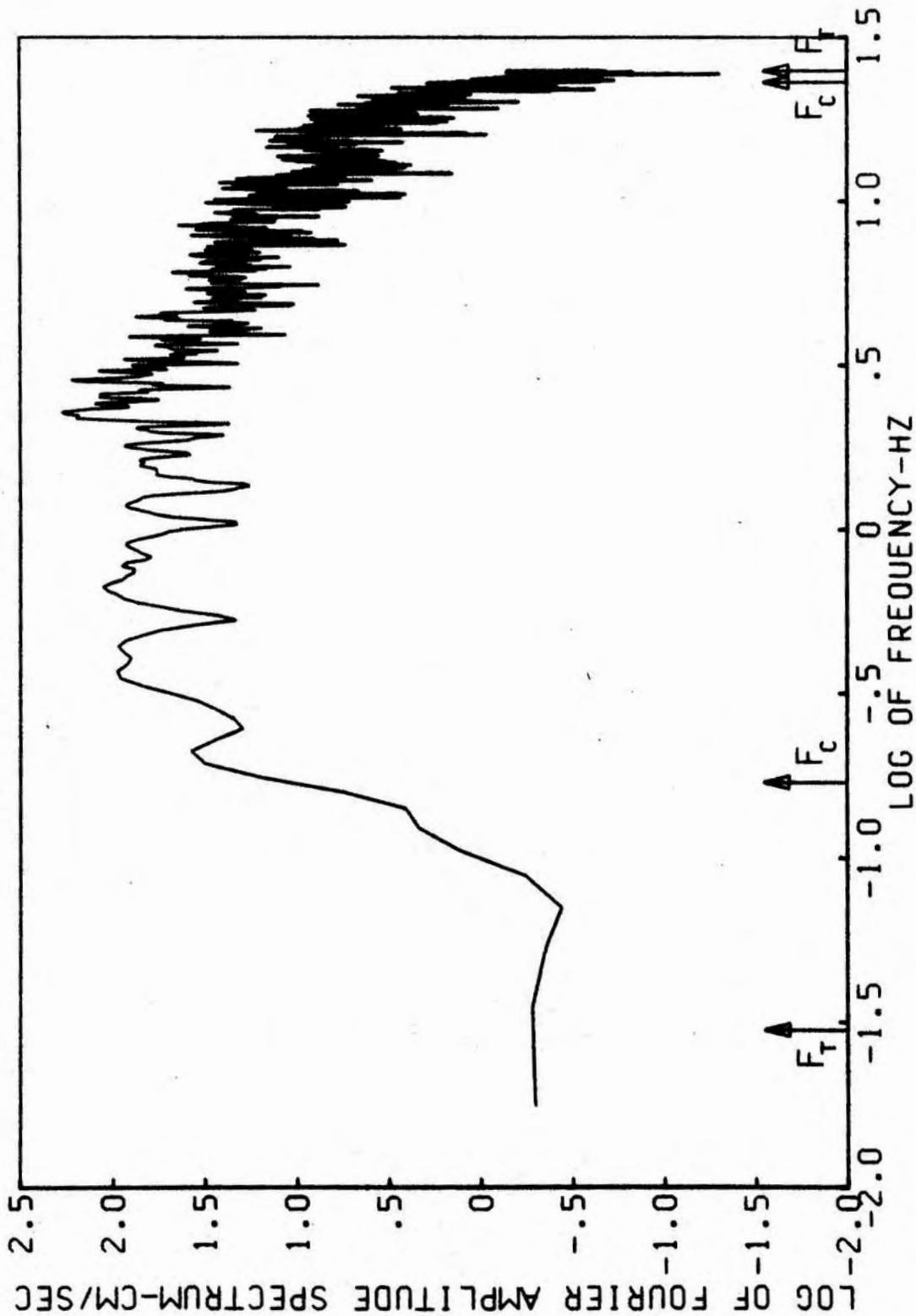
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 21
 0.2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 21 U/GRDR/BENTE
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



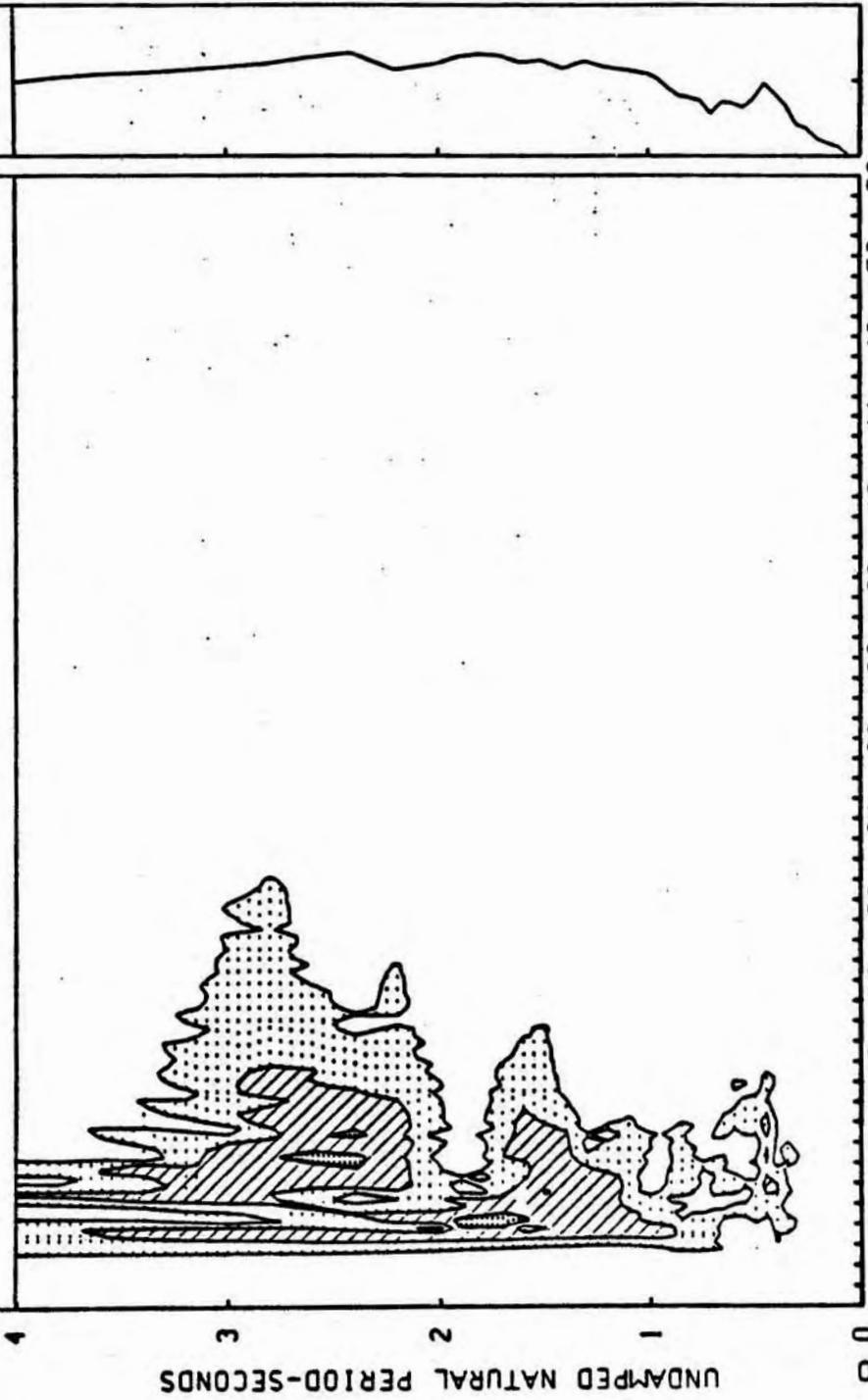
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 21 U/GRDR/BENTE
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

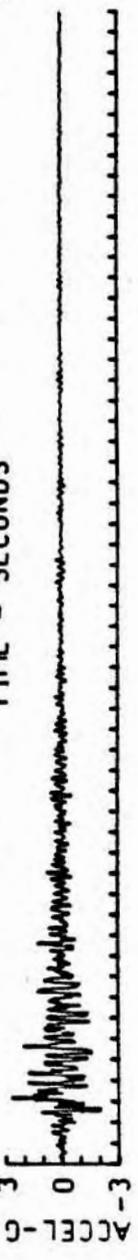
UNITS=CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 21

- 0-20.
- ▨ 20-40.
- ▩ 40-60.
- ▩ 60+



VELOCITY
CM/SEC

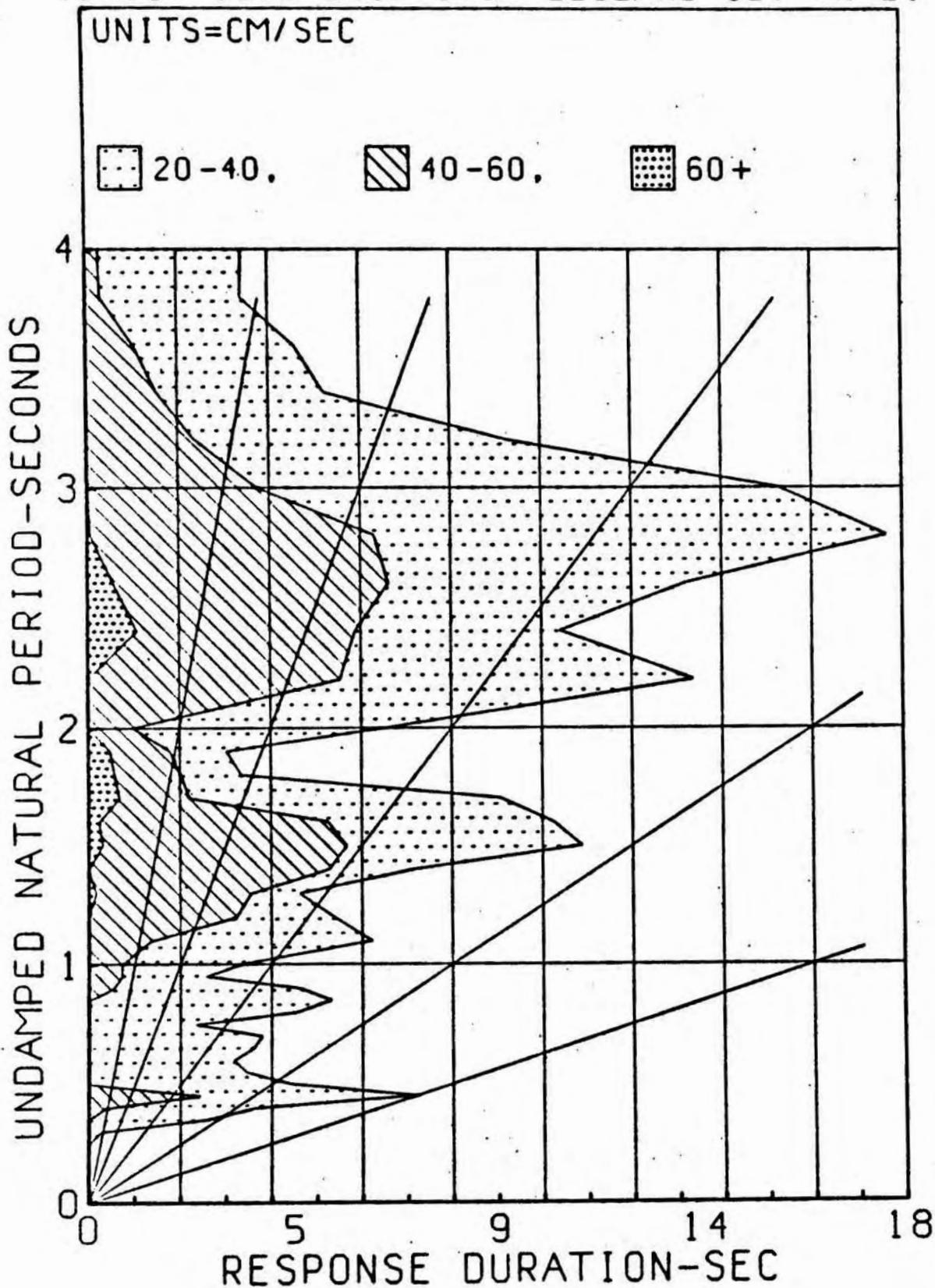
TIME - SECONDS



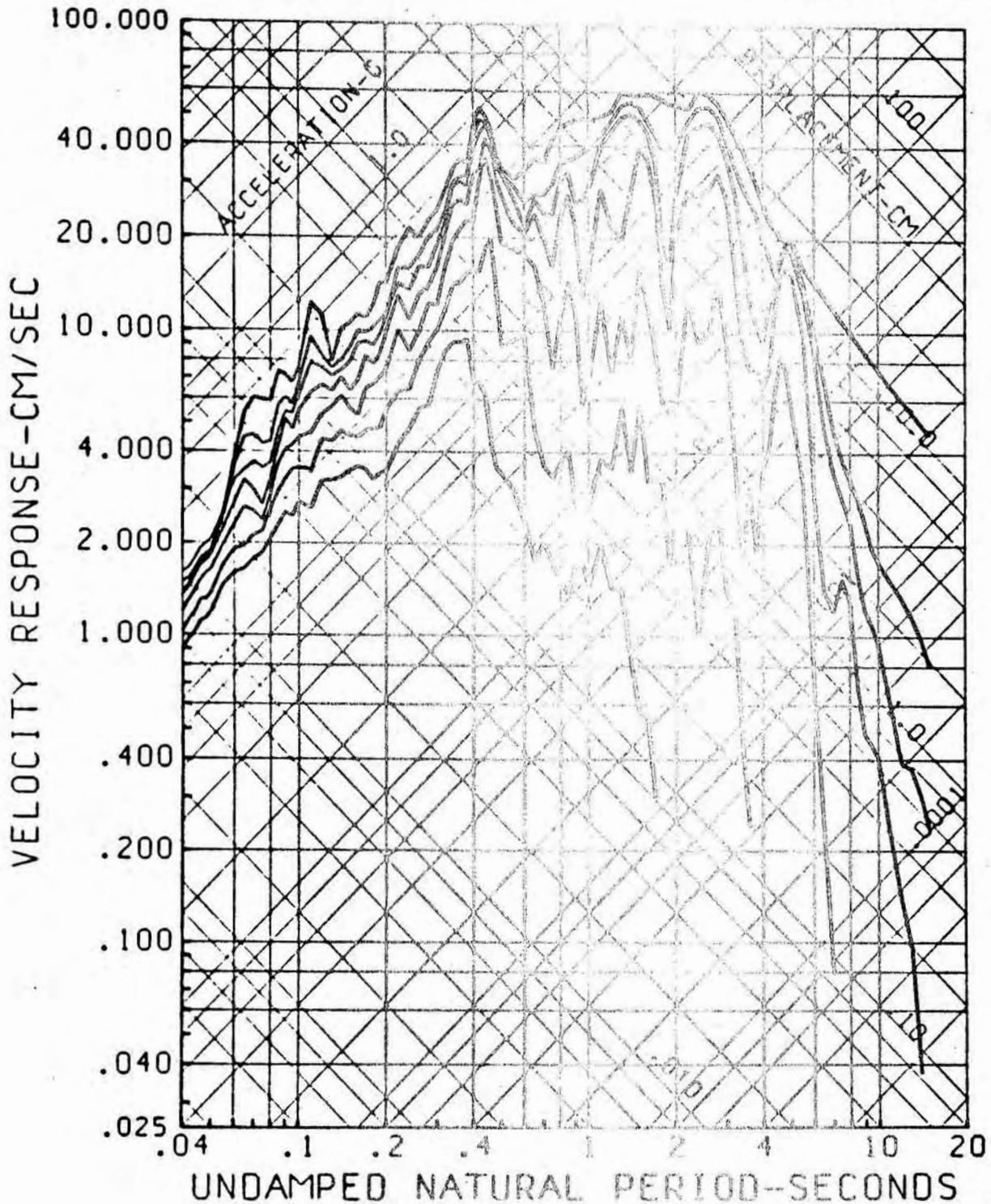
UNDAMPED NATURAL PERIOD-SECONDS

ACCEL-G/10

DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC MELOLAND SLV TR 21



SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELDILAND SLV TR 21
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

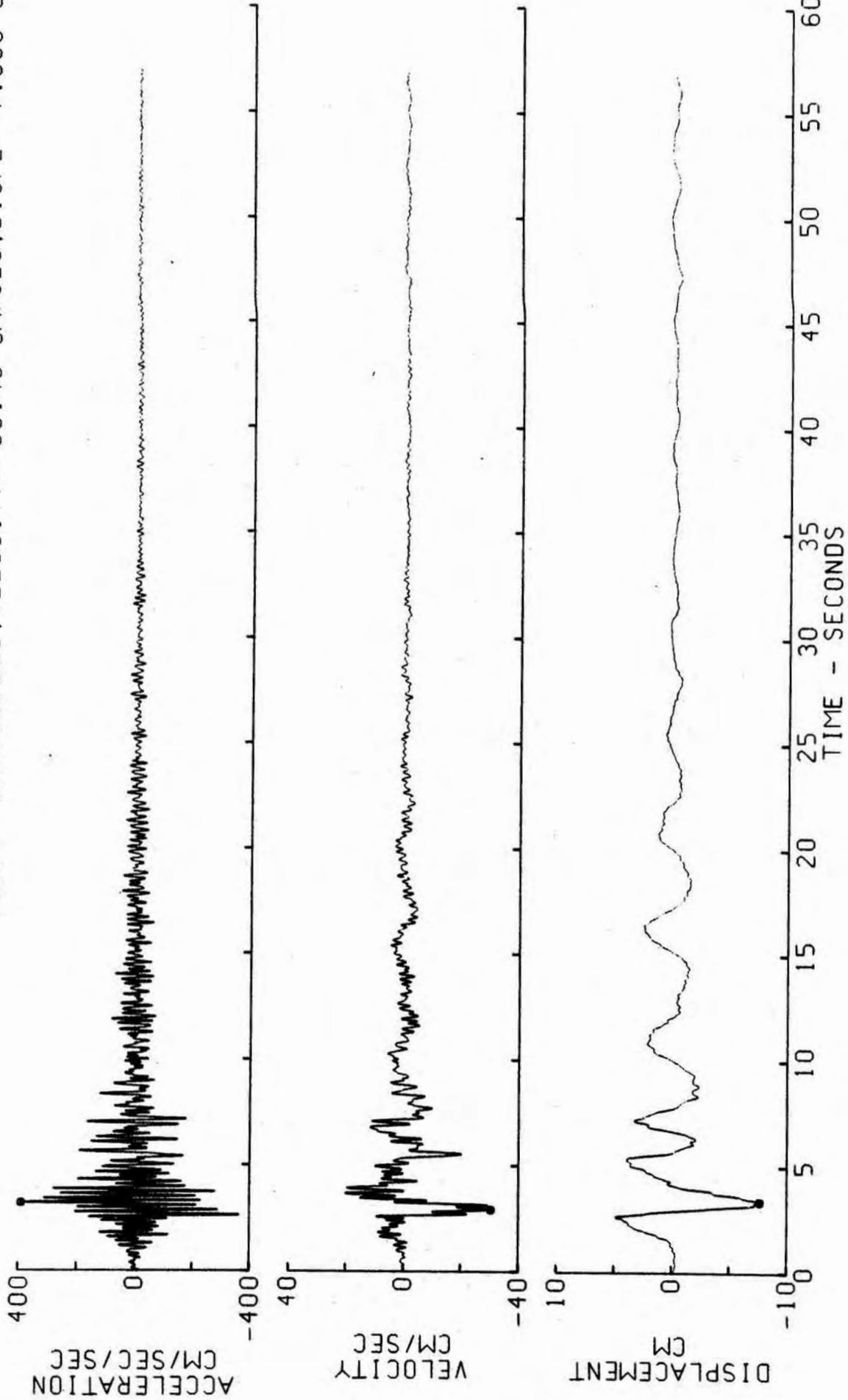


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC

DMG 336 MELOLAND SLV CRA 165 TR 22 U/GRDR/NCTRE

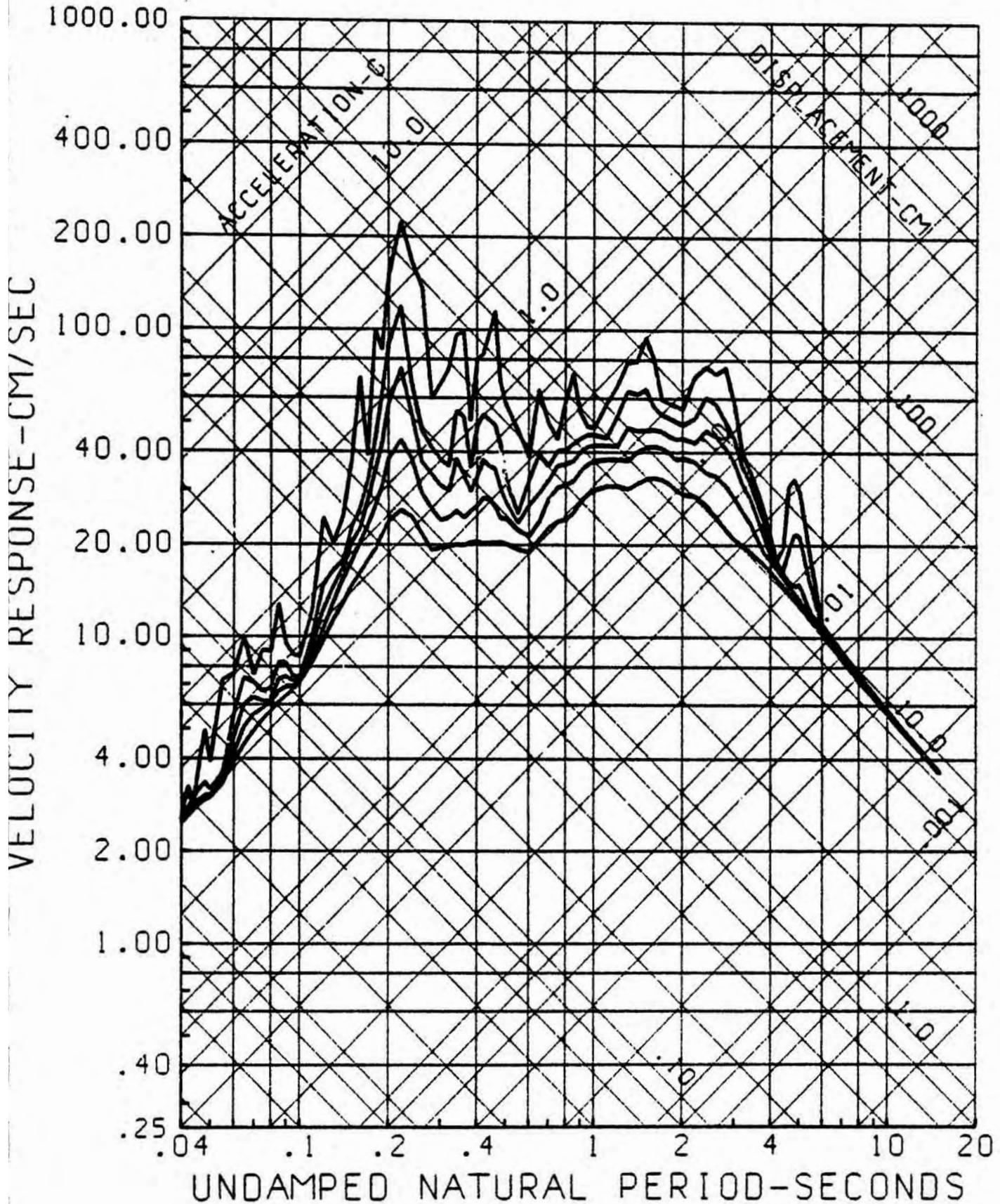
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=392.4 CM/SEC/SEC, VELOCITY=-30.43 CM/SEC, DISPL=-7.680 CM

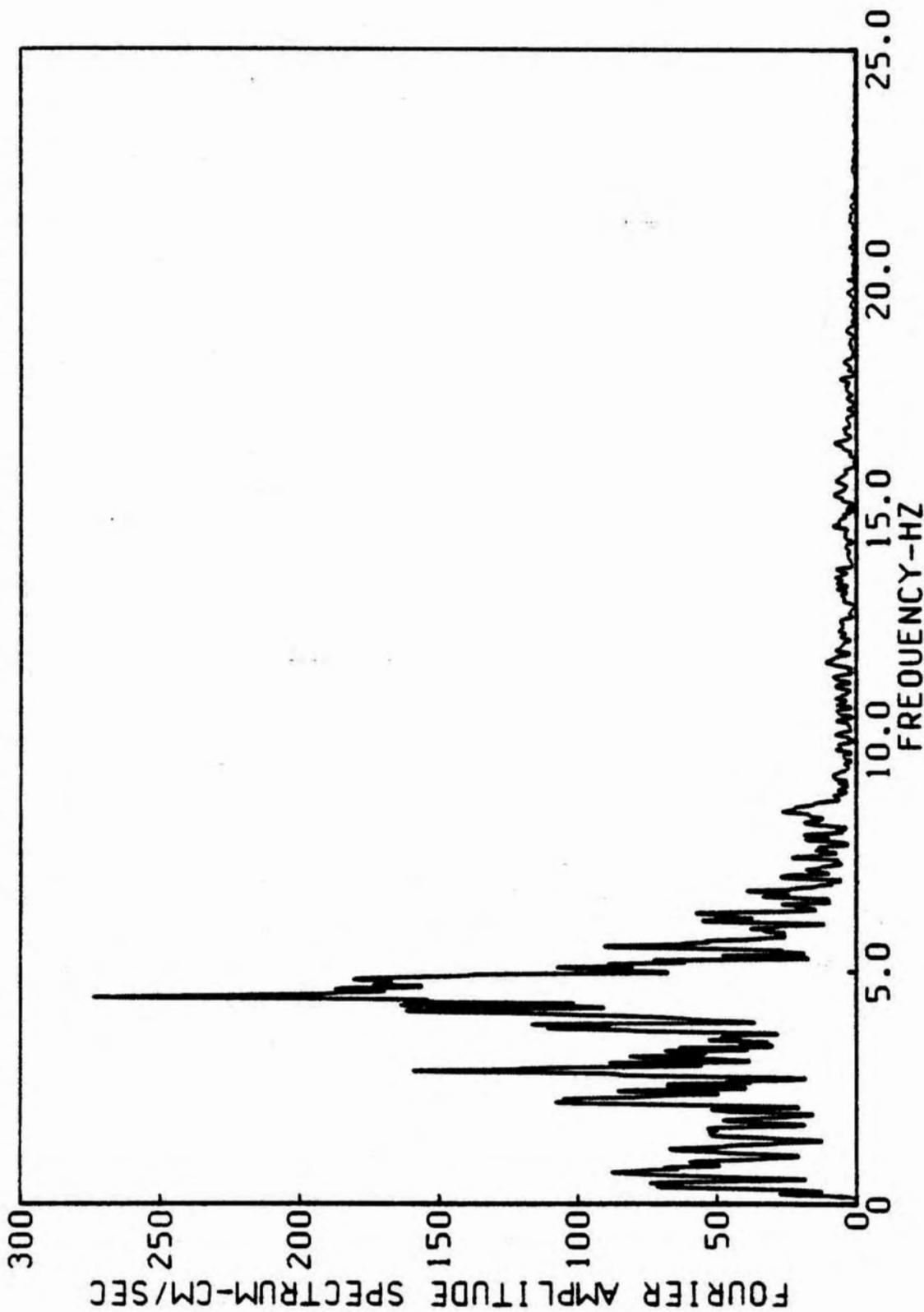


RESPONSE SPECTRA

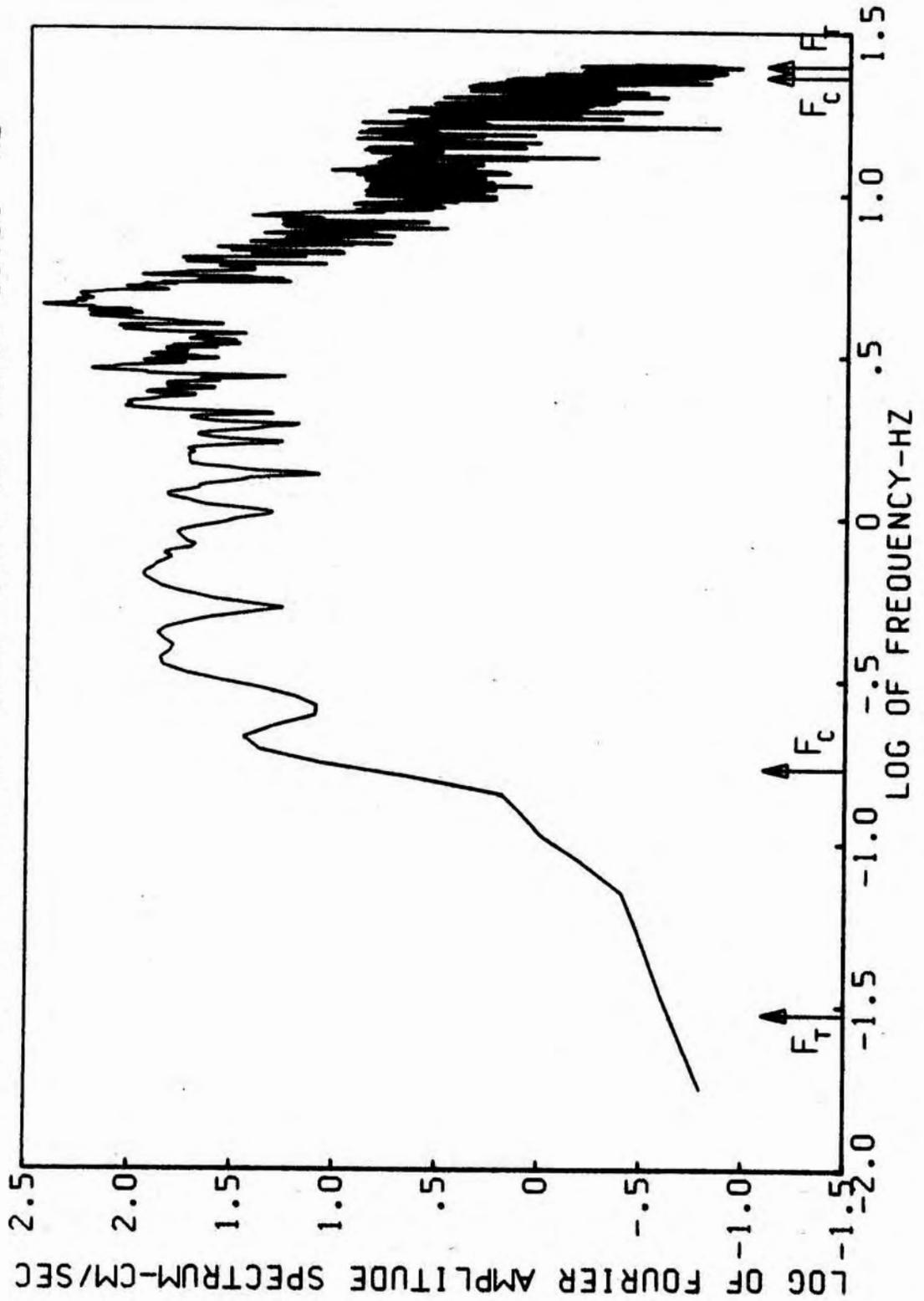
15 OCT 1979 2317 UTC MELOLAND SLV TR 22
0.2,5,10,20 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 22 U/GRDR/NCTRE
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



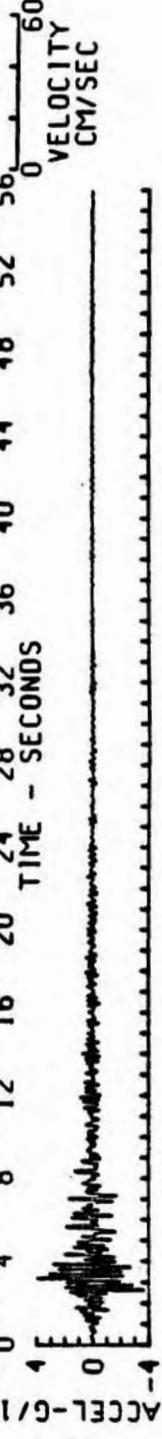
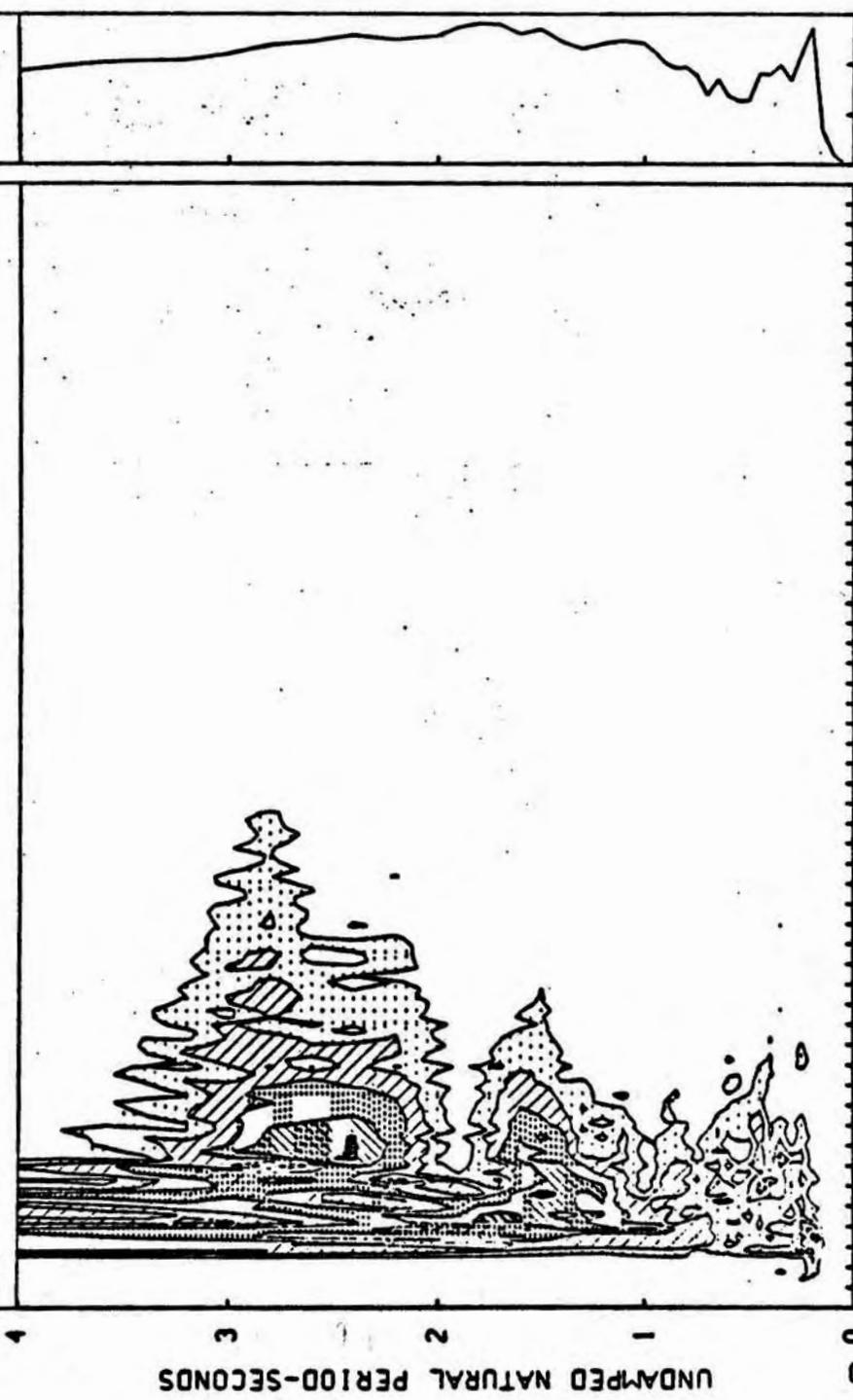
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 22 U/GRDR/NCTRE
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



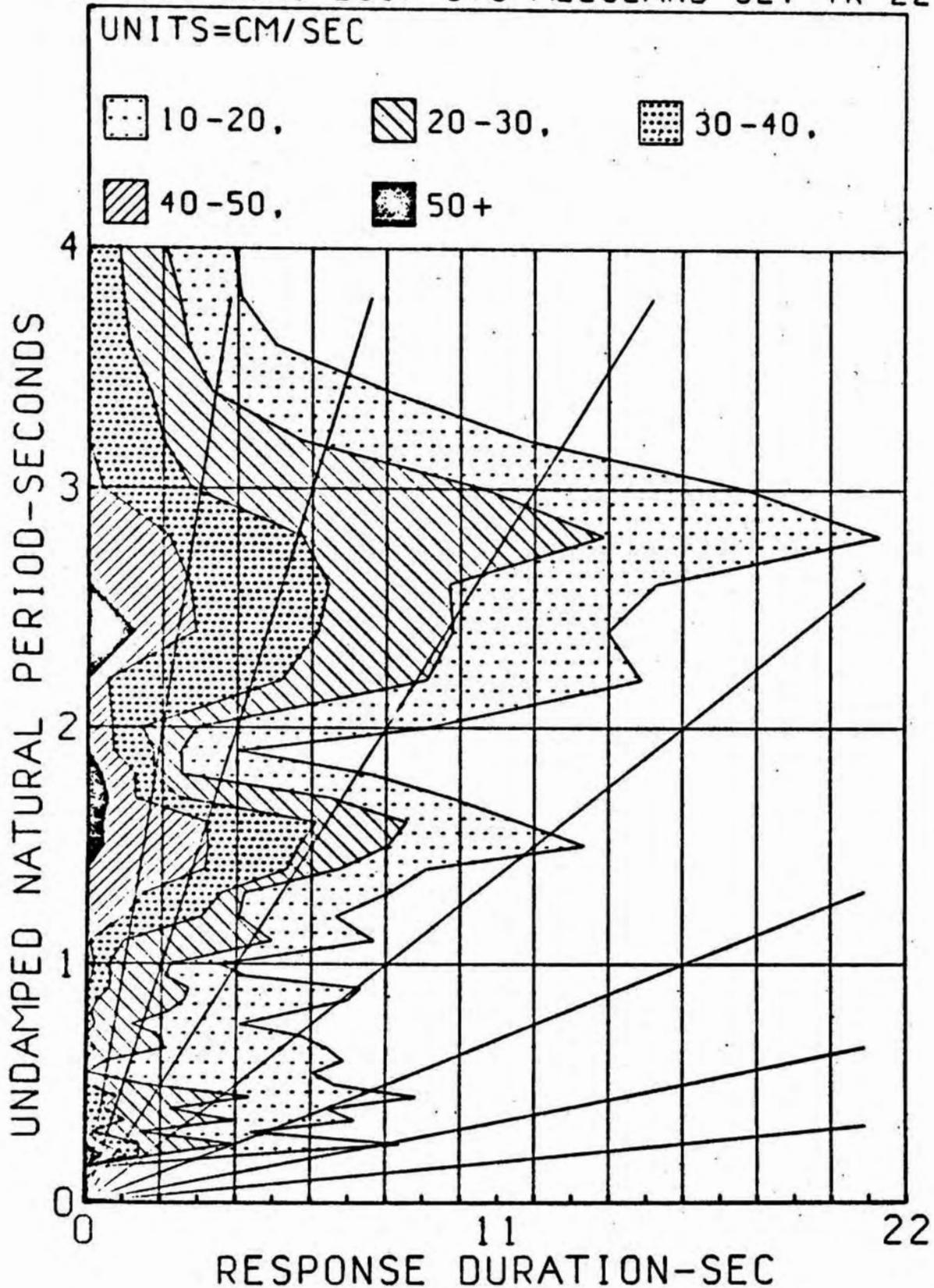
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 22

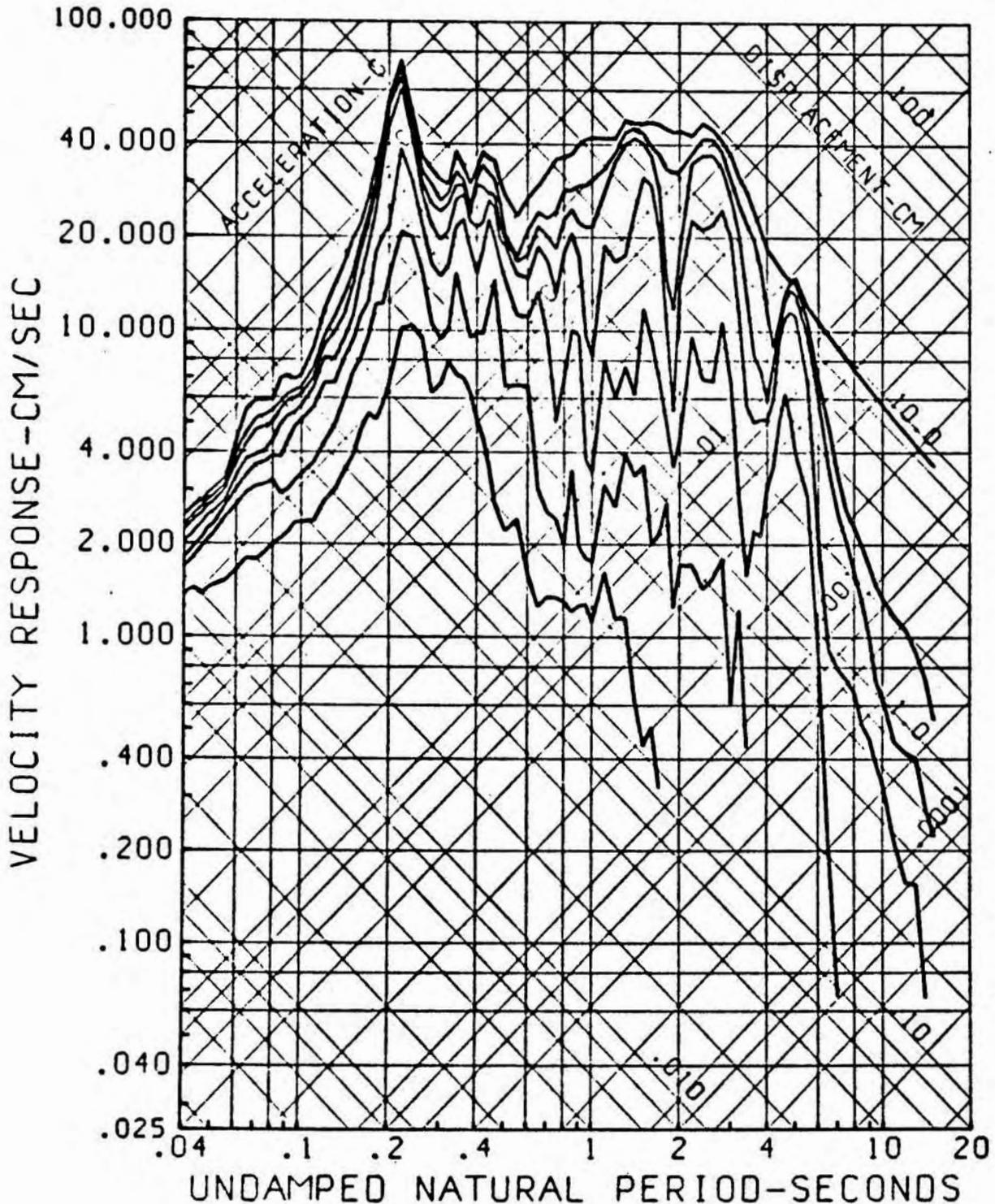
- 0-10.
- ▨ 10-20.
- ▩ 20-30.
- ▤ 30-40.
- ▥ 40-50.
- 50+



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC MELOLAND SLV TR 22

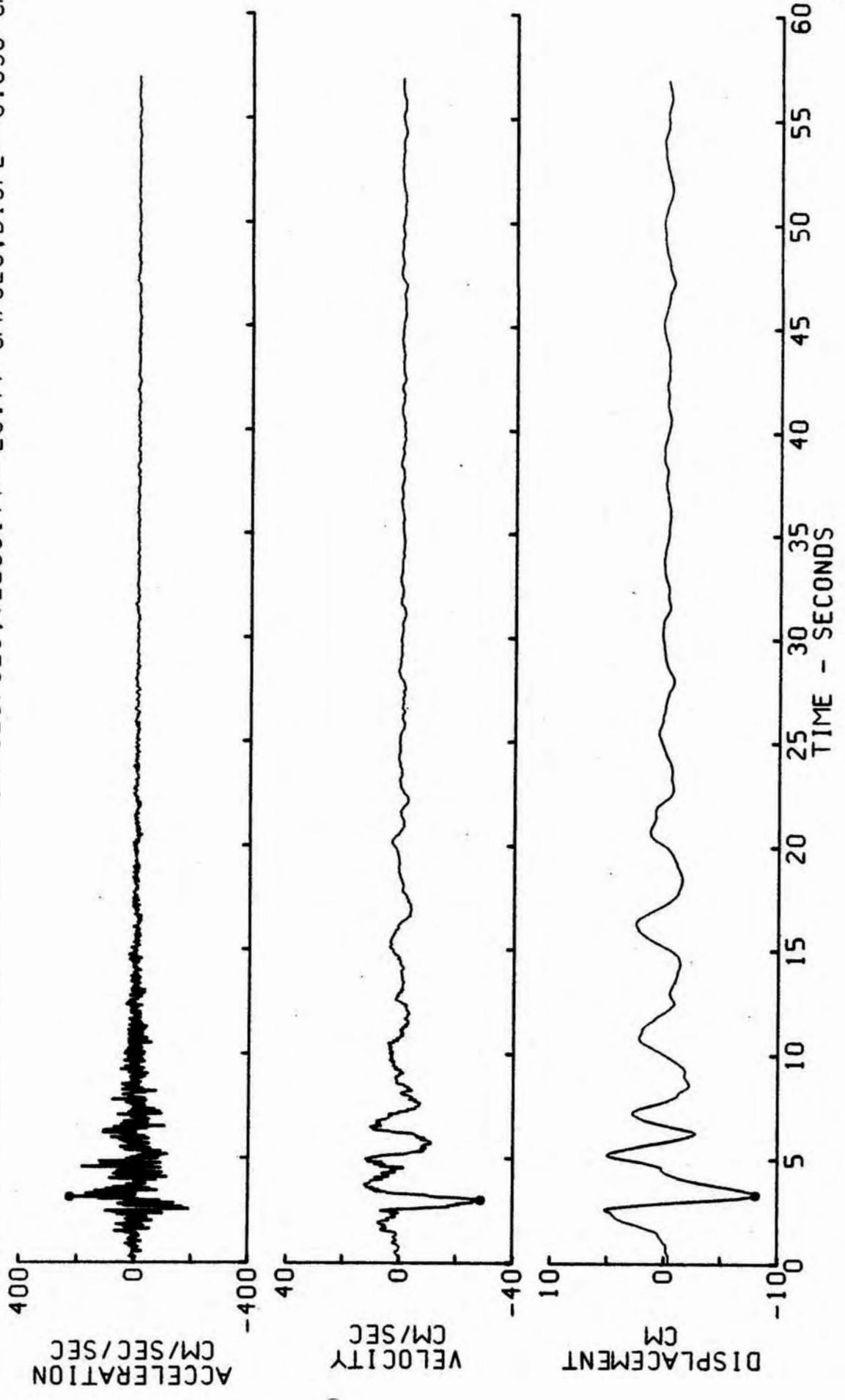


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 22
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

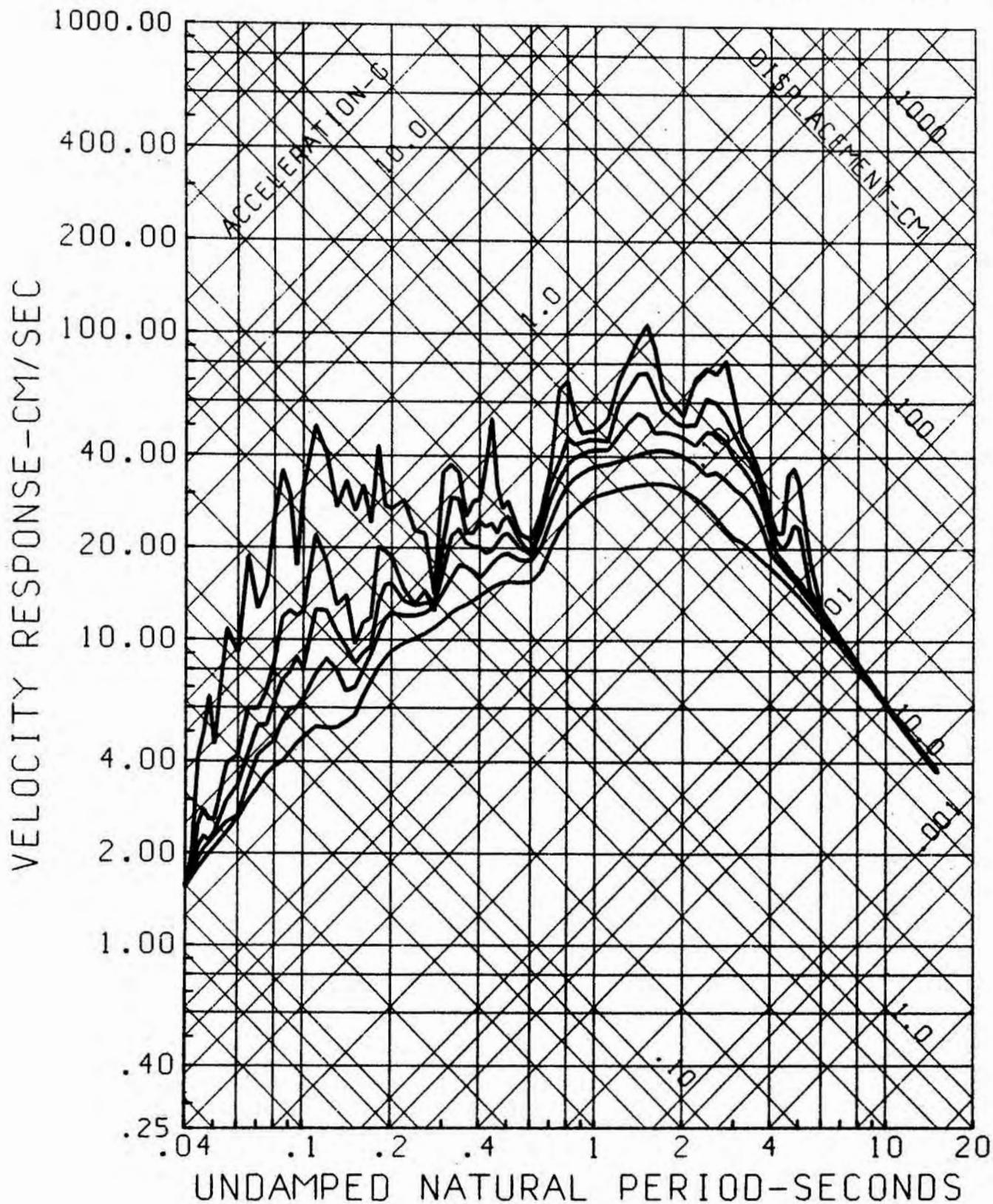


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 23 U/GRND/N APP

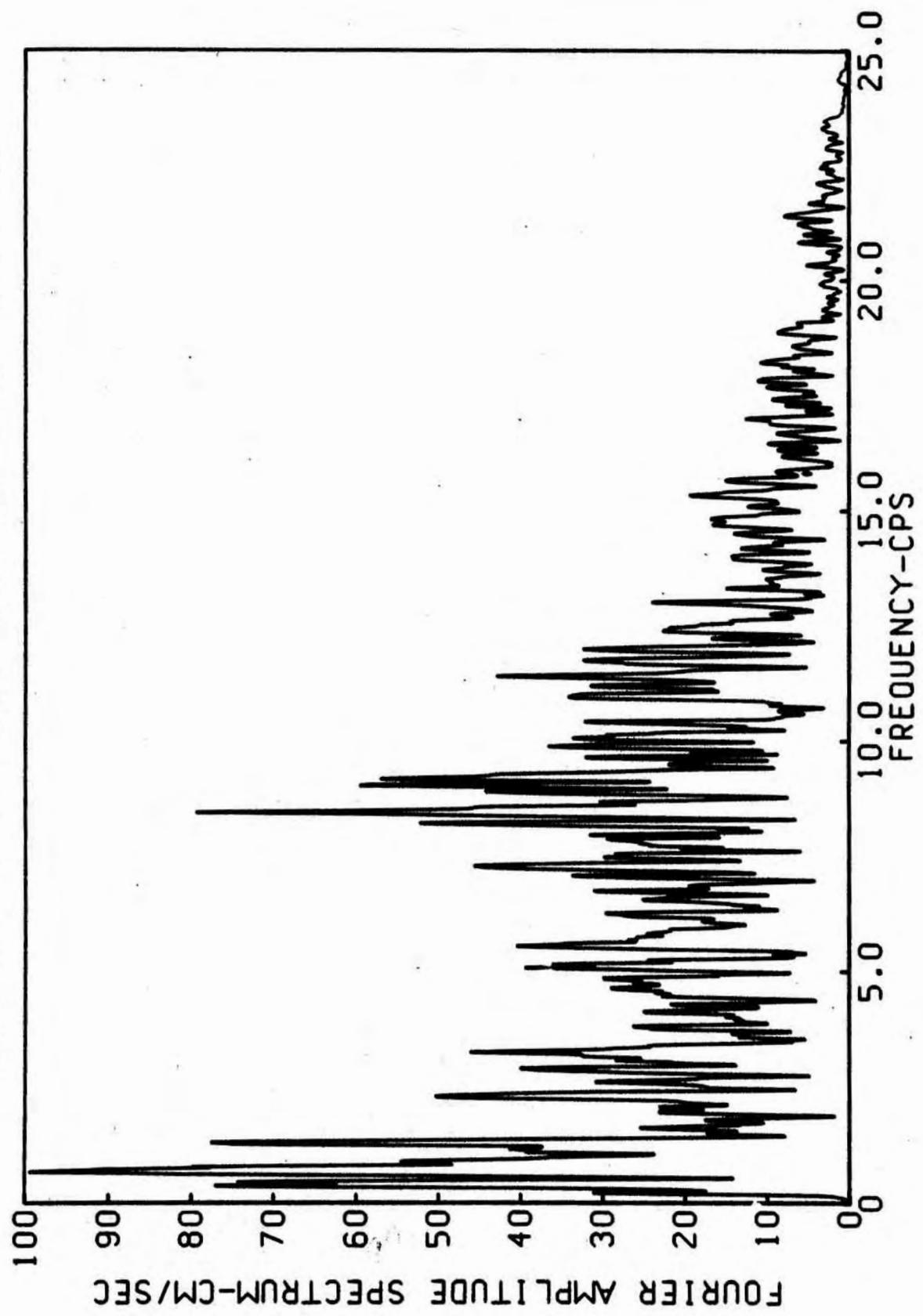
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=227.1 CM/SEC/SEC, VELOCITY=-28.77 CM/SEC, DISPL=-8.090 CM



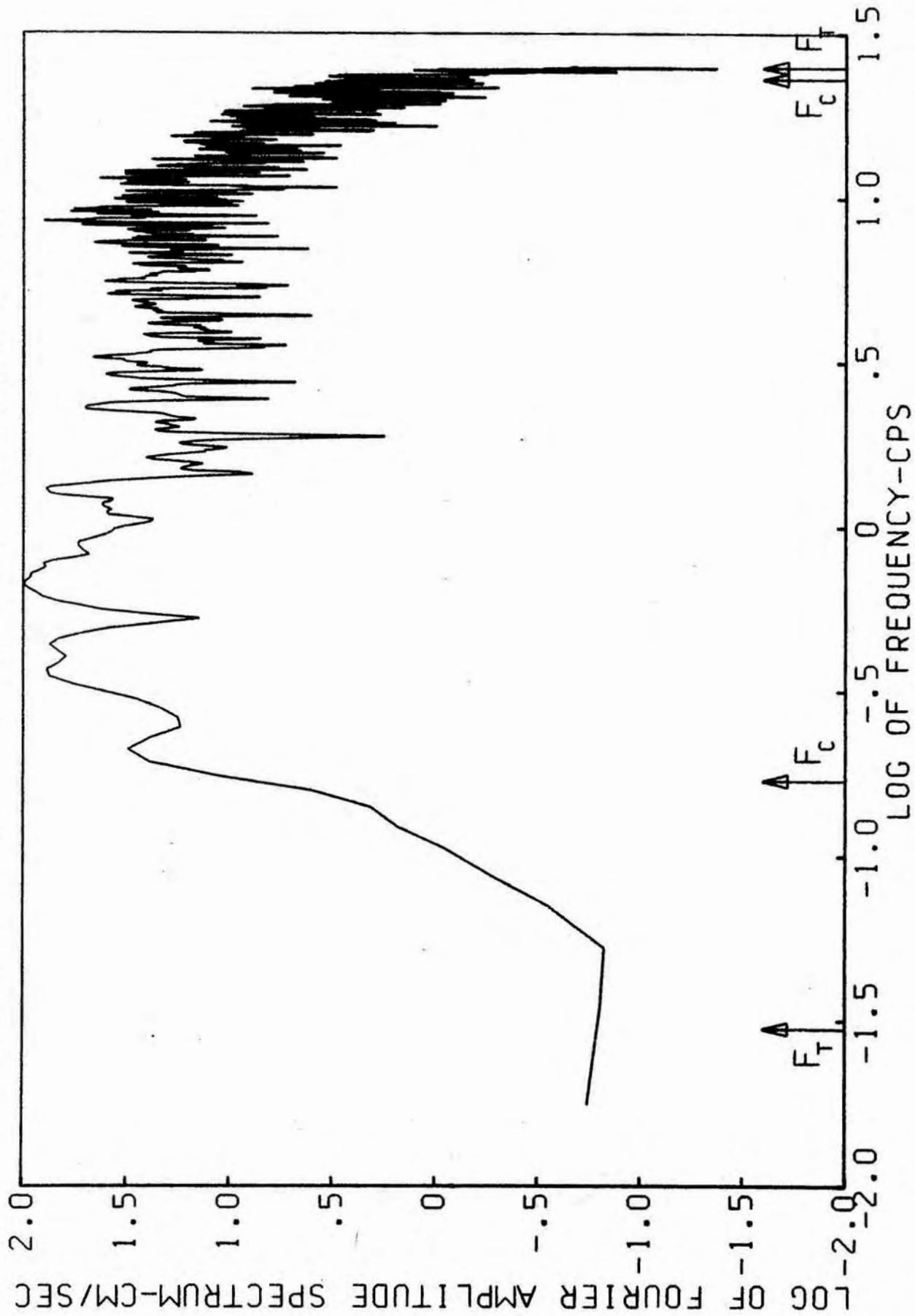
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 23
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



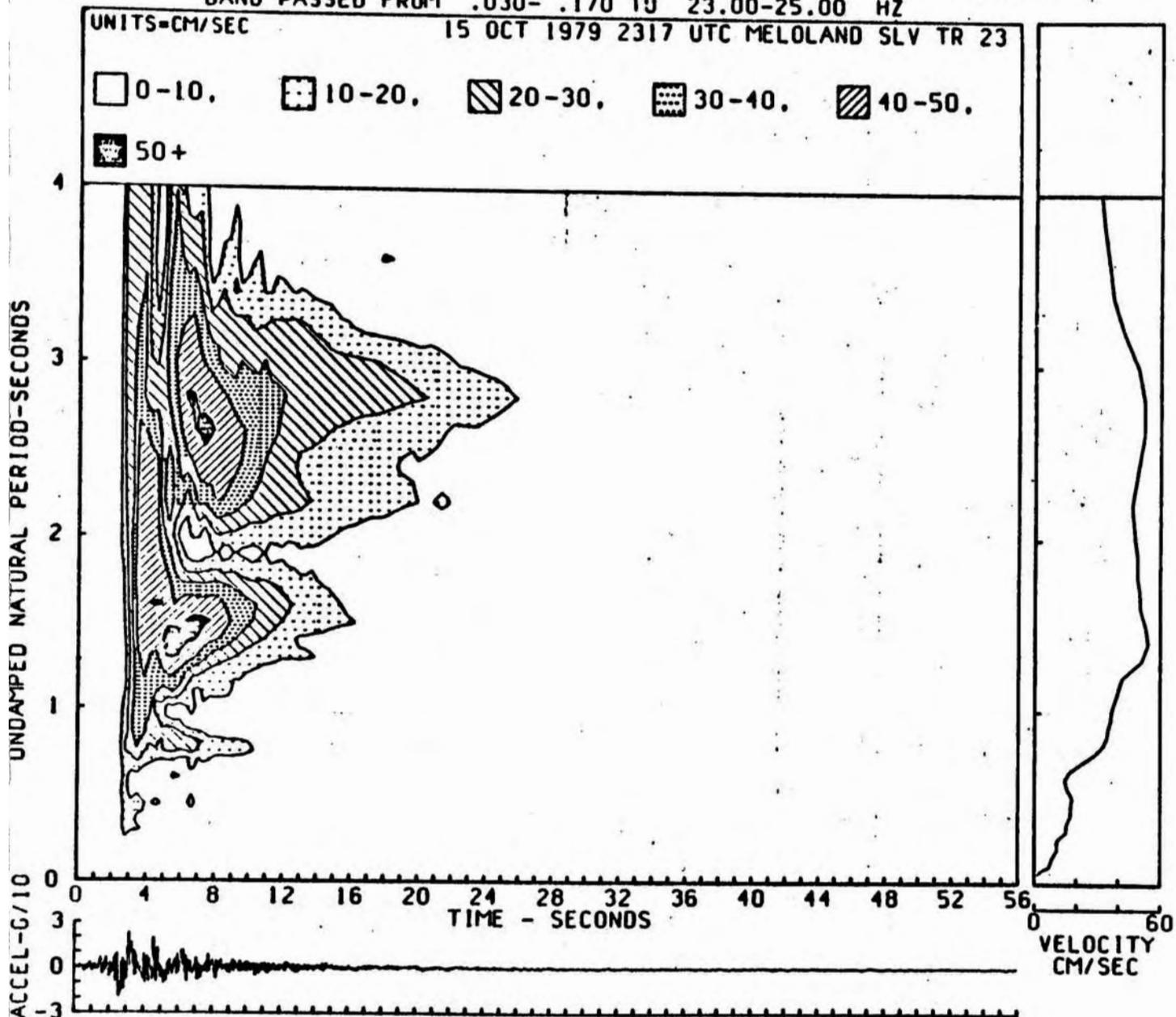
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 23 U/GRND/N APP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



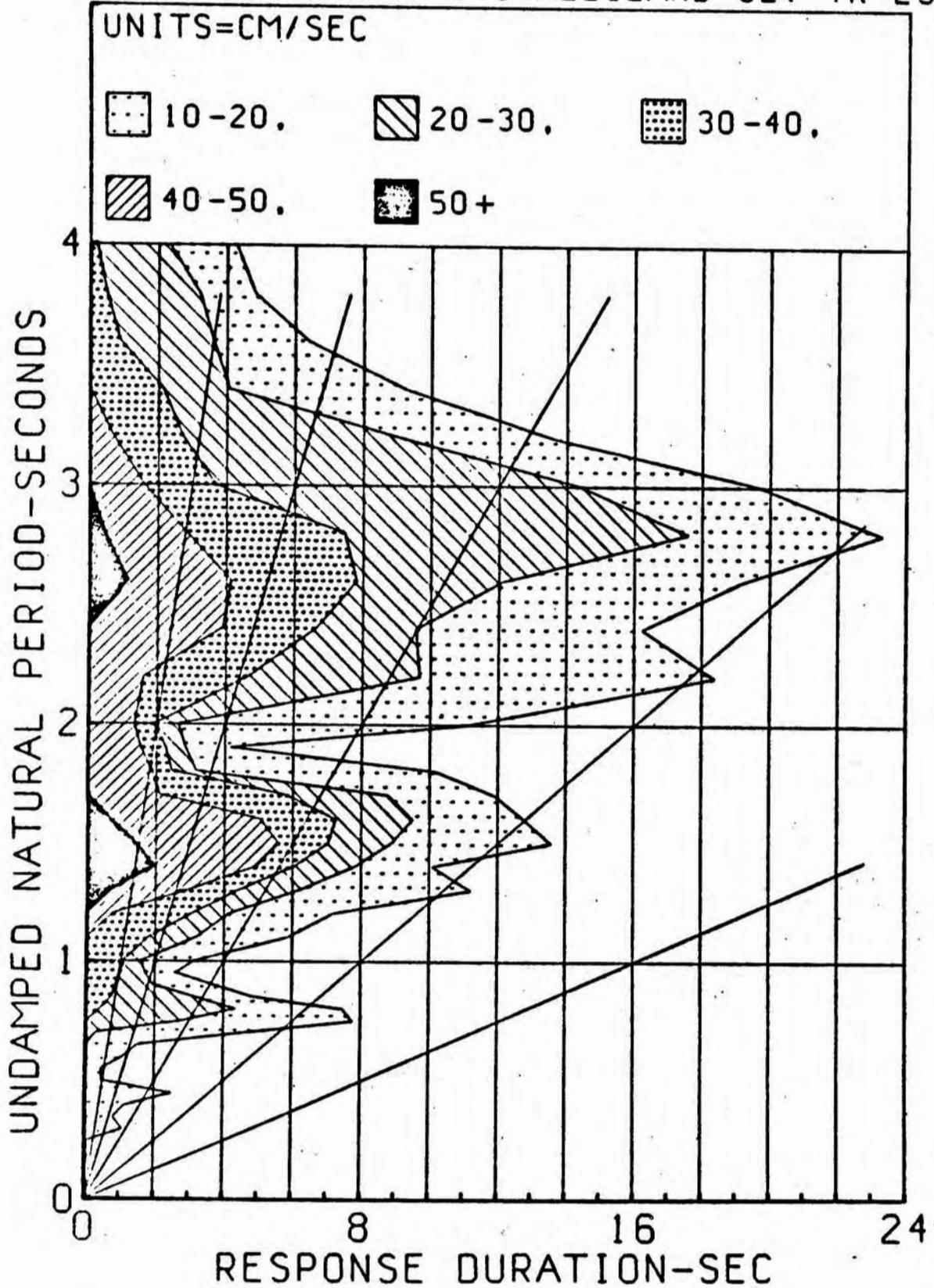
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC 18
DMG 336 MELOLAND SLV CRA 165 TR 23 U/GRND/N APP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



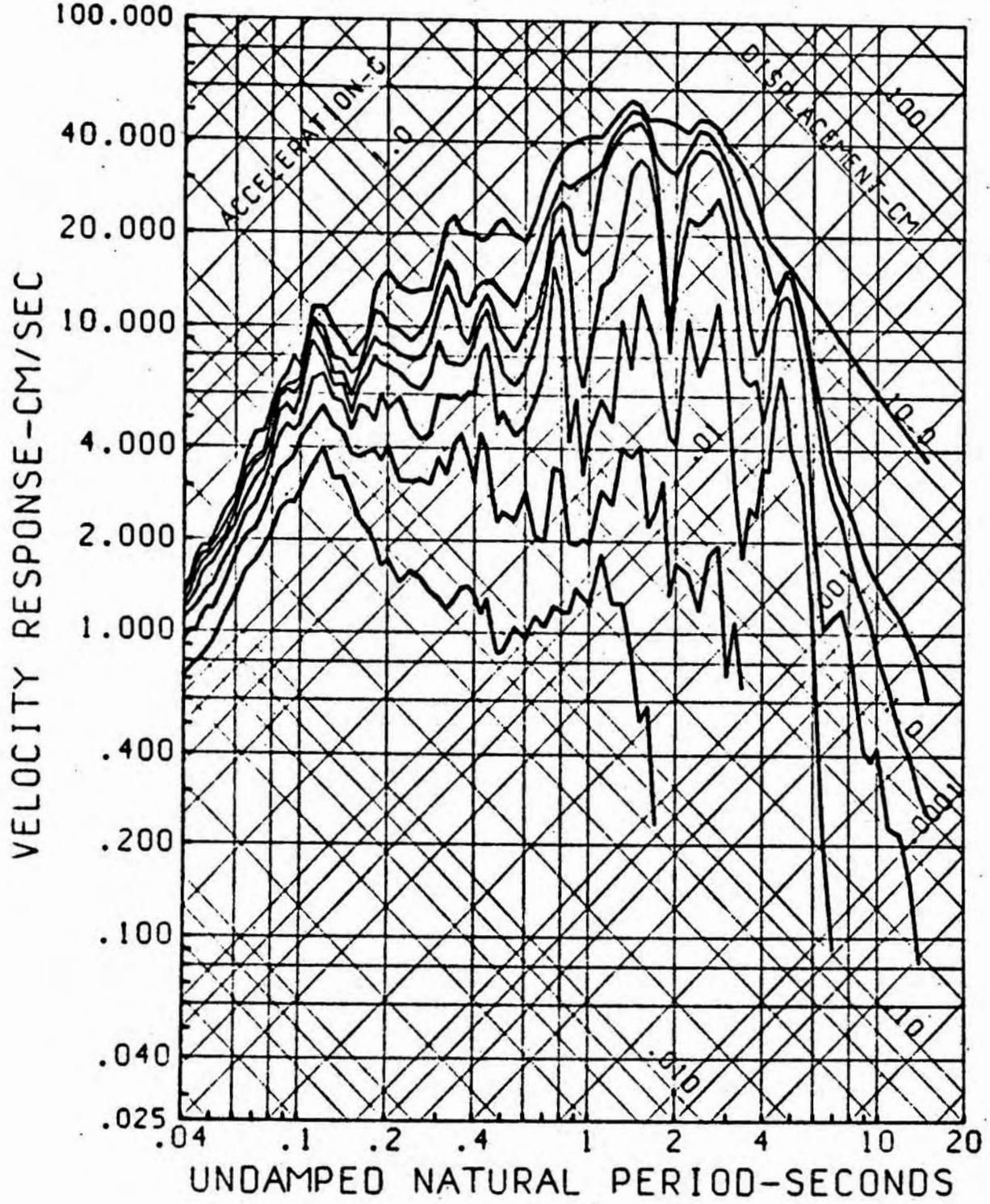
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC MELOLAND SLV TR 23



SPECTRA OF AMPLITUDES SUSTAINED
FOR ANY GIVEN NUMBER OF CYCLES
15 OCT 1979 2317 UTC MELOLAND SLV TR 23
5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

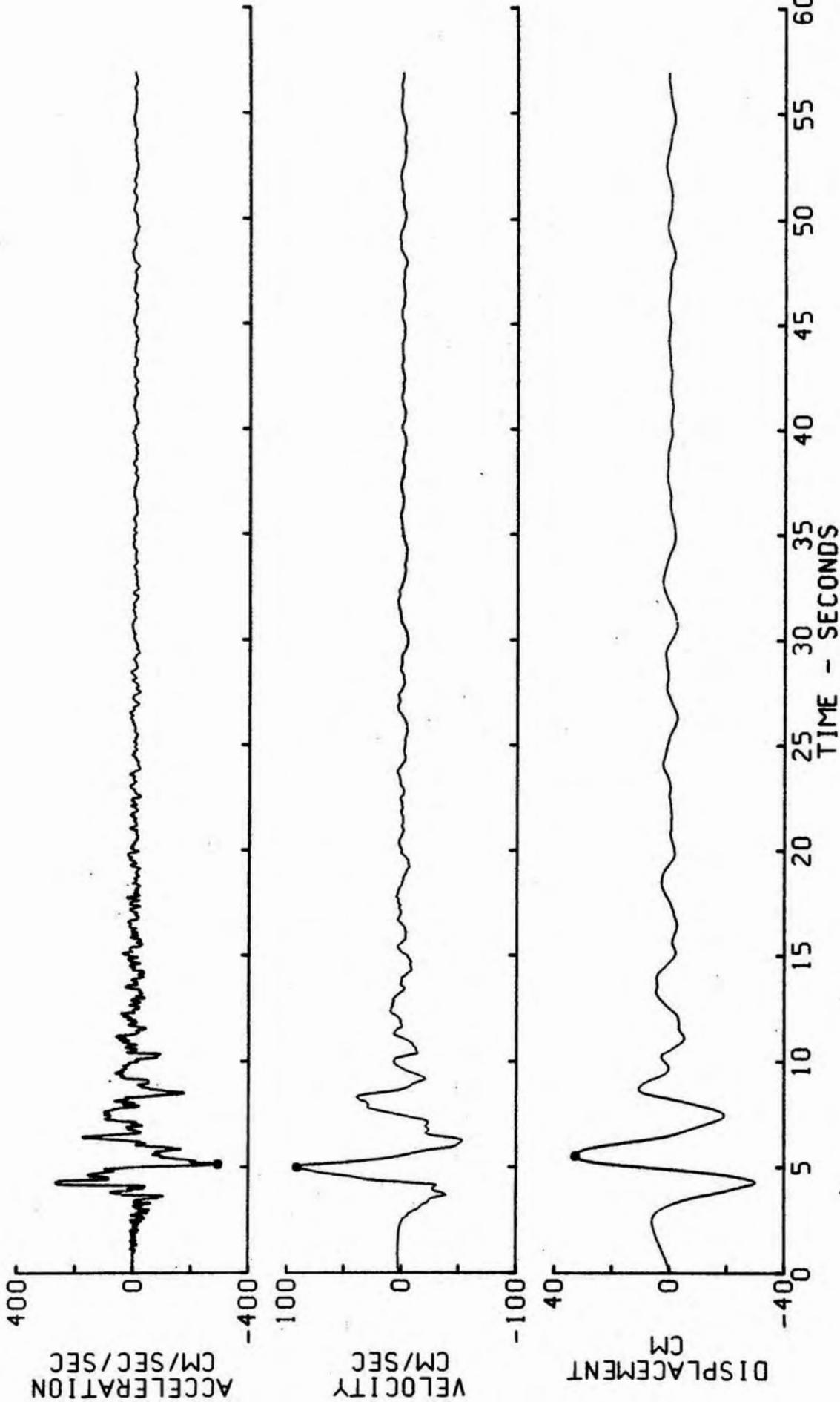


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC

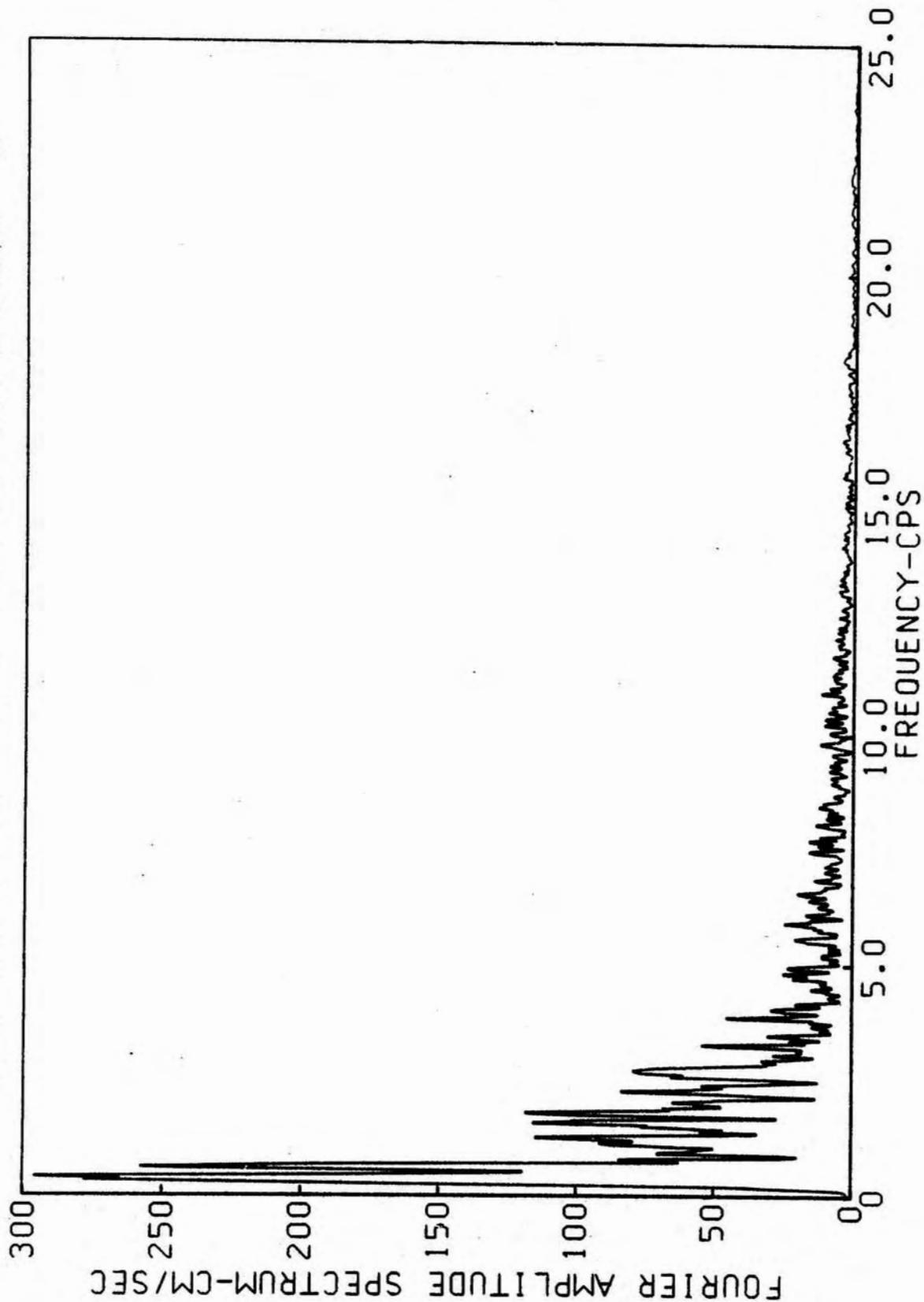
DMG 336 MELOLAND SLV CRA 165 TR 24 W/GRND/W MED

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

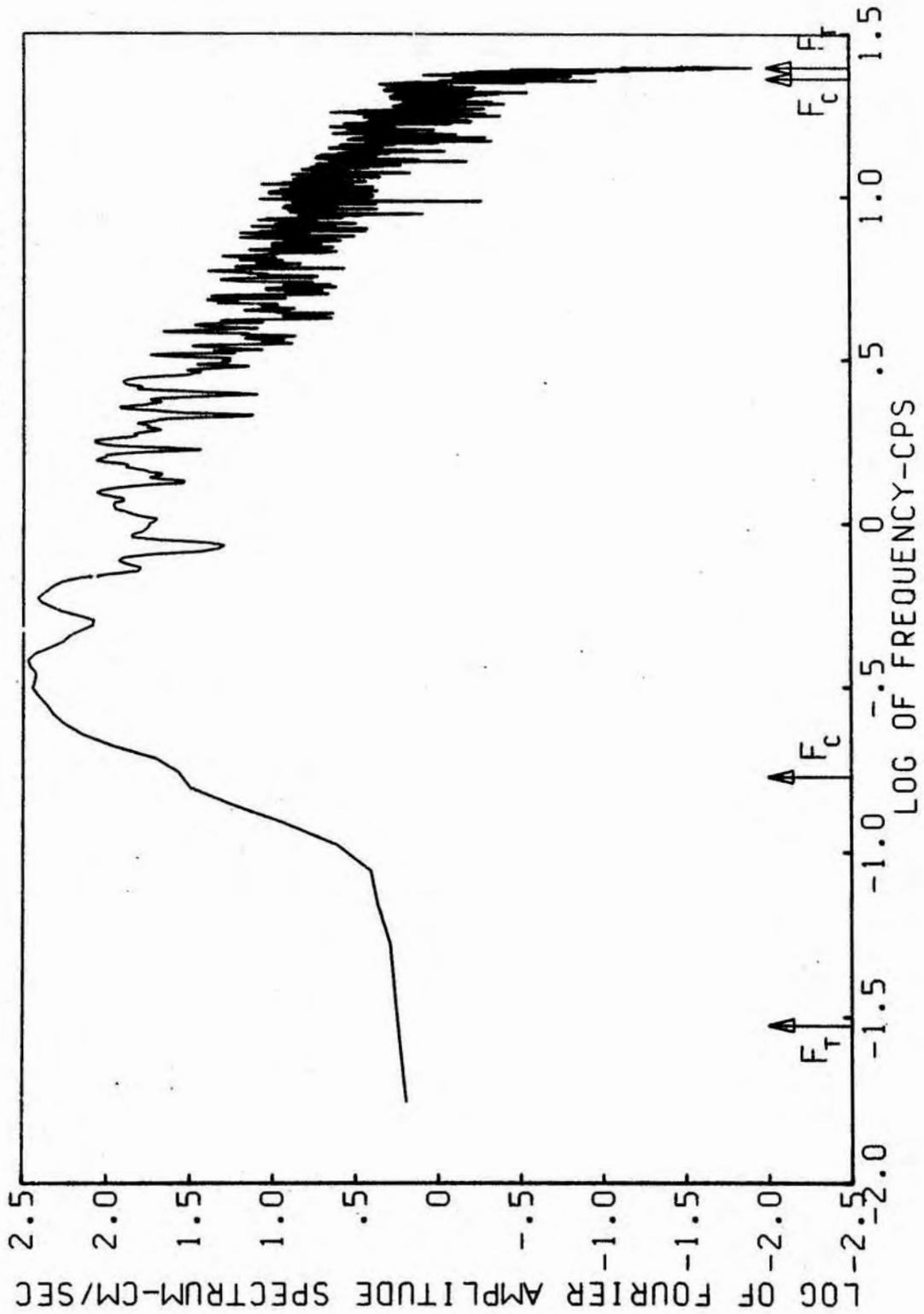
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=-292.7 CM/SEC/SEC, VELOCITY=90.94 CM/SEC, DISPL=32.57 CM



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 24 W/GRND/W MED
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 336 MELOLAND SLV CRA 165 TR 24 W/GRND/W MED
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

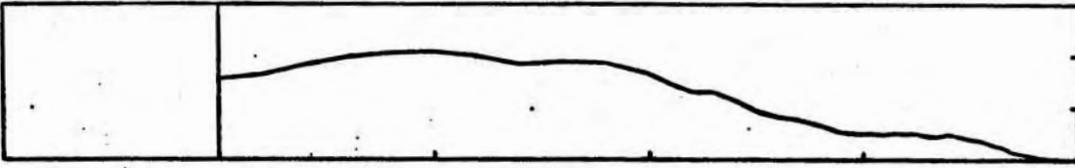
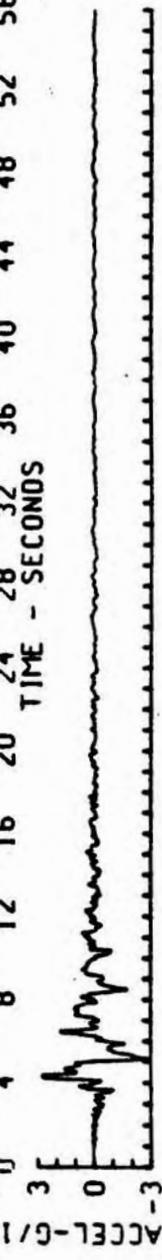
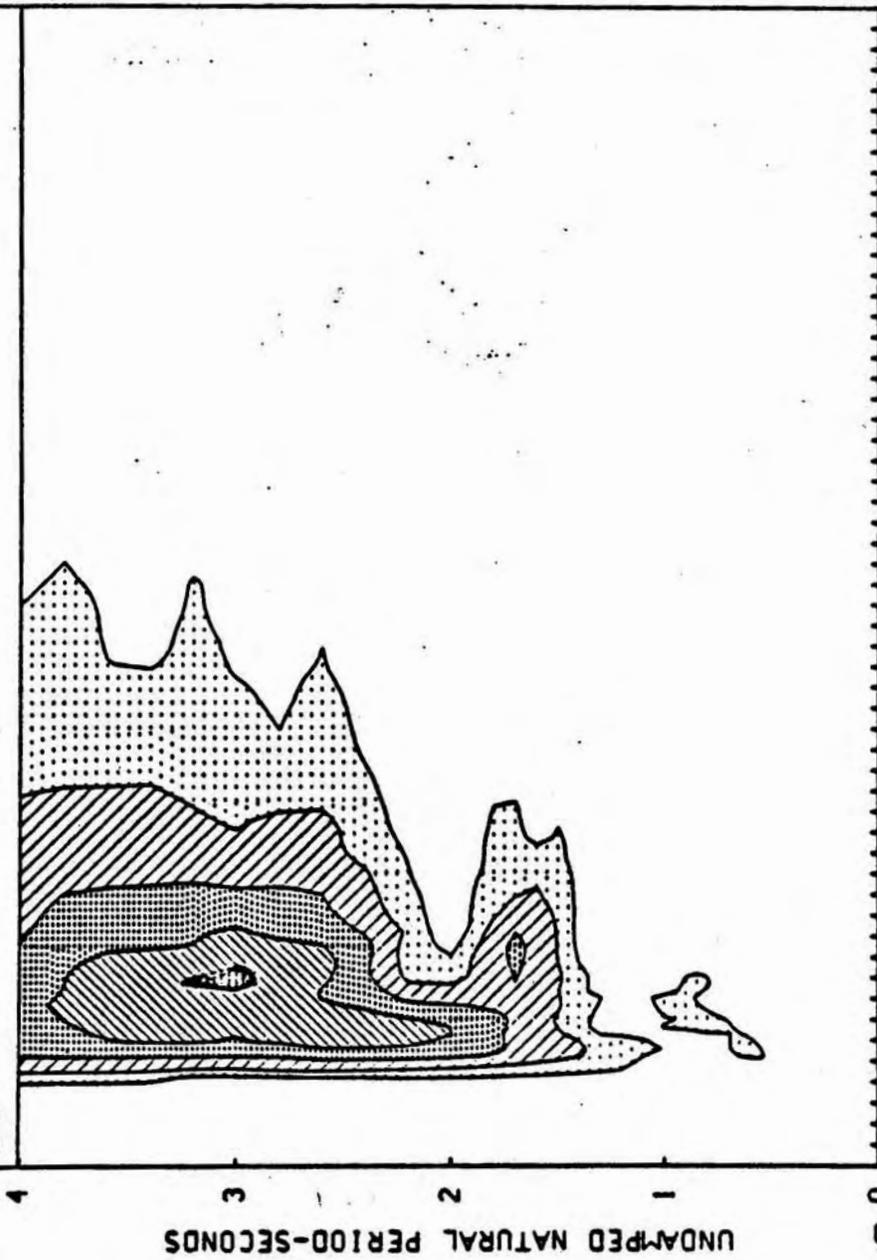


VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

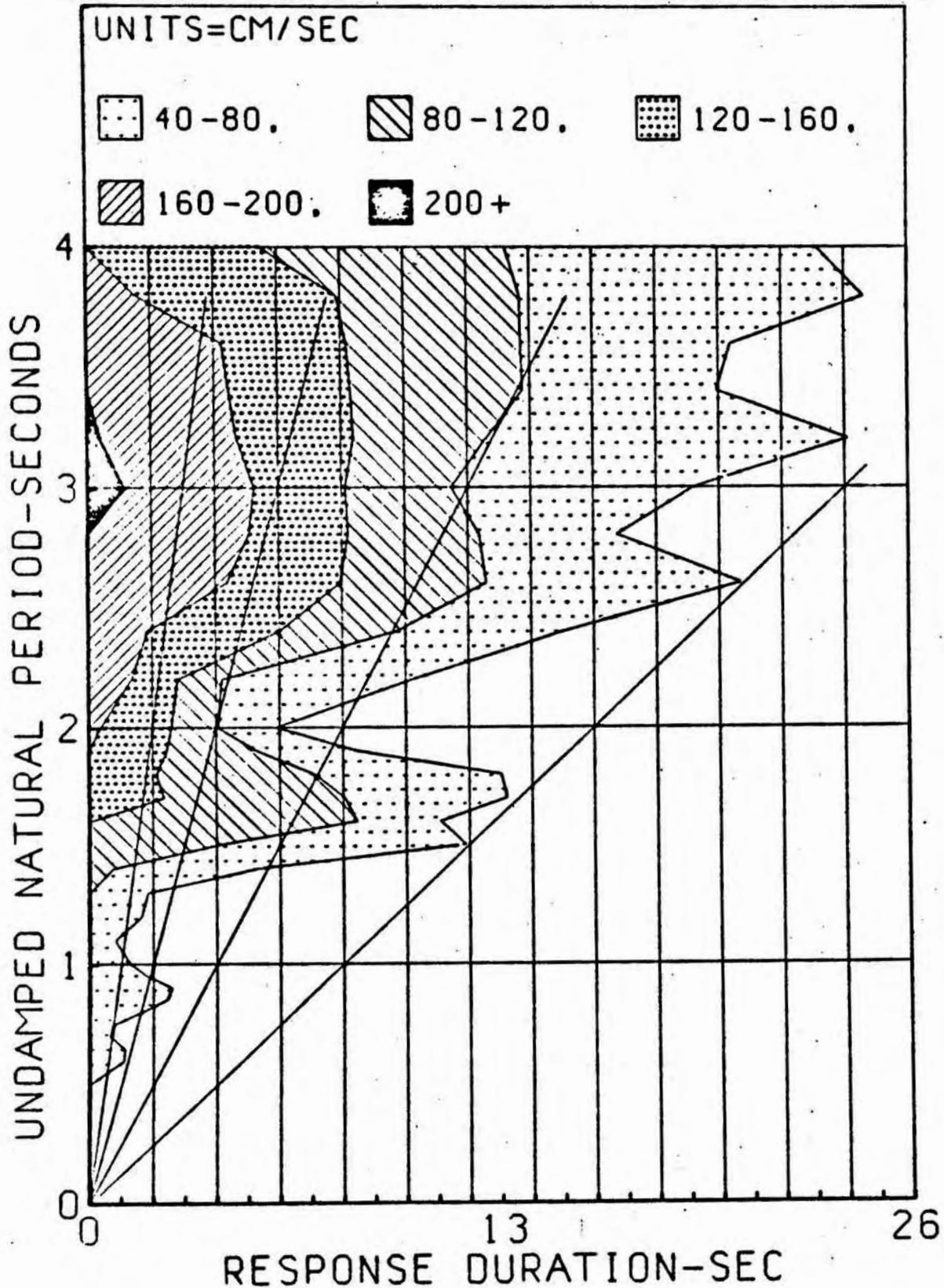
UNITS=CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 24

0-40. 40-80. 80-120. 120-160. 160-200.

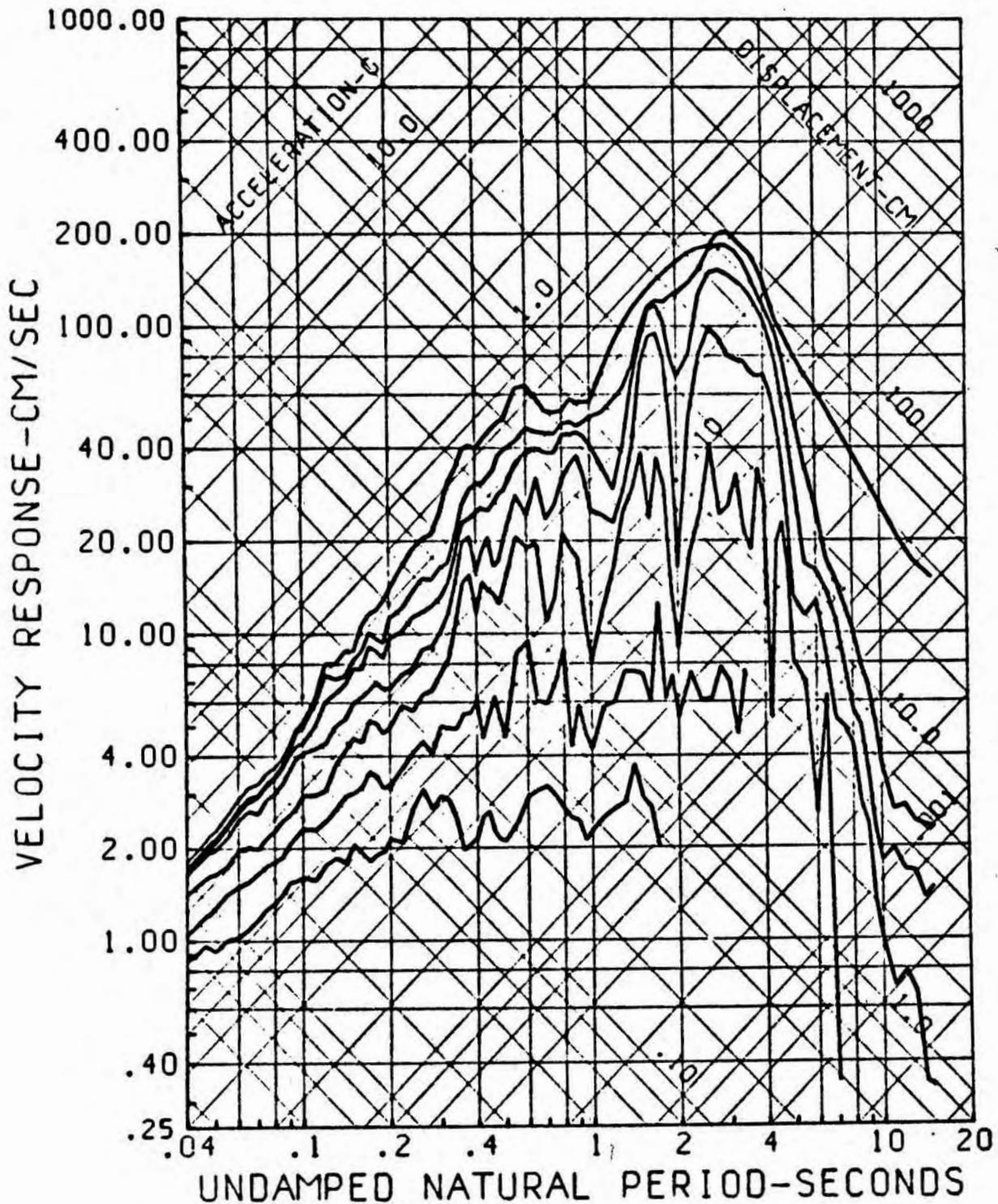
200+



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC MELOLAND SLV TR 24

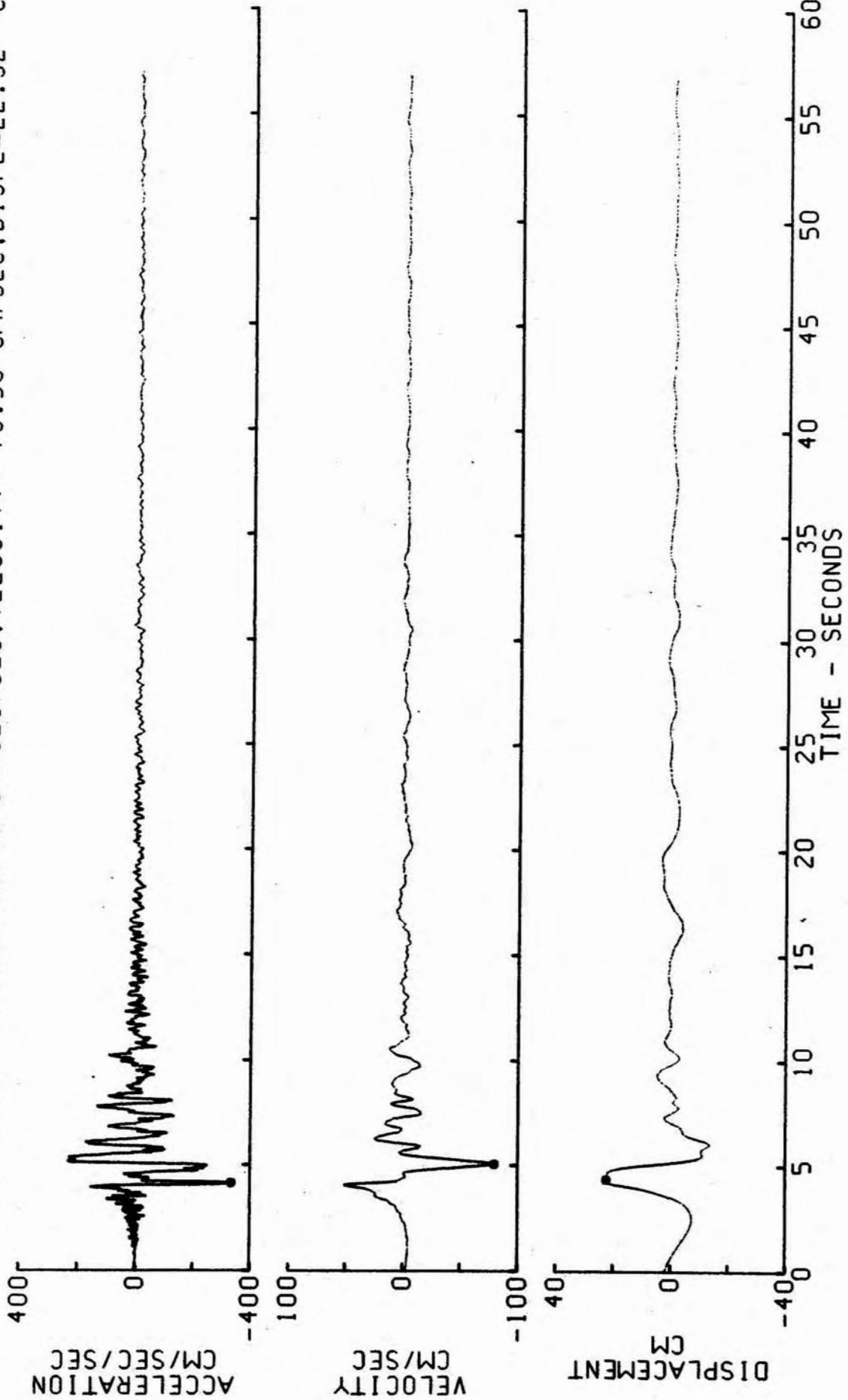


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 24
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

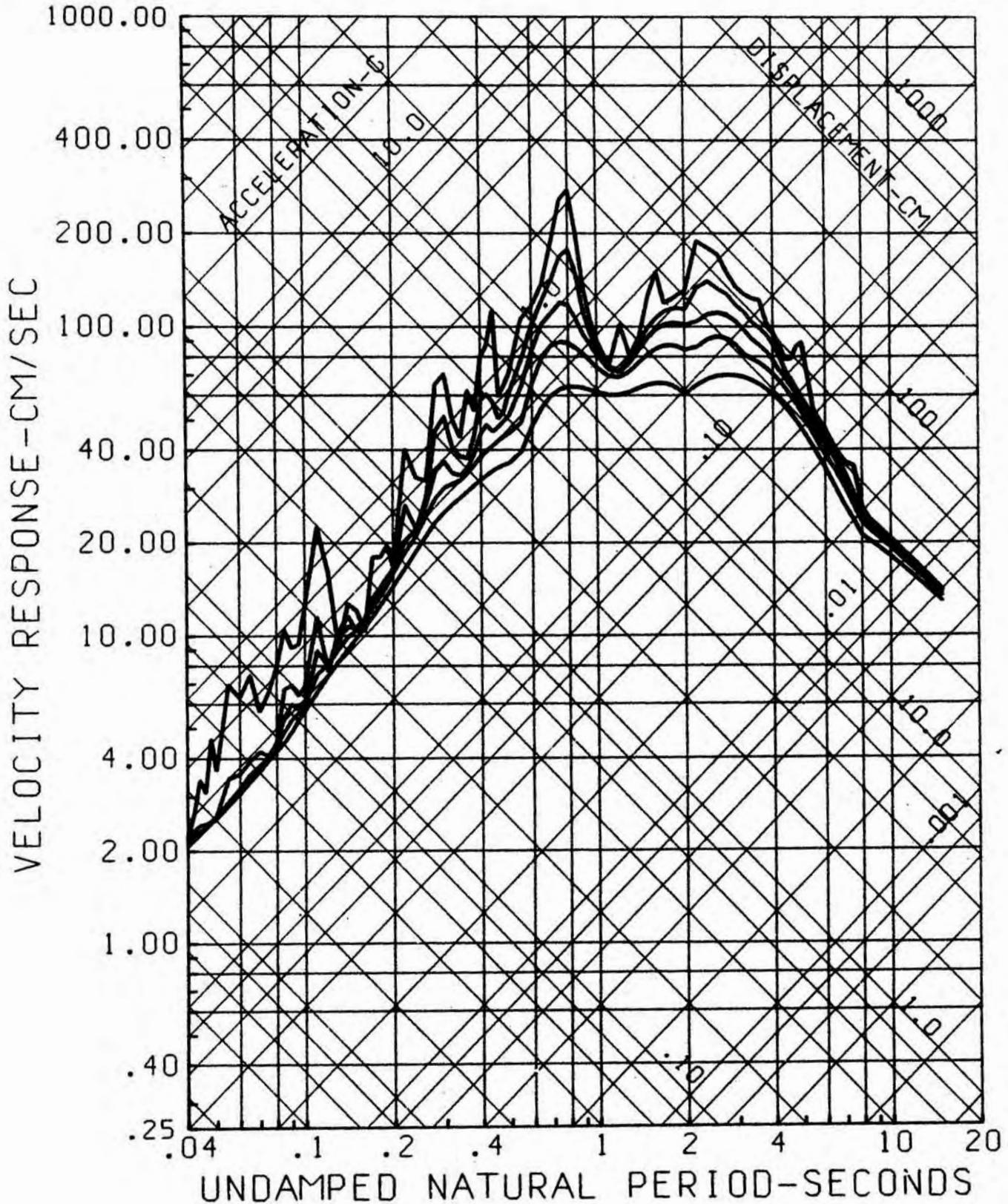


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 25 N/GRND/N APP

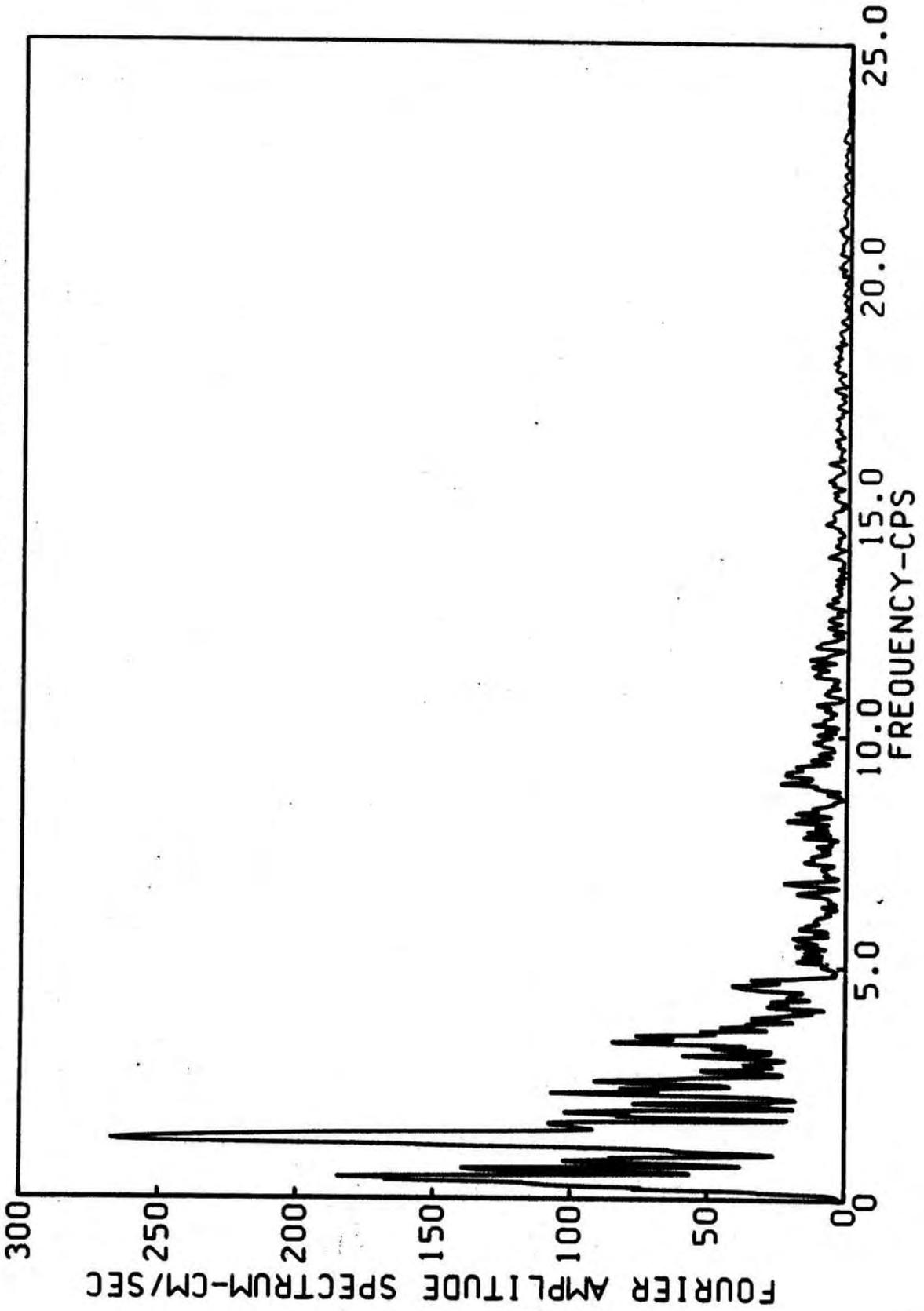
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=-332.9 CM/SEC/SEC, VELOCITY=-79.58 CM/SEC, DISPL=-22.32 CM



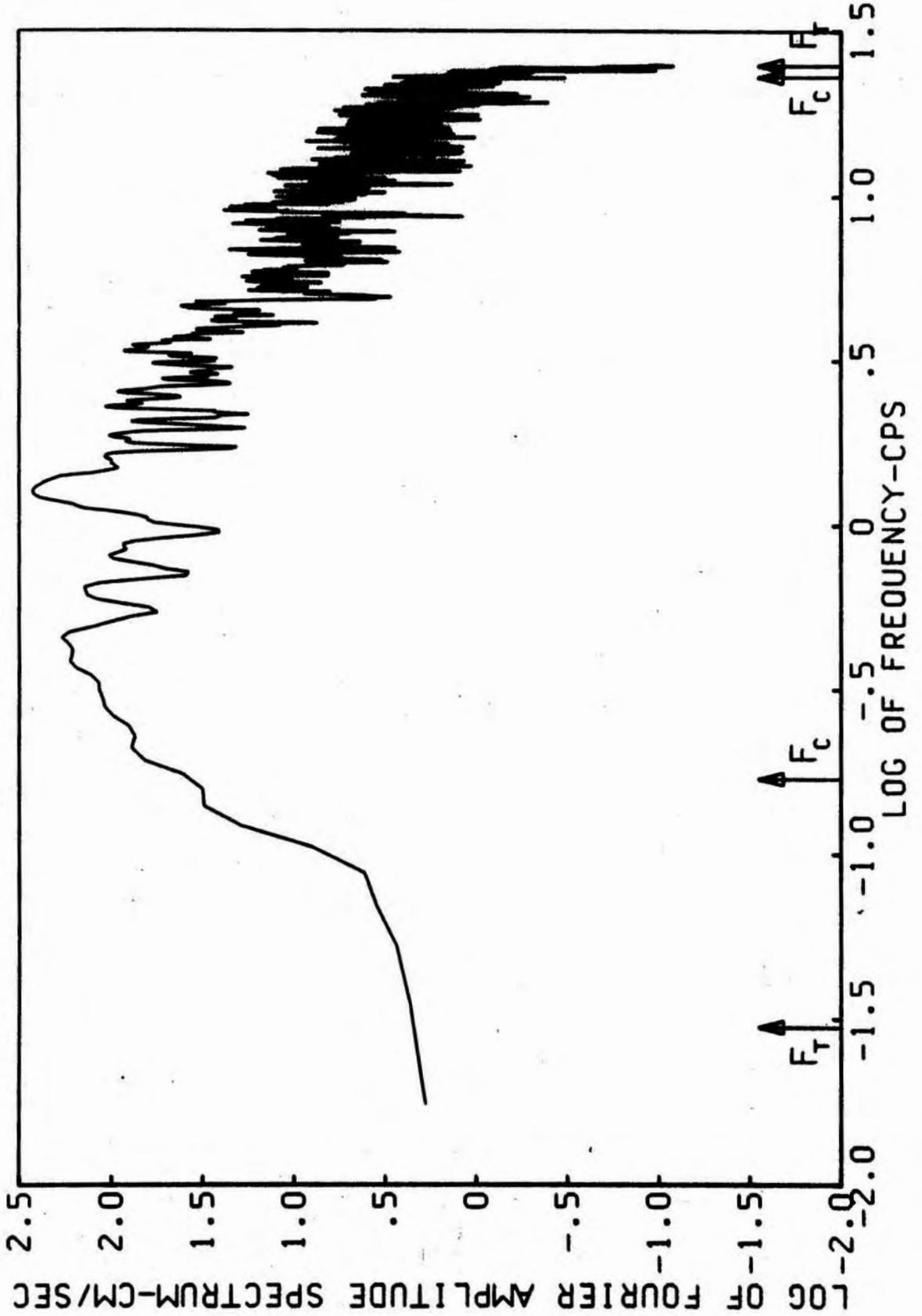
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 25
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 25 N/GRND/N APP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 336 MELOLAND SLV CRA 165 TR 25 N/GRND/N APP
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

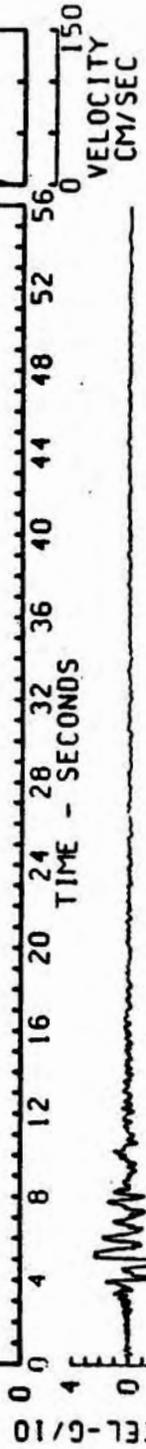
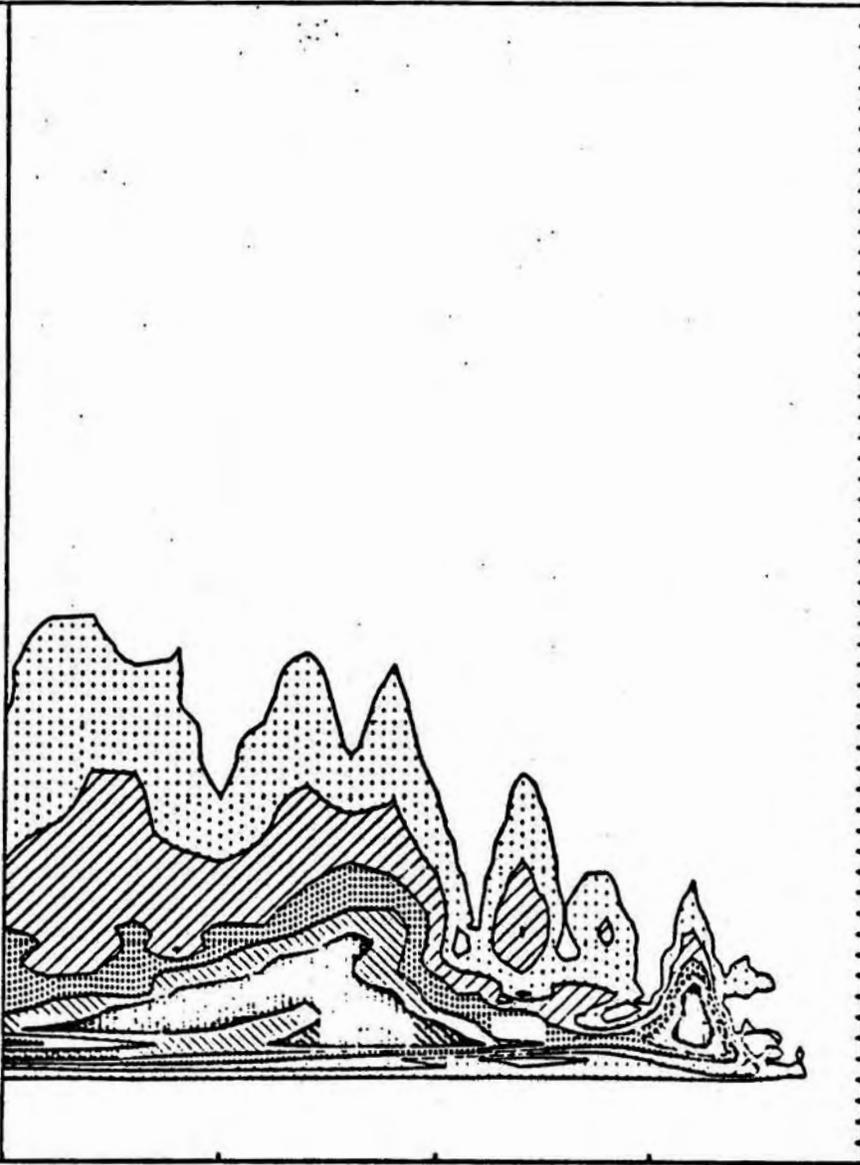


VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 25

0-20. 20-40. 40-60. 60-80. 80-100.

100+



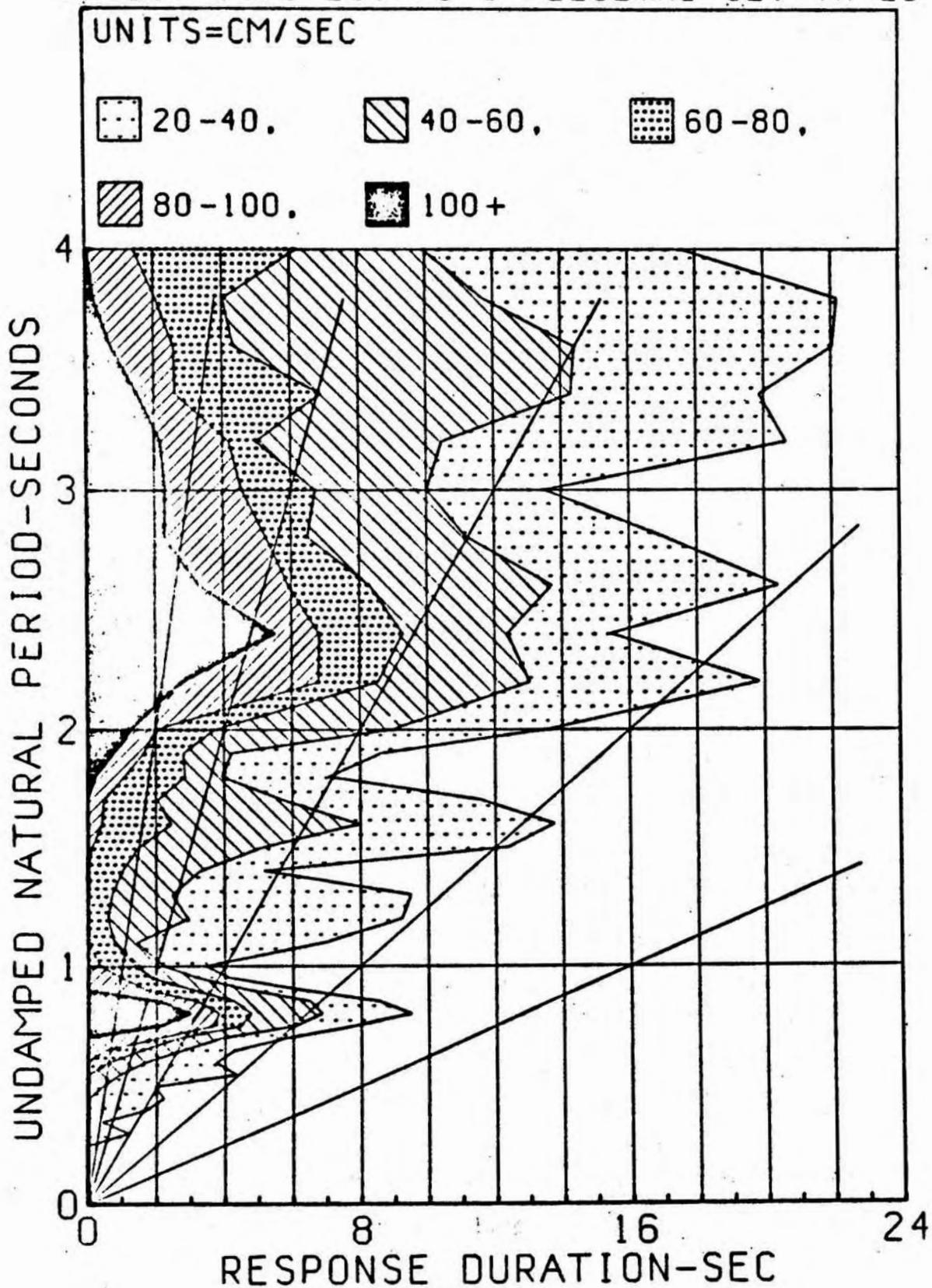
UNDAMPED NATURAL PERIOD-SECONDS

ACCEL-G/10

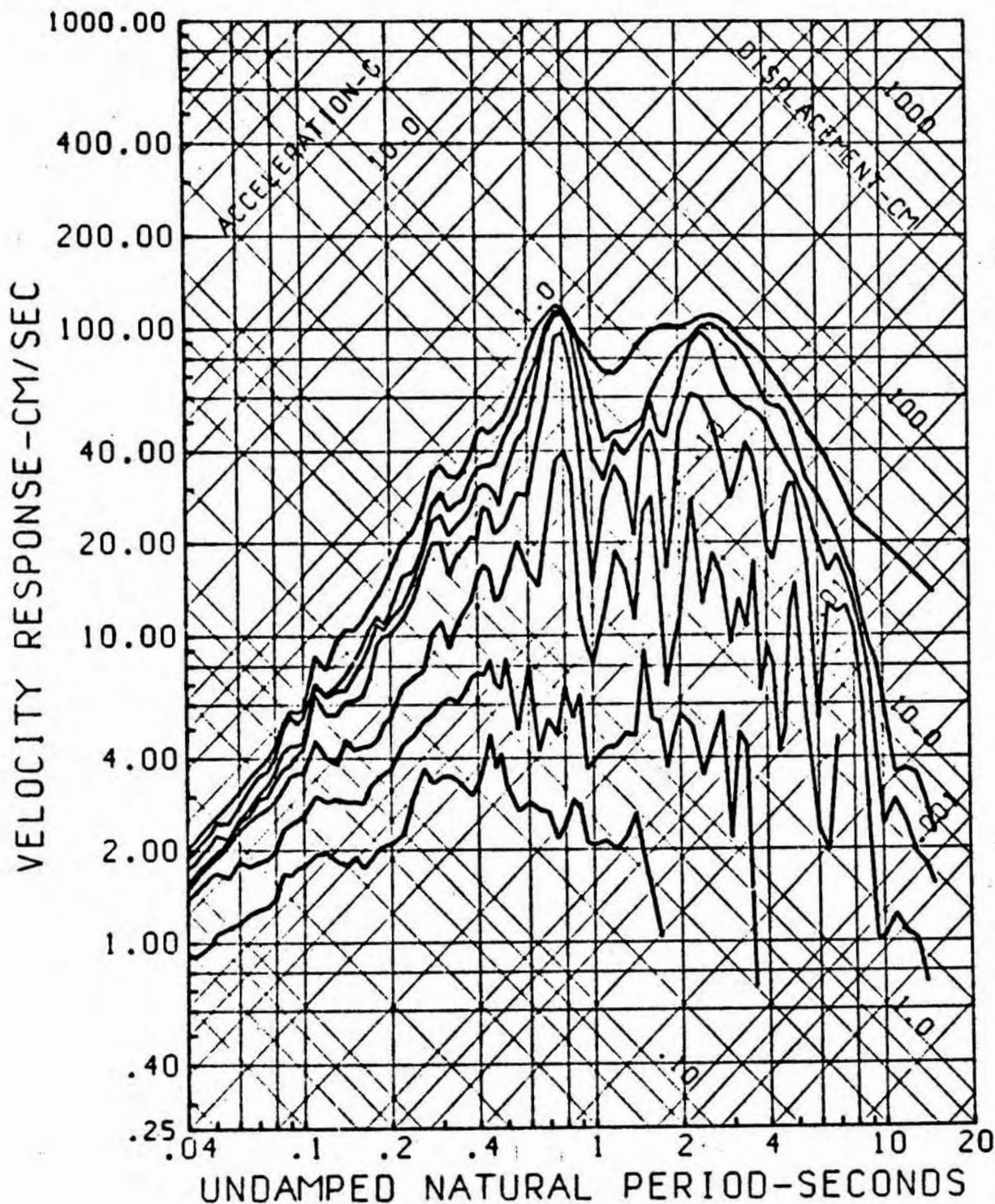
TIME - SECONDS

VELOCITY
CM/SEC

DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC MELOLAND SLV TR 25



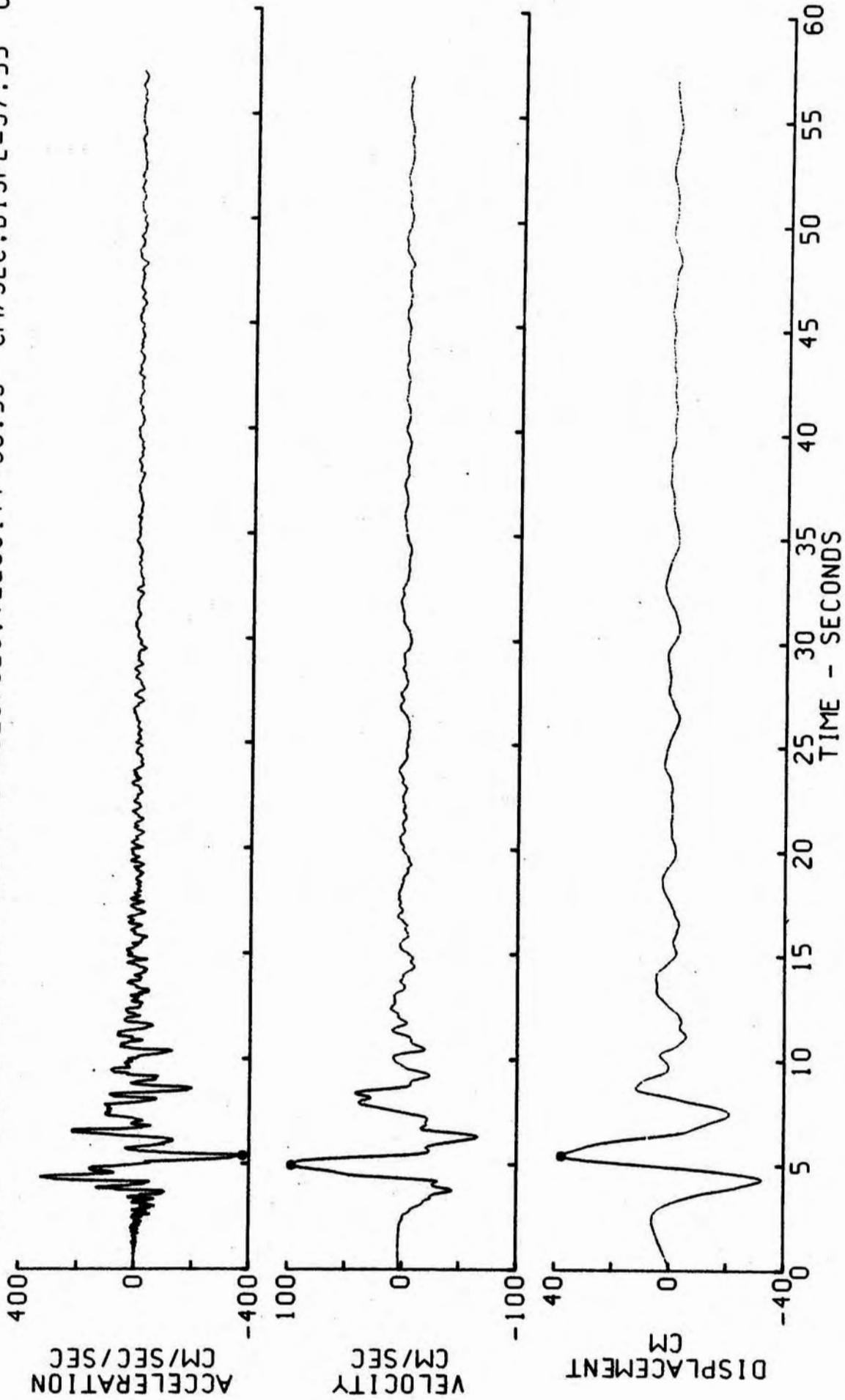
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 25
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



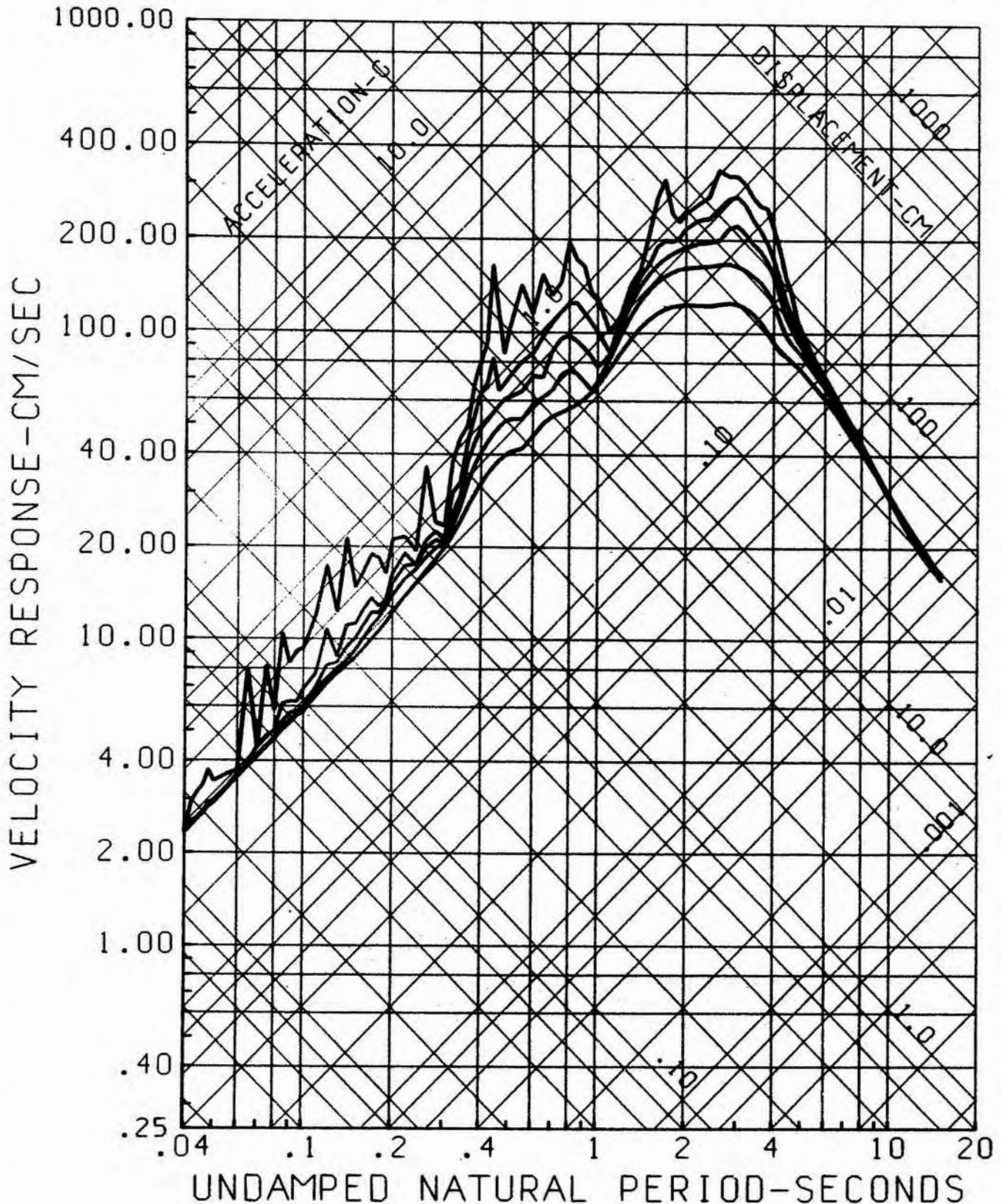
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMC 336 MELOLAND SLV CRA 165 TR 26 W/GRND/N APP

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

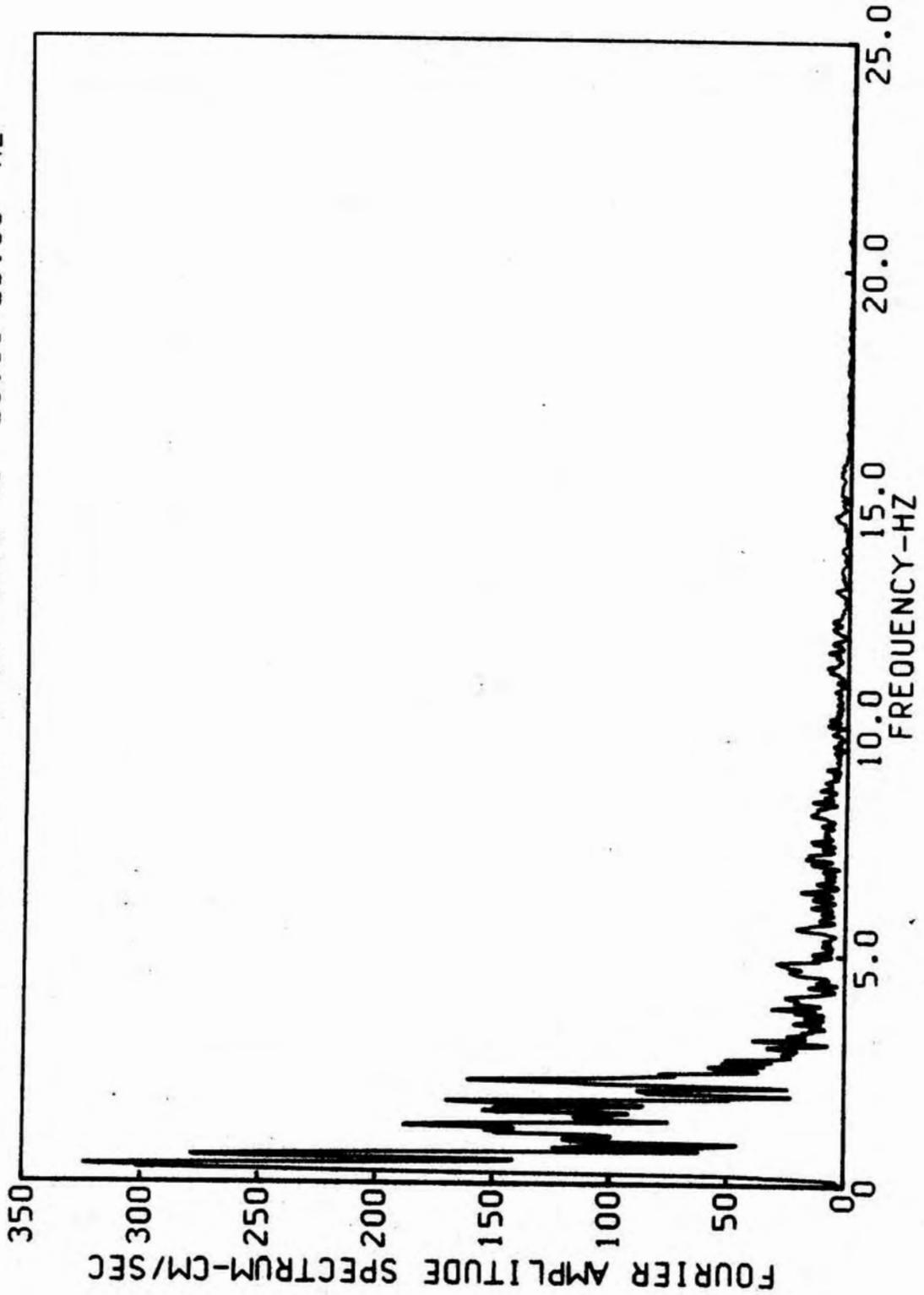
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=-375.8 CM/SEC/SEC, VELOCITY=96.53 CM/SEC, DISPL=37.55 CM



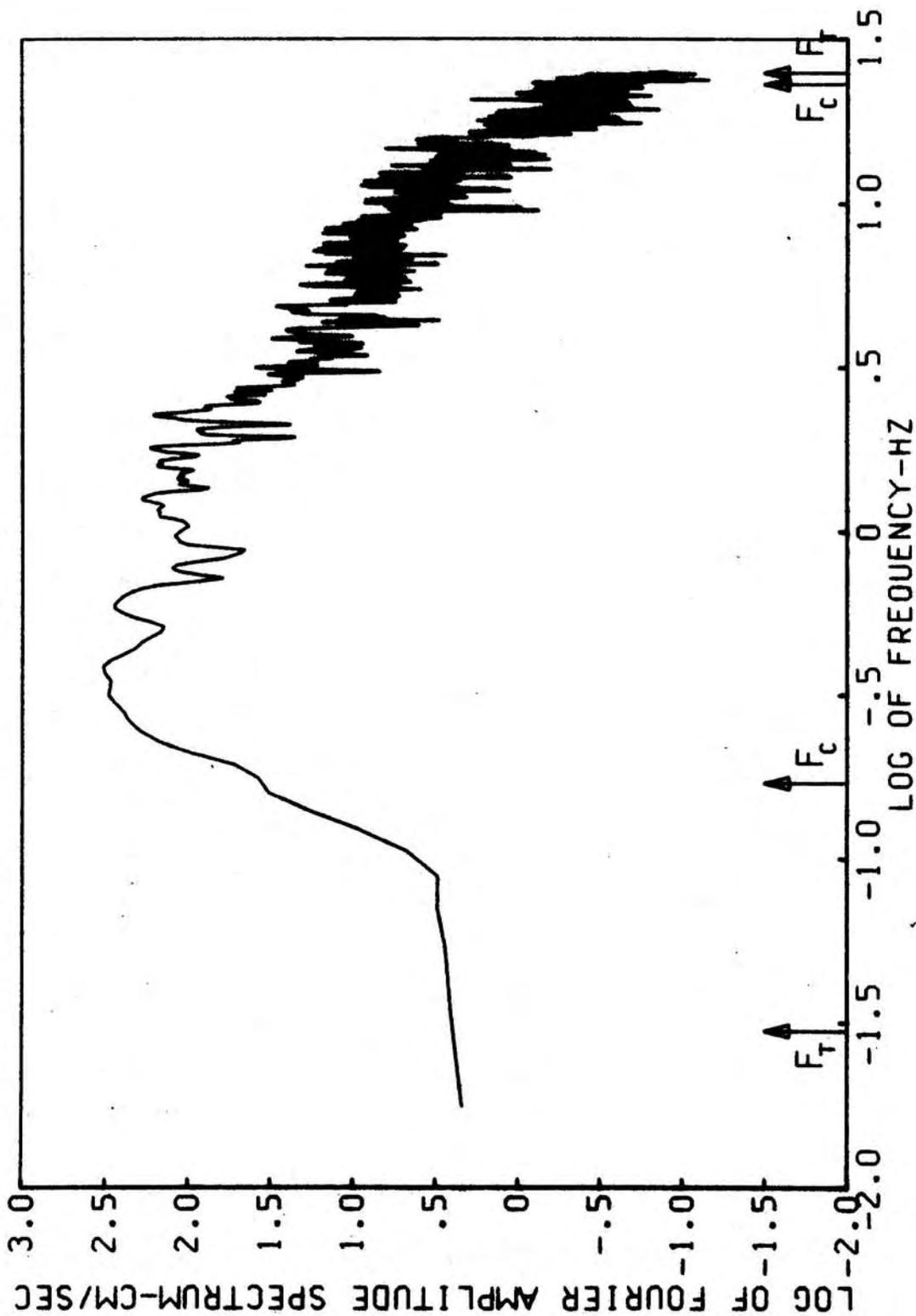
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC MELOLAND SLV TR 26
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 336 MELOLAND SLV CRA 165 TR 26 W/GRND/N APP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



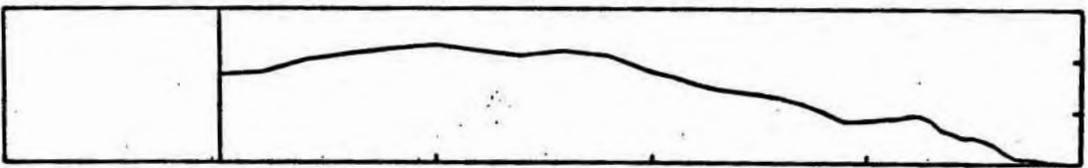
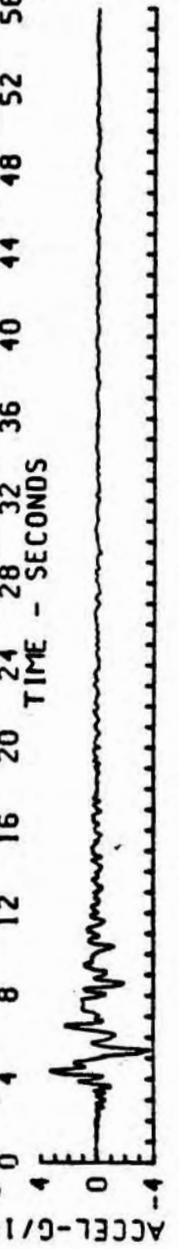
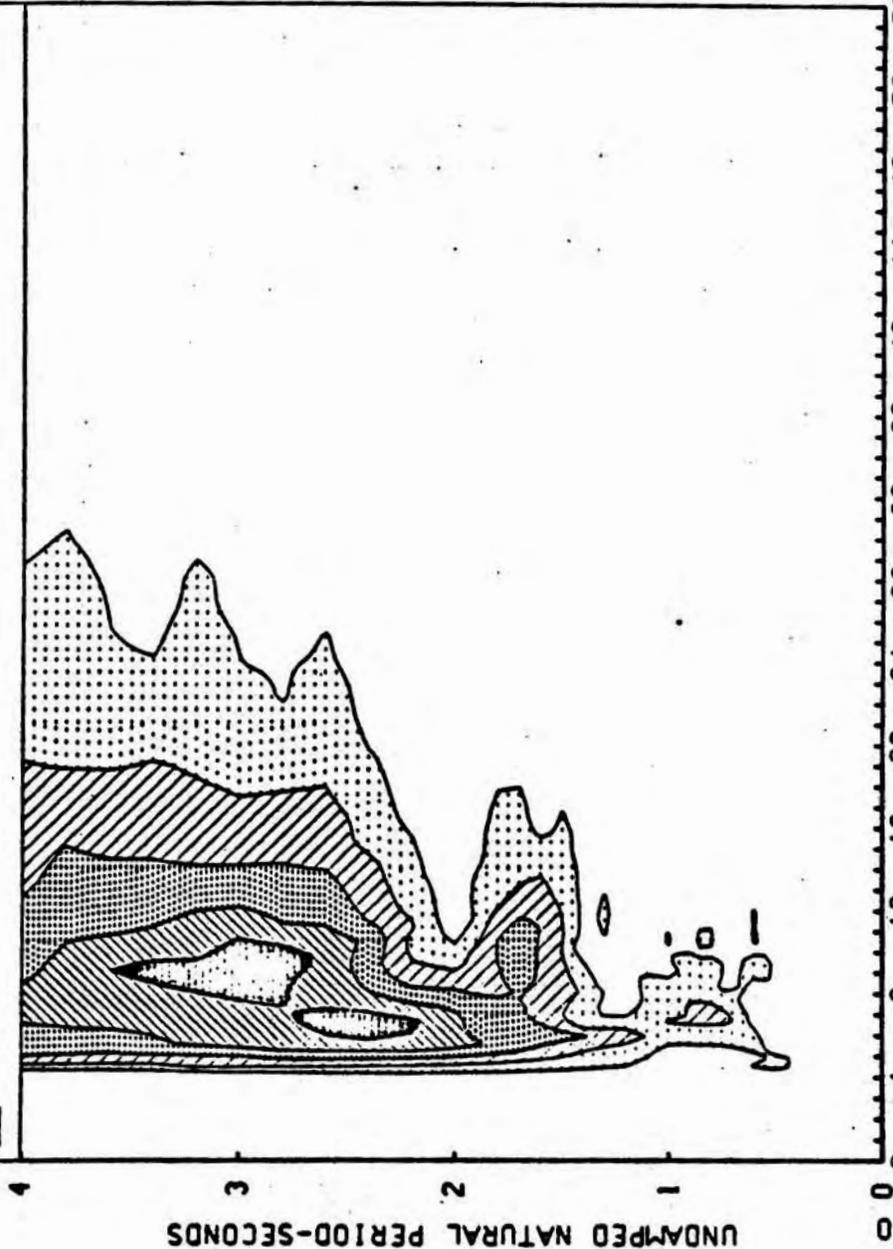
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 336 MELOLAND SLV CRA 165 TR 26 W/GRND/N APP
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



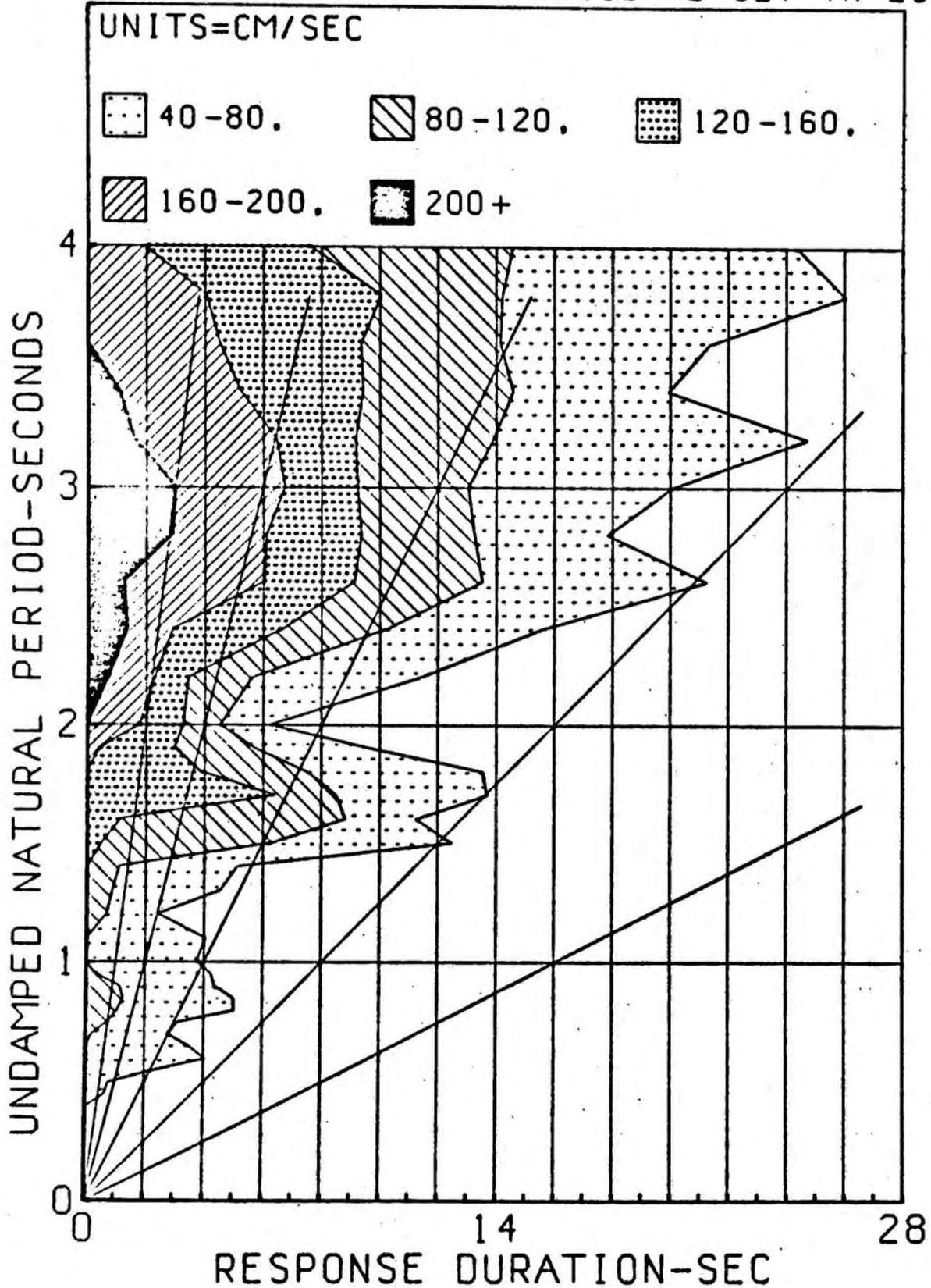
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00 - 25.00 HZ

UNITS-CM/SEC 15 OCT 1979 2317 UTC MELOLAND SLV TR 26

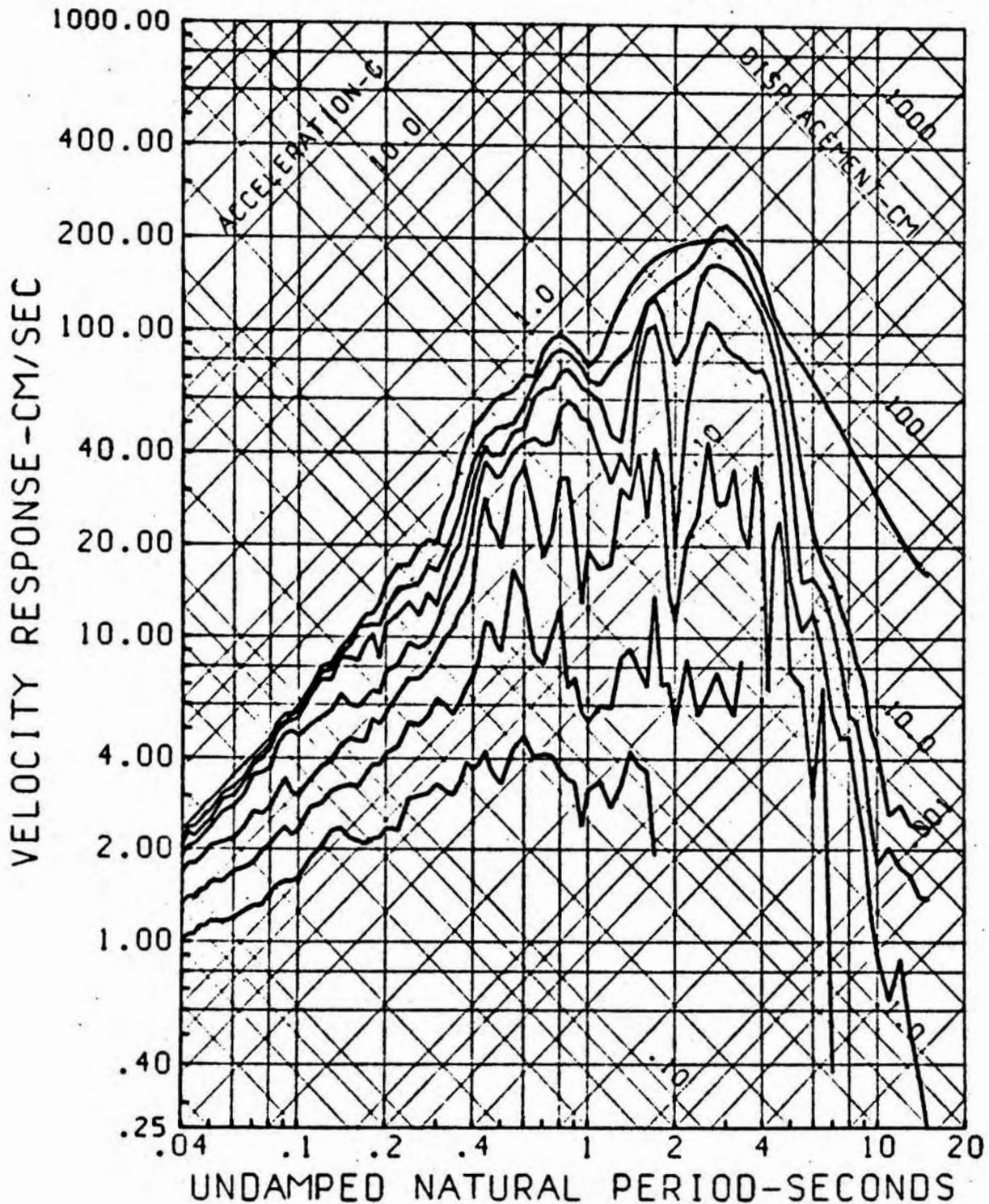
- 0-40.
- ▨ 40-80.
- ▩ 80-120.
- ▧ 120-160.
- ▦ 160-200.
- 200+



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC MELOLAND SLV TR 26

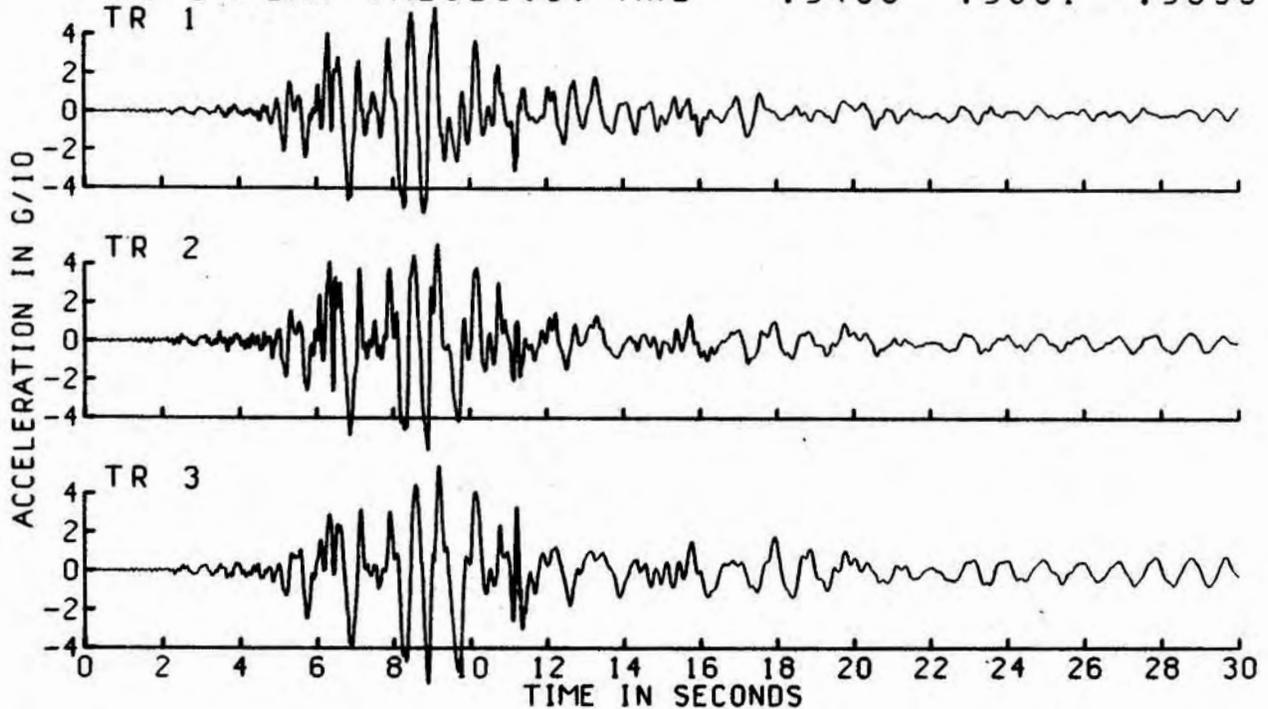


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC MELOLAND SLV TR 26
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

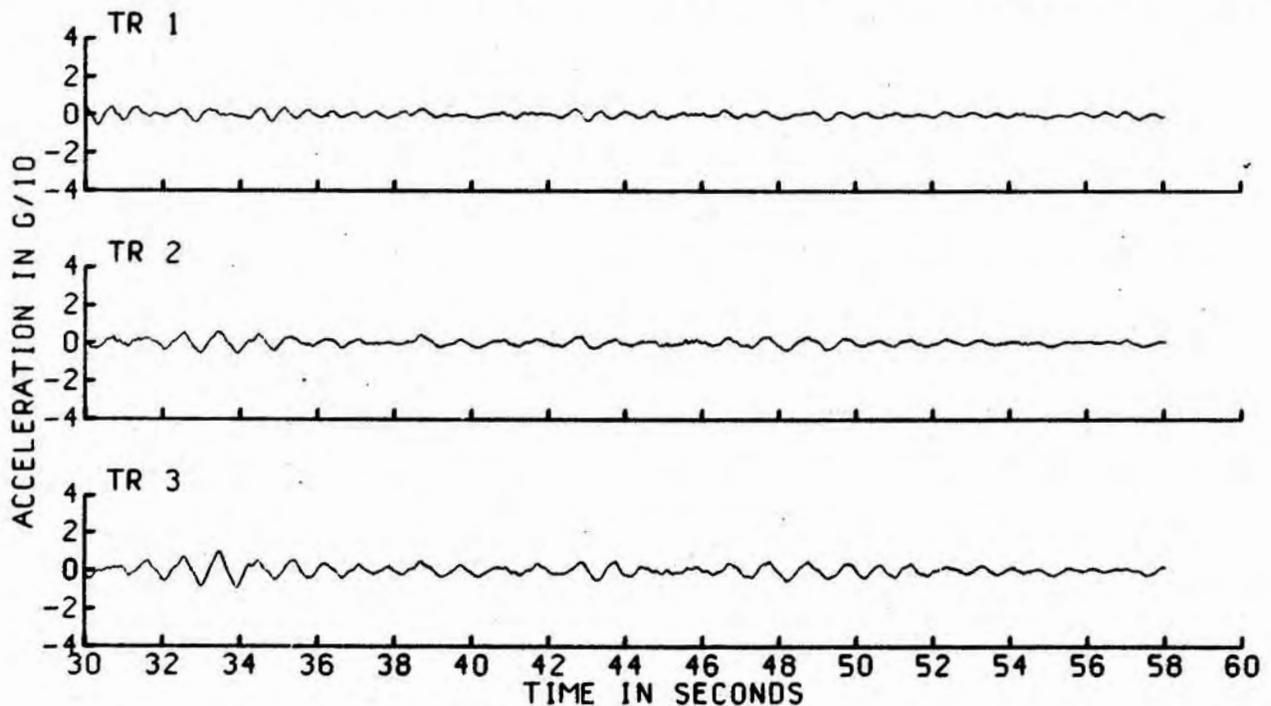


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
 THE 3 PEAK VALUES(G) ARE .5460 .5661 .5839

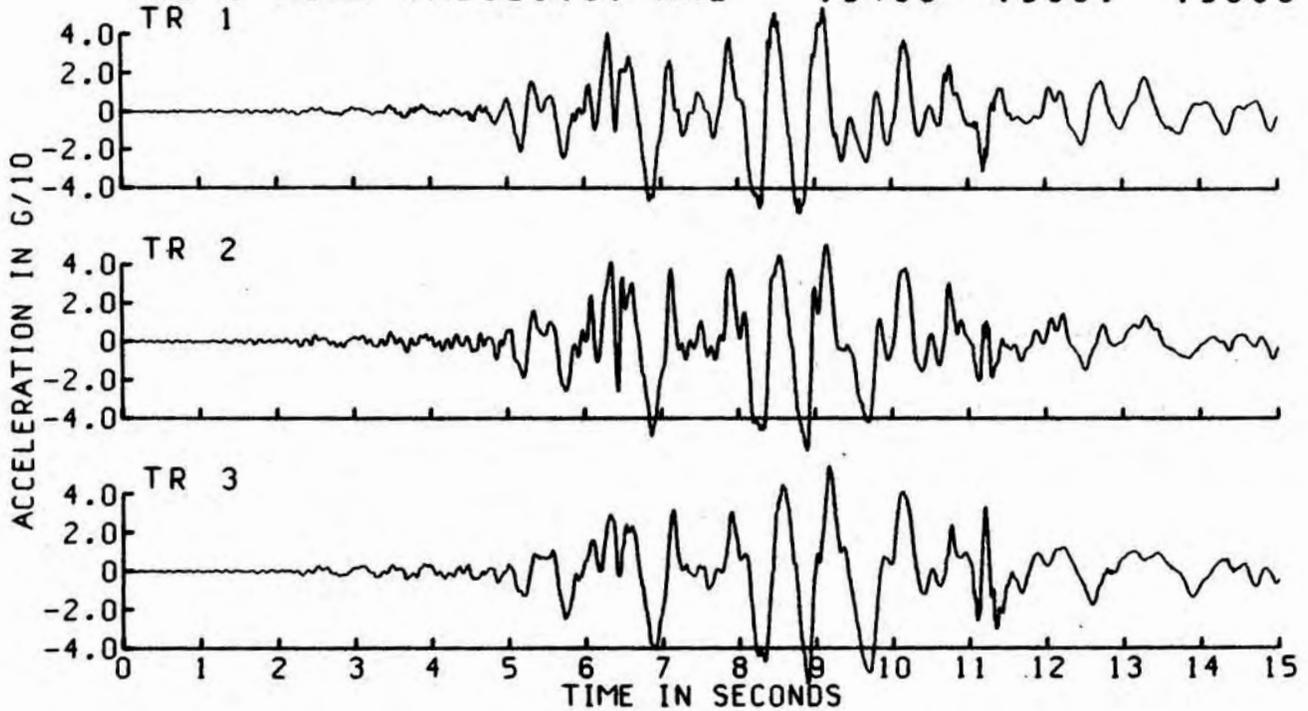


15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

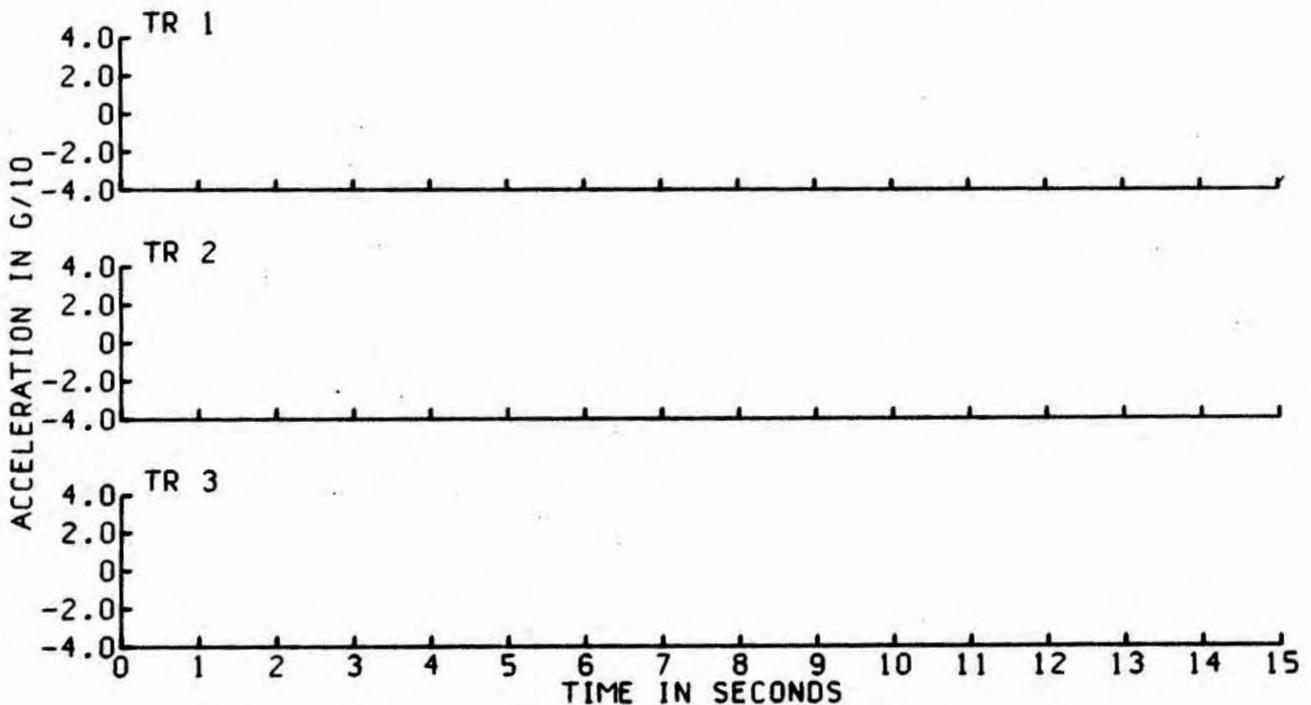


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
 THE 3 PEAK VALUES(G) ARE .5460 .5661 .5839

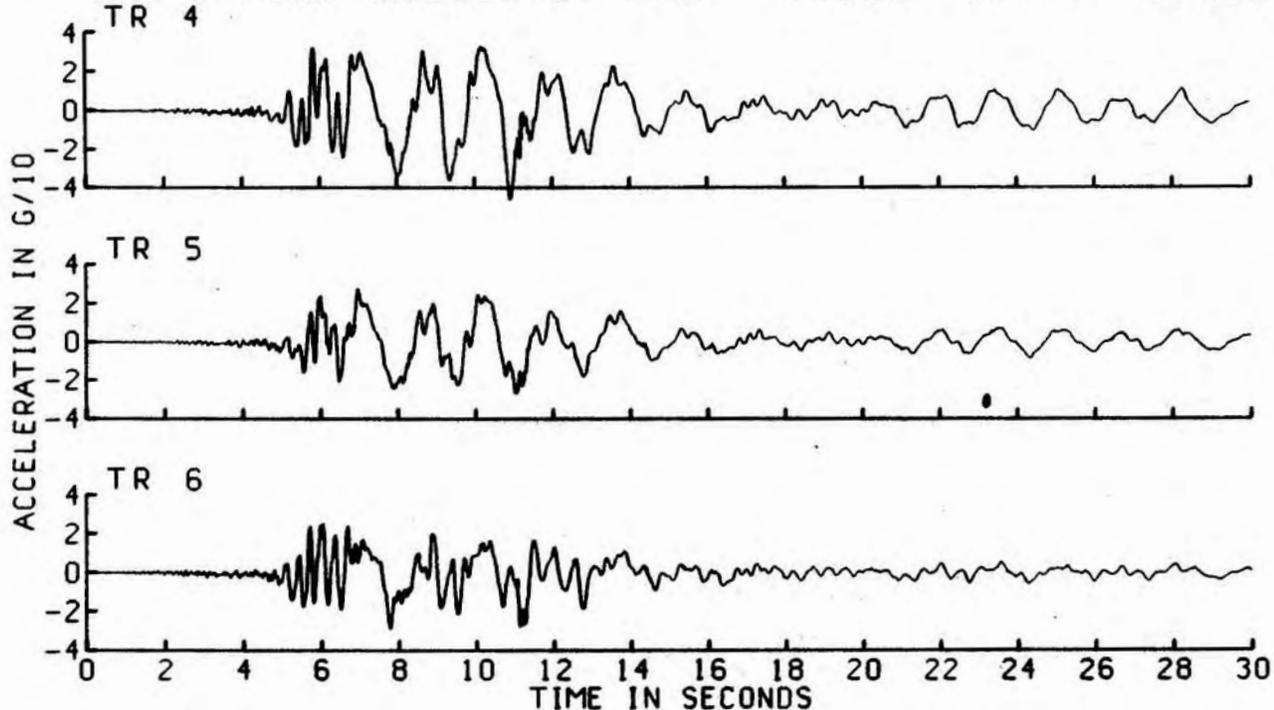


15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

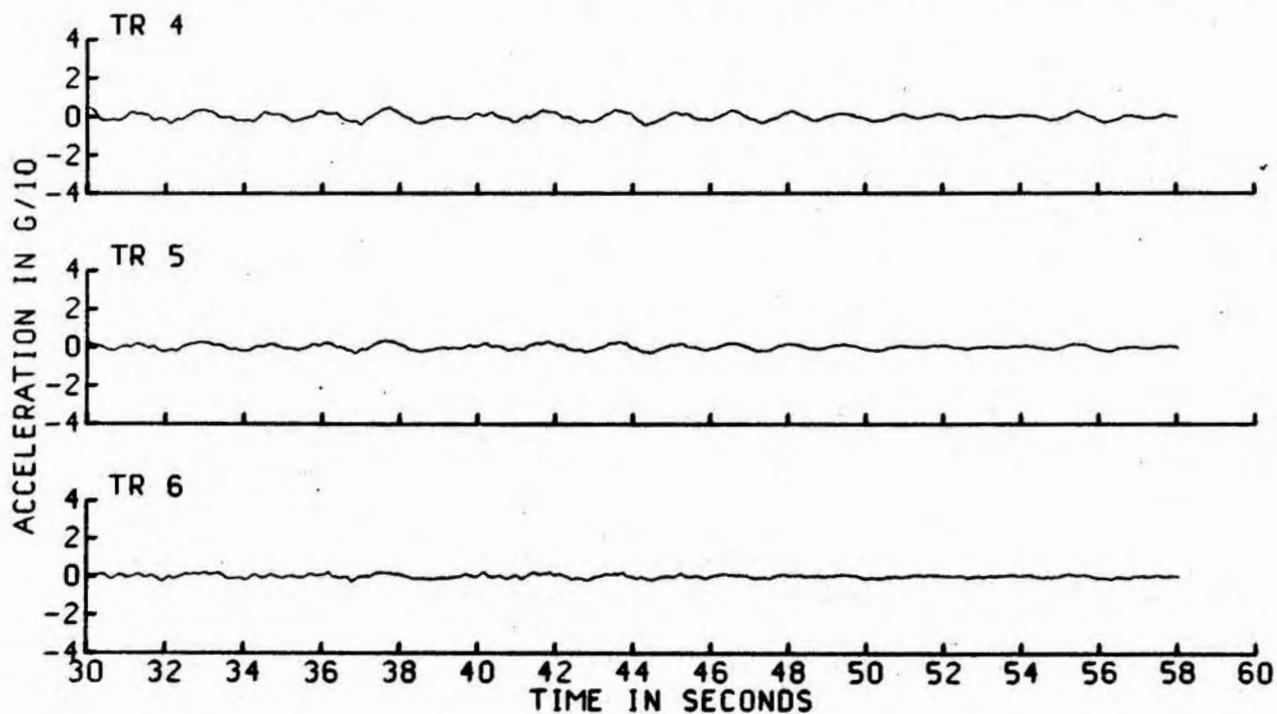


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
 THE 3 PEAK VALUES(G) ARE .4602 .2743 .2850

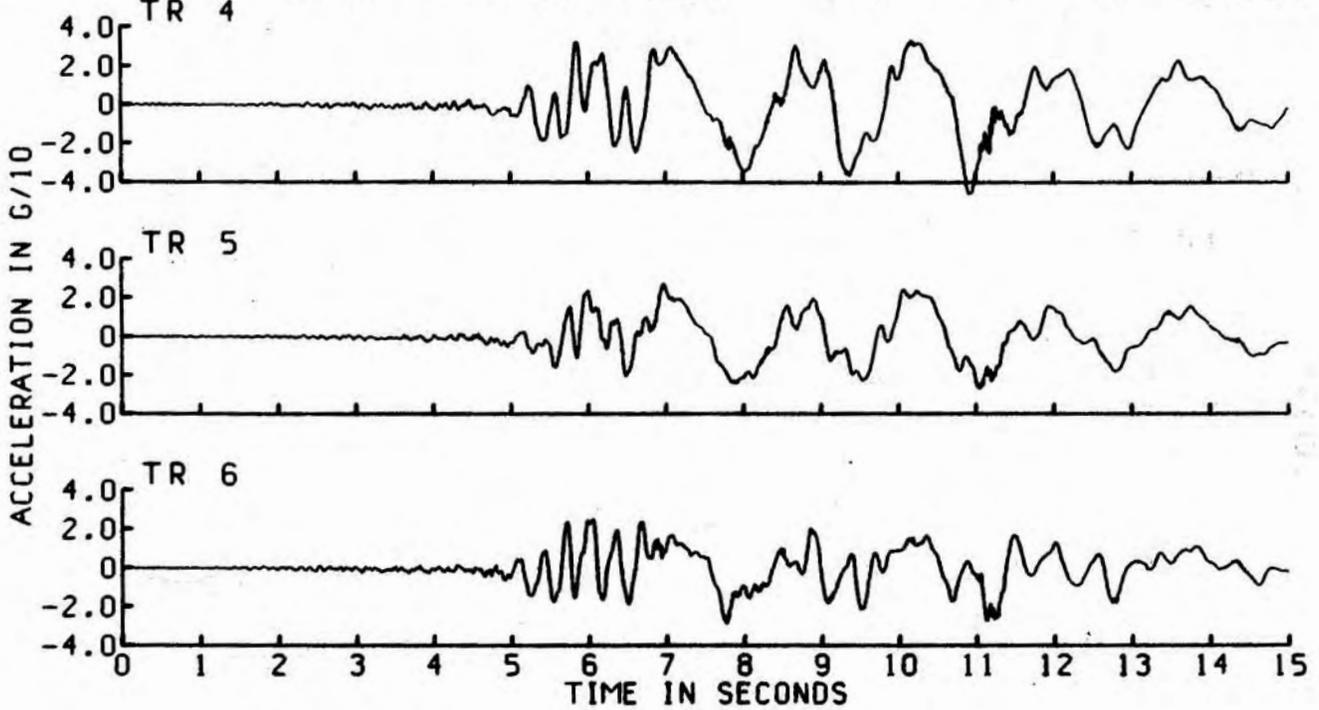


15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

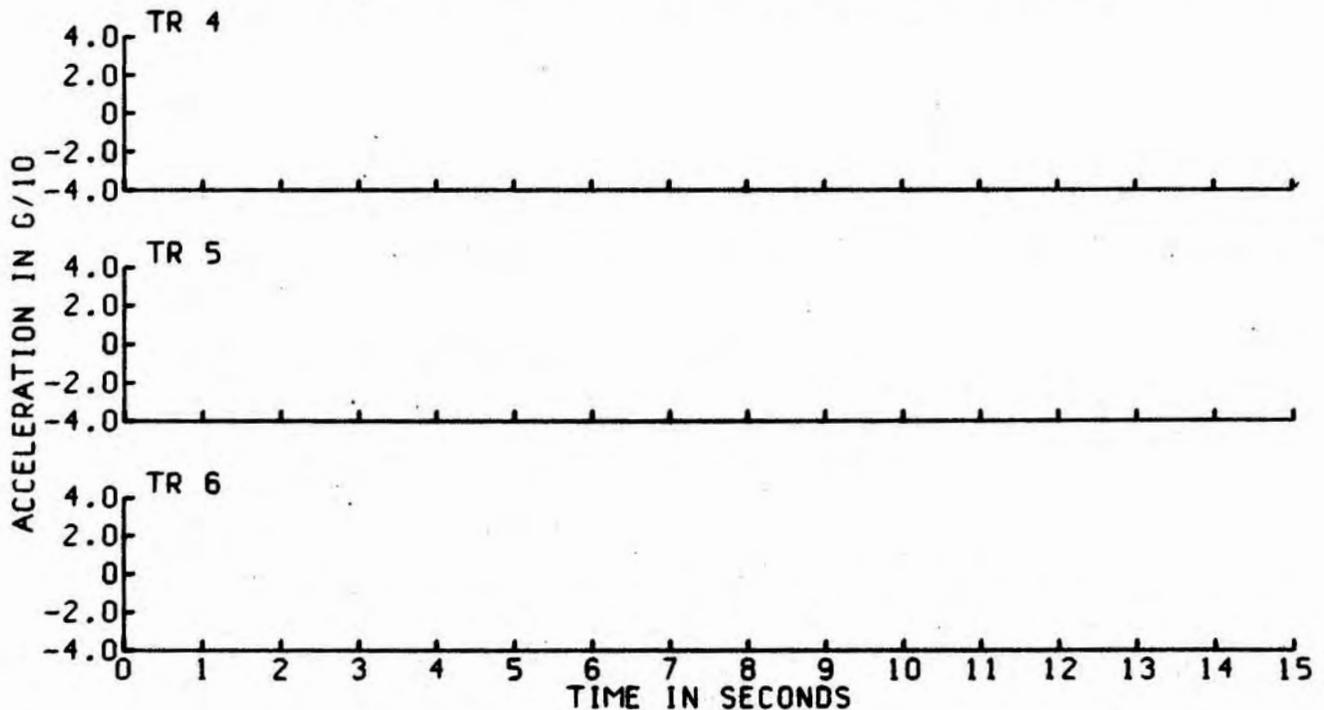


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
 THE 3 PEAK VALUES(G) ARE .4602 .2743 .2850

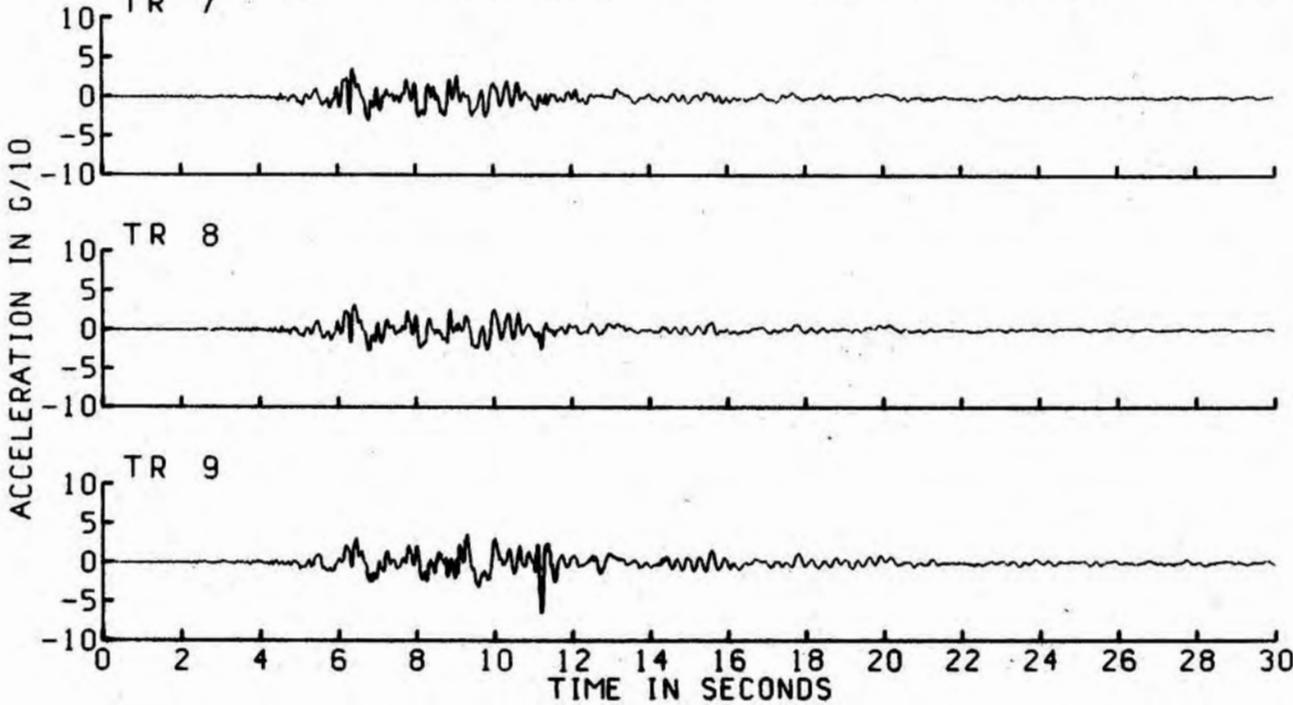


15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

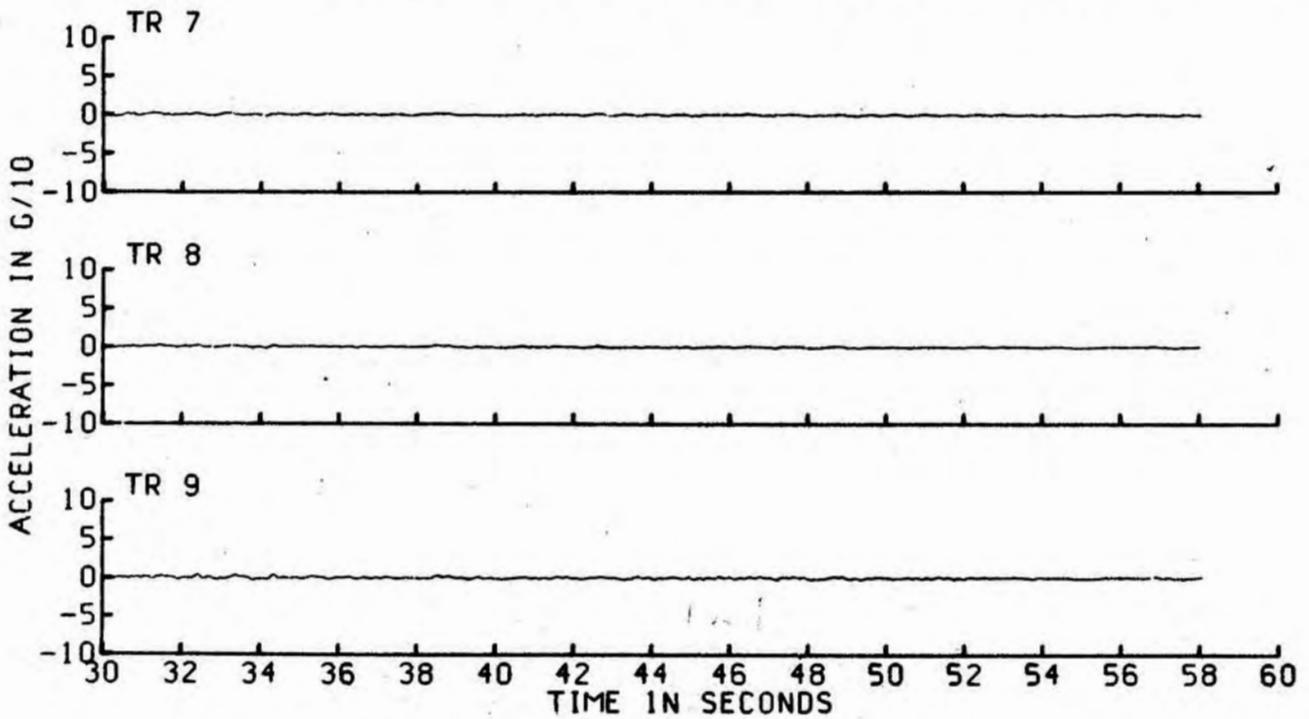


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
 THE 3 PEAK VALUES(G) ARE .3634 .3157 .6450
 TR 7

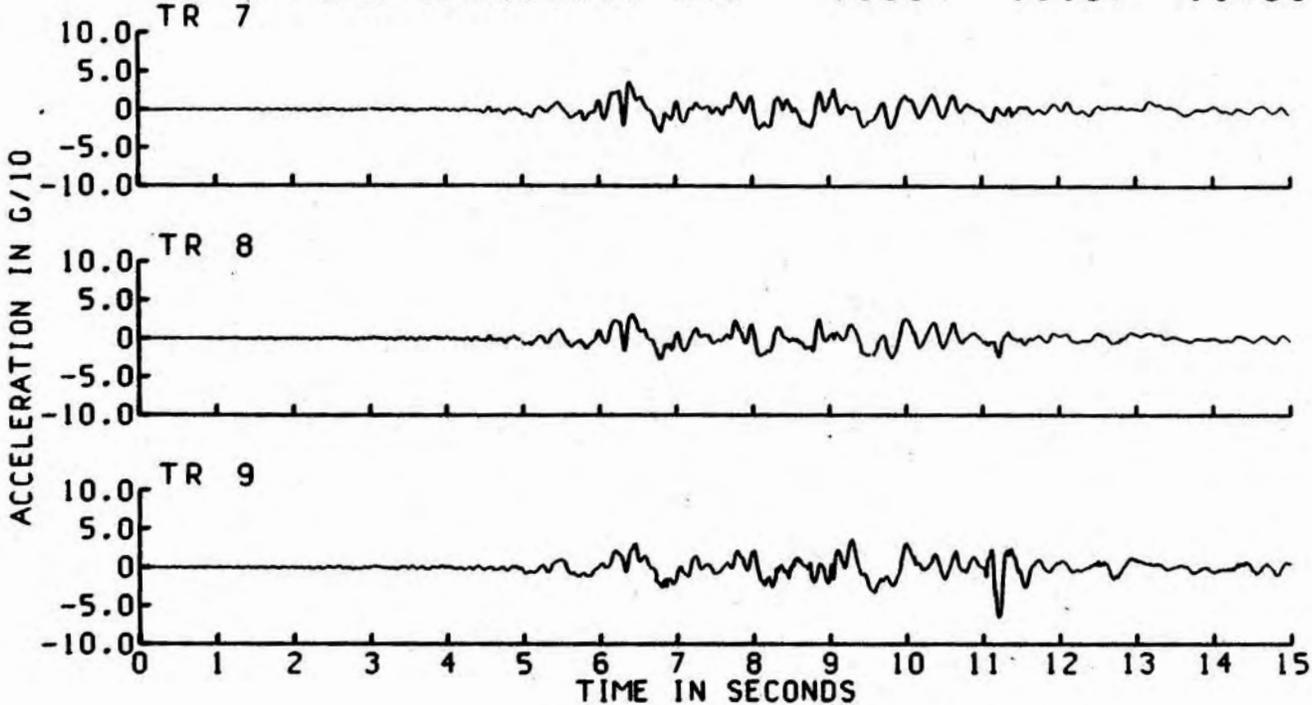


15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

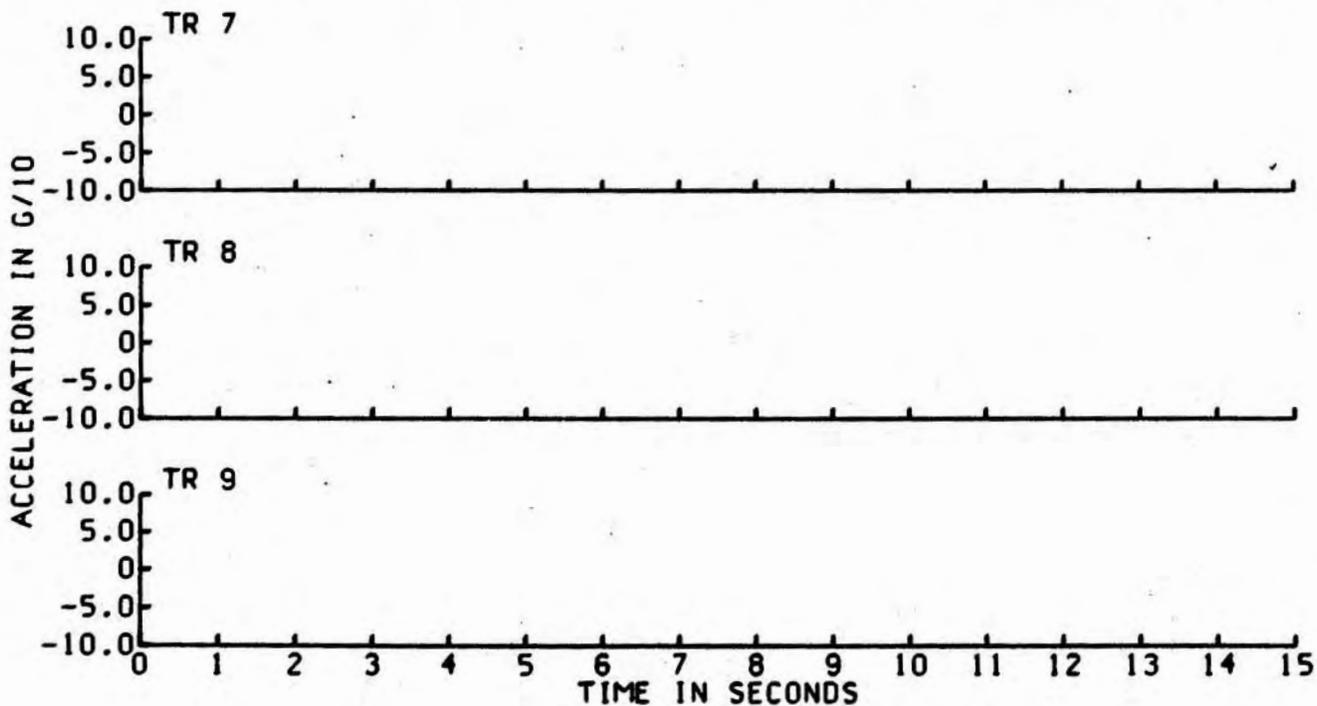


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
THE 3 PEAK VALUES(G) ARE .3634 .3157 .6450

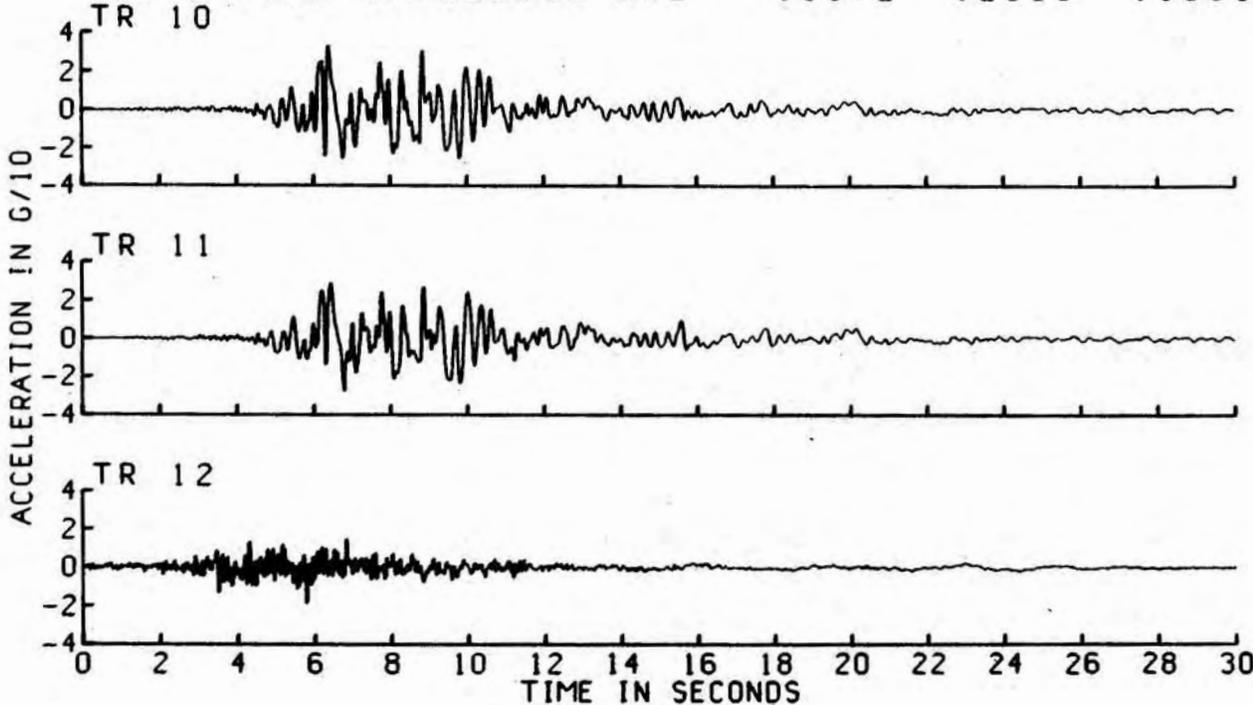


15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

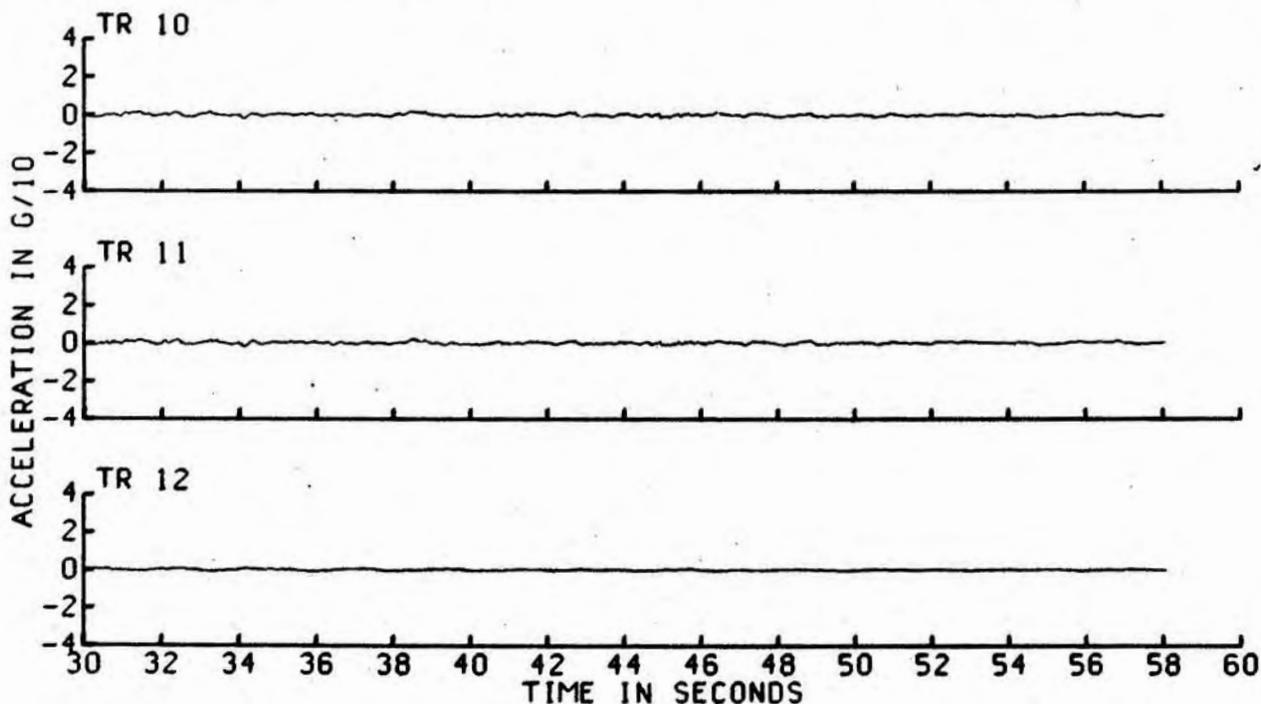


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
 THE 3 PEAK VALUES(G) ARE .3372 .2899 .1836



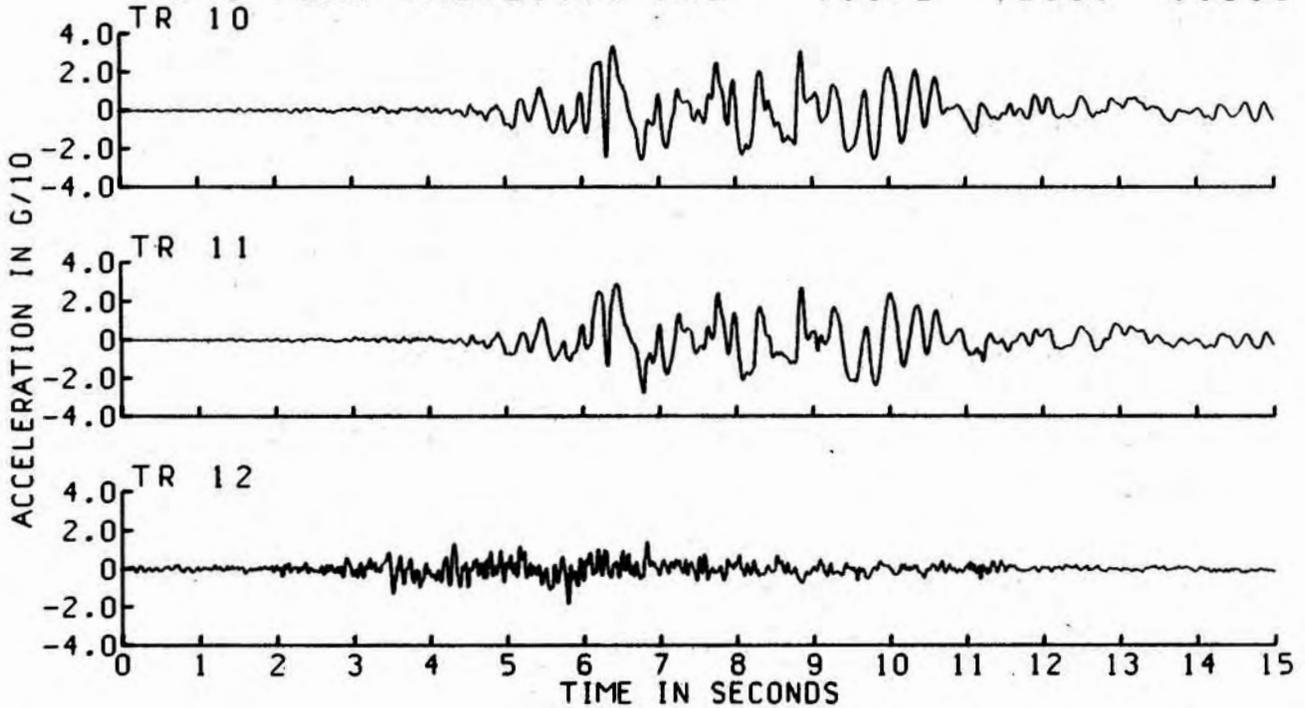
15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125



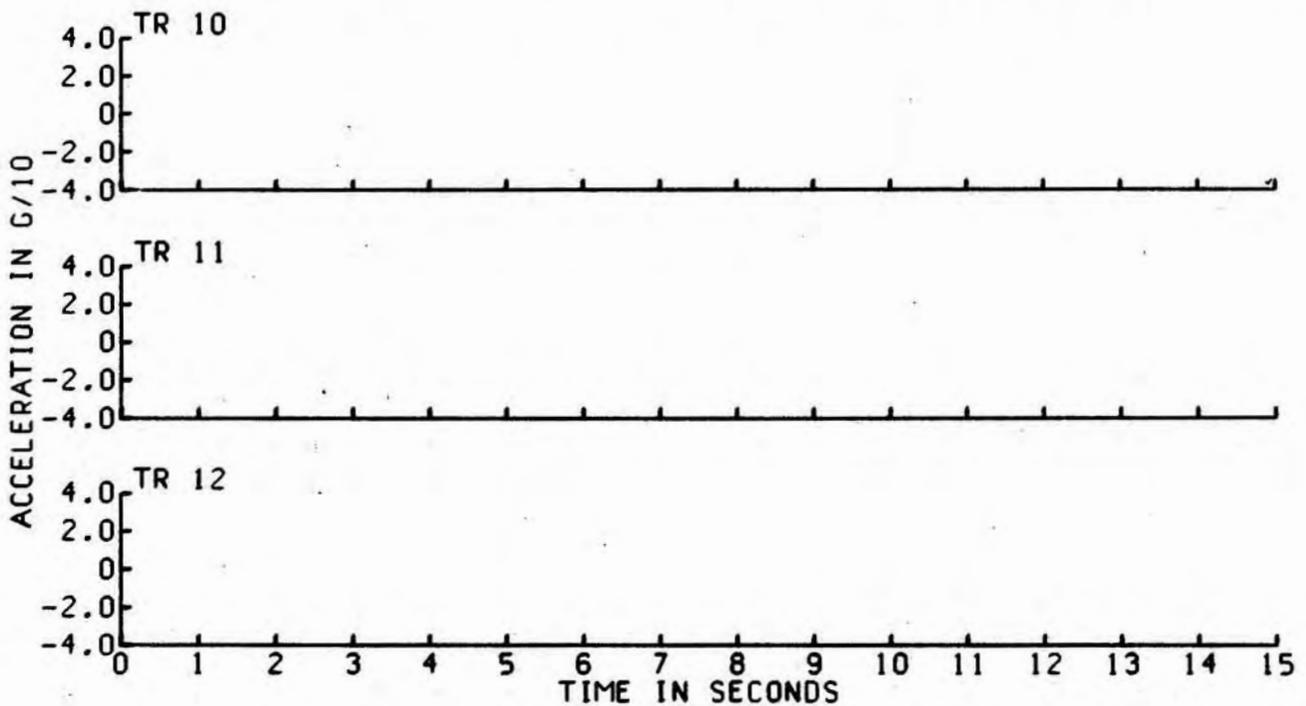
UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

THE 3 PEAK VALUES(G) ARE .3372 .2899 .1836

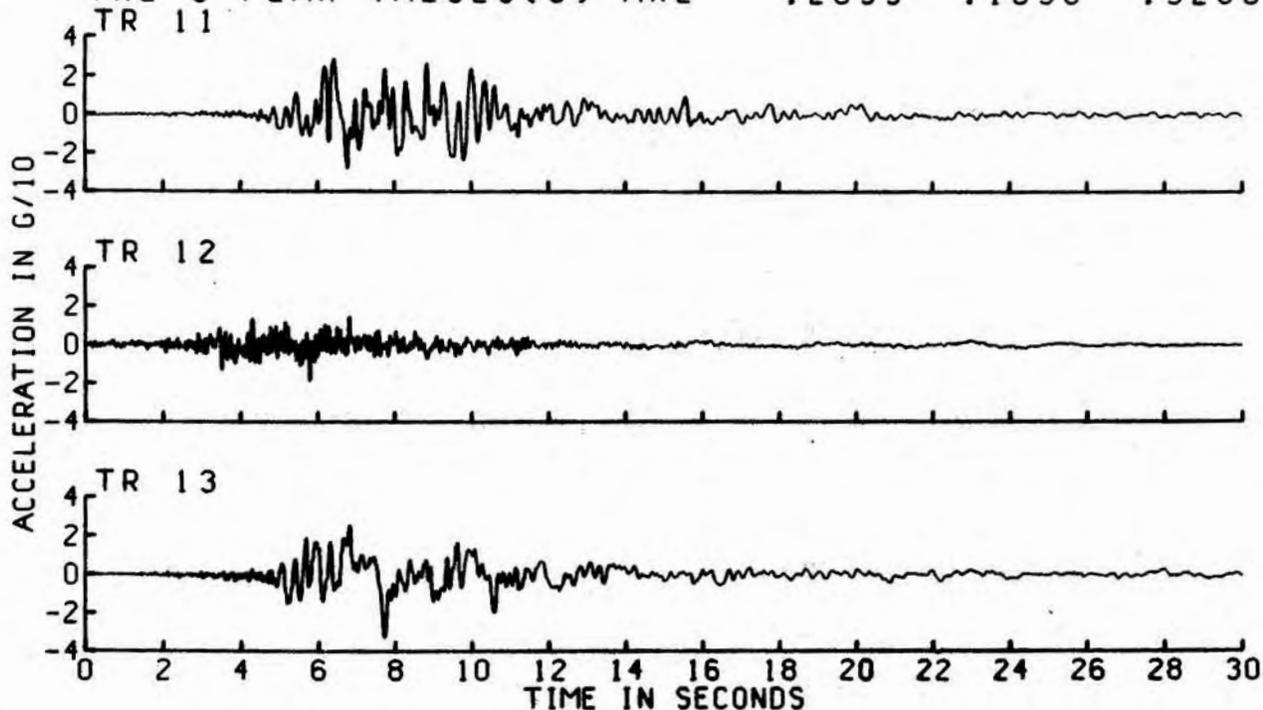


15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

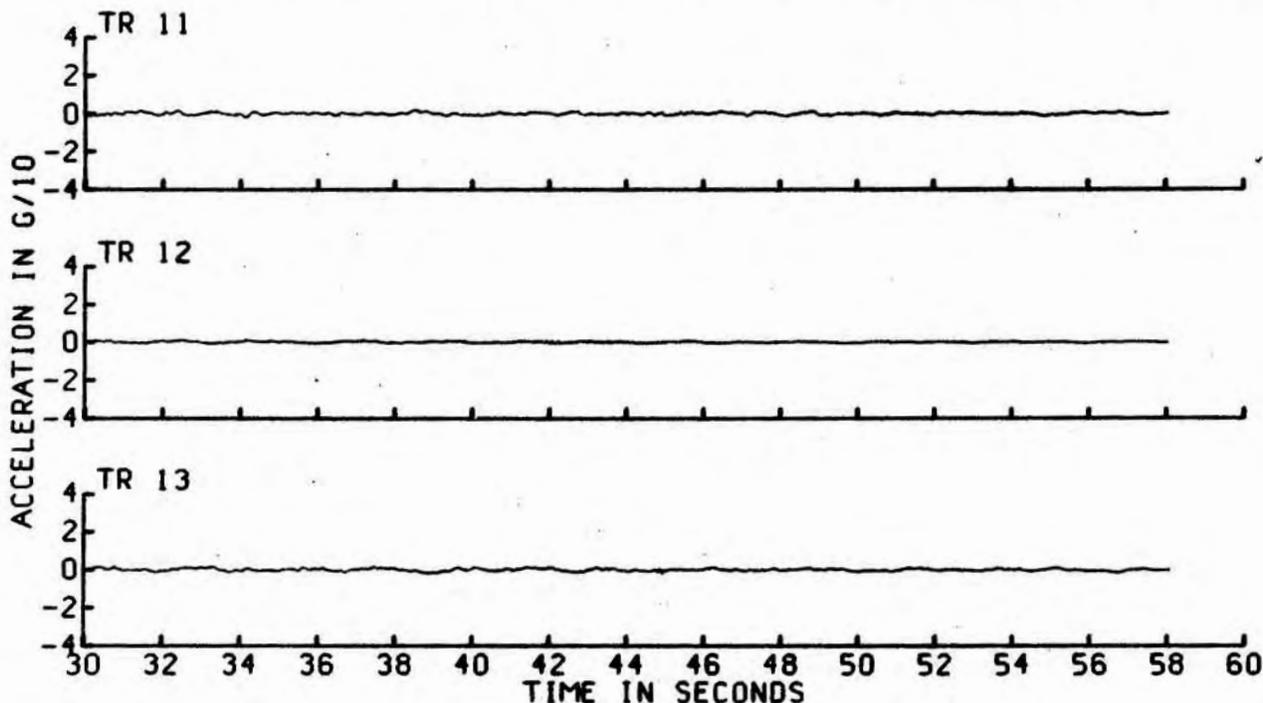


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
 THE 3 PEAK VALUES(G) ARE .2899 .1836 .3268

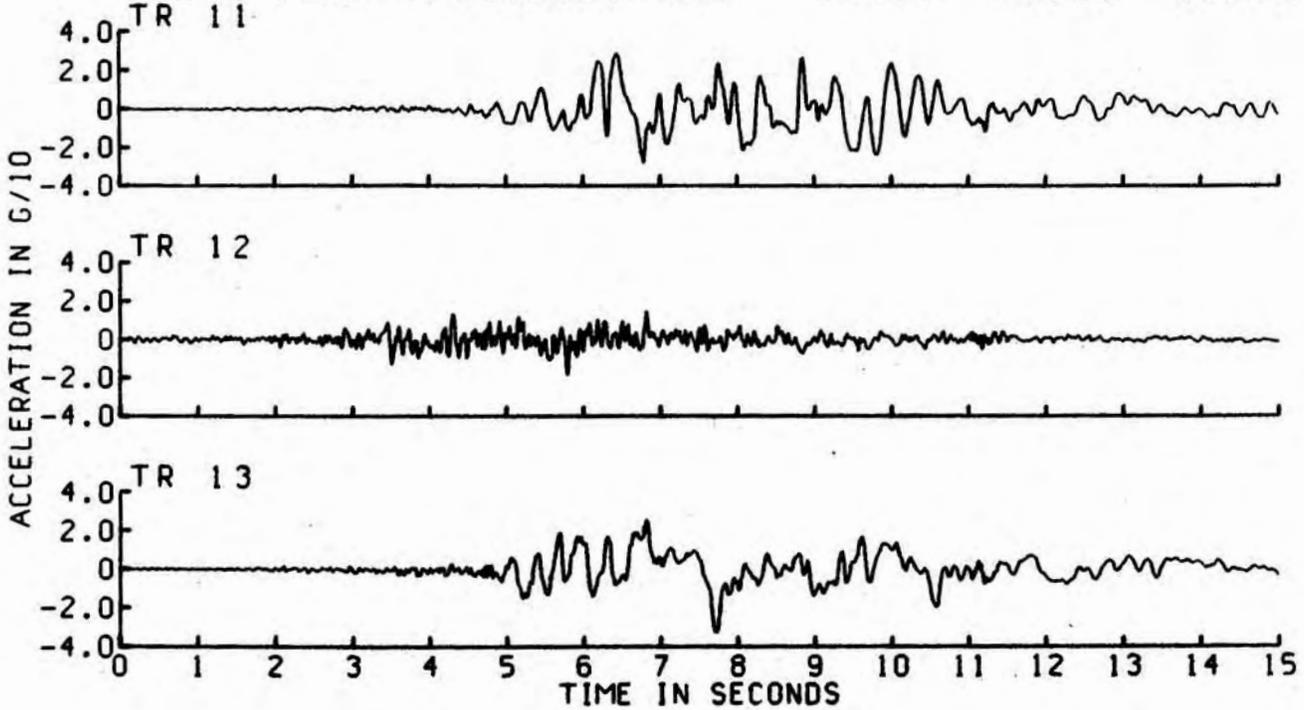


15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125

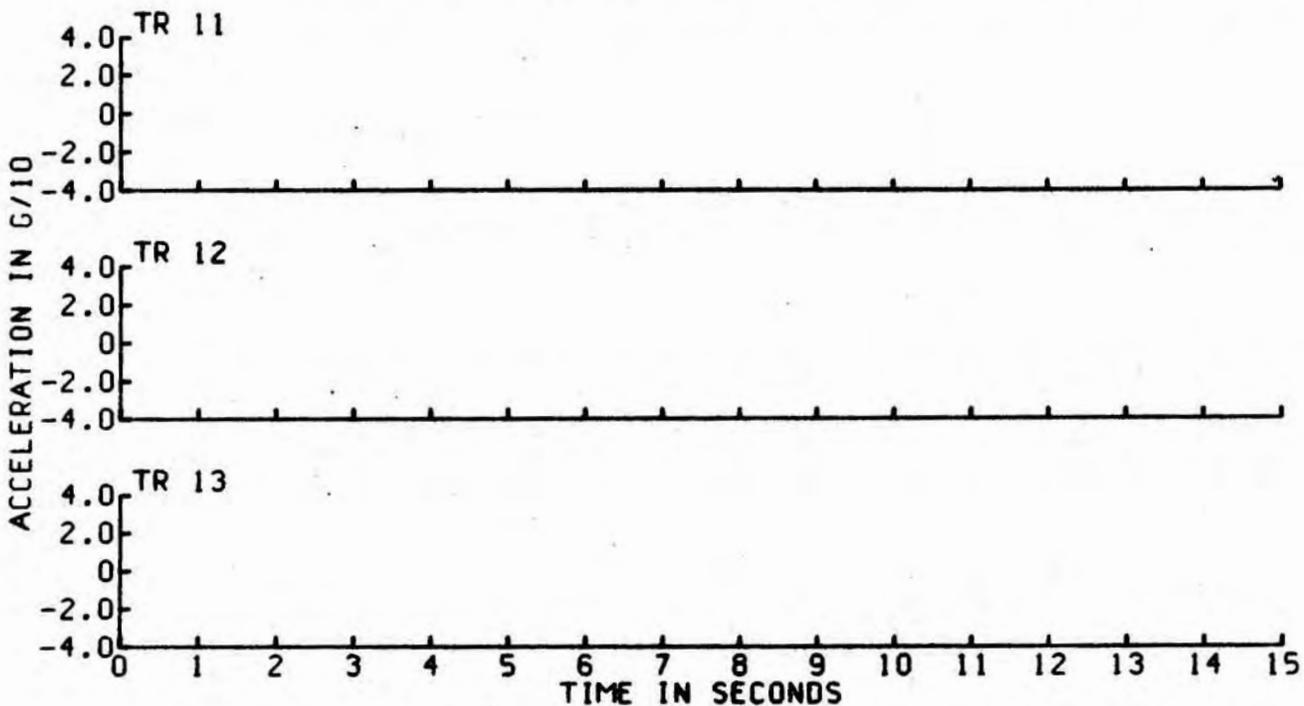


UNCORRECTED ACCELEROGRAM

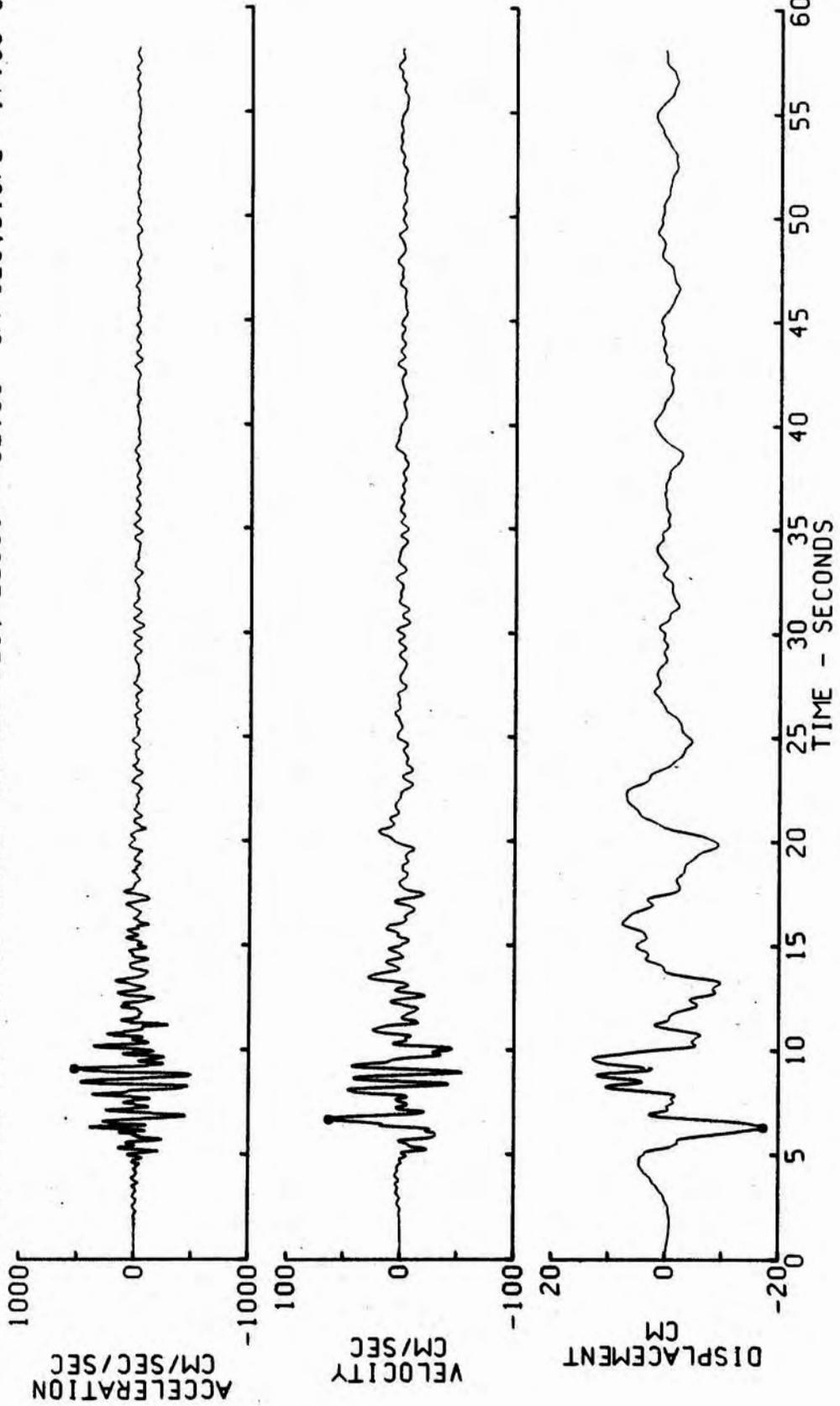
15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125
 THE 3 PEAK VALUES(G) ARE .2899 .1836 .3268



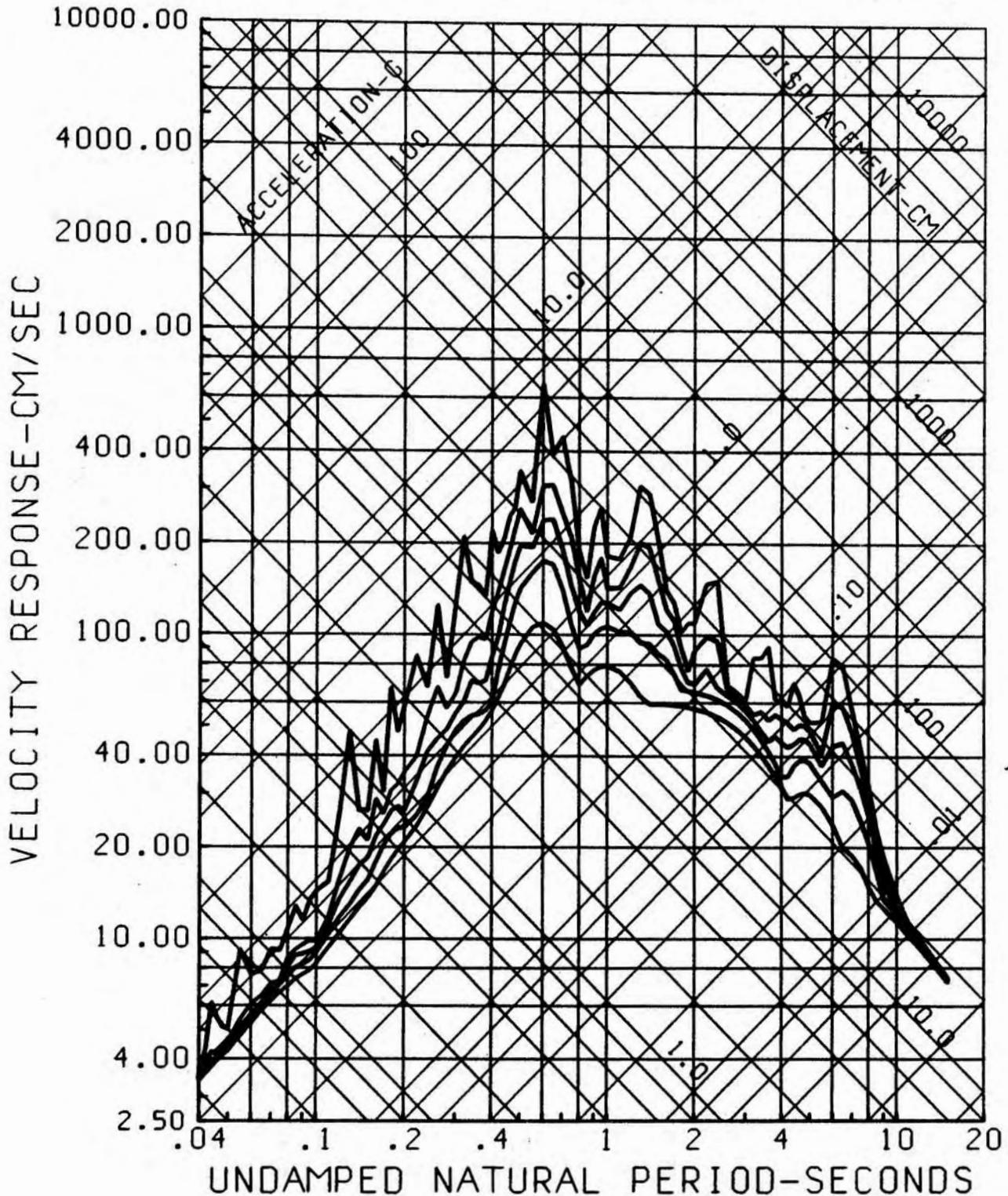
15 OCT 1979 2317 UTC DMG 260 IMP CTY BLDG CRA 125



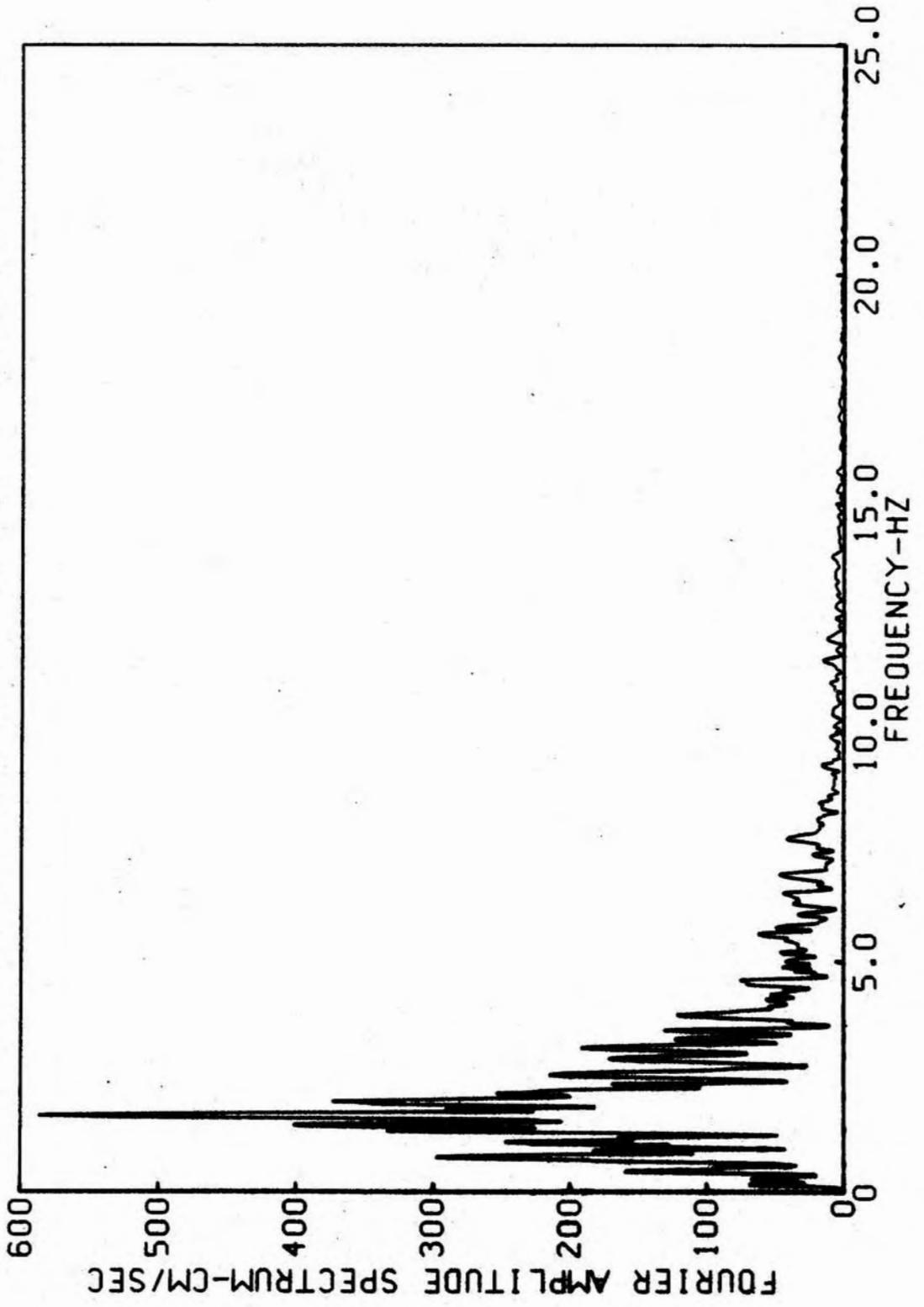
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 1 N/ROOF/W END
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=531.3 CM/SEC/SEC, VELOCITY=62.80 CM/SEC, DISPL=-17.36 CM



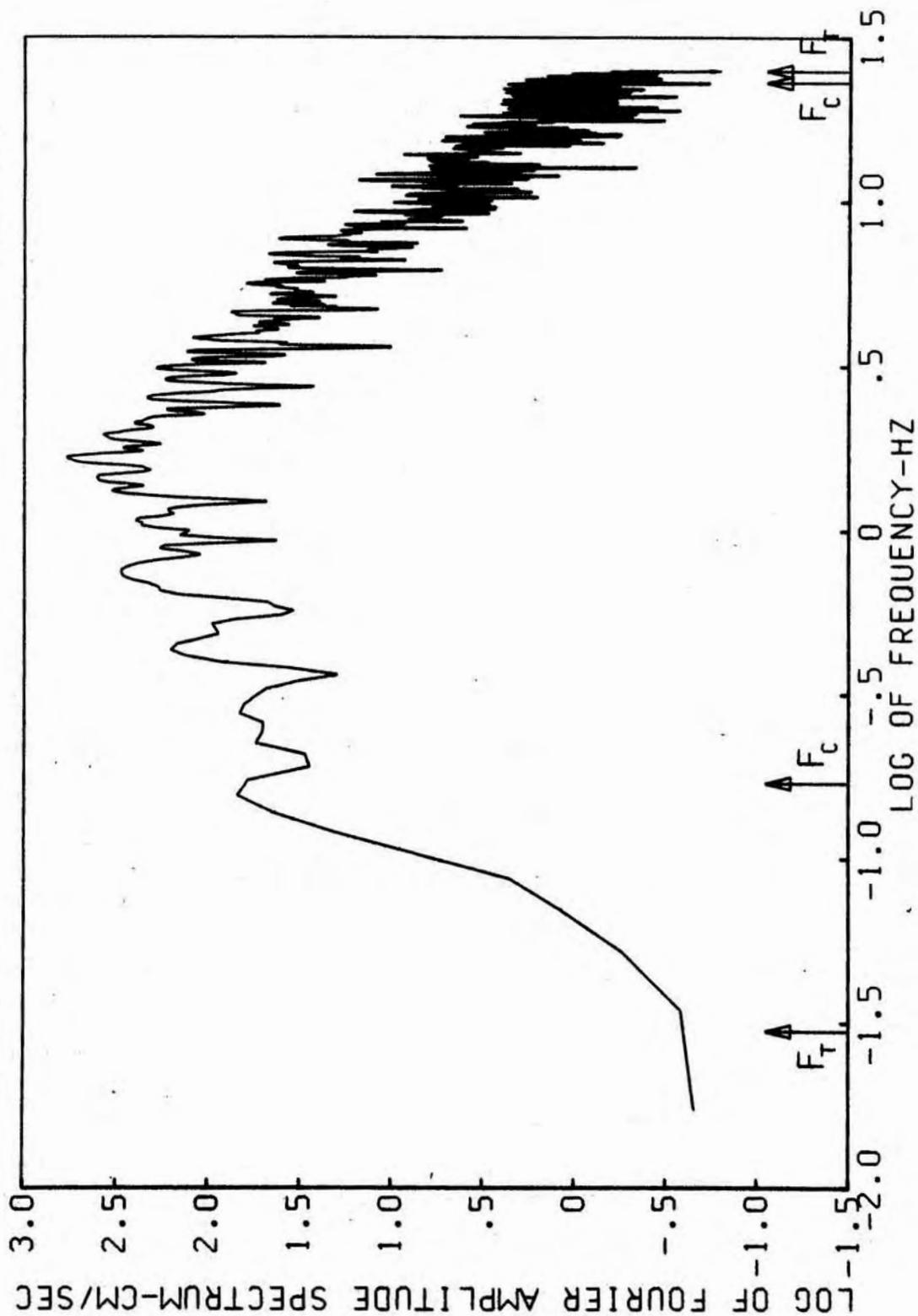
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 1
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 1 N/ROOF/W END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



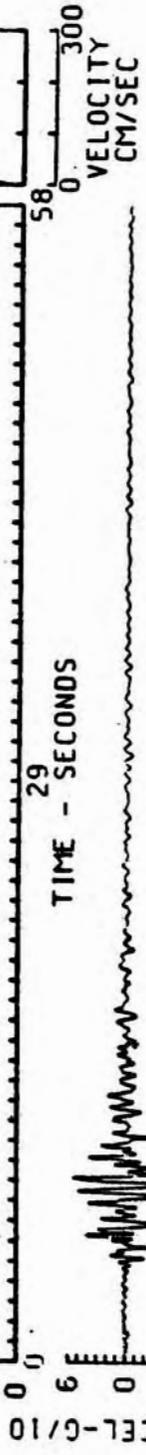
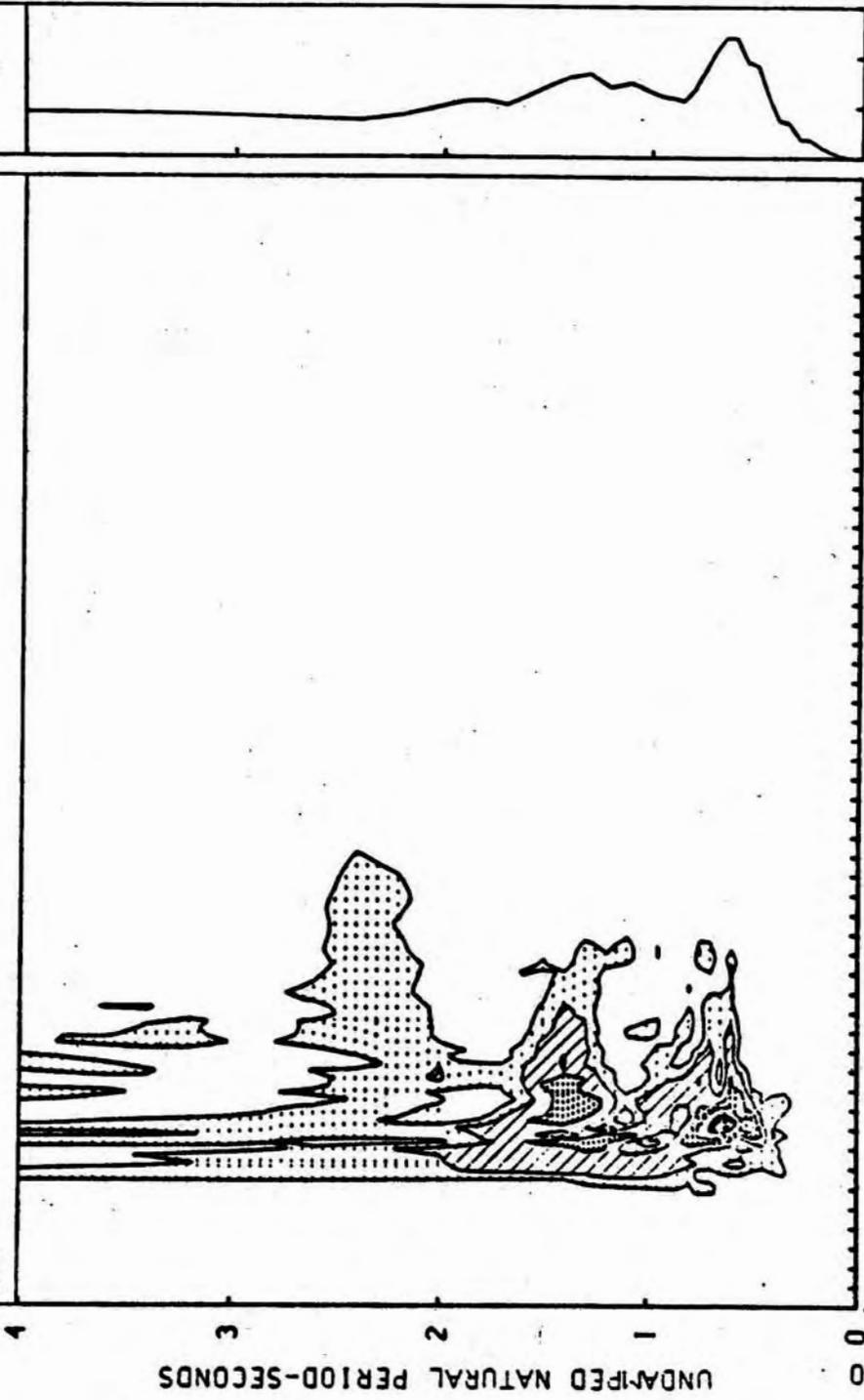
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 1 N/ROOF/W END
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



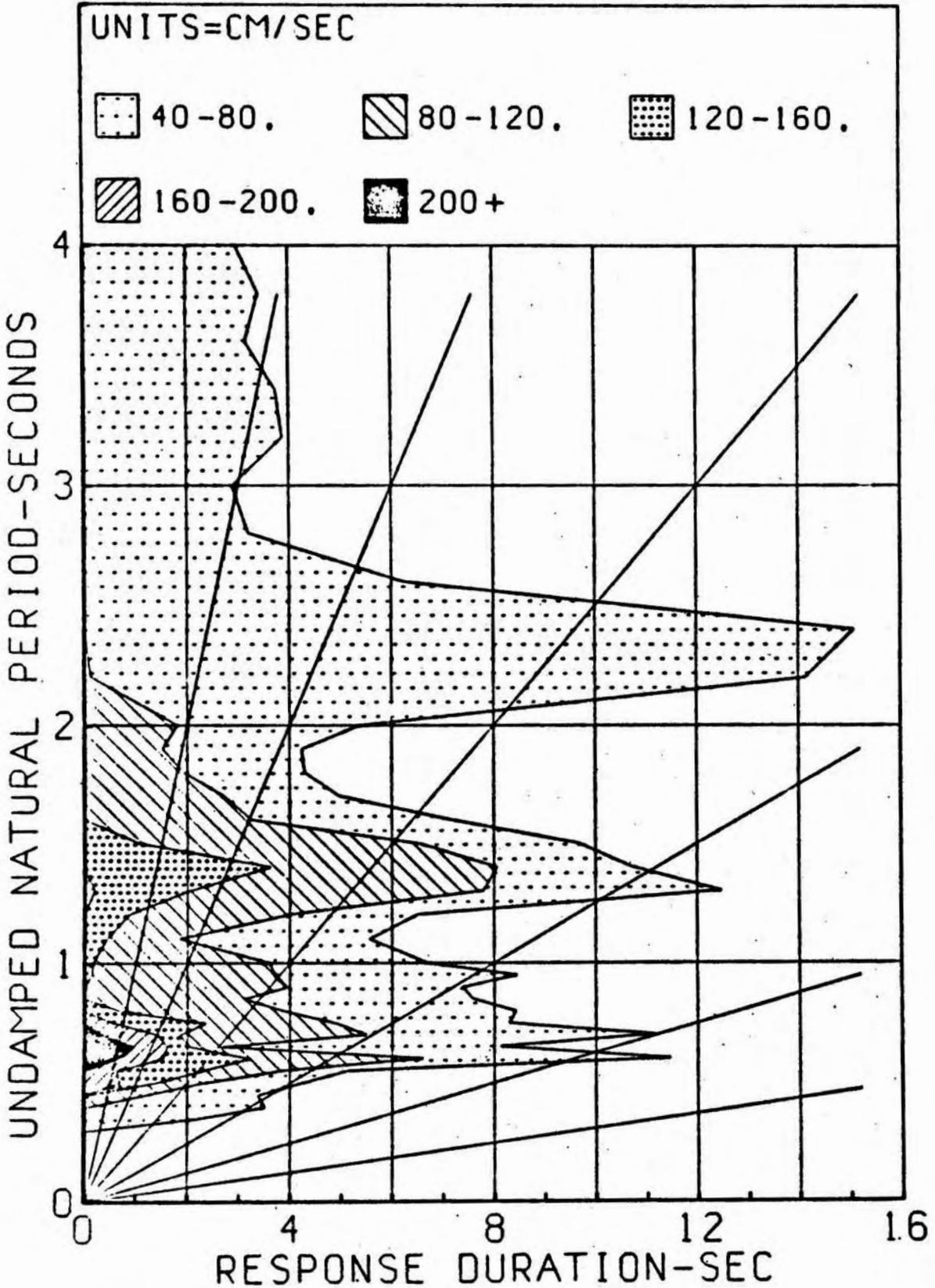
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00 - 25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLDG TR 1

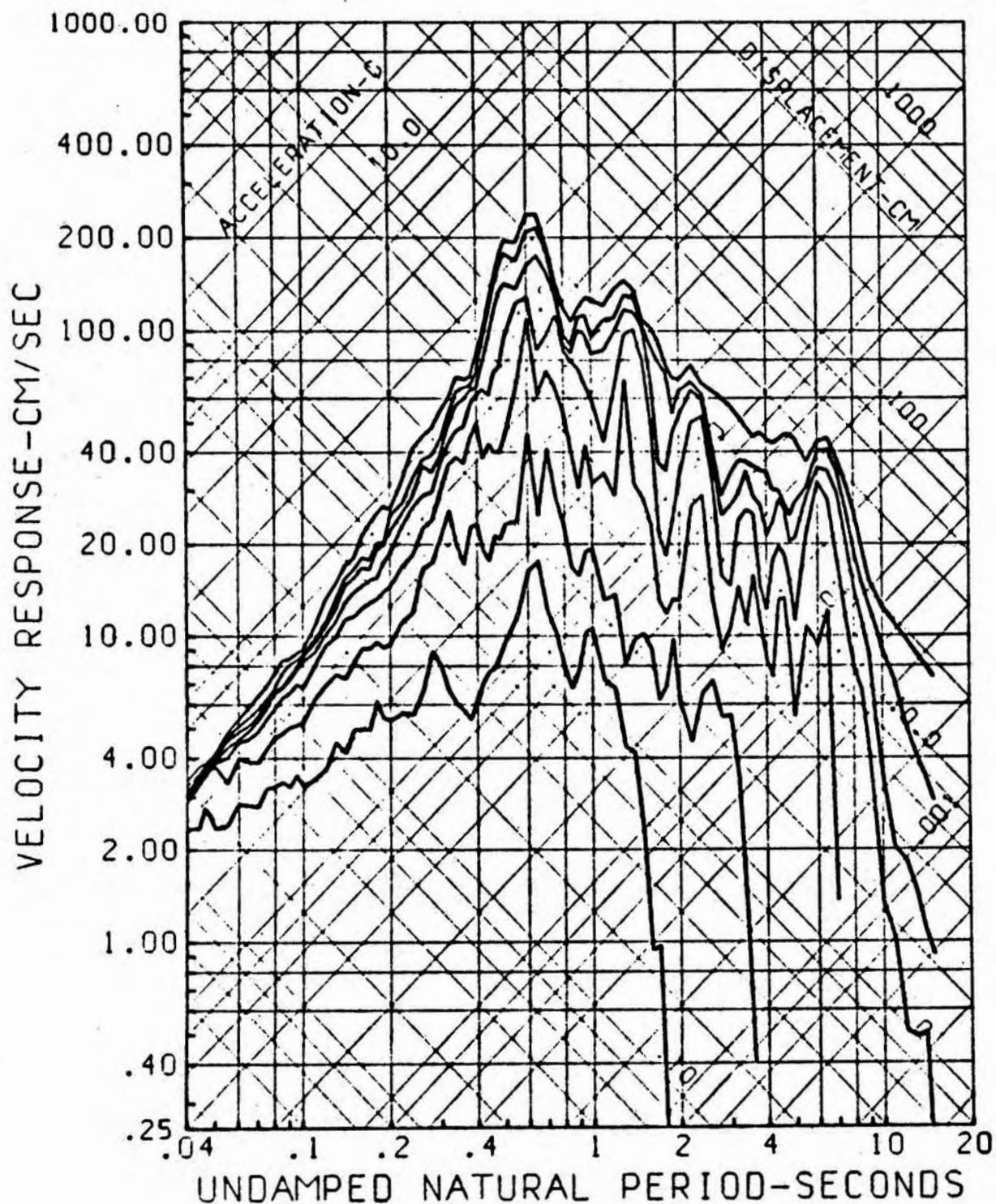
- 0-40.
- ▨ 40-80.
- ▩ 80-120.
- ▧ 120-160.
- ▦ 160-200.
- 200+



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC IMP CTY BLDG TR 1

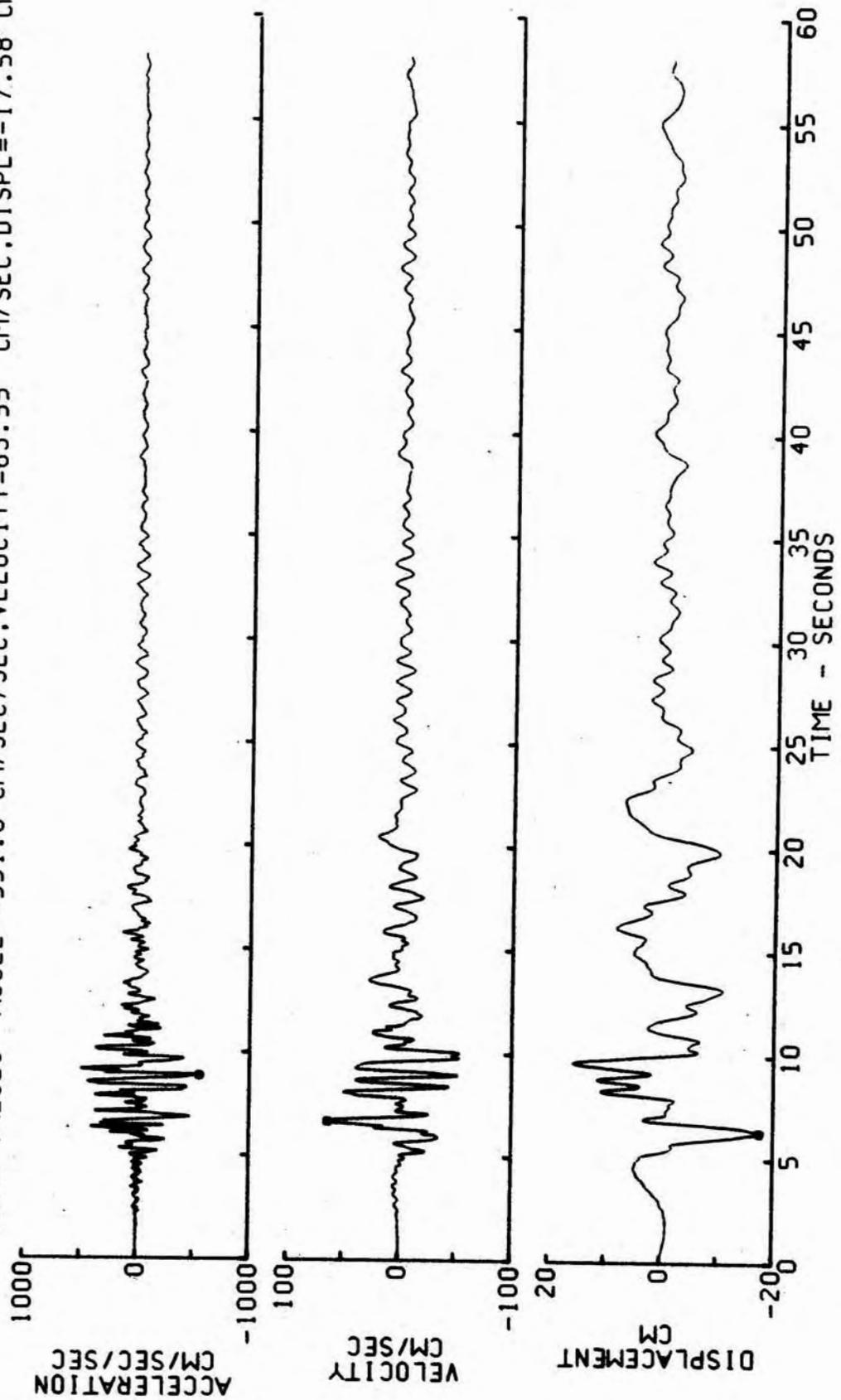


SPECTRA OF AMPLITUDES SUSTAINED
FOR ANY GIVEN NUMBER OF CYCLES
15 OCT 1979 2317 UTC IMP CTY BLDG TR 1
5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

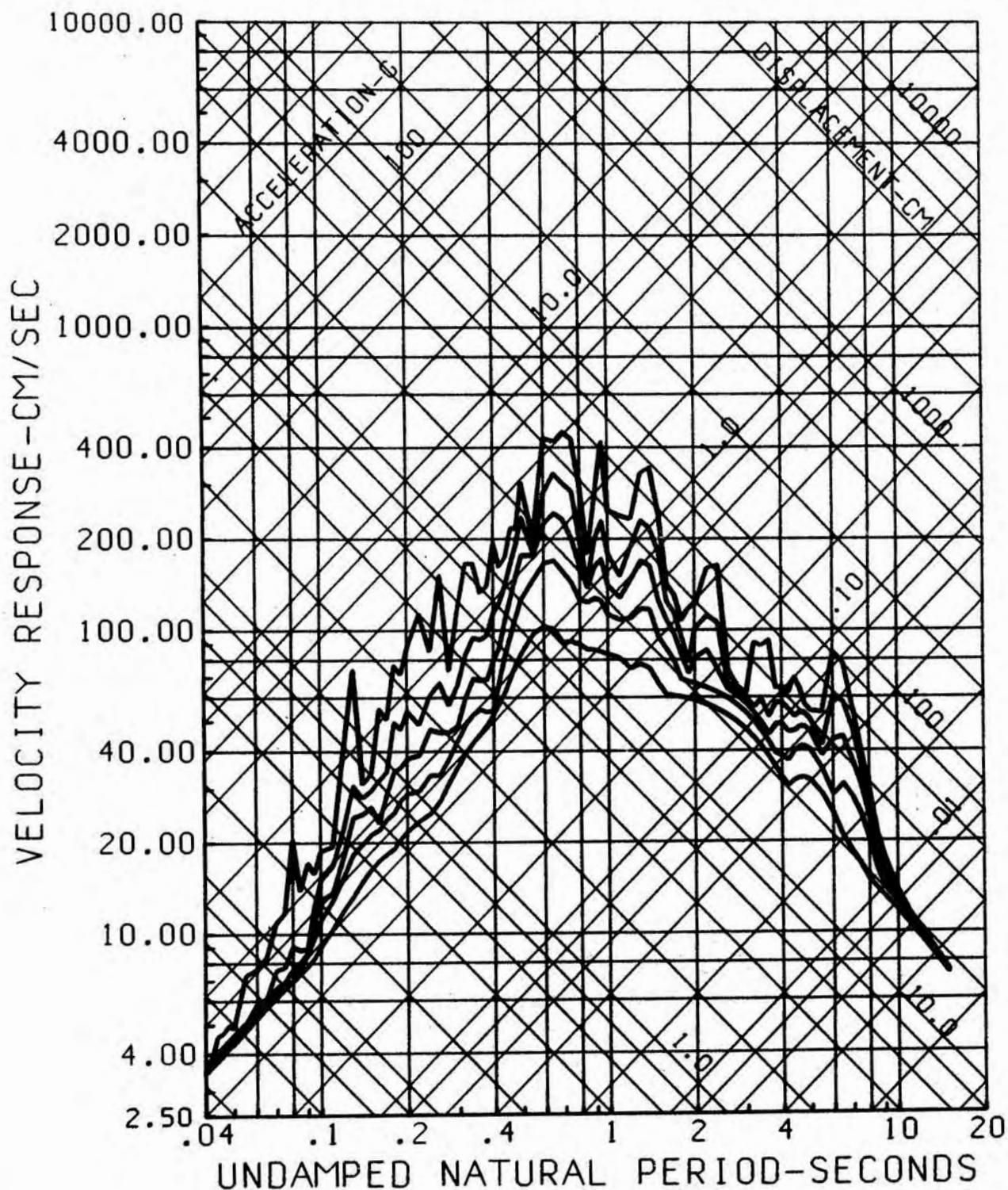


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 2 N/ROOF/CNTR

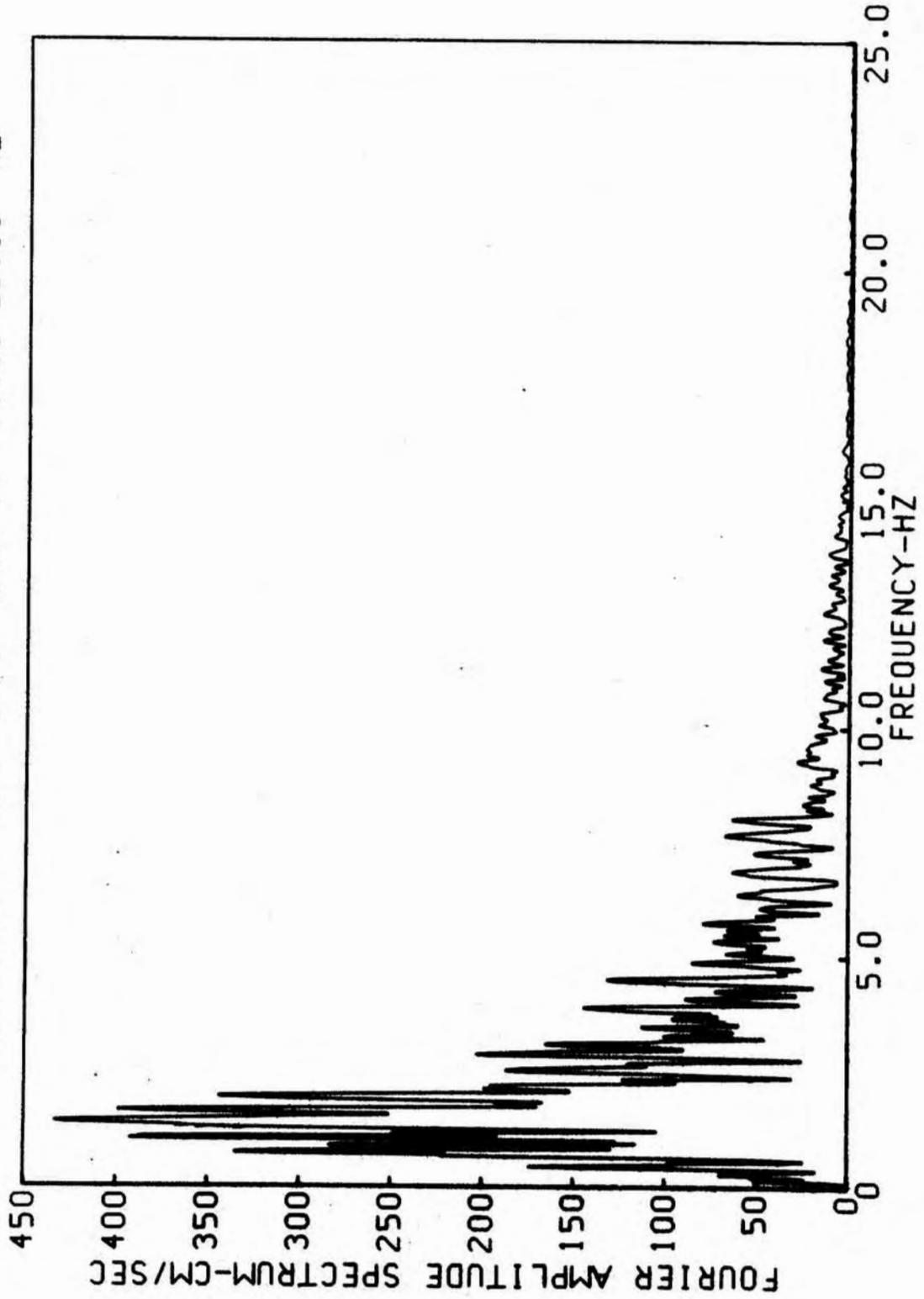
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
 ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
 PEAK VALUES ACCEL=-551.6 CM/SEC/SEC, VELOCITY=63.55 CM/SEC, DISPL=-17.58 CM



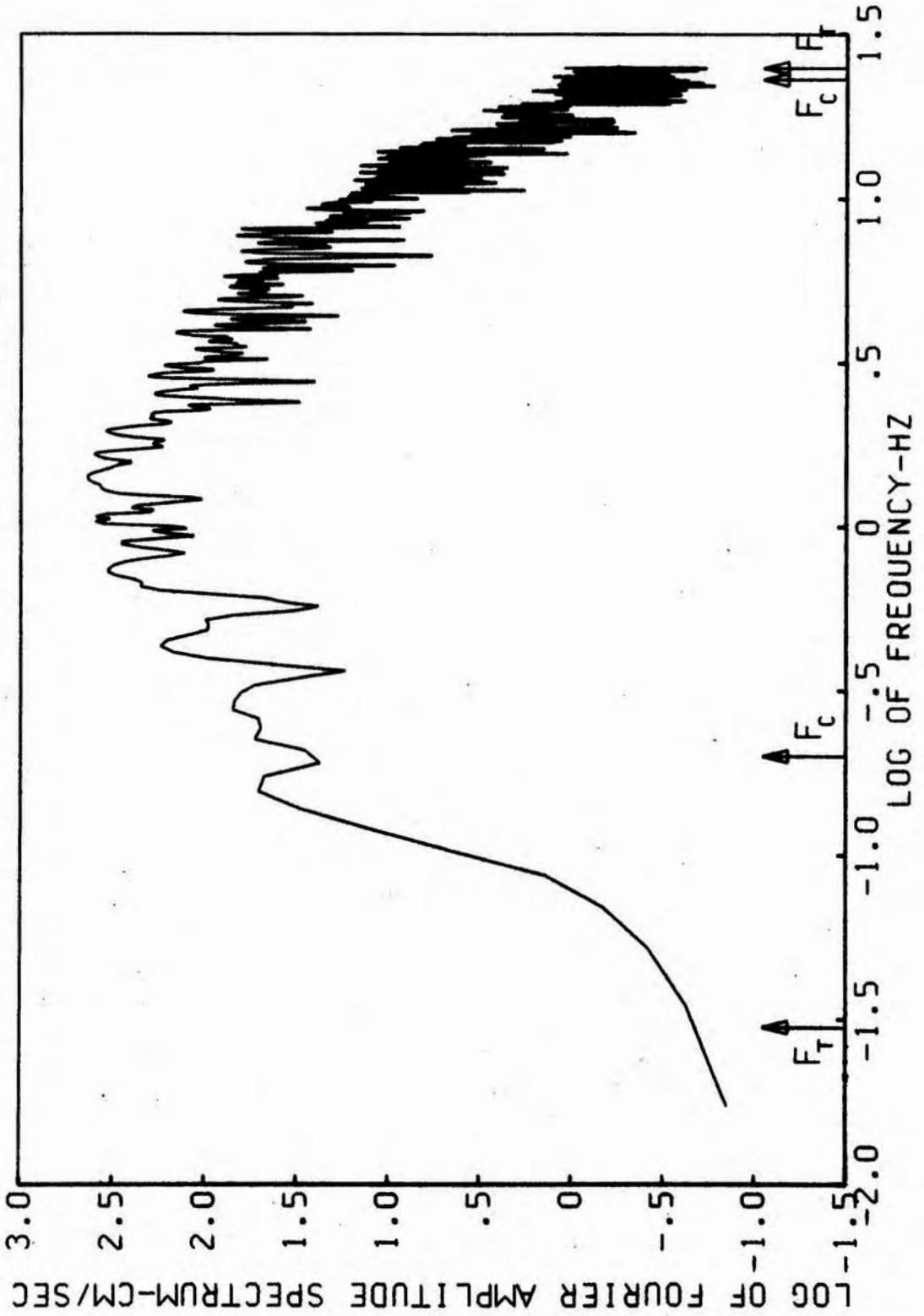
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 2
 0.2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 2 N/ROOF/CNTR
BAND PASSED FROM .030- .200 TO 23.00-25.00 HZ



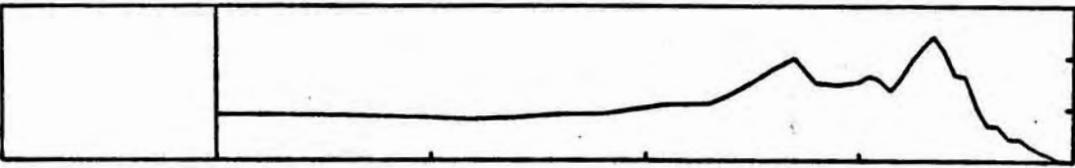
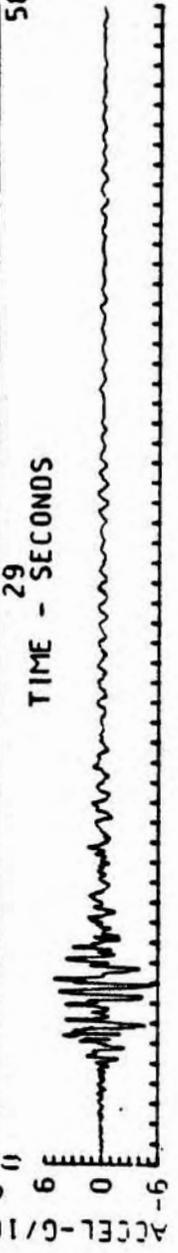
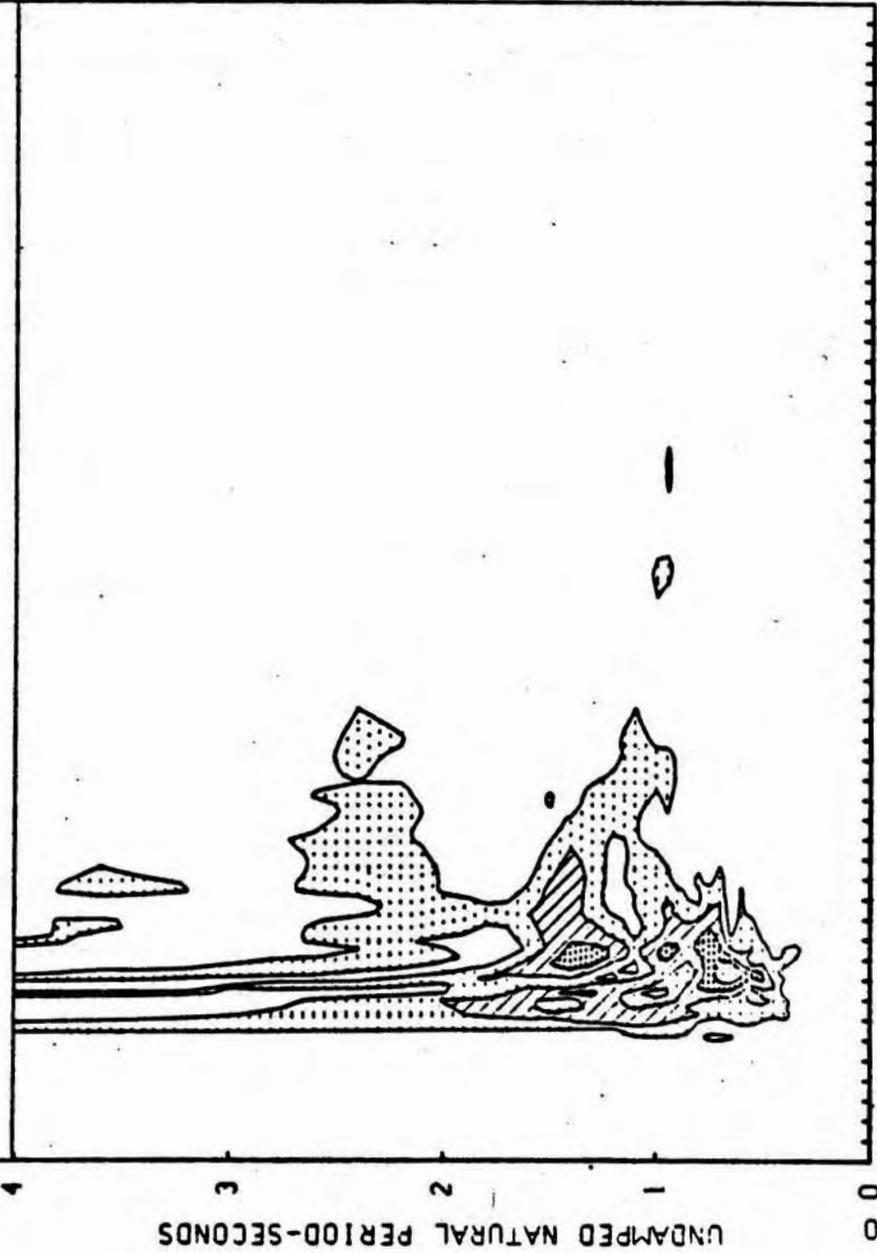
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 2 N/ROOF/CNTR
BAND PASSED FROM .030- .200 TO 23.00-25.00 HZ



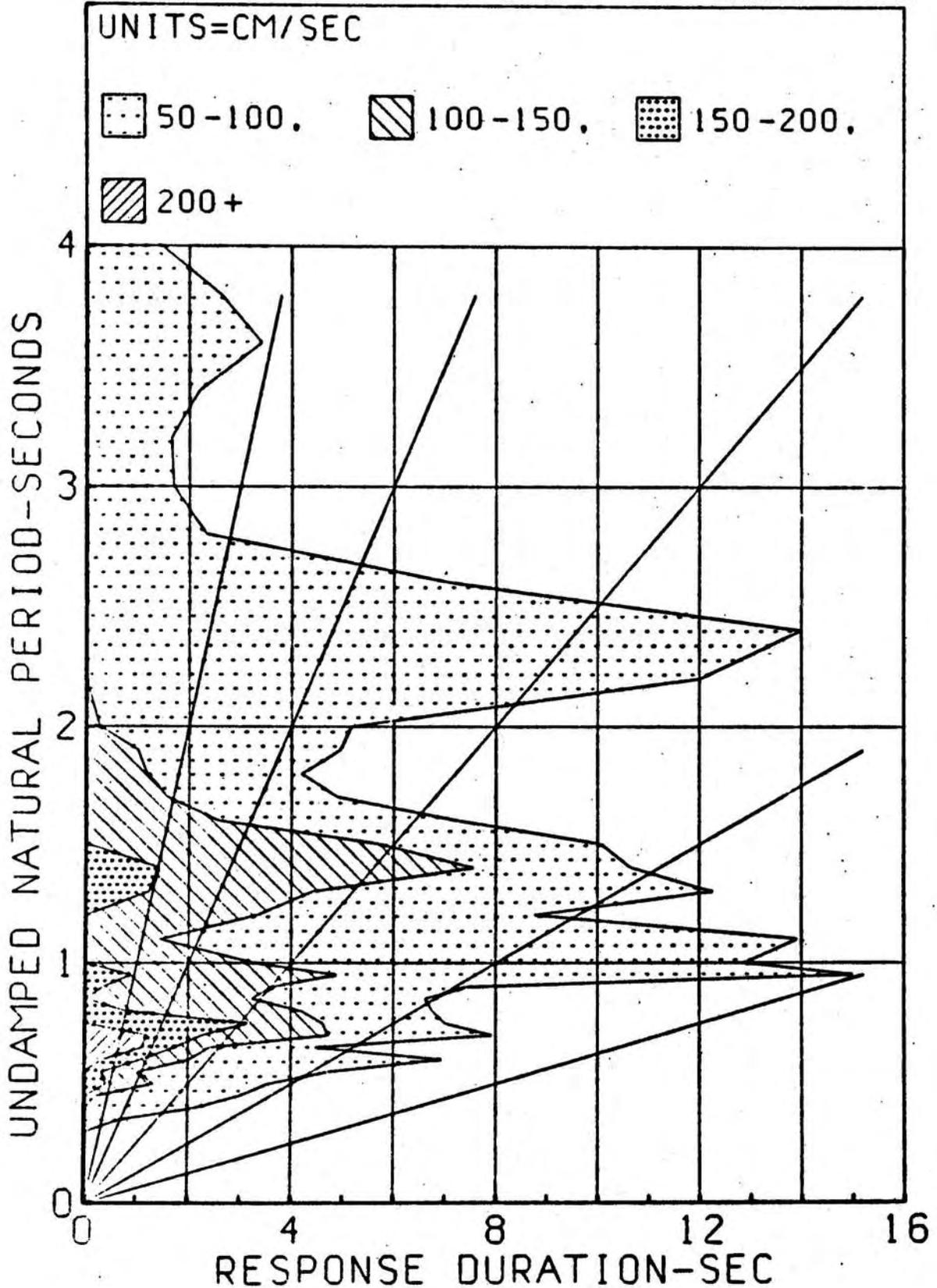
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .200 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLOG TR 2

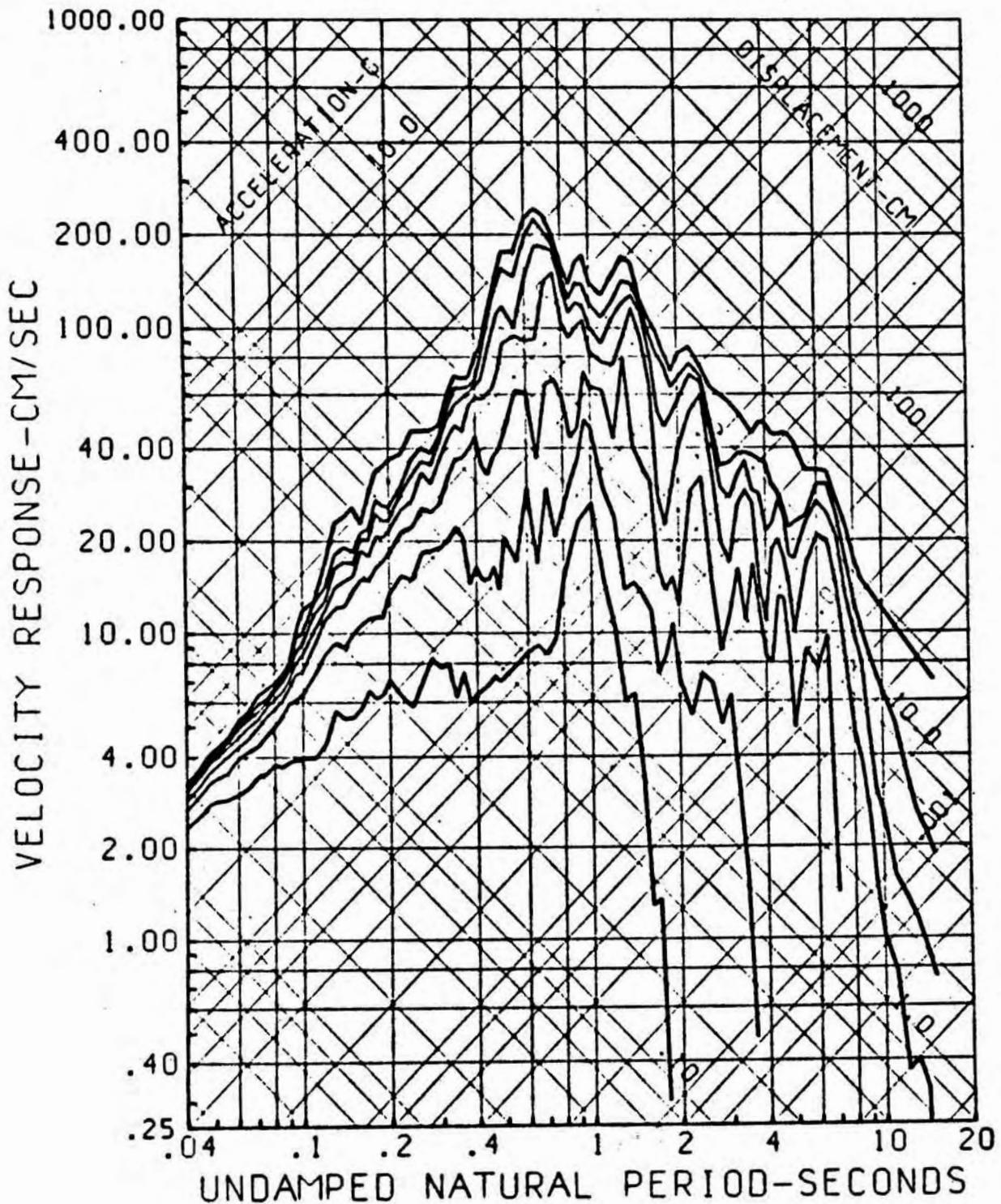
- 0-50.
- ▨ 50-100.
- ▩ 100-150.
- ▧ 150-200.
- ▦ 200+



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .200 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 2

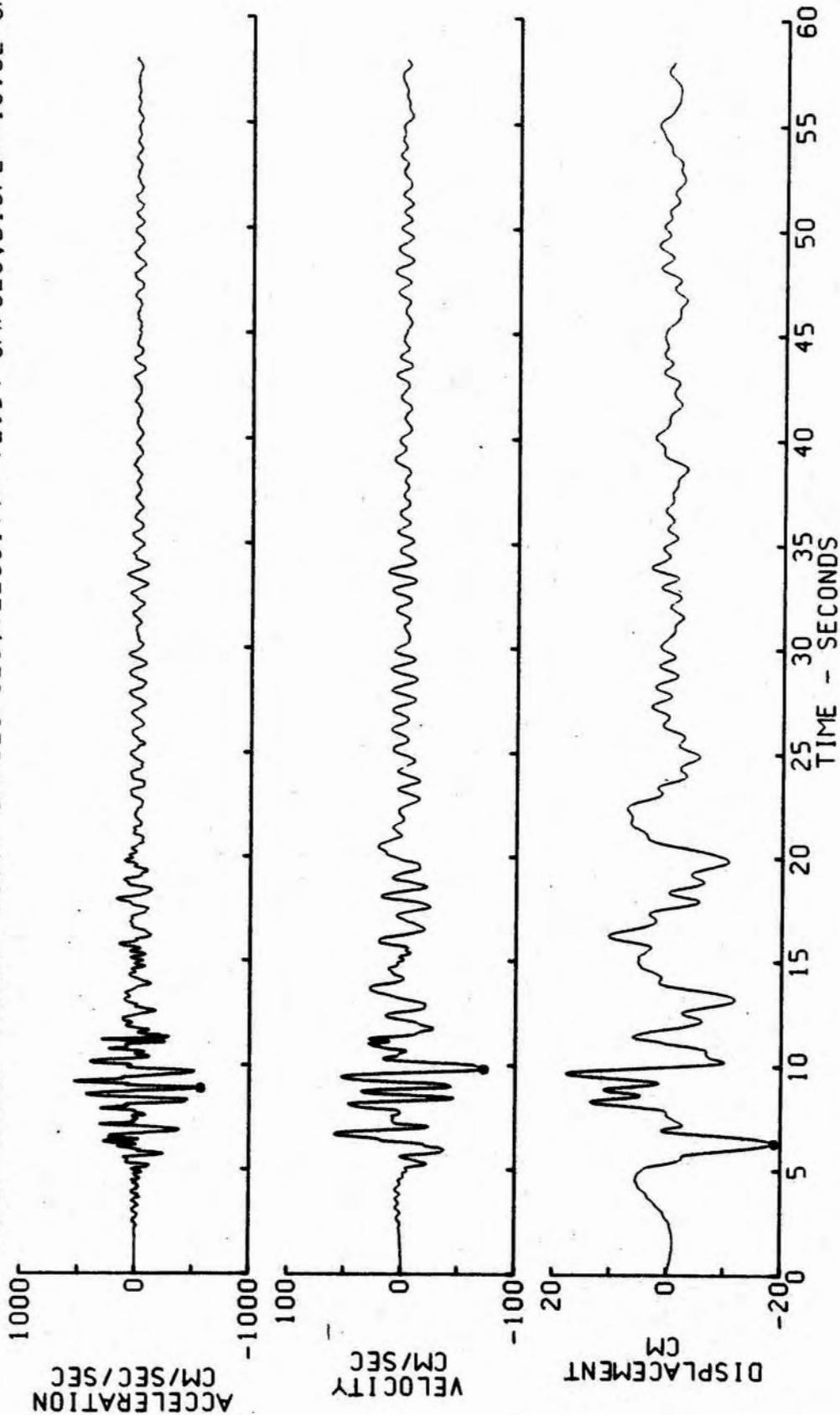


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 2
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .200 TO 23.00-25.00 HZ

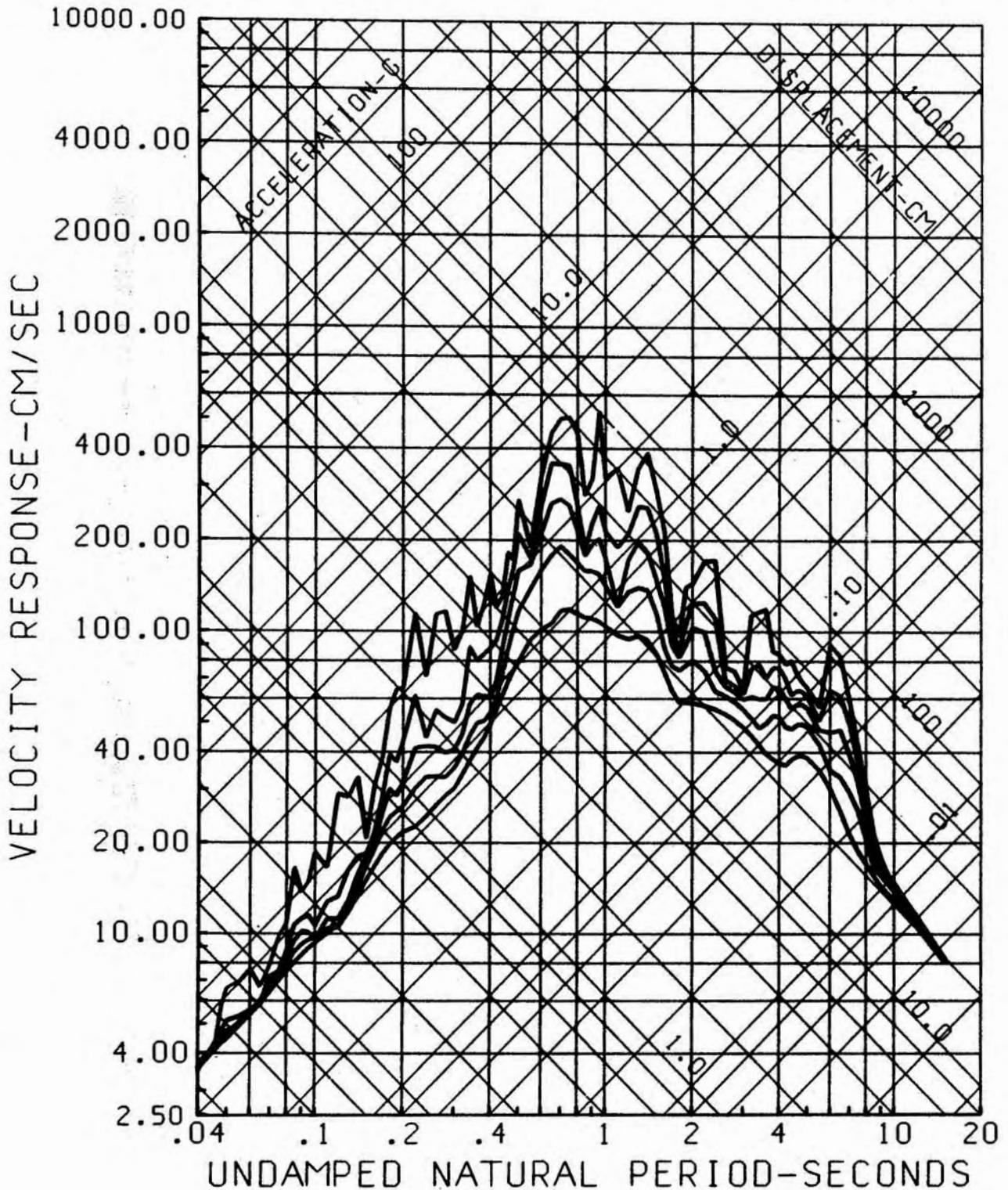


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 3 N/ROOF/E END

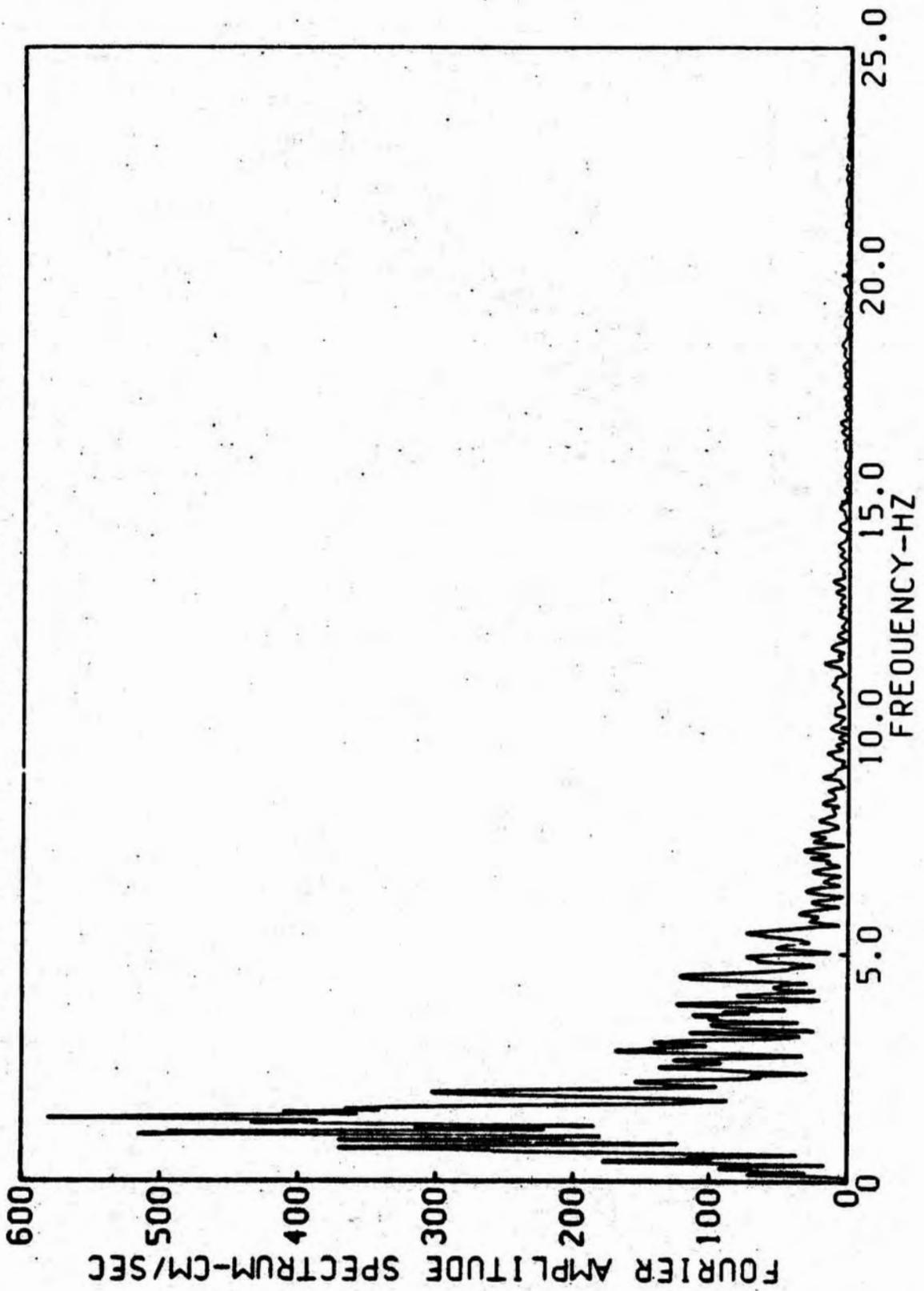
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
 ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
 • PEAK VALUES ACCEL=-569.4 CM/SEC/SEC, VELOCITY=-72.54 CM/SEC, DISPL=-18.92 CM



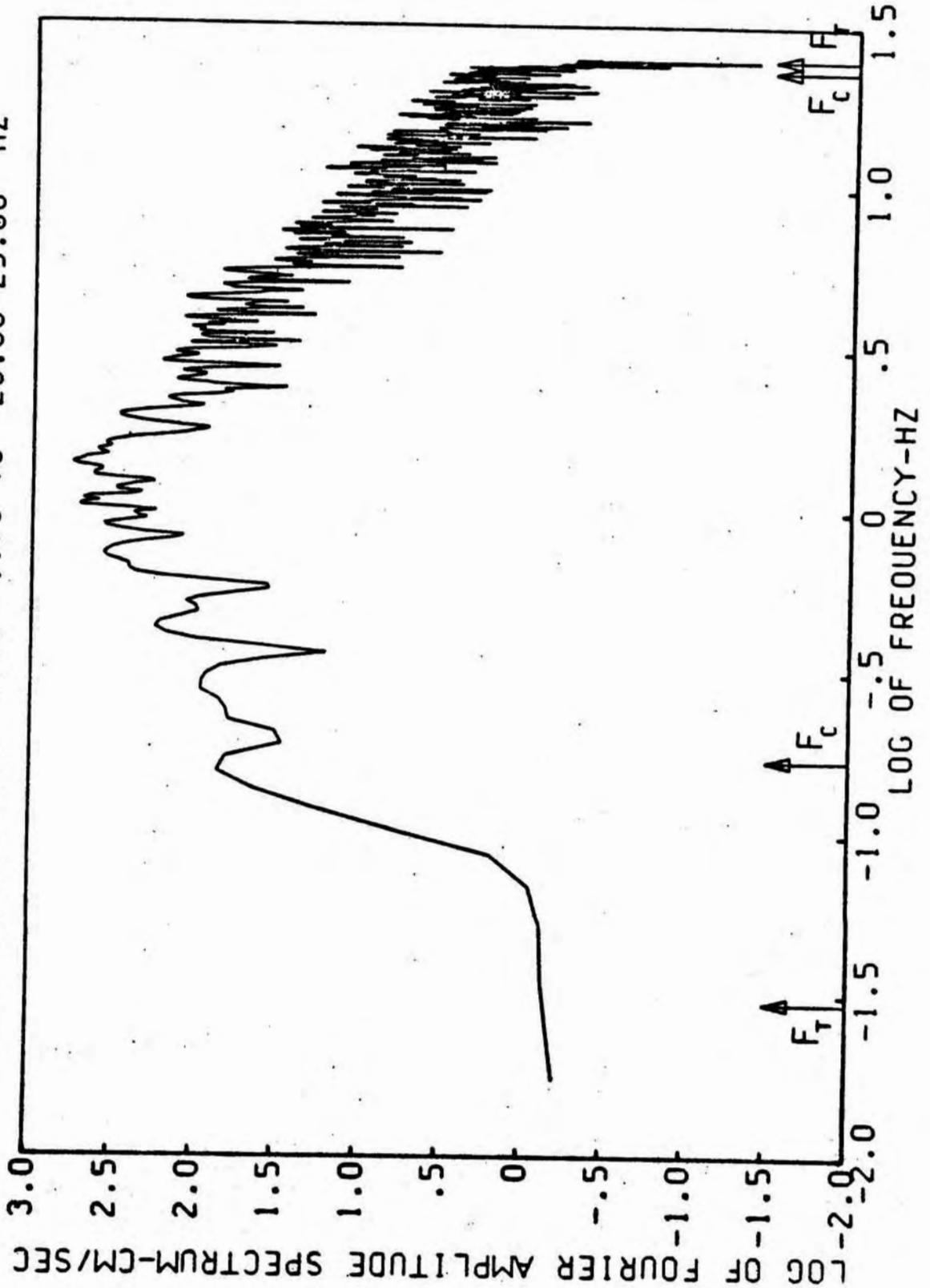
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 3
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 3 N/ROOF/E END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



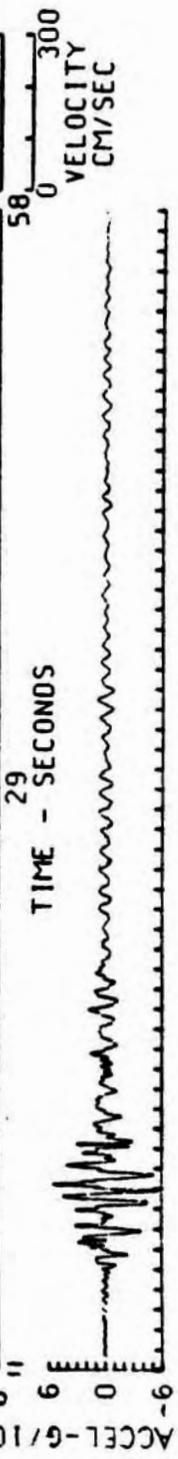
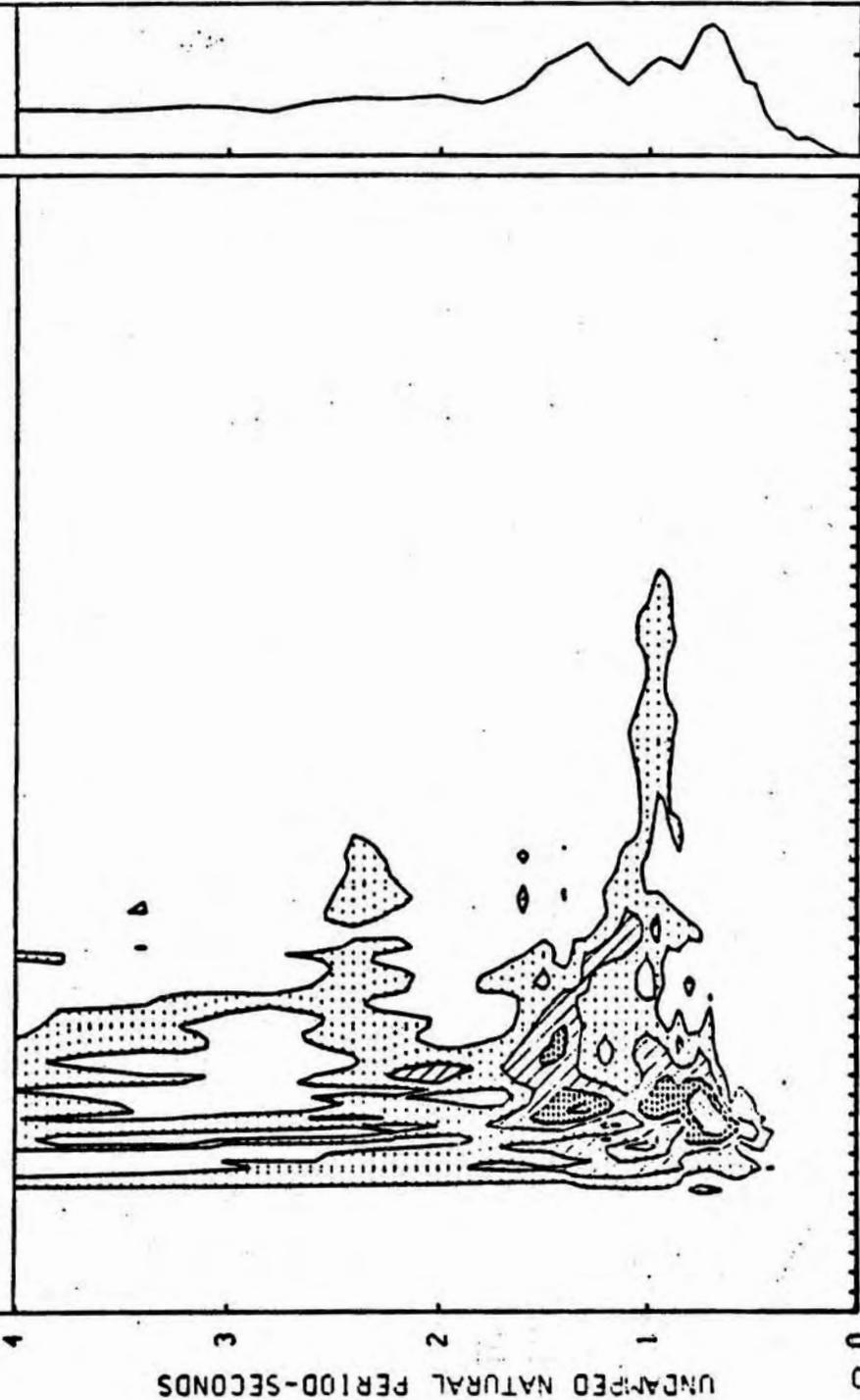
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP. CTY BLDG CRA 125 TR 3 N/ROOF/E END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



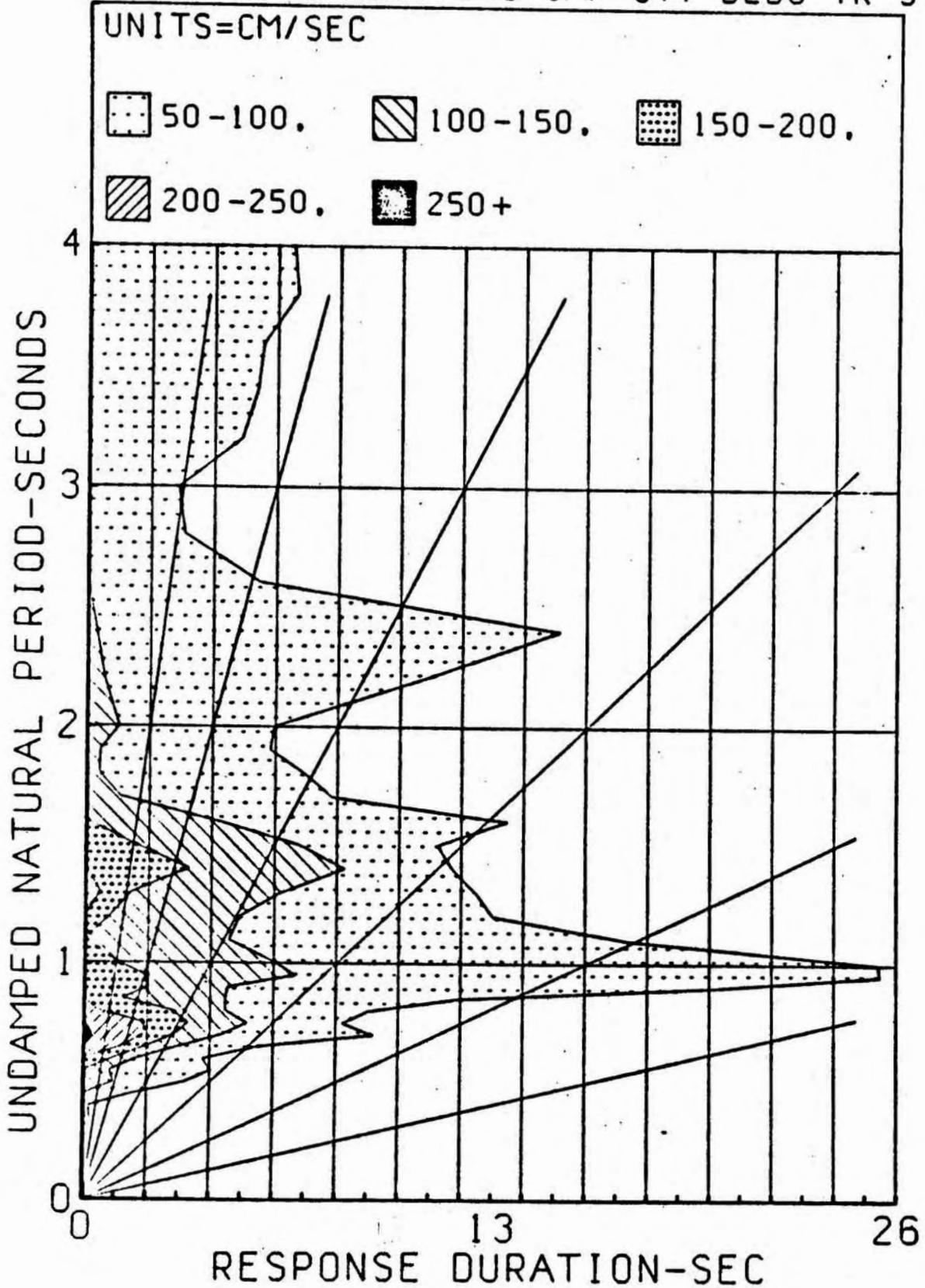
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .200 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLOG TR 3

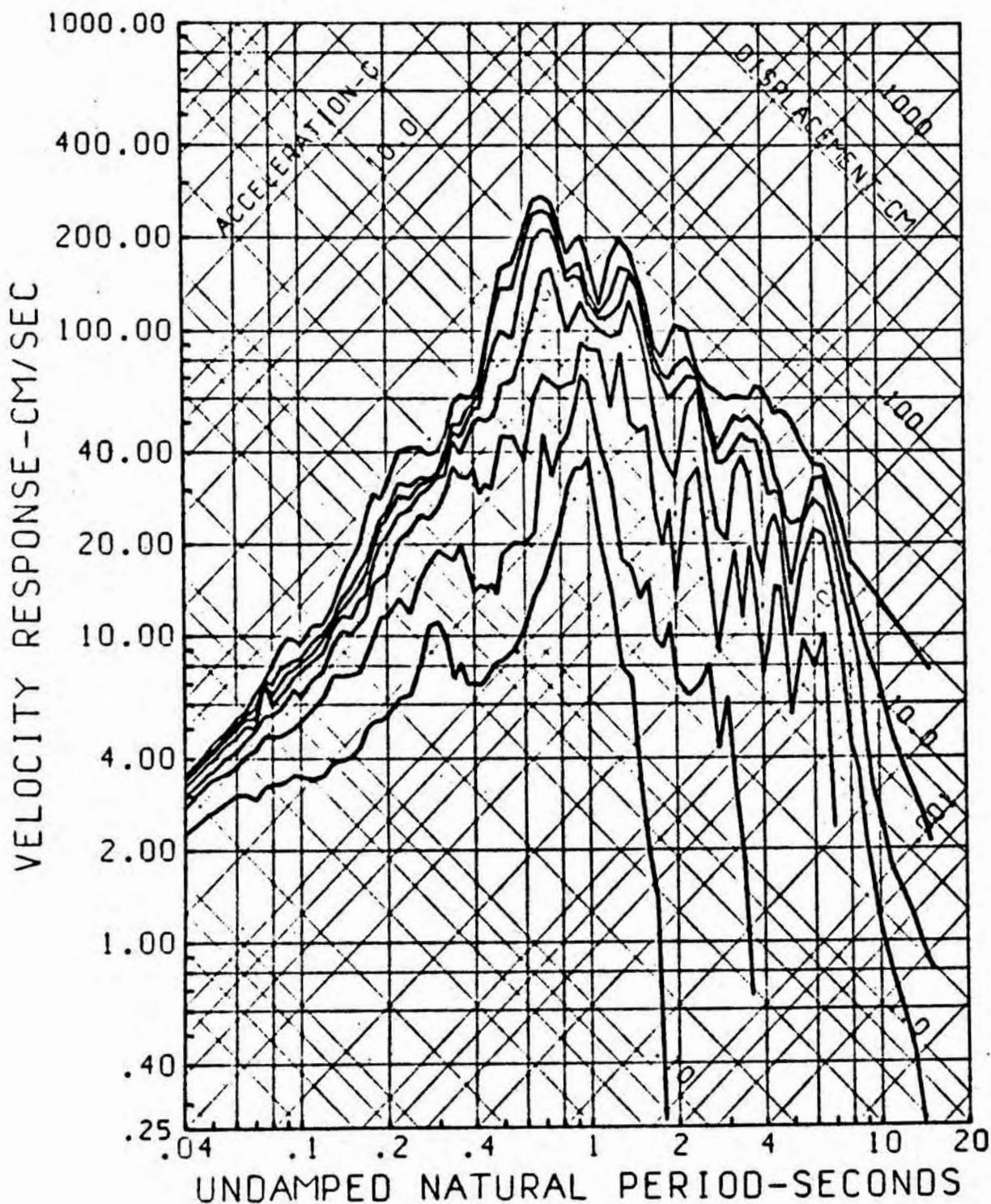
- 0-50.
- ▤ 50-100.
- ▥ 100-150.
- ▦ 150-200.
- ▧ 200+



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .200 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC IMP CTY BLDG TR 3

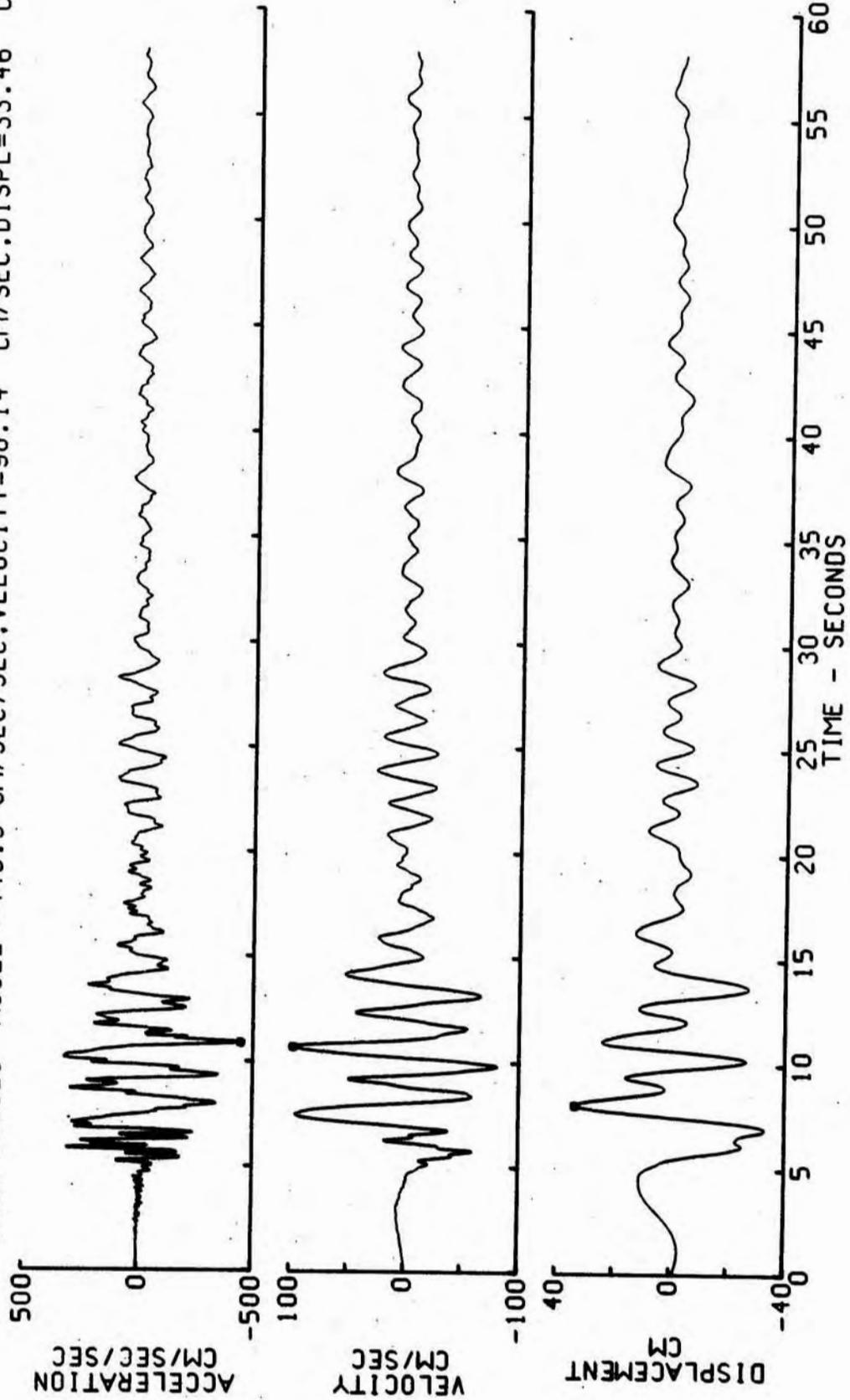


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 3
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .200 TO 23.00-25.00 HZ

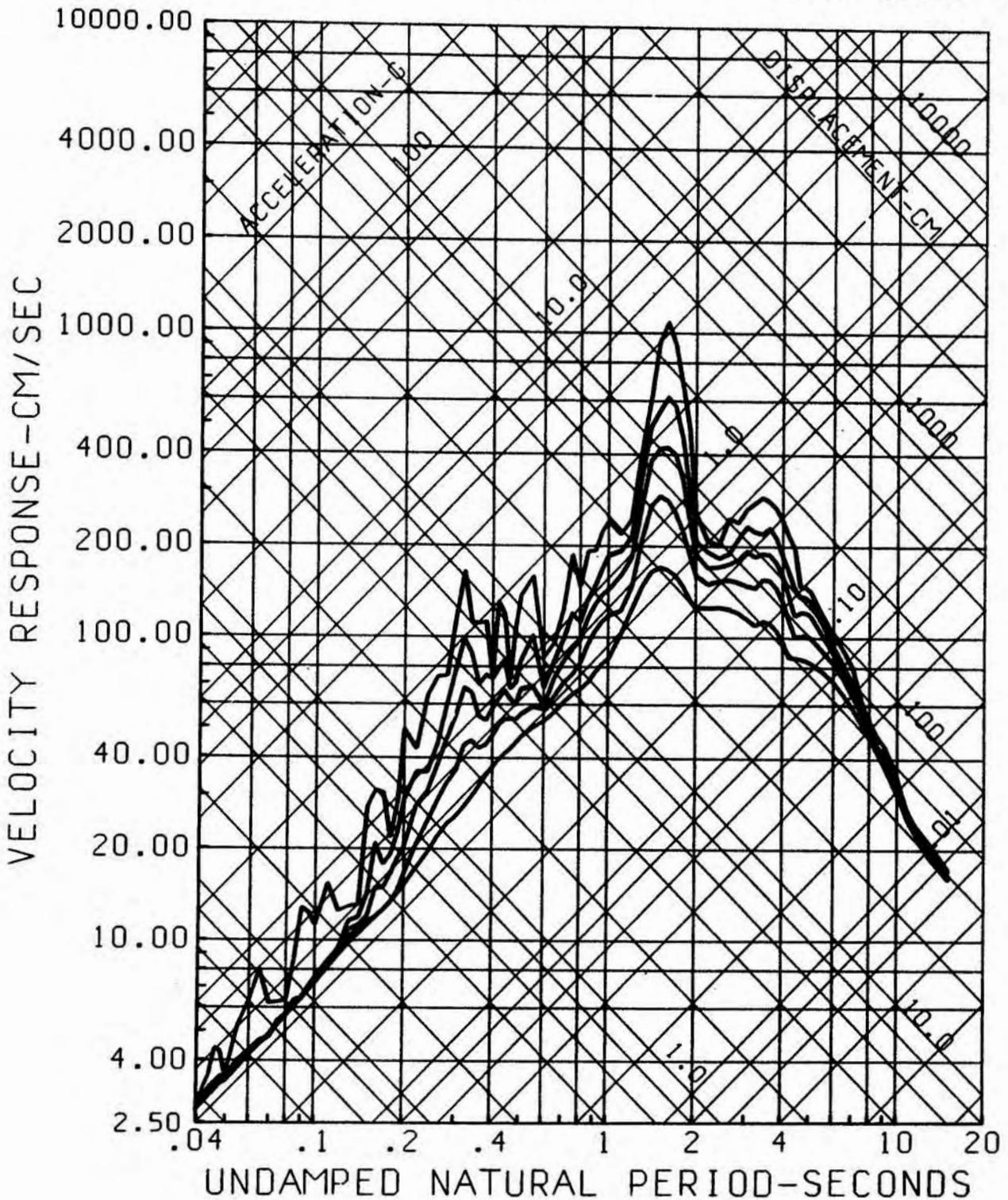


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 4 E/ROOF/CNTR

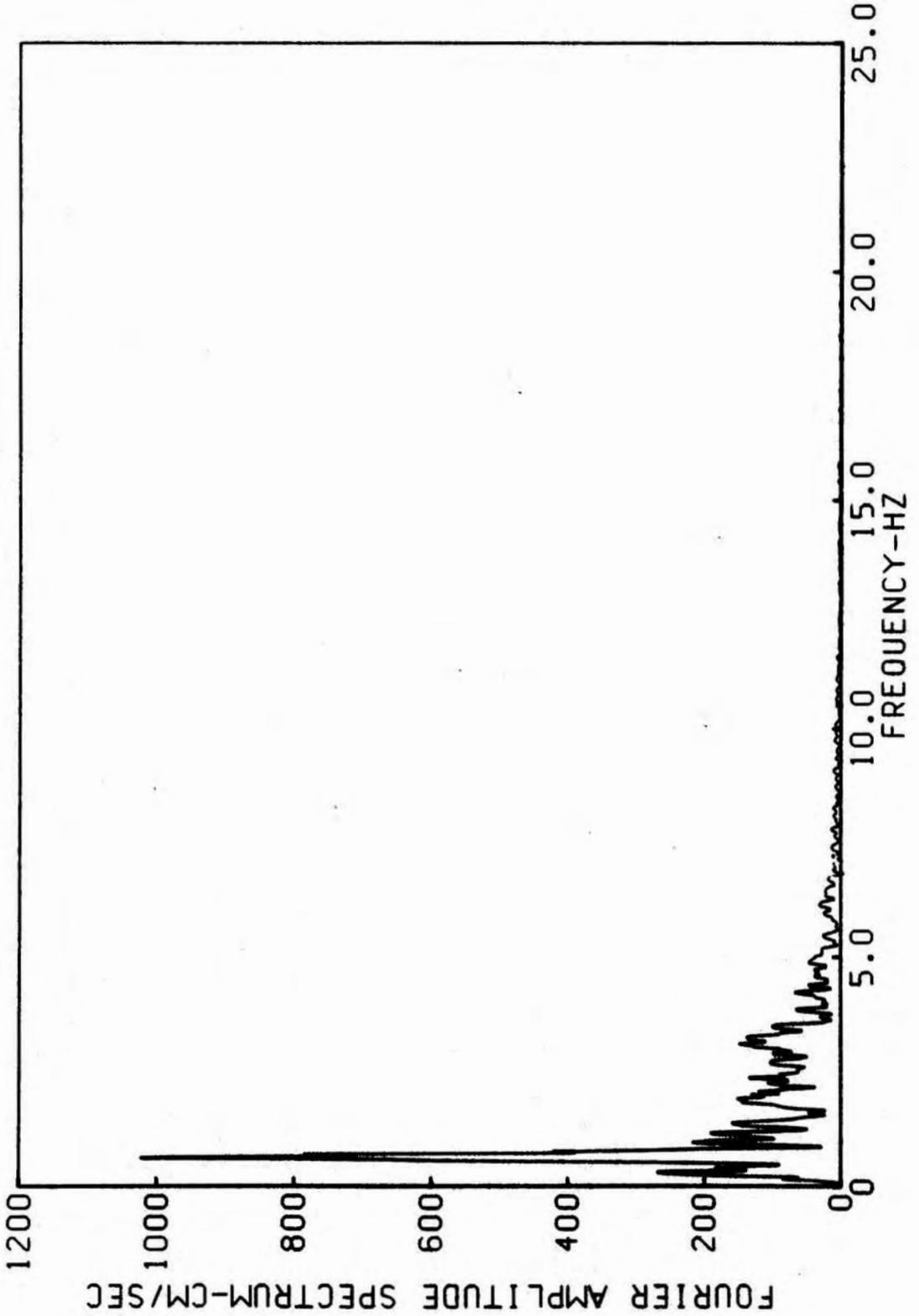
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=-443.9 CM/SEC/SEC, VELOCITY=98.14 CM/SEC, DISPL=33.46 CM



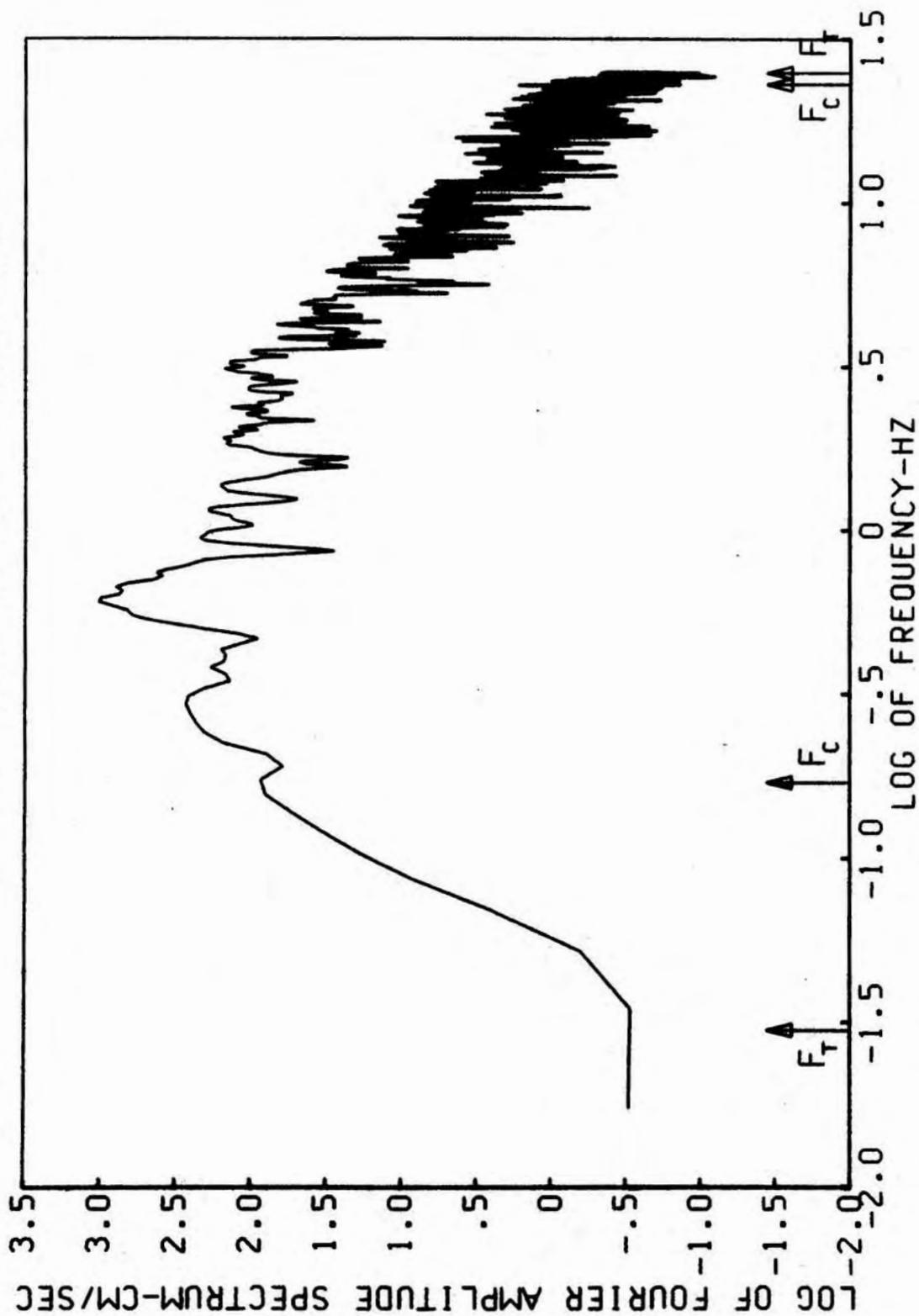
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 4
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 4 E/ROOF/CNTR
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



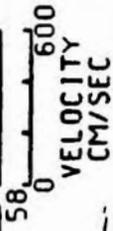
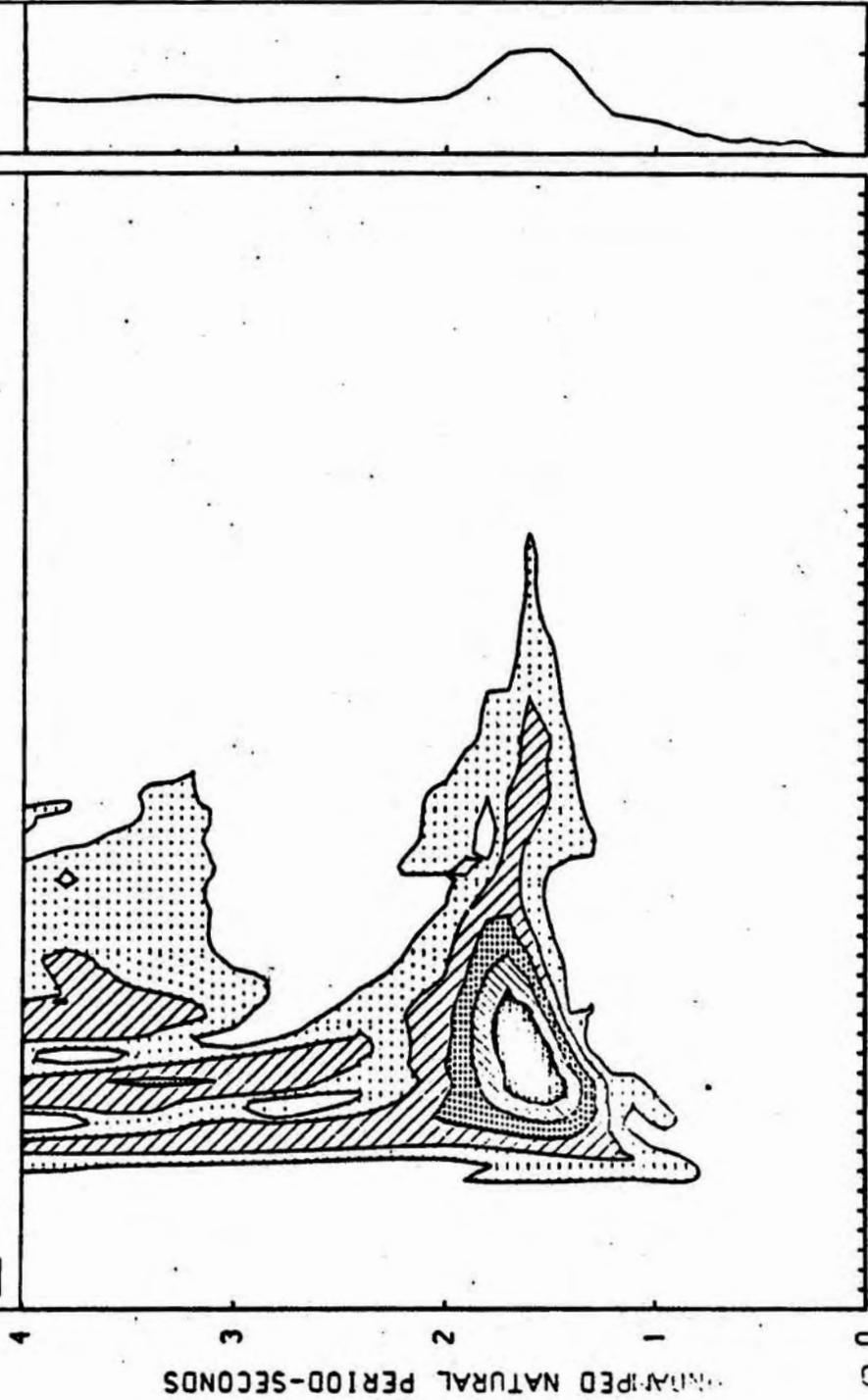
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 4 E/ROOF/CNTR
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLOG TR 4

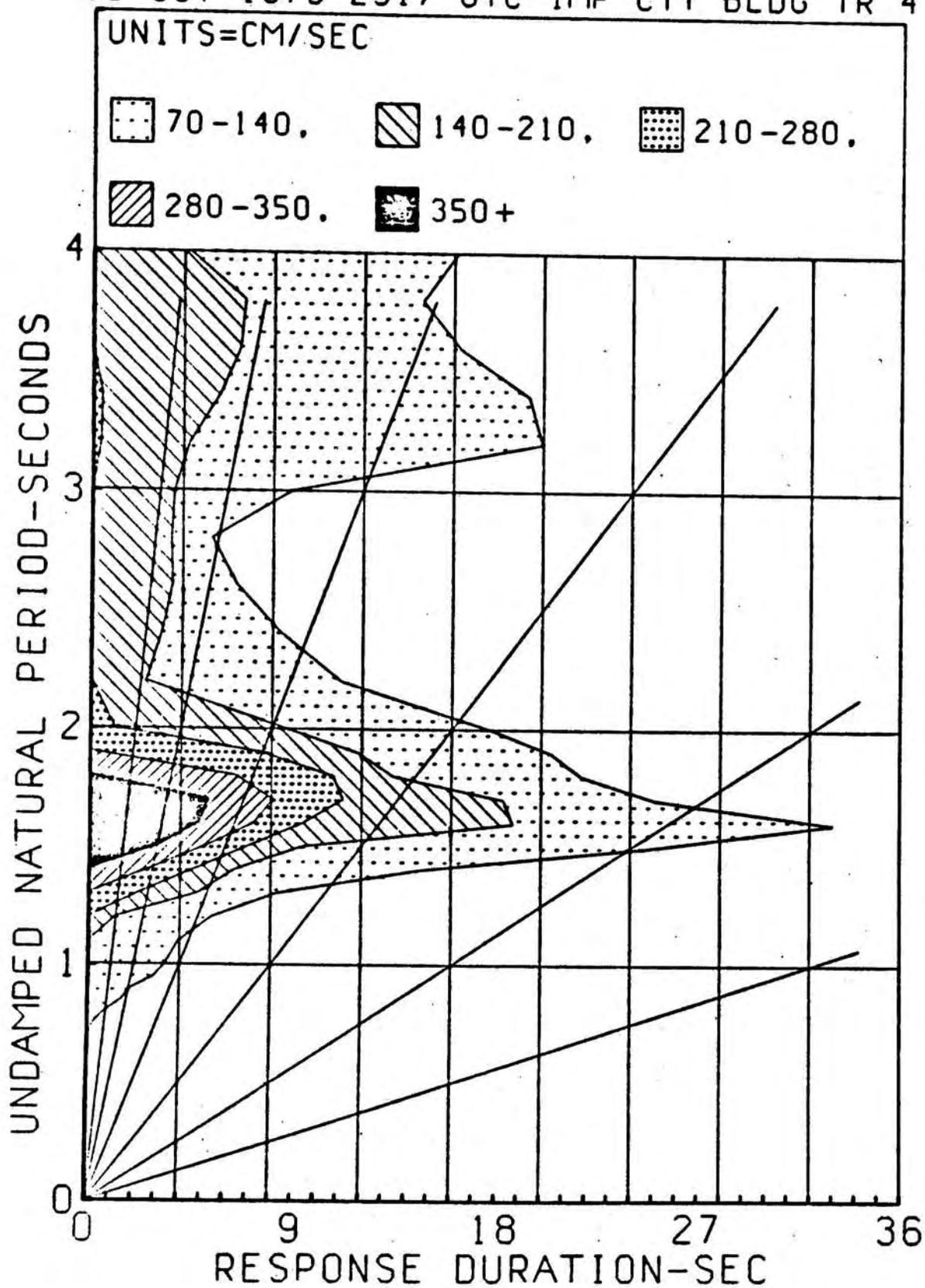
0-70, 70-140, 140-210, 210-280, 280-350,
350+



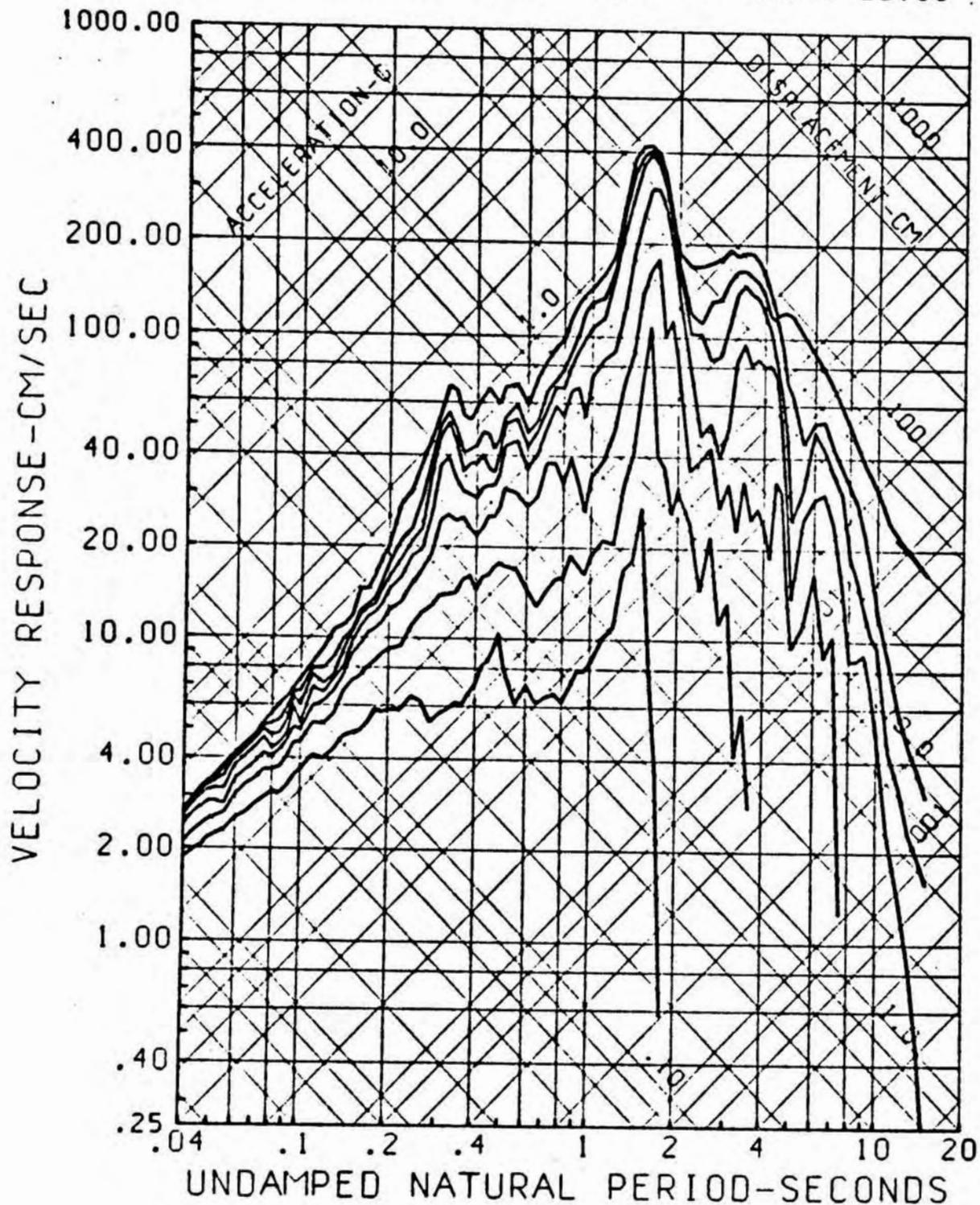
TIME - SECONDS

ACCEL-G/10

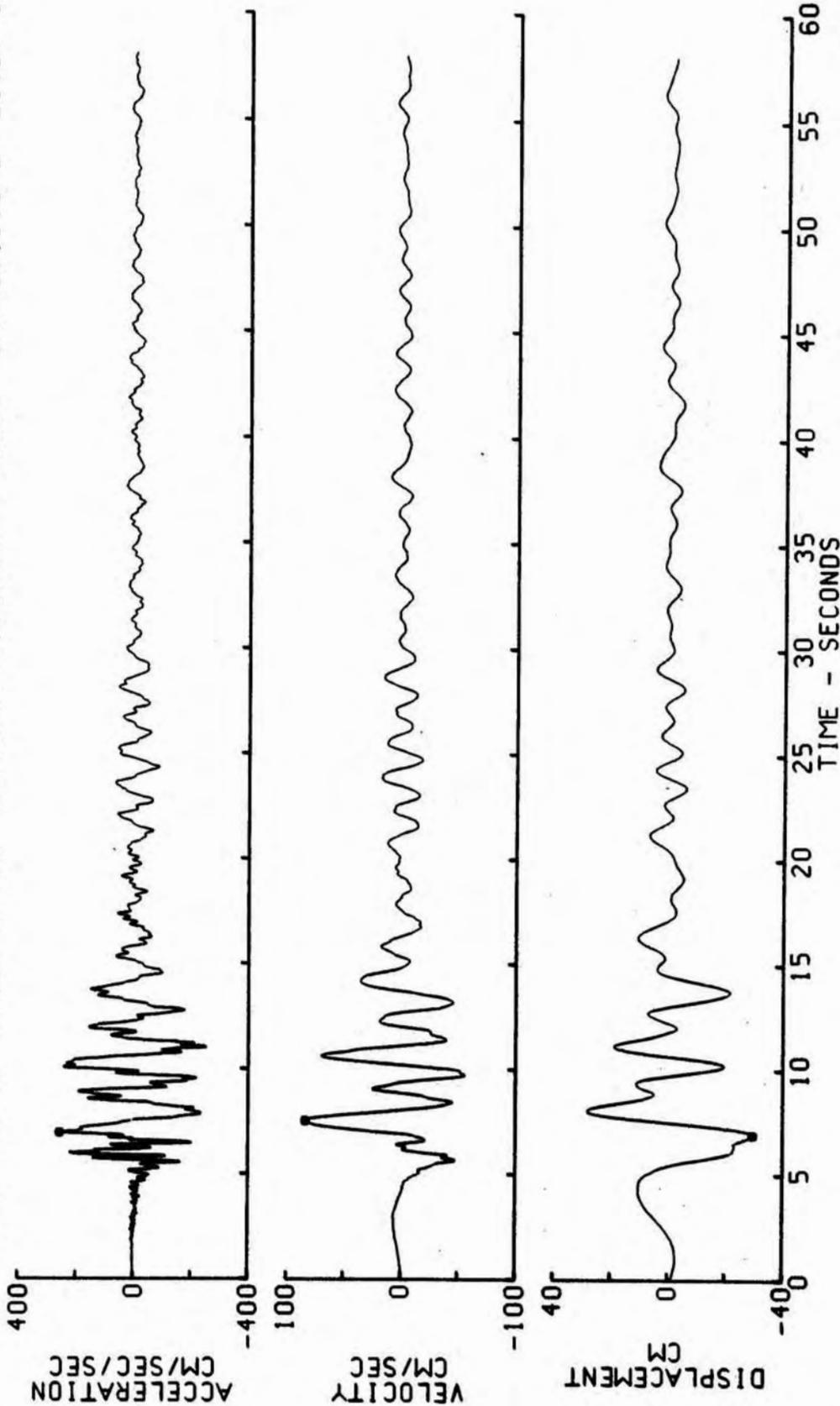
DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE .5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 4



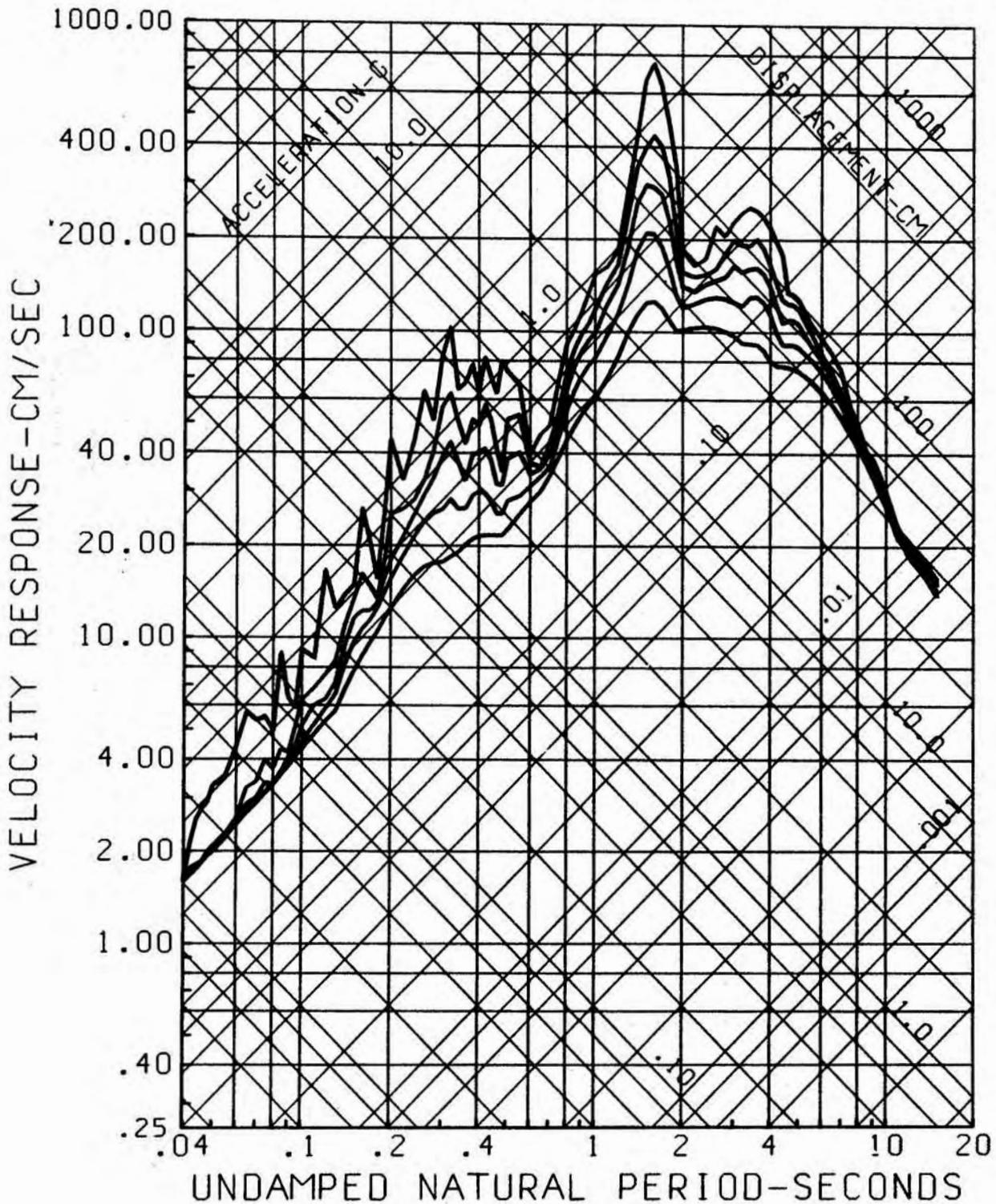
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 4
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



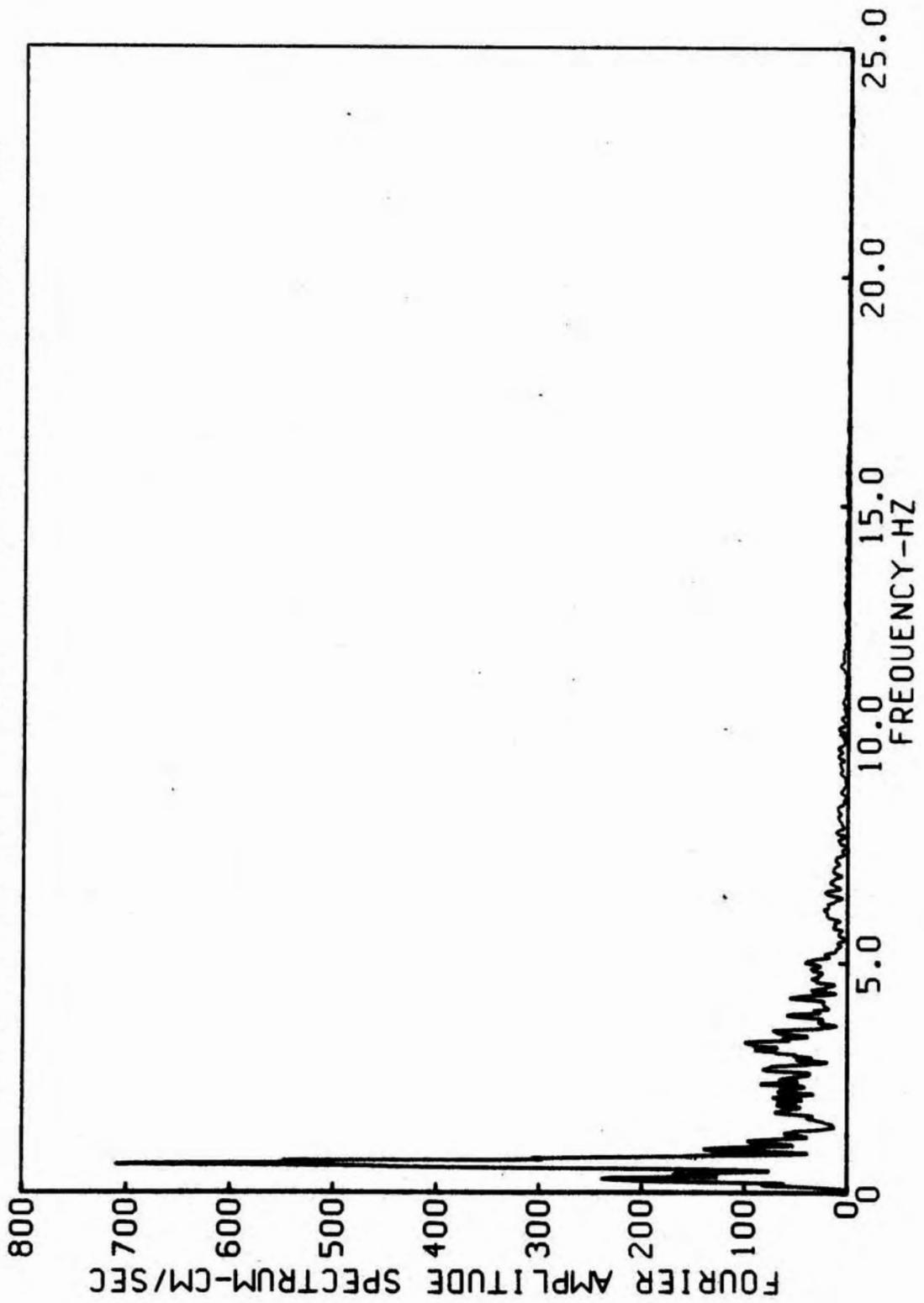
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 5 E/4TH/CNTR
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=258.2 CM/SEC/SEC, VELOCITY=83.32 CM/SEC, DISPL=-29.57 CM



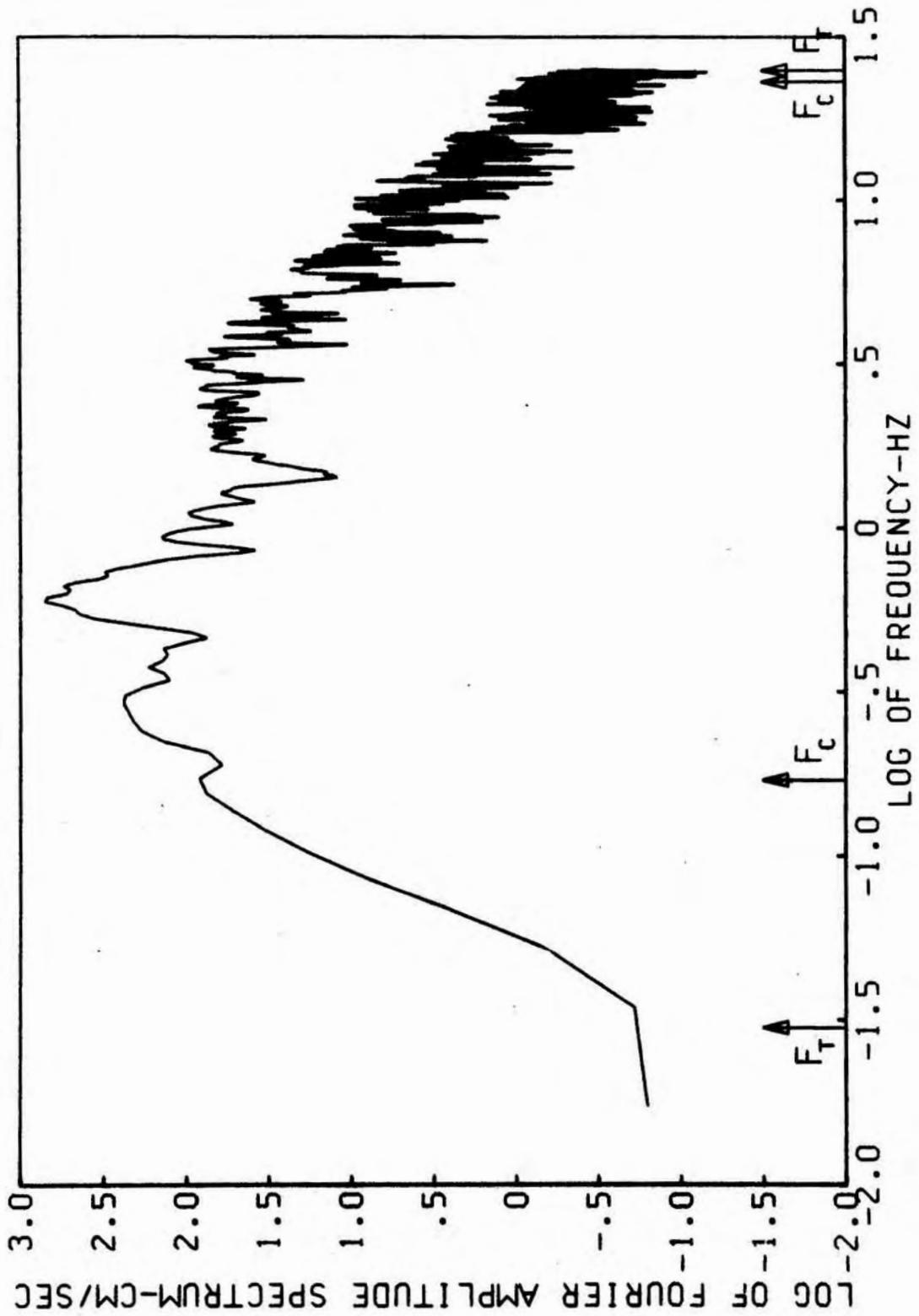
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 5
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 5 E/4TH/CNTR
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



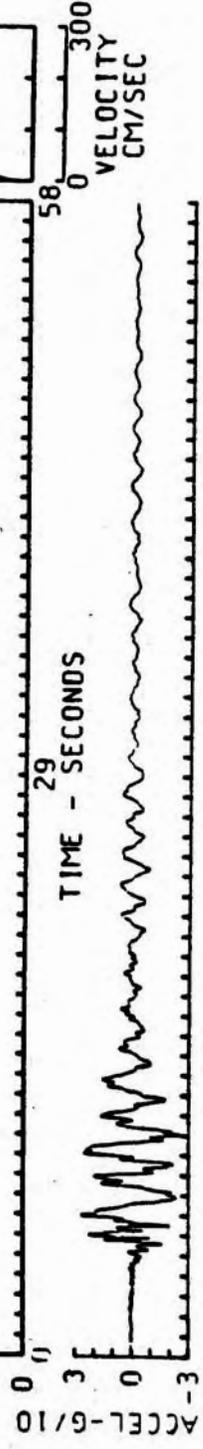
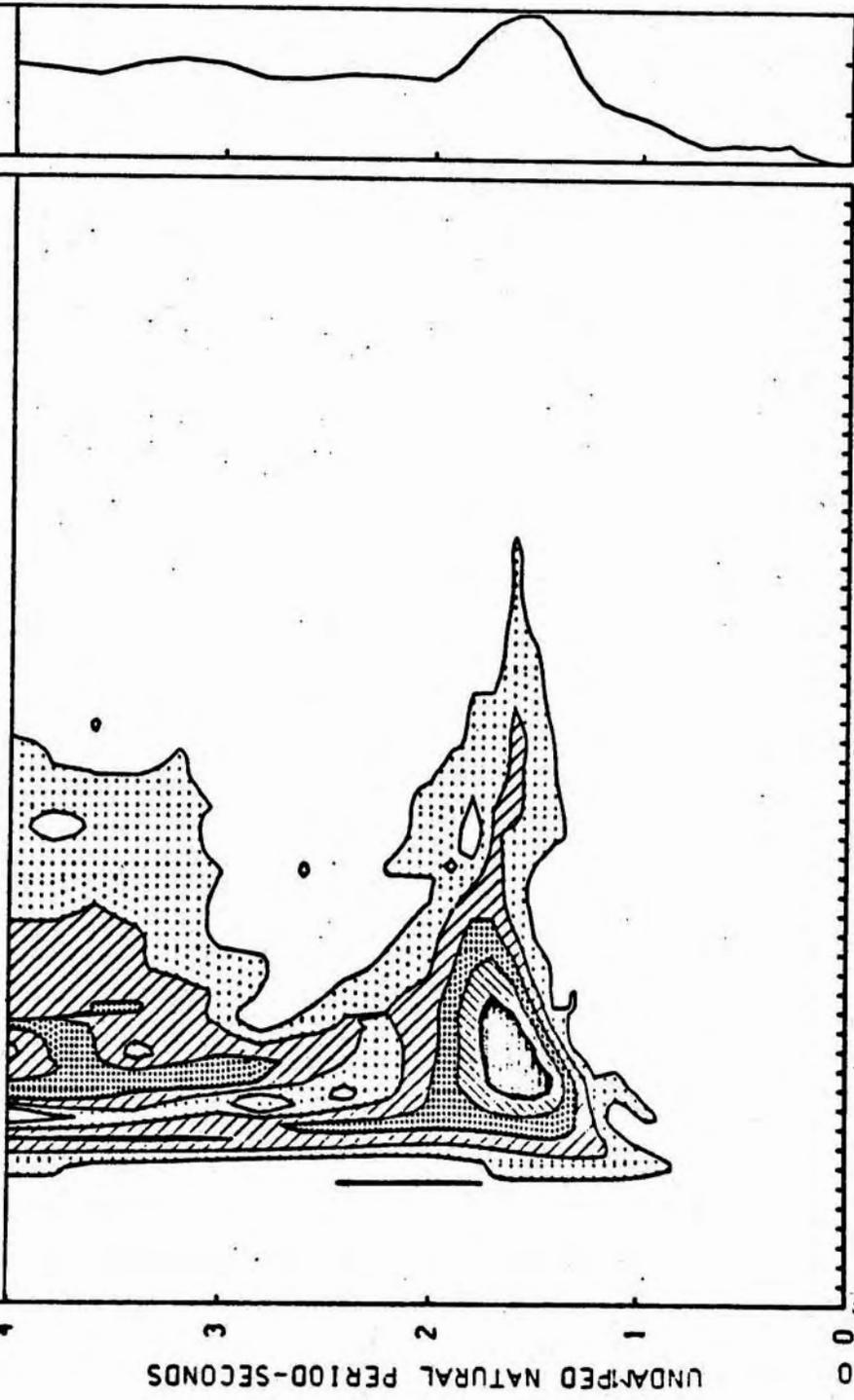
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 5 E/4TH/CNTR
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



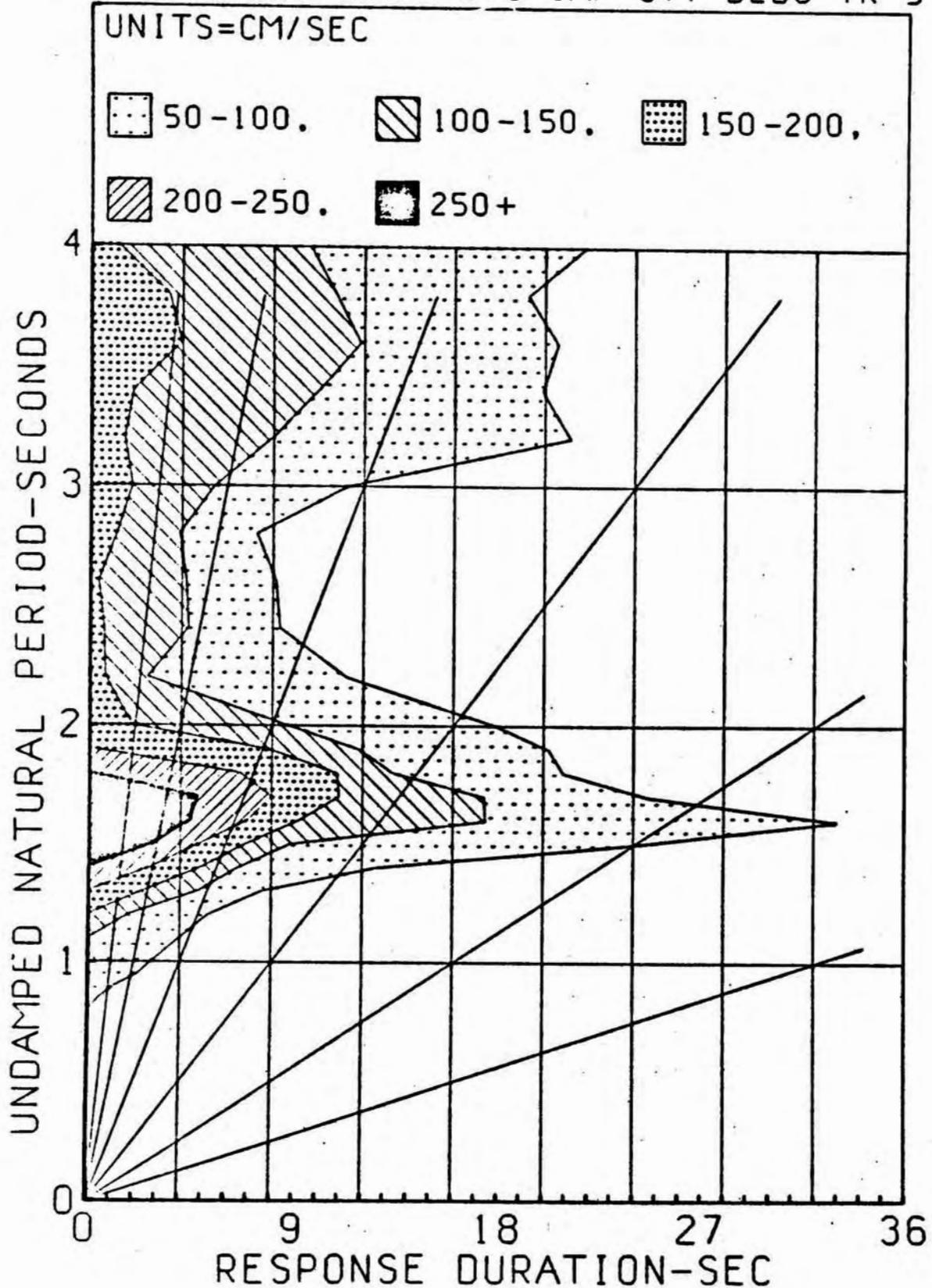
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLDG TR 5

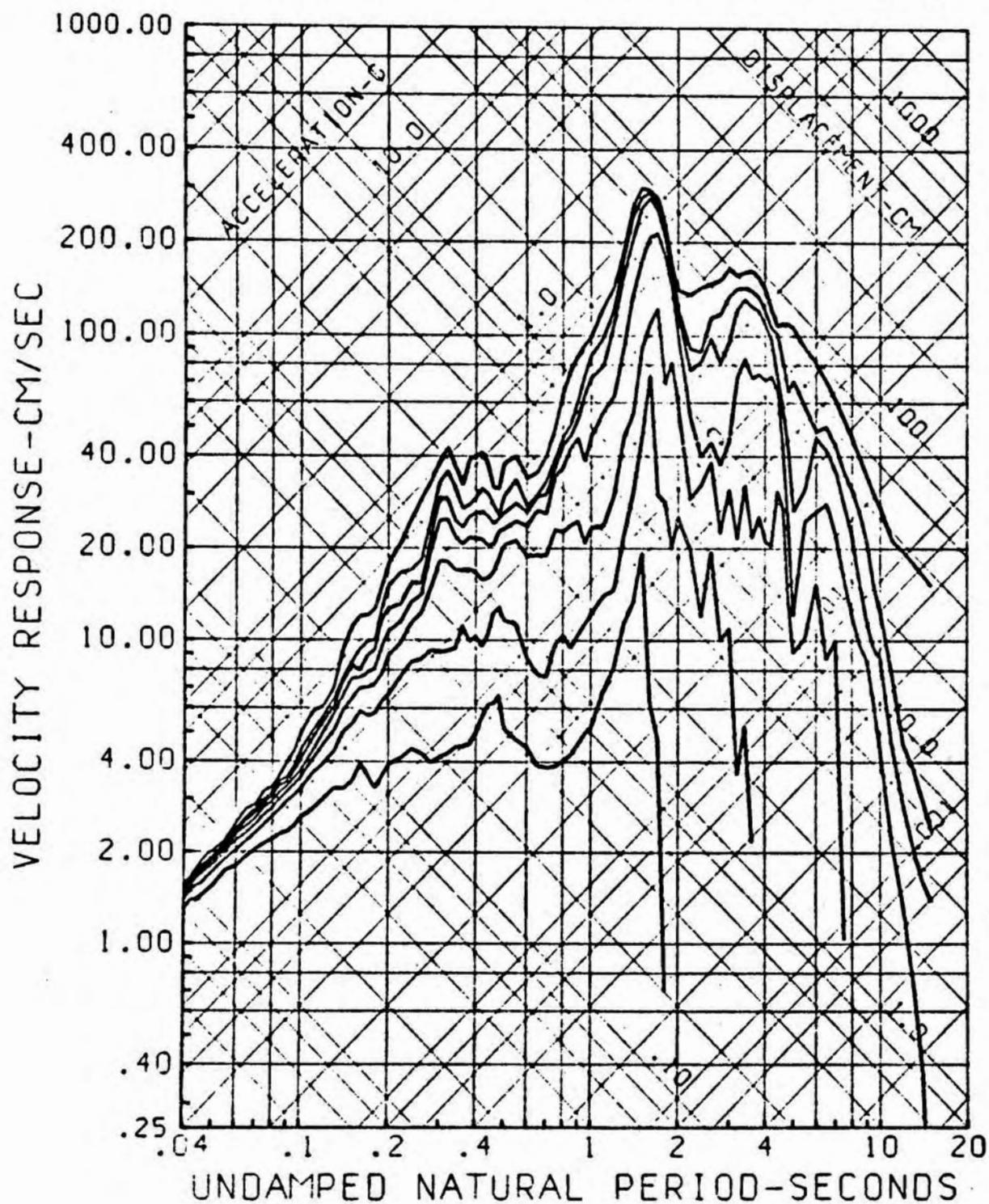
- 0-50.
- ▨ 50-100.
- ▩ 100-150.
- ▧ 150-200.
- ▦ 200-250.
- 250+



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 5

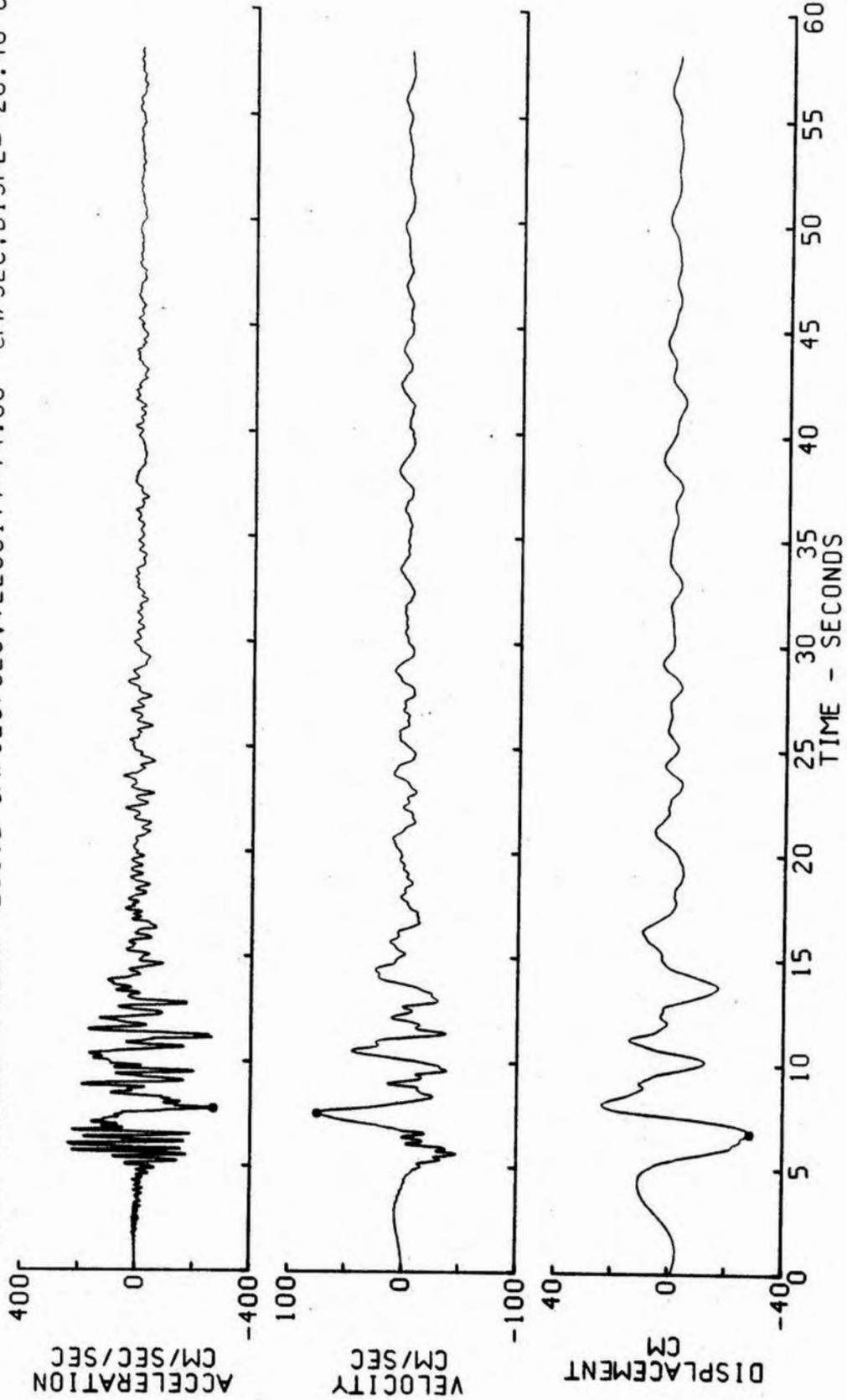


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 5
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

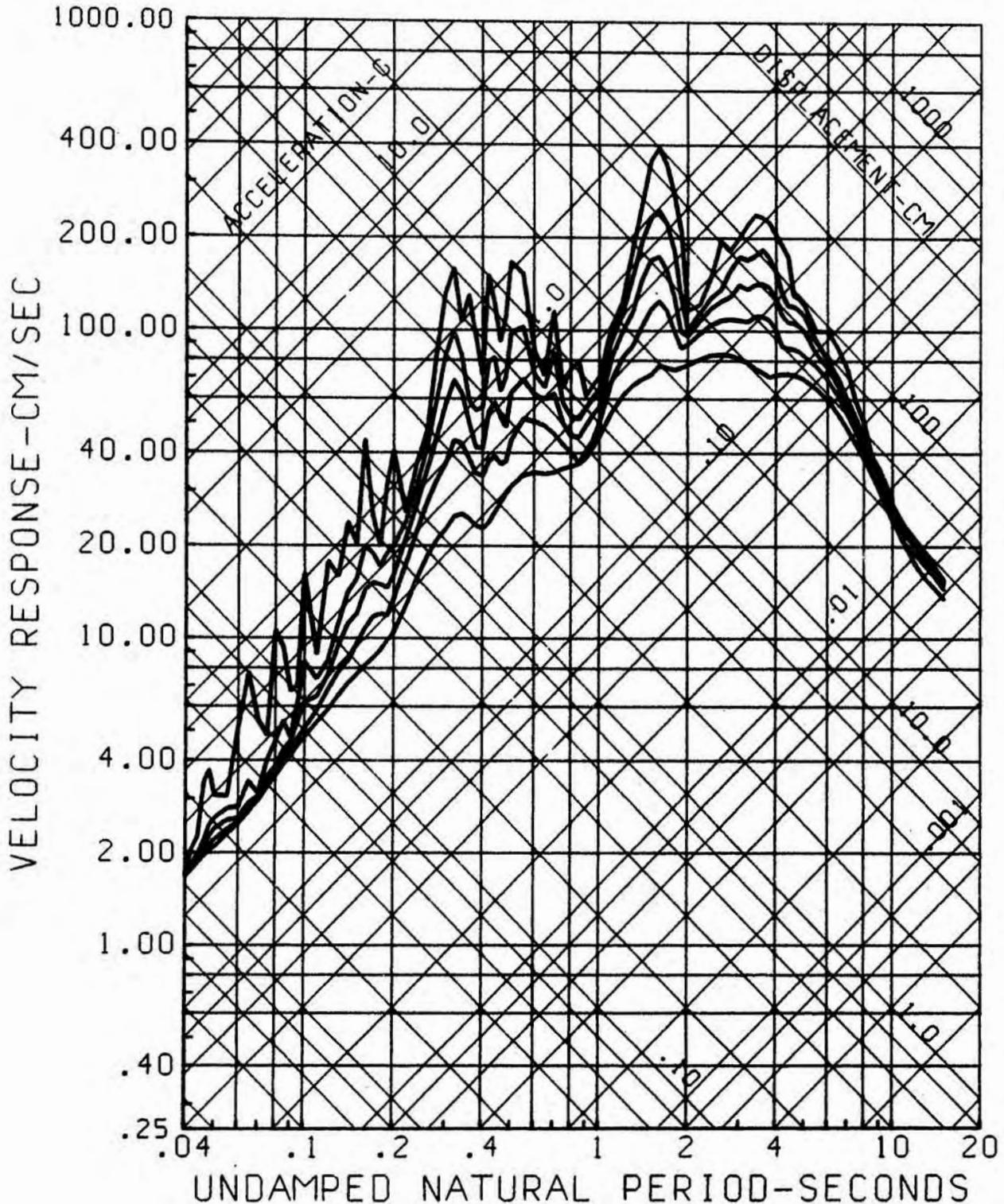


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 6 E/2ND/CNTR

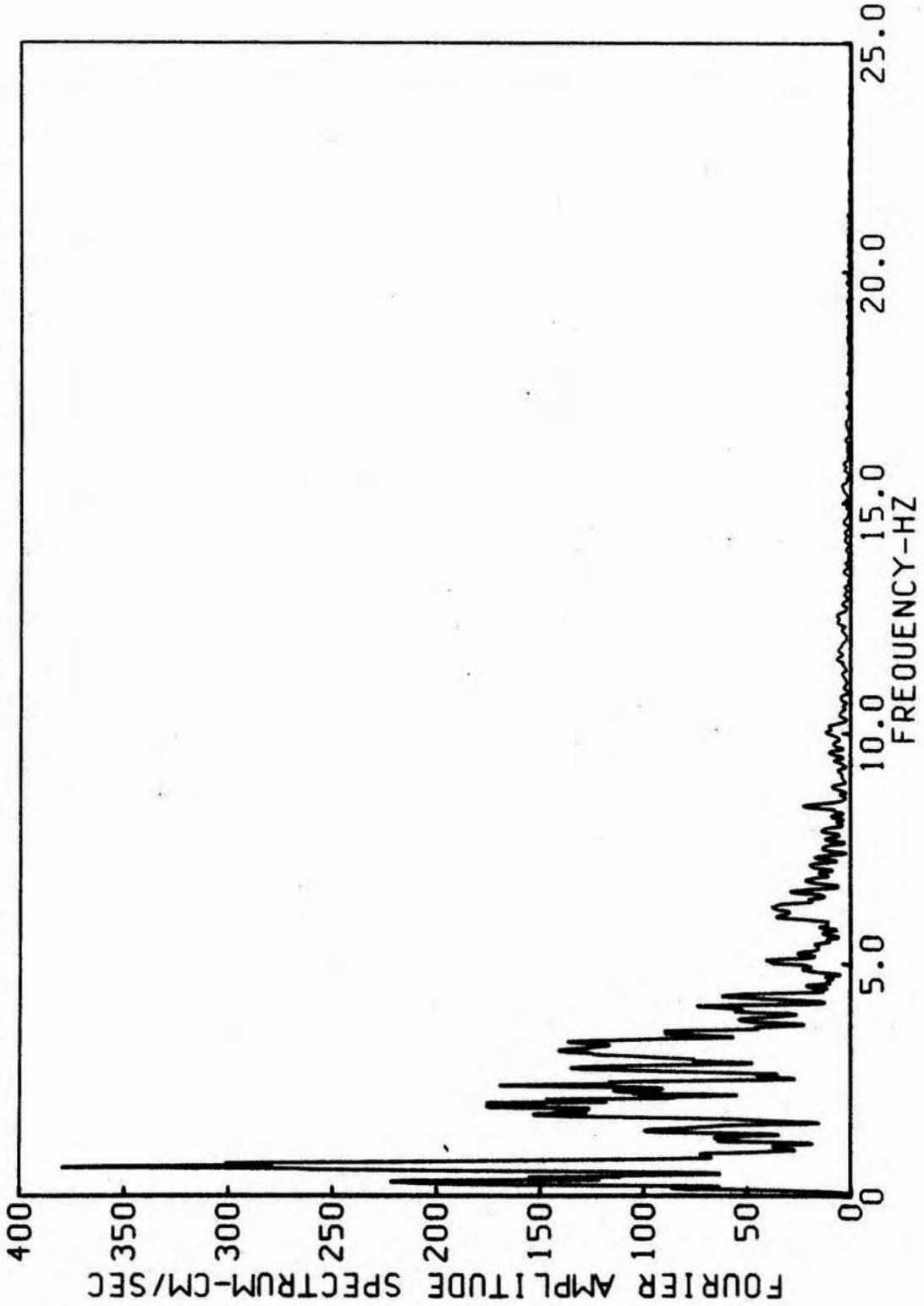
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=-268.5 CM/SEC/SEC, VELOCITY=74.88 CM/SEC, DISPL=-28.48 CM



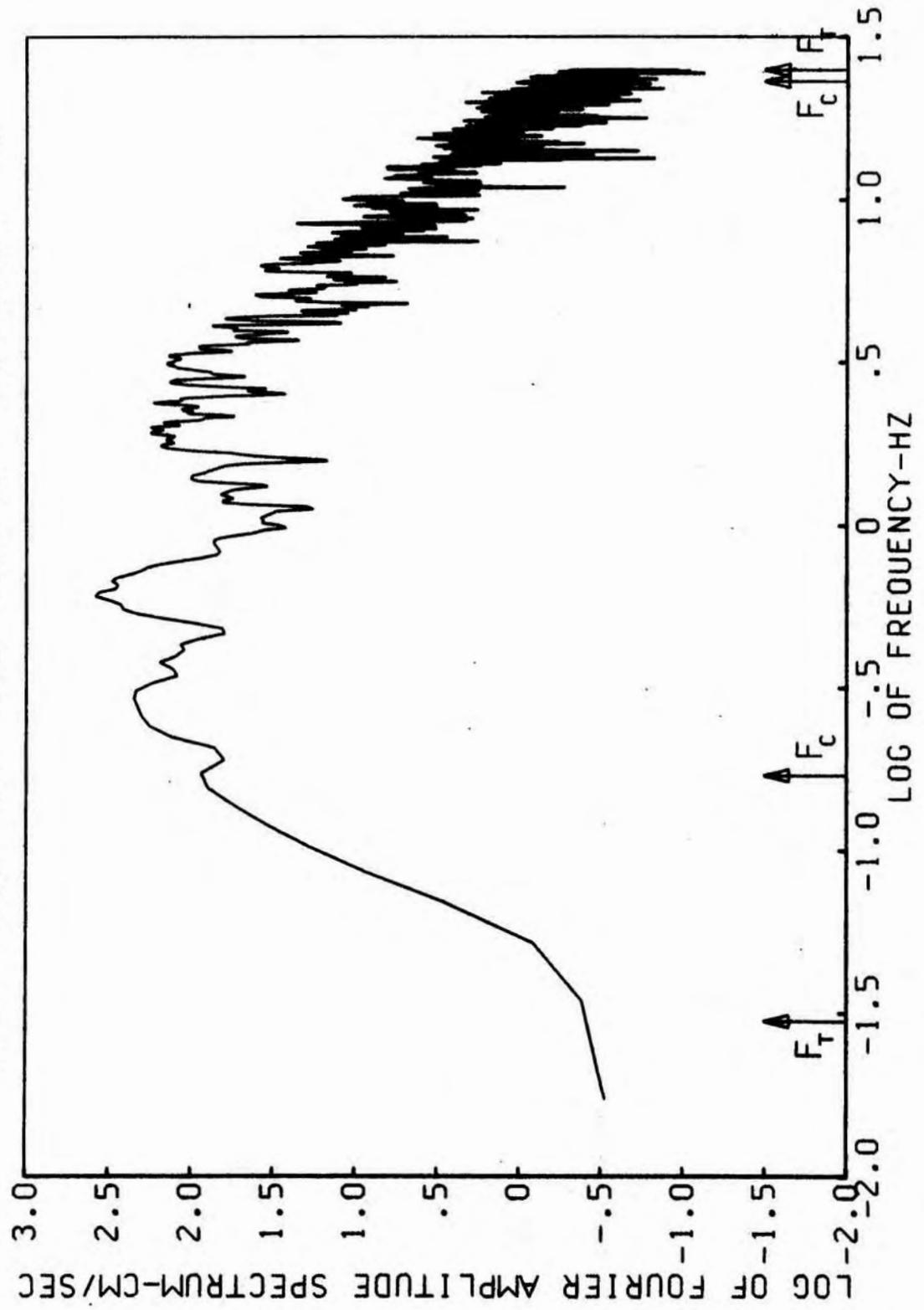
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 6
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 6 E/2ND/CNTR
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



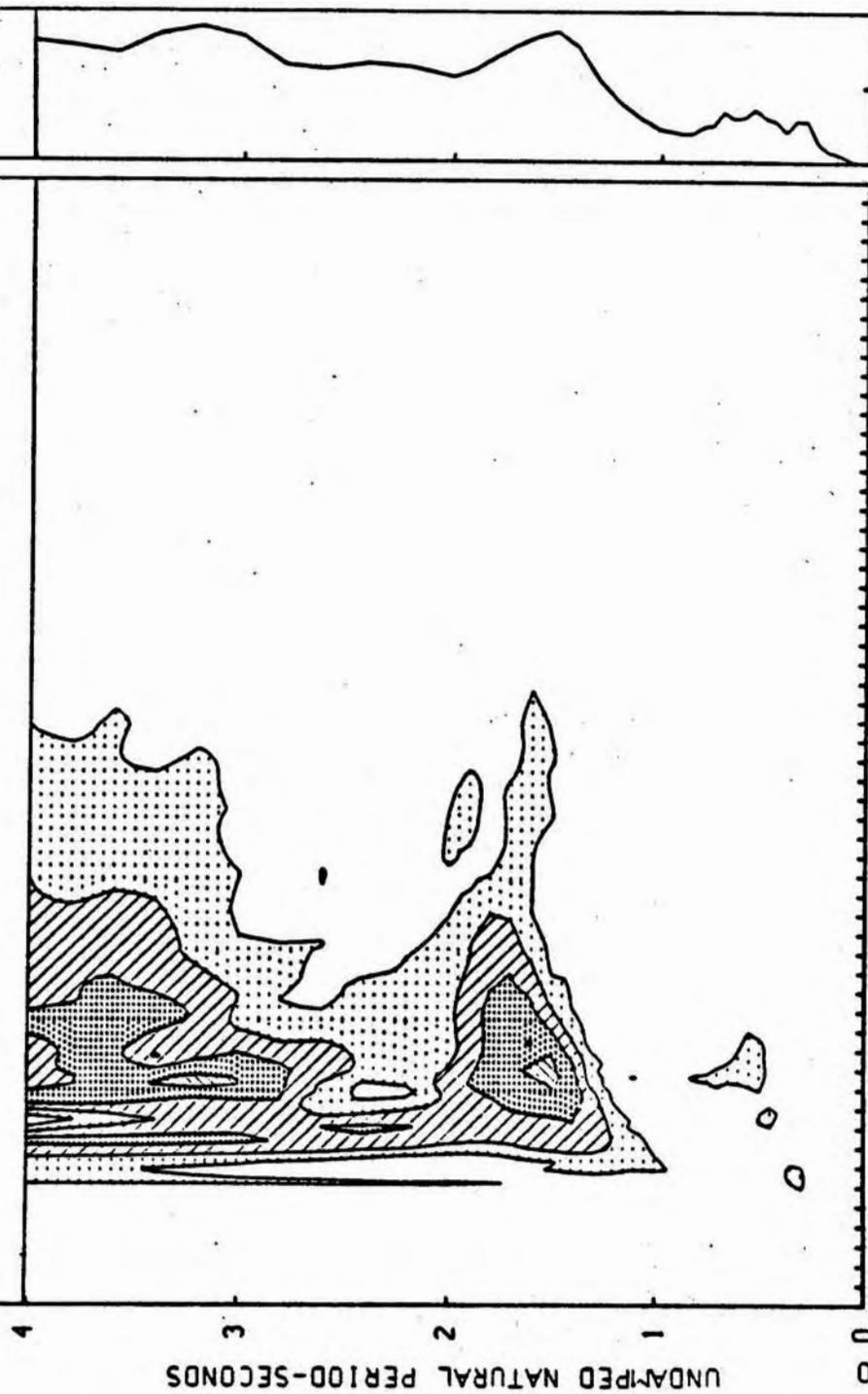
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 6 E/2ND/CNTR
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC
15 OCT 1979 2317 UTC IMP CTY BLDG TR 6

- 0-40.
- ▨ 40-80.
- ▩ 80-120.
- ▤ 120-160.
- ▥ 160+

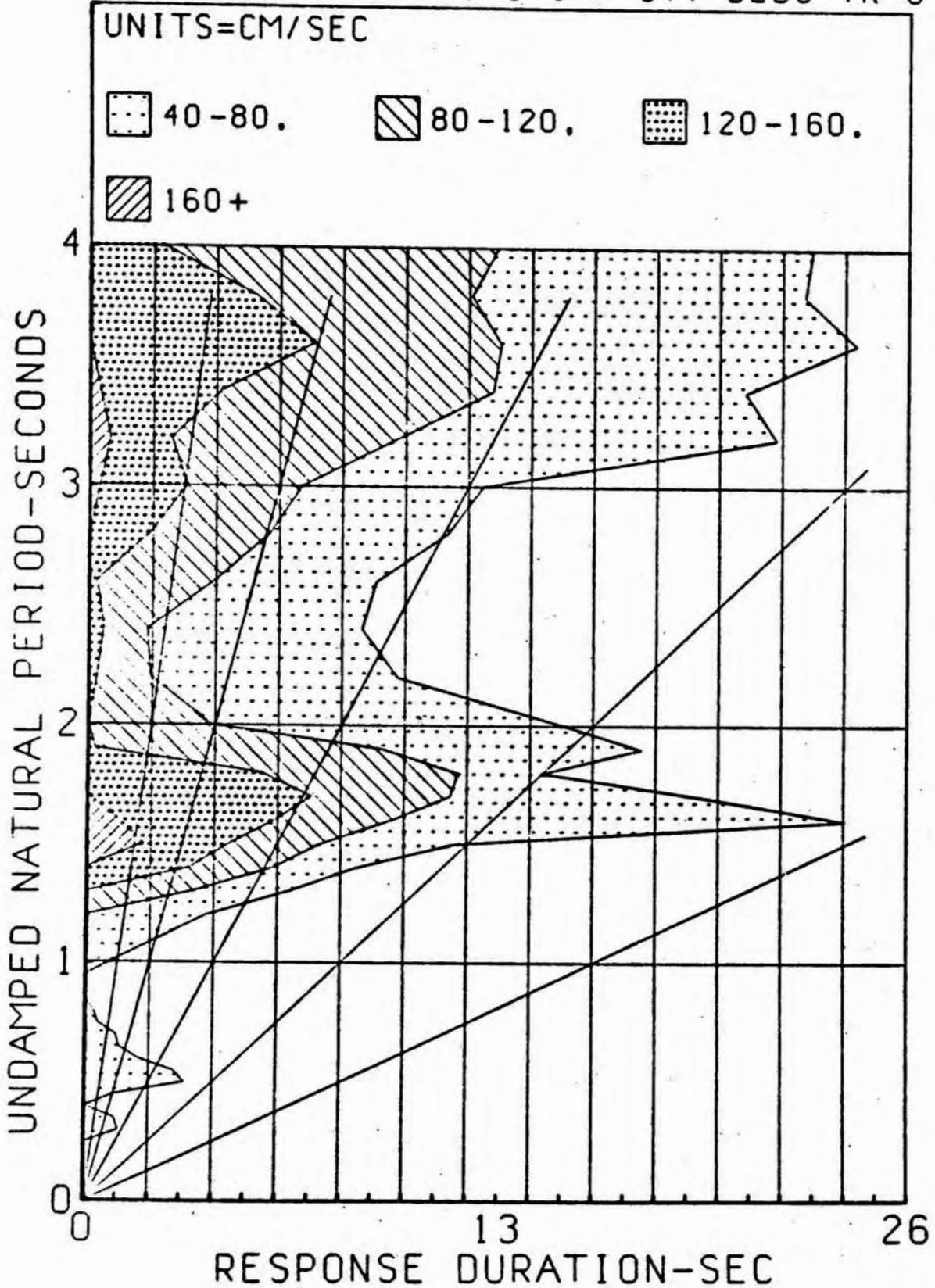


58
0 100 200
VELOCITY
CM/SEC

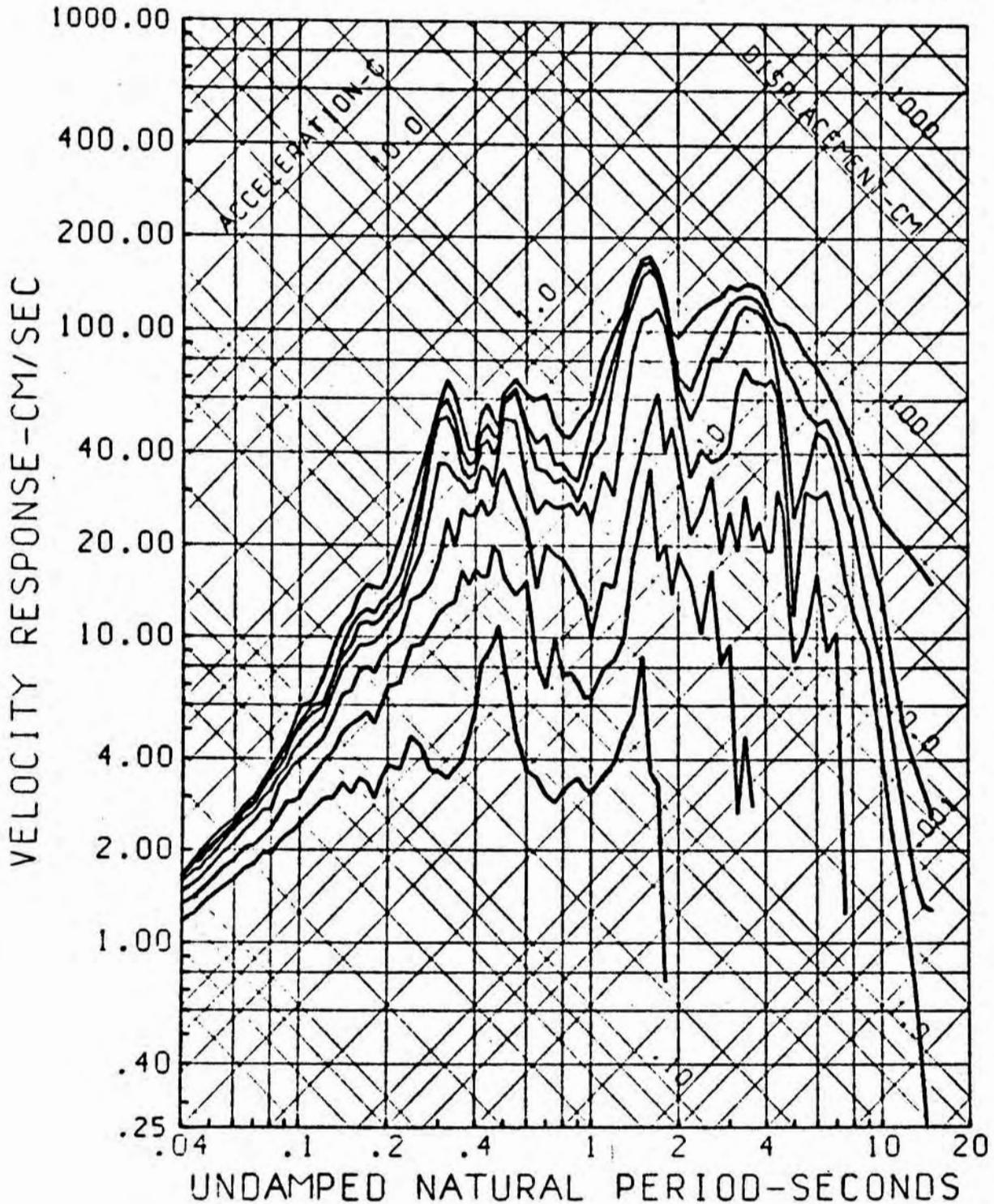
29
TIME - SECONDS

ACCEL-G/10
0
3
-3

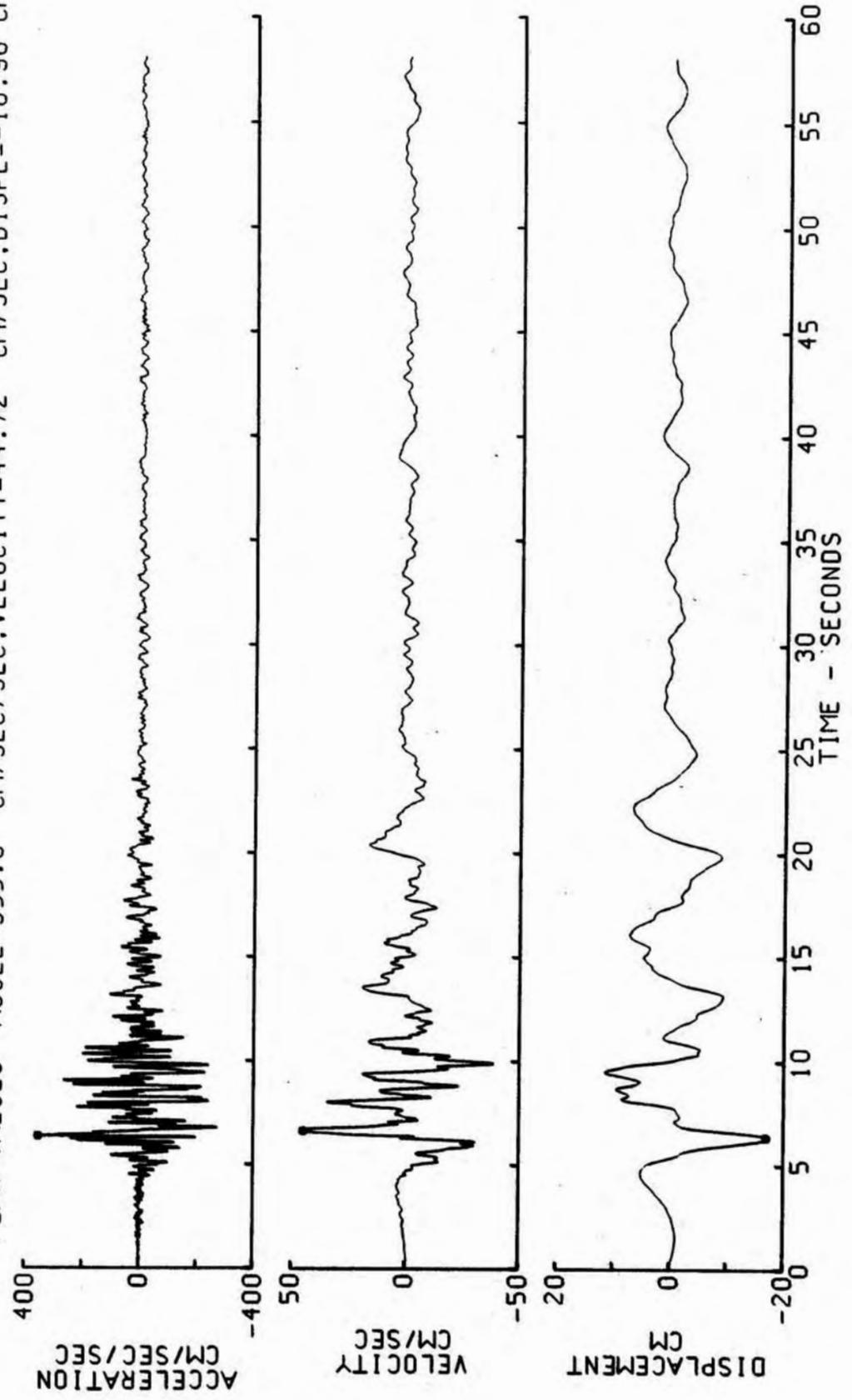
DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC IMP CTY BLDG TR 6



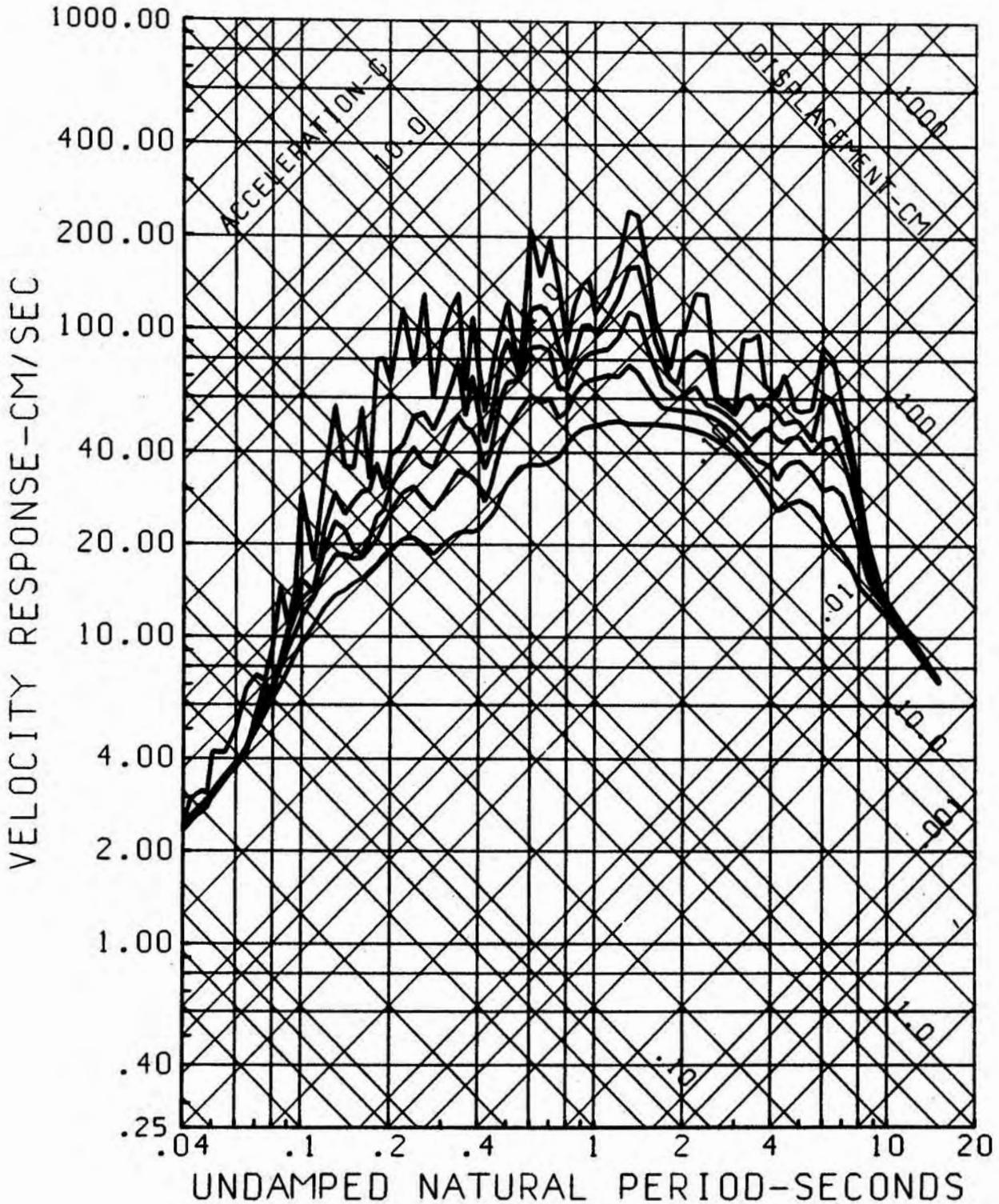
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 6
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



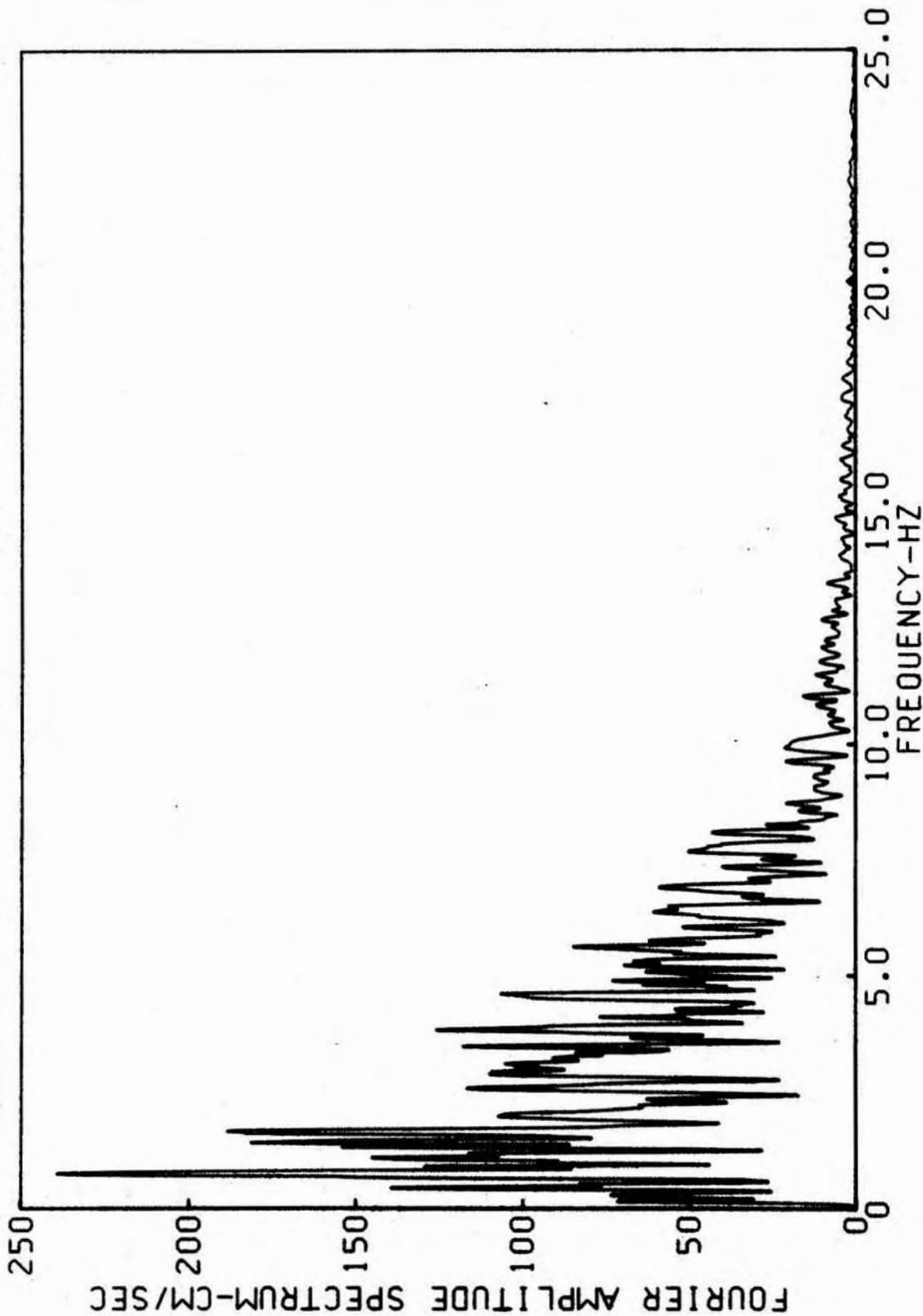
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 7 N/2ND/W END
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=355.8 CM/SEC/SEC, VELOCITY=44.72 CM/SEC, DISPL=-16.98 CM



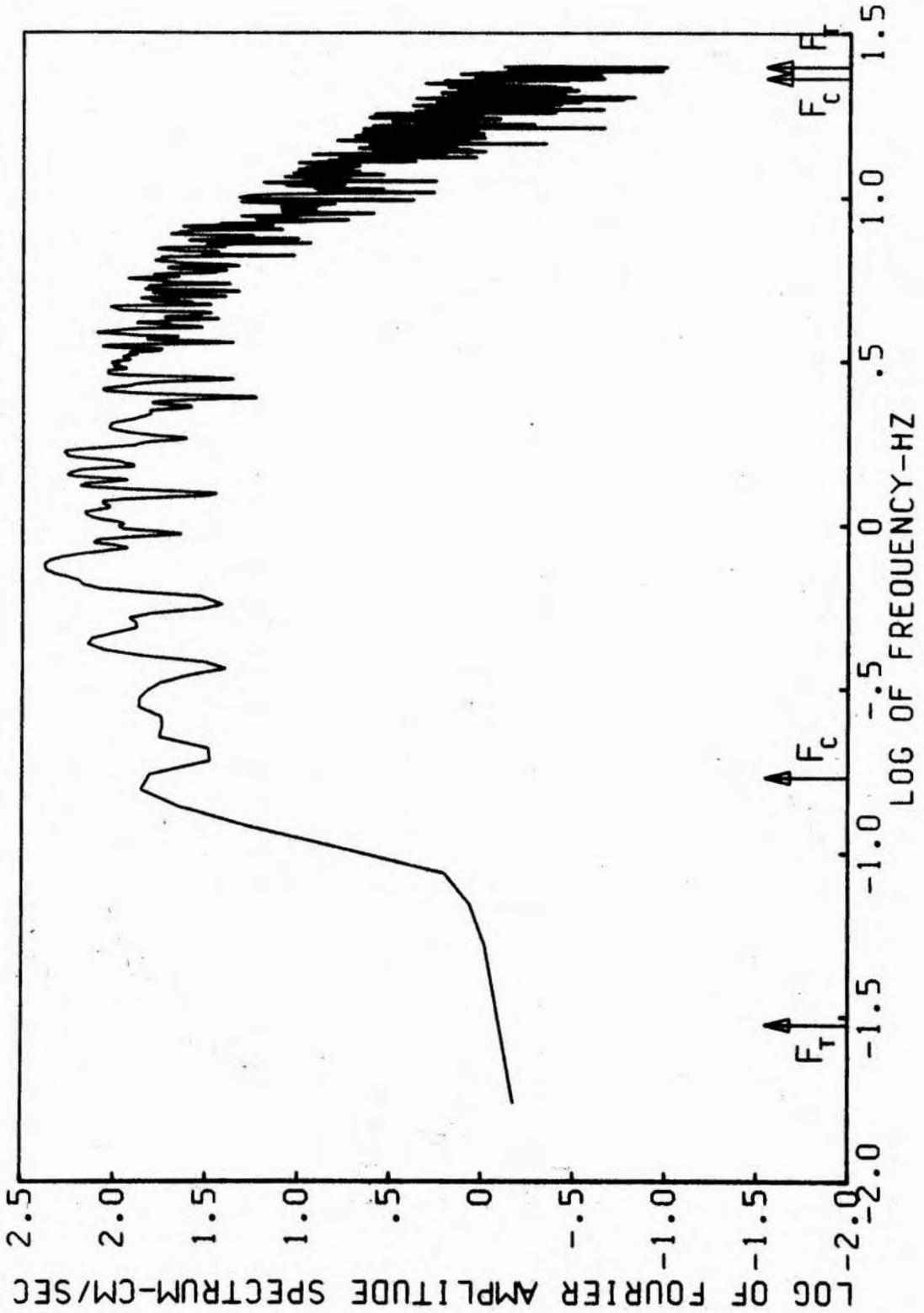
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 7
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 7 N/2ND/W END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 7 N/2ND/W END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



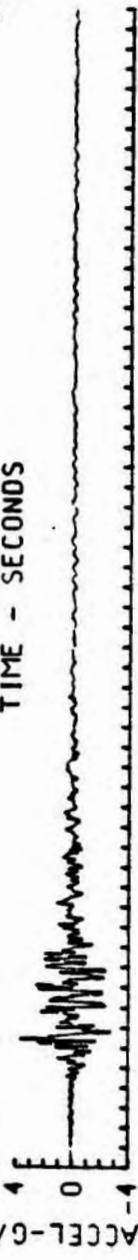
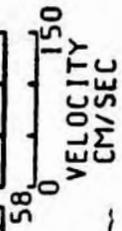
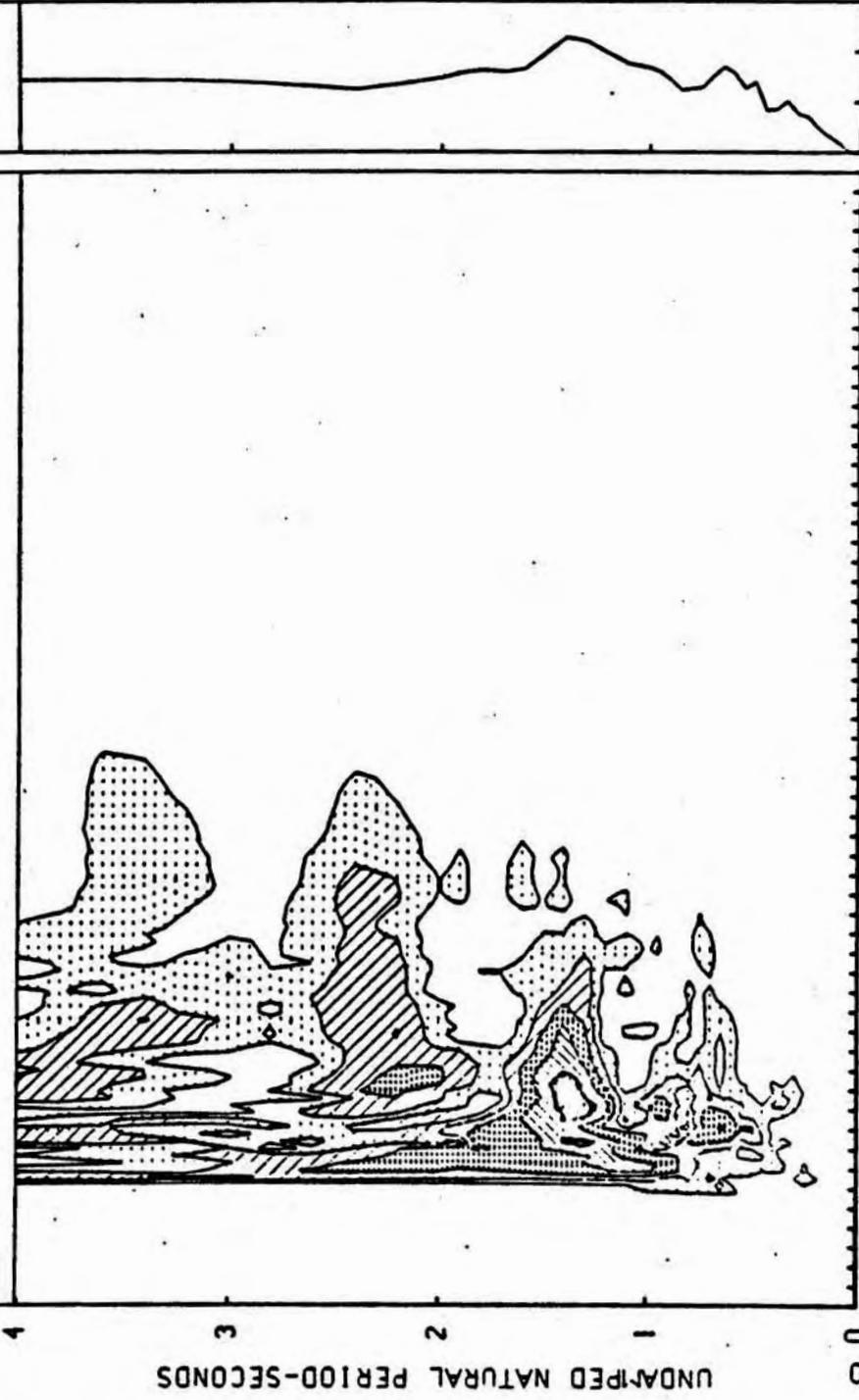
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING

BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

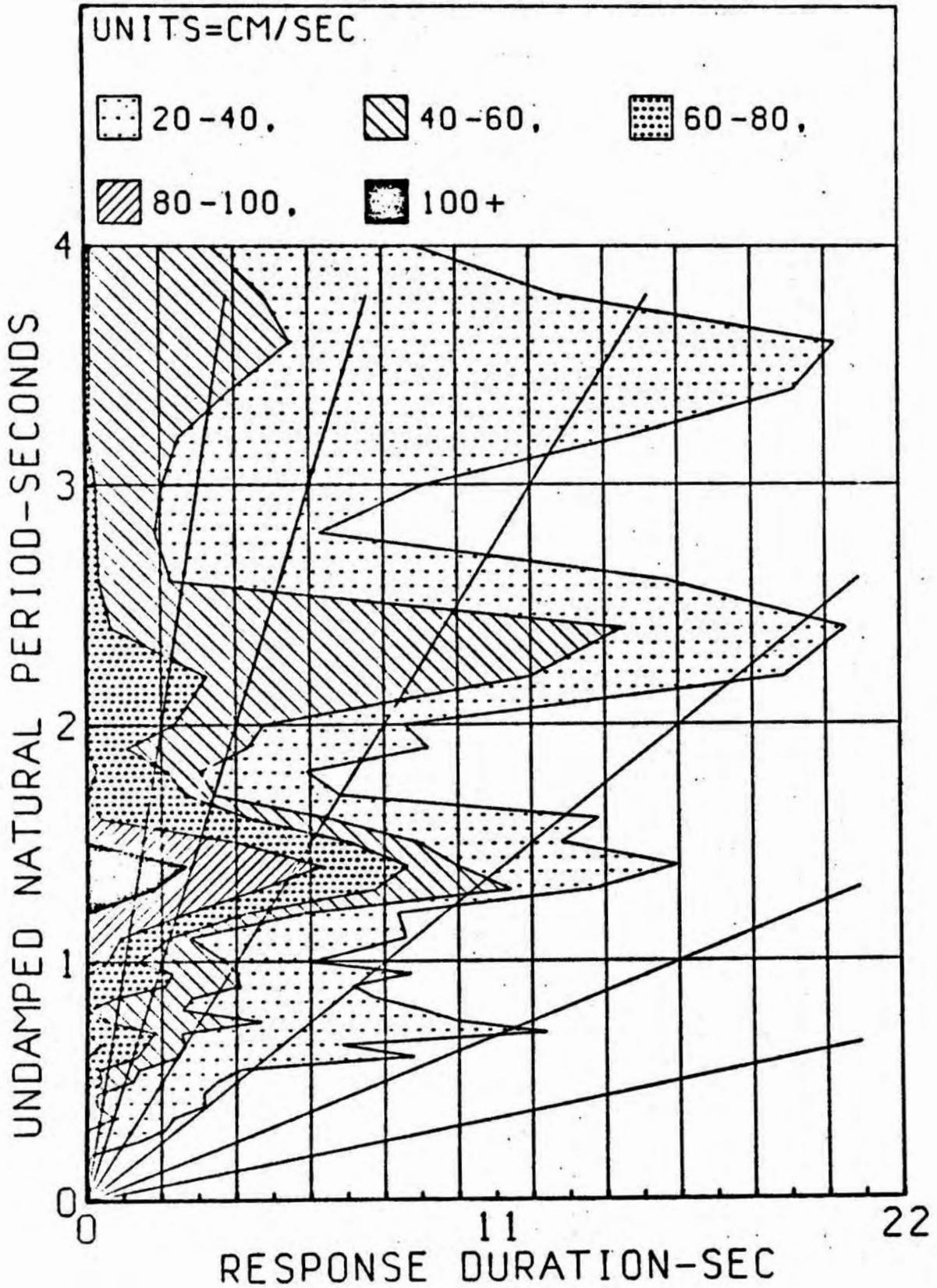
15 OCT 1979 2317 UTC IMP CTY BLDG TR 7

UNITS=CM/SEC

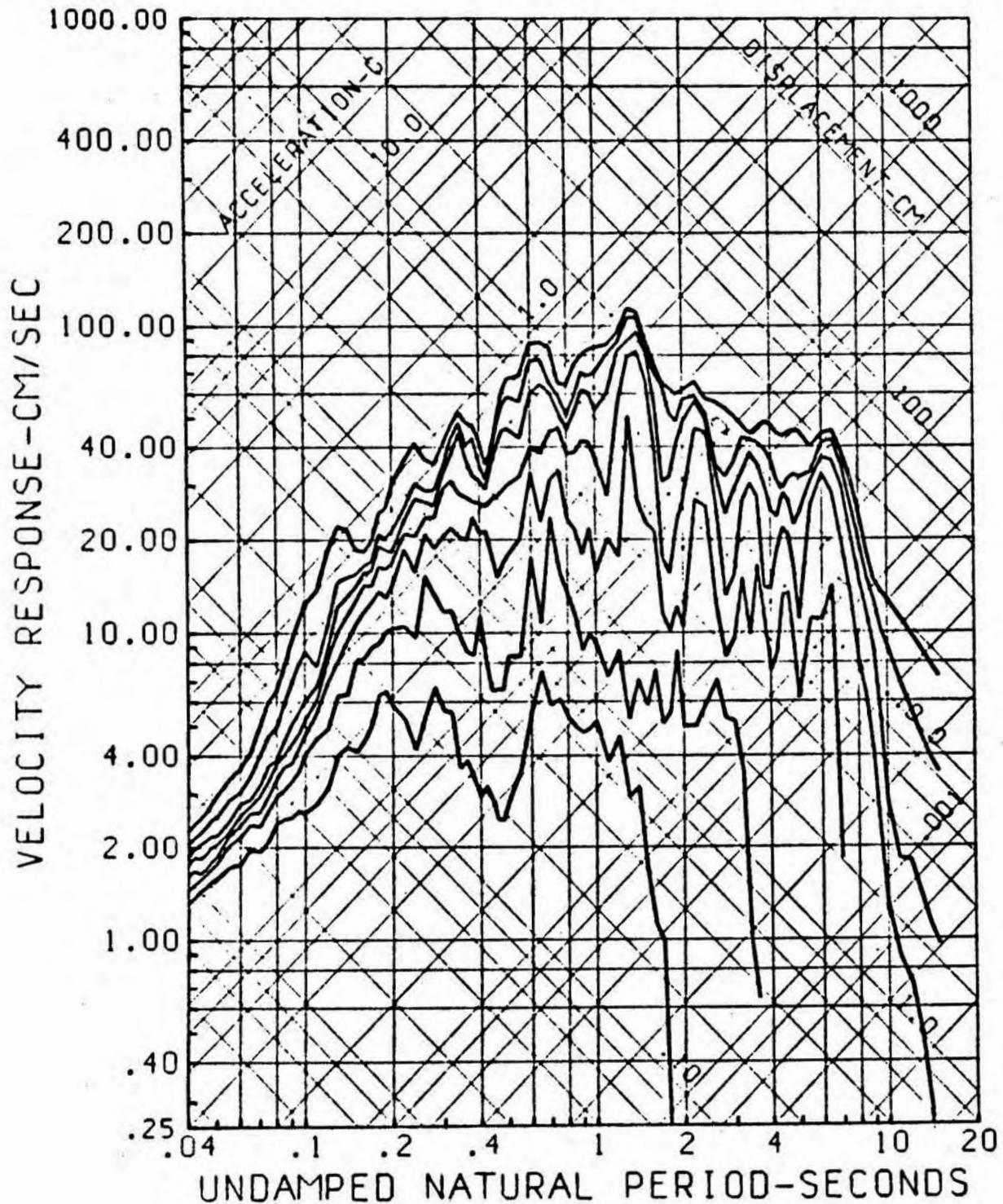
- 0-20.
- 20-40.
- 40-60.
- 60-80.
- 80-100.
- 100+



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC IMP CTY BLDG TR 7

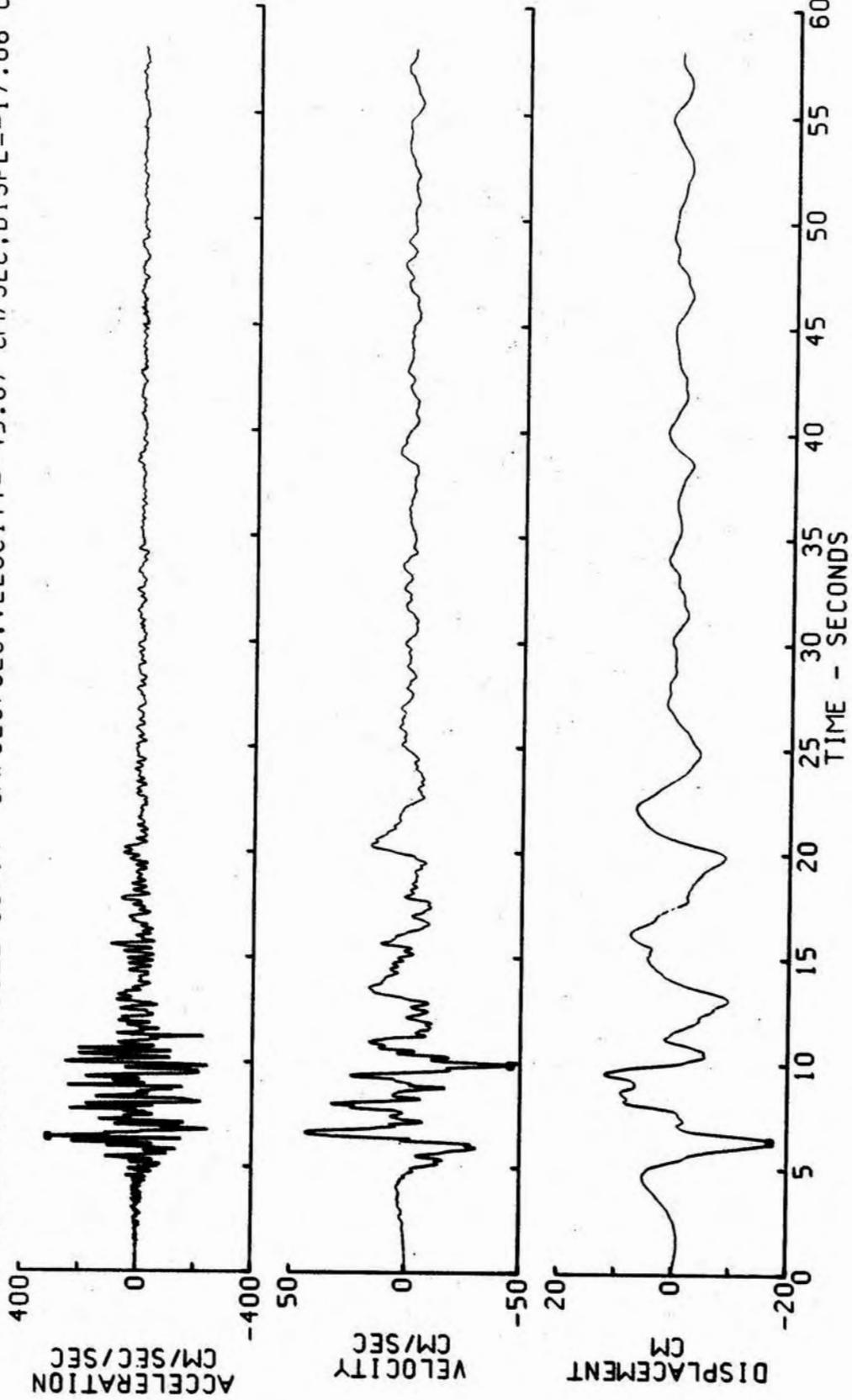


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 7
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

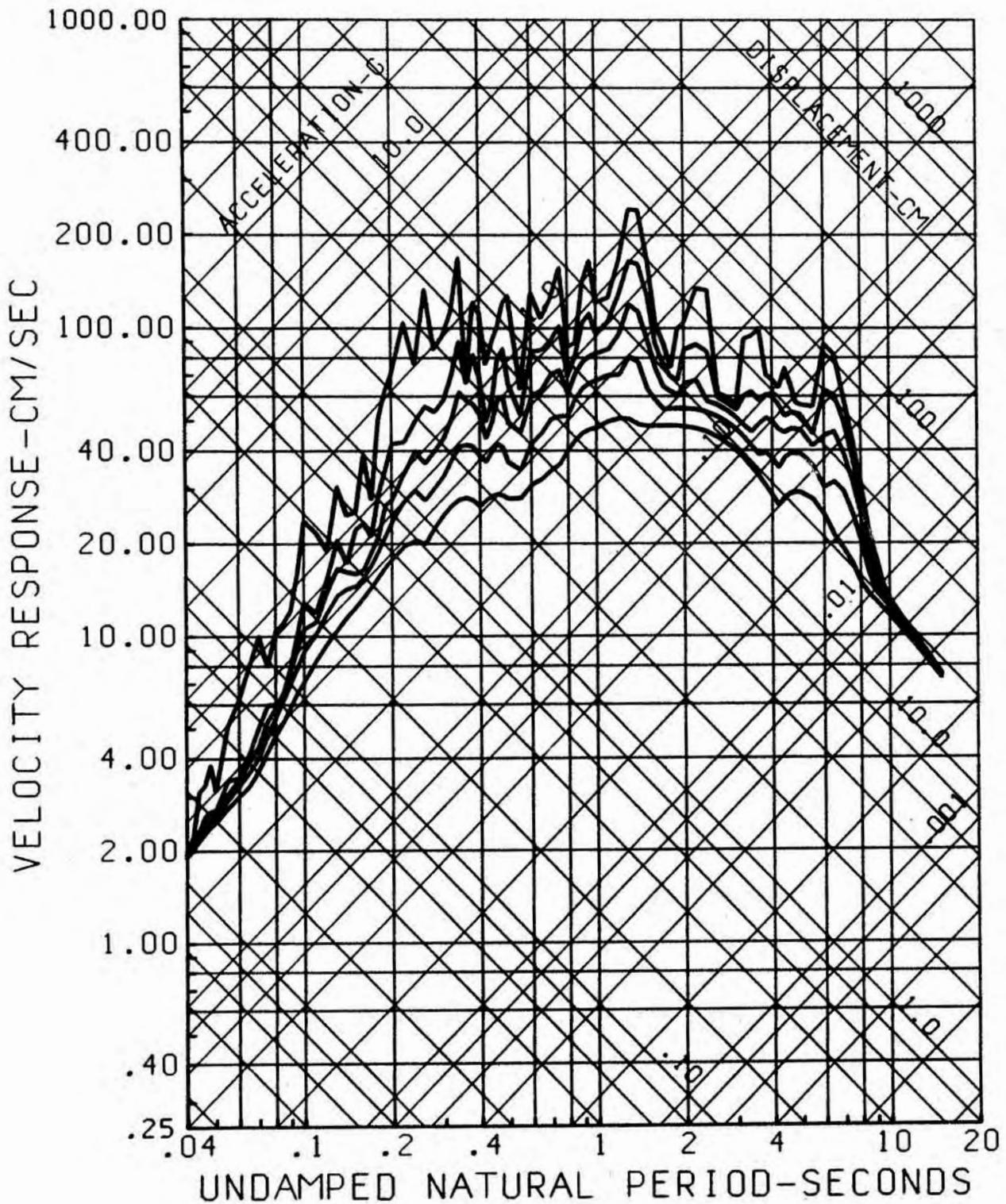


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
 IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 8 N/2ND/CNTR

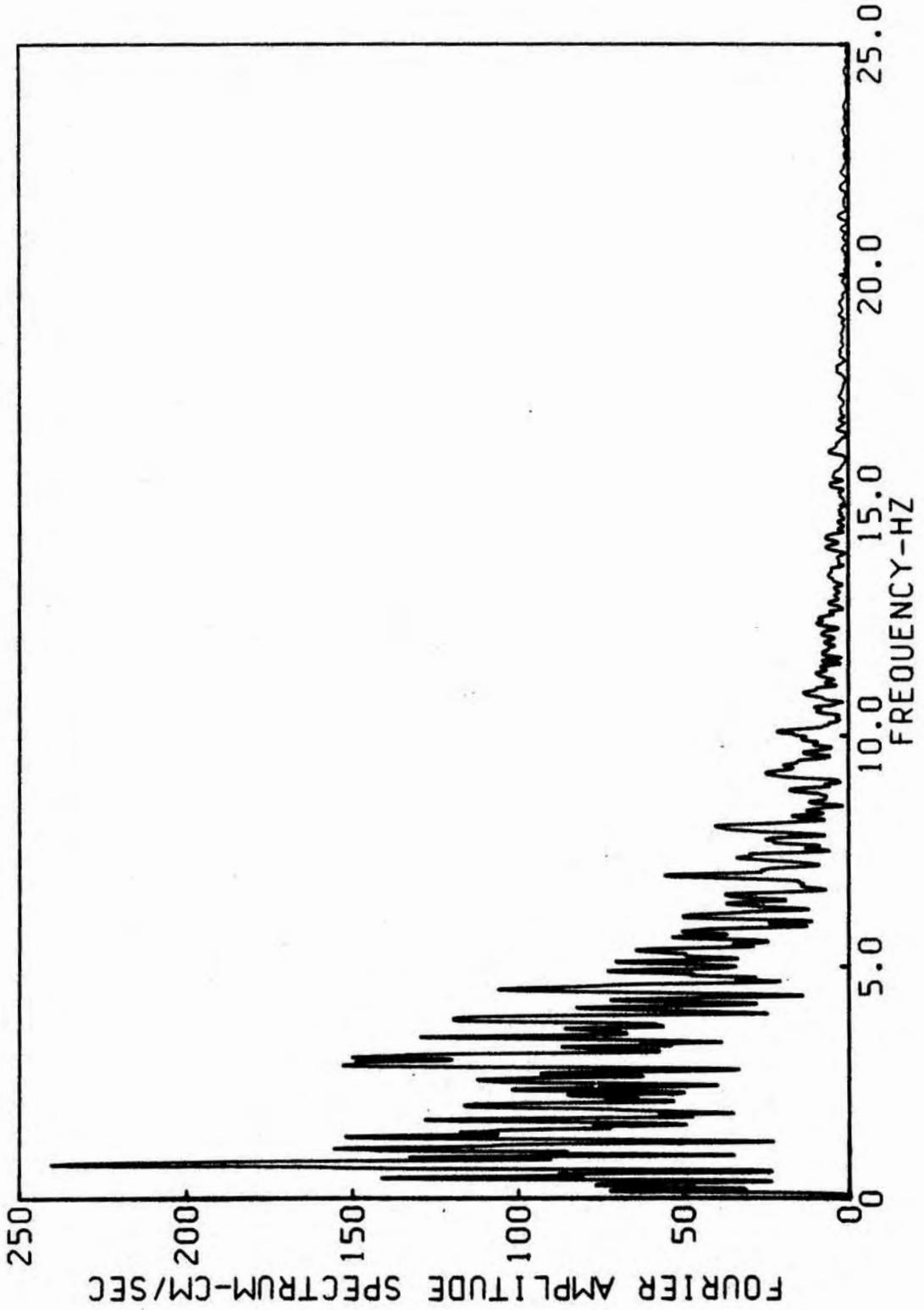
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
 ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
 PEAK VALUES ACCEL=307.4 CM/SEC/SEC, VELOCITY=-45.67 CM/SEC, DISPL=-17.06 CM



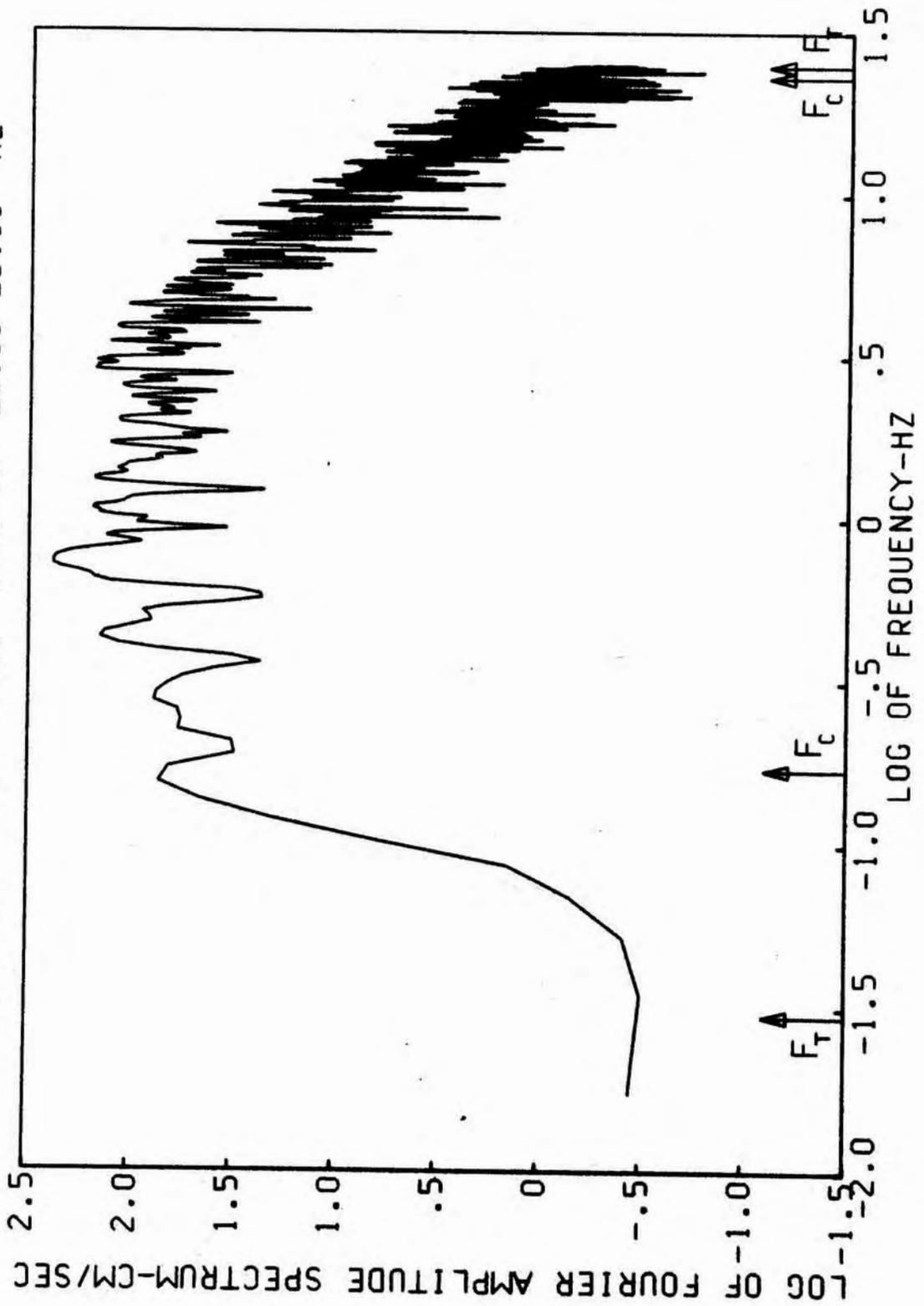
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 8
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 8 N/2ND/CNTR
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMC 260 IMP CTY BLDG CRA 125 TR 8 N/2ND/CNTR
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



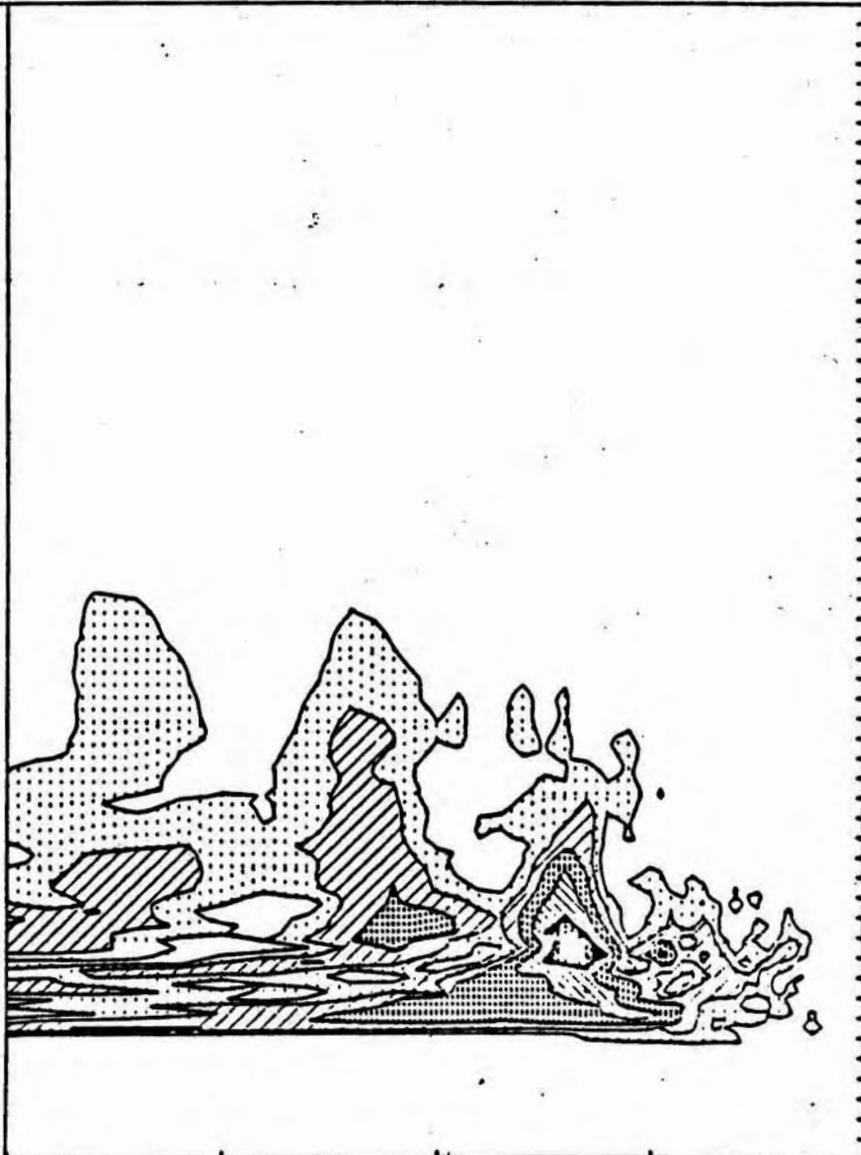
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING

BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLOC TR 8

0-20. 20-40. 40-60. 60-80. 80-100.

100+

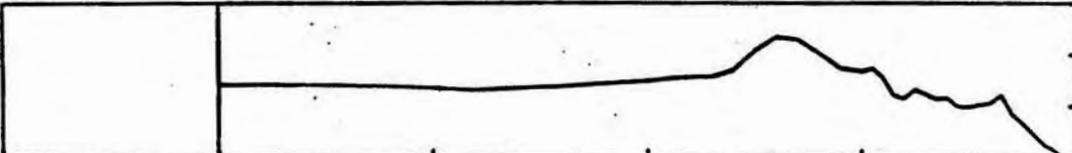


ACCEL-G/10 4 0 -4

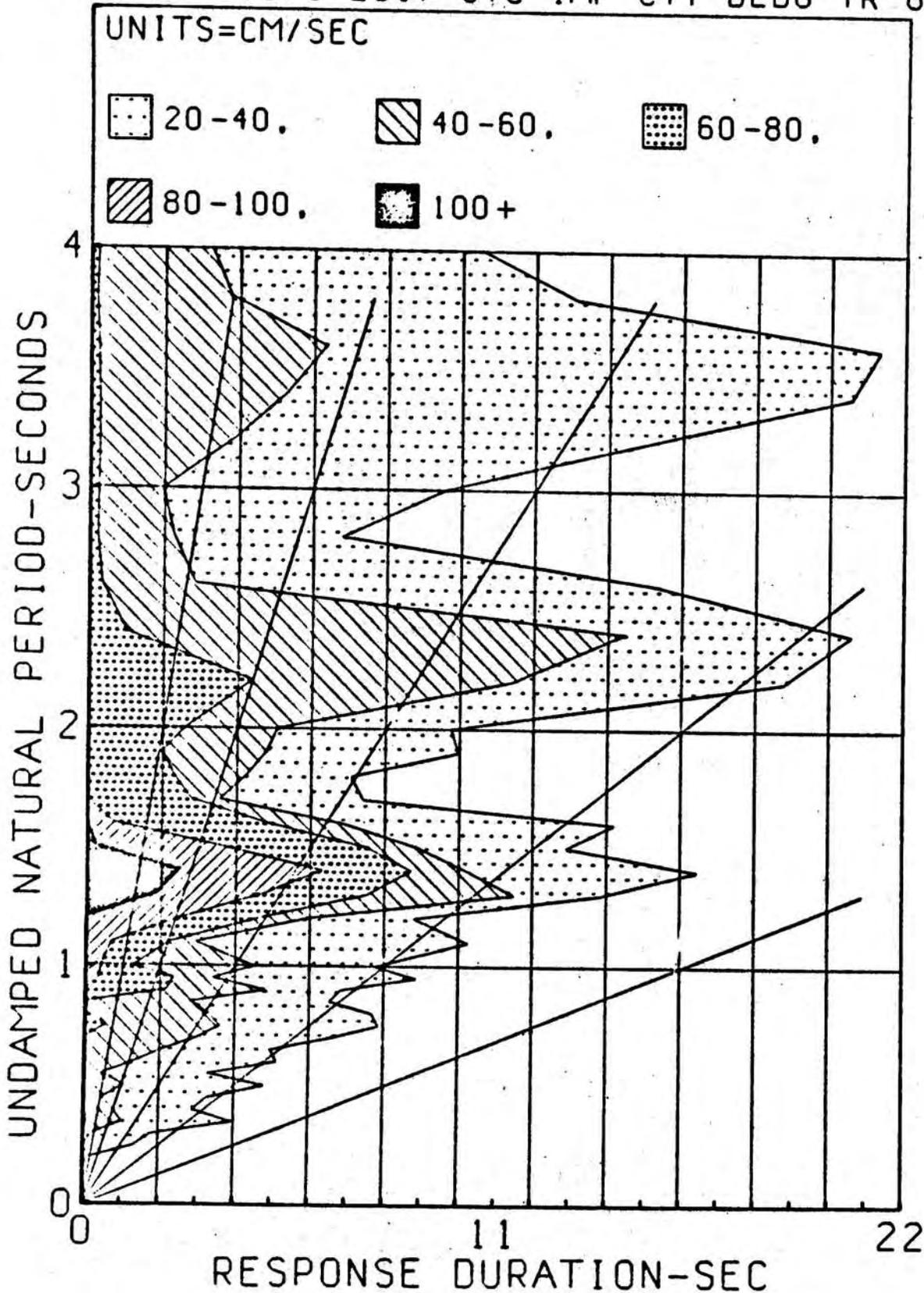
TIME - SECONDS 29



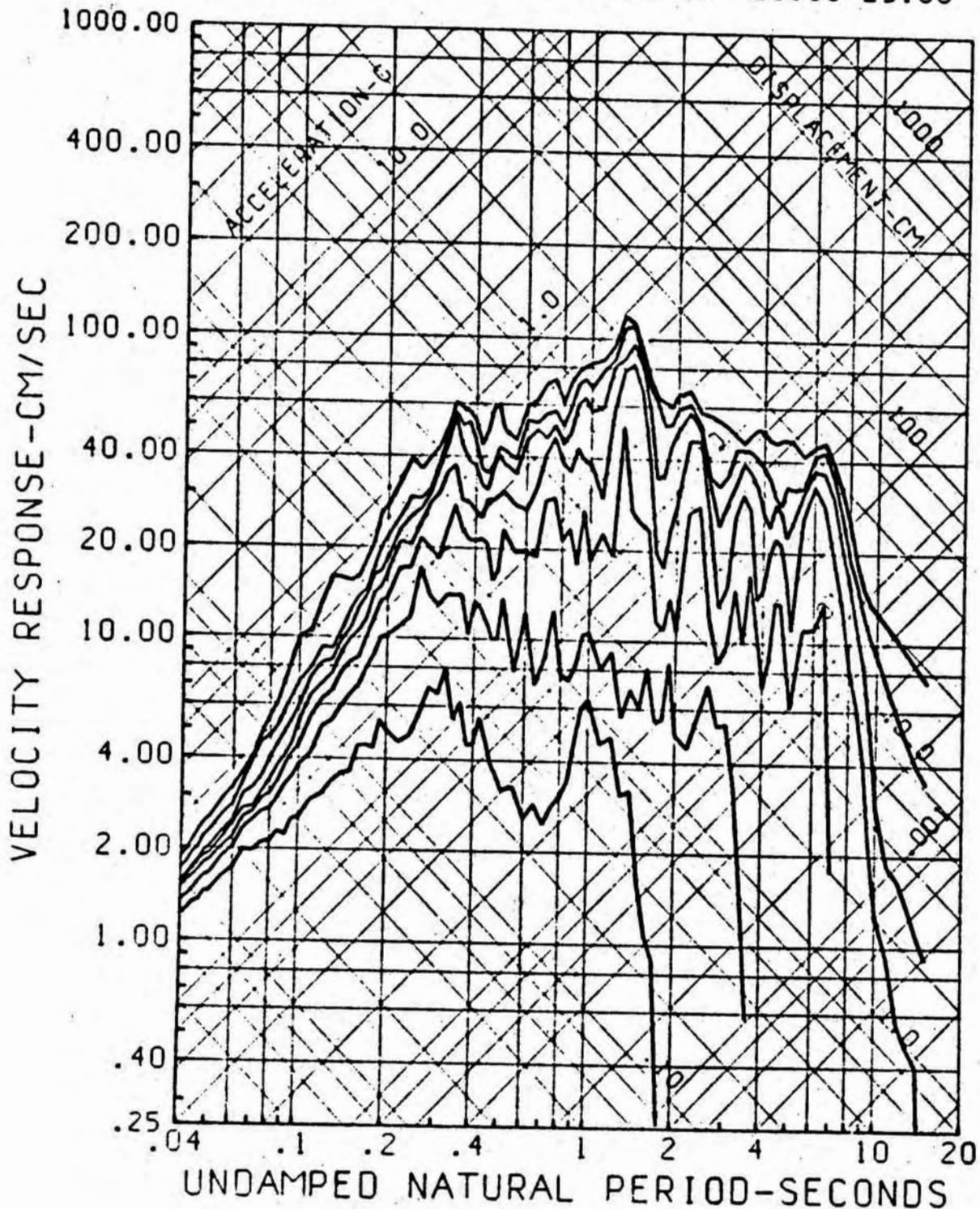
VELOCITY CM/SEC 0 150



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 8

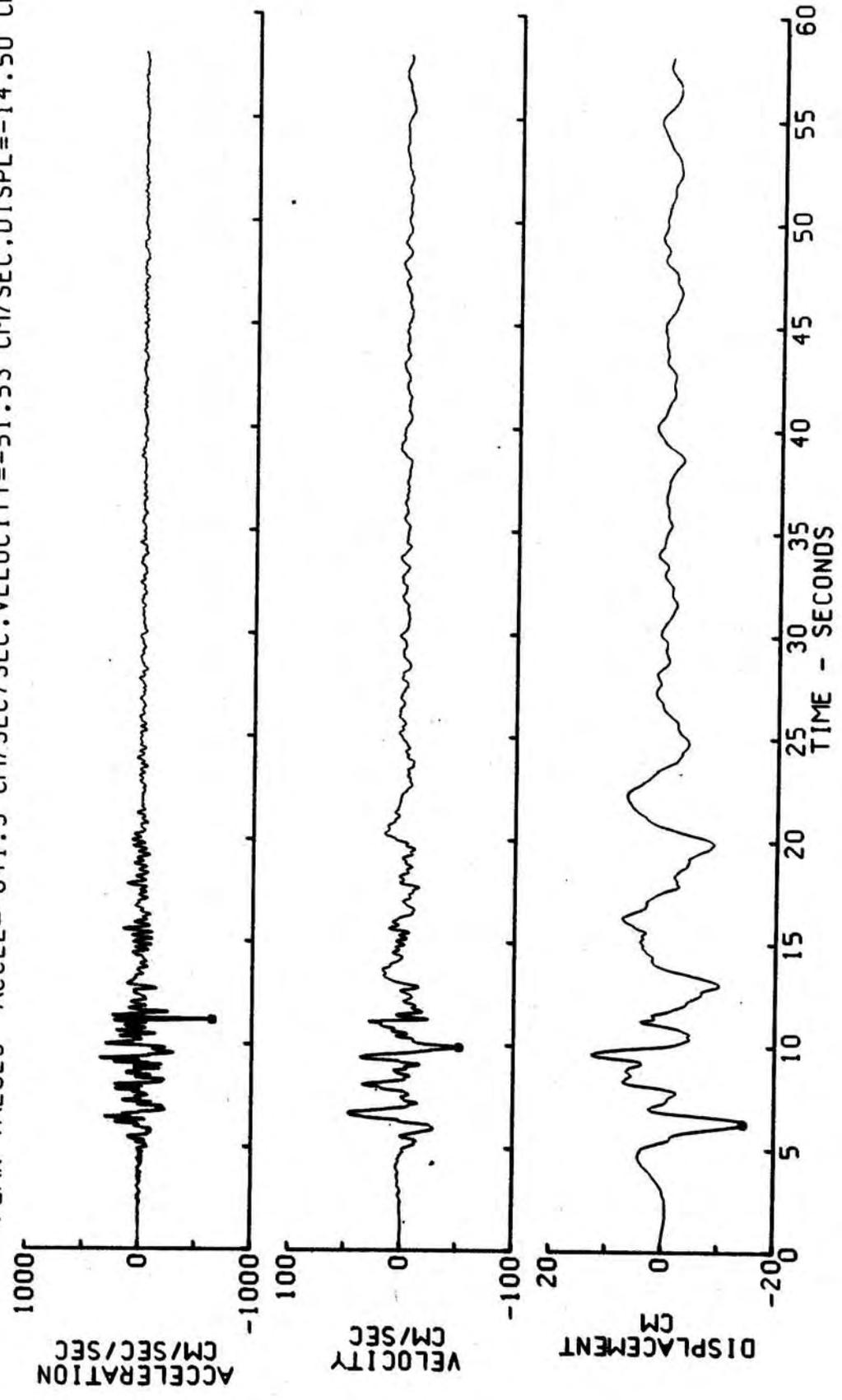


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 8
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

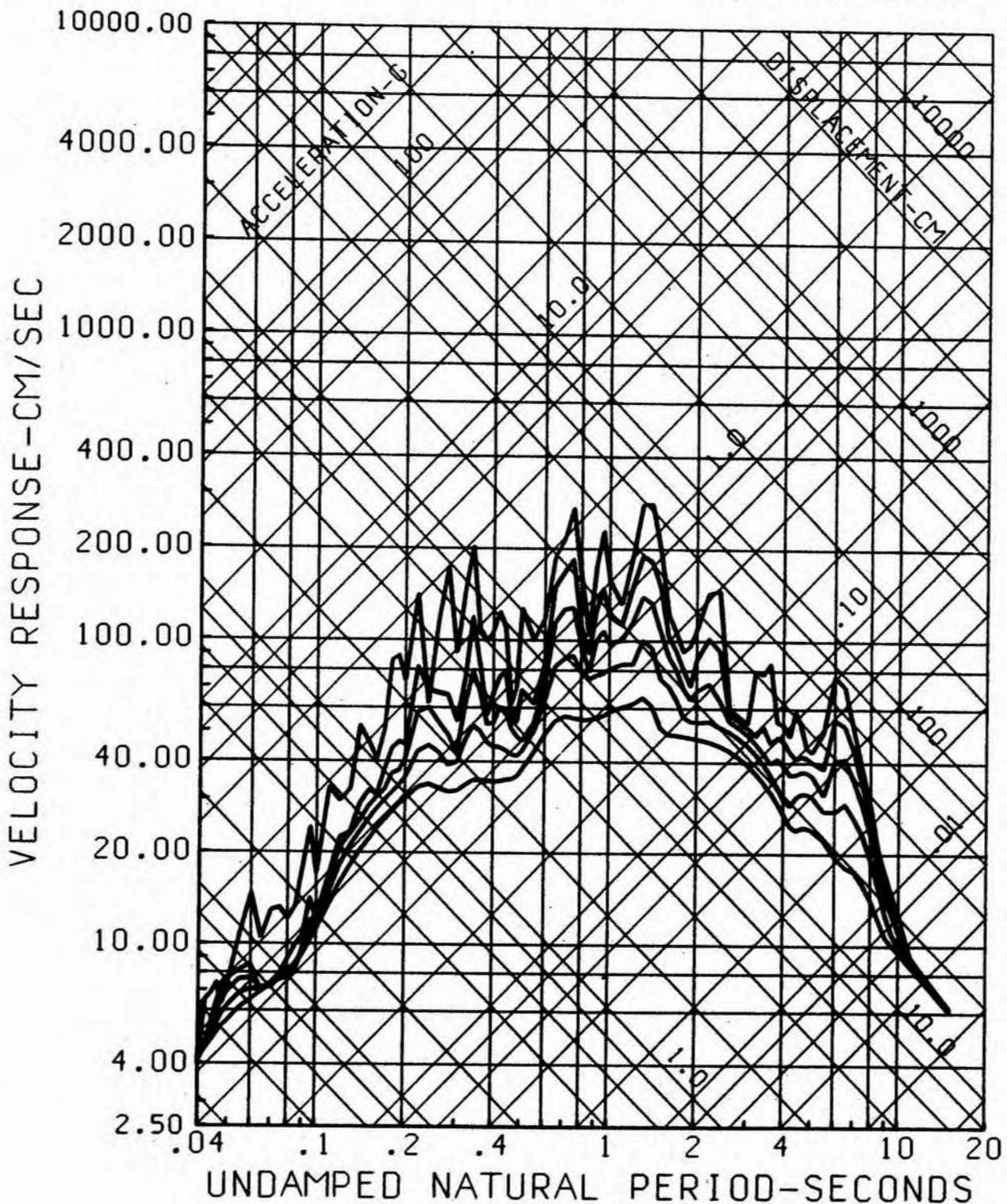


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 9 N/2ND/E END

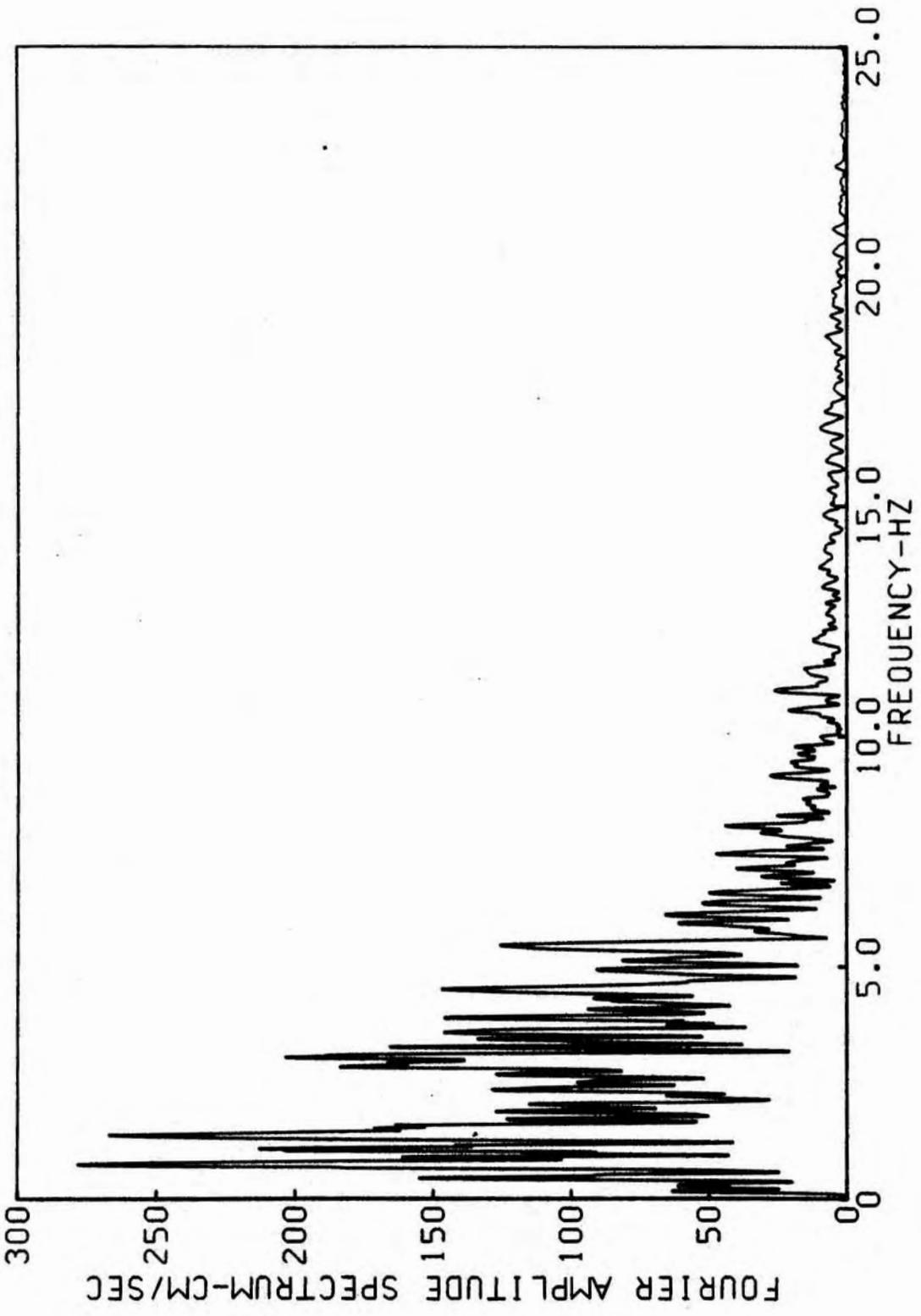
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=-641.9 CM/SEC/SEC, VELOCITY=-51.53 CM/SEC, DISPL=-14.50 CM



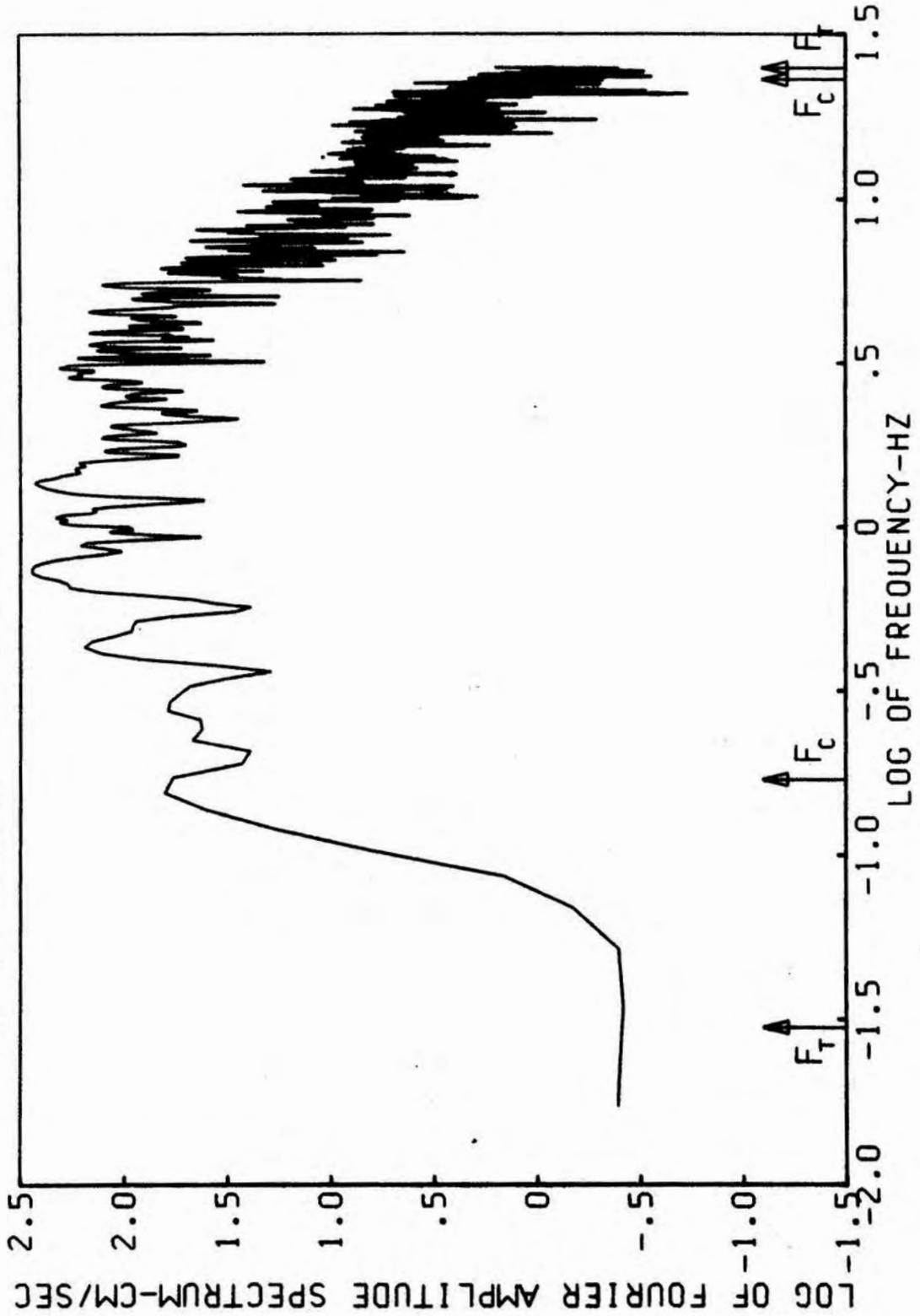
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 9
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 9 N/2ND/E END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 9 N/2ND/E END
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



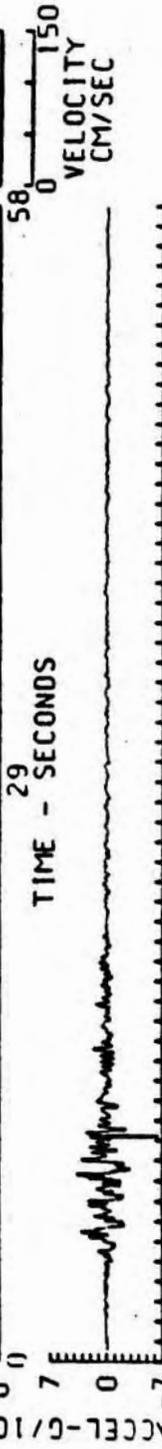
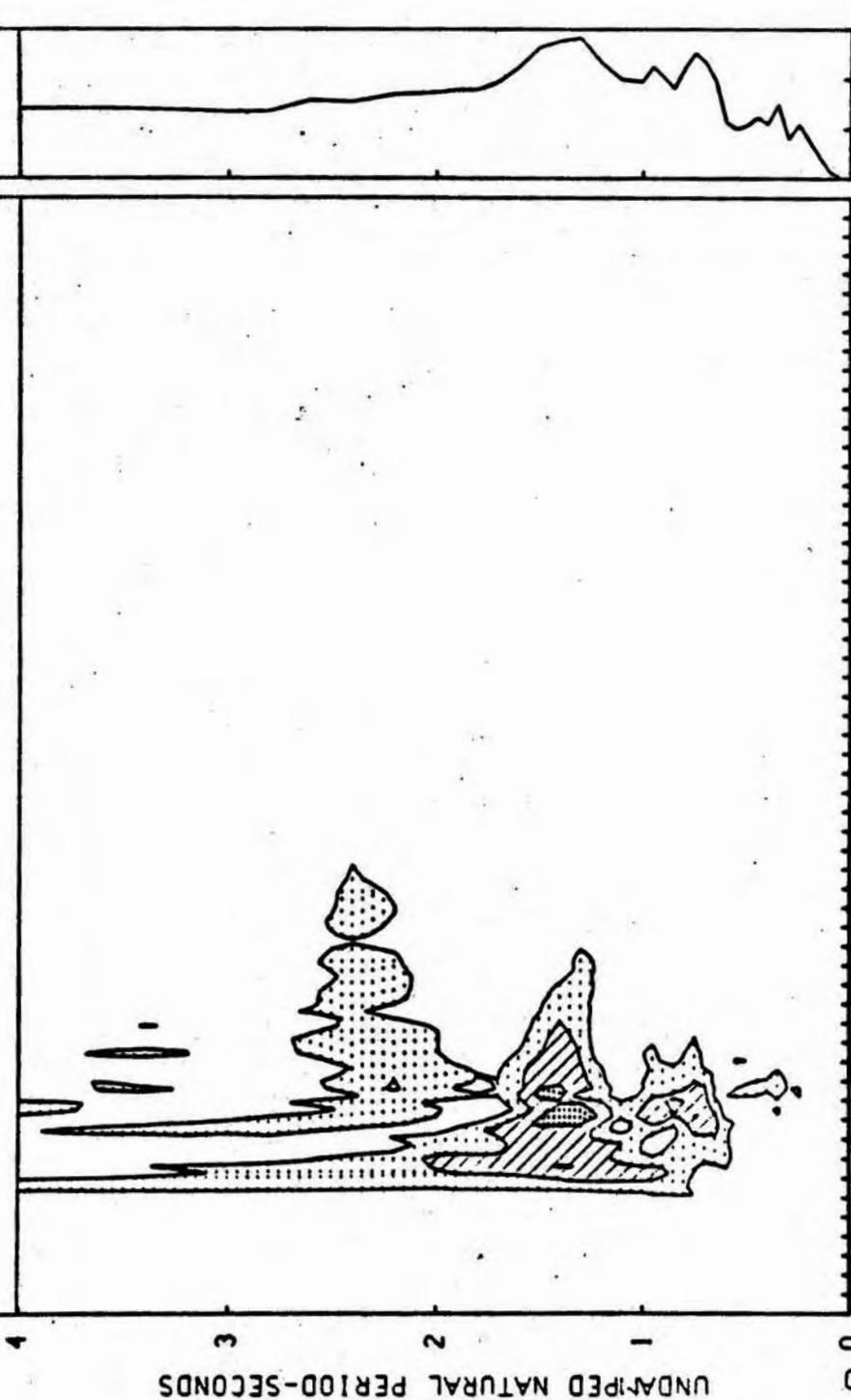
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING

BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

15 OCT 1979 2317 UTC IMP CTY BLOC TR 9

UNITS=CM/SEC

- 0-40.
- ▤ 40-80.
- ▨ 80-120.
- ▩ 120+

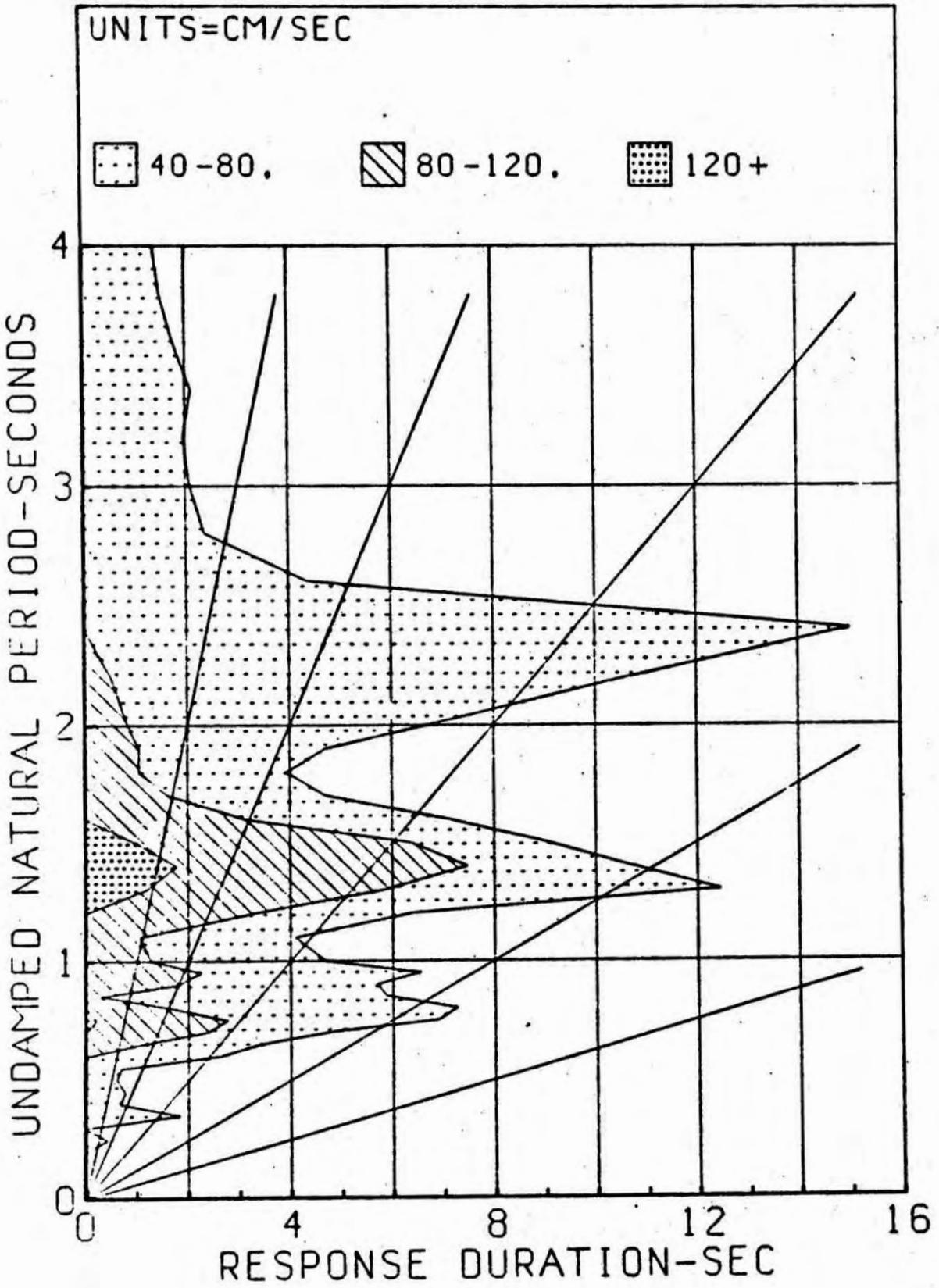


UNDAMPED NATURAL PERIOD-SECONDS

TIME - SECONDS

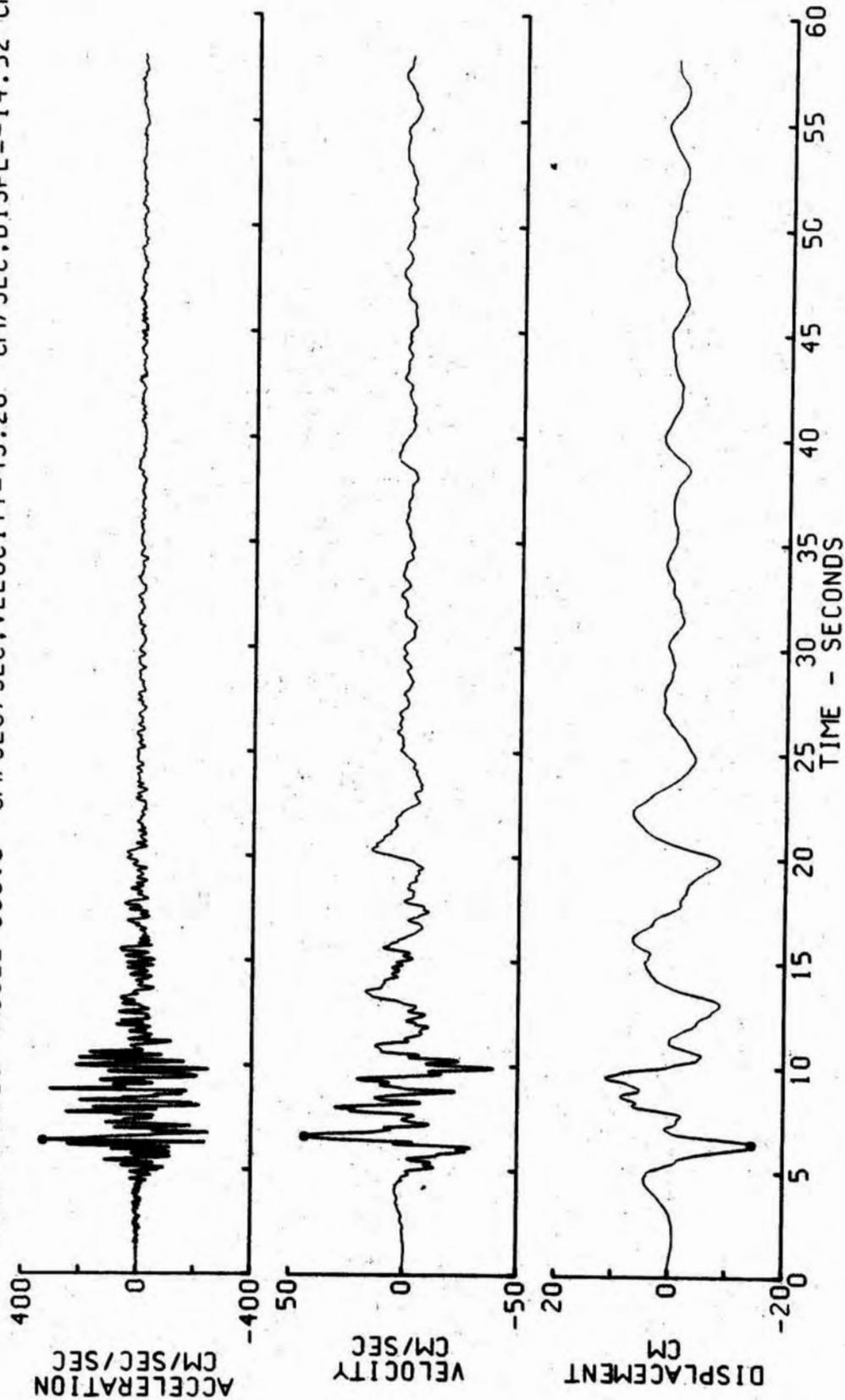
VELOCITY
CM/SEC

DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 9

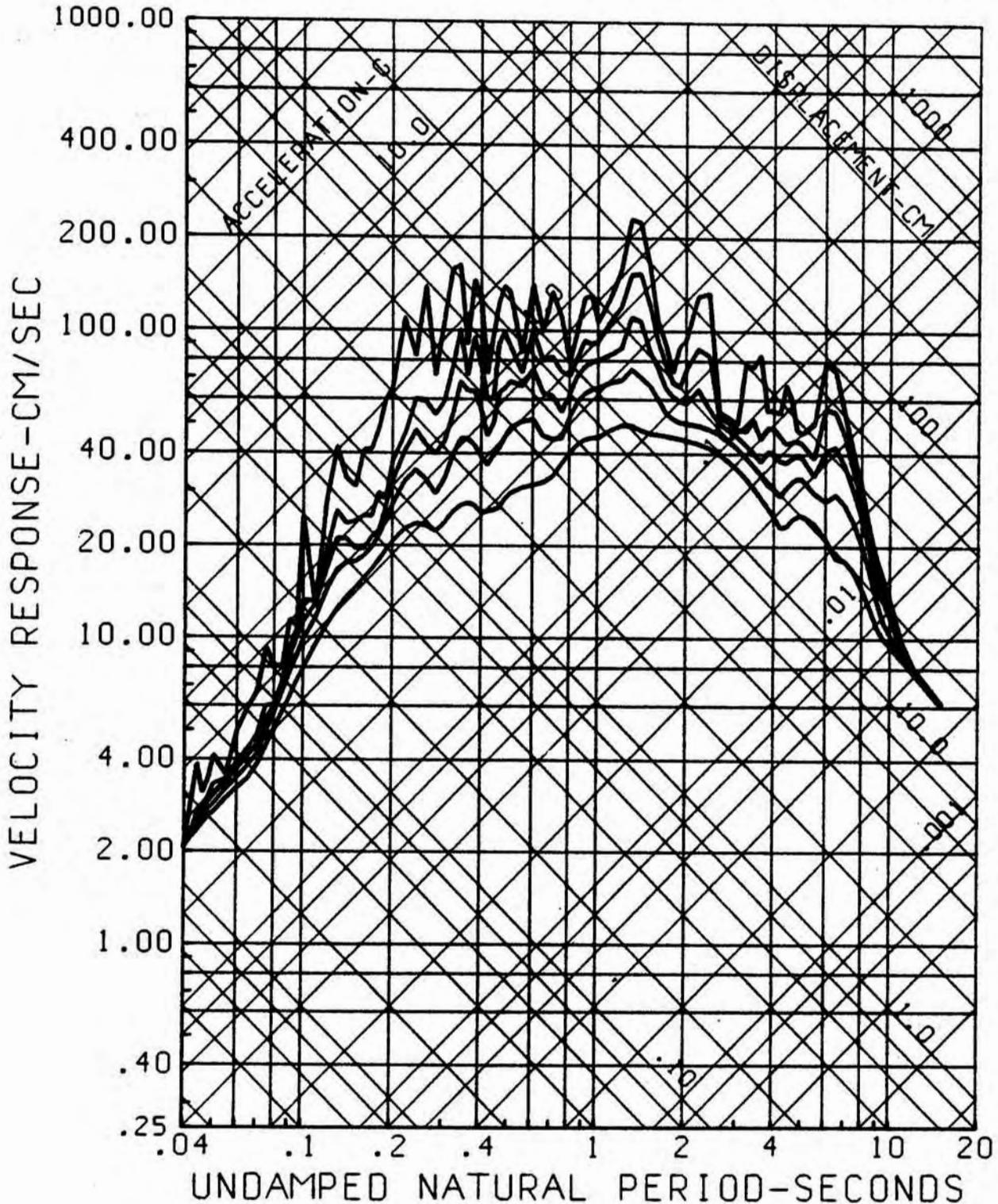


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
 IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 10 N/GRND/W END

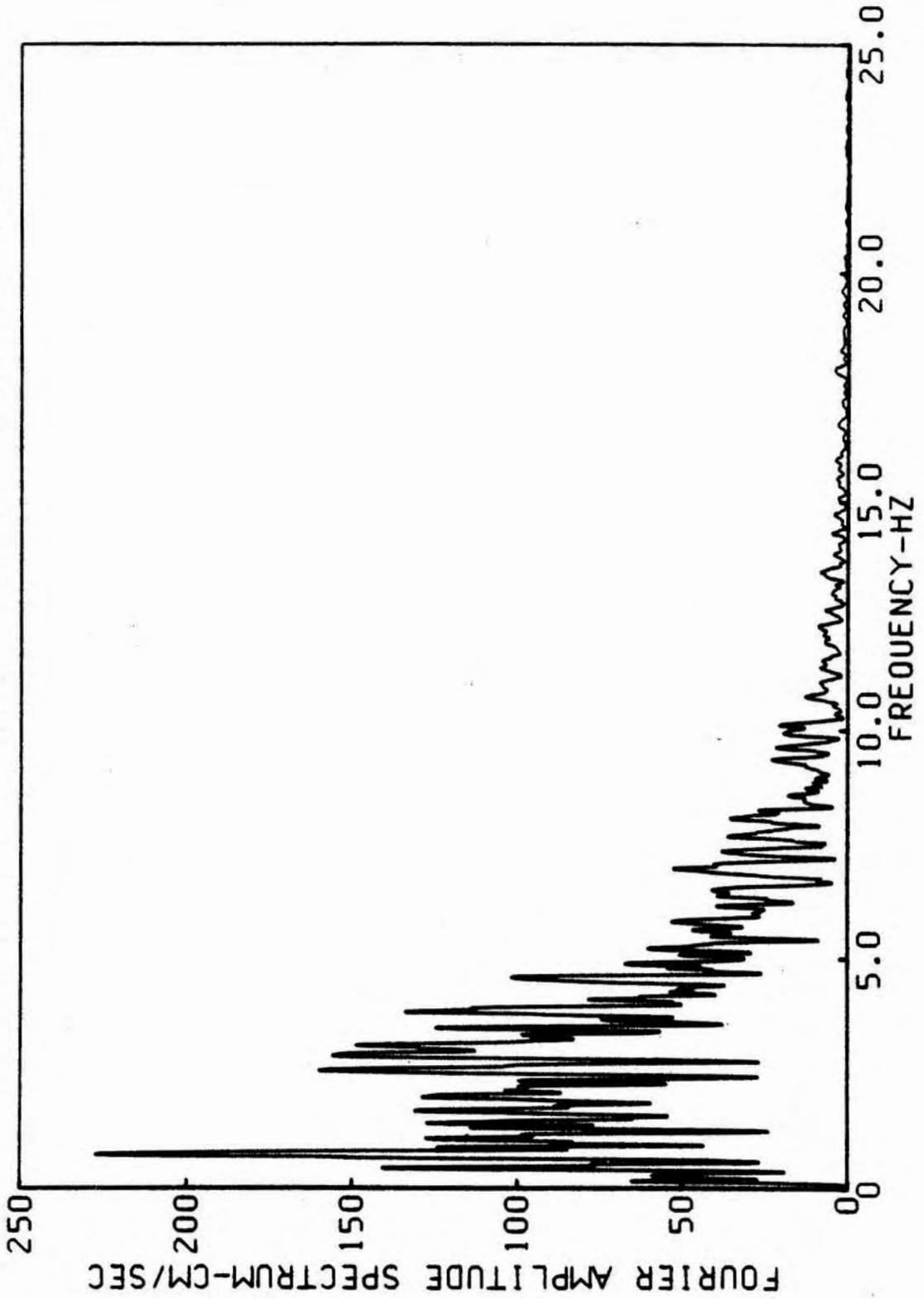
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
 ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
 • PEAK VALUES ACCEL=330.6 CM/SEC/SEC, VELOCITY=43.26 CM/SEC, DISPL=-14.52 CM



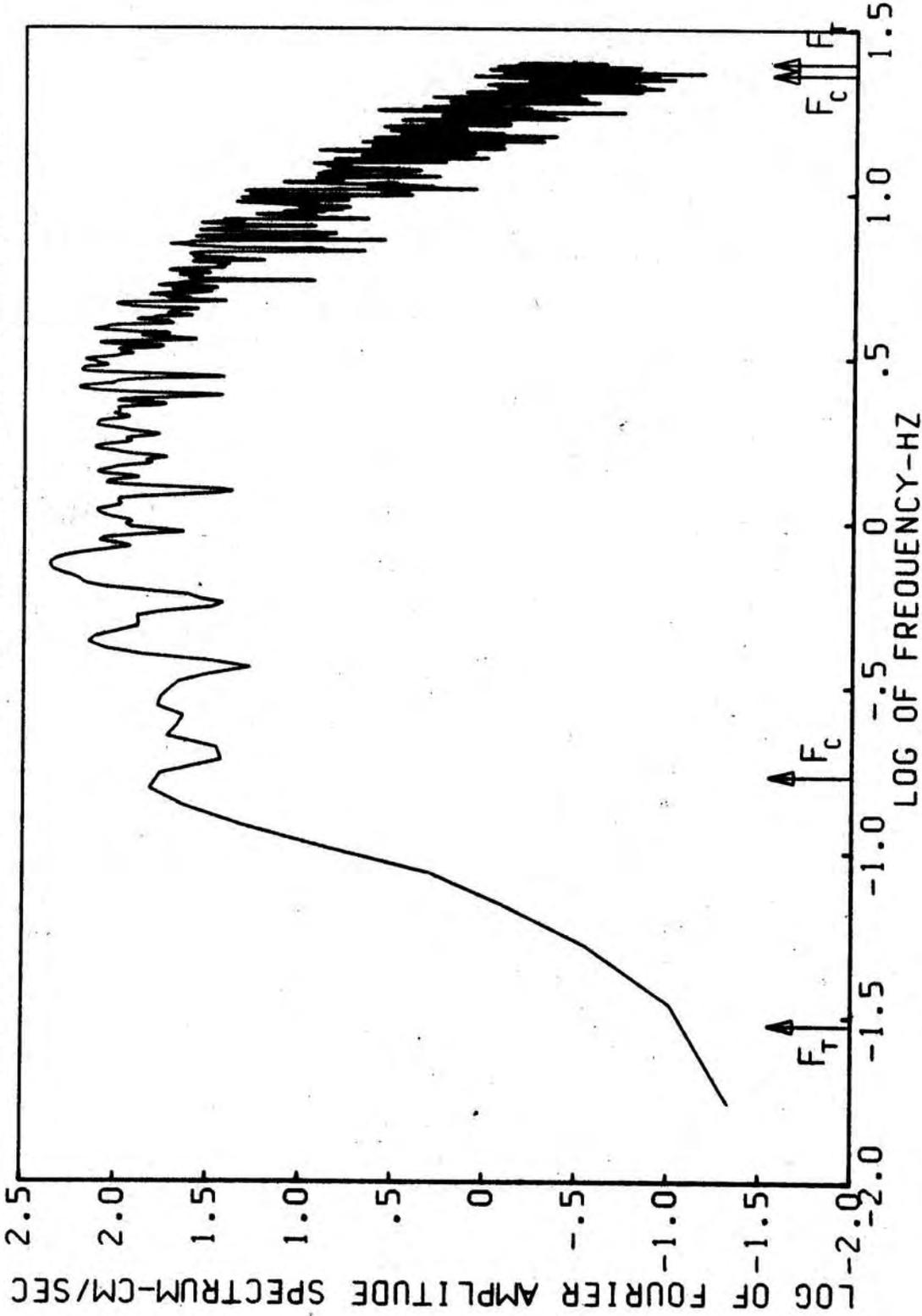
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 10
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 10 N/GRND/W END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 10 N/GRND/W END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



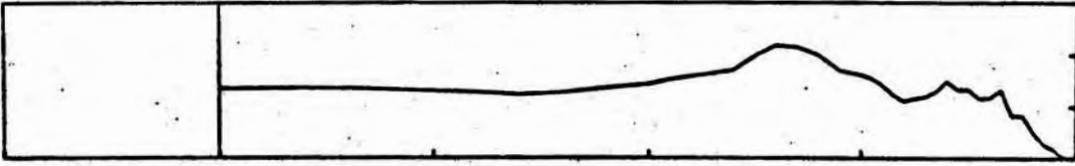
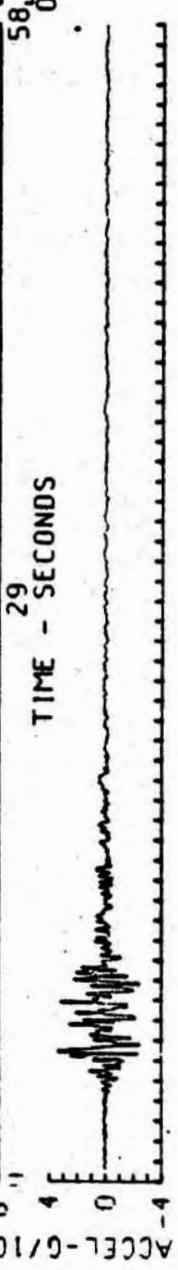
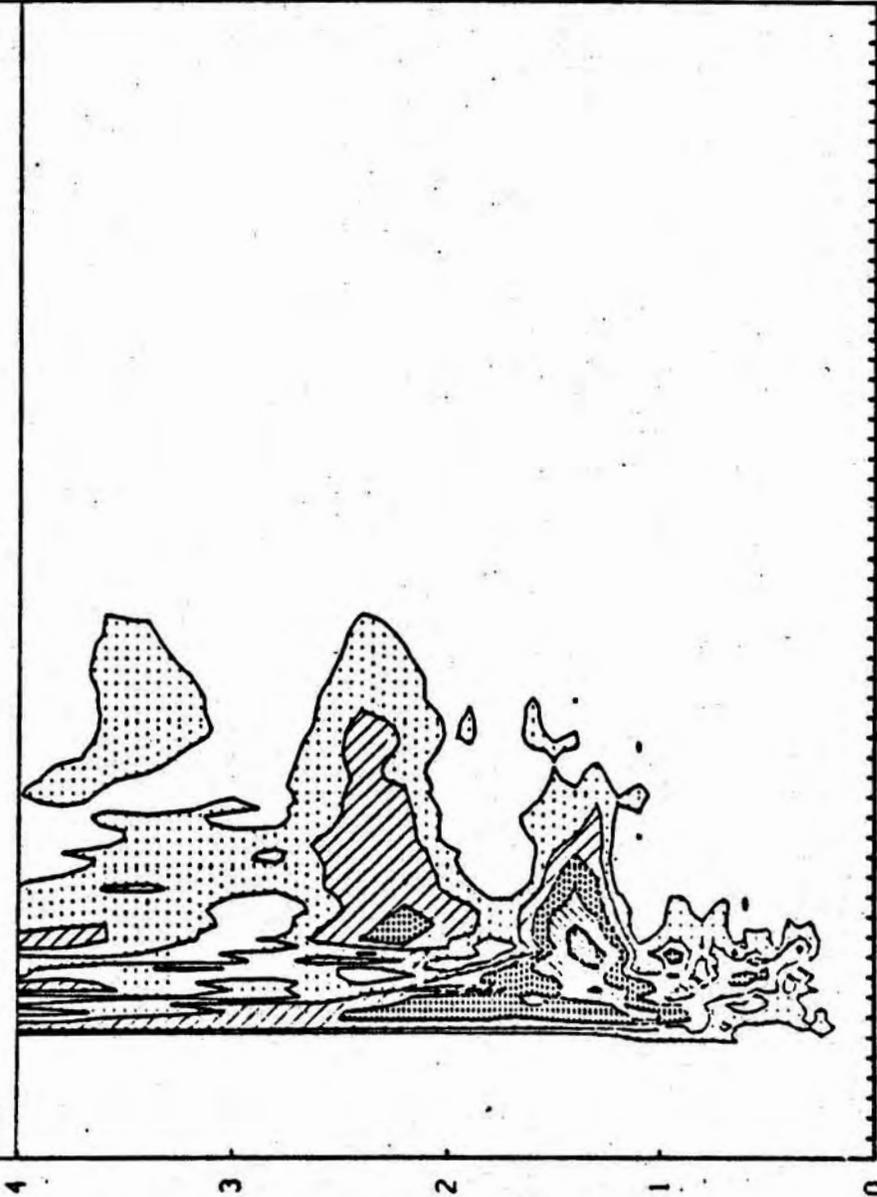
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING

BAND PASSED FROM .030 - .170 TO 23.00 - 25.00 HZ

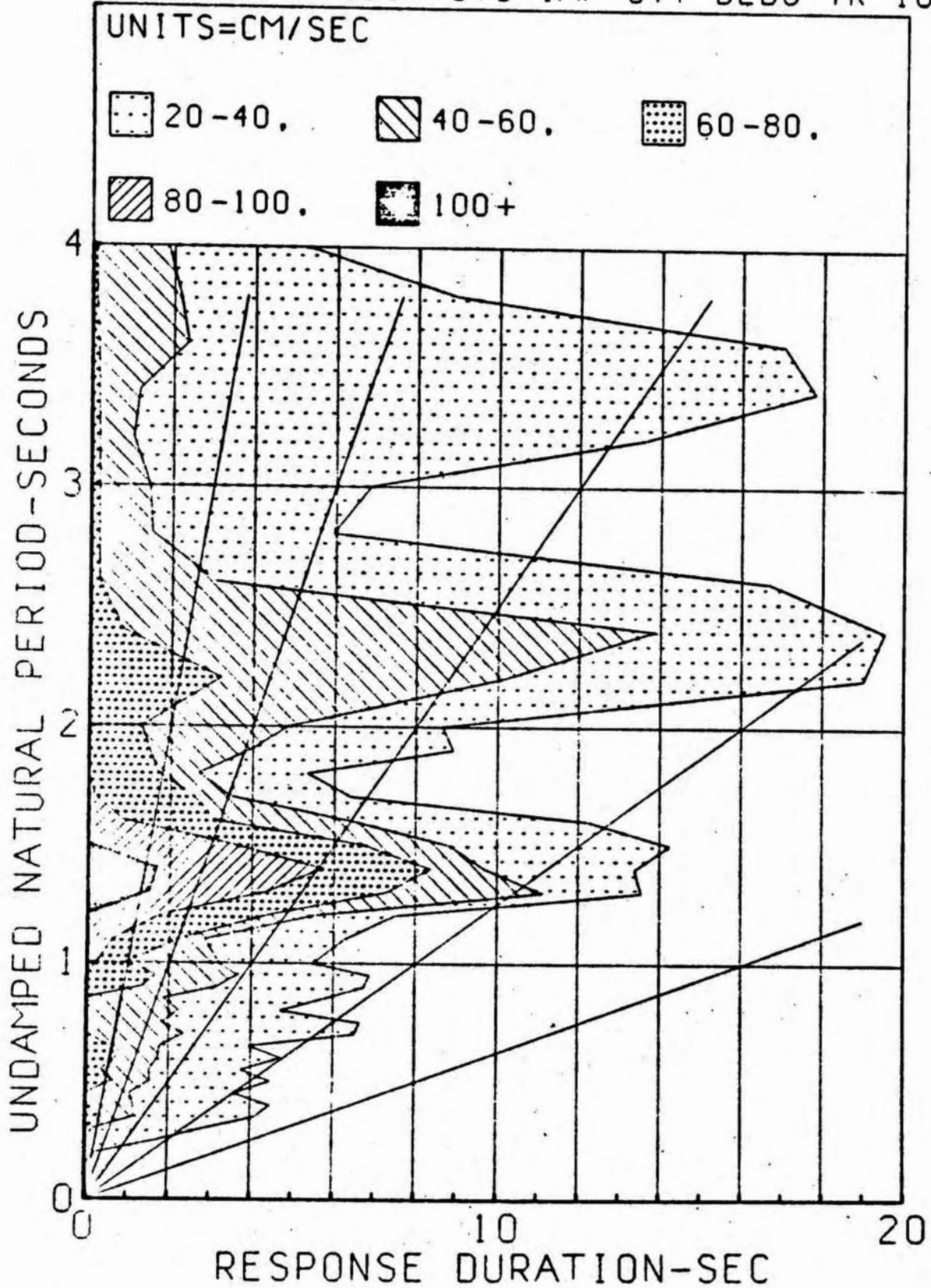
UNITS=CM, SEC 15 OCT 1979 2317 UTC IMP CTY BLDG TR 10

0-20. 20-40. 40-60. 60-80. 80-100.

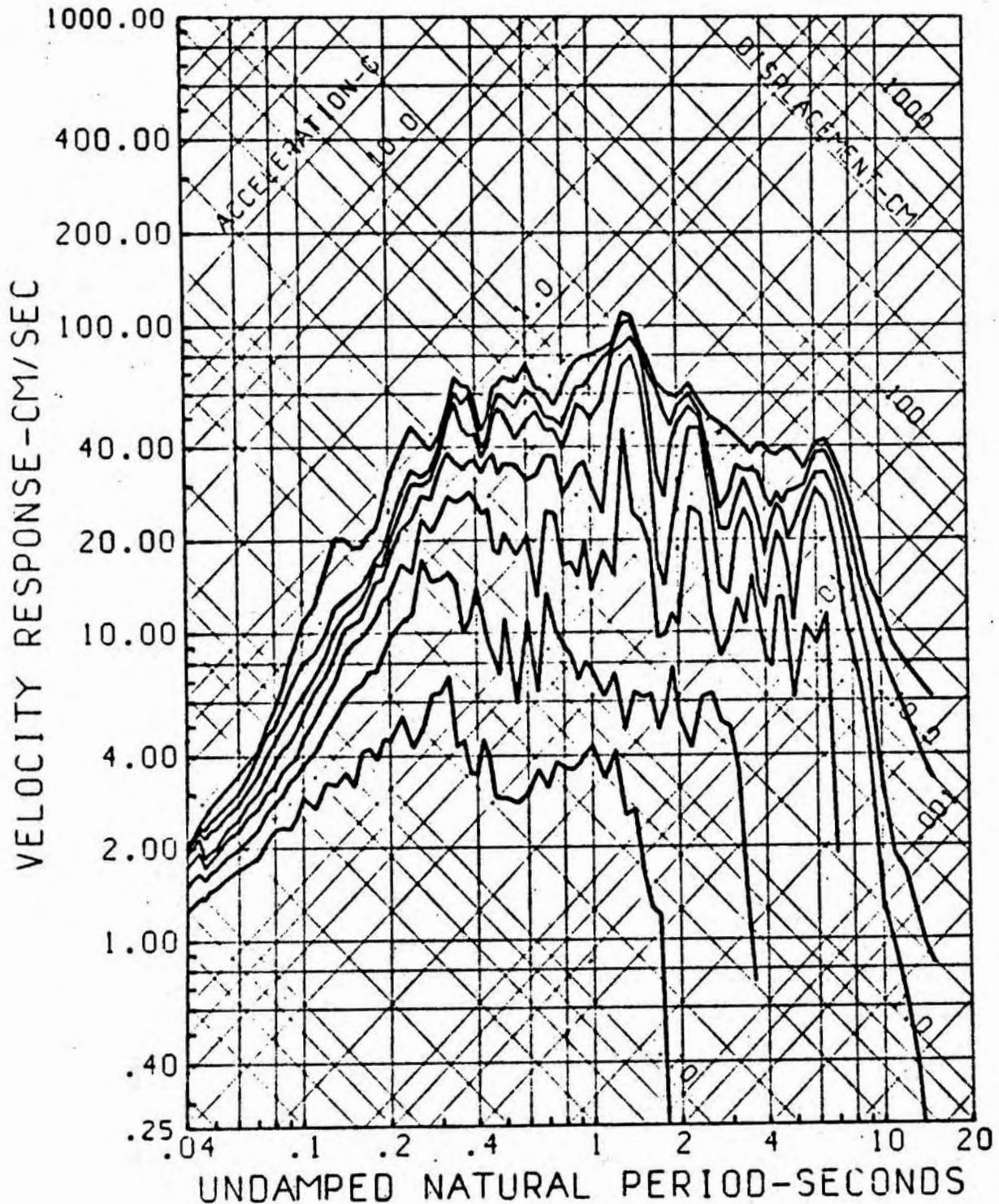
100+



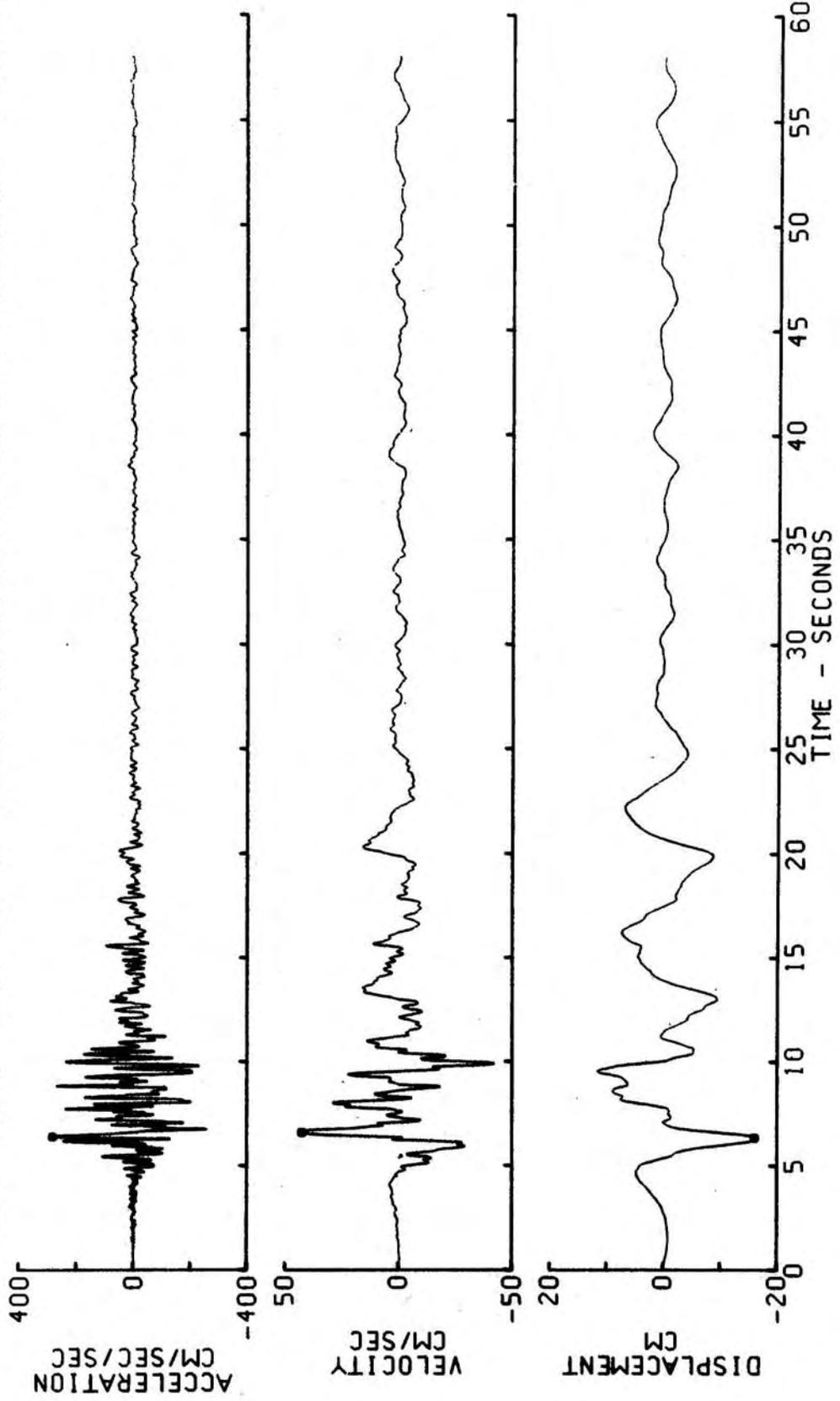
DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 10



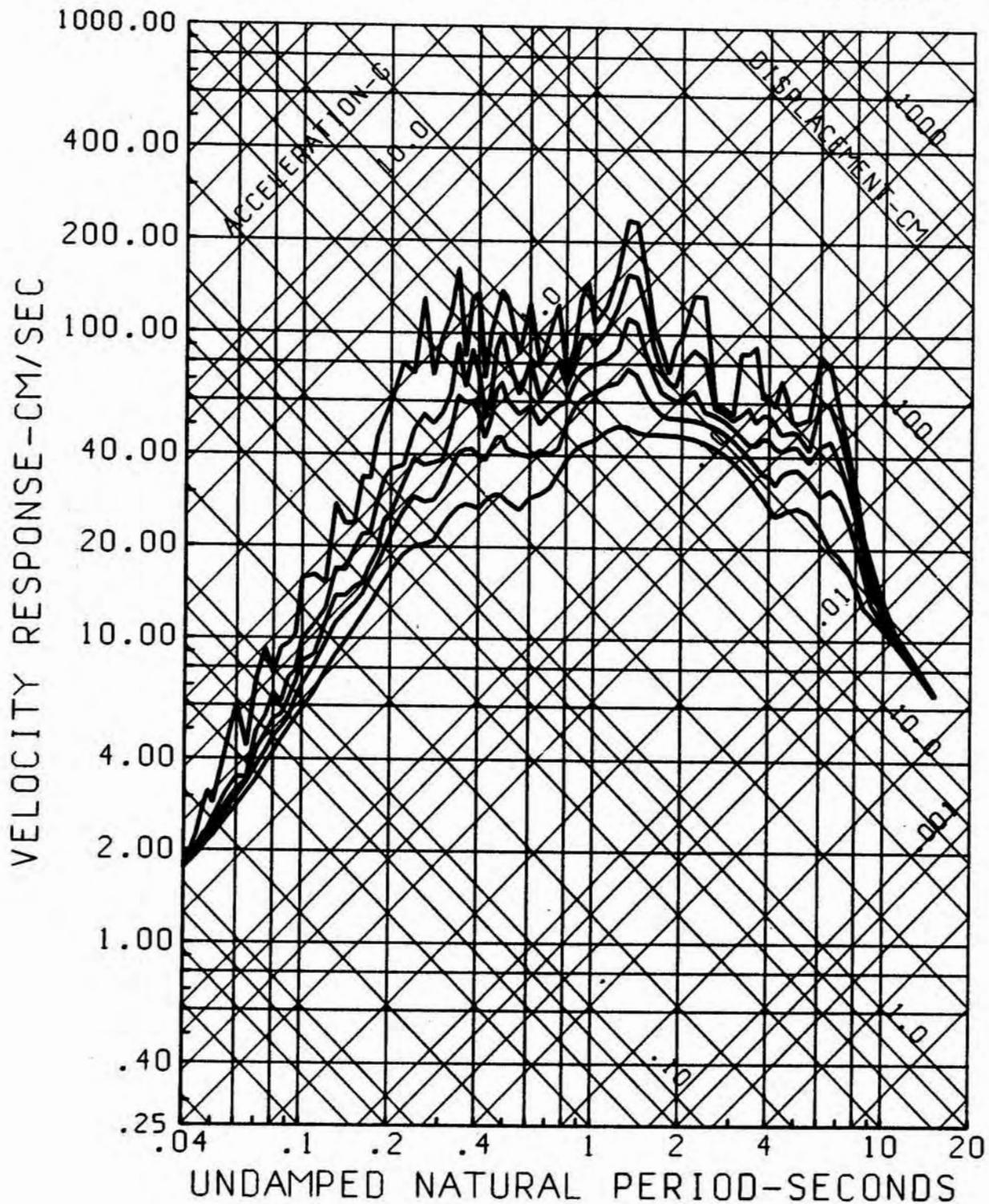
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 10
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



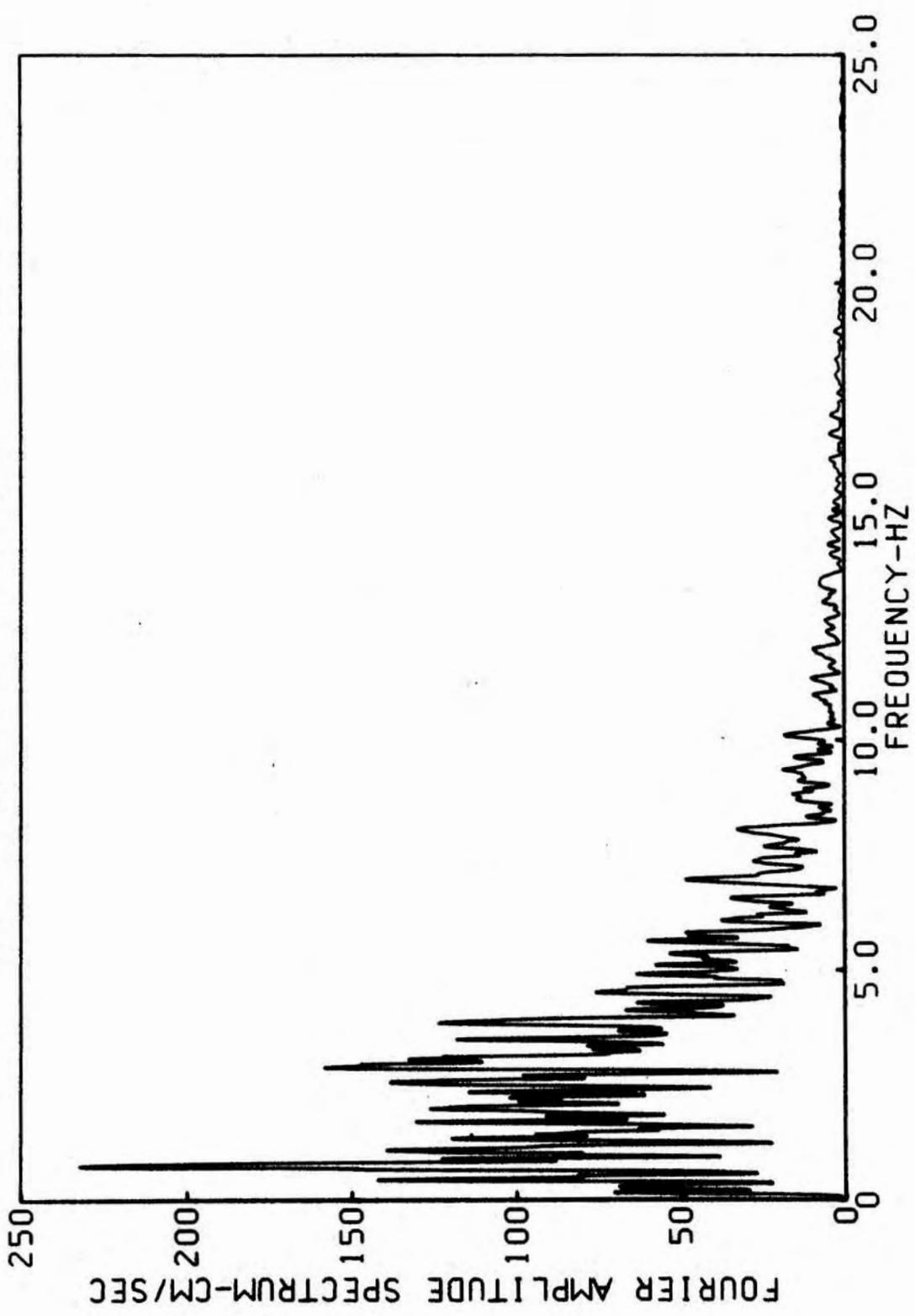
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 11 N/GRND/E END
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=284.0 CM/SEC/SEC, VELOCITY=42.42 CM/SEC, DISPL=-16.04 CM



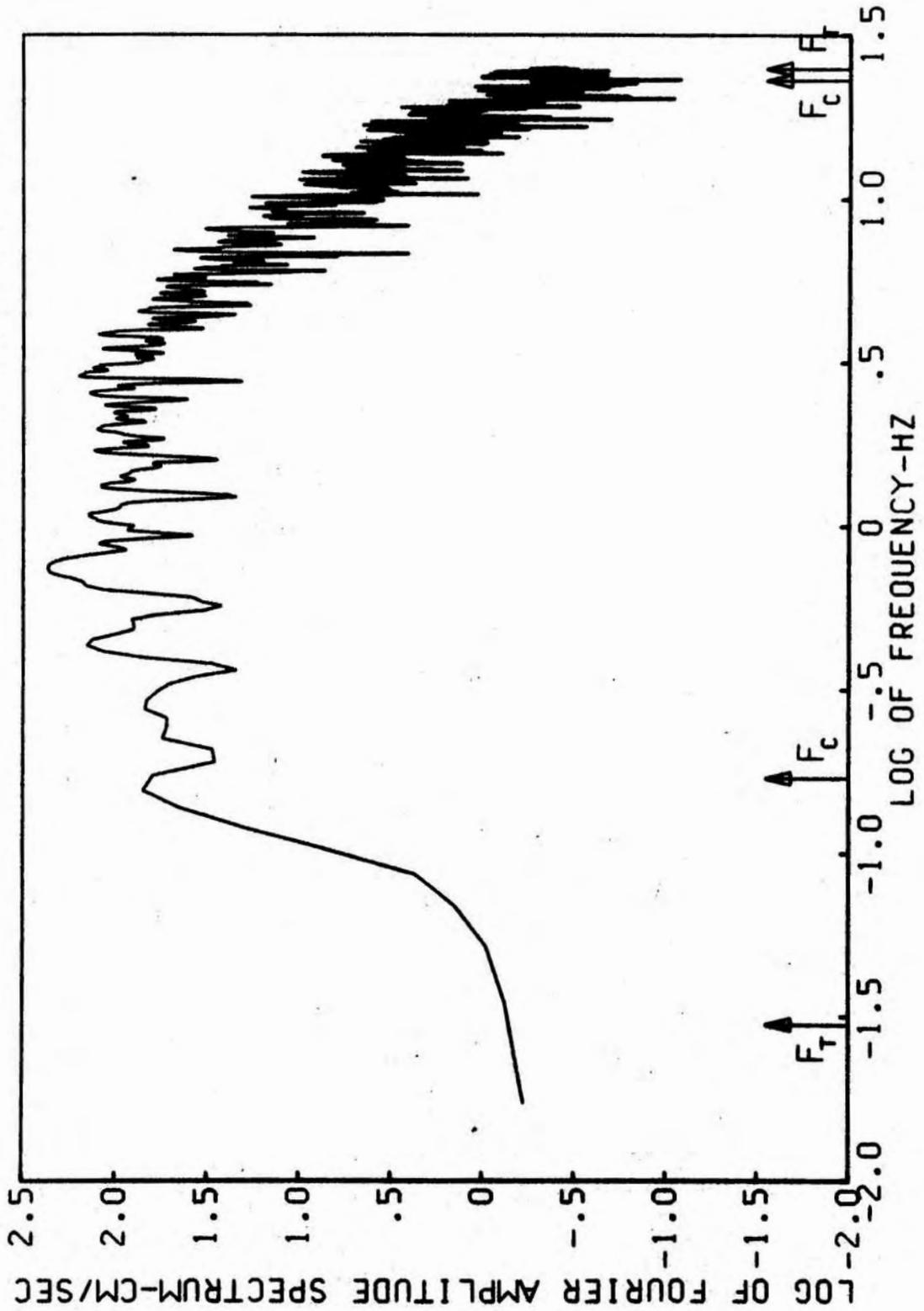
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 11
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 11 N/GRND/E END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



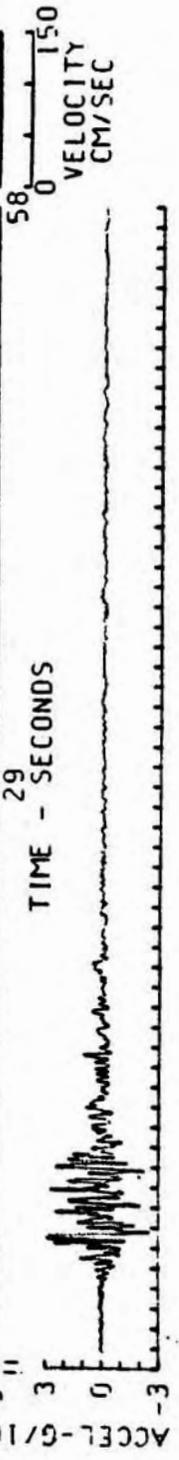
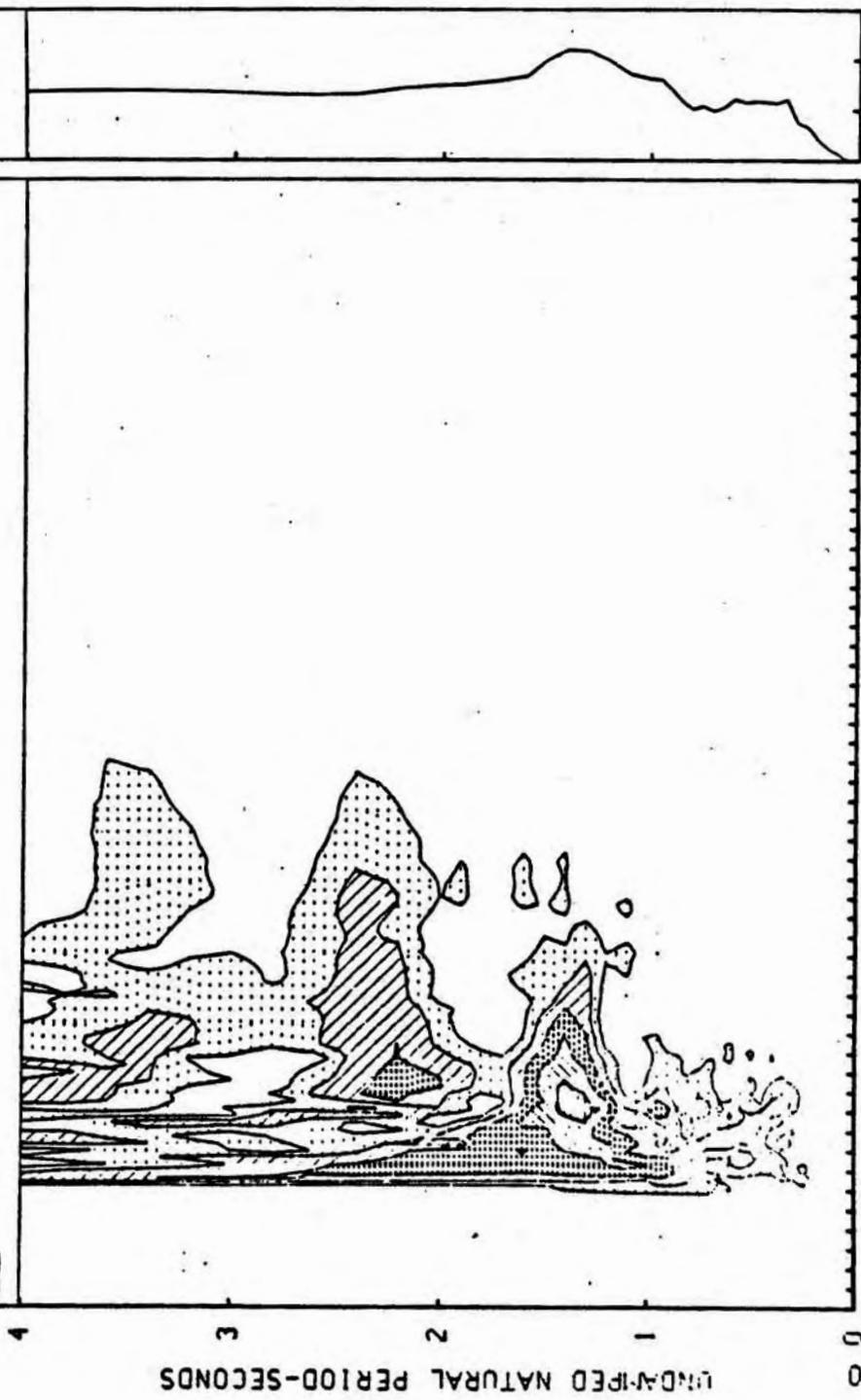
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 11 N/GRND/E END
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



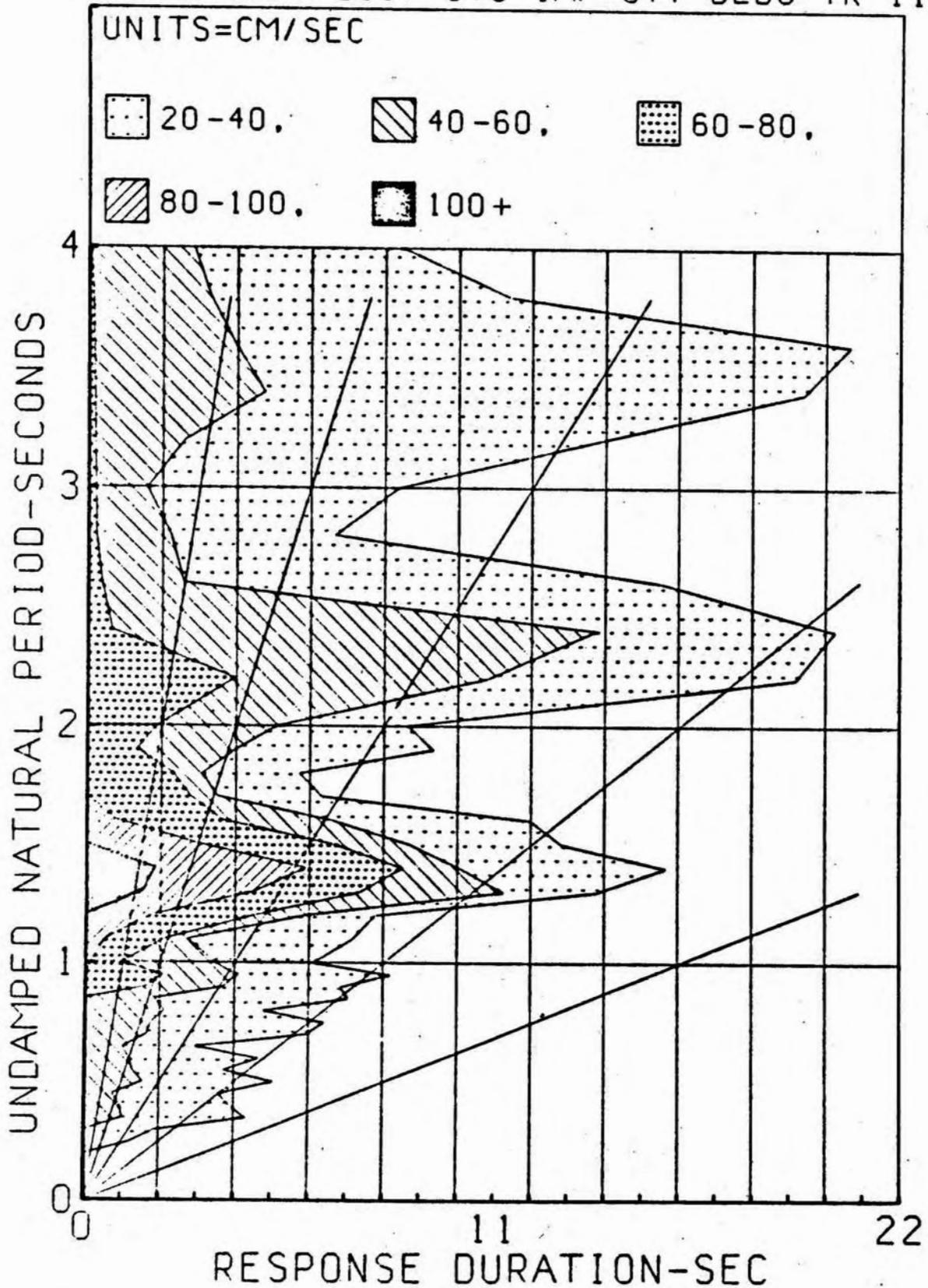
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLOC TR 11

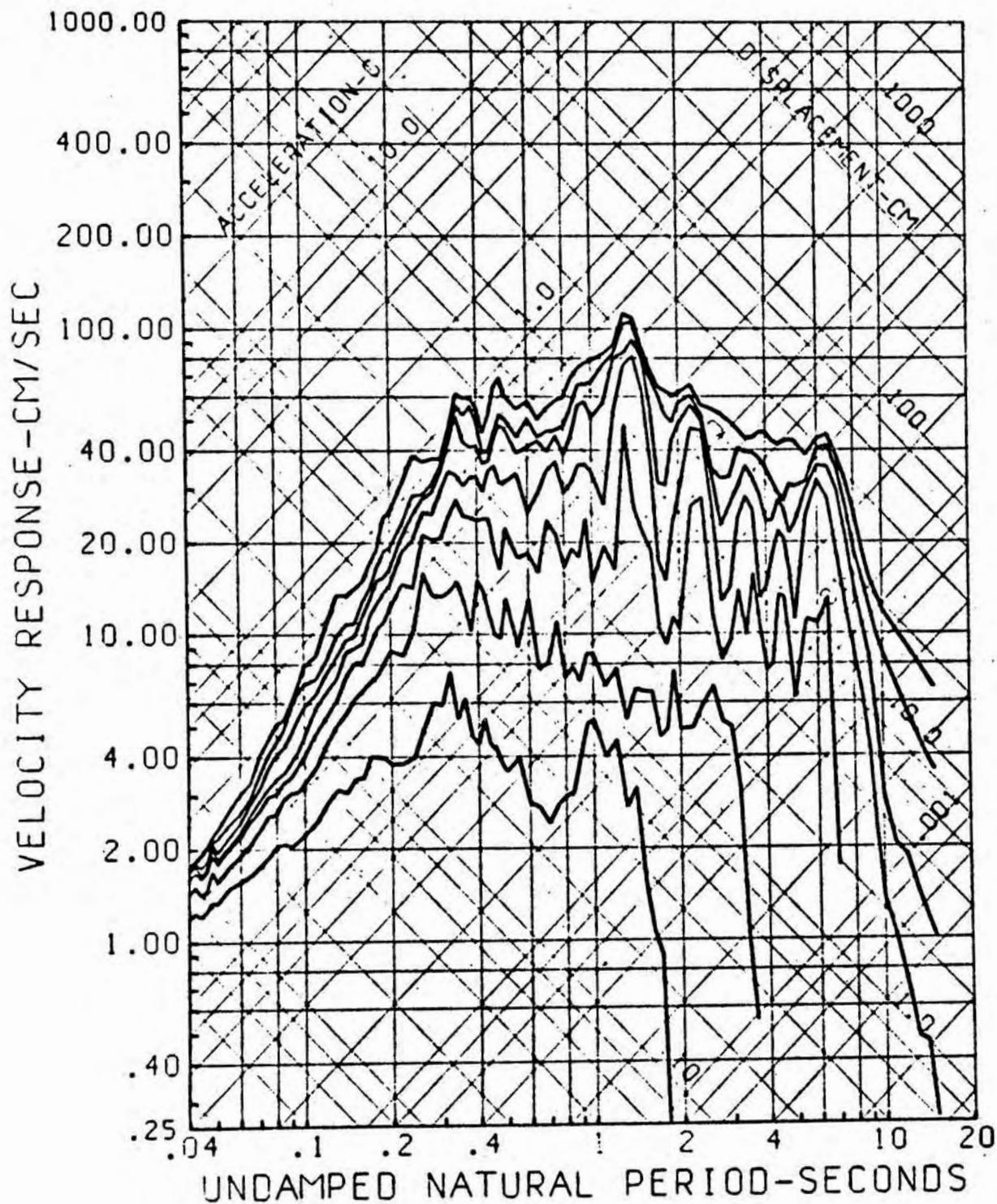
- 0-20, [diagonal lines]
- 20-40, [dotted]
- 40-60, [diagonal lines]
- 60-80, [dotted]
- 80-100, [diagonal lines]
- 100+, [dotted]



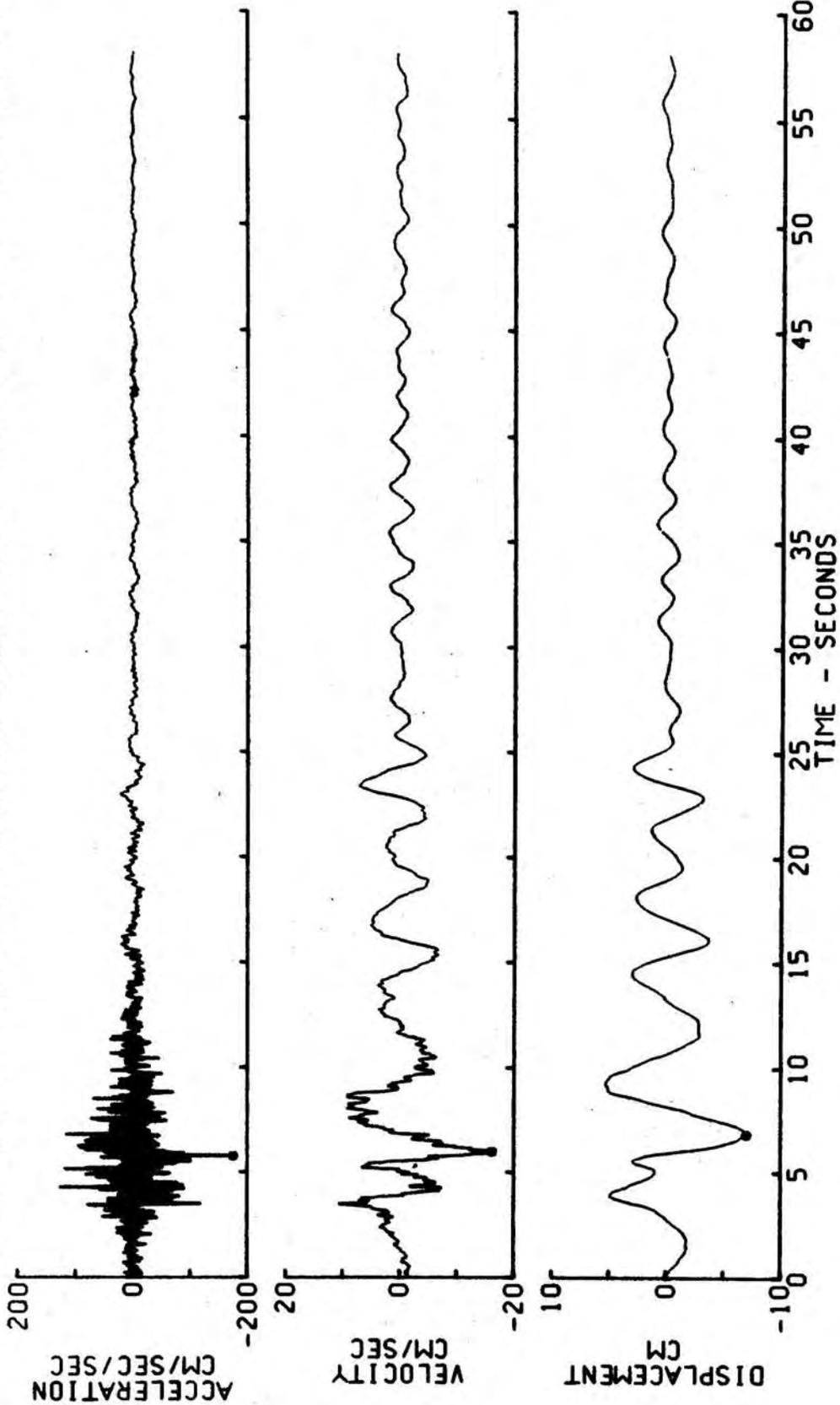
DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC IMP CTY BLDG TR 11



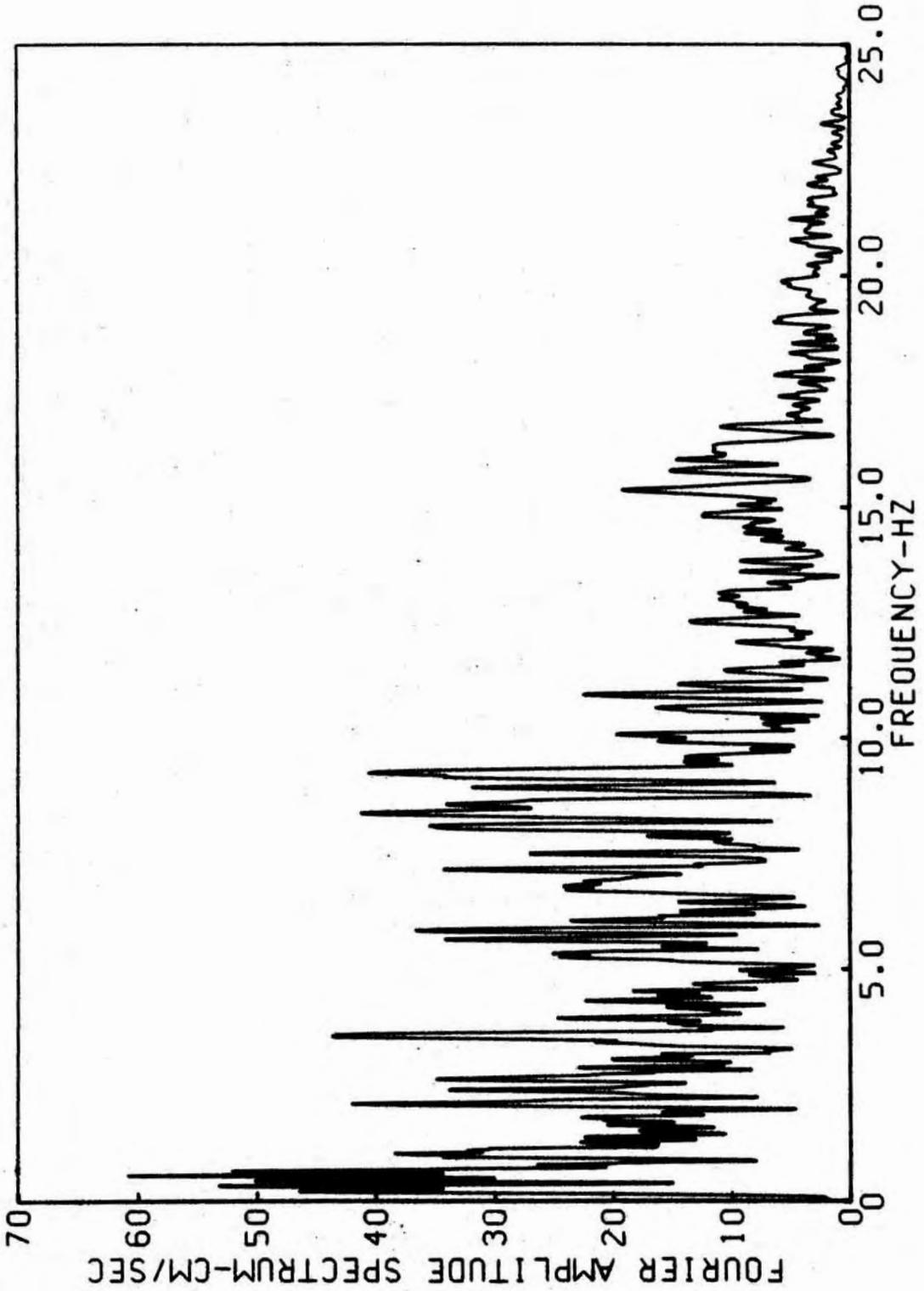
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 11
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



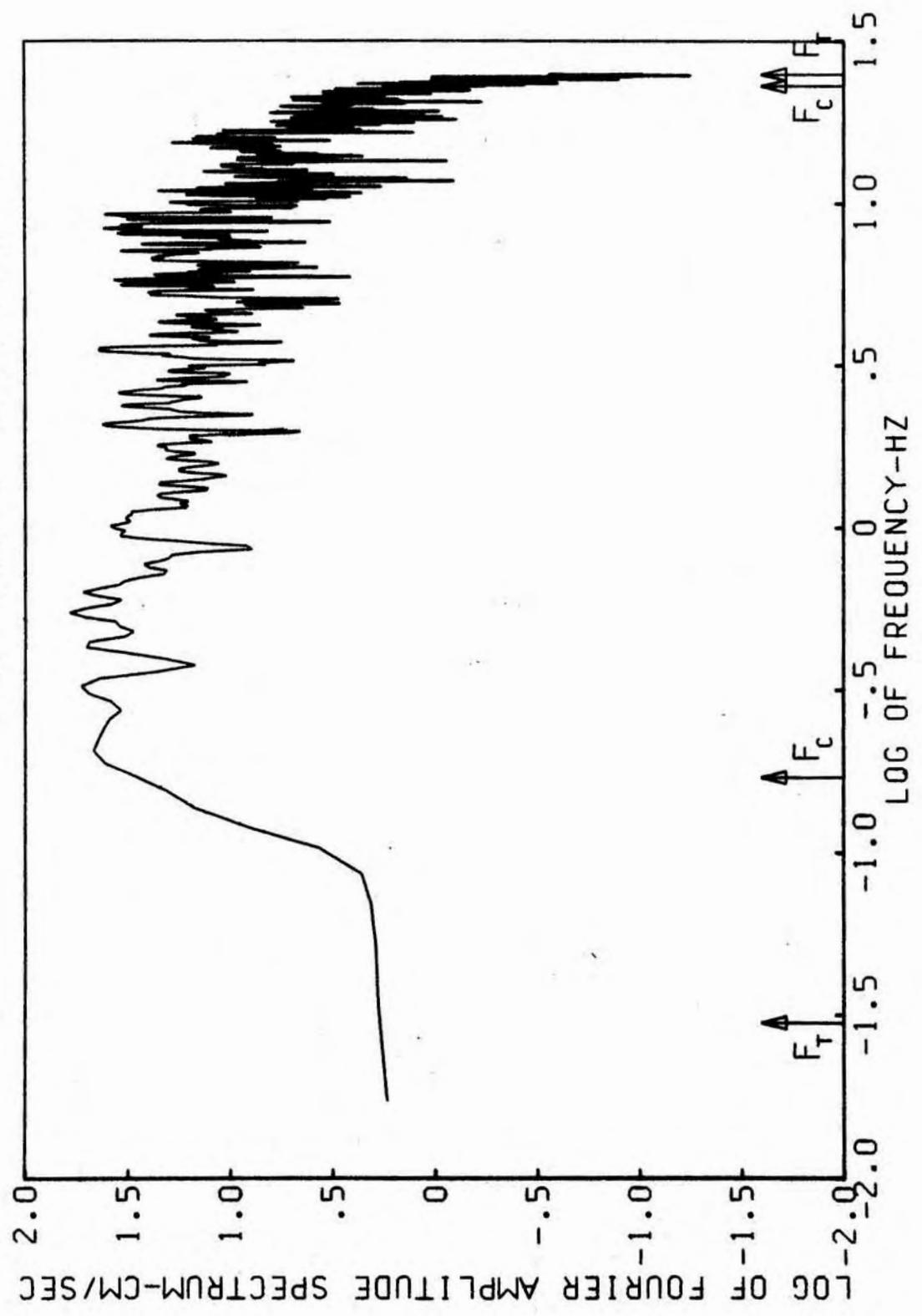
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 12 U/GRND/E END
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=-174.3 CM/SEC/SEC, VELOCITY=-16.19 CM/SEC, DISPL=-7.010 CM



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 12 U/GRND/E END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



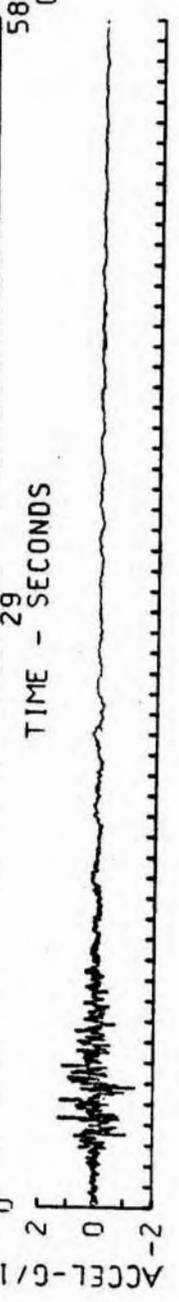
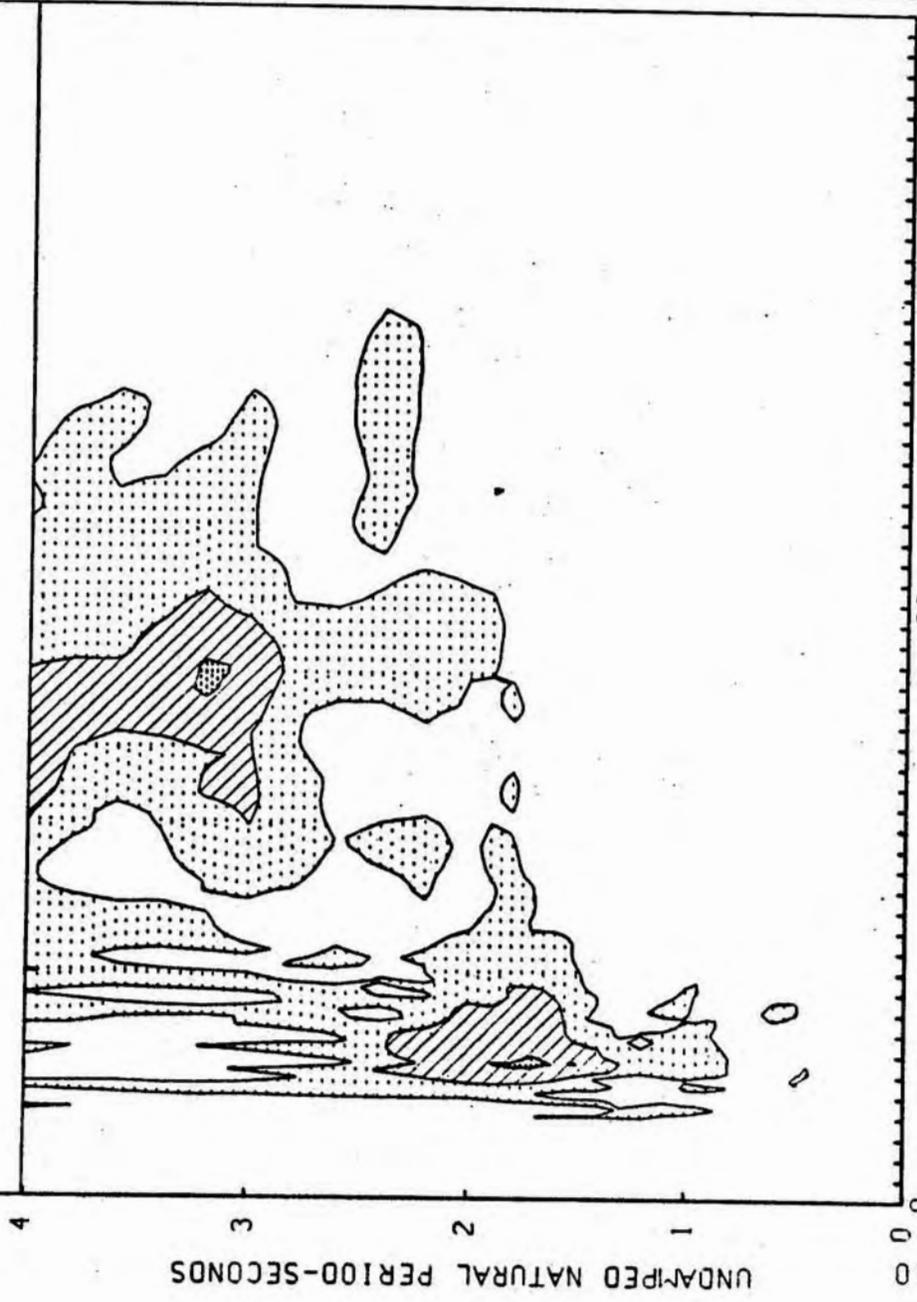
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 12 U/GRND/E END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



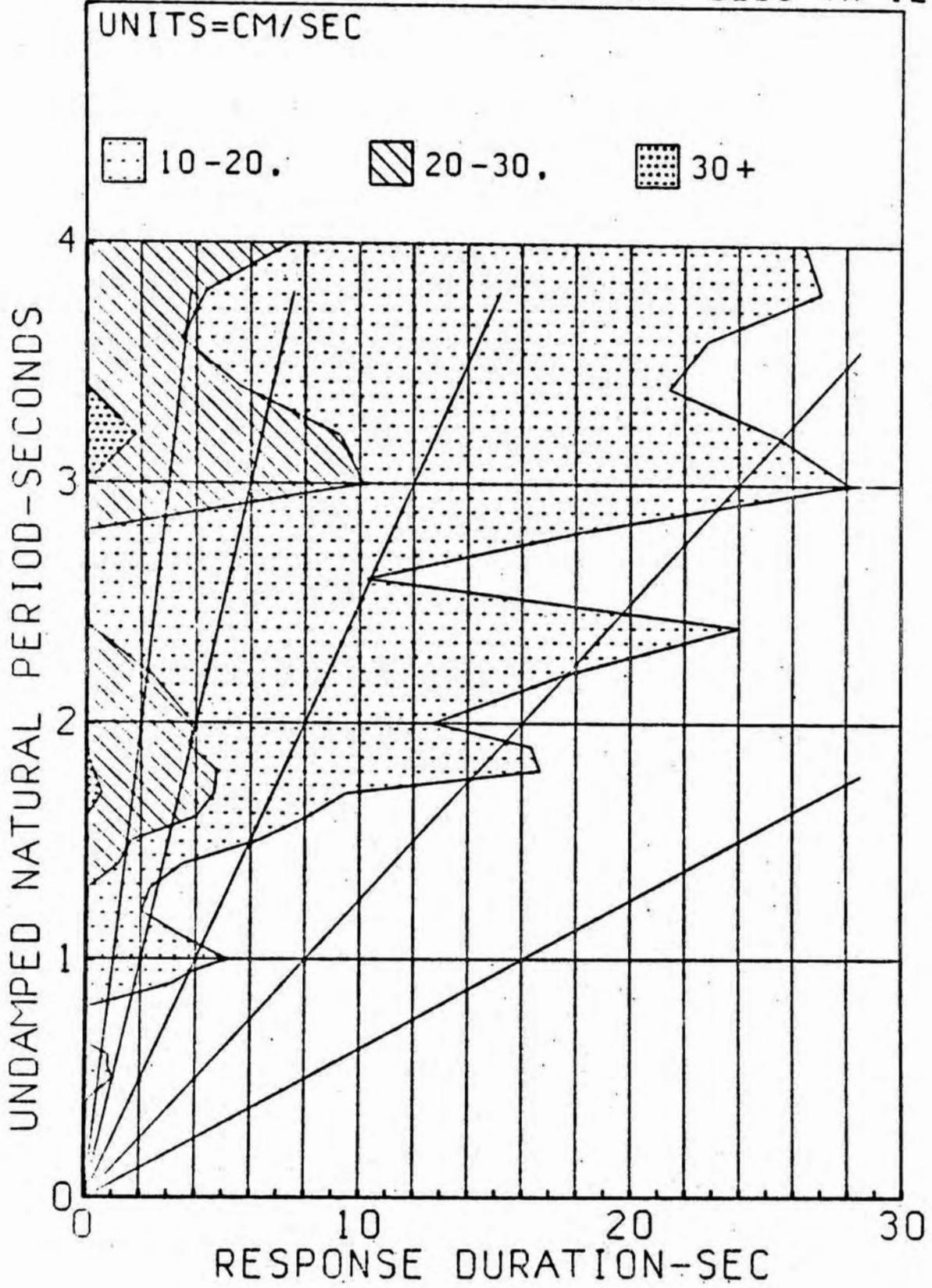
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLDG TR 12

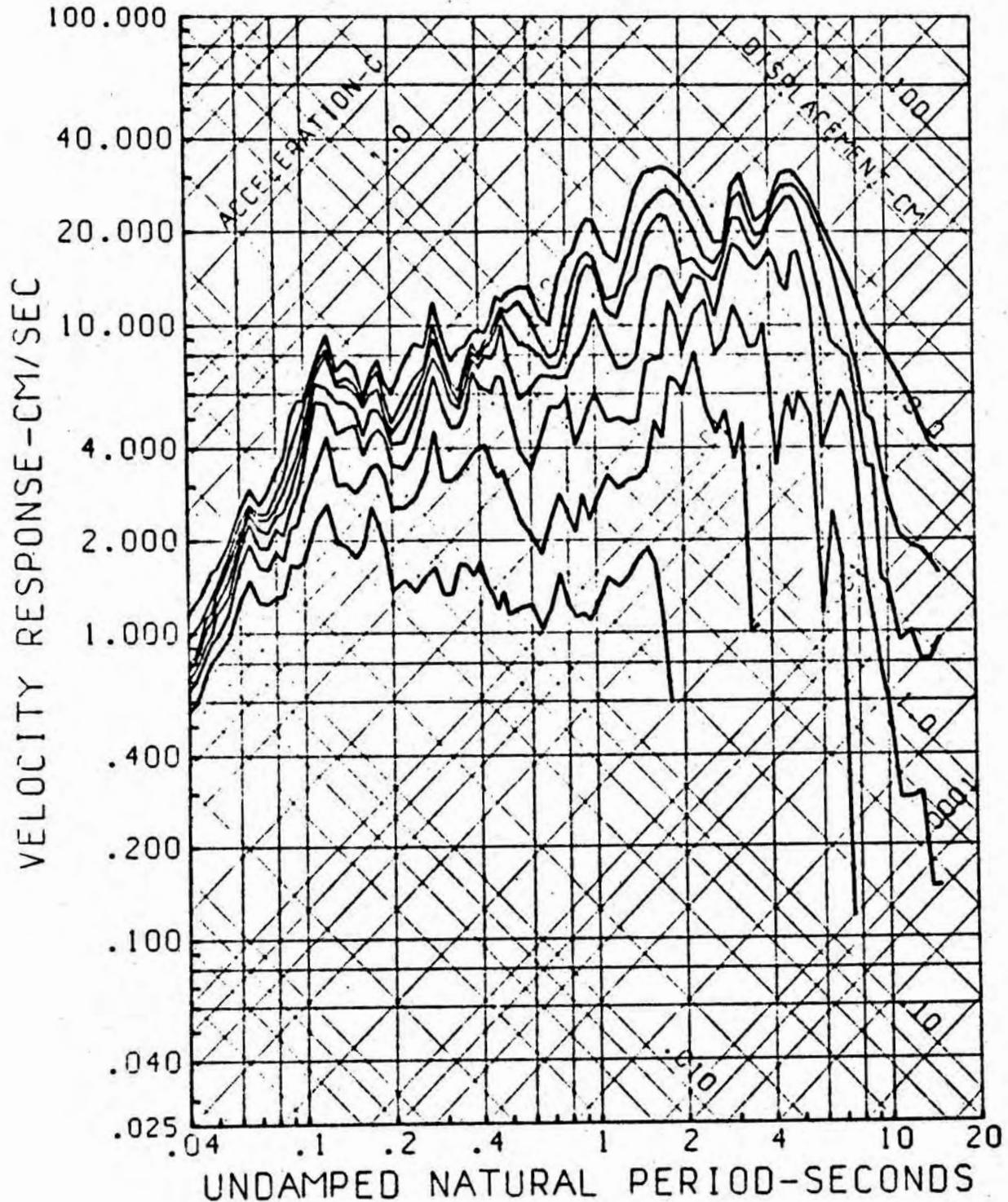
- 0-10.
- ▤ 10-20.
- ▨ 20-30.
- ▩ 30+



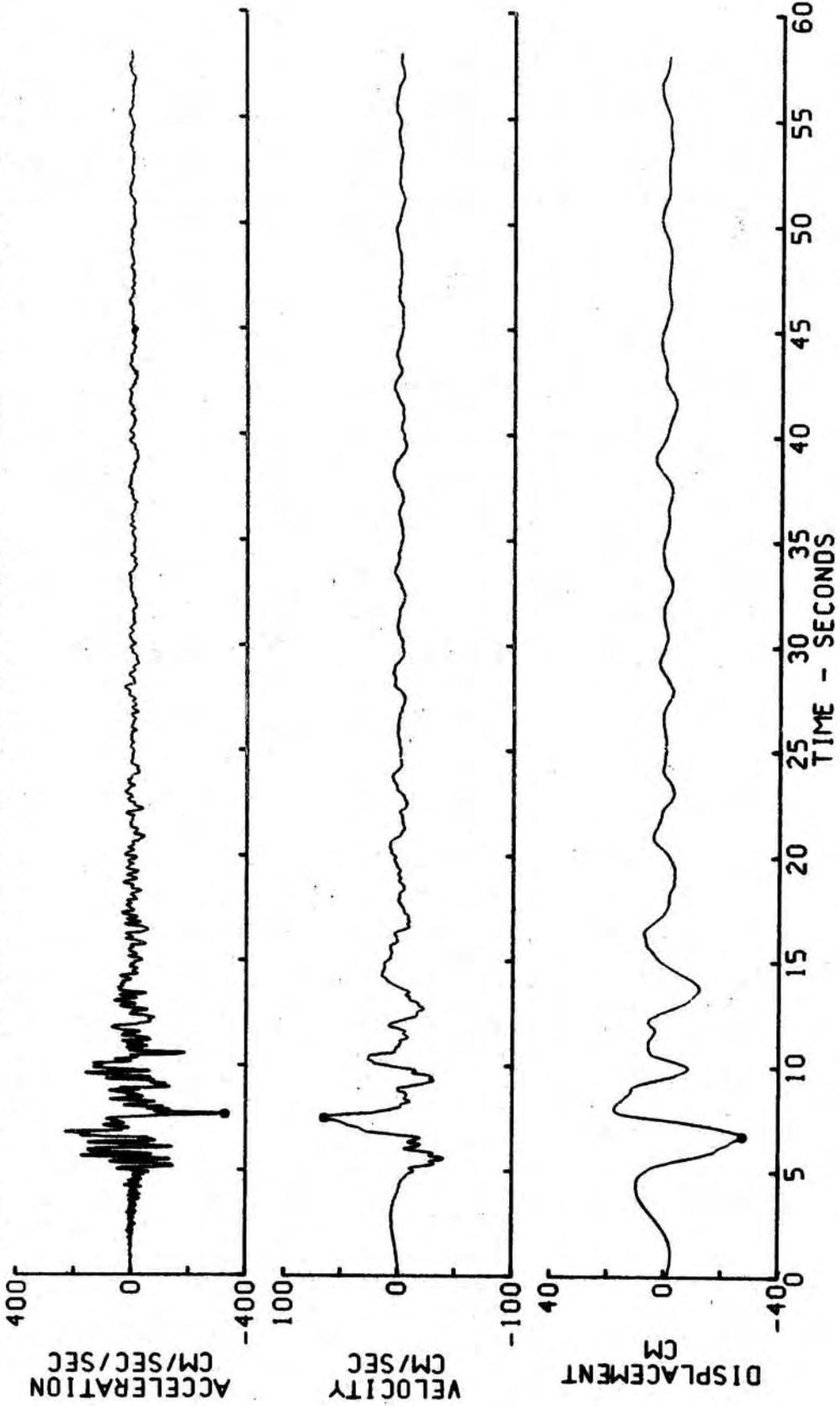
DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC IMP CTY BLDG TR 12



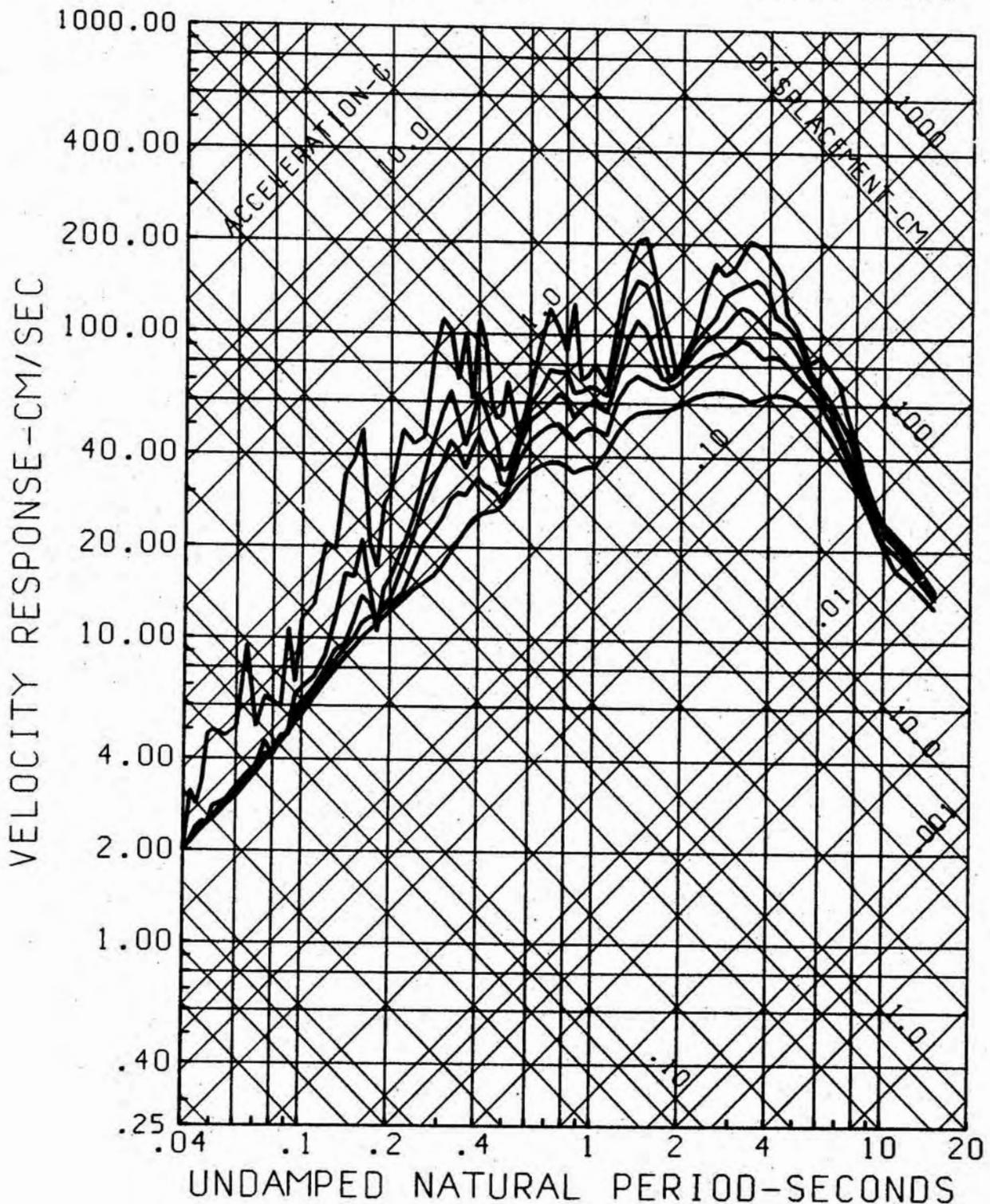
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 12
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



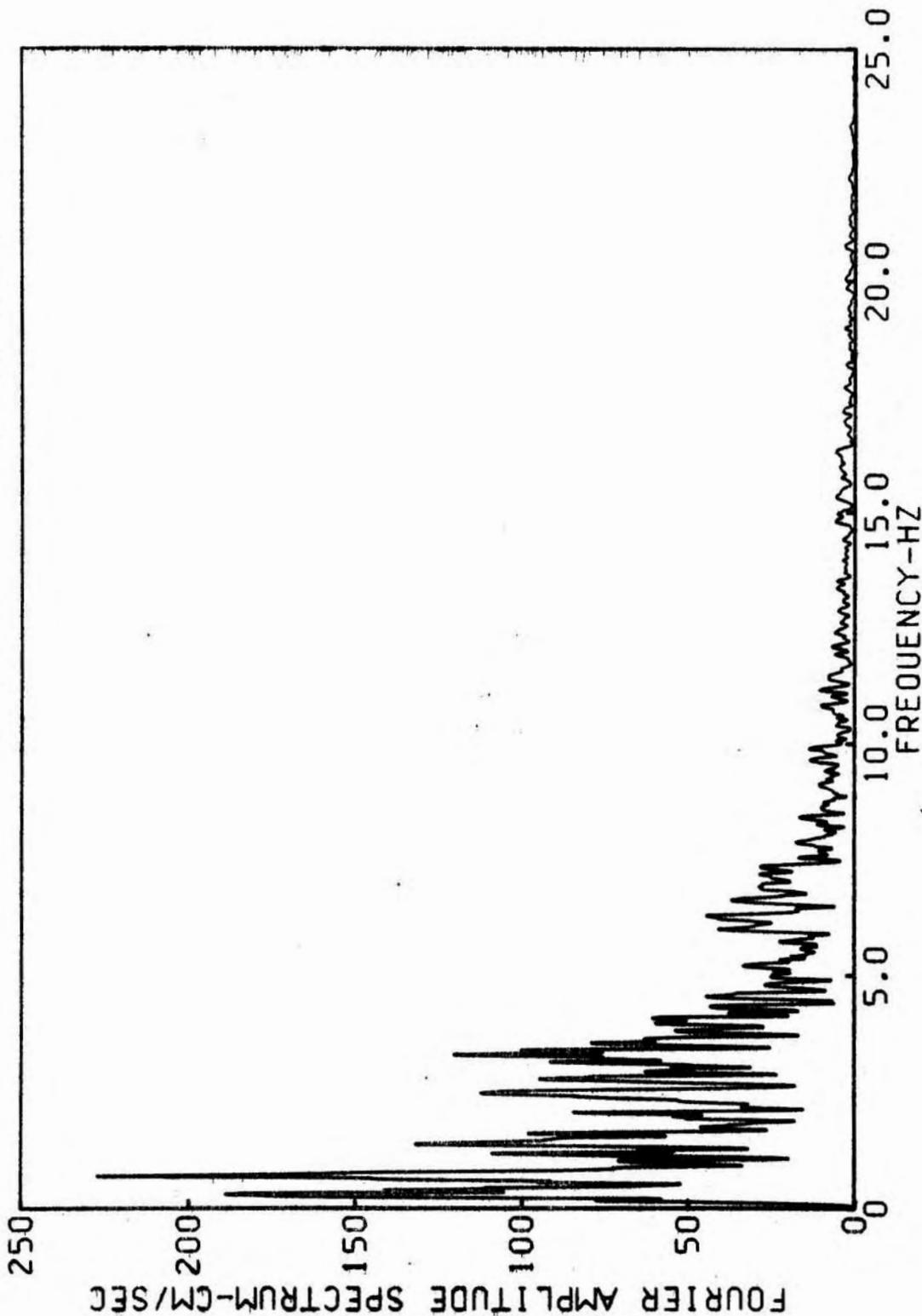
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 13 E/GRND/E END
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=-325.0 CM/SEC/SEC, VELOCITY=64.59 CM/SEC, DISPL=-27.41 CM



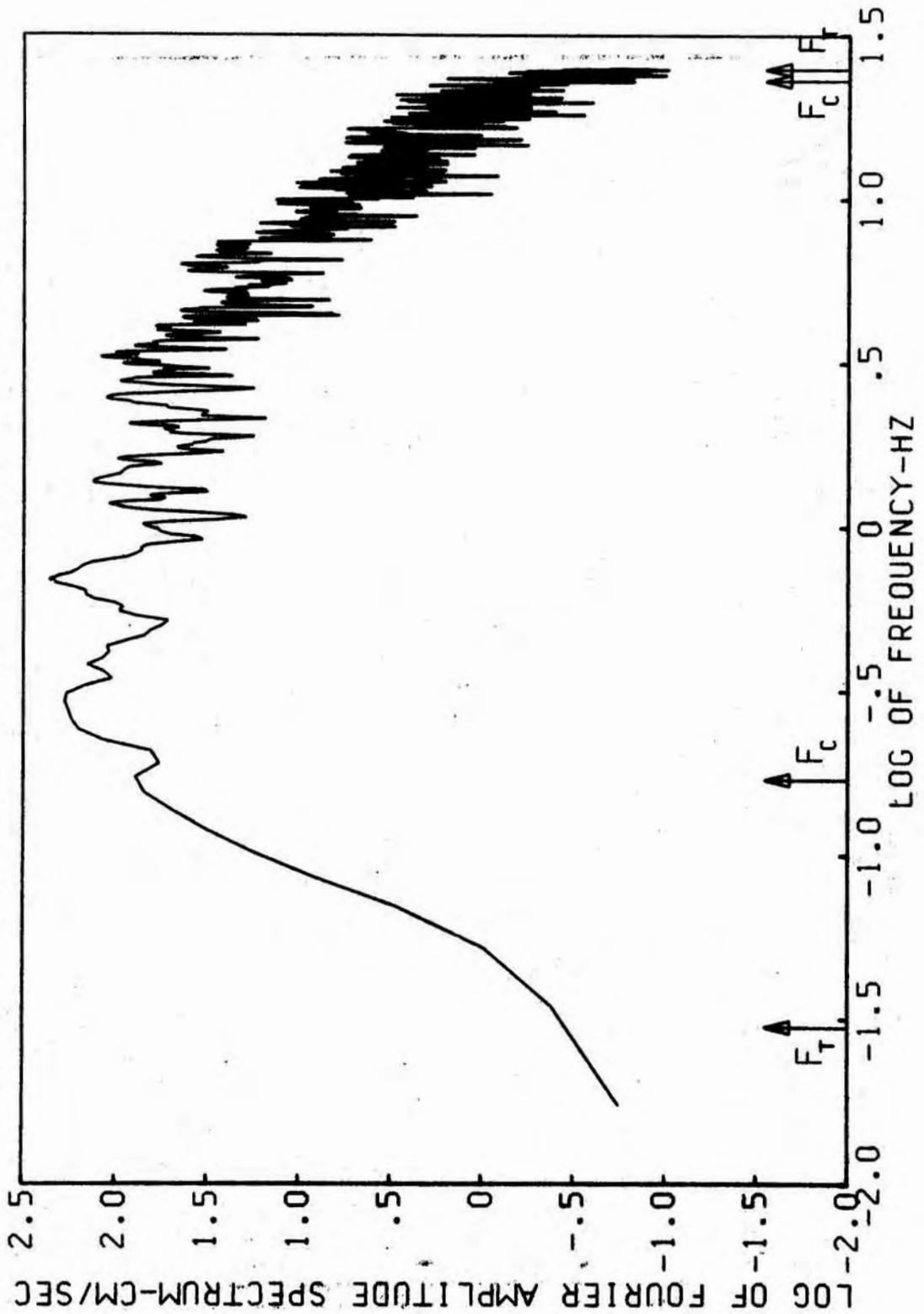
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC IMP CTY BLDG TR 13
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 260 IMP CTY BLDG CRA 125 TR 13 E/GRND/E END
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 260 IMP CTY BLDG CRA 125 TR 13 E/GRND/E END
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

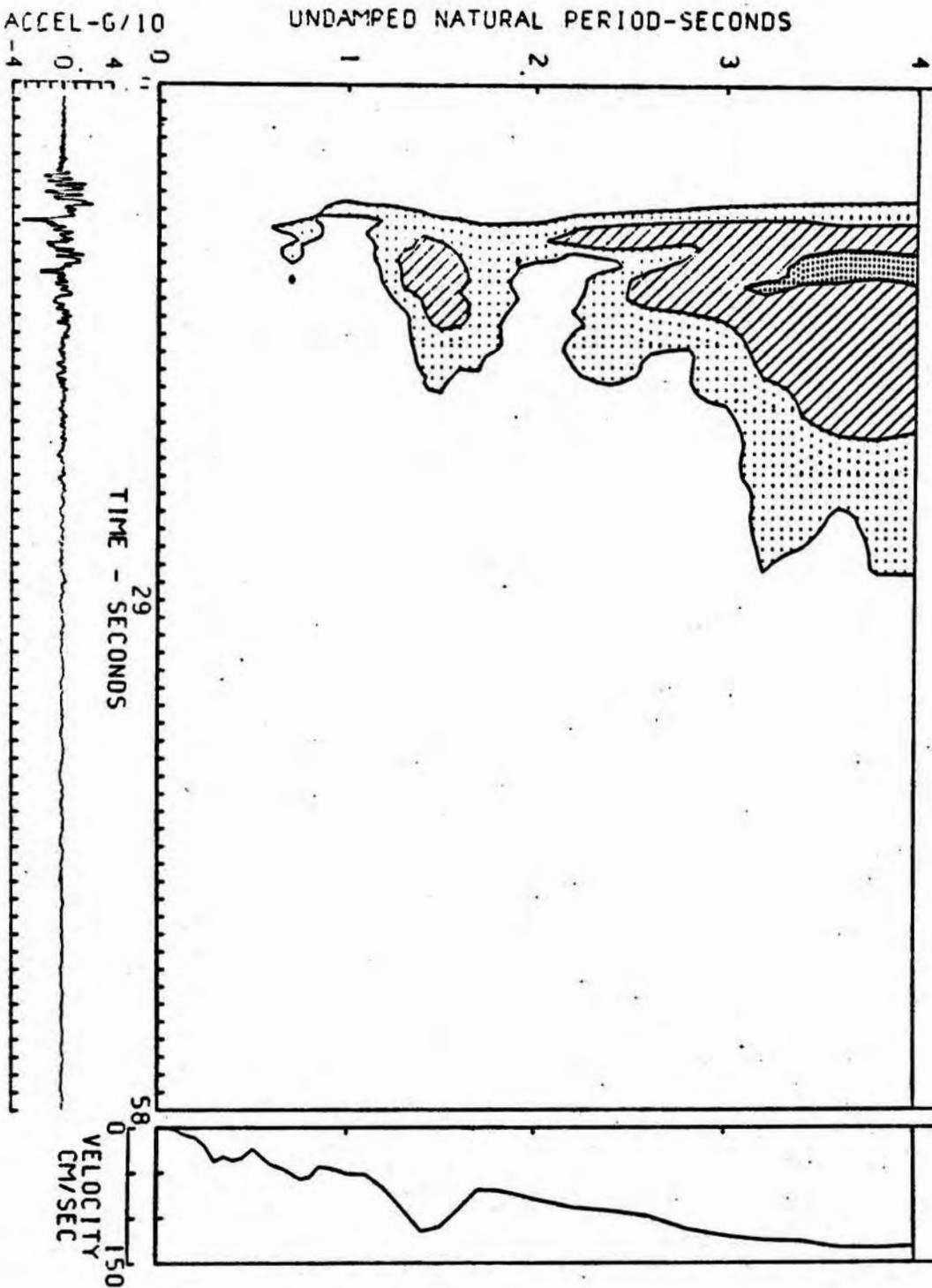


VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING

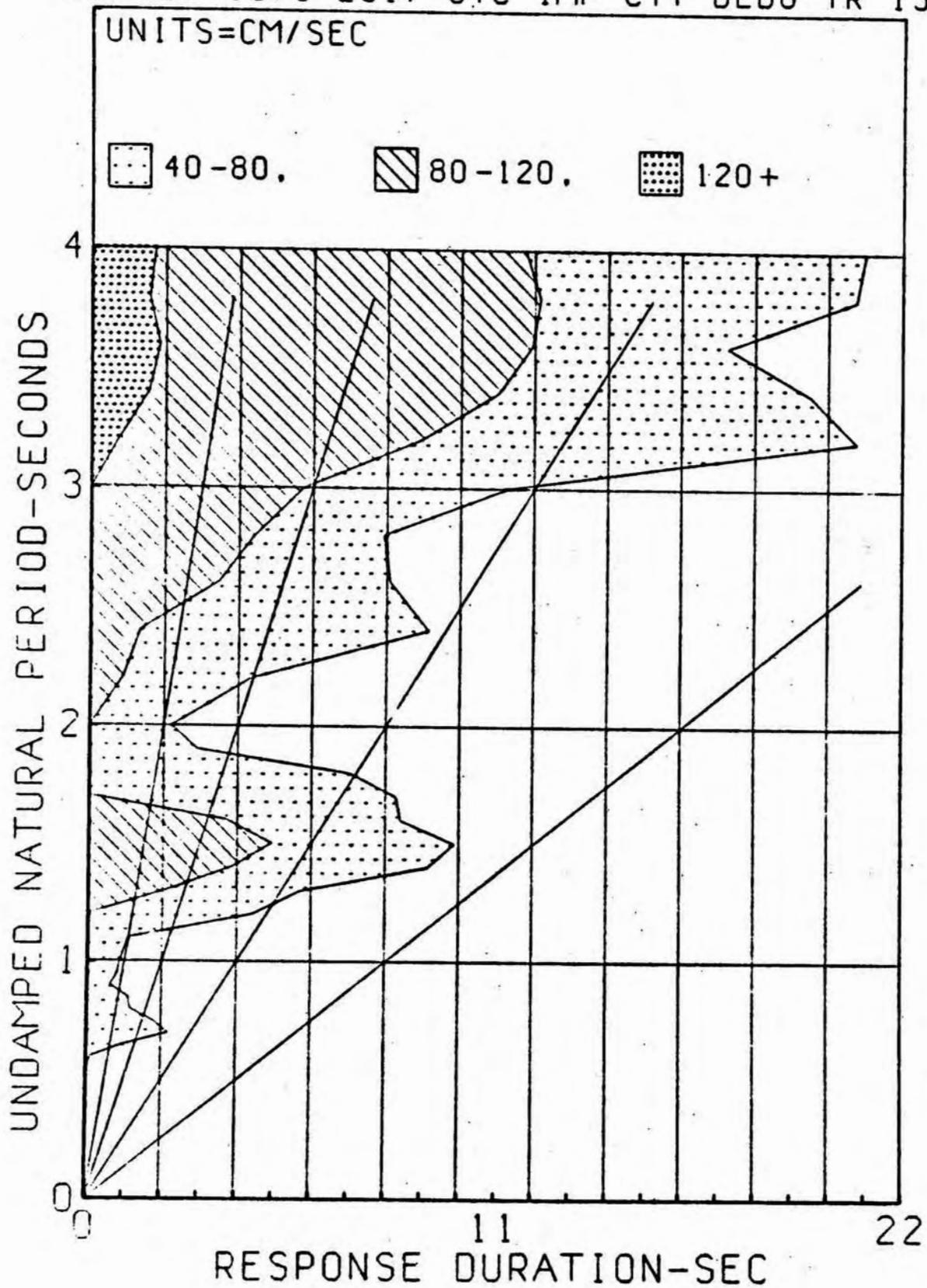
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC IMP CTY BLDG TR 13

- 0-40.
- 40-80.
- 80-120.
- 120+

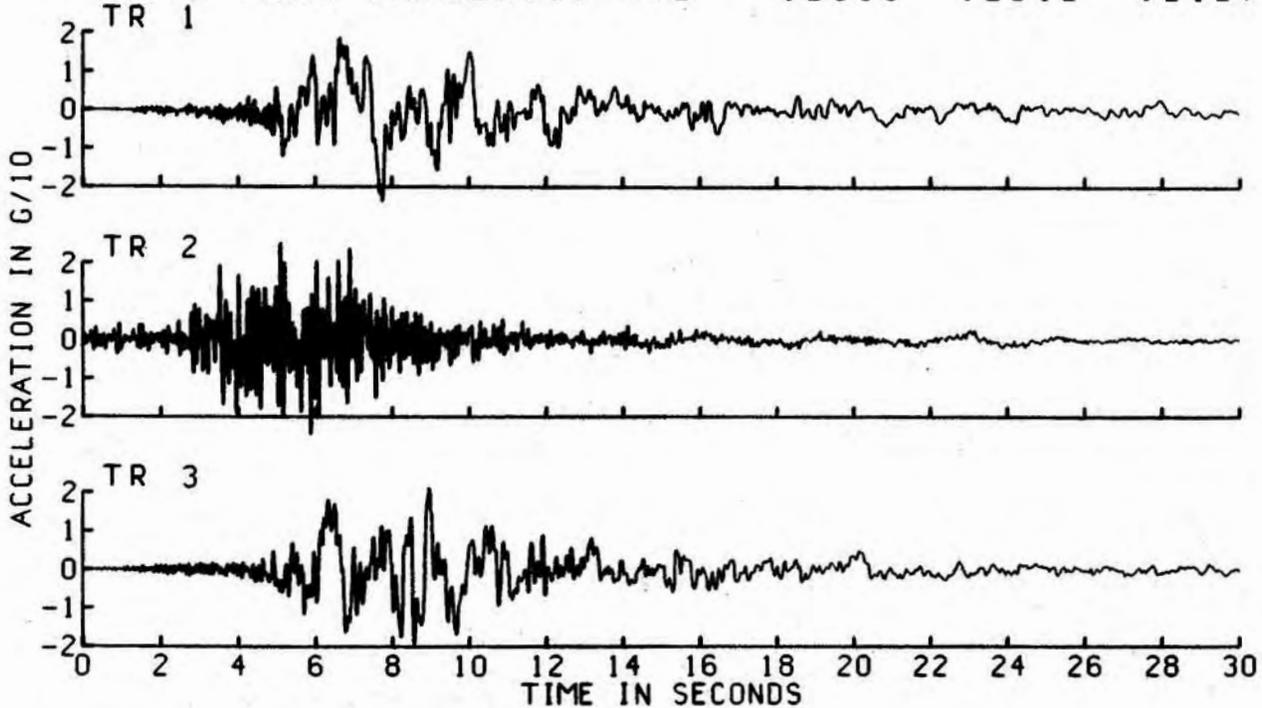


DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC IMP CTY BLDG TR 13

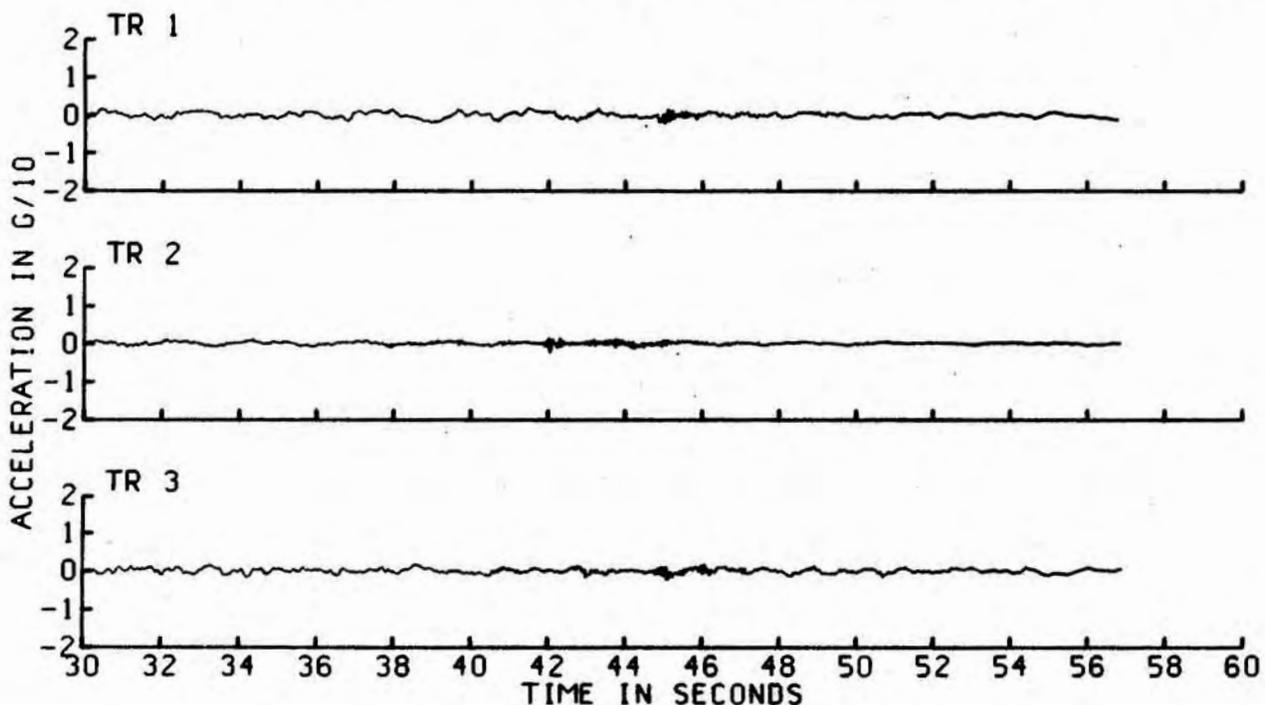


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 335 EL CENTRO FF SMA 2761
 THE 3 PEAK VALUES(G) ARE .2368 .2512 .2127

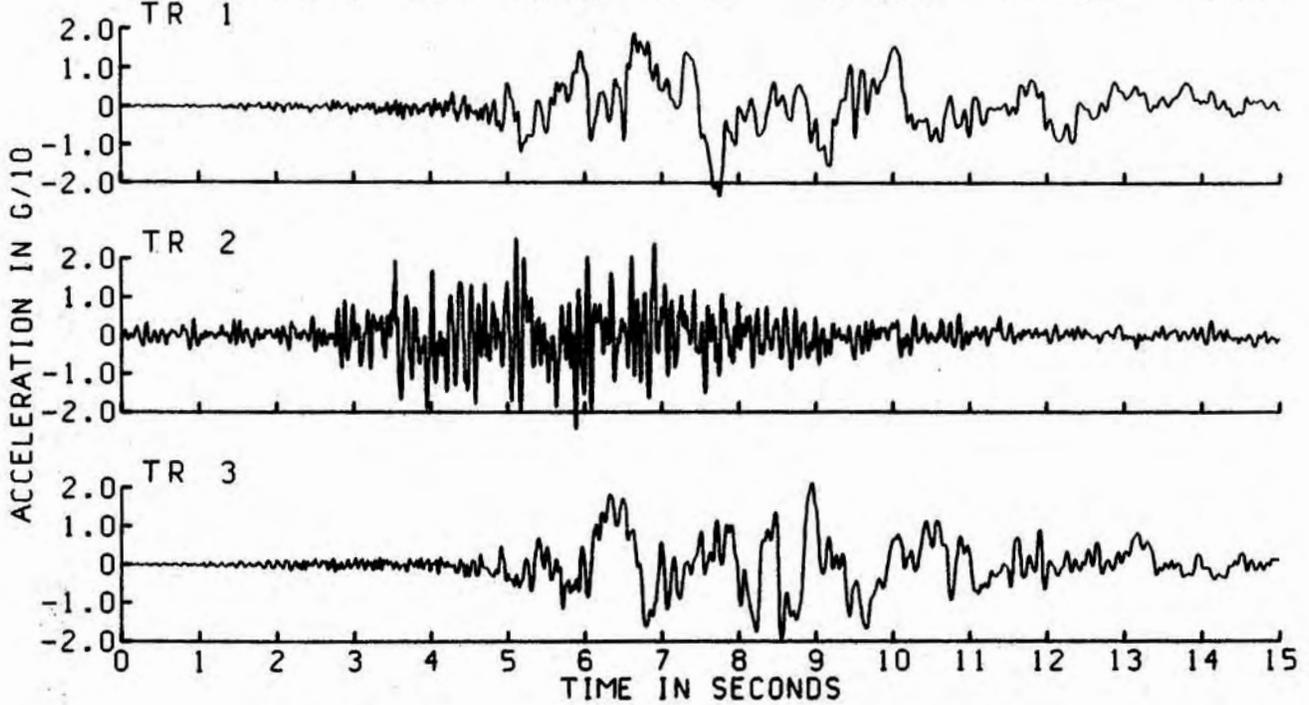


15 OCT 1979 2317 UTC DMG 335 EL CENTRO FF SMA 2761

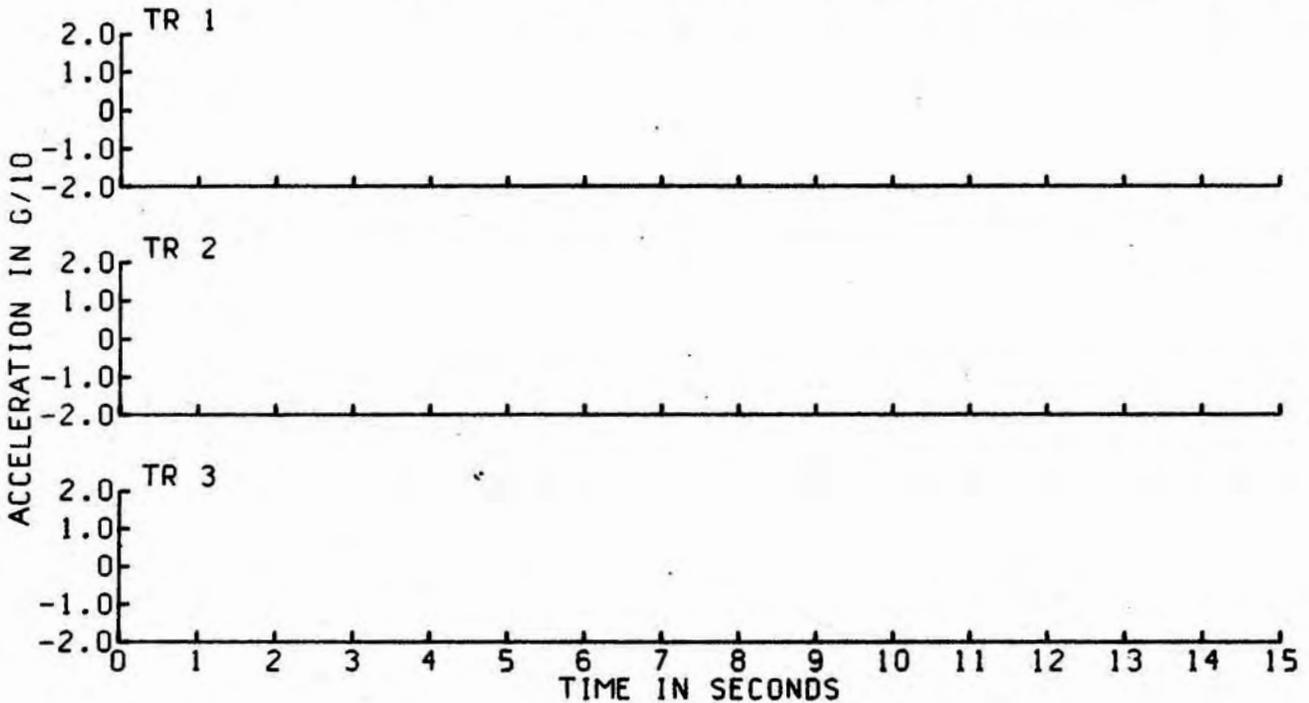


UNCORRECTED ACCELEROGRAM

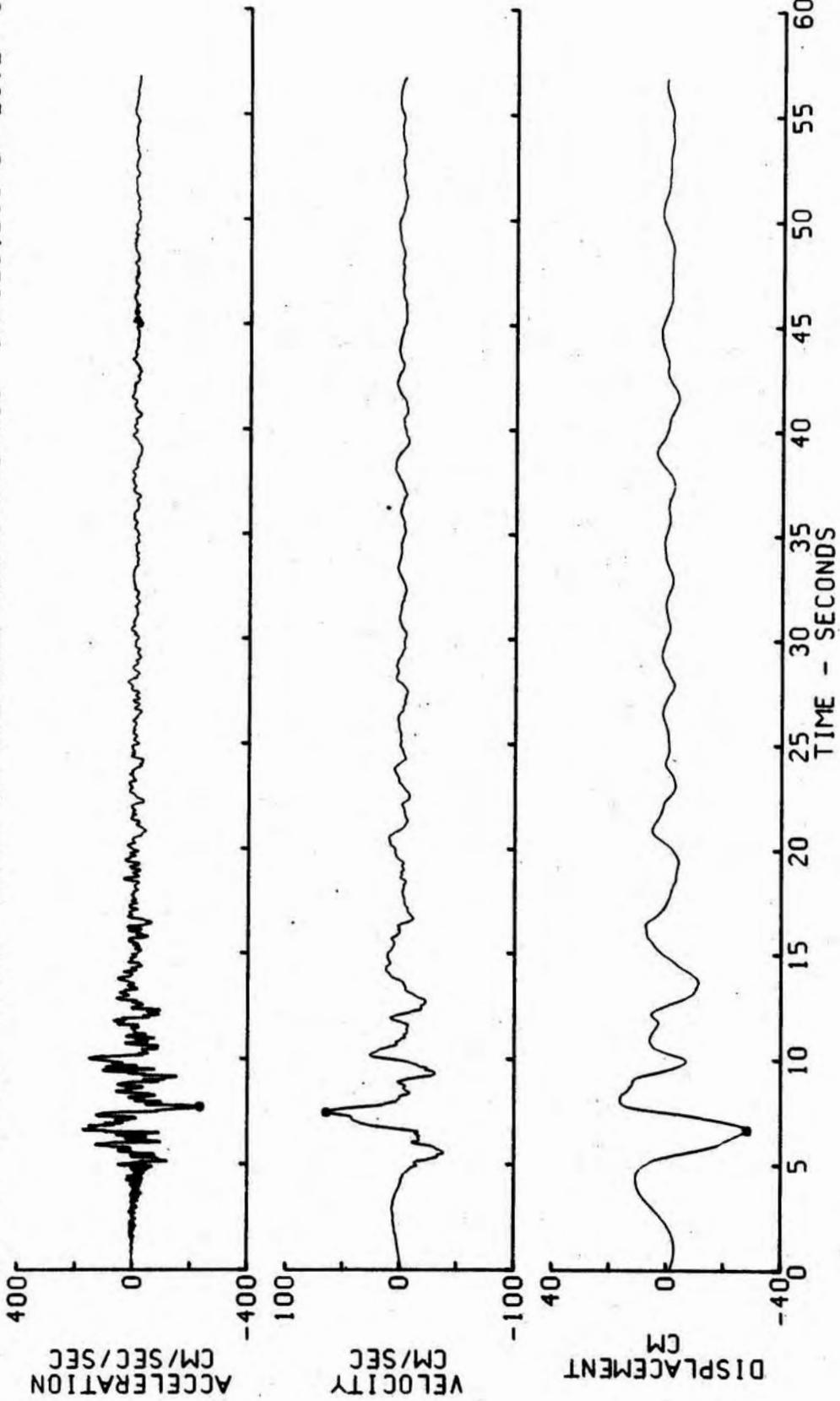
15 OCT 1979 2317 UTC DMG 335 EL CENTRO FF SMA 2761
THE 3 PEAK VALUES(G) ARE .2368 .2512 .2127



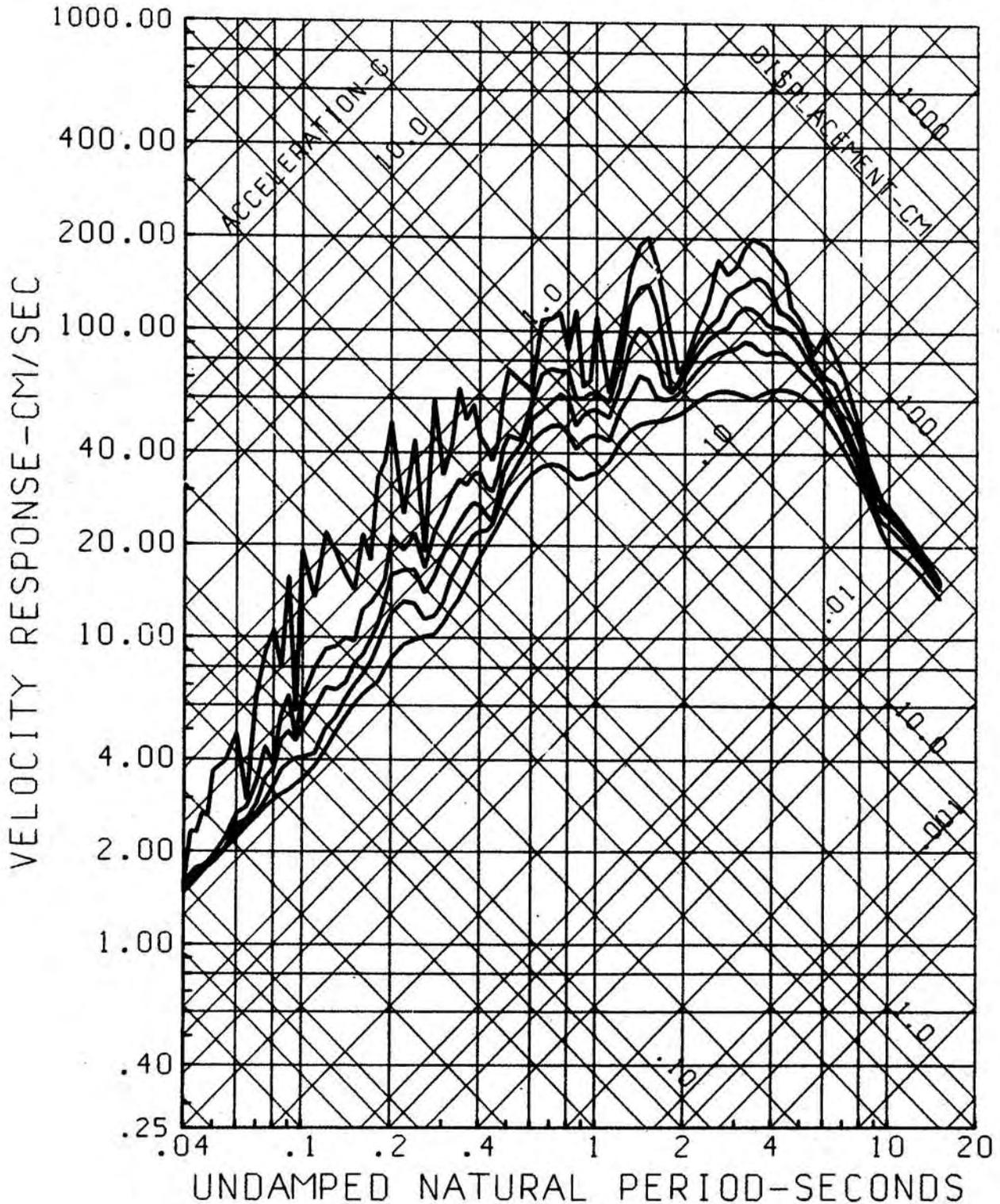
15 OCT 1979 2317 UTC DMG 335 EL CENTRO FF SMA 2761



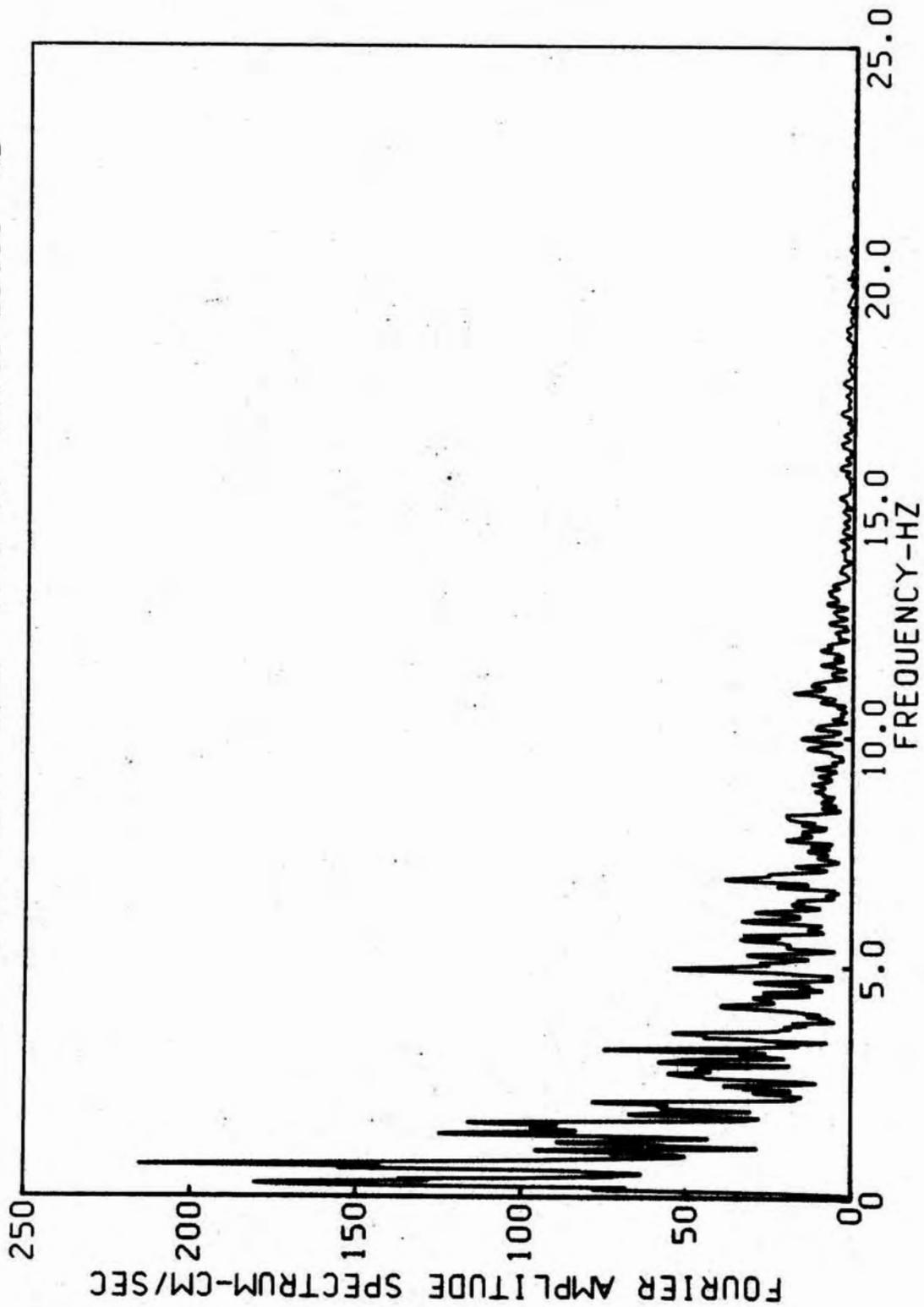
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 1 092 DEGREES
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=-231.4 CM/SEC/SEC, VELOCITY=64.38 CM/SEC, DISPL=-28.24 CM



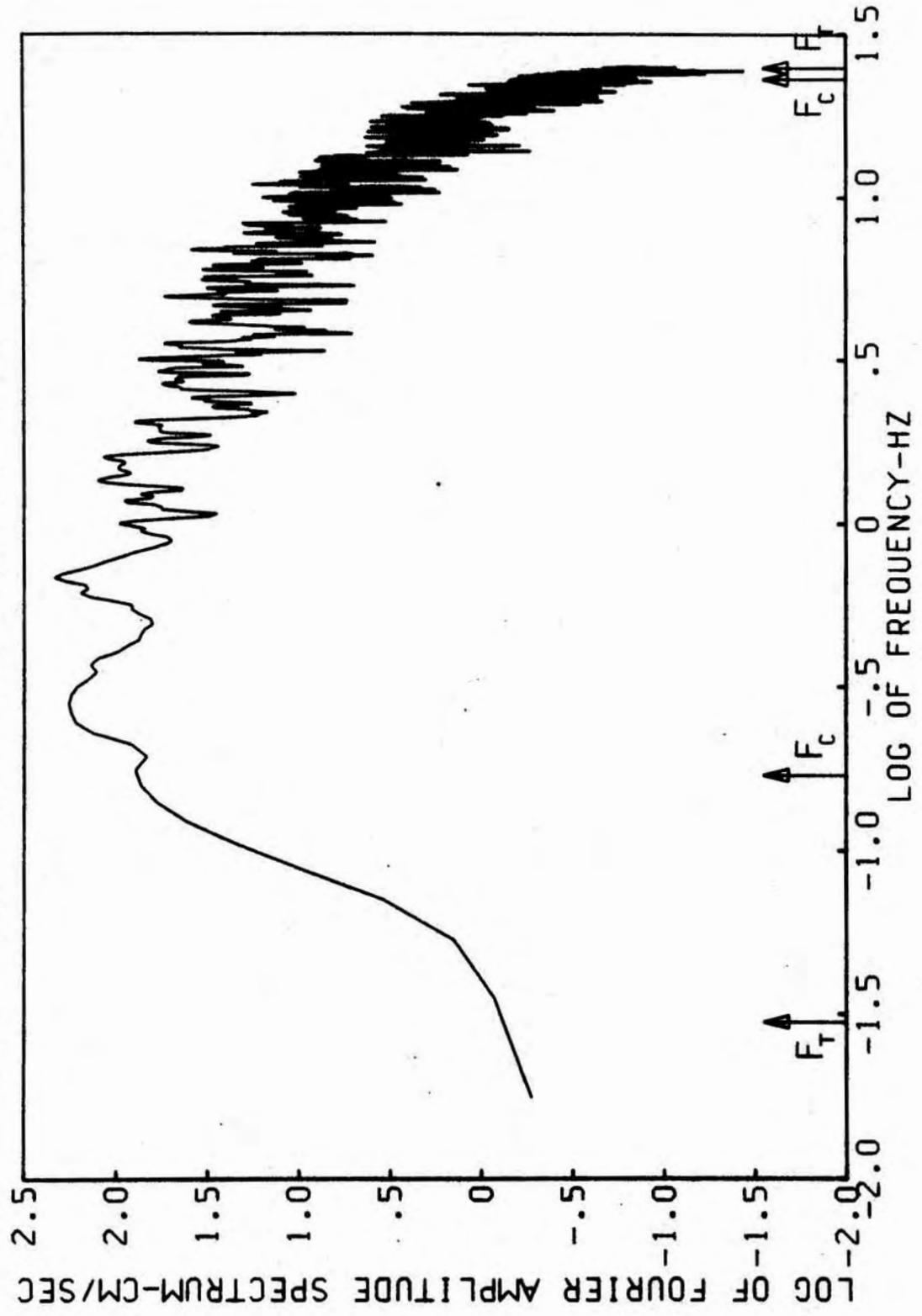
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC EL CENTRO FF TR 1
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 1 092 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



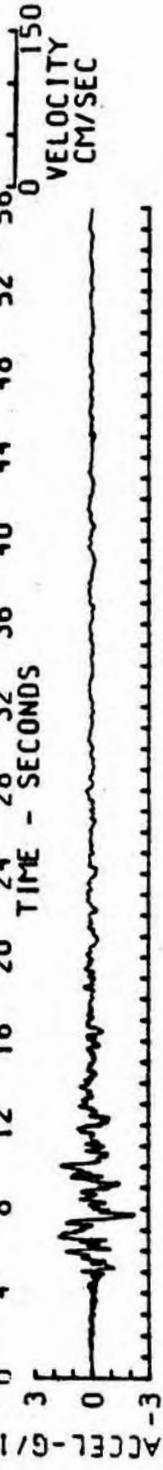
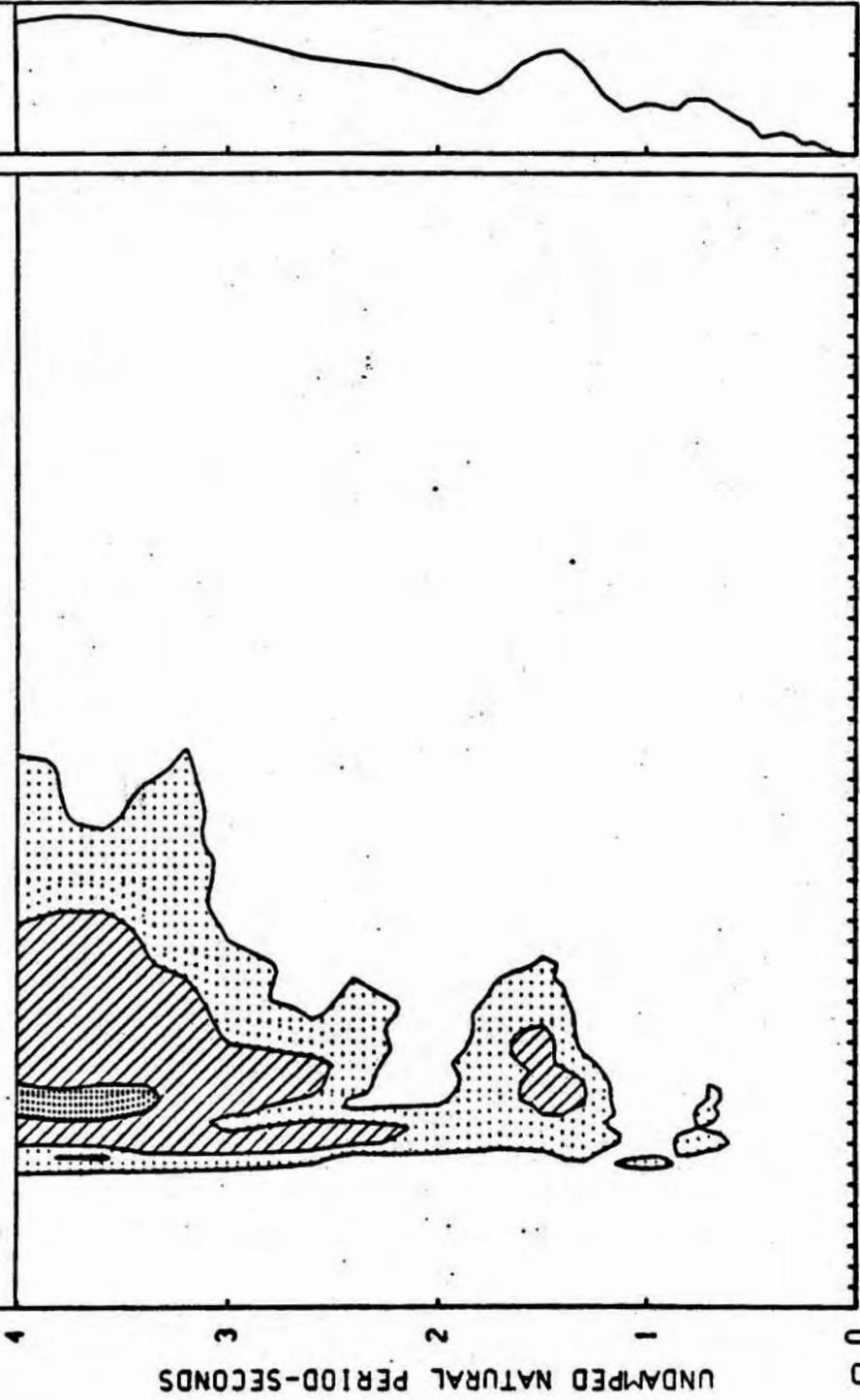
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 1 092 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



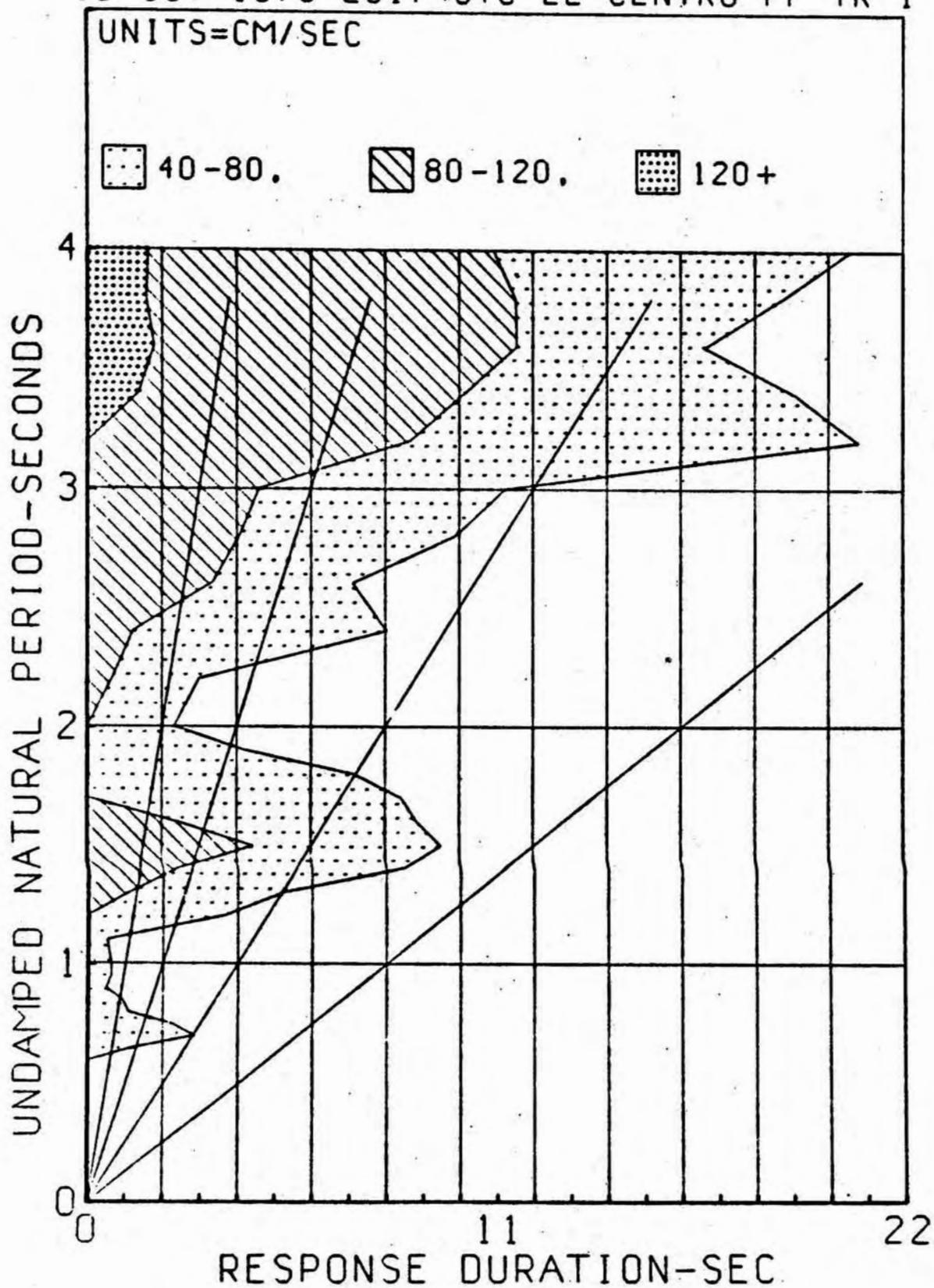
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC EL CENTRO FF TR 1

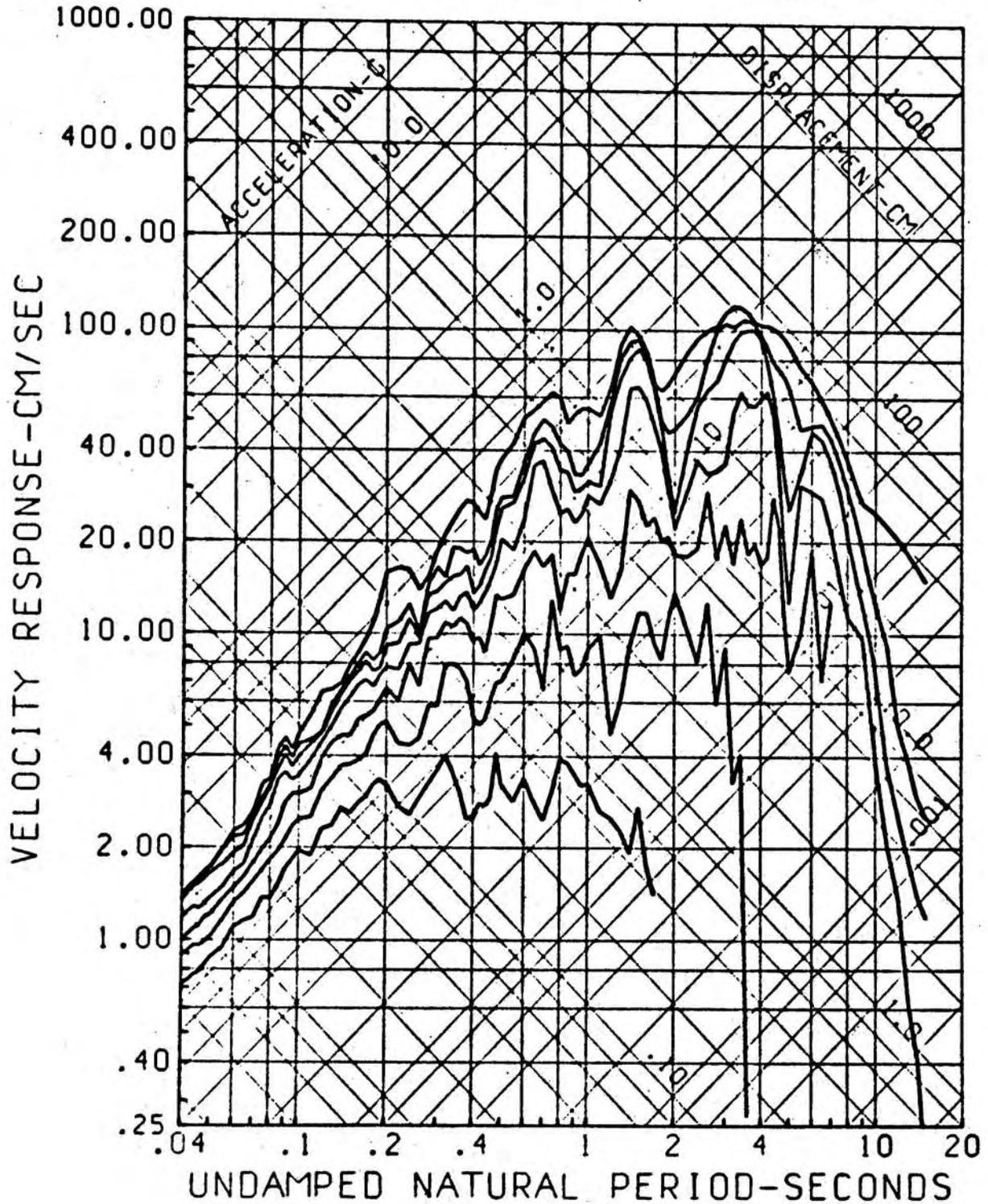
- 0-40.
- ▨ 40-80.
- ▩ 80-120.
- ▤ 120+



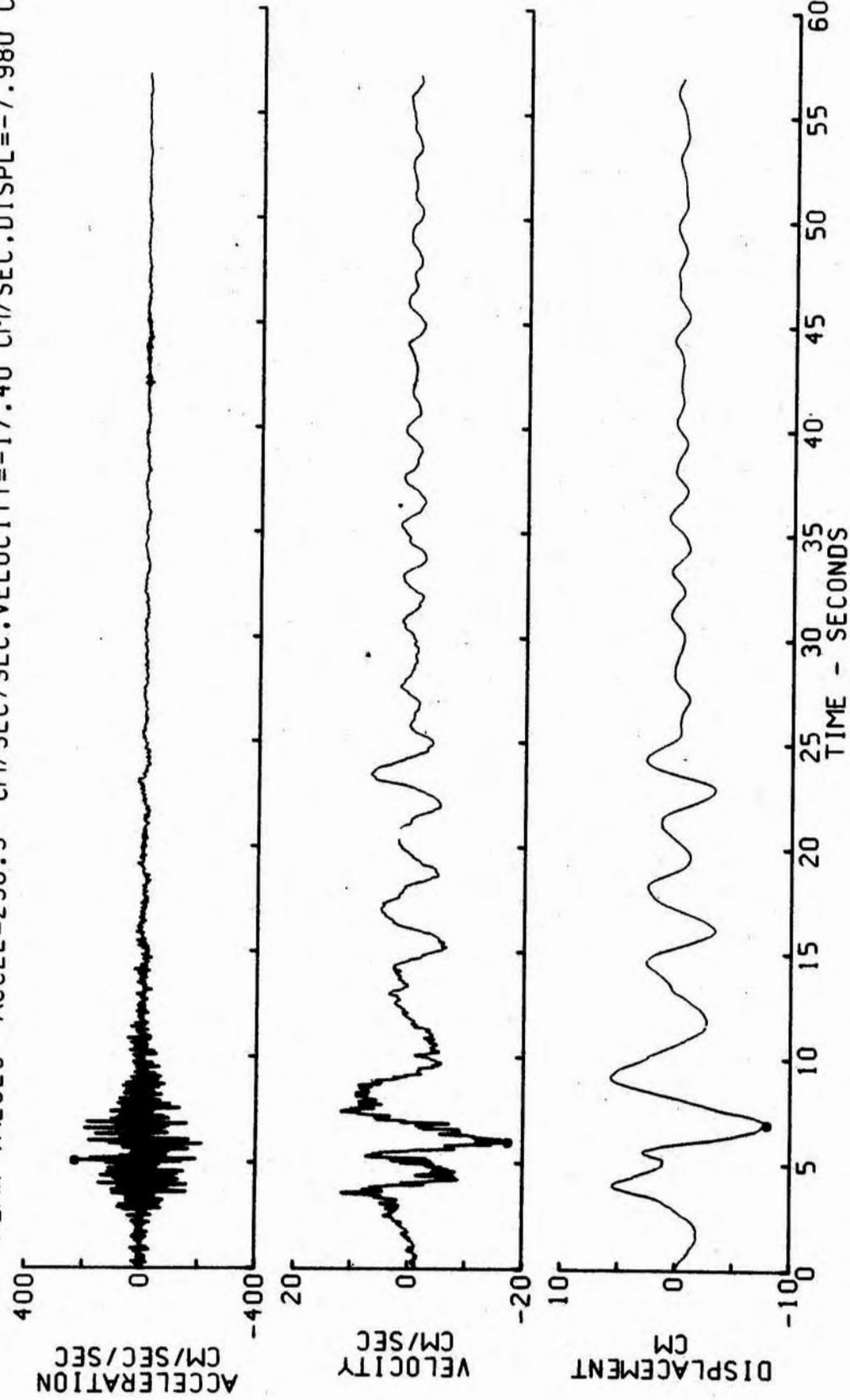
DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC EL CENTRO FF TR 1



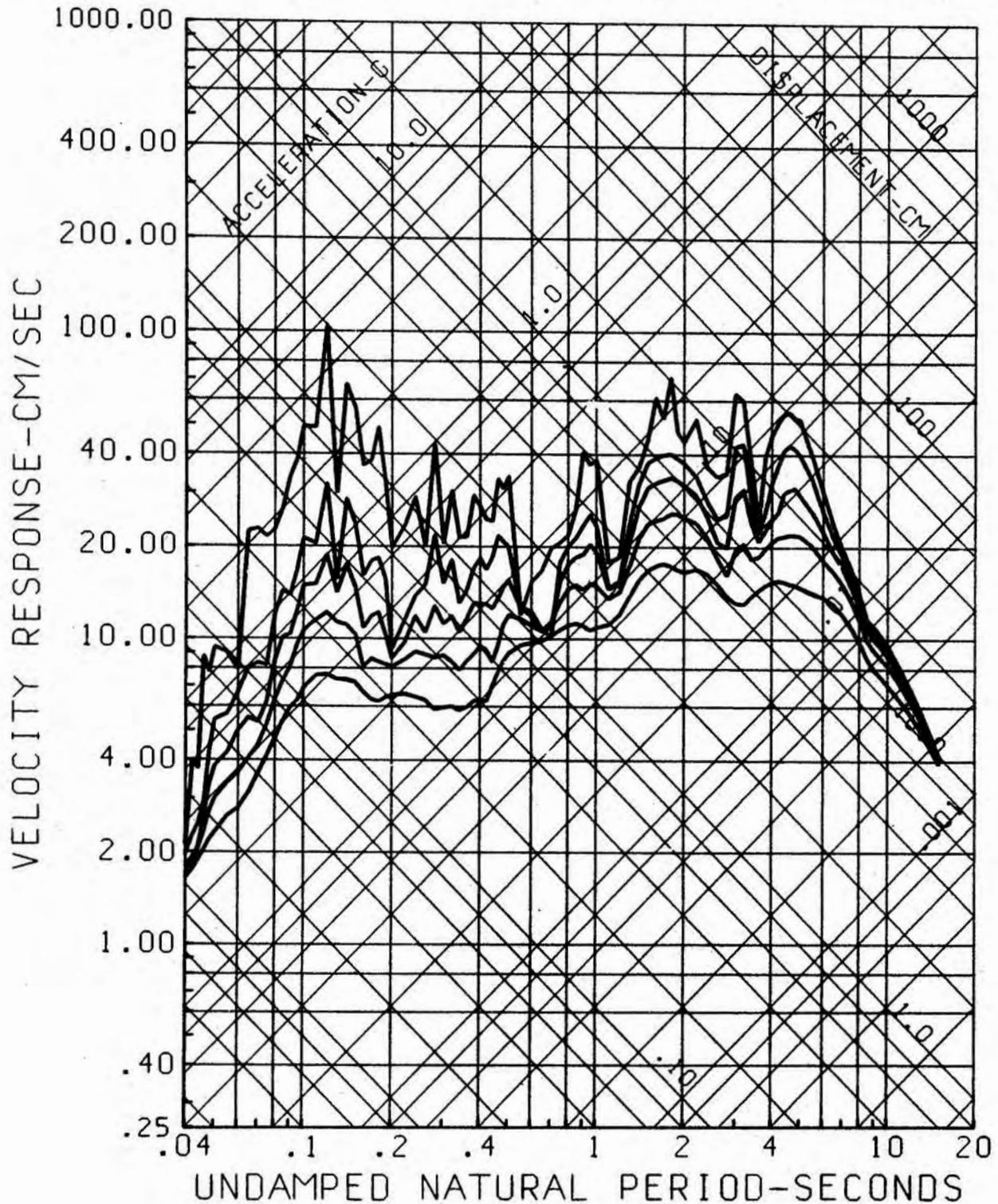
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC EL CENTRO FF TR 1
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



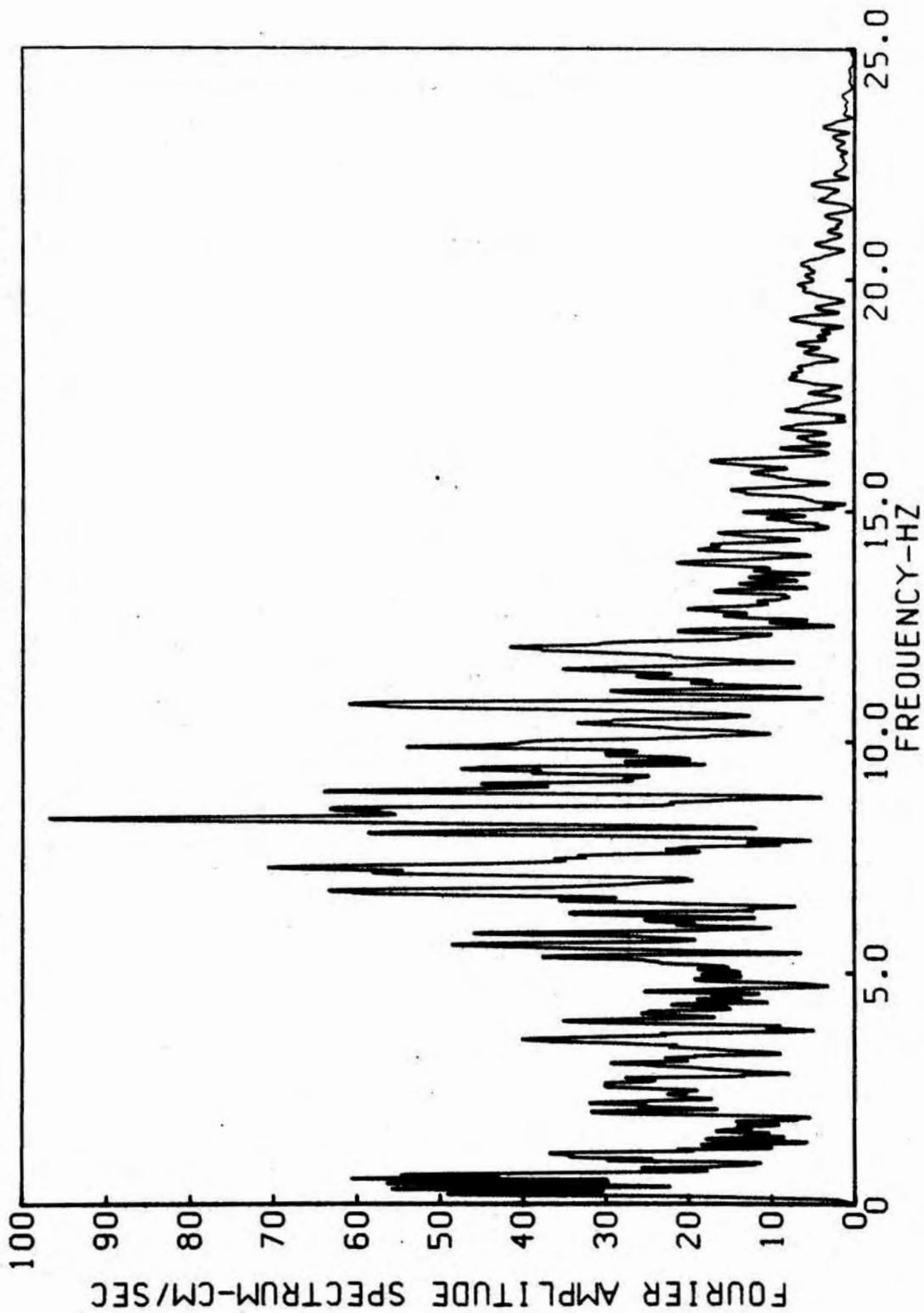
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 2 UP
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=230.9 CM/SEC/SEC. VELOCITY=-17.40 CM/SEC. DISPL=-7.980 CM



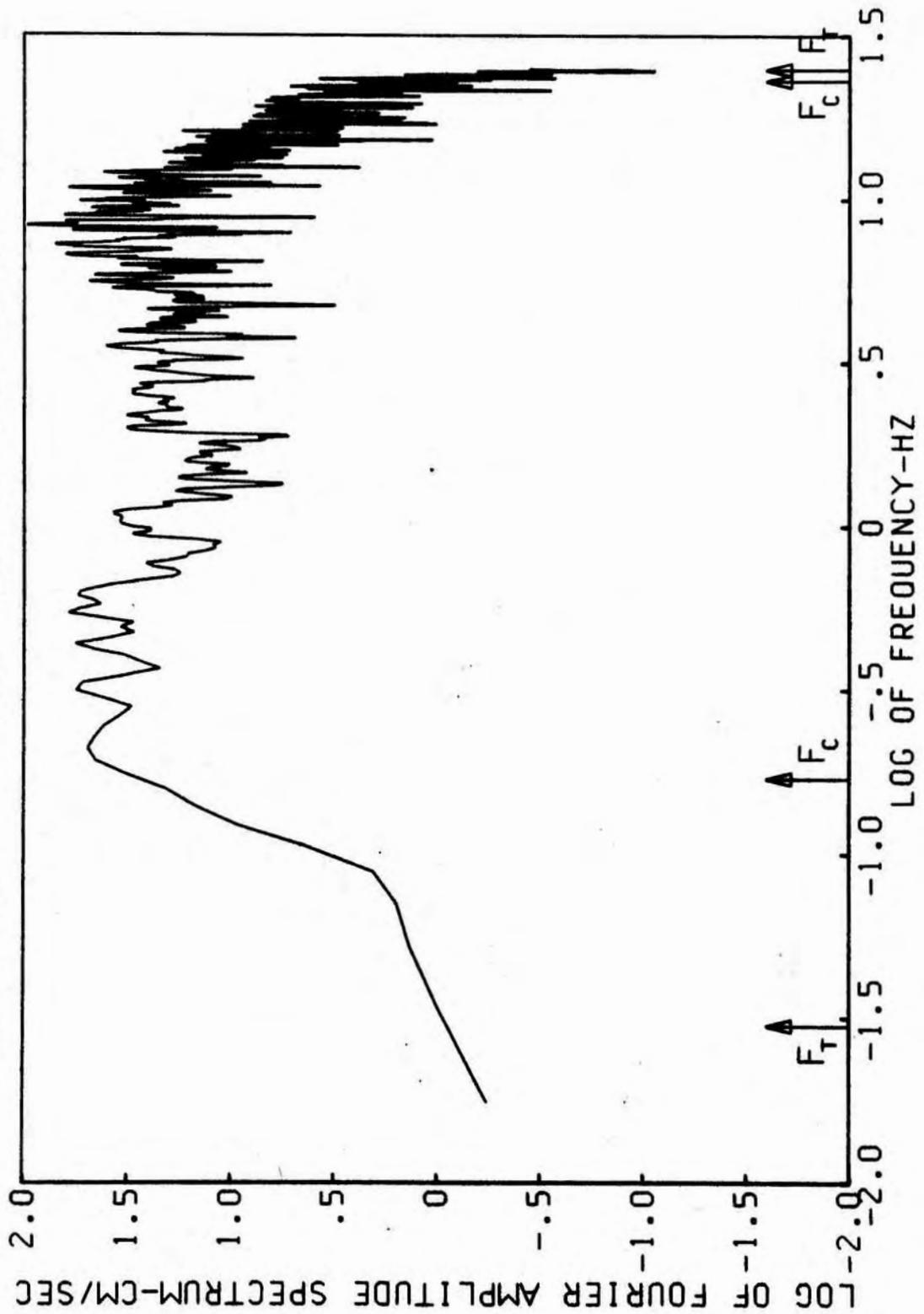
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC EL CENTRO FF TR 2
 0, 2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 2 UP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



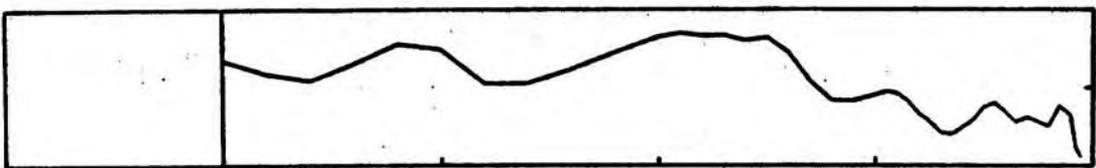
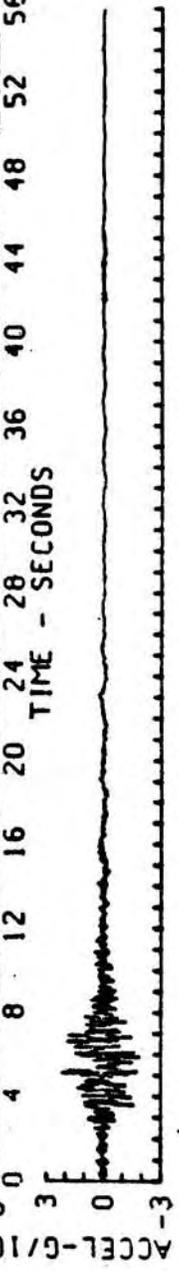
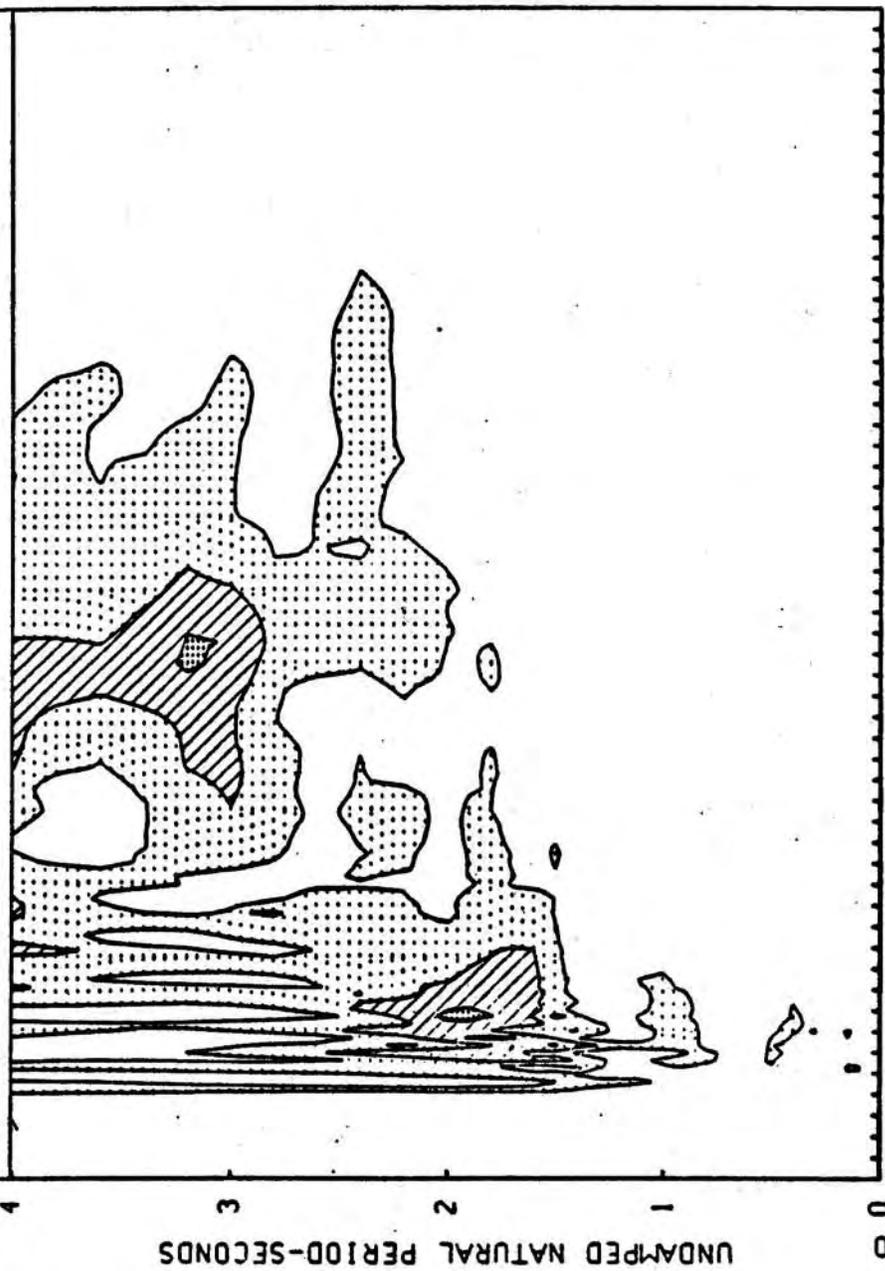
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 2 UP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



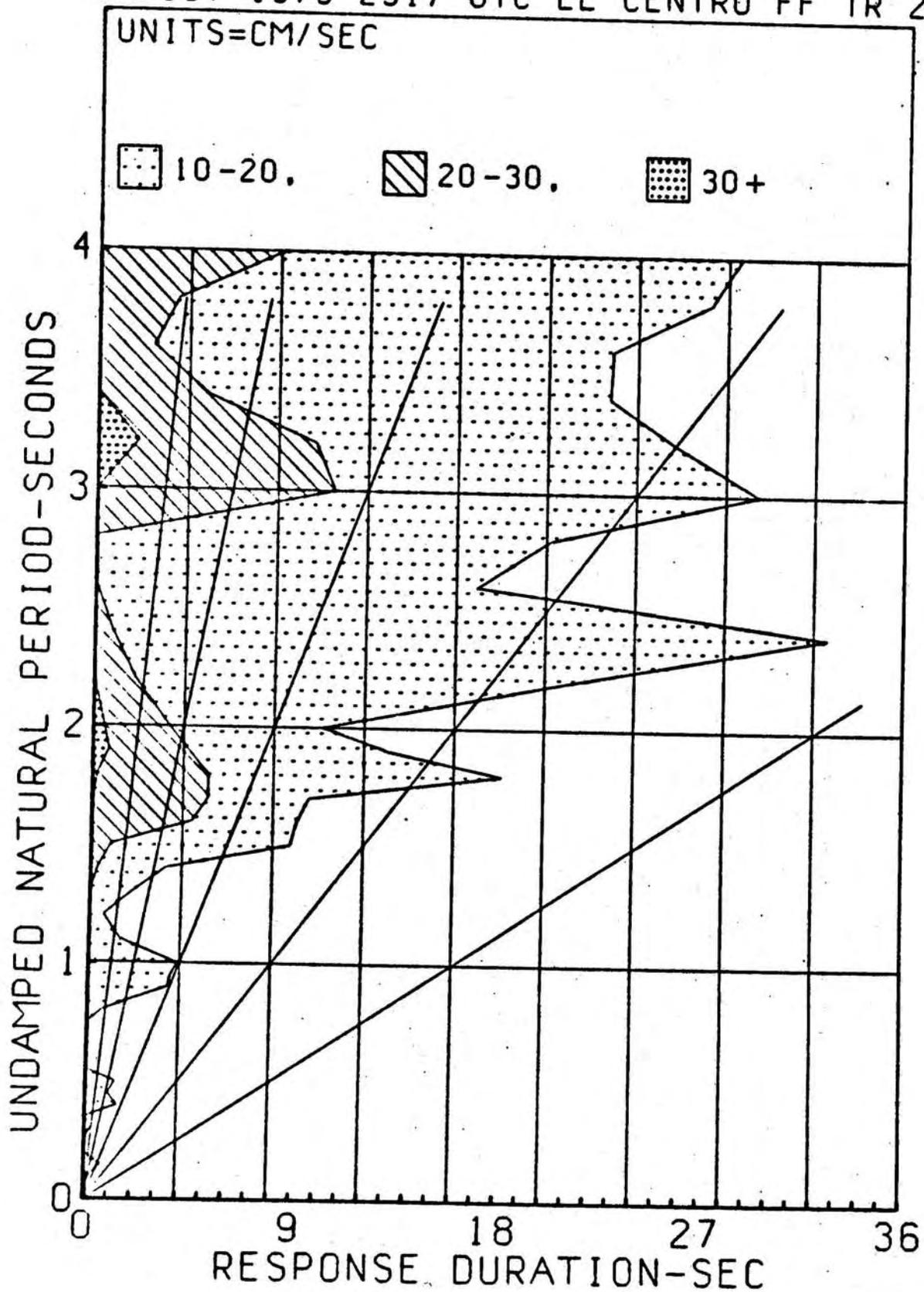
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC EL CENTRO FF TR 2

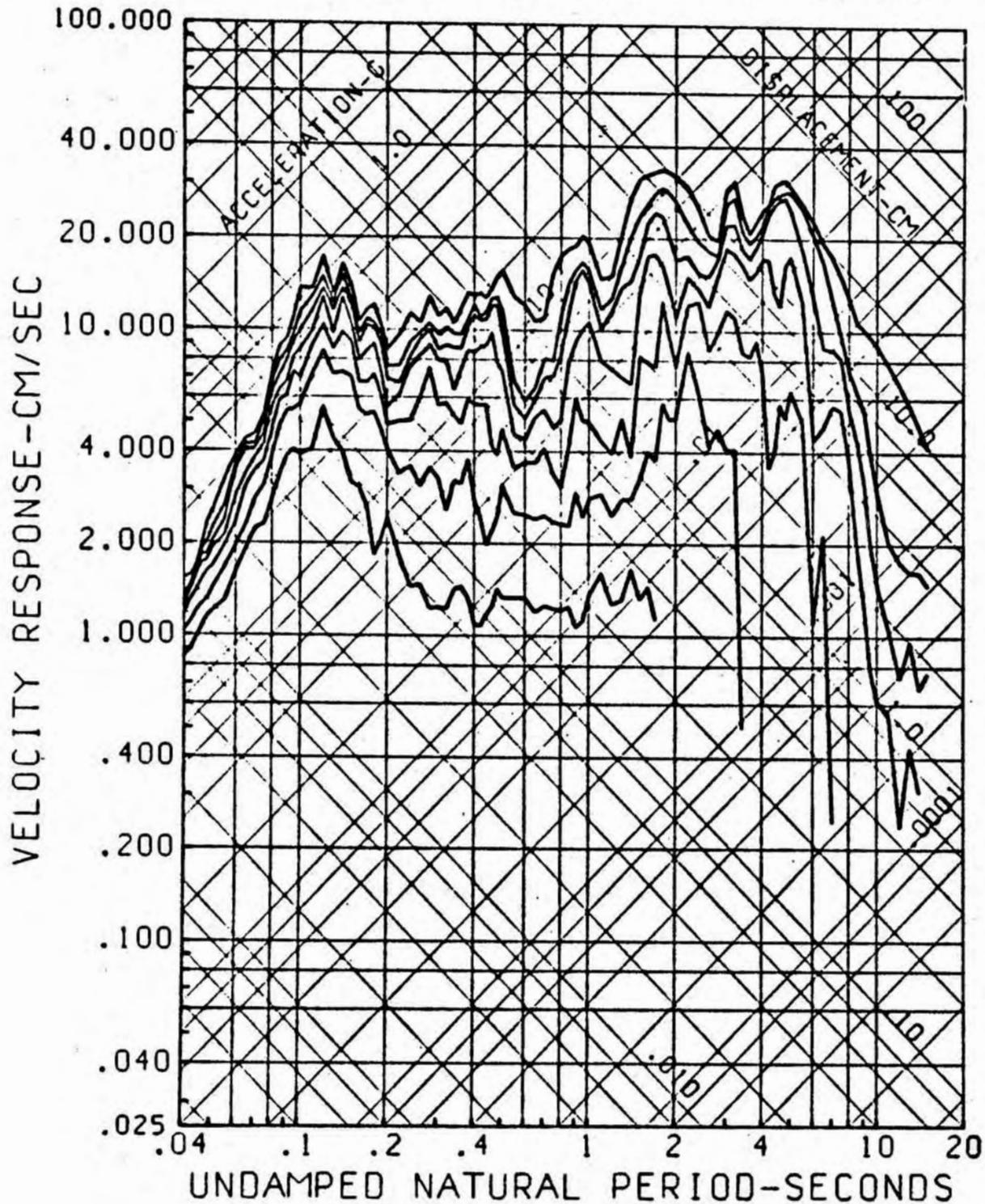
- 0-10.
- ▤ 10-20.
- ▨ 20-30.
- ▩ 30+



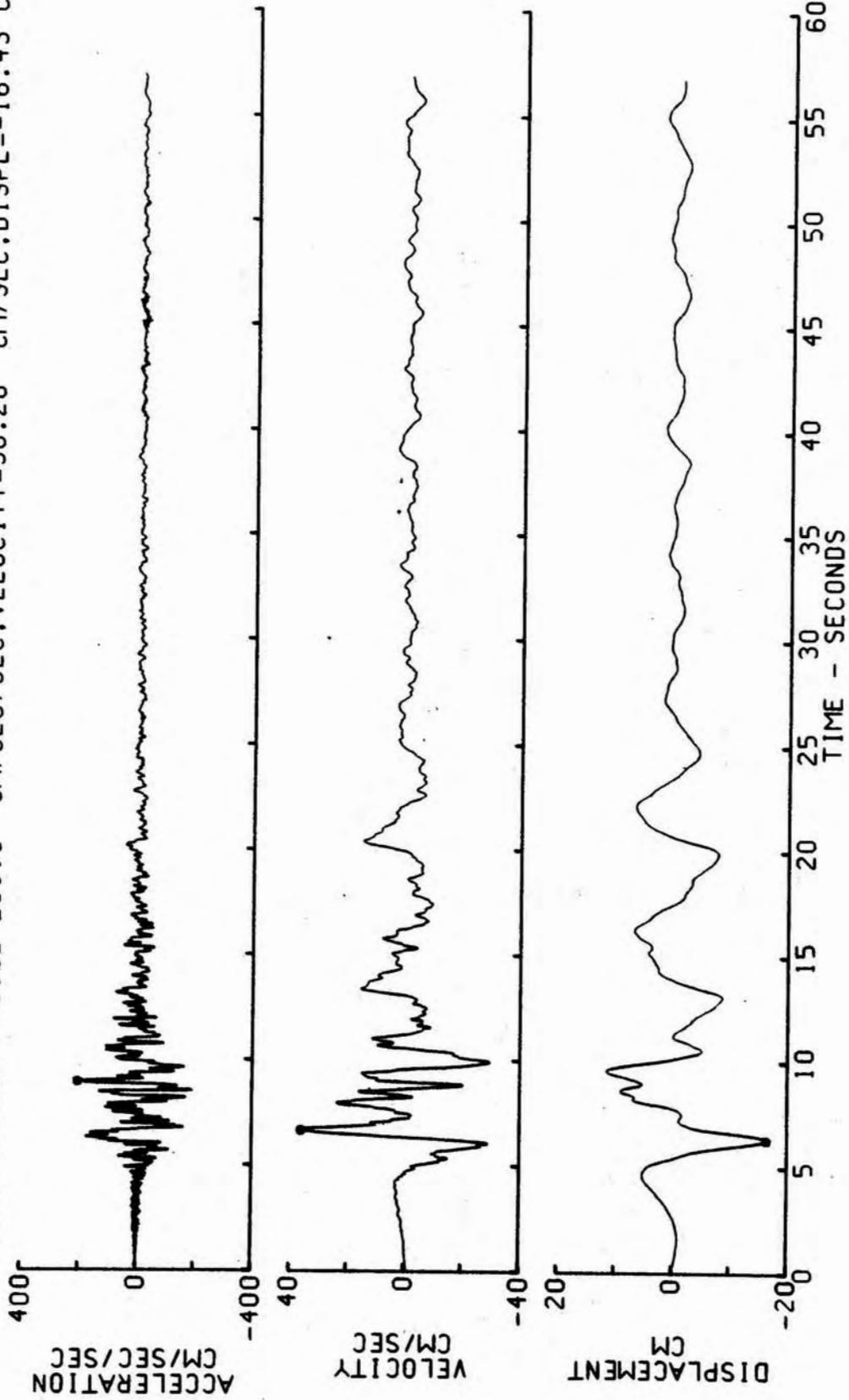
DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE .5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC EL CENTRO FF TR 2



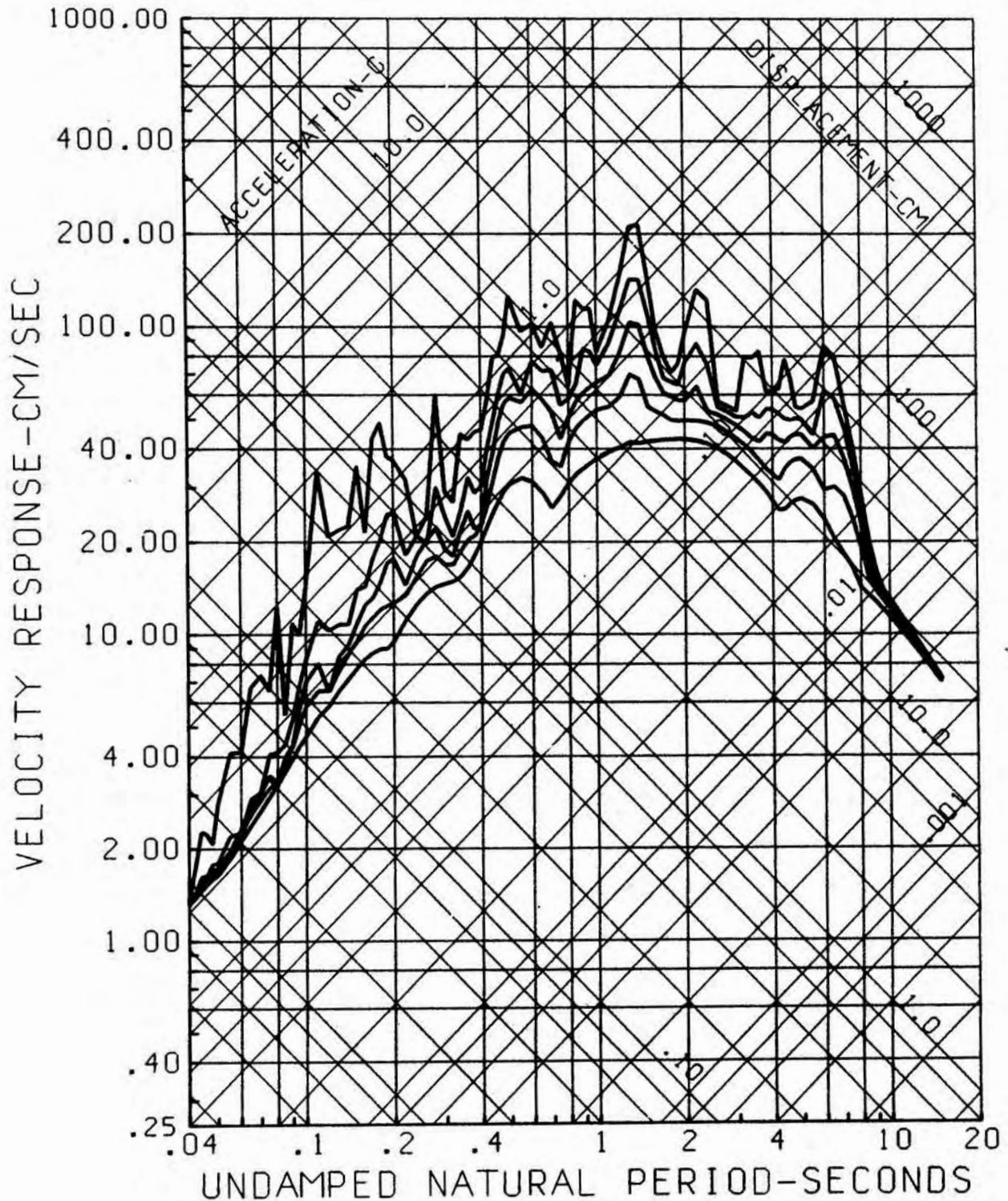
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC EL CENTRO FF TR 2
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



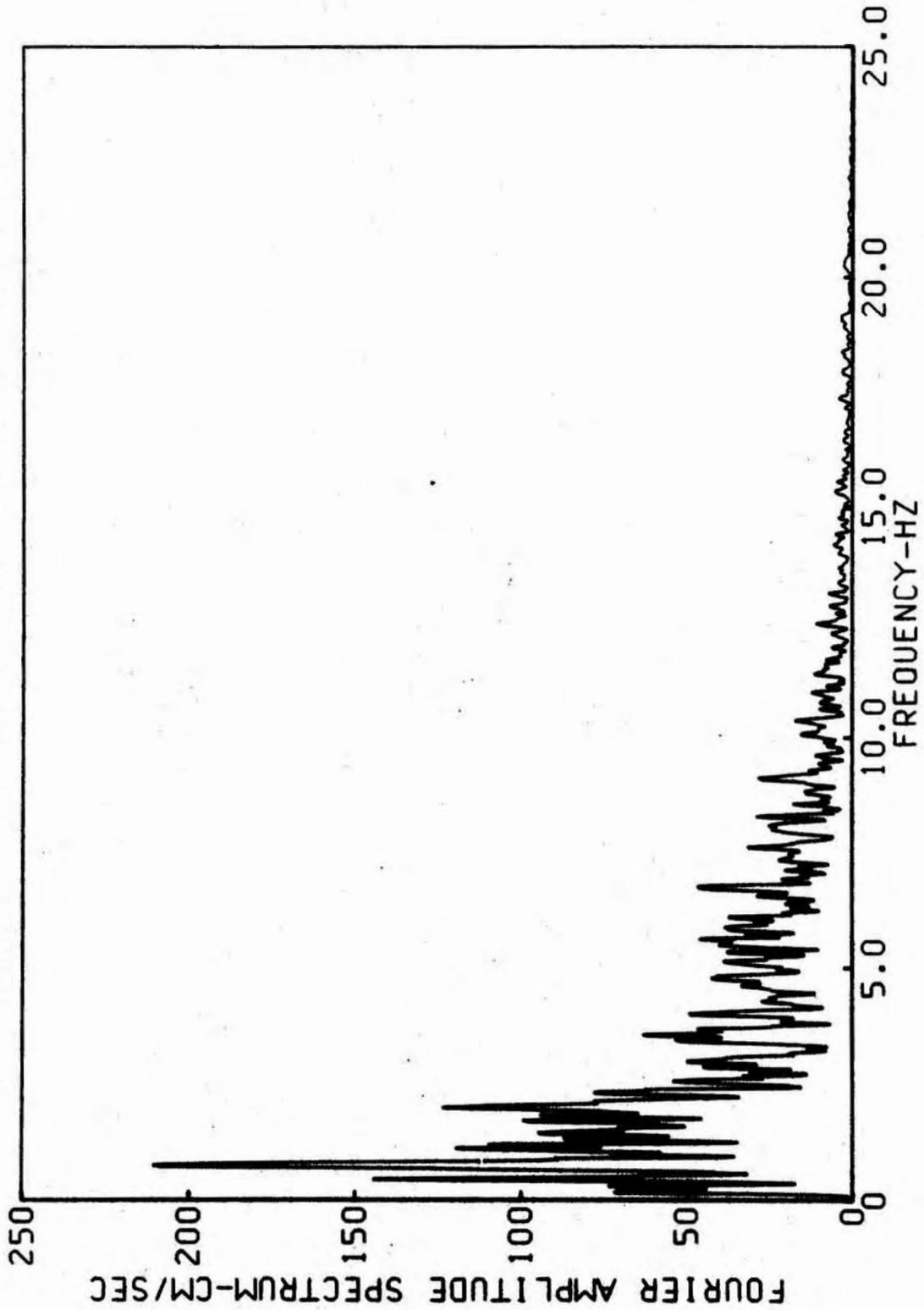
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 3 002 DEGREES
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=209.0 CM/SEC/SEC, VELOCITY=36.20 CM/SEC, DISPL=-16.43 CM



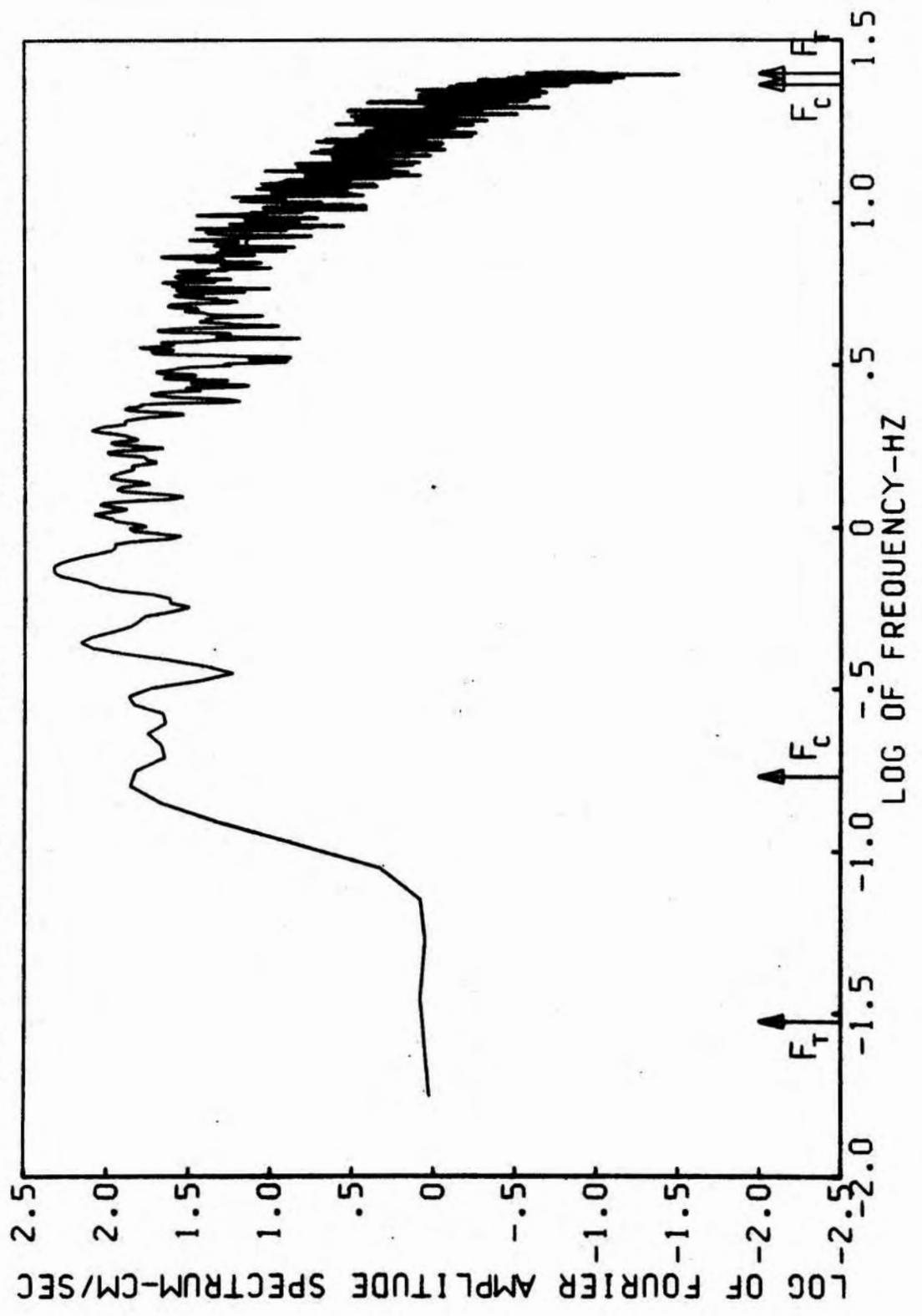
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC EL CENTRO FF TR 3
 0, 2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



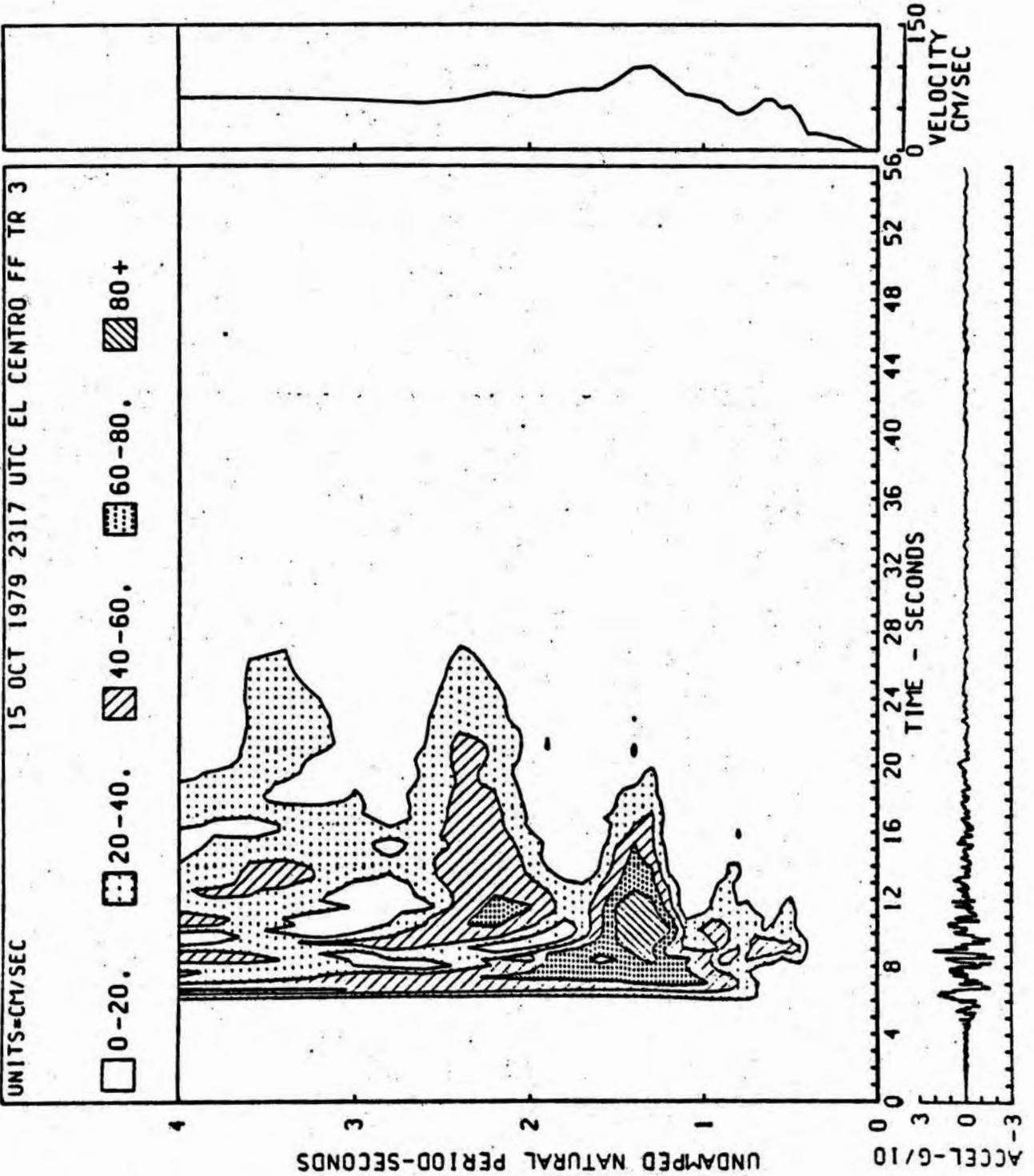
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 3 002 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



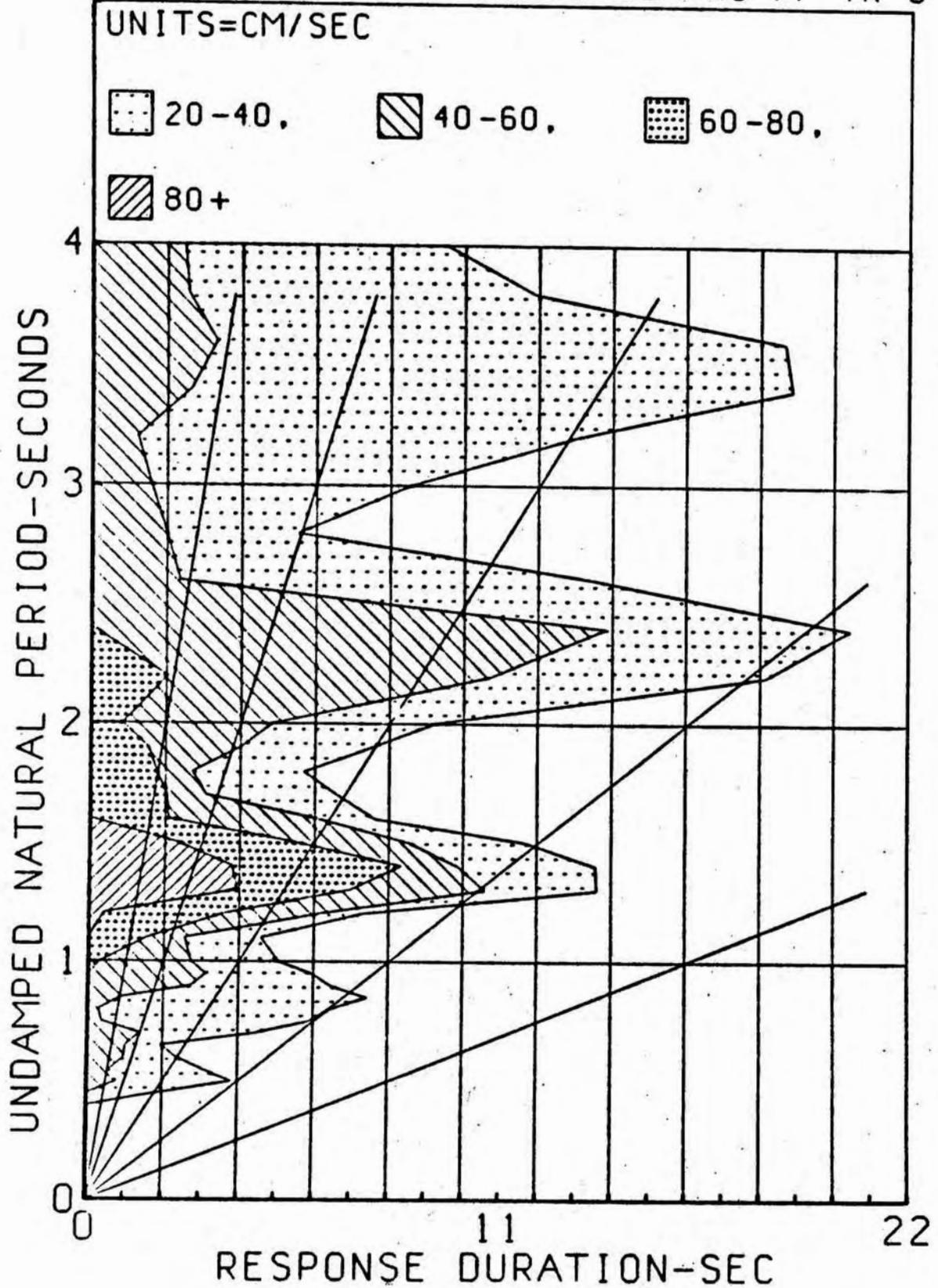
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 335 EL CENTRO FF SMA 2761 TR 3 002 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



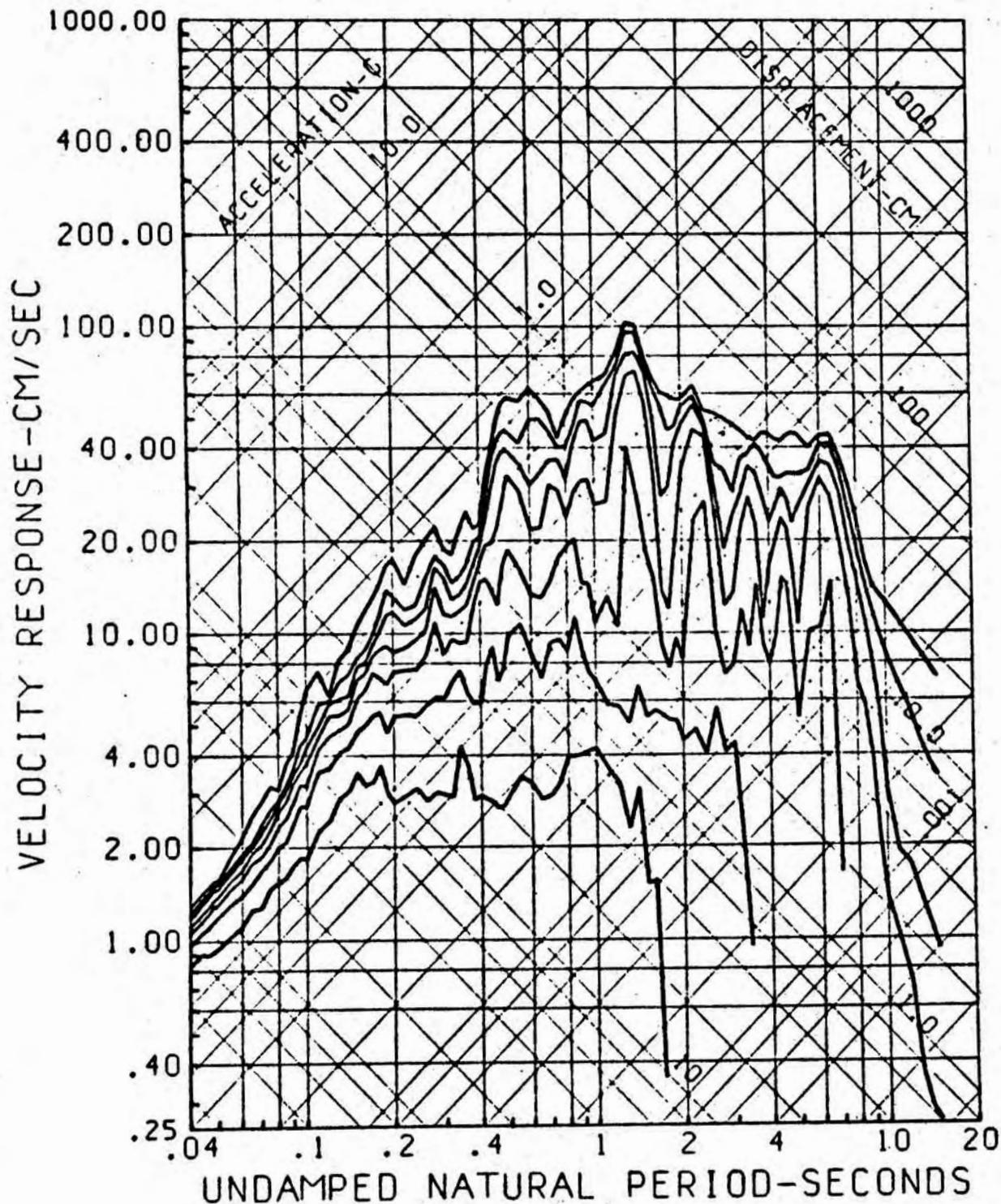
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC EL CENTRO FF TR 3

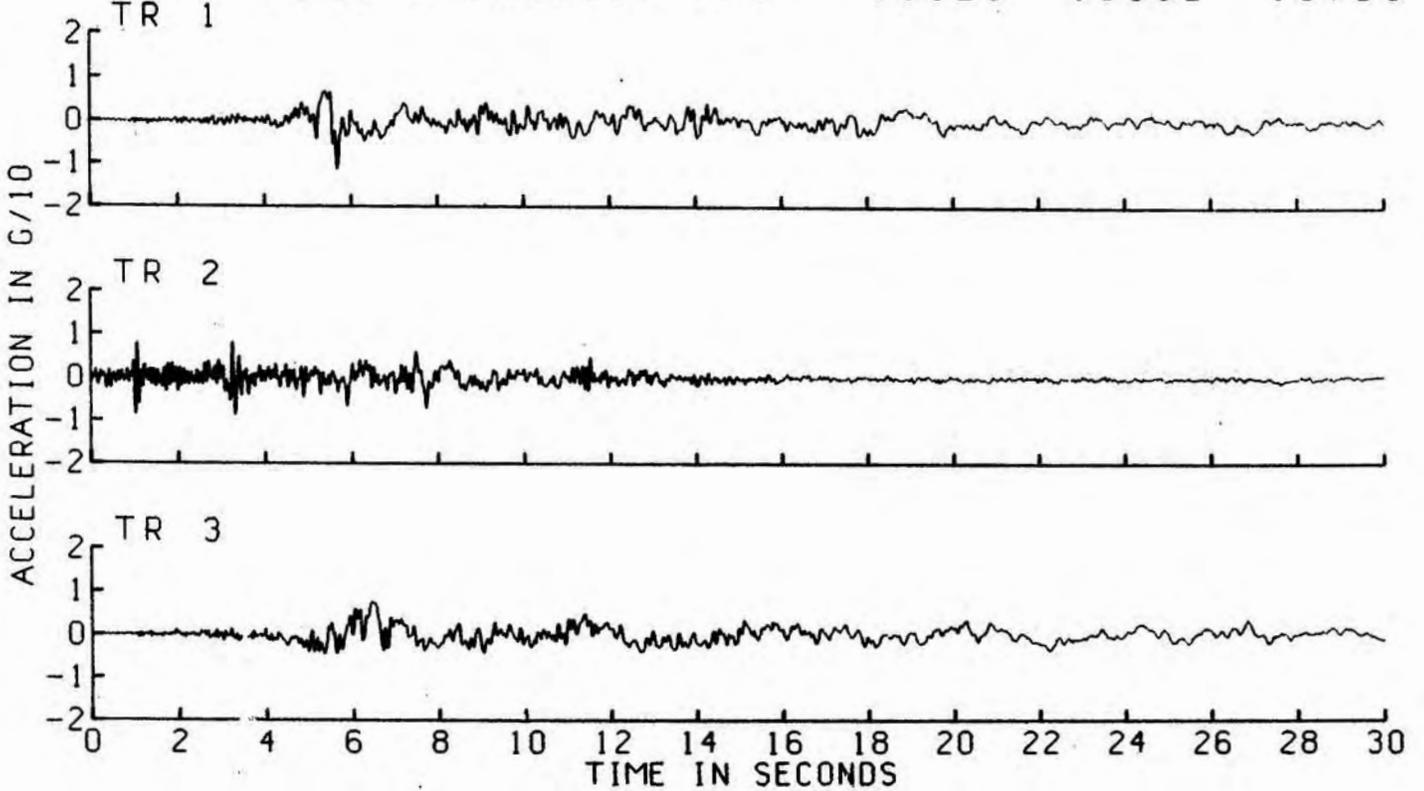


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC EL CENTRO FF TR 3
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

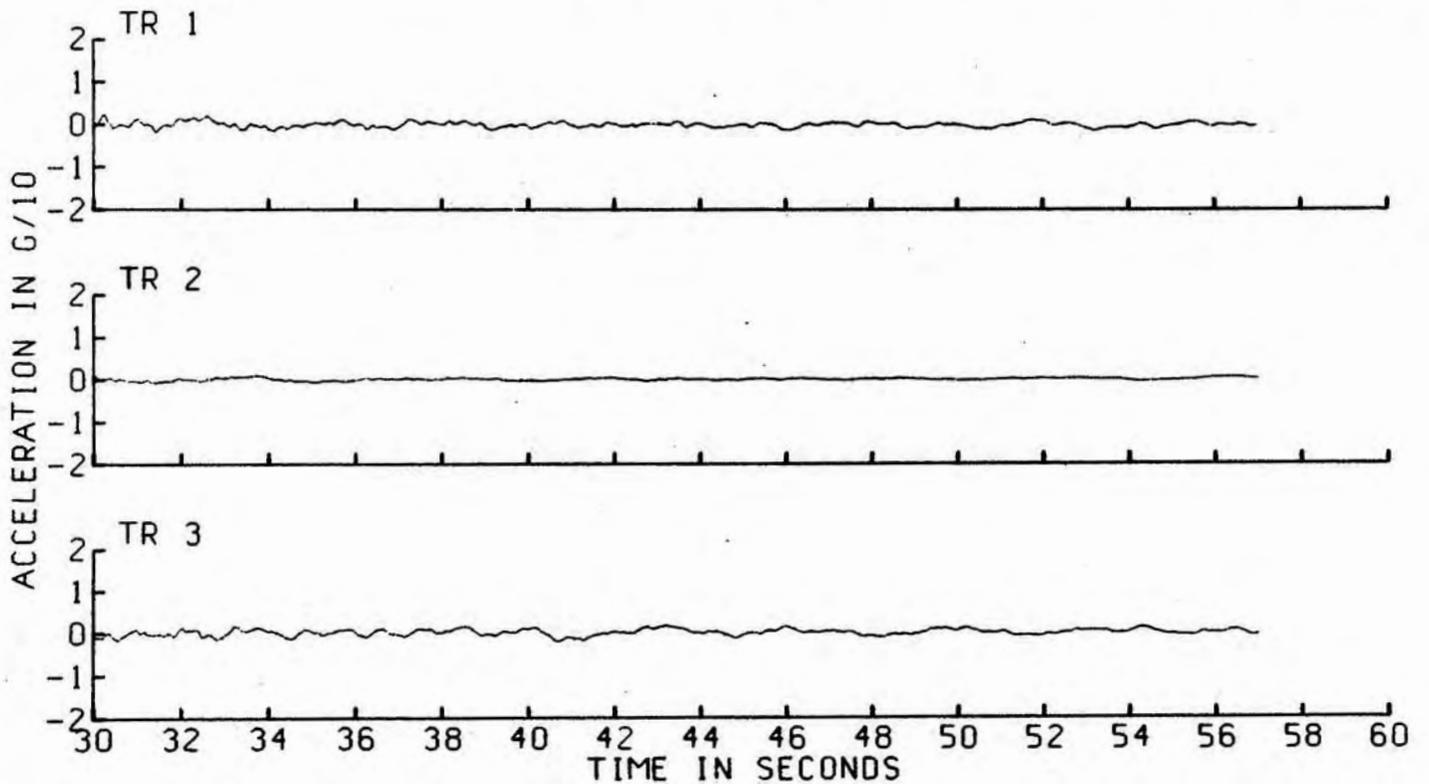


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG TEMP WESTMORLAND SMA 2588
THE 3 PEAK VALUES(G) ARE .1123 .0862 .0759



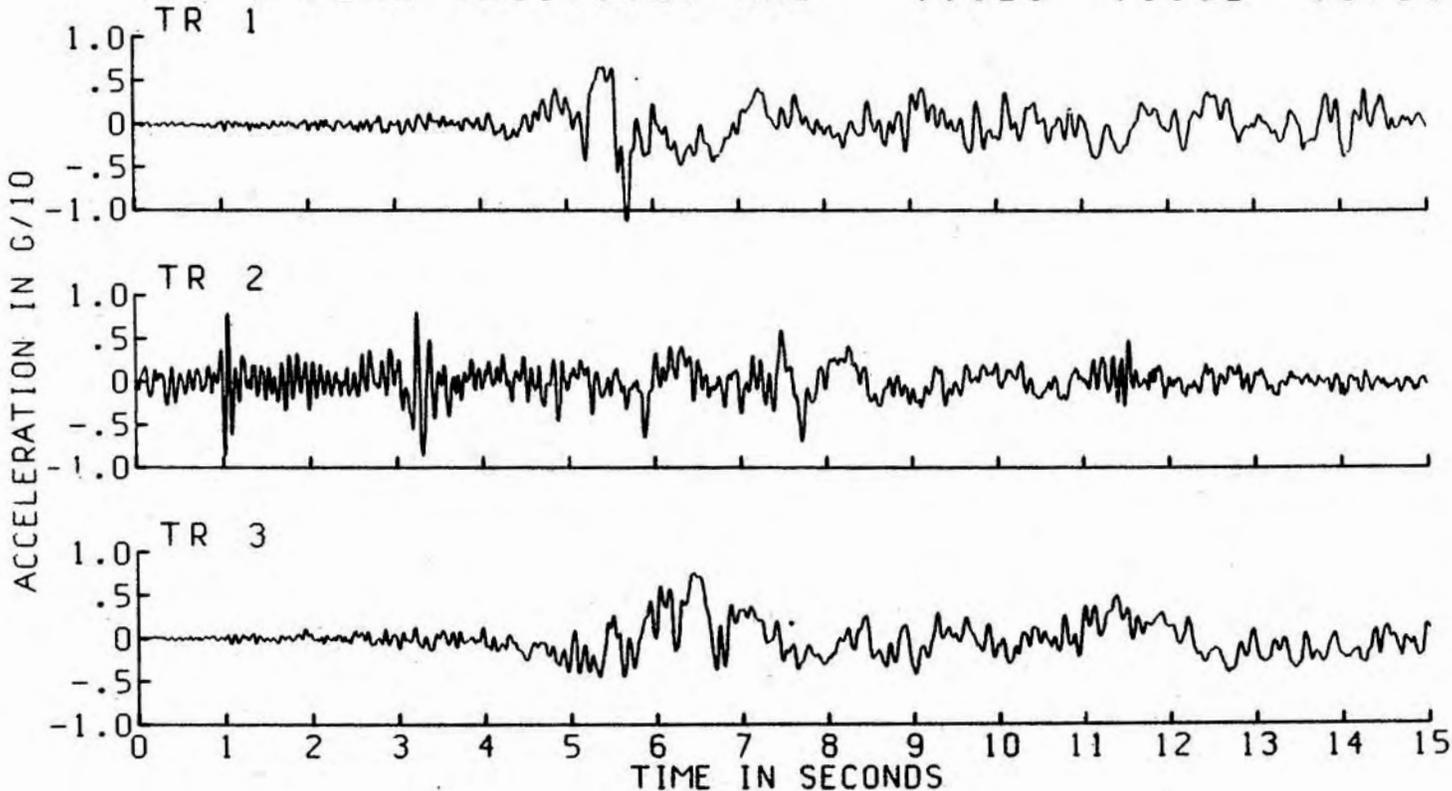
15 OCT 1979 2317 UTC DMG TEMP WESTMORLAND SMA 2588



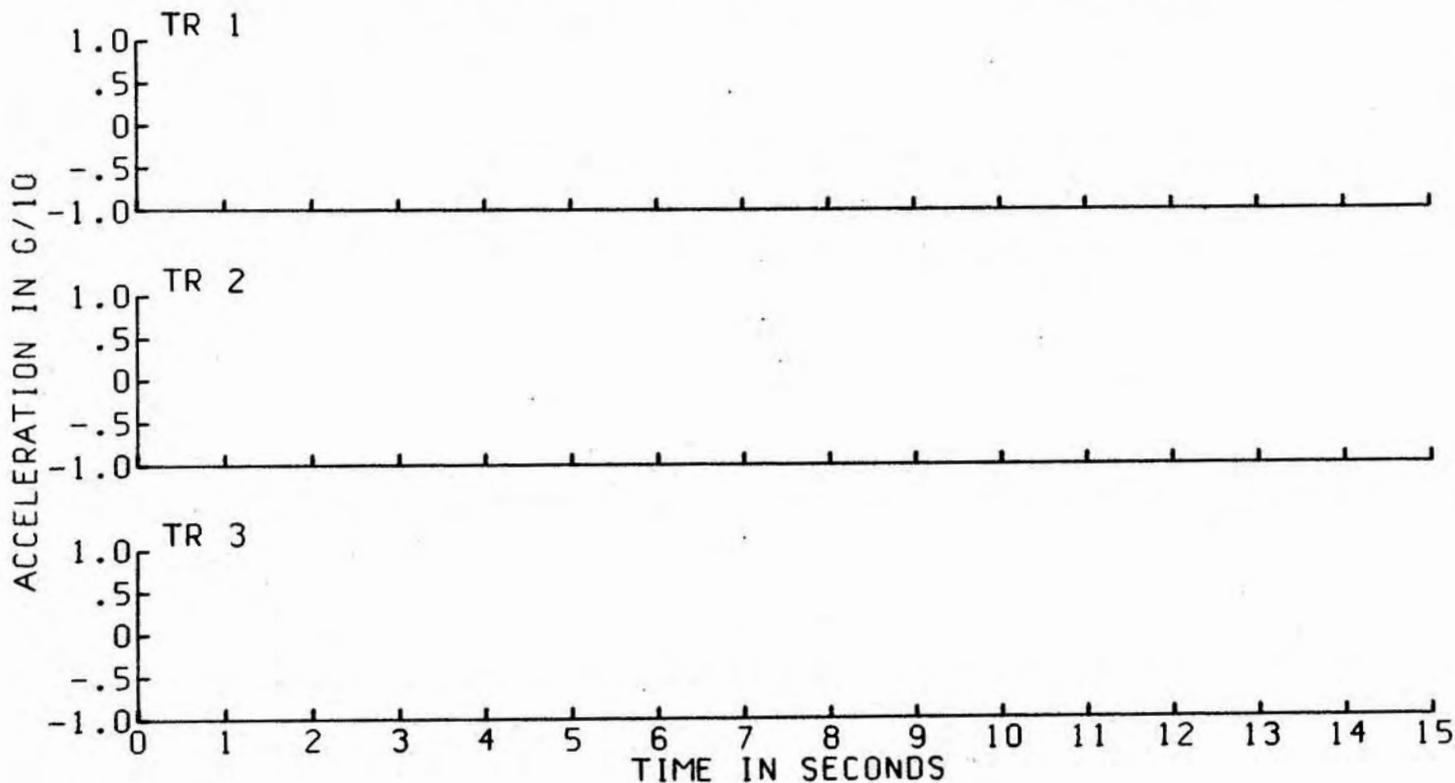
250

UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG TEMP WESTMORLAND SMA 2588
THE 3 PEAK VALUES(G) ARE .1123 .0862 .0759



15 OCT 1979 2317 UTC DMG TEMP WESTMORLAND SMA 2588

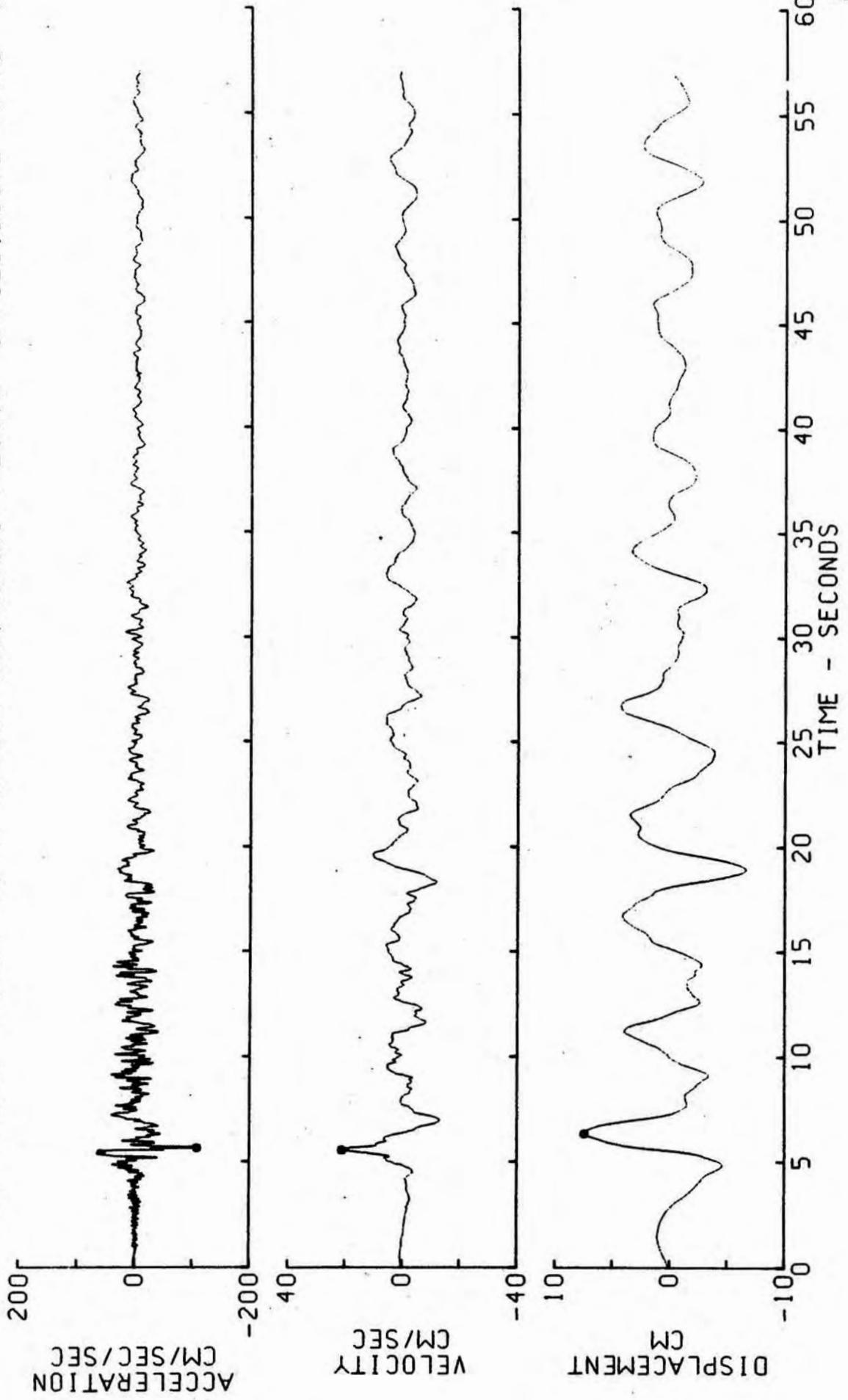


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC

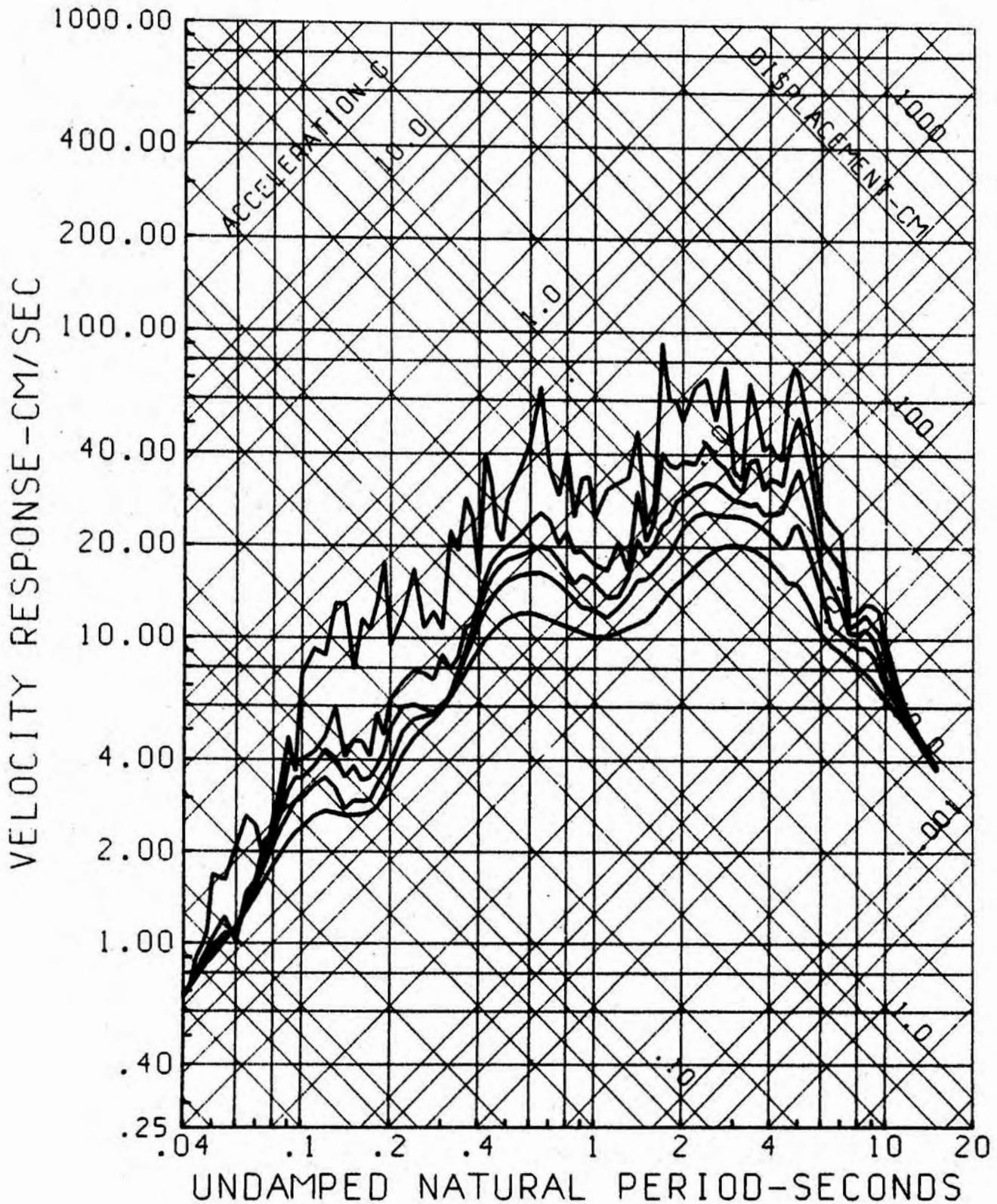
DMG TEMP WESTMORLAND SMA 2588 TR 1 180 DEGREES

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

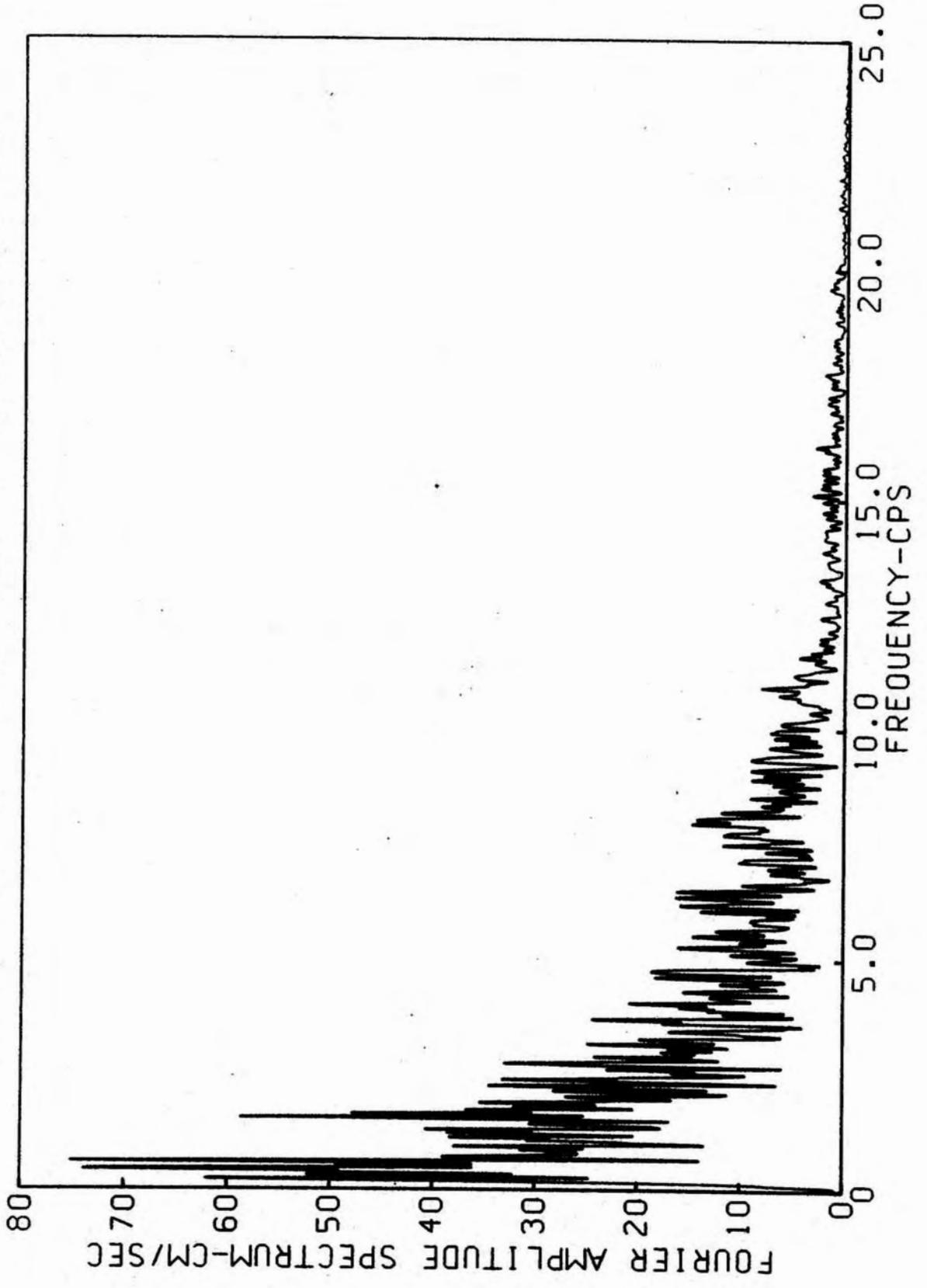
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=-107.4 CM/SEC/SEC, VELOCITY=21.13 CM/SEC, DISPL=7.440 CM



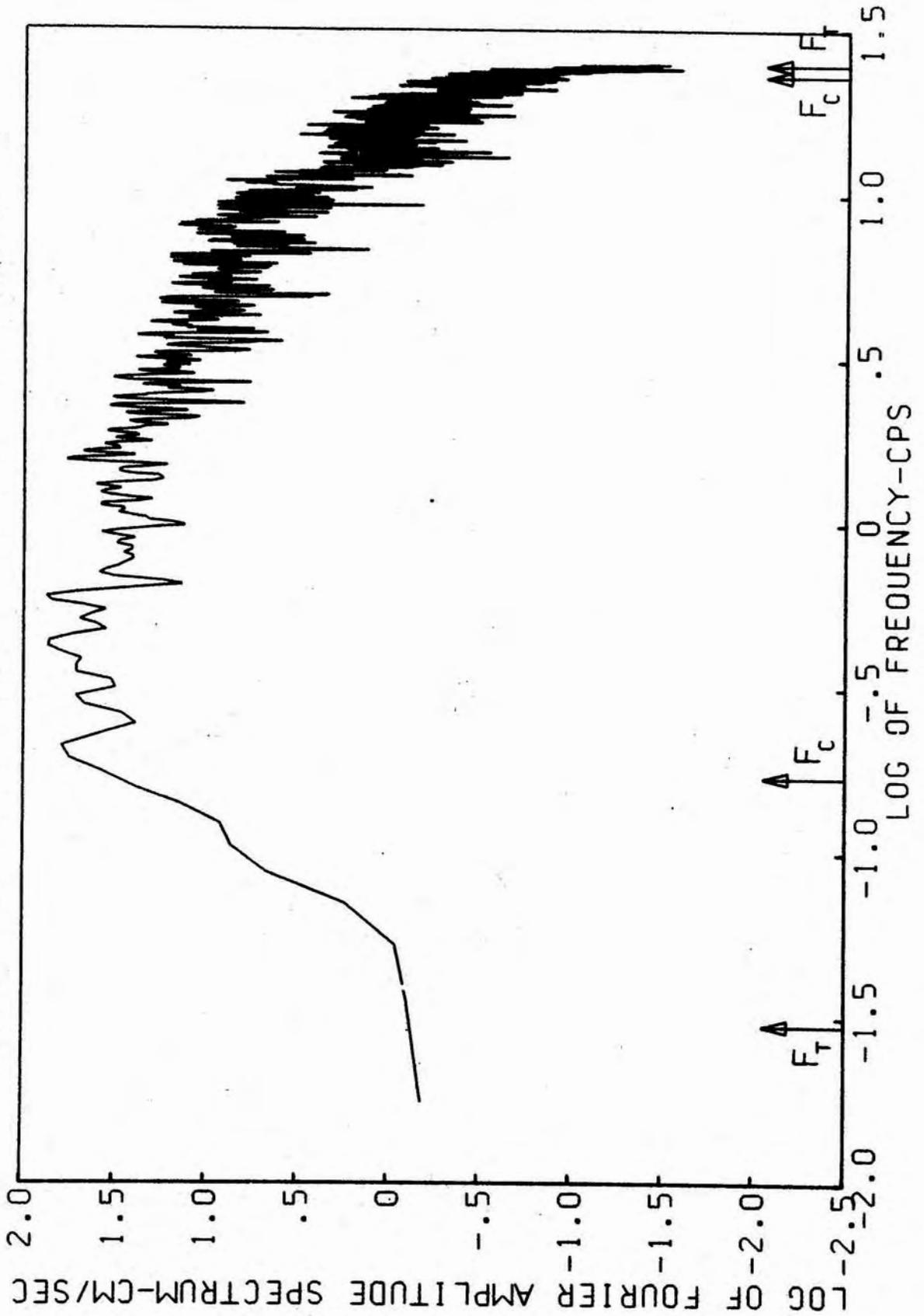
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC WESTMORLAND TR 1
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



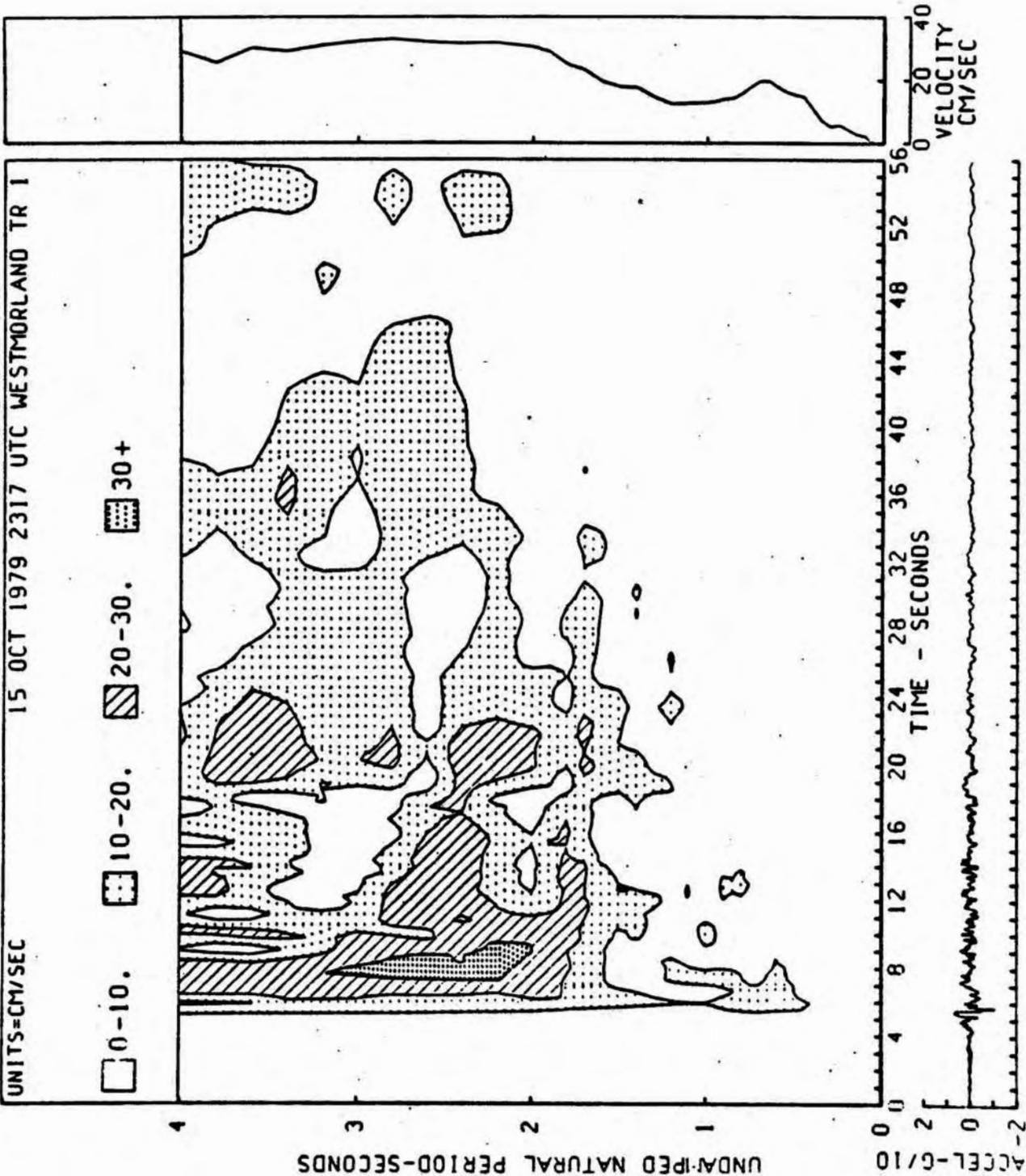
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG TEMP WESTMORLAND SMA 2588 TR 1 180 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



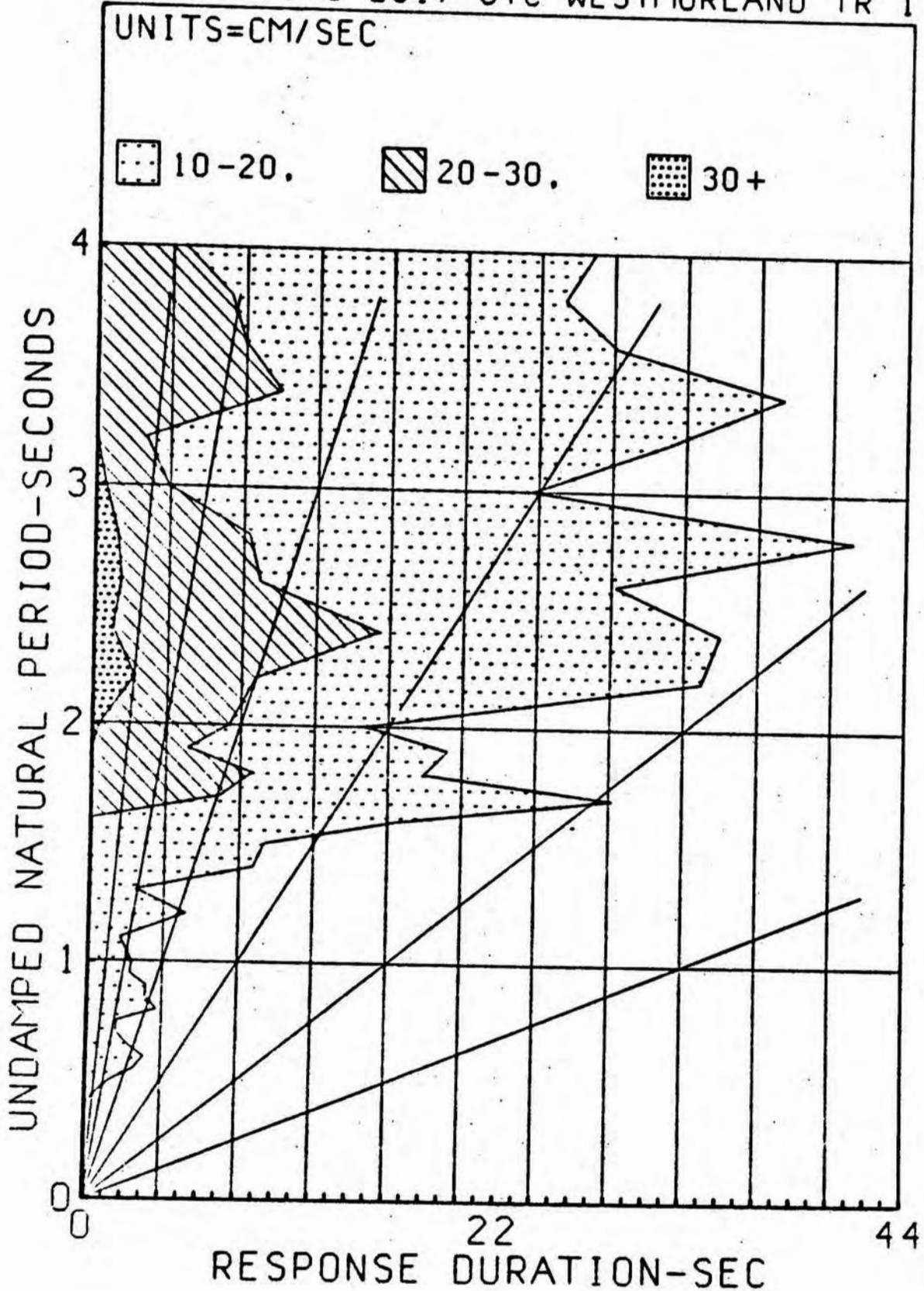
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG TEMP WESTMORLAND SMA 2588 TR 1 180 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



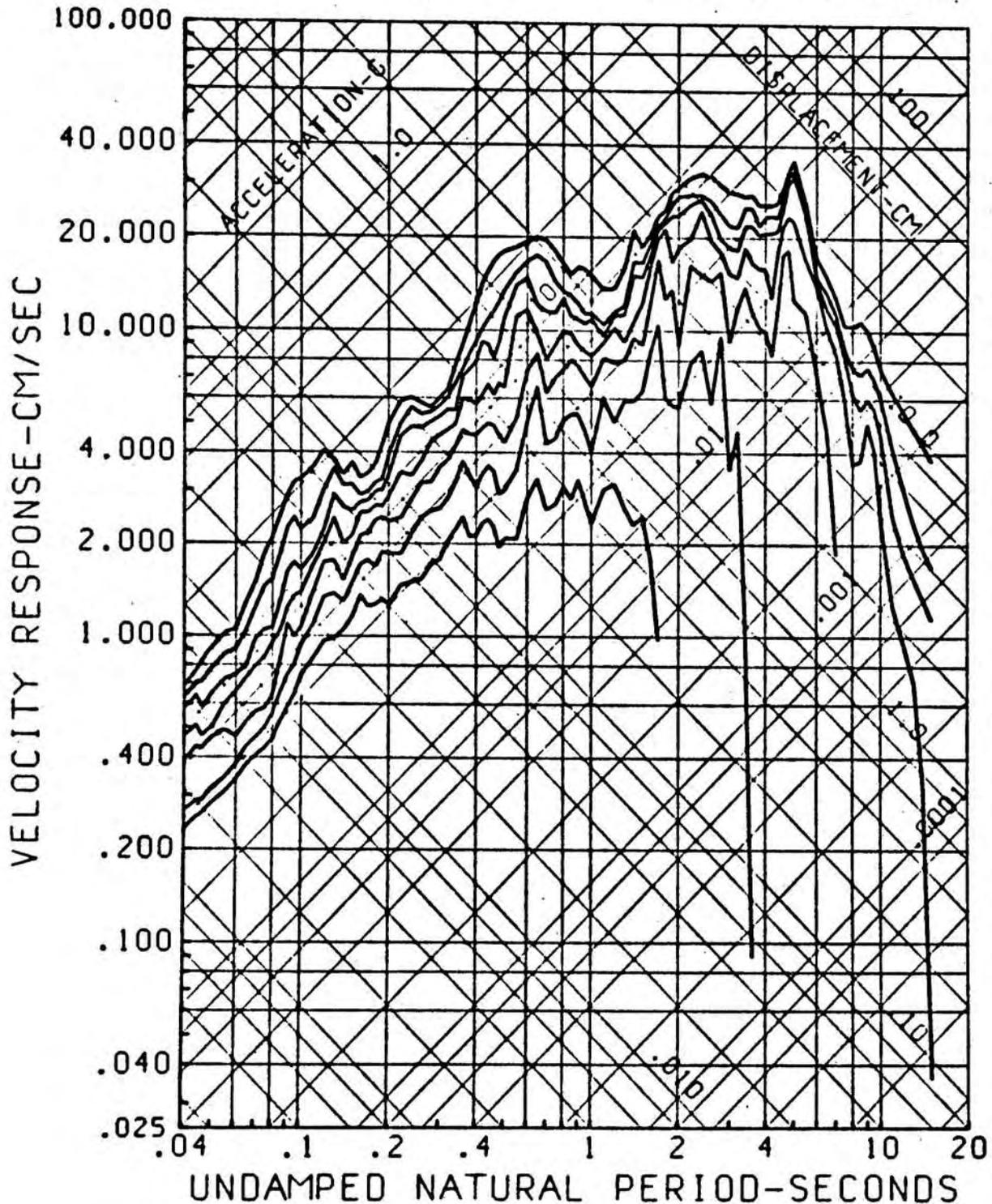
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC WESTMORLAND TR 1

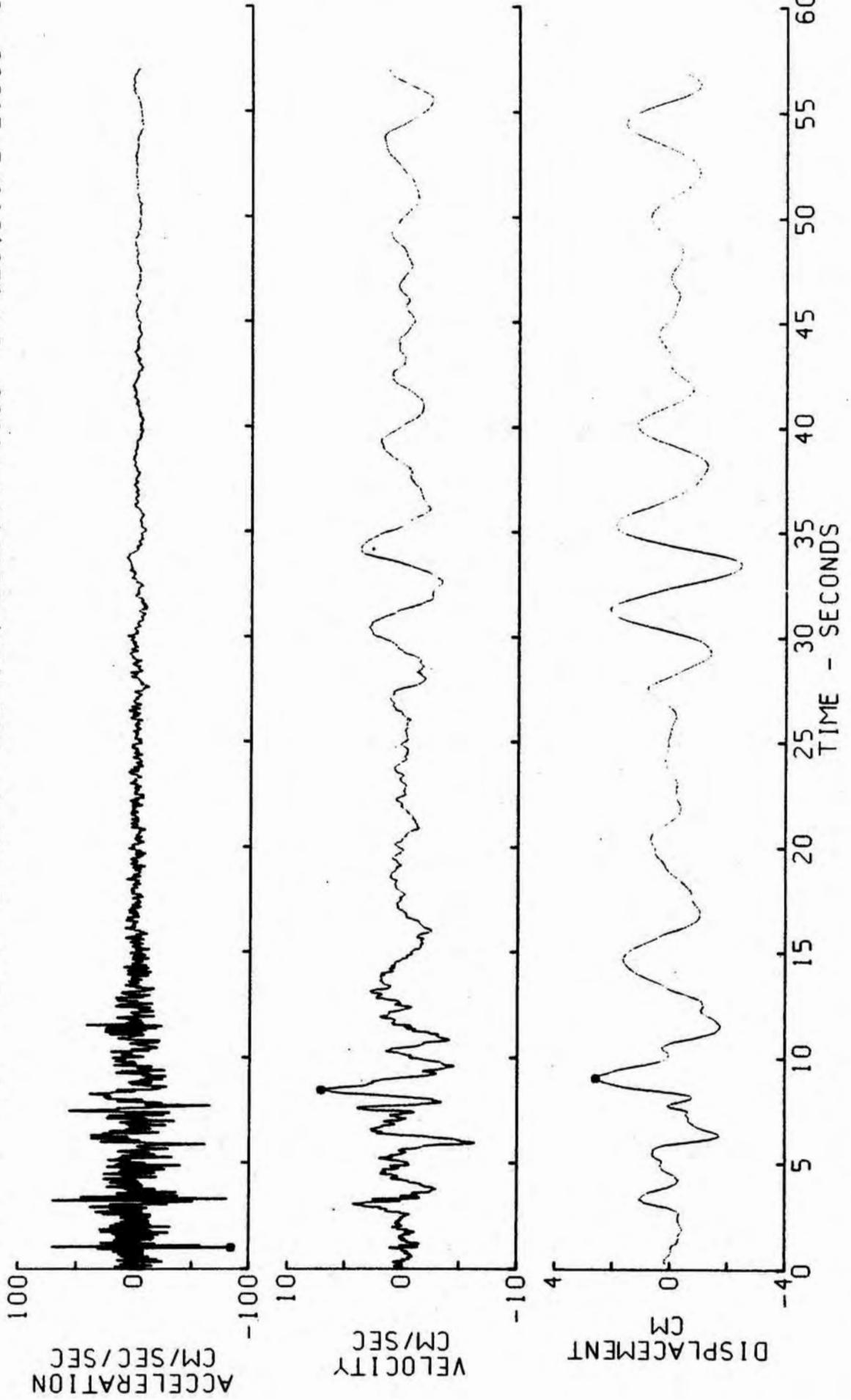


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES.
 15 OCT 1979 2317 UTC WESTMORLAND TR 1
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

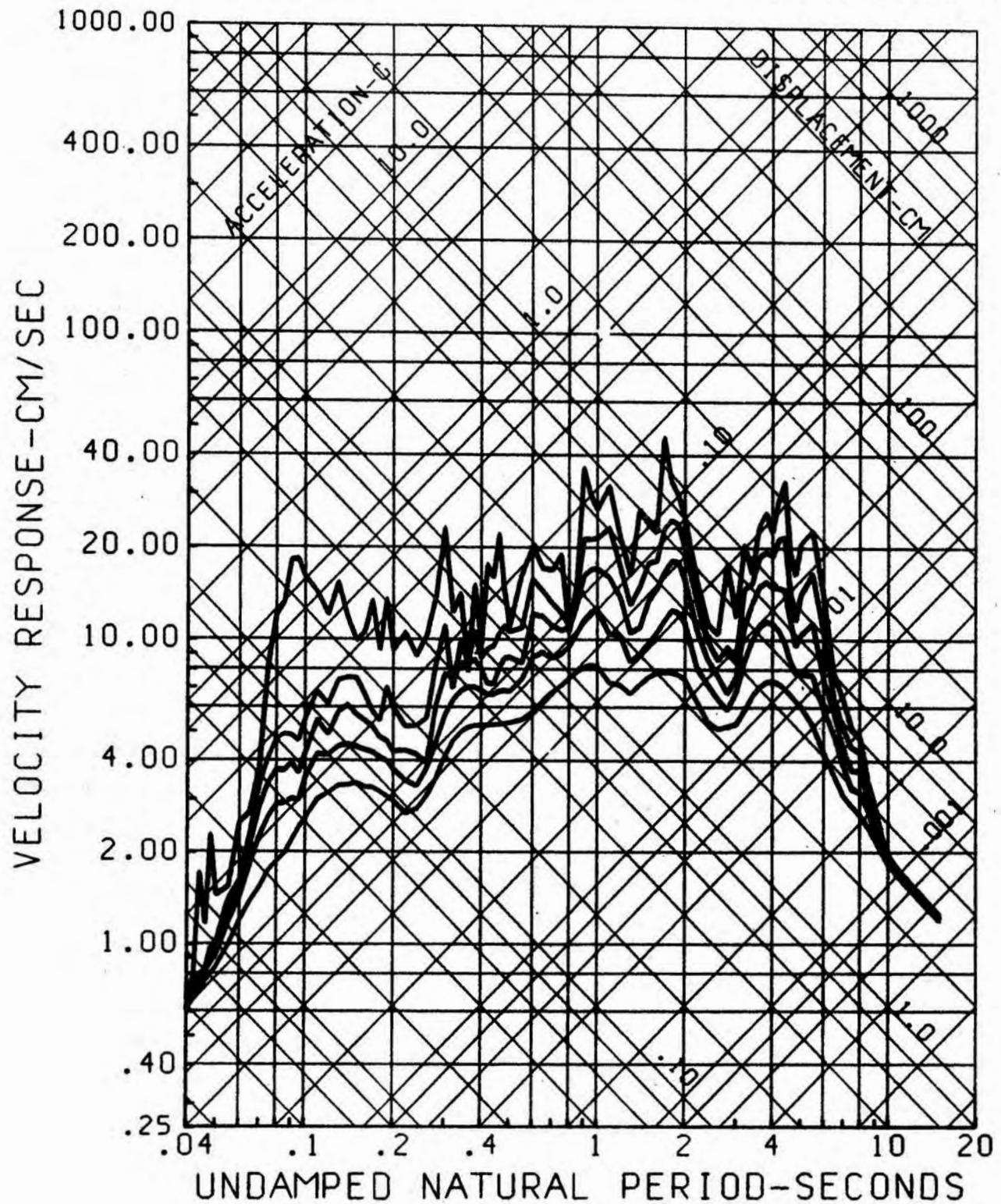


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG TEMP WESTMORLAND SMA 2588 TR 2 UP

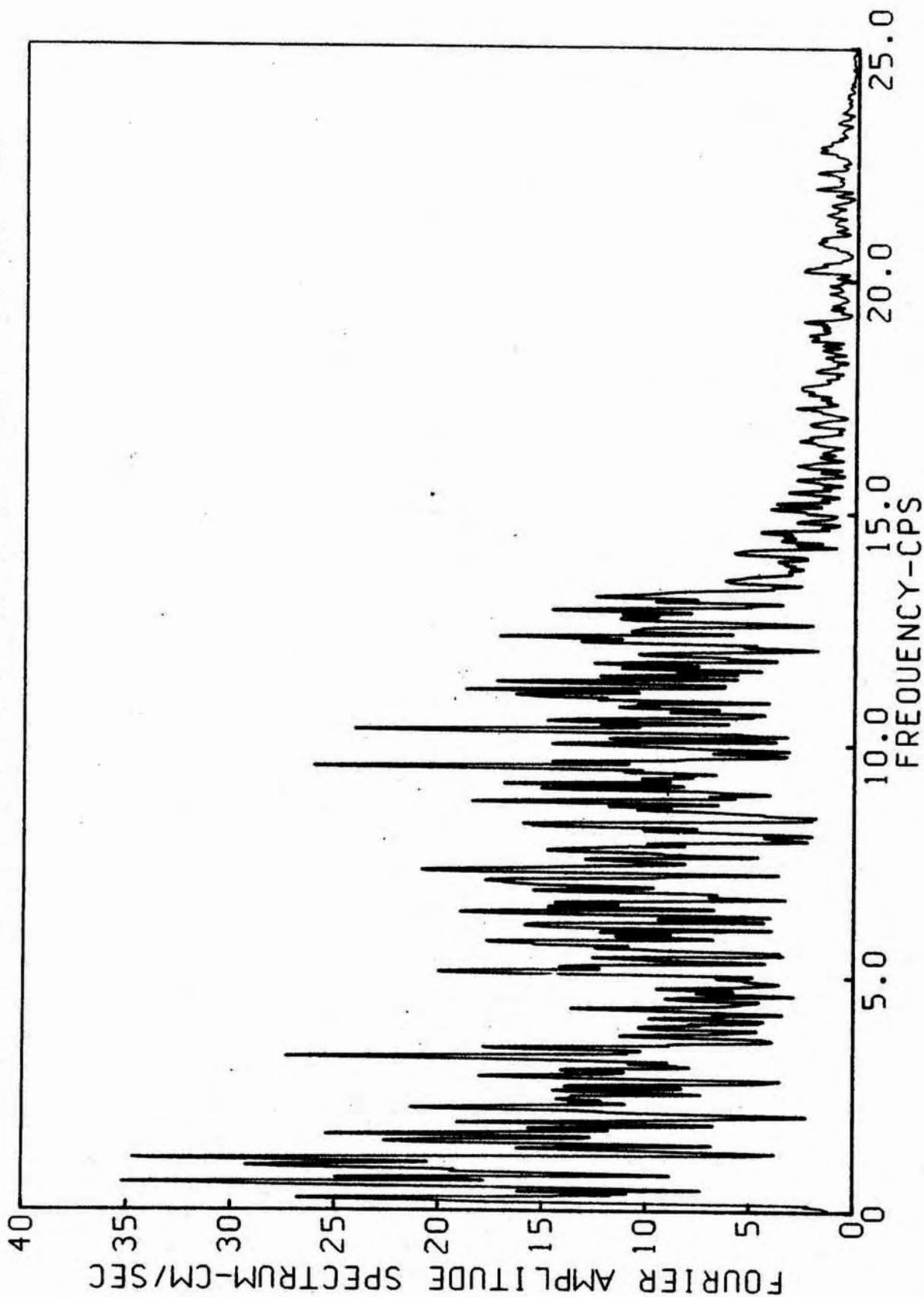
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=-84.38 CM/SEC/SEC, VELOCITY=7.090 CM/SEC, DISPL=2.590 CM



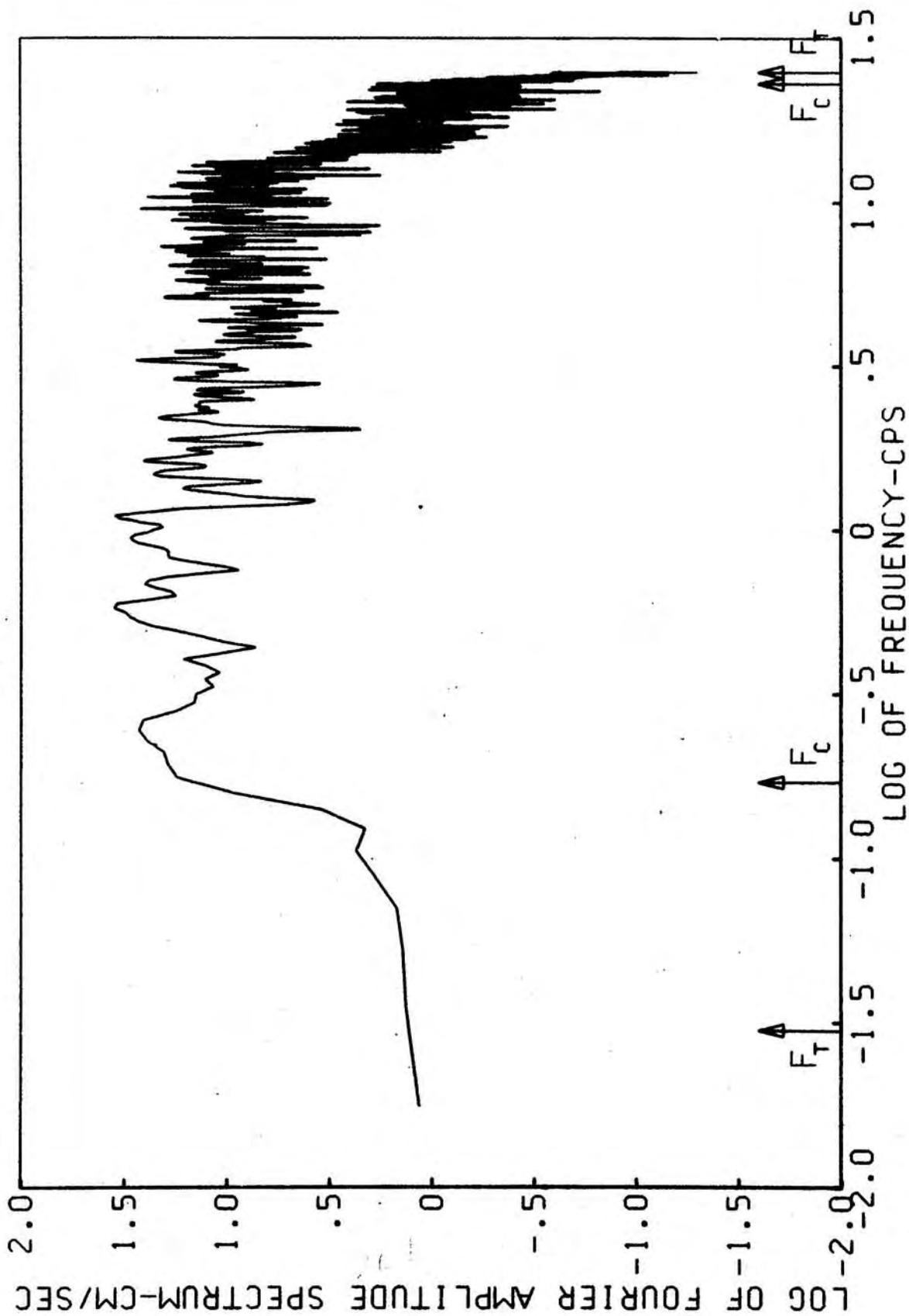
RESPONSE SPECTRA
15 OCT 1979 2317 UTC WESTMORLAND TR 2
0, 2, 5, 10, 20 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG TEMP WESTMORLAND SMA 2588 TR 2 UP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



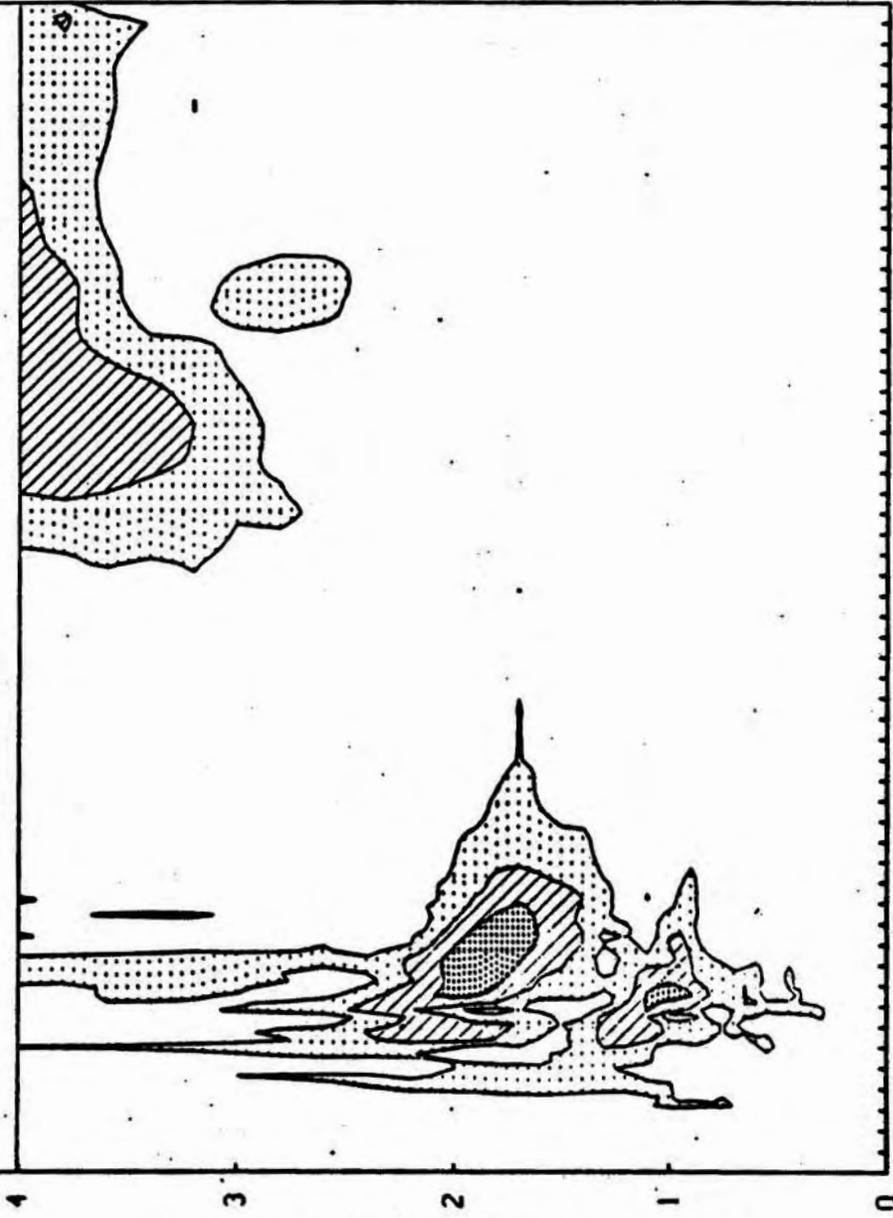
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG TEMP WESTMORLAND SMA 2588 TR 2 UP
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



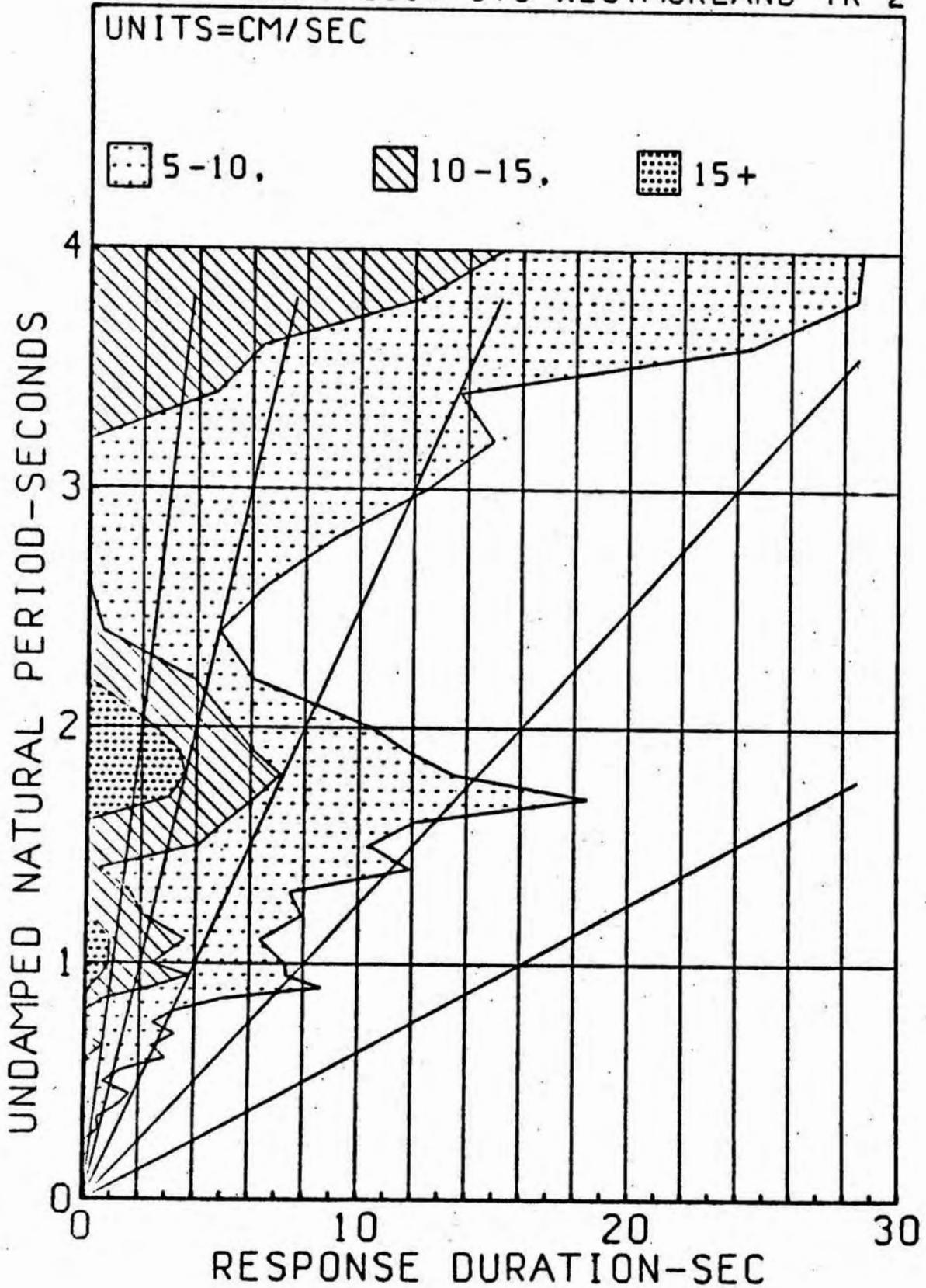
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ

UNITS=CM/SEC 15 OCT 1979 2317 UTC WESTMORLAND TR 2

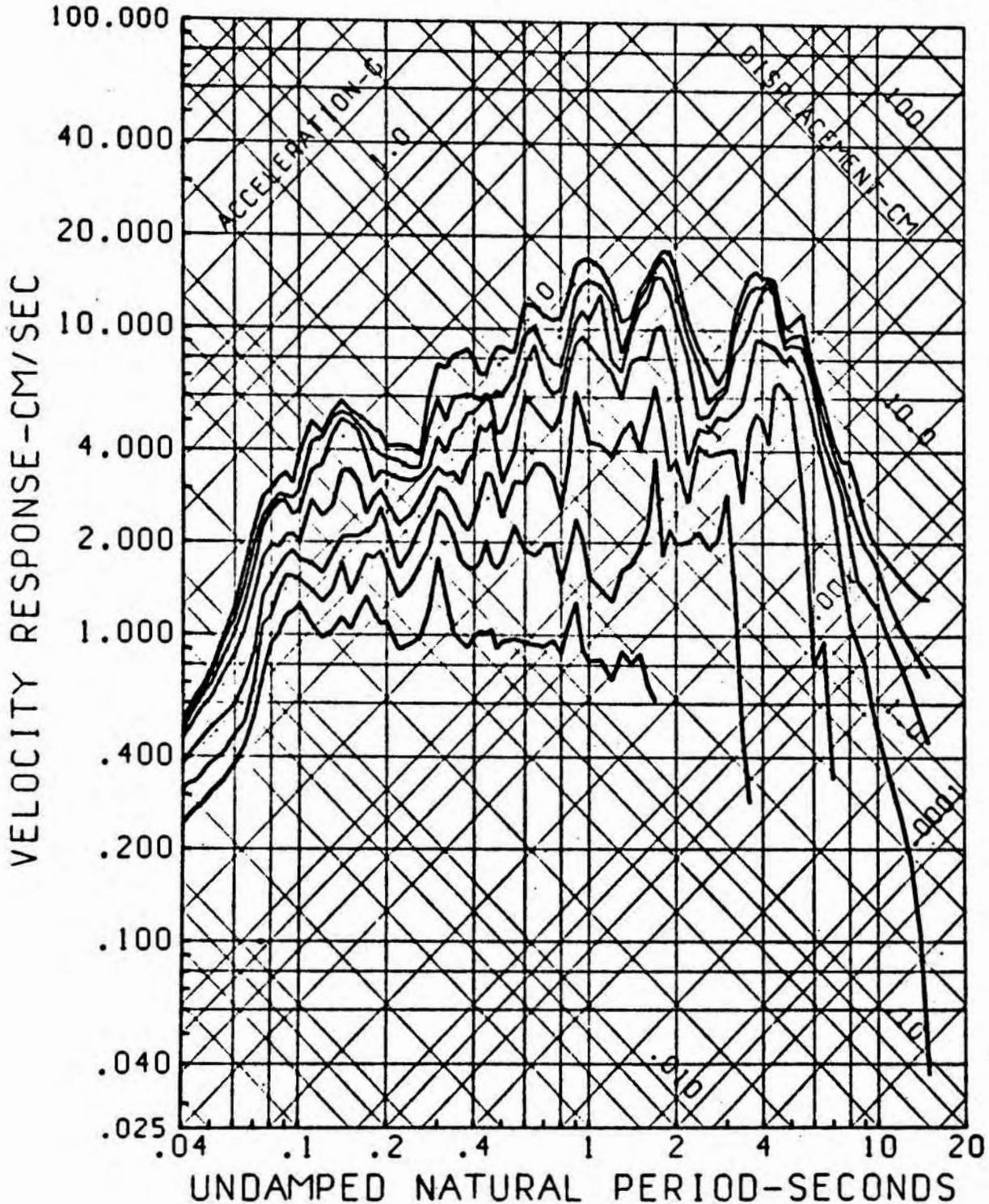
- 0-5.
- ▨ 5-10.
- ▩ 10-15.
- ▩ 15+



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC WESTMORLAND TR 2



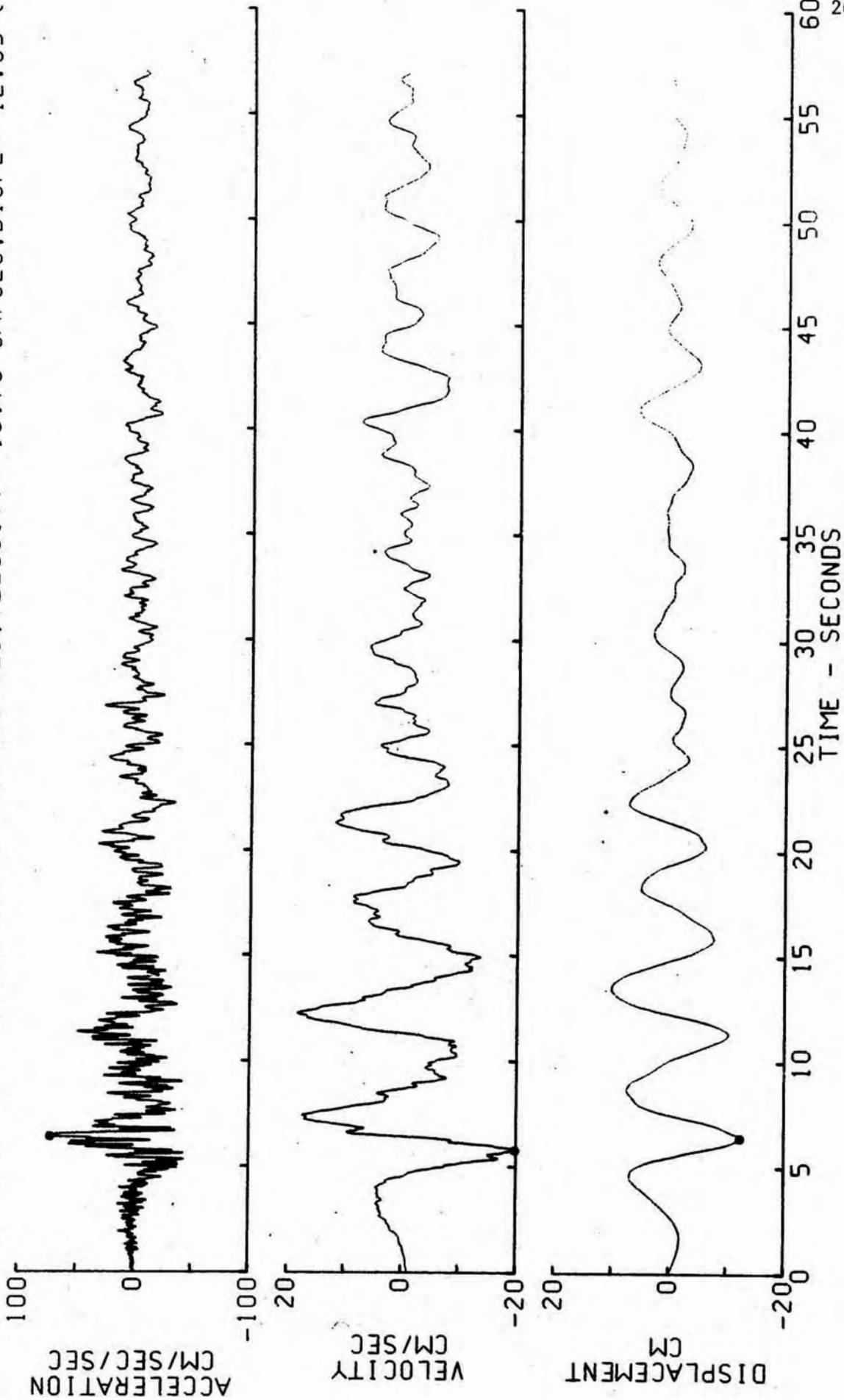
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC WESTMORLAND TR 2
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



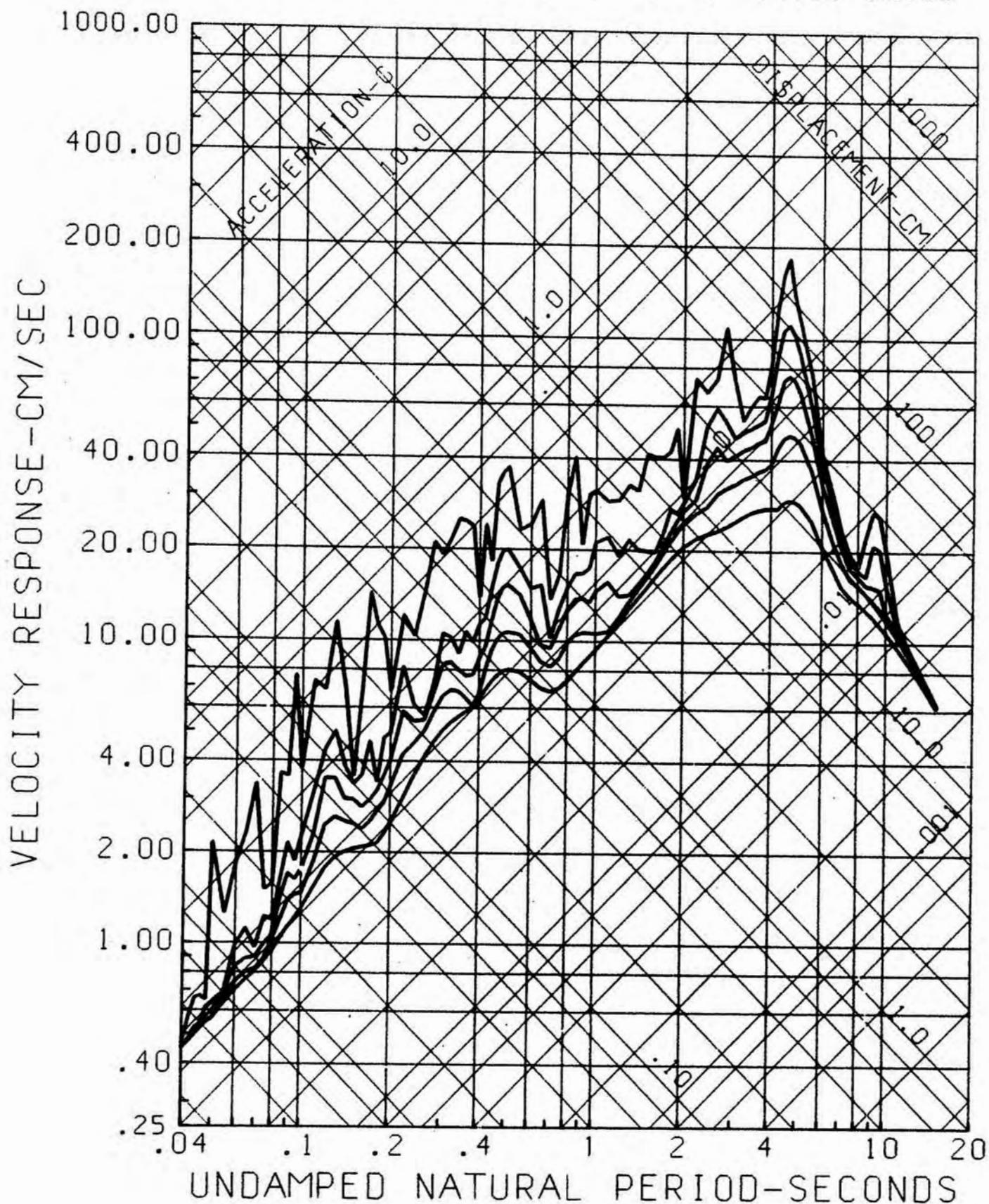
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG TEMP WESTMORLAND SMA 2588 TR 3 090 DEGREES

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

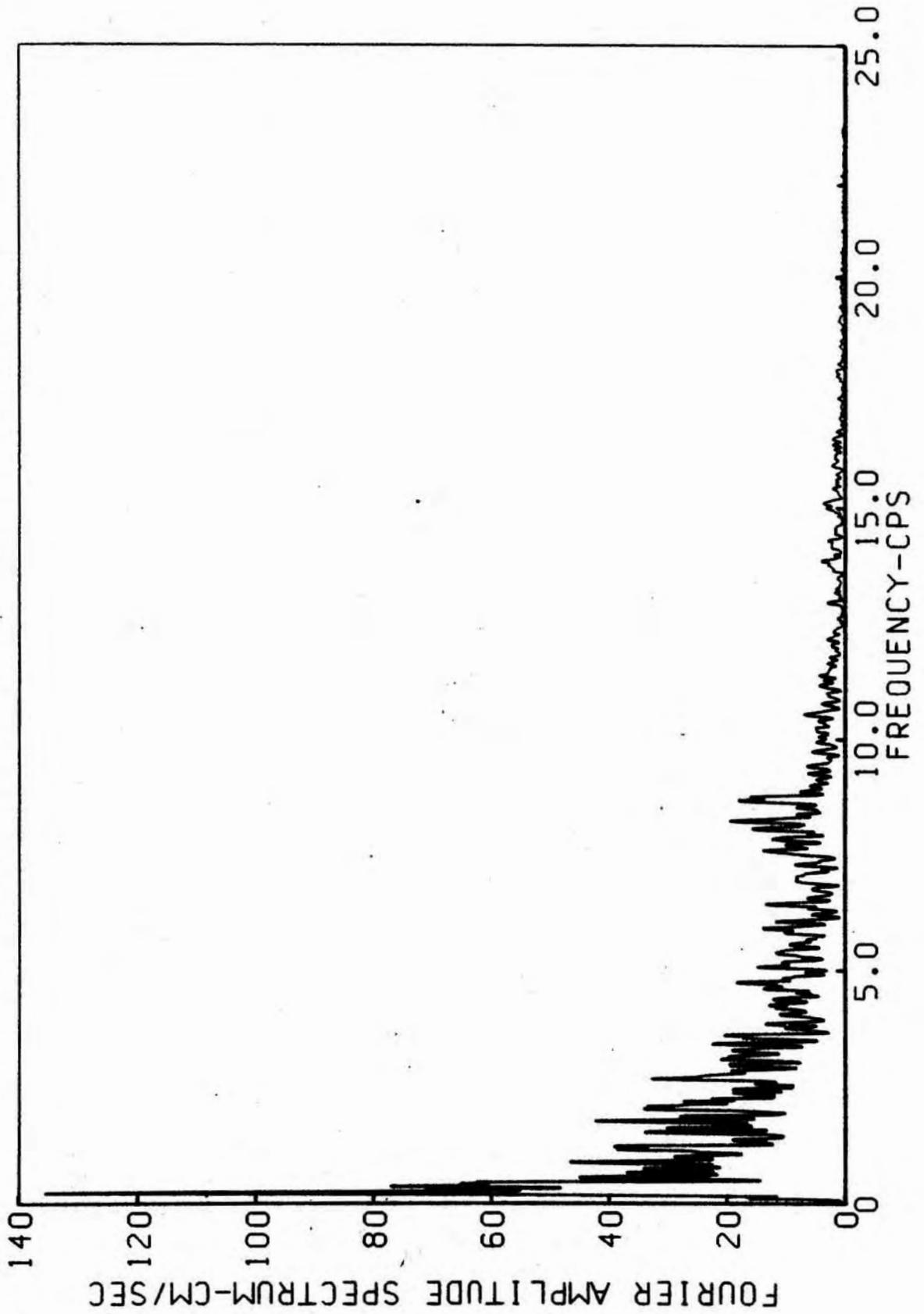
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=73.03 CM/SEC/SEC, VELOCITY=-19.79 CM/SEC, DISPL=-12.35 CM



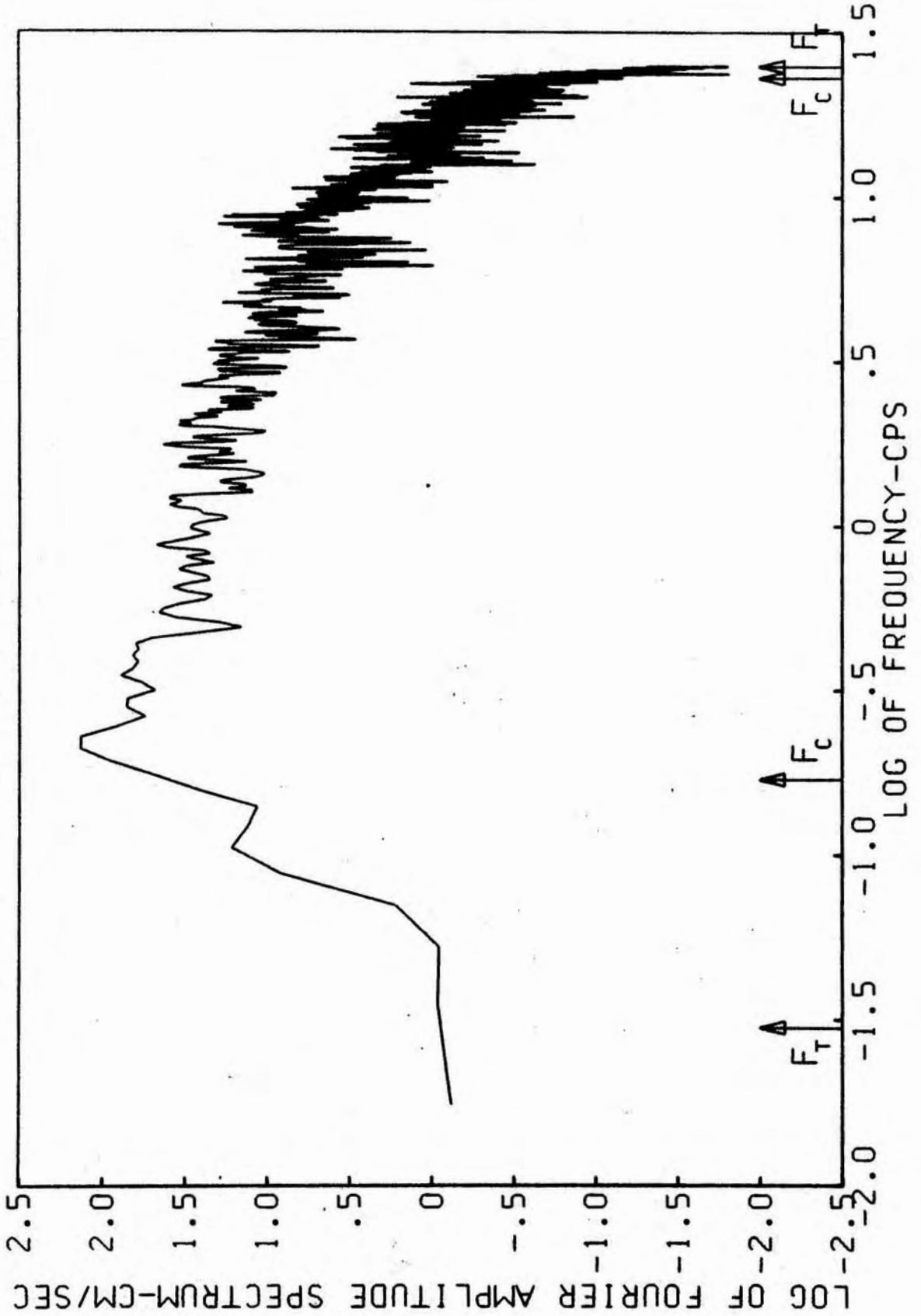
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC WESTMORLAND TR
 0.2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG TEMP WESTMORLAND SMA 2588 TR 3 090 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

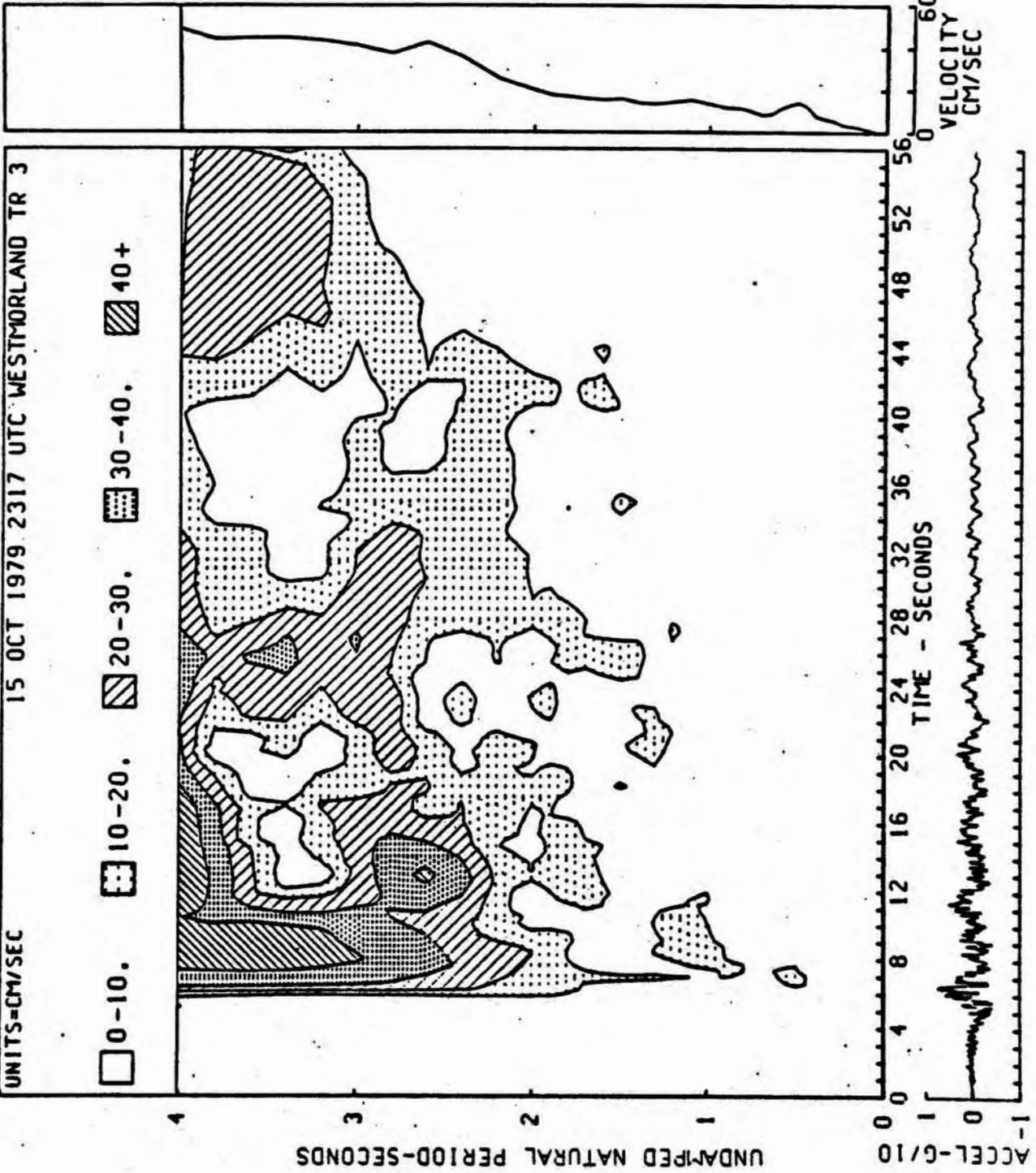


FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG TEMP WESTMORLAND SMA 2588 TR 3 090 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

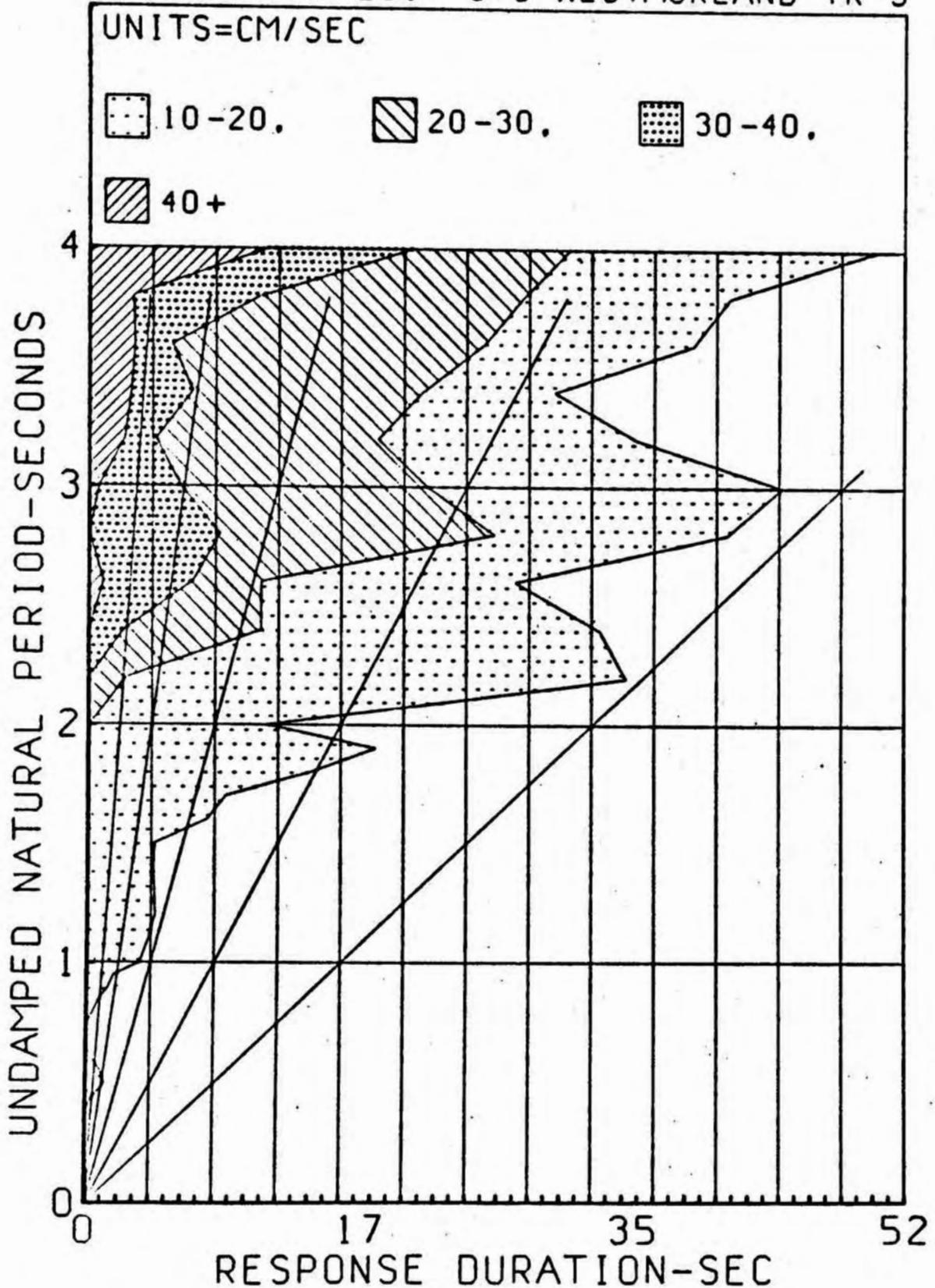


VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00 - 25.00 HZ

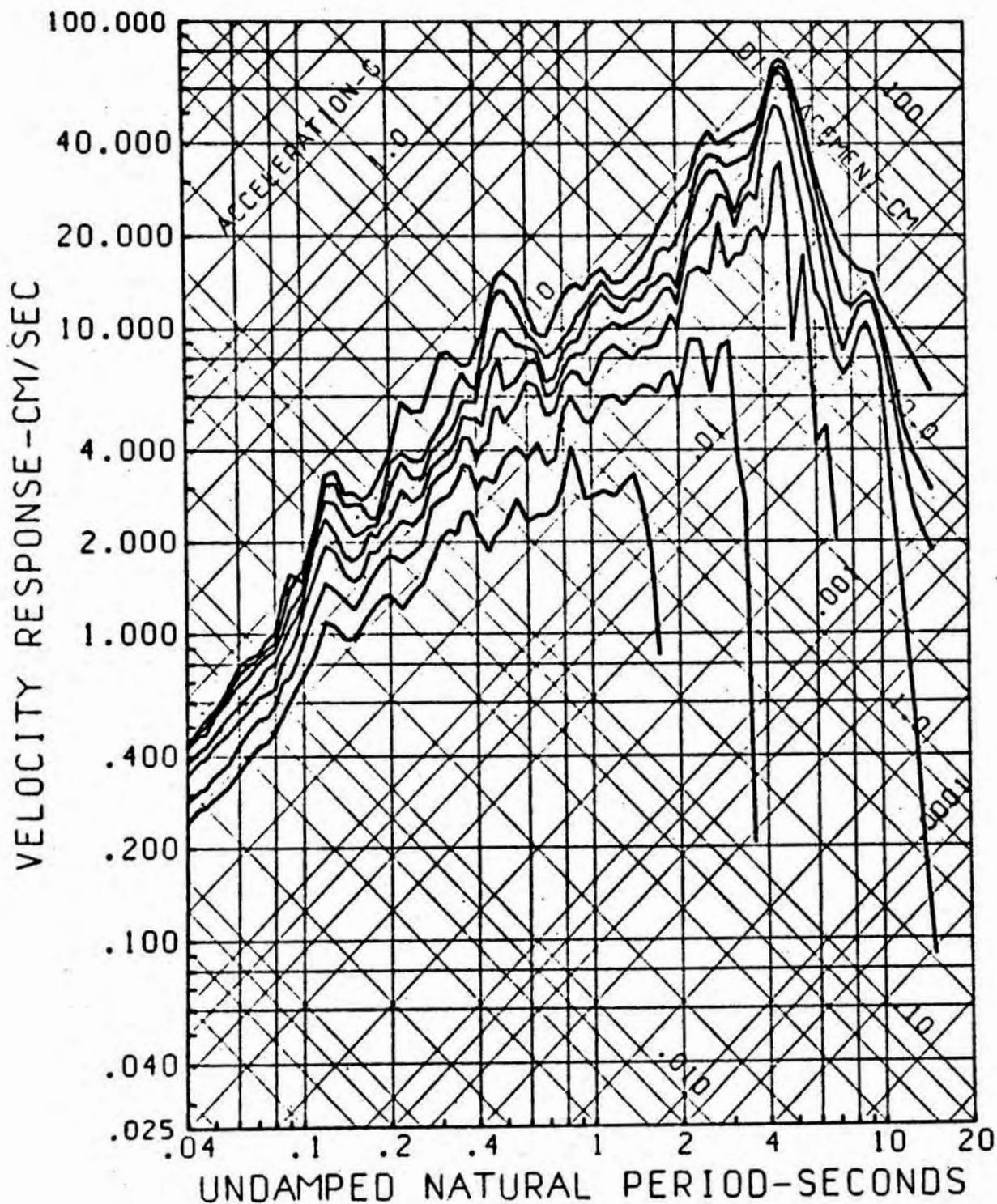
UNITS=CM/SEC
15 OCT 1979 2317 UTC WESTMORLAND TR 3



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC WESTMORLAND TR 3

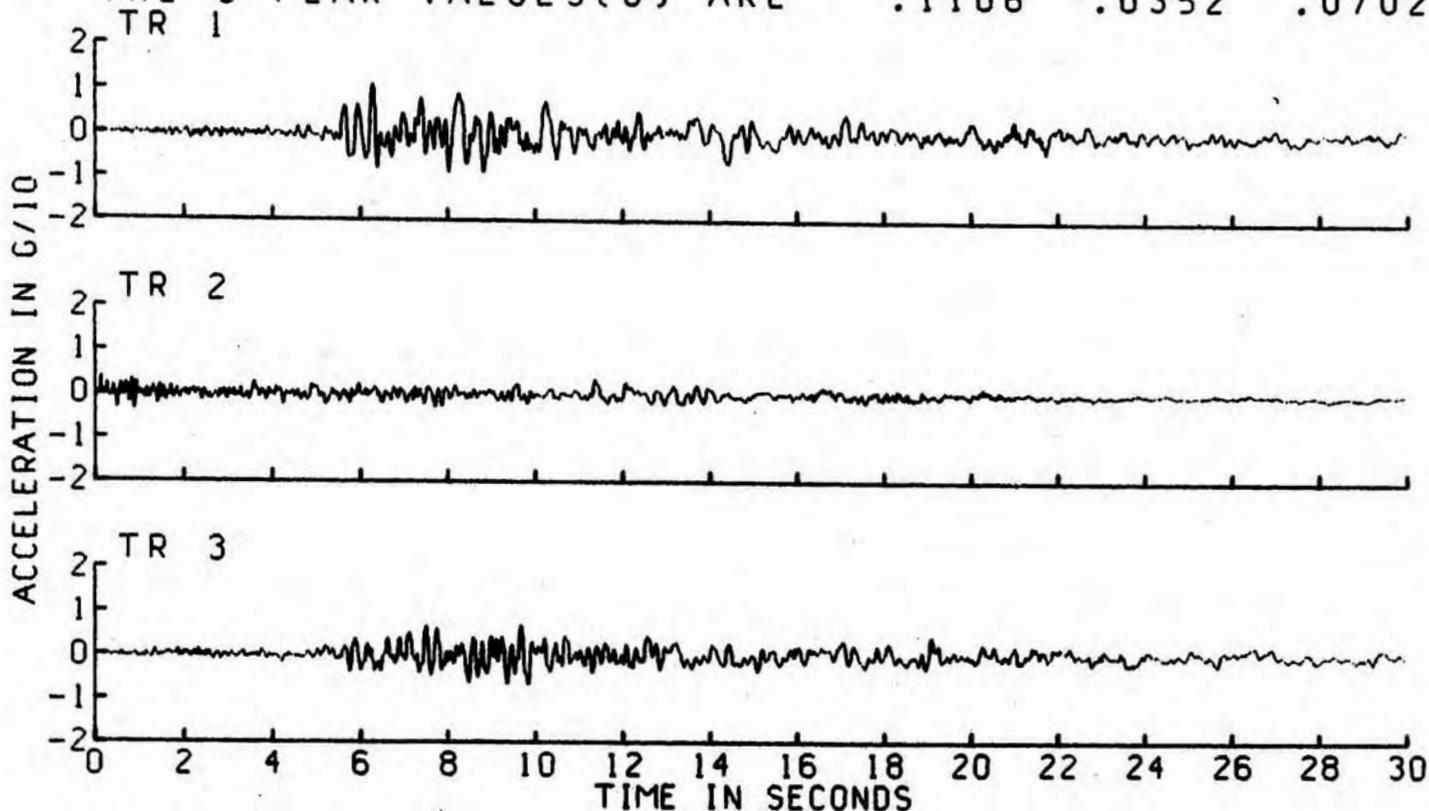


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC WESTMORLAND TR 3
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

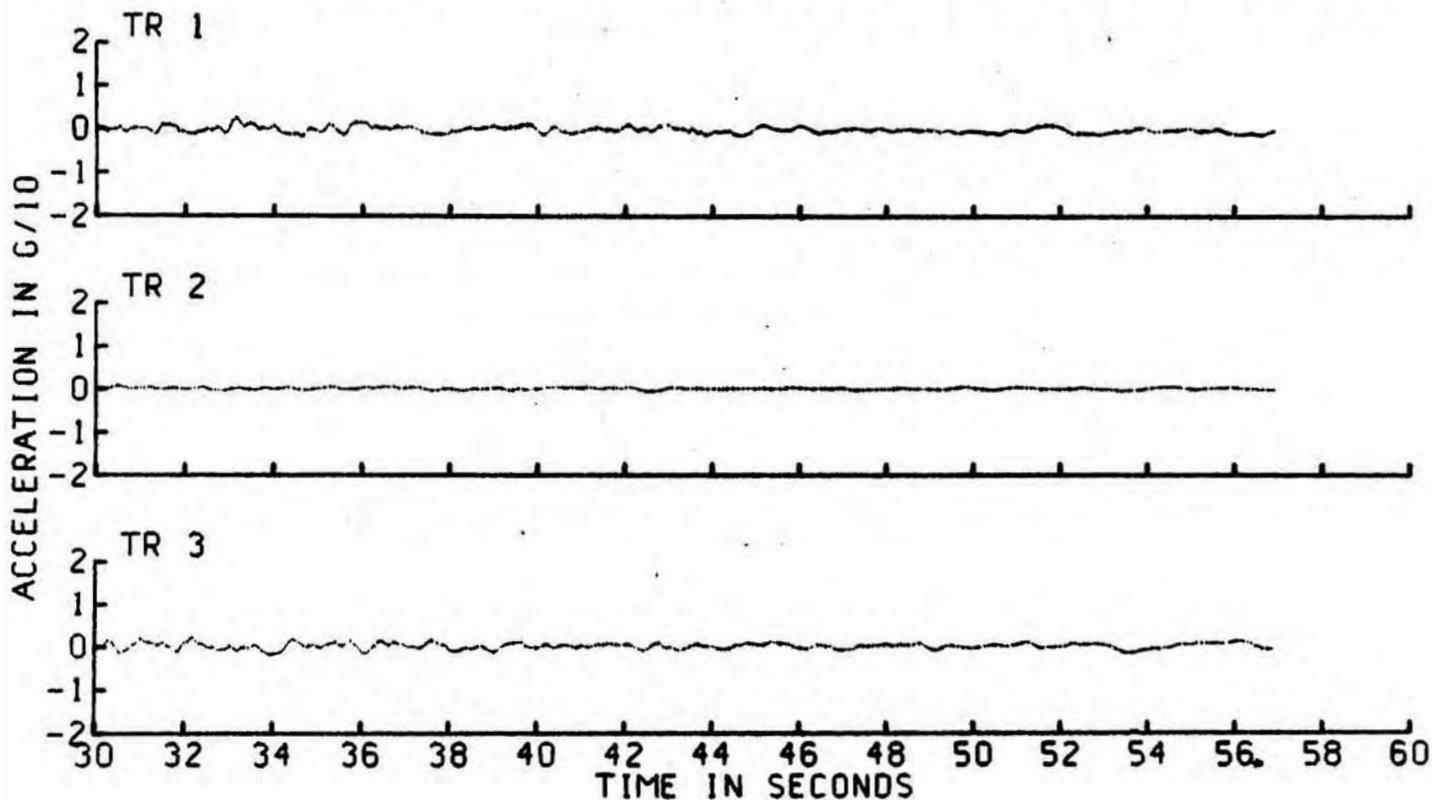


UNCORRECTED ACCELEROGRAM

15 OCT 1979 2317 UTC DMG 023 NILAND FRFLD SMA 2550
THE 3 PEAK VALUES(G) ARE .1106 .0352 .0702



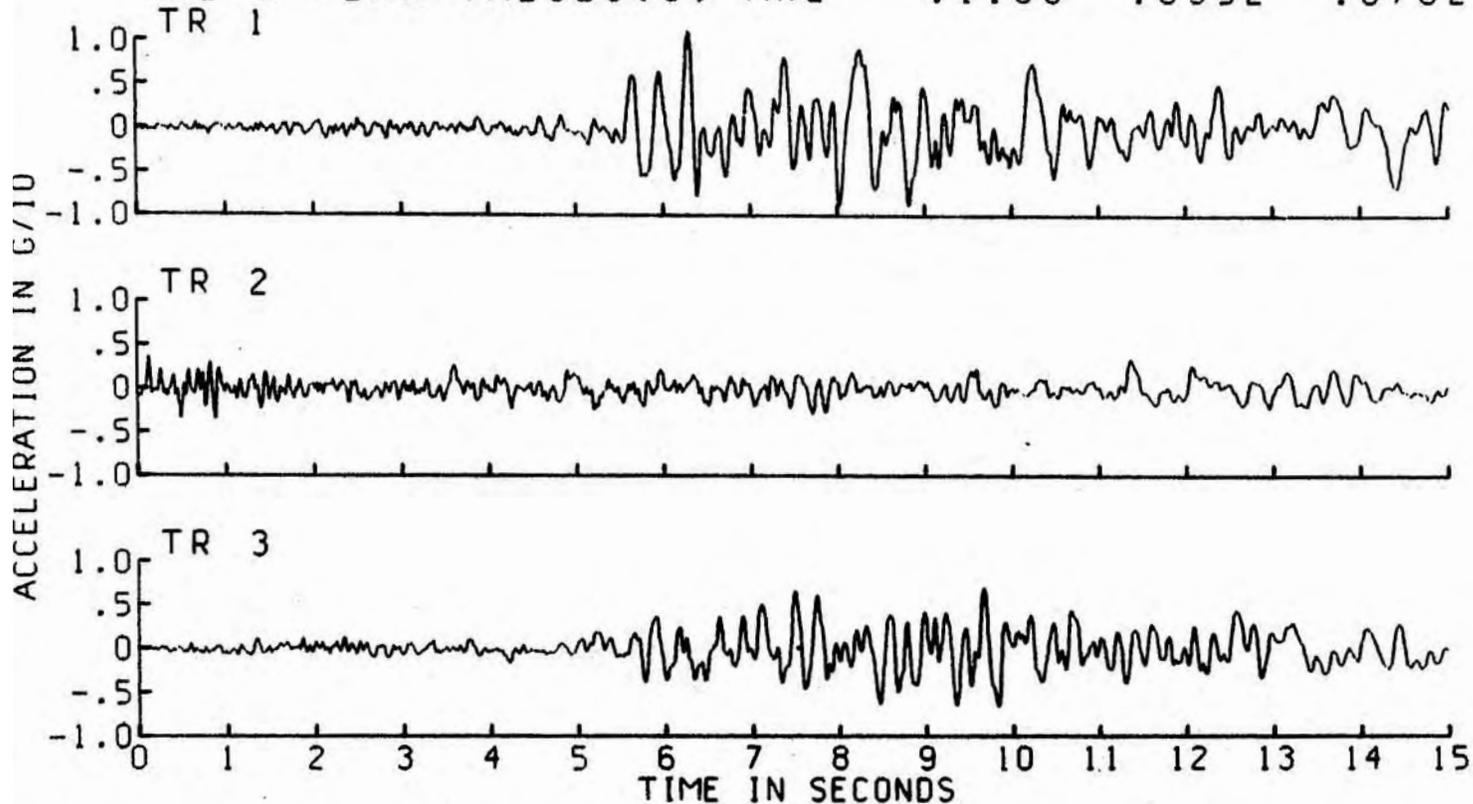
15 OCT 1979 2317 UTC DMG 023 NILAND FRFLD SMA 2550



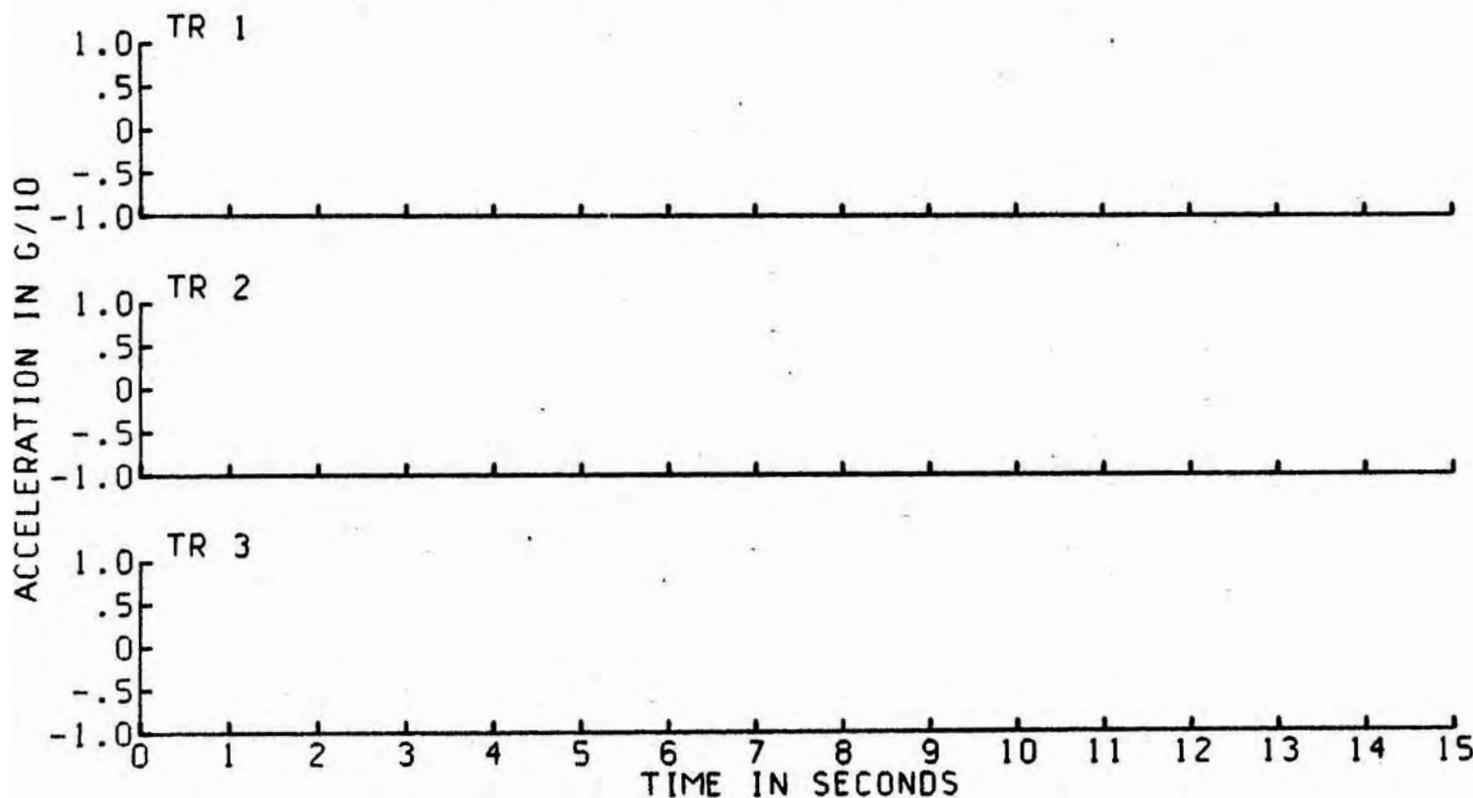
UNCORRECTED ACCELEROGRAM

273

15 OCT 1979 2317 UTC DMG 023 NILAND FRFLD SMA 2550
THE 3 PEAK VALUES(G) ARE .1106 .0352 .0702



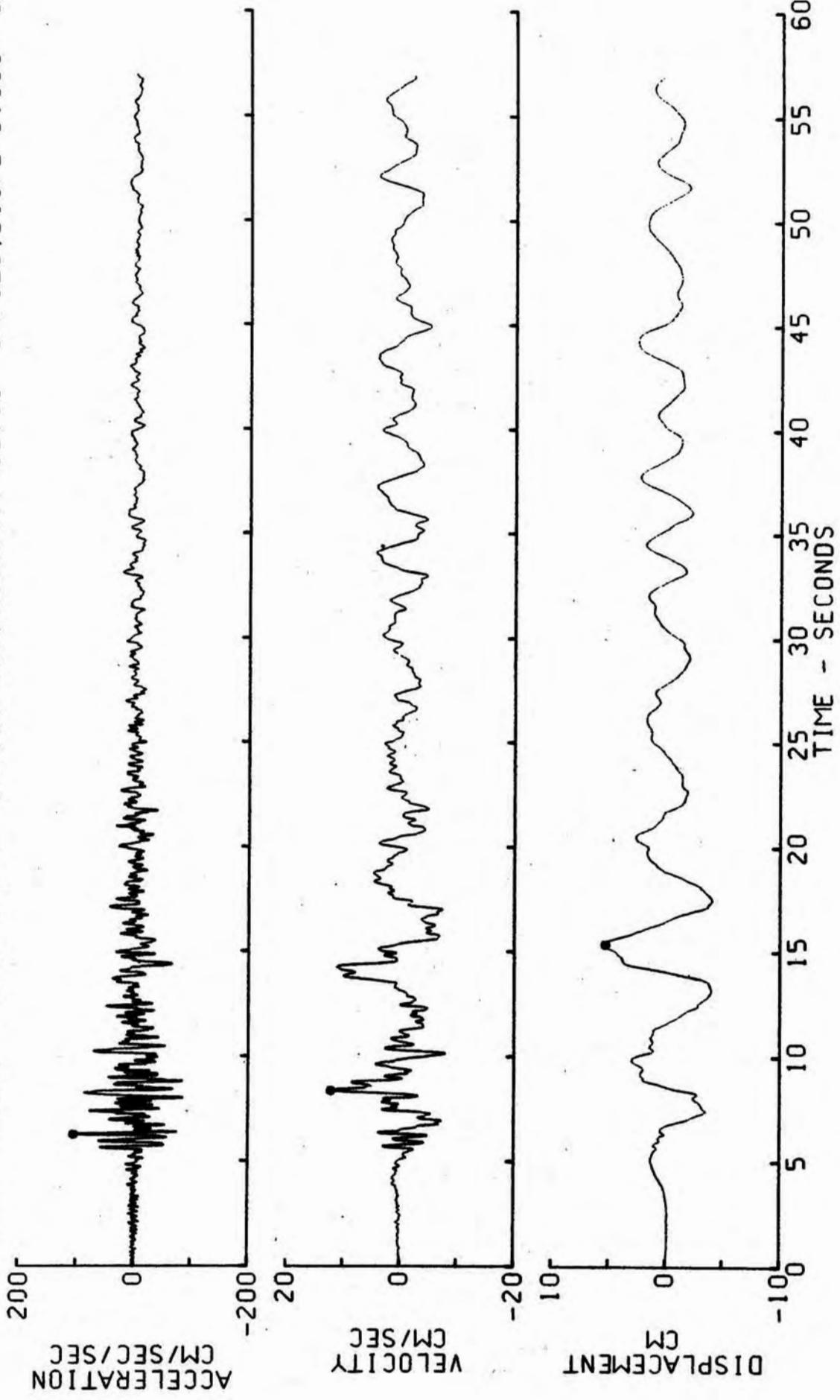
15 OCT 1979 2317 UTC DMG 023 NILAND FRFLD SMA 2550



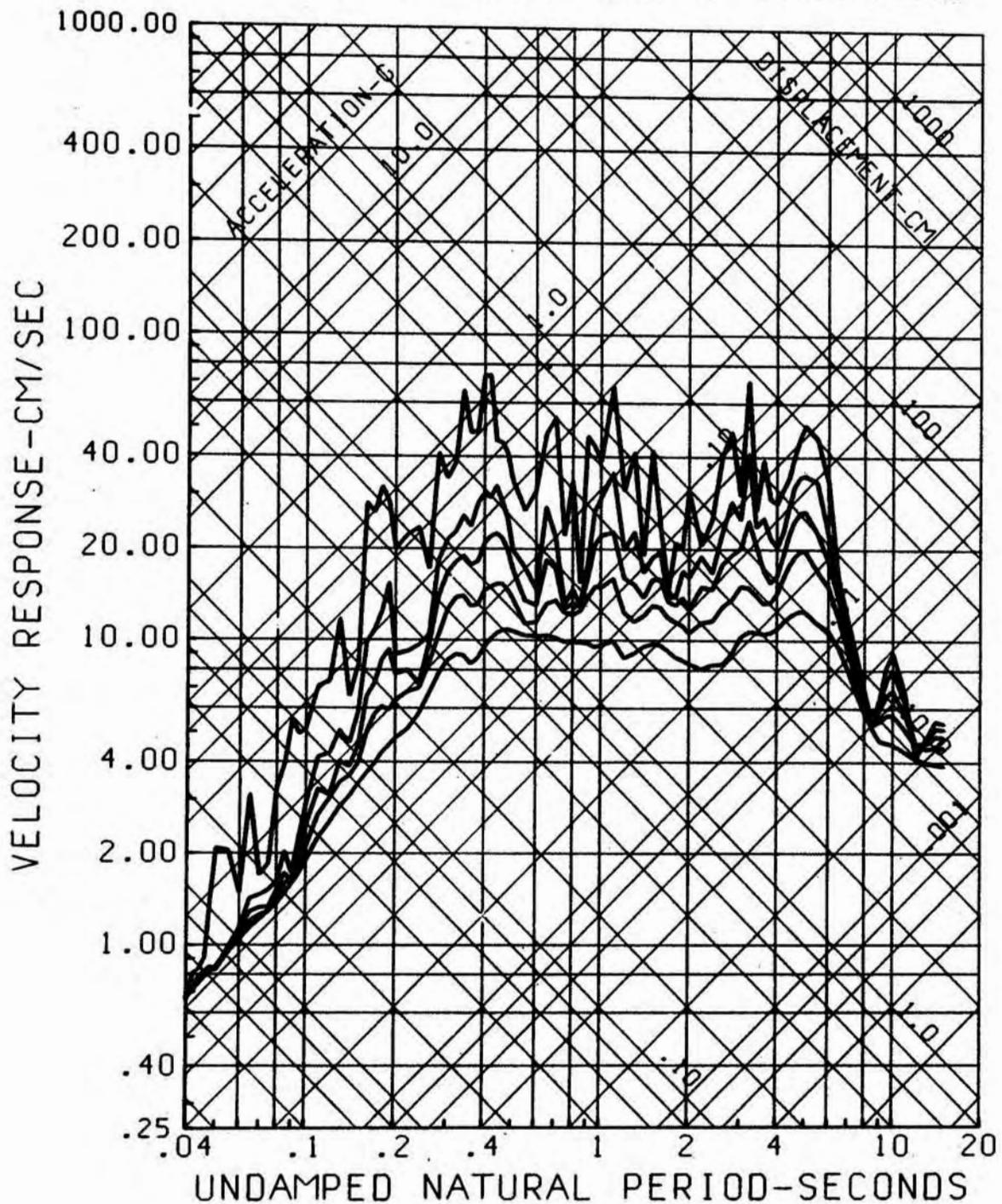
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 023 NILAND FRFLD SMA 2550 TR 1 090 DEGREES

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

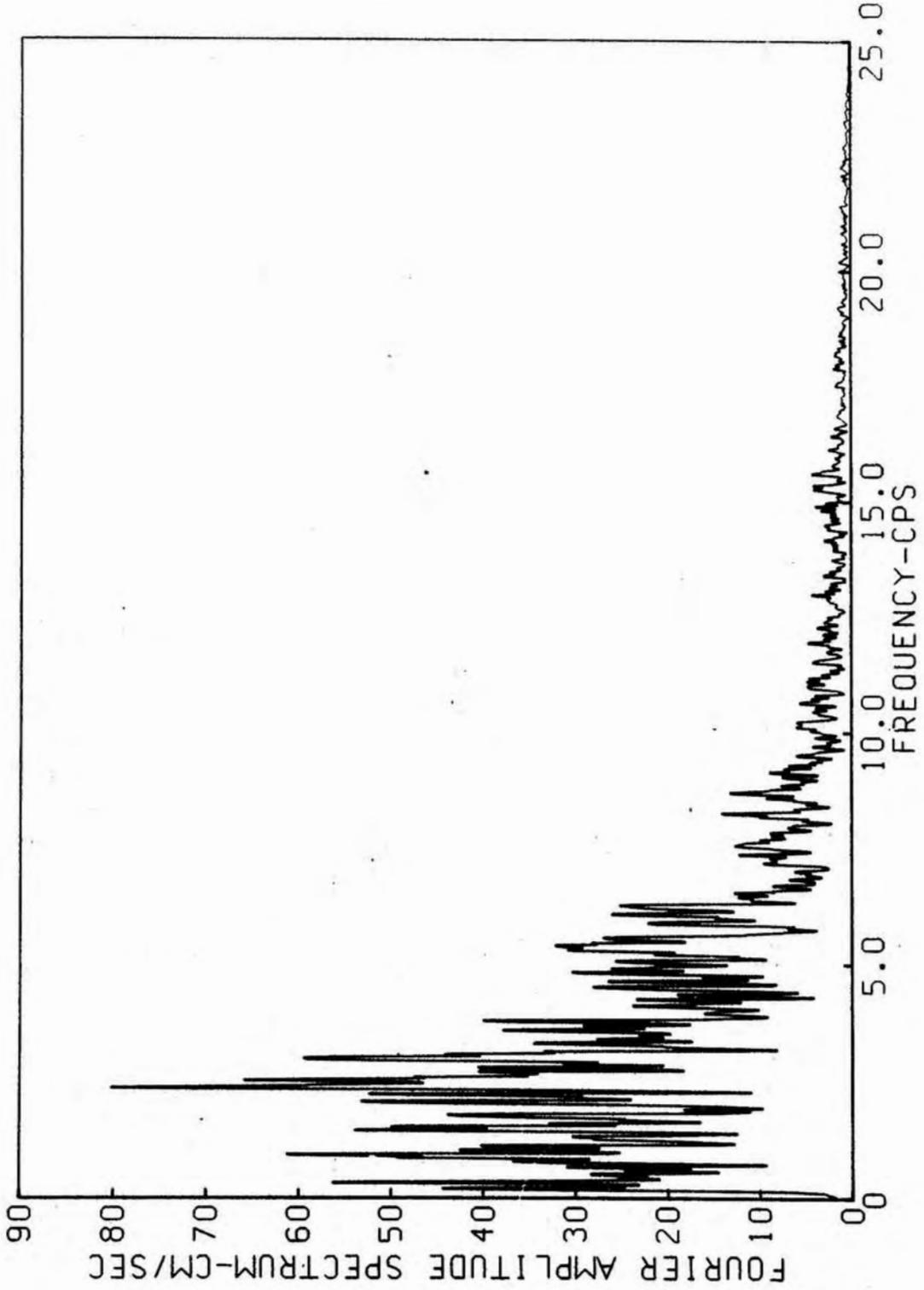
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=106.1 CM/SEC/SEC, VELOCITY=12.16 CM/SEC, DISPL=5.300 CM



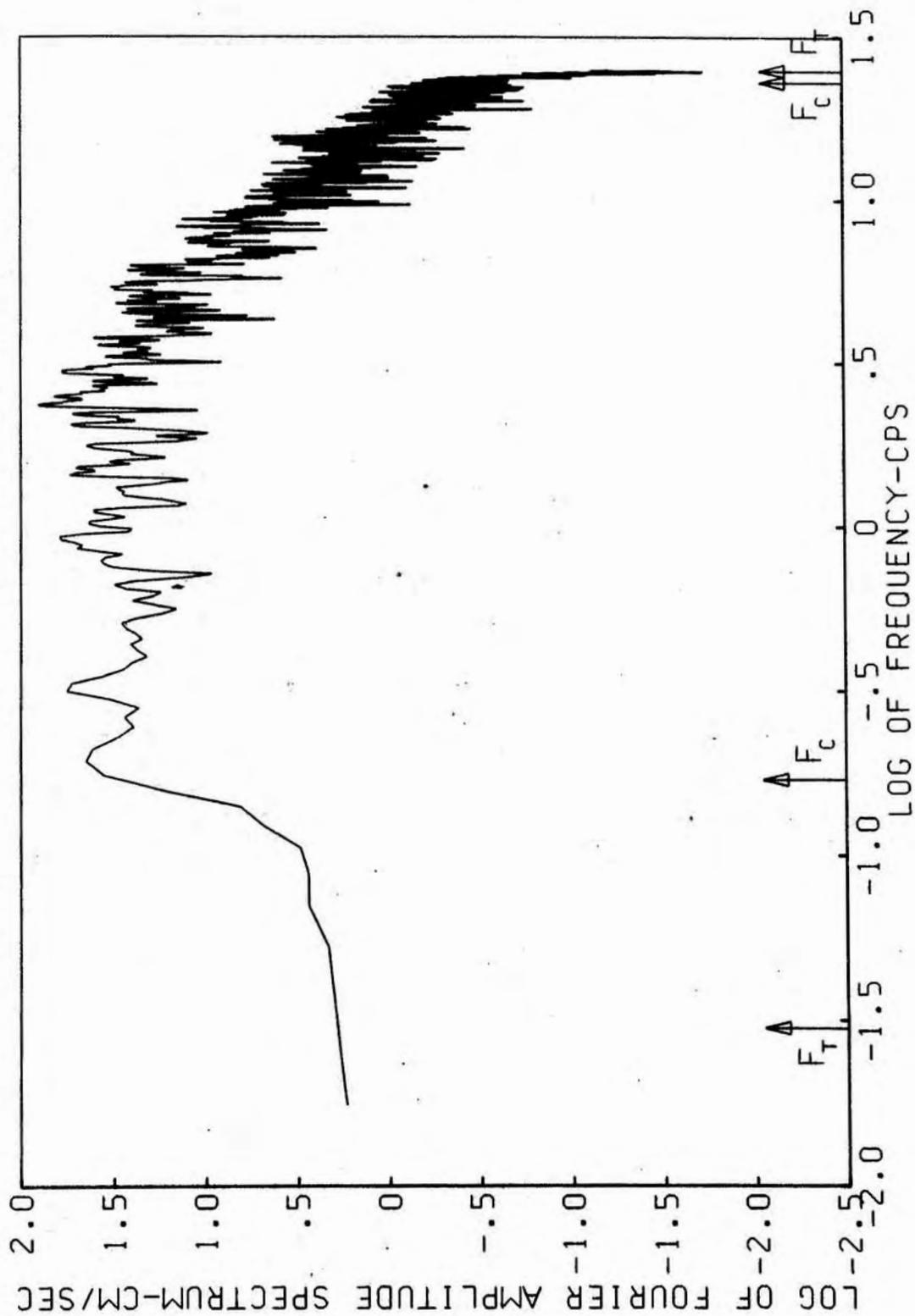
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC NILAND FRFLD TR 1
 0.2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMC 023 NILAND FRFLD SMA 2550 TR 1 090 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

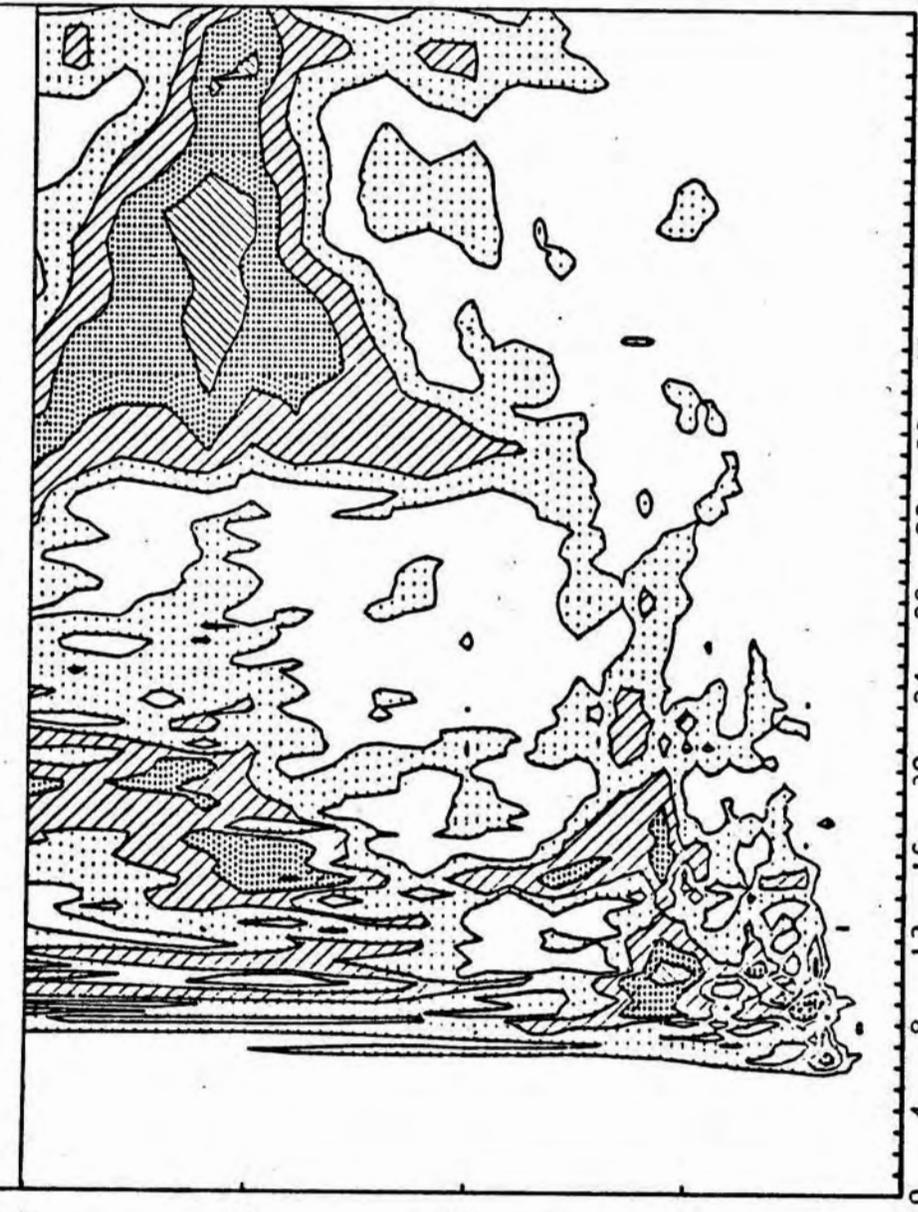


FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 023 NILAND FRFLD SMA 2550 TR 1 090 DEGREES
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
UNITS=CM/SEC
15 OCT 1979 2317 UTC NILAND FRFLD TR 1

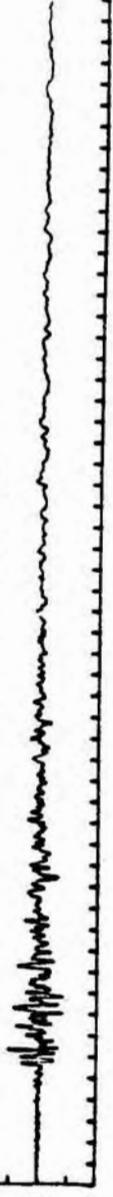
0-5, 5-10, 10-15, 15-20, 20+



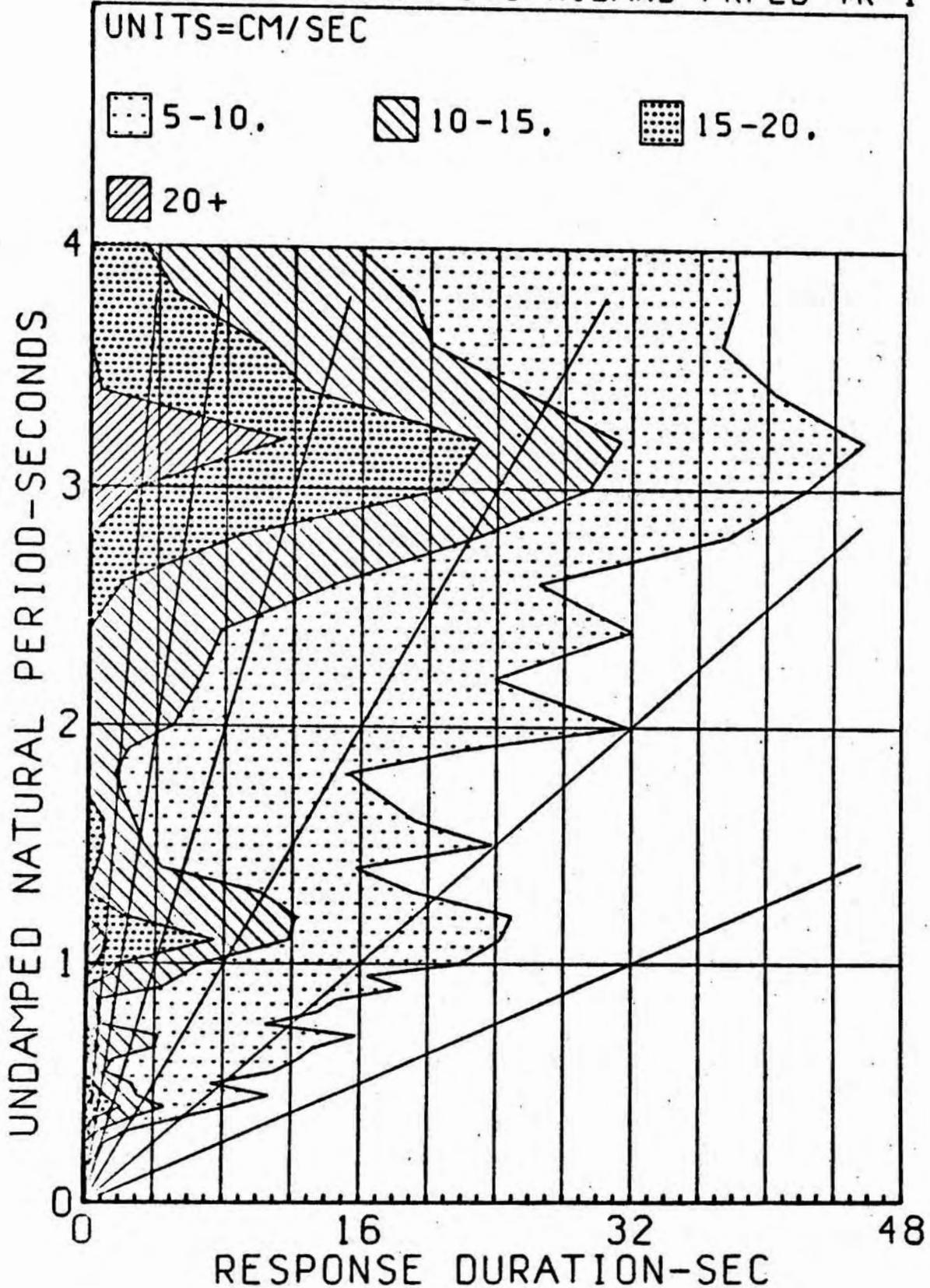
ACCEL-G/10
-2

TIME - SECONDS

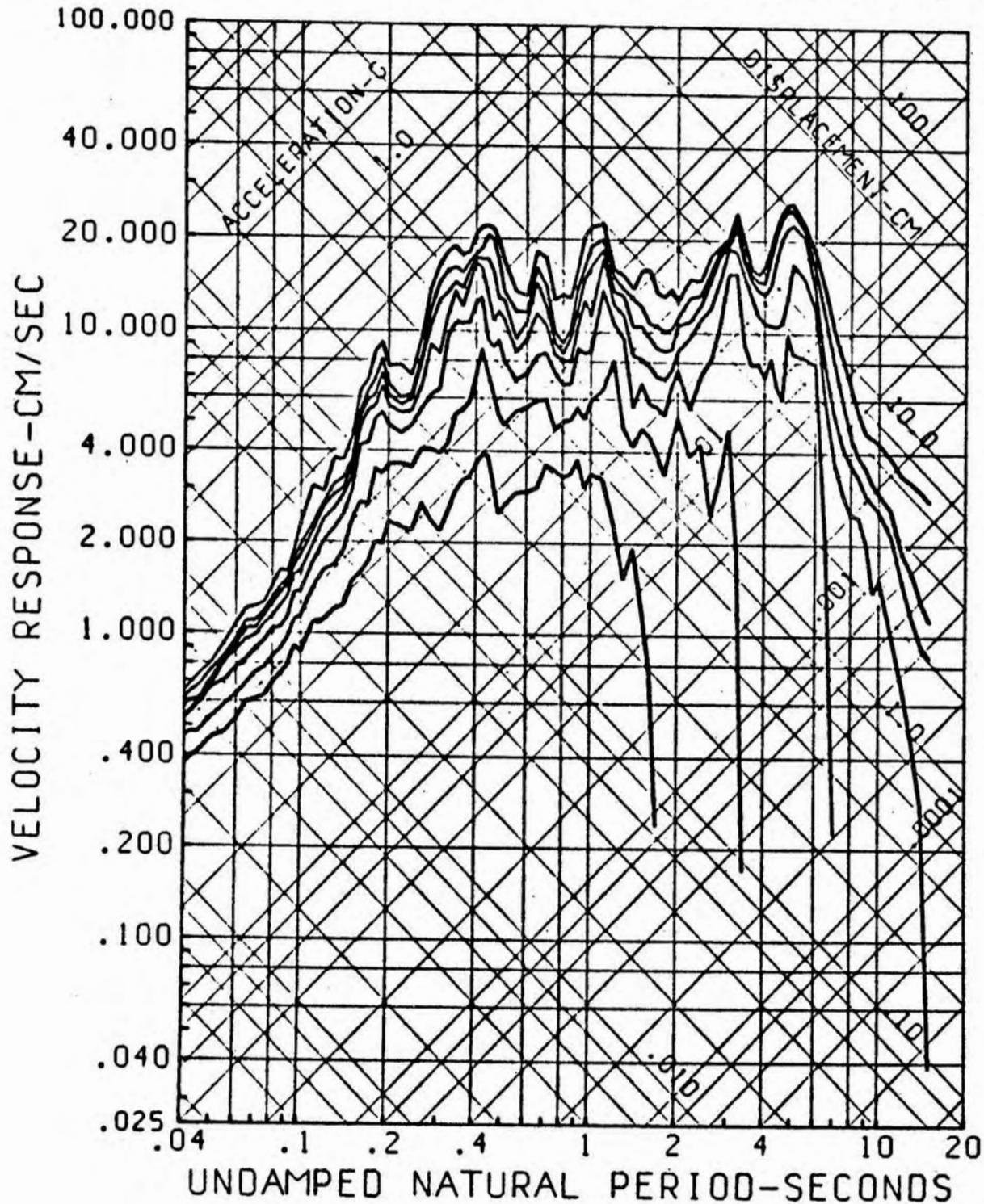
VELOCITY
CM/SEC
0 30



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC NILAND FRFLD TR 1

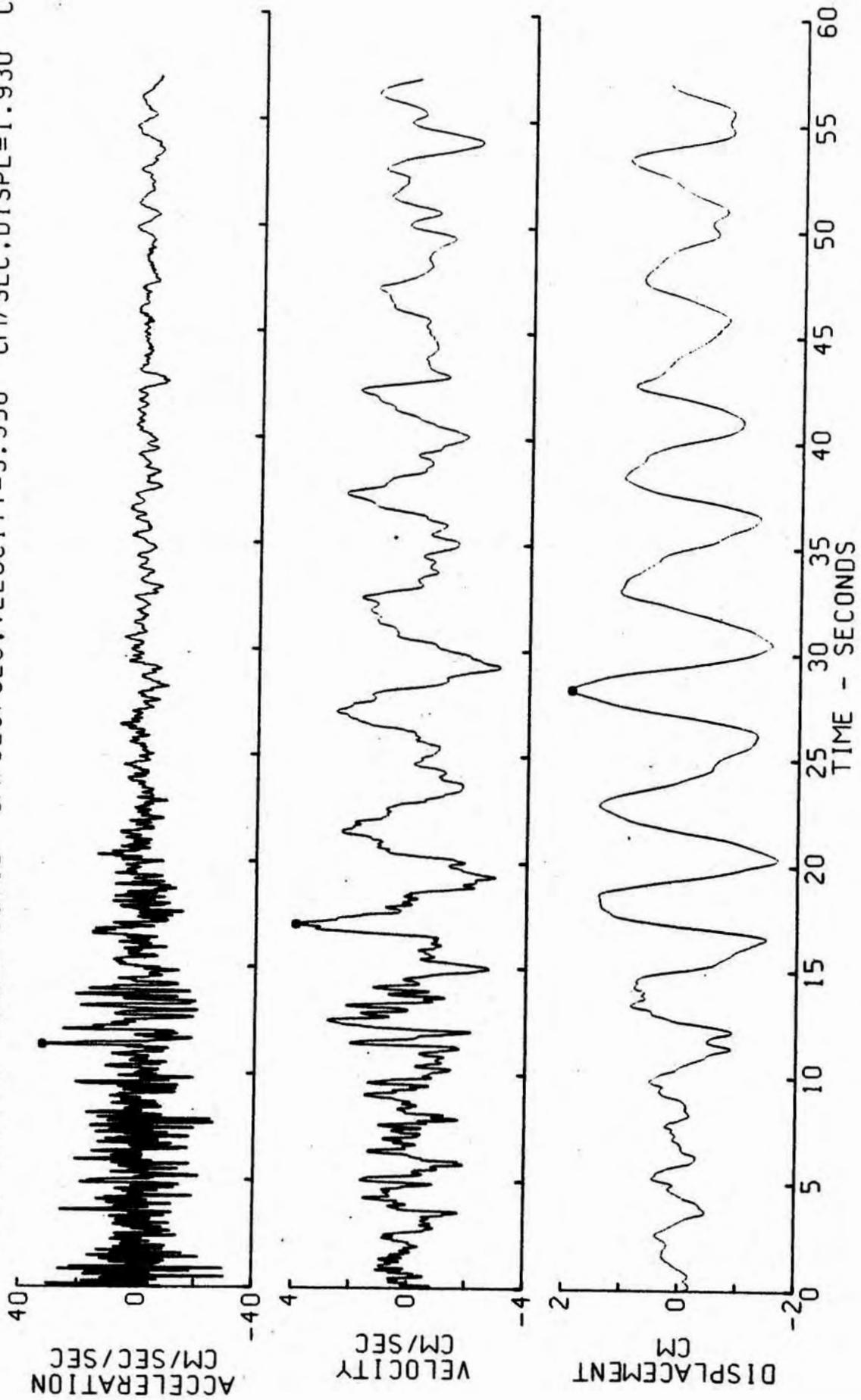


SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC NILAND FRFLO TR 1
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

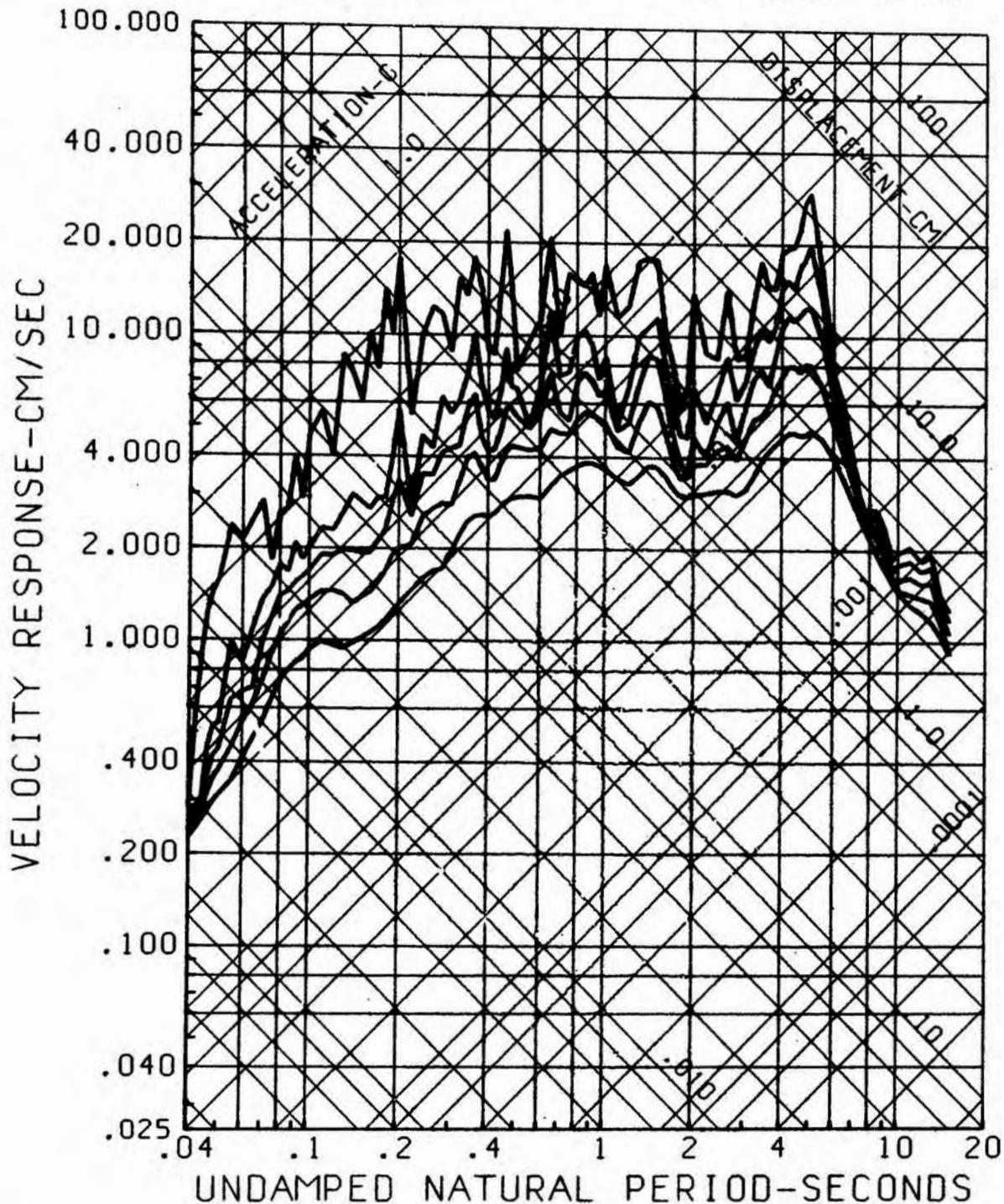


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 023 NILAND FRFLD SMA 2550 TR 2 UP

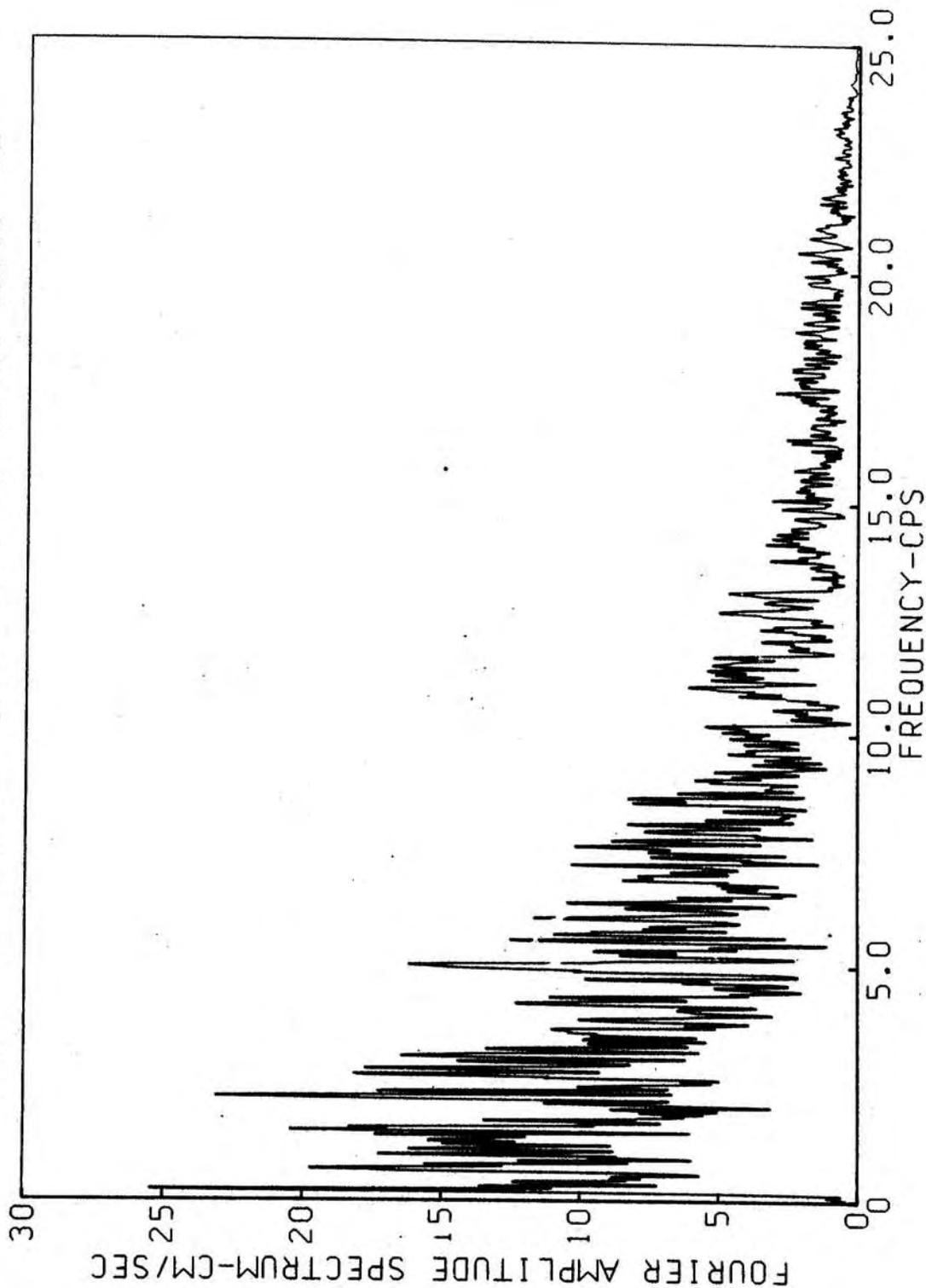
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=33.15 CM/SEC/SEC, VELOCITY=3.950 CM/SEC, DISPL=1.930 CM



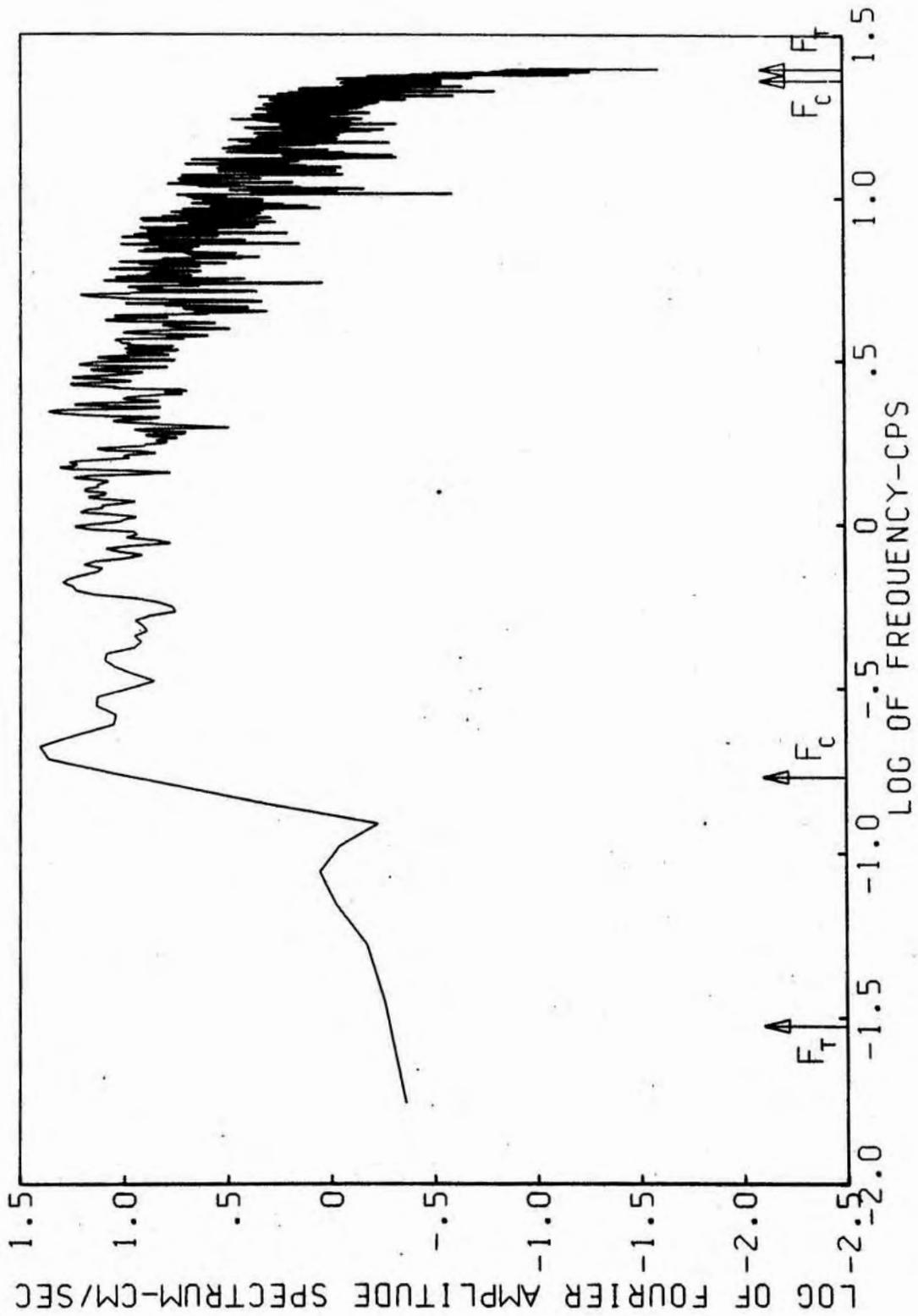
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC NILAND FRFLD TR 2
 0.2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



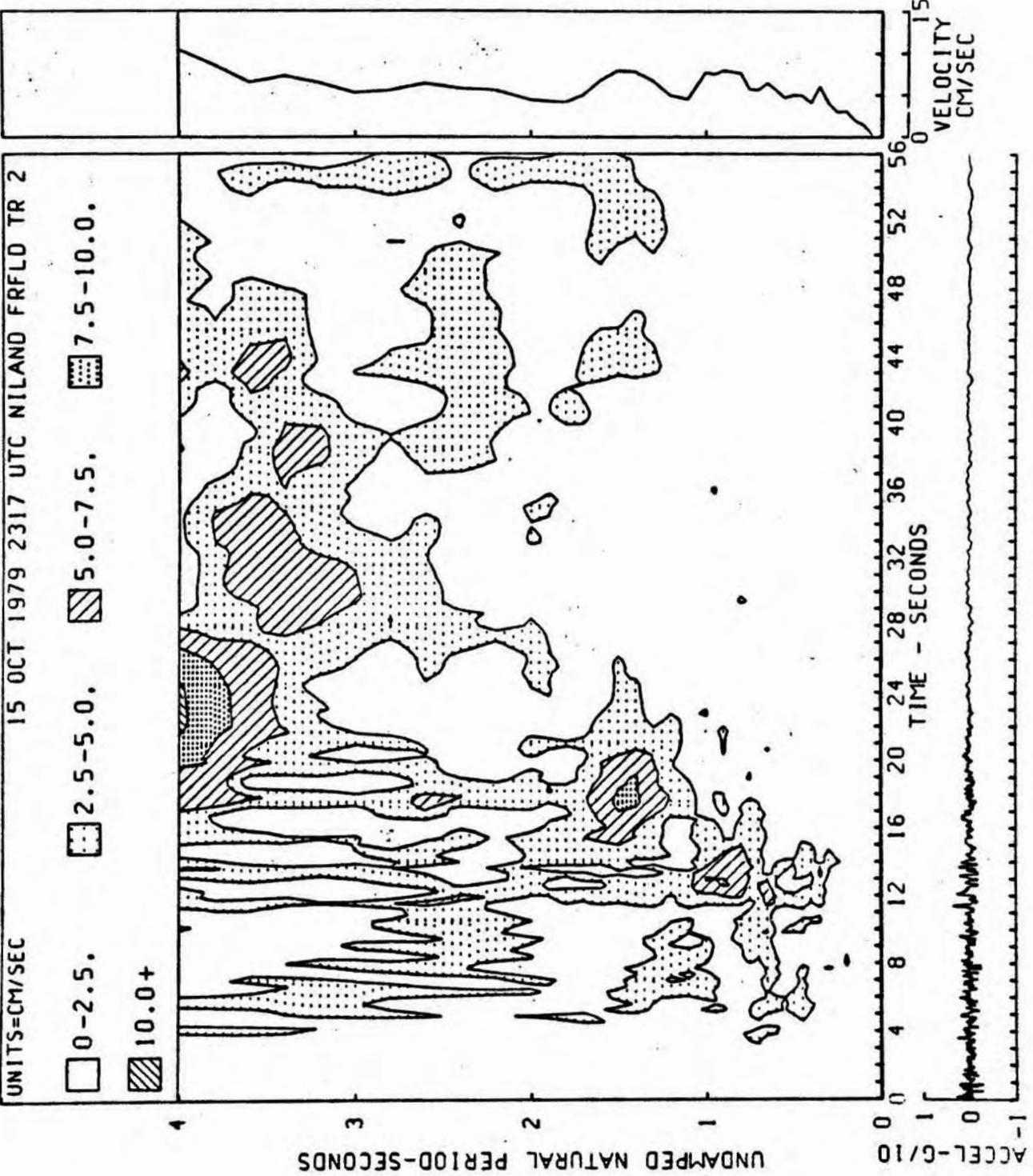
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 023 NILAND FRFLD SMA 2550 TR 2 UP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



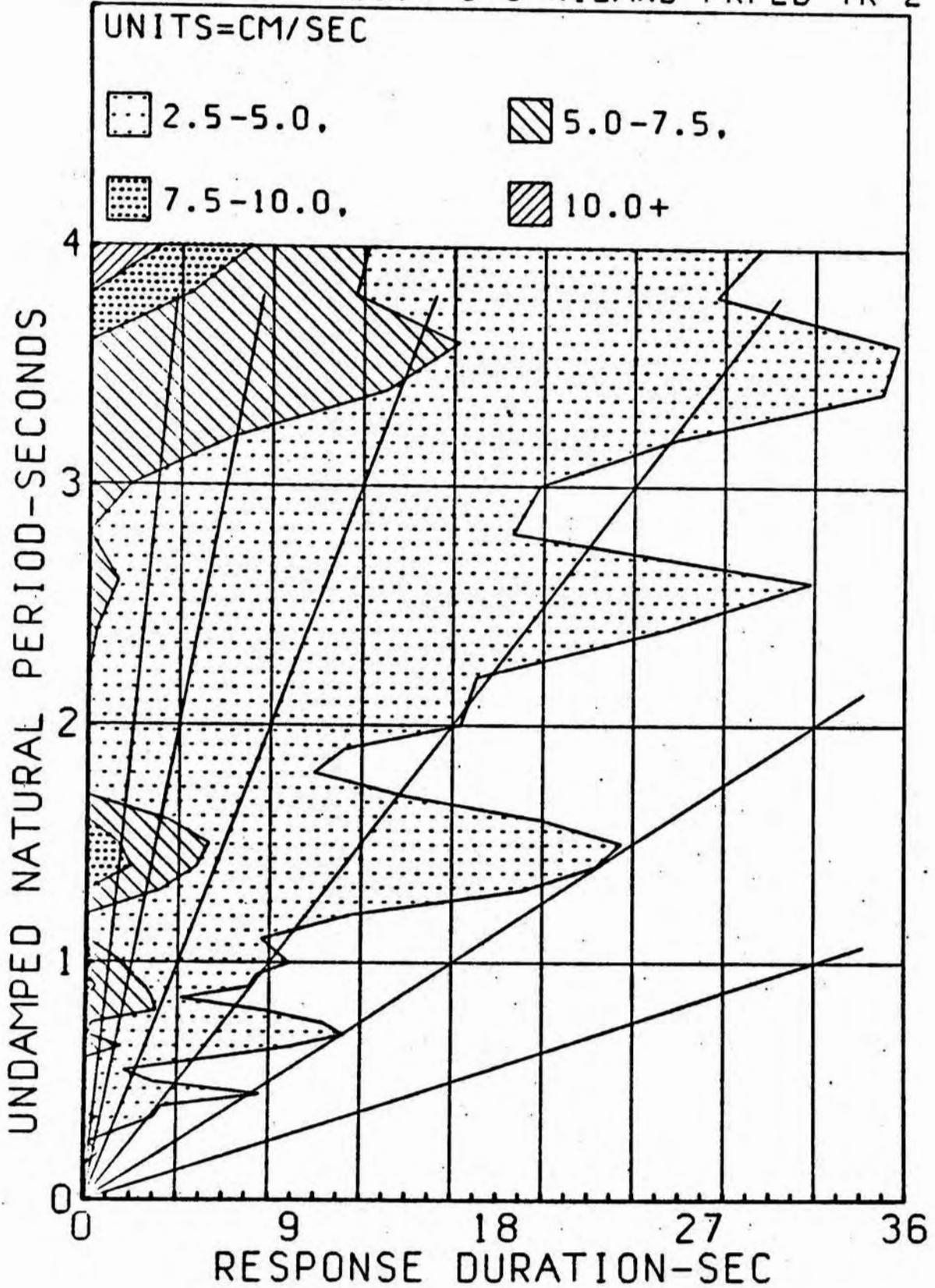
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 023 NILAND FRFLD SMA 2550 TR 2 UP
 BAND PASSED FROM .030-.170 TO 23.00-25.00 HZ



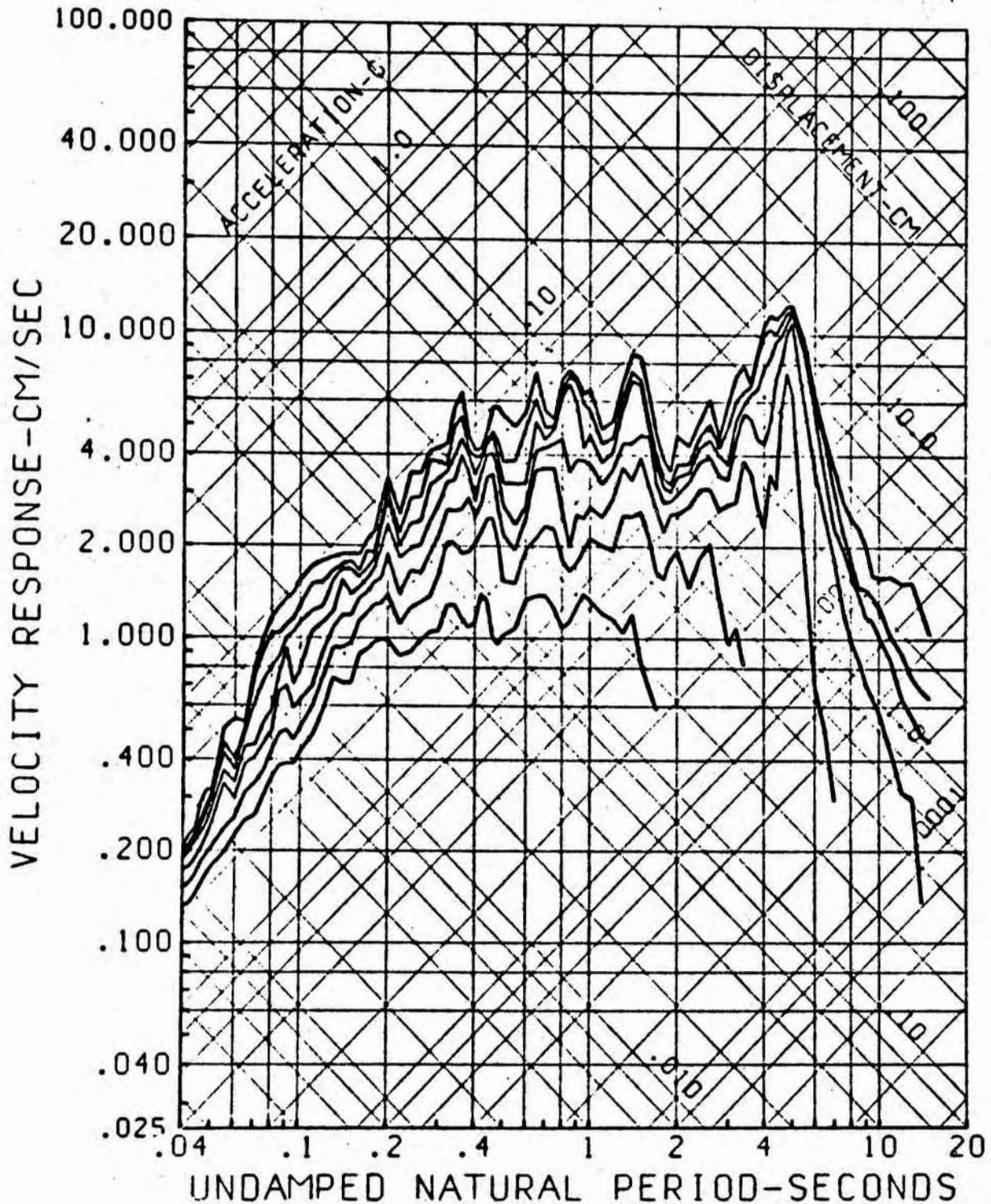
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00-25.00 HZ



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 2317 UTC NILAND FRFLD TR 2



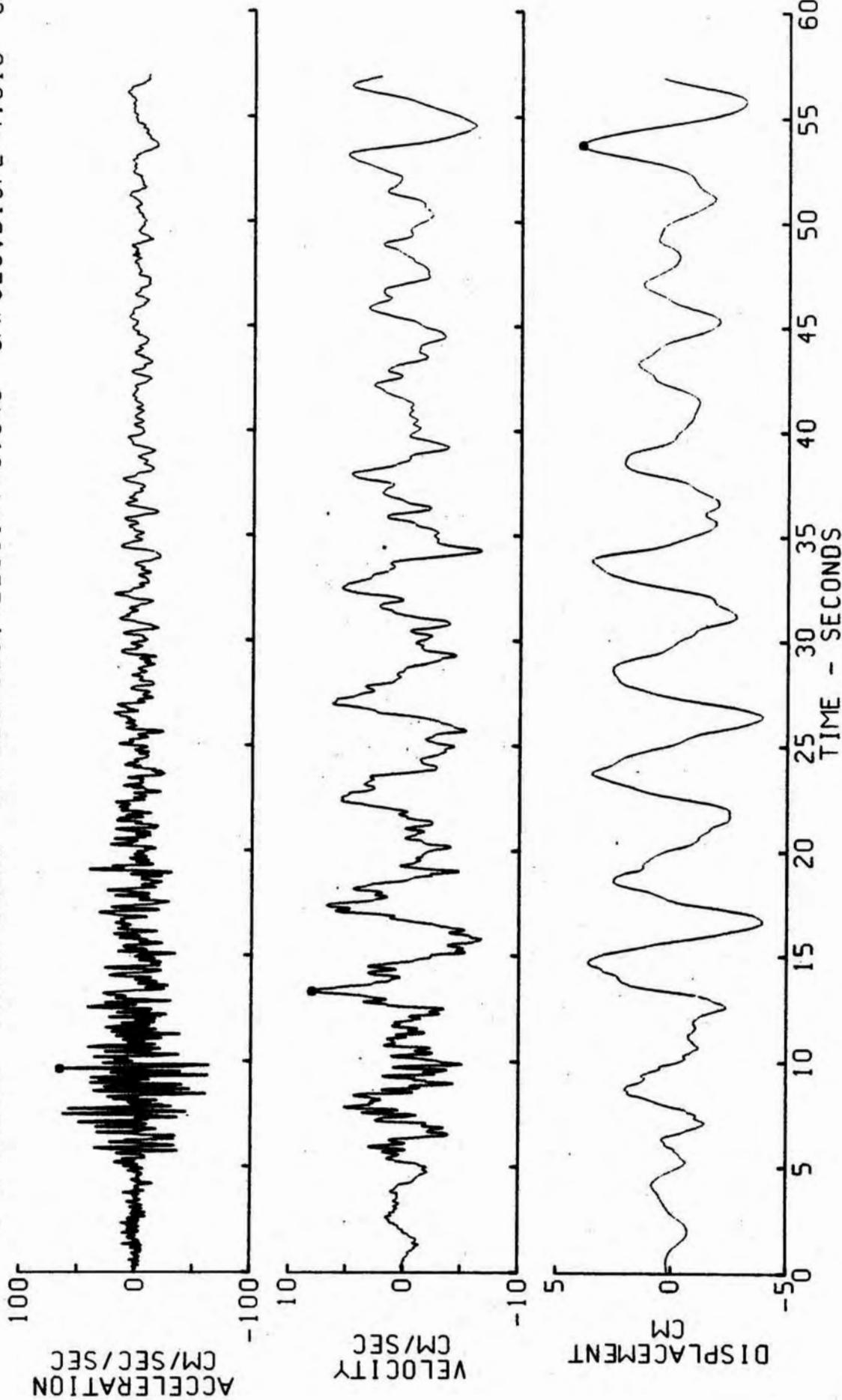
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC NILAND FRFLD TR 2
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



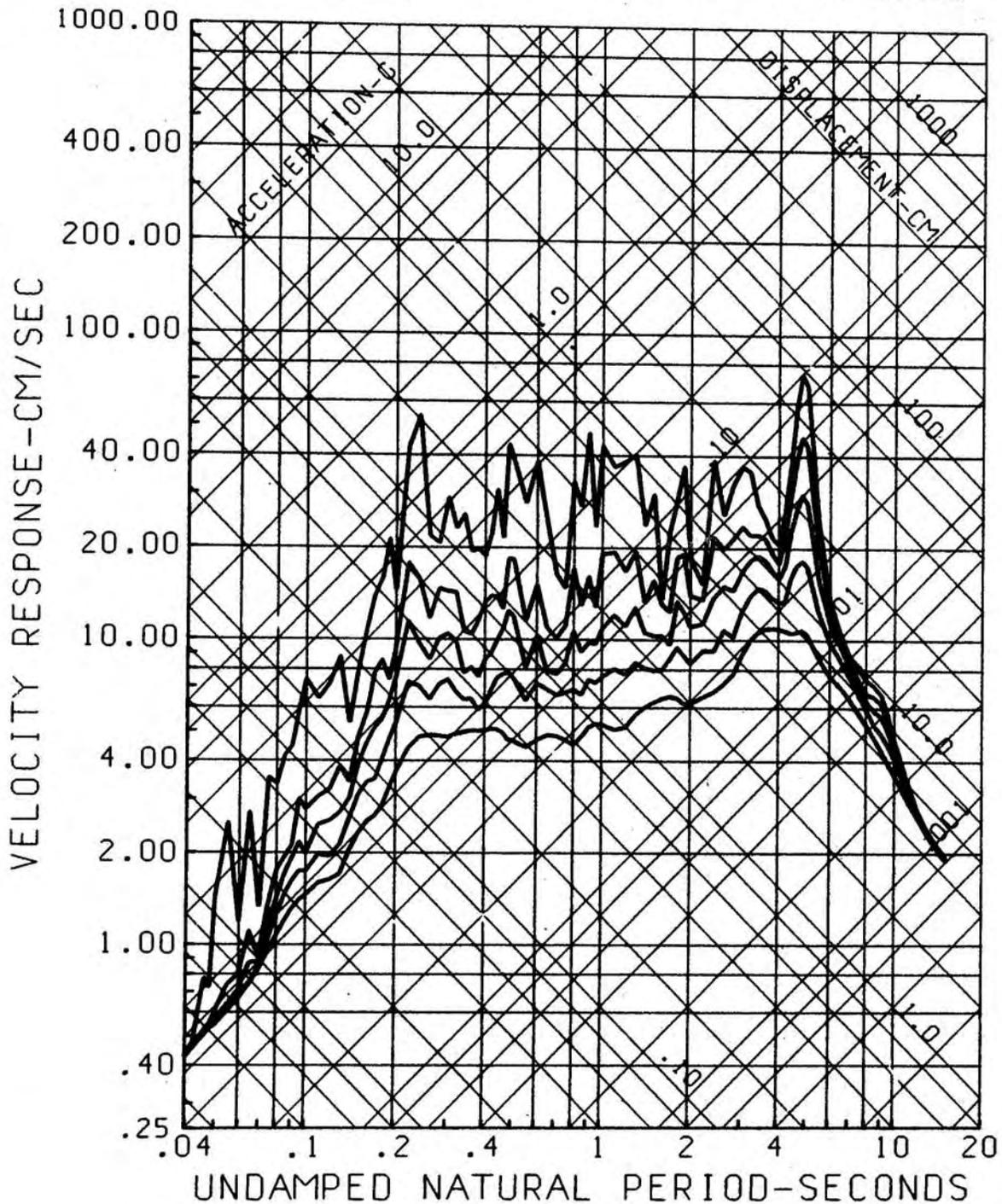
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 023 NILAND FRFLD SMA 2550 TR 3 360 DEGREES

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

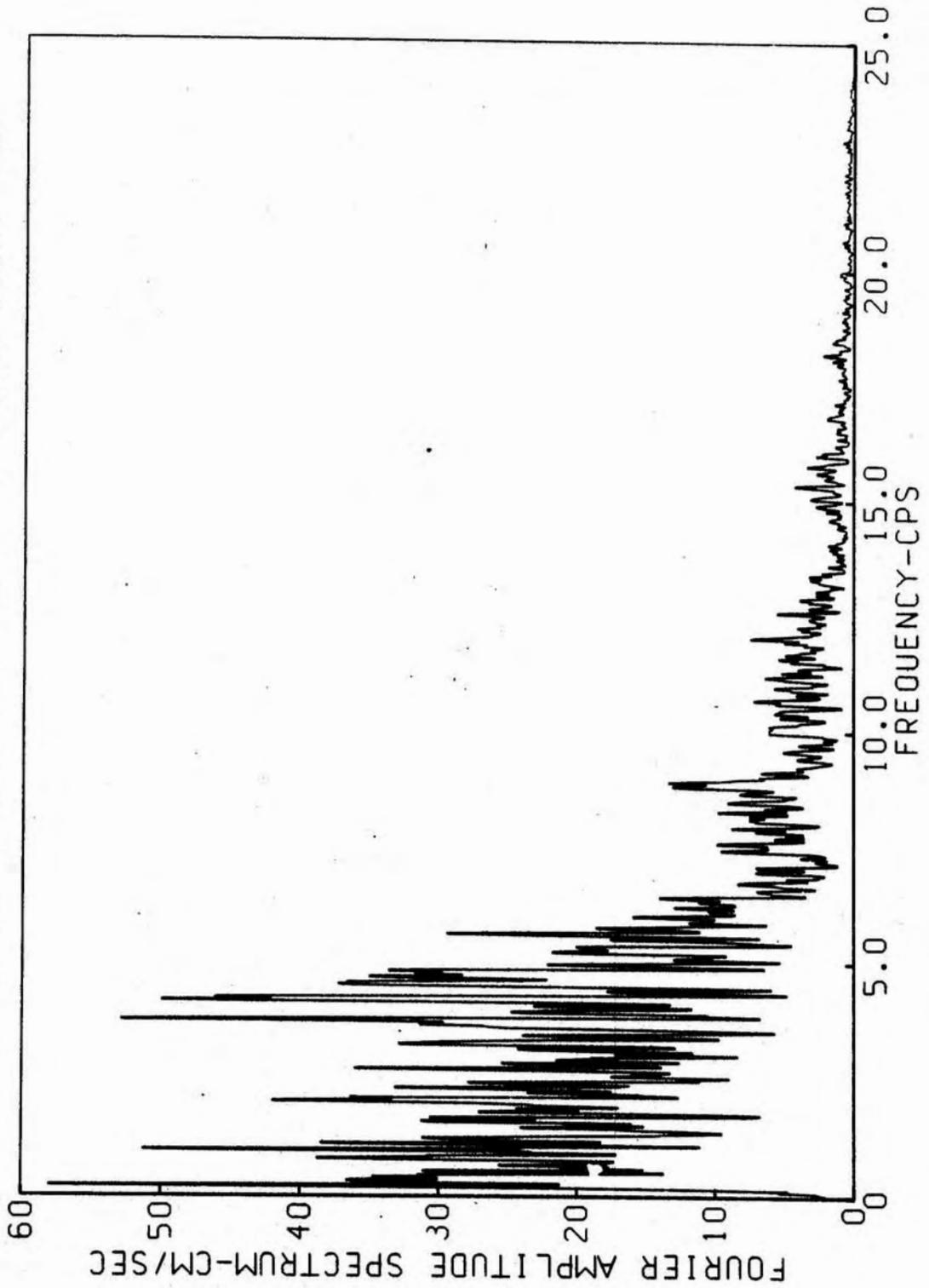
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
• PEAK VALUES ACCEL=66.32 CM/SEC/SEC, VELOCITY=8.040 CM/SEC, DISPL=4.010 CM



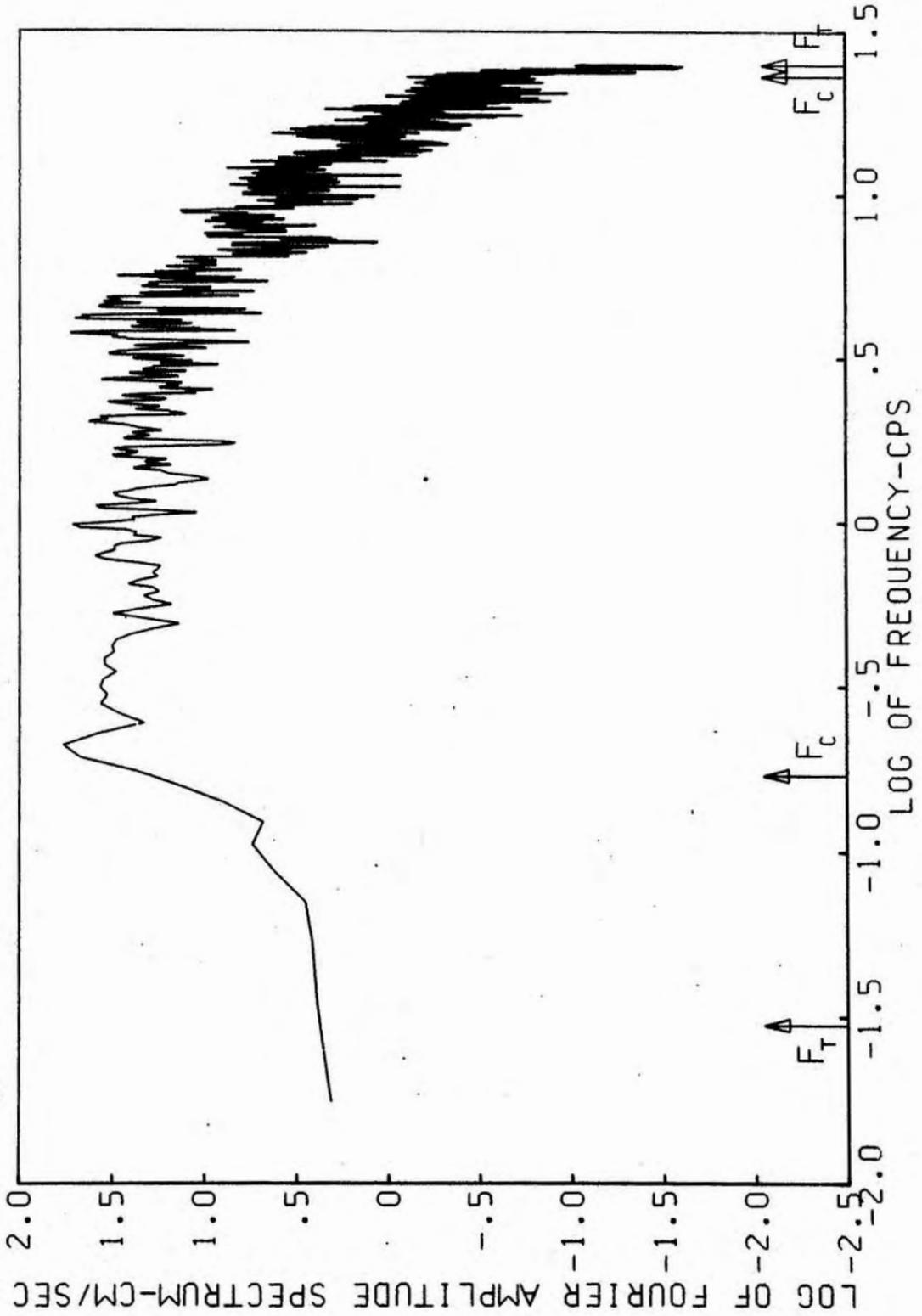
RESPONSE SPECTRA
 15 OCT 1979 2317 UTC NILAND FRFLD TR 3
 0.2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
DMG 023 NILAND FRFLD SMA 2550 TR 3 360 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



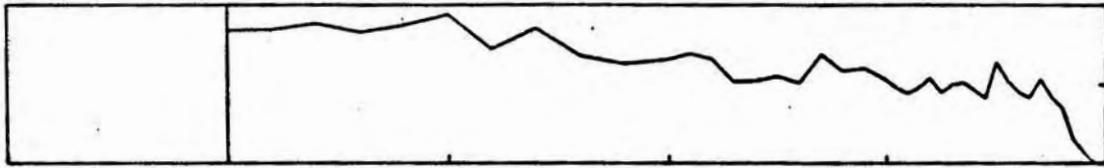
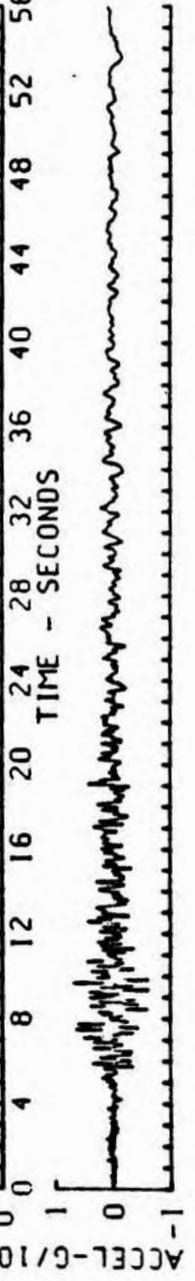
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 2317 UTC
 DMG 023 NIIAND FRFLD SMA 2550 TR 3 360 DEGREES
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



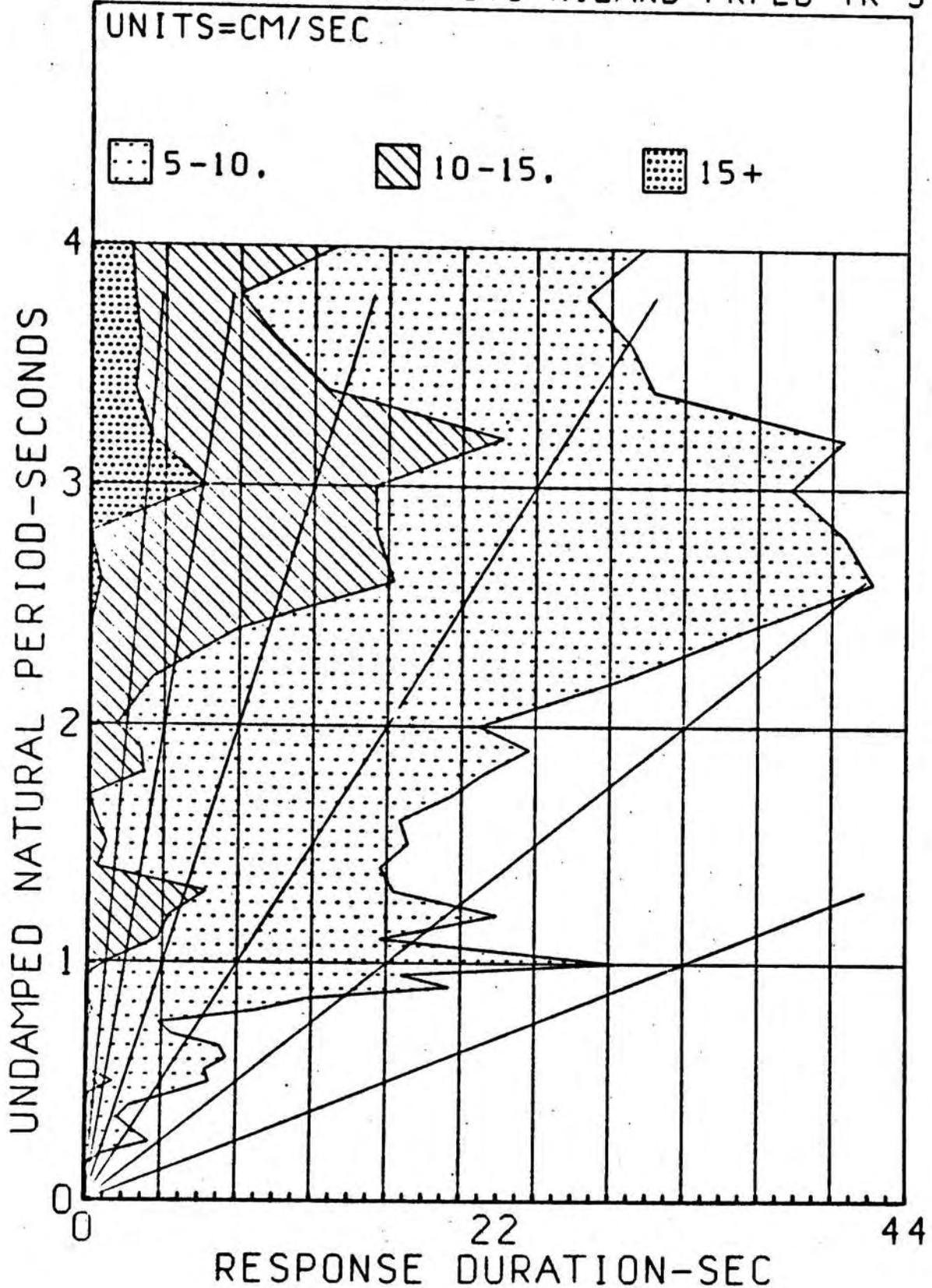
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

UNITS=CM/SEC
15 OCT 1979 2317 UTC NILAND FRFLO TR 3

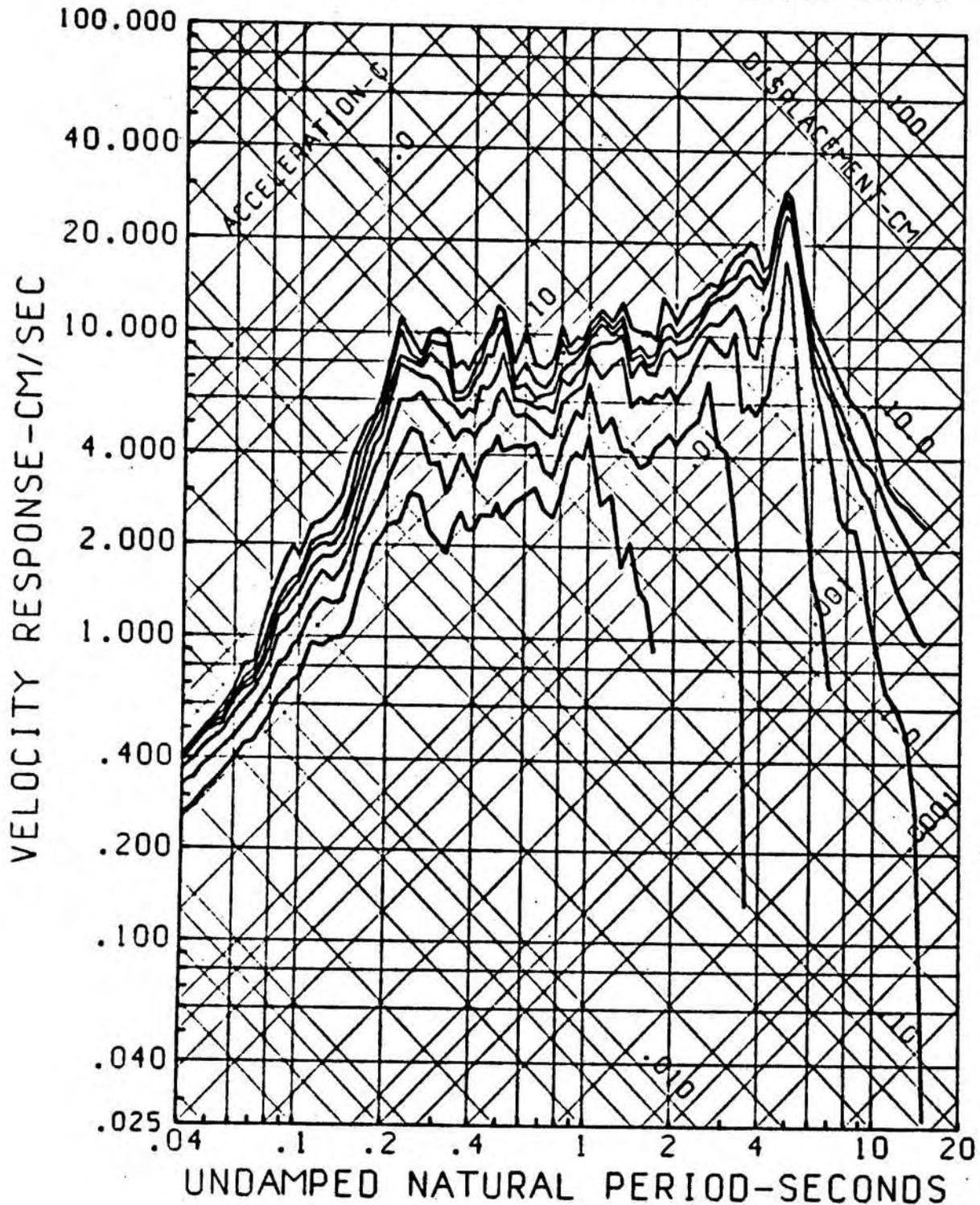
- 0-5.
- ▨ 5-10.
- ▩ 10-15.
- ▩ 15+



DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE .5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 2317 UTC NILAND FRFLD TR 3



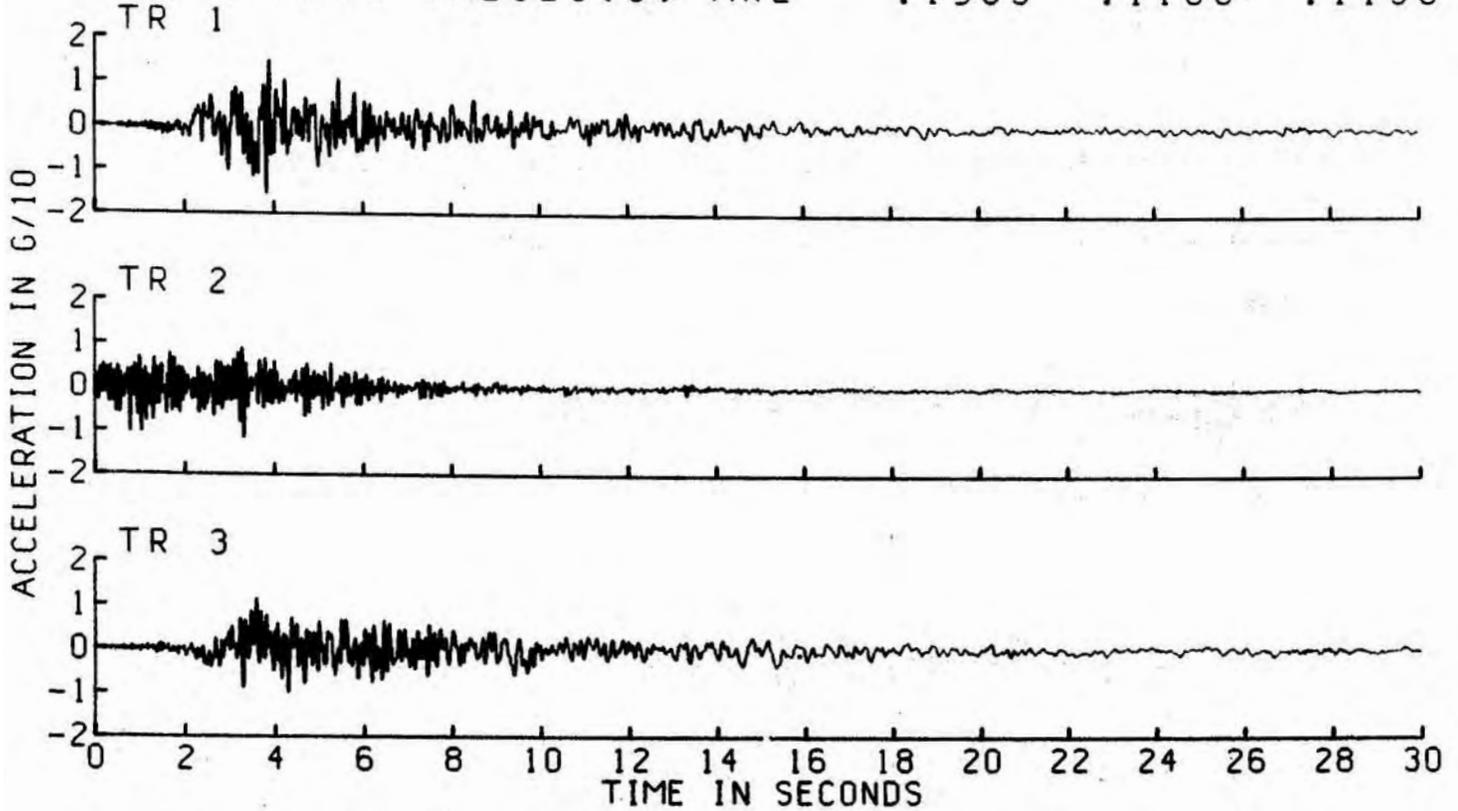
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 2317 UTC NILAND FRFLD TR 3
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



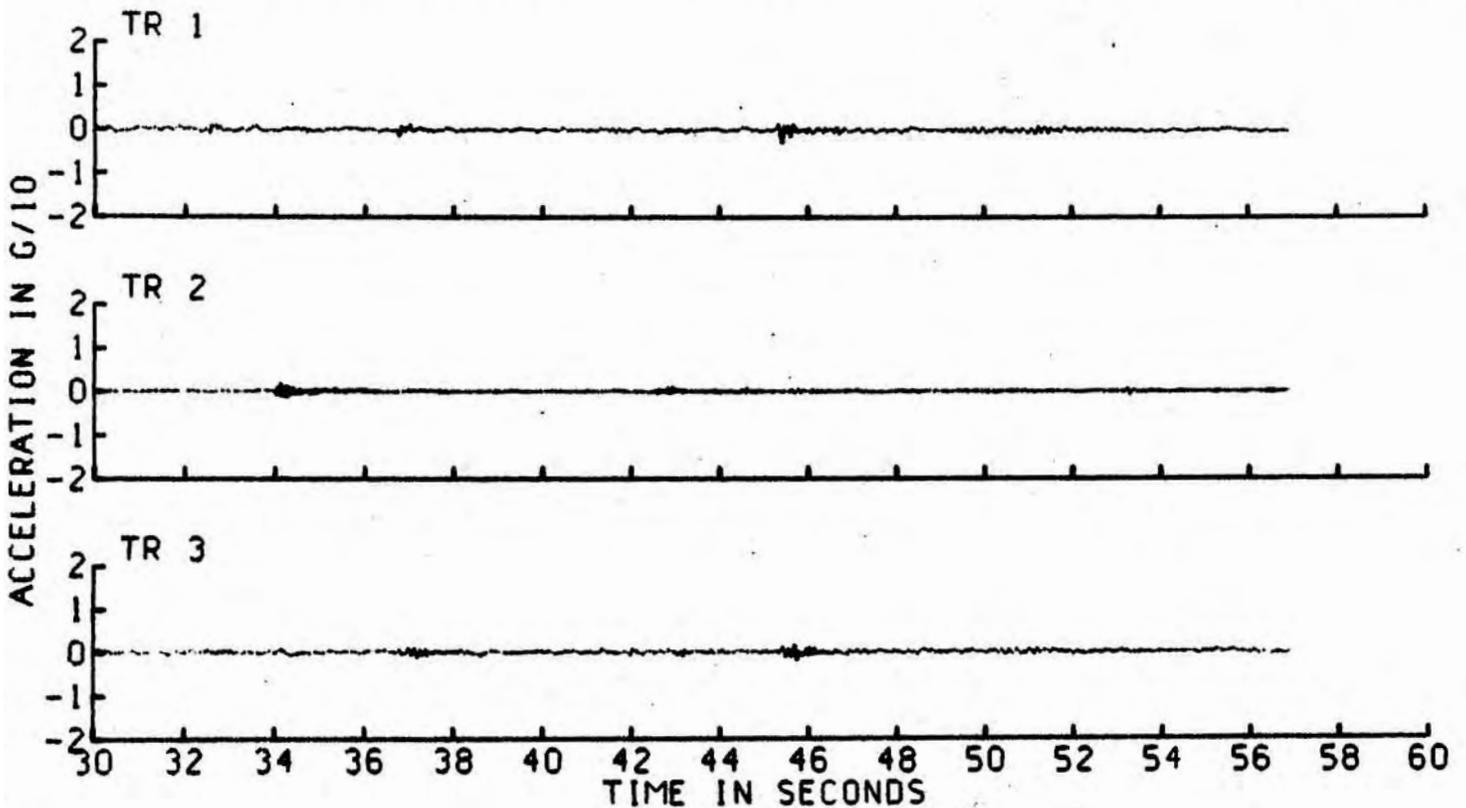
UNCORRECTED ACCELEROGRAM

295

15 OCT 1979 ASHOCK1 DMG TEMP WESTMORLAND SMA 2588
THE 3 PEAK VALUES(G) ARE .1563 .1166 .1136

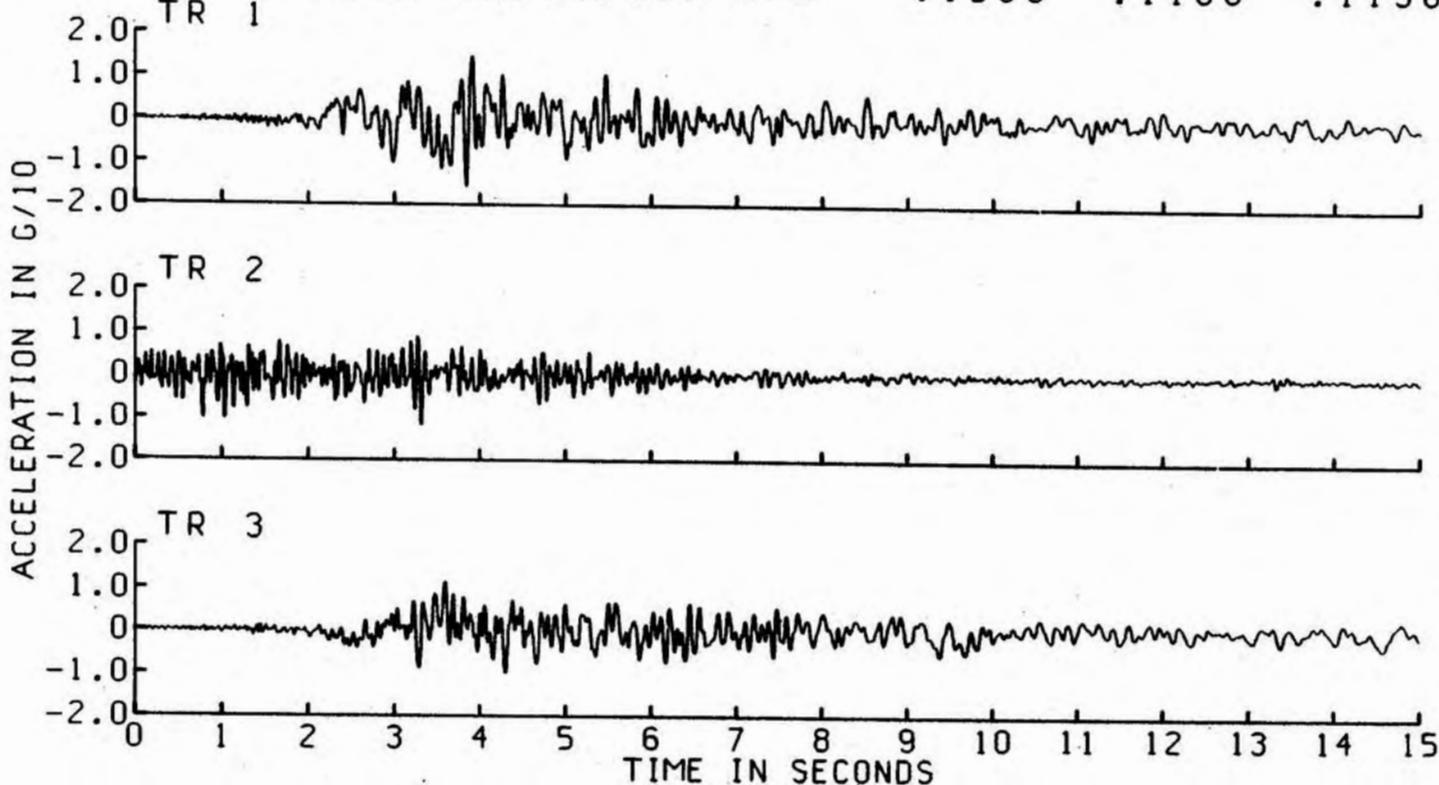


15 OCT 1979 ASHOCK1 DMG TEMP WESTMORLAND SMA 2588

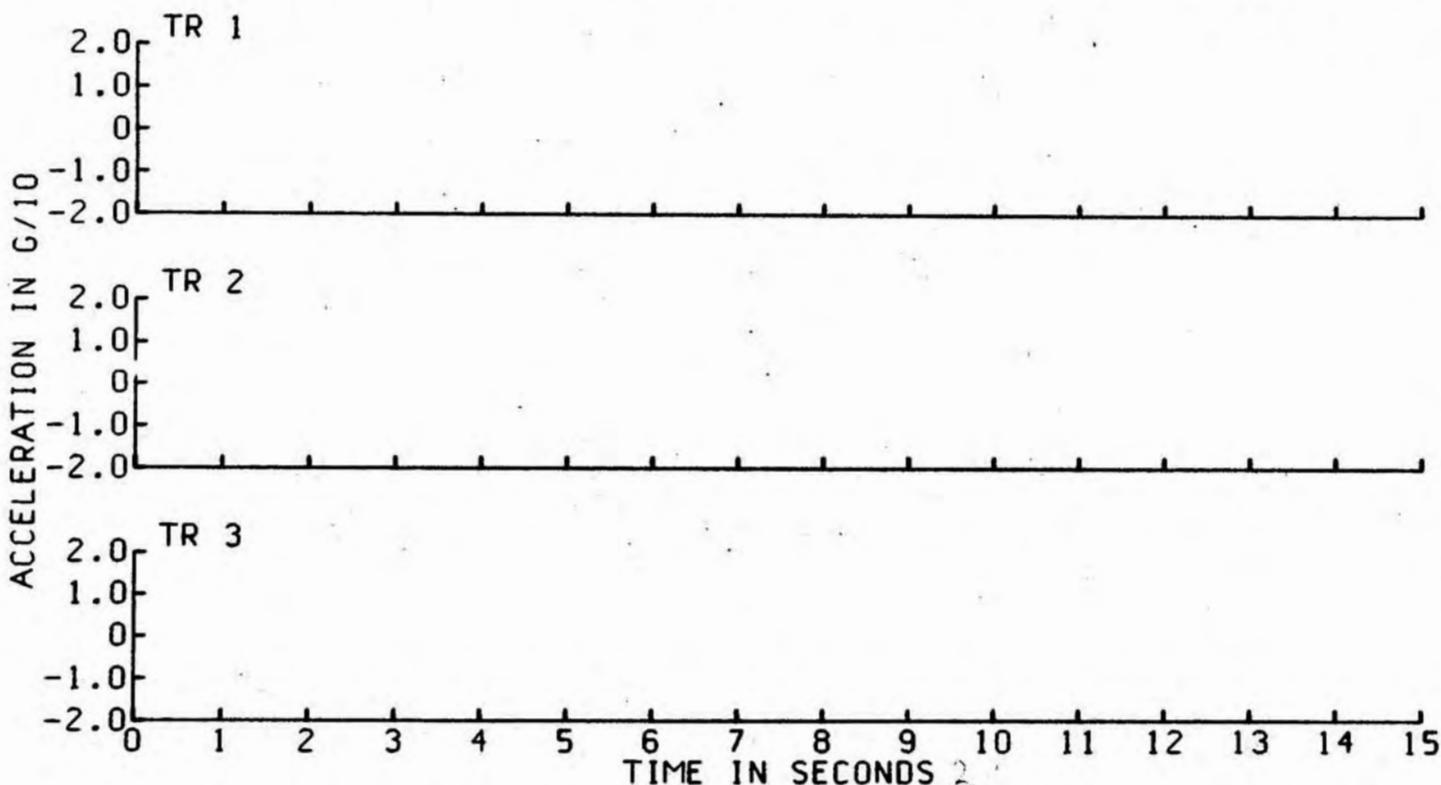


UNCORRECTED ACCELEROGRAM

15 OCT 1979 ASHOCK1 DMG TEMP WESTMORLAND SMA 2588
THE 3 PEAK VALUES(G) ARE .1563 .1166 .1136

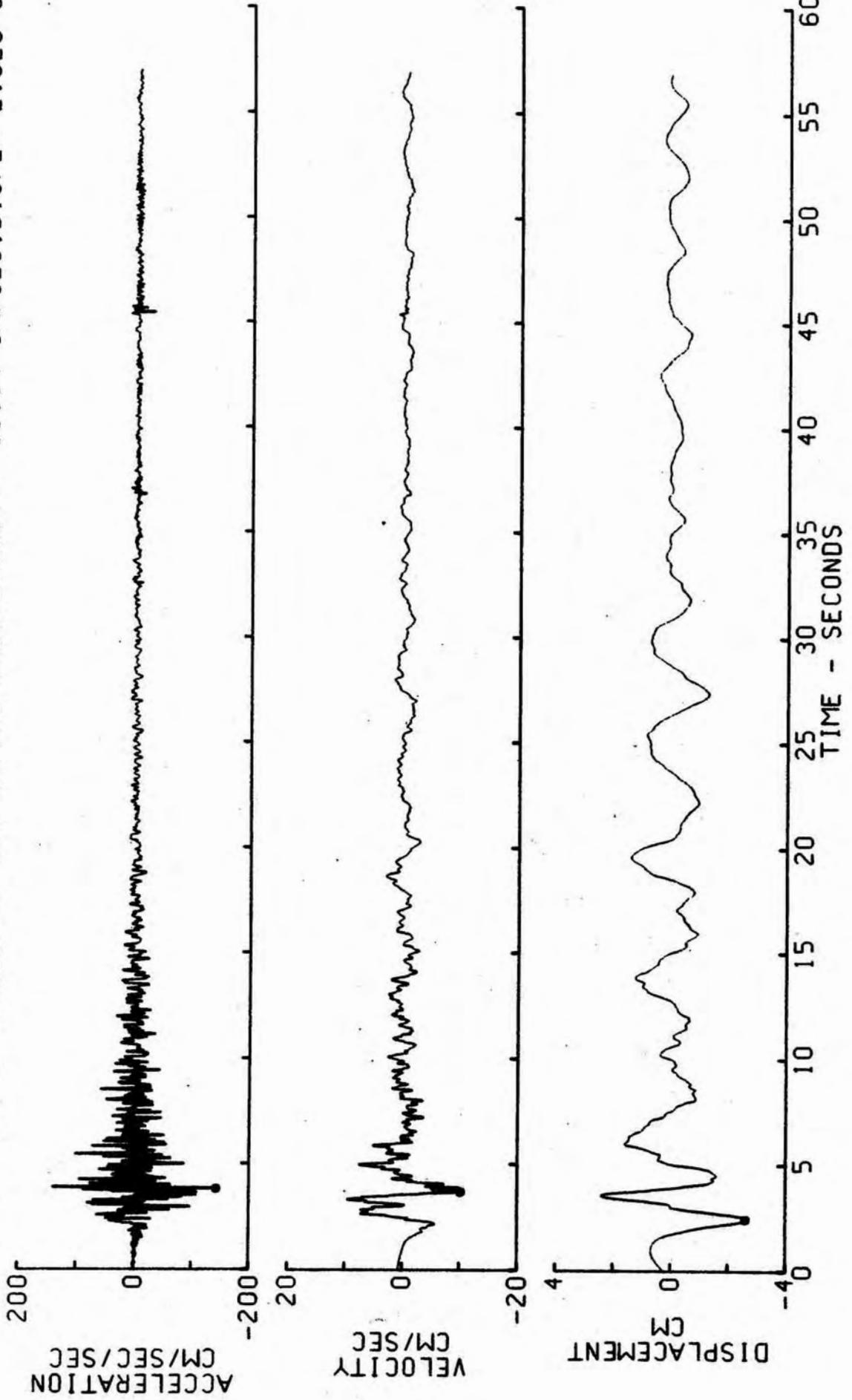


15 OCT 1979 ASHOCK1 DMG TEMP WESTMORLAND SMA 2588

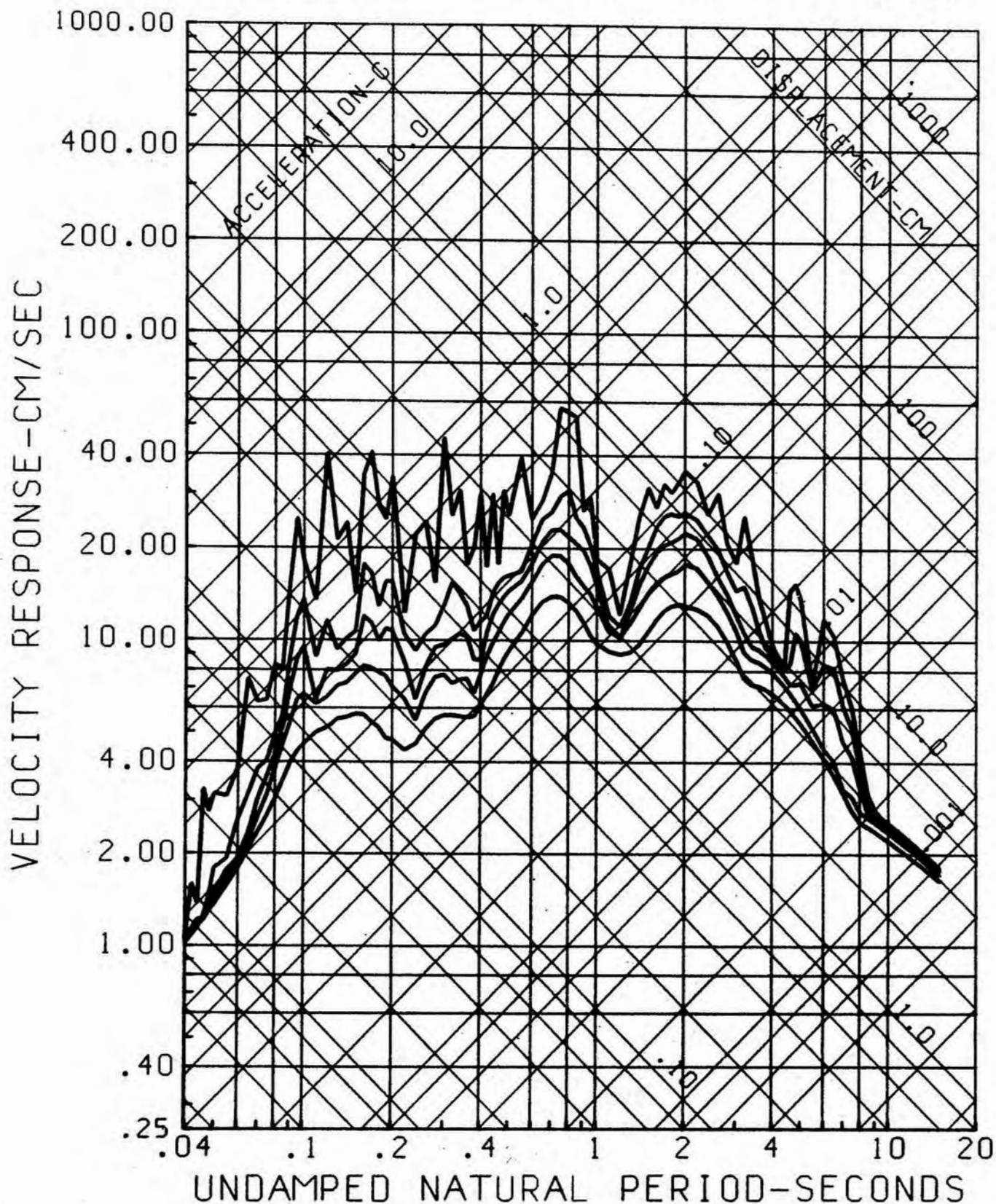


CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 ASHOCK1
DMG TEMP WESTMORLAND SMA 2588 TR 1 180 DEGREES

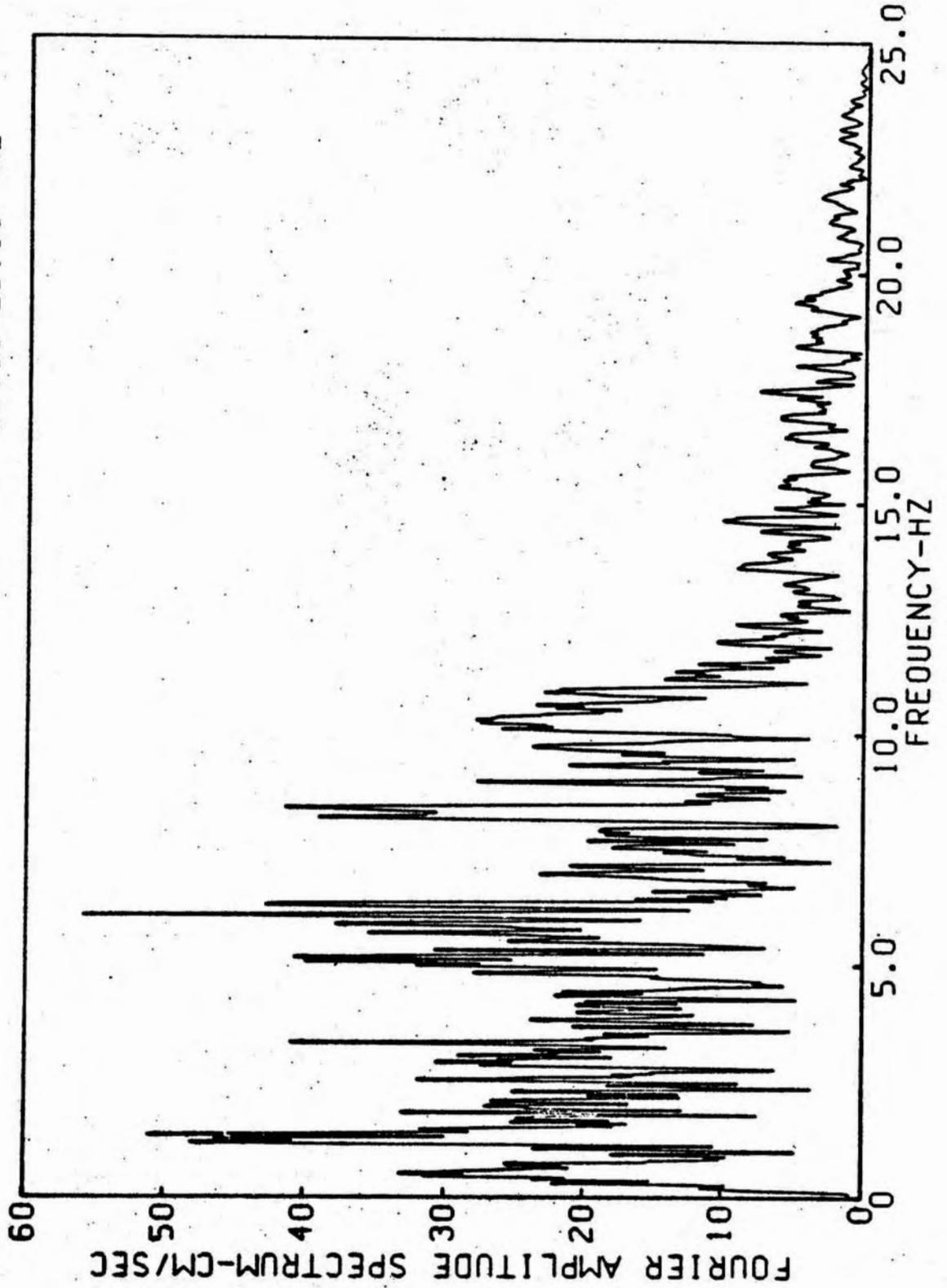
DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=-141.8 CM/SEC/SEC, VELOCITY=-10.14 CM/SEC, DISPL=-2.620 CM



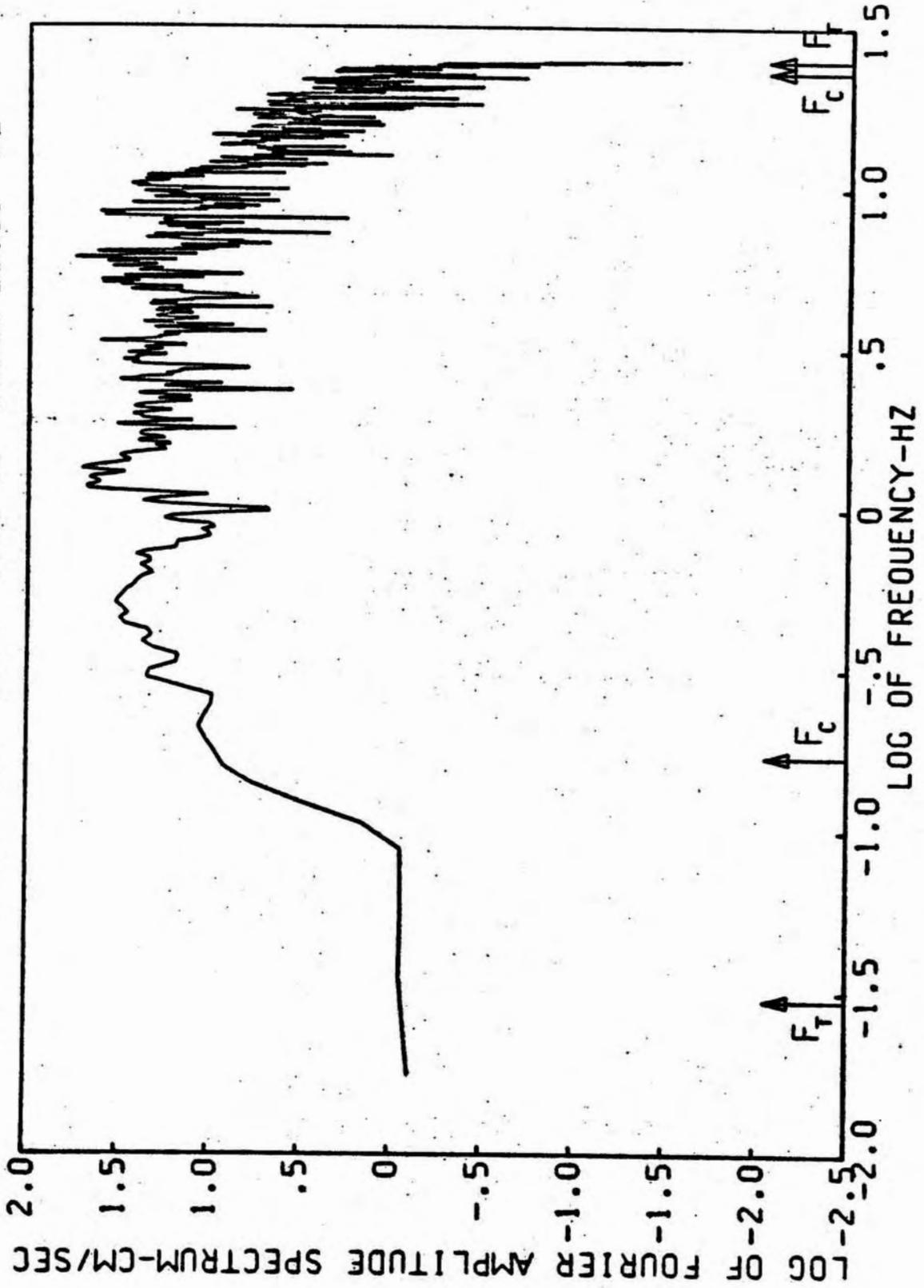
RESPONSE SPECTRA
 15 OCT 1979 ASHOCK1 WESTMORLAND TR 1
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 ASHOCKI
DMG TEMP WESTMORLAND SMA 2588 TR 1 180 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 ASHOCKI
DMG TEMP WESTMORLAND SMA 2588 TR 1 180 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



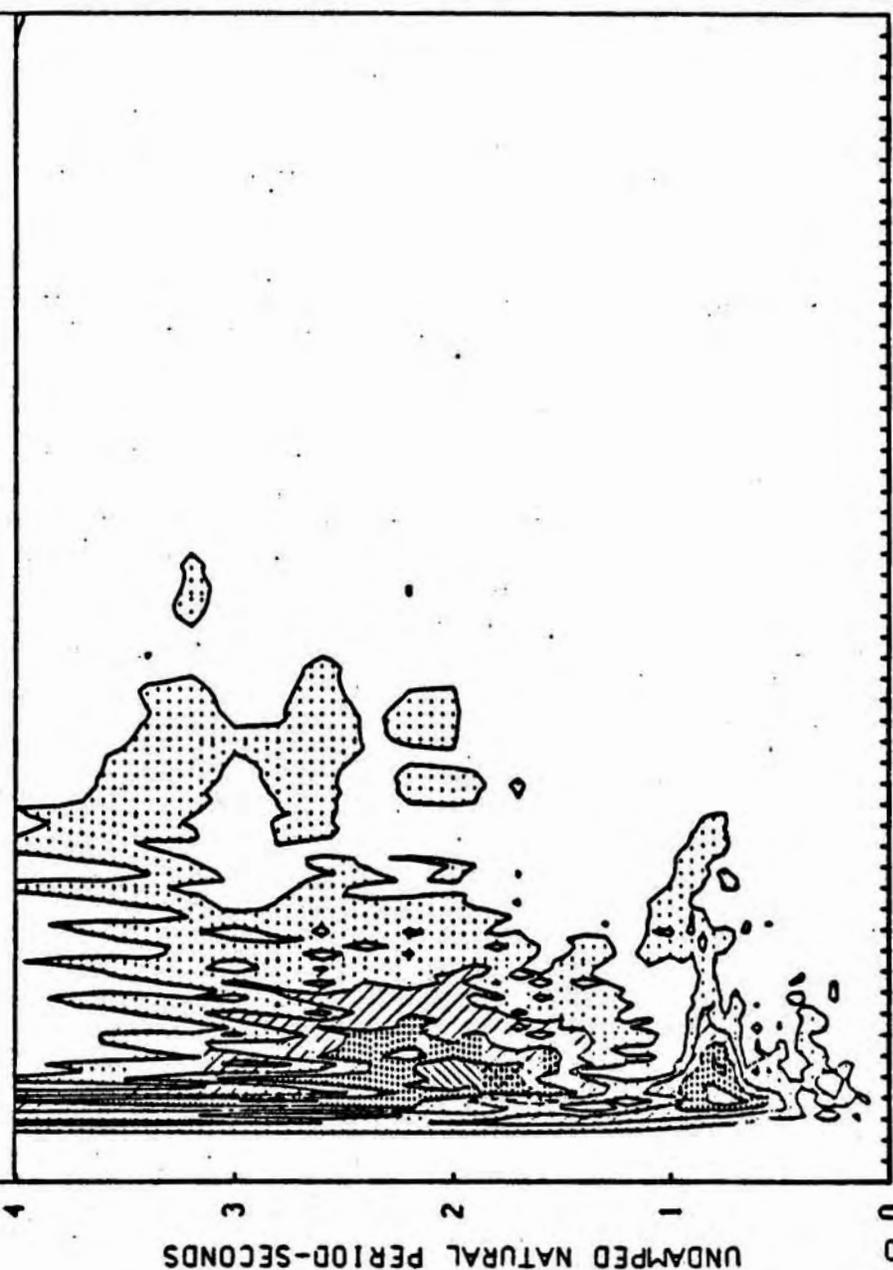
VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING

BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

15 OCT 1979 ASHOCKI WESTMORLAND TR 1

UNITS=CM/SEC

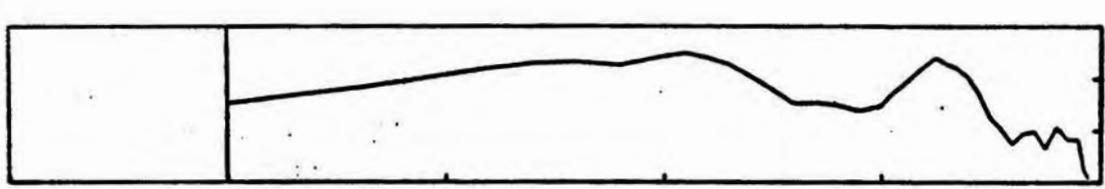
- 0-5.
- ▨ 5-10.
- ▩ 10-15.
- ▧ 15-20.
- ▦ 20+



UNDAMPED NATURAL PERIOD-SECONDS

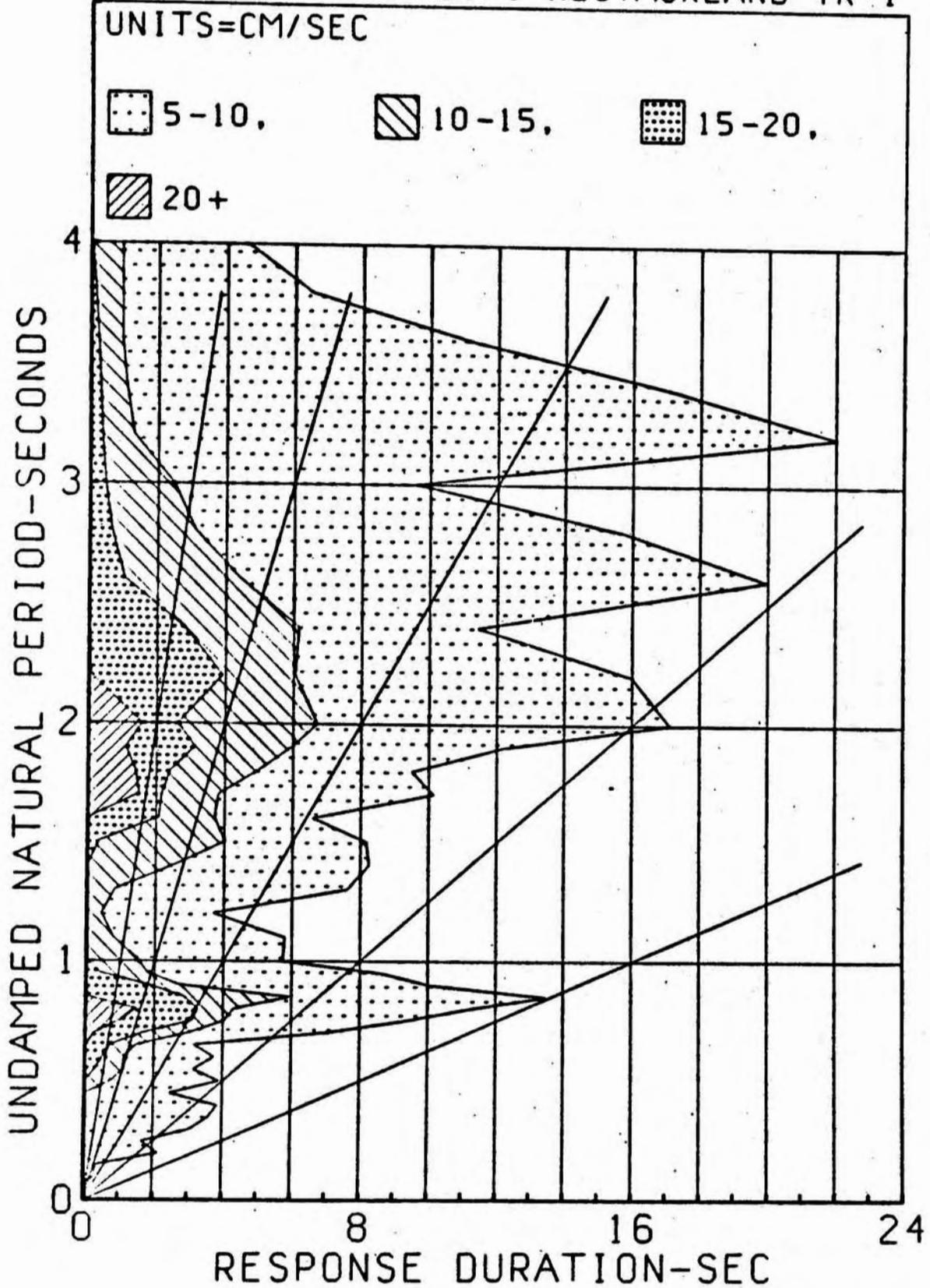
ACCEL-G/10

TIME - SECONDS

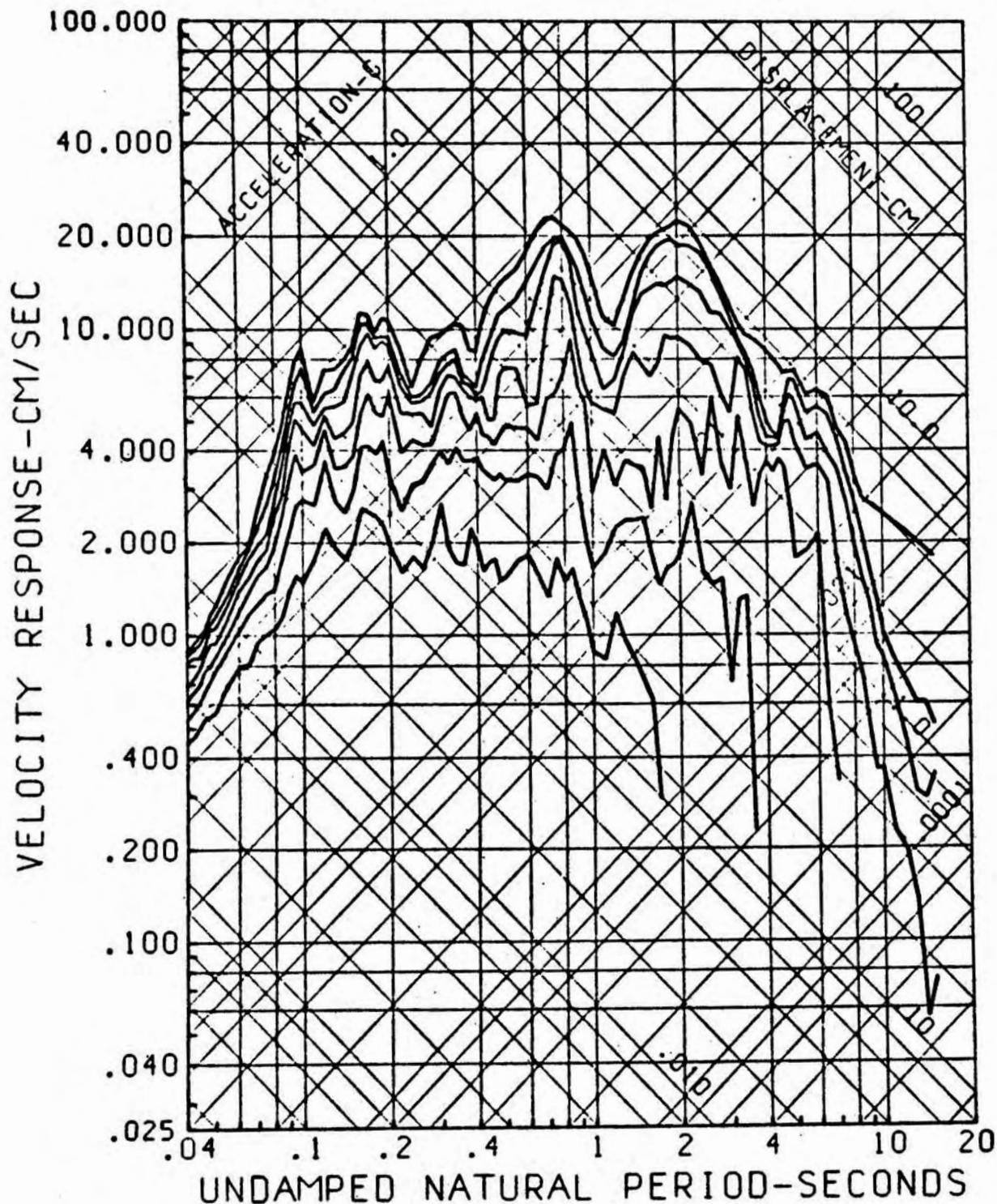


VELOCITY CM/SEC

DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 ASHOCKI WESTMORLAND TR 1



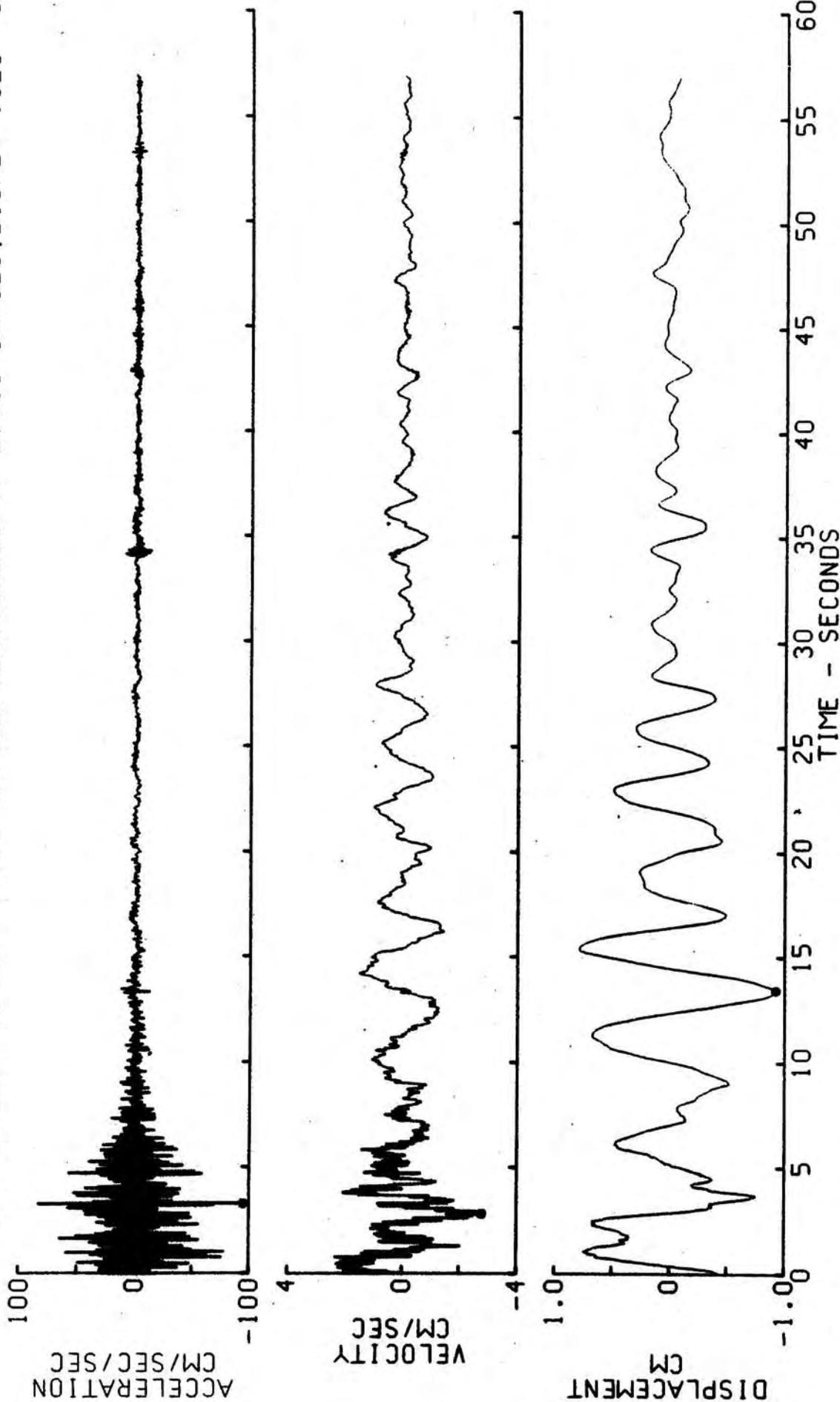
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 ASHOCK1 WESTMORLAND TR 1
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



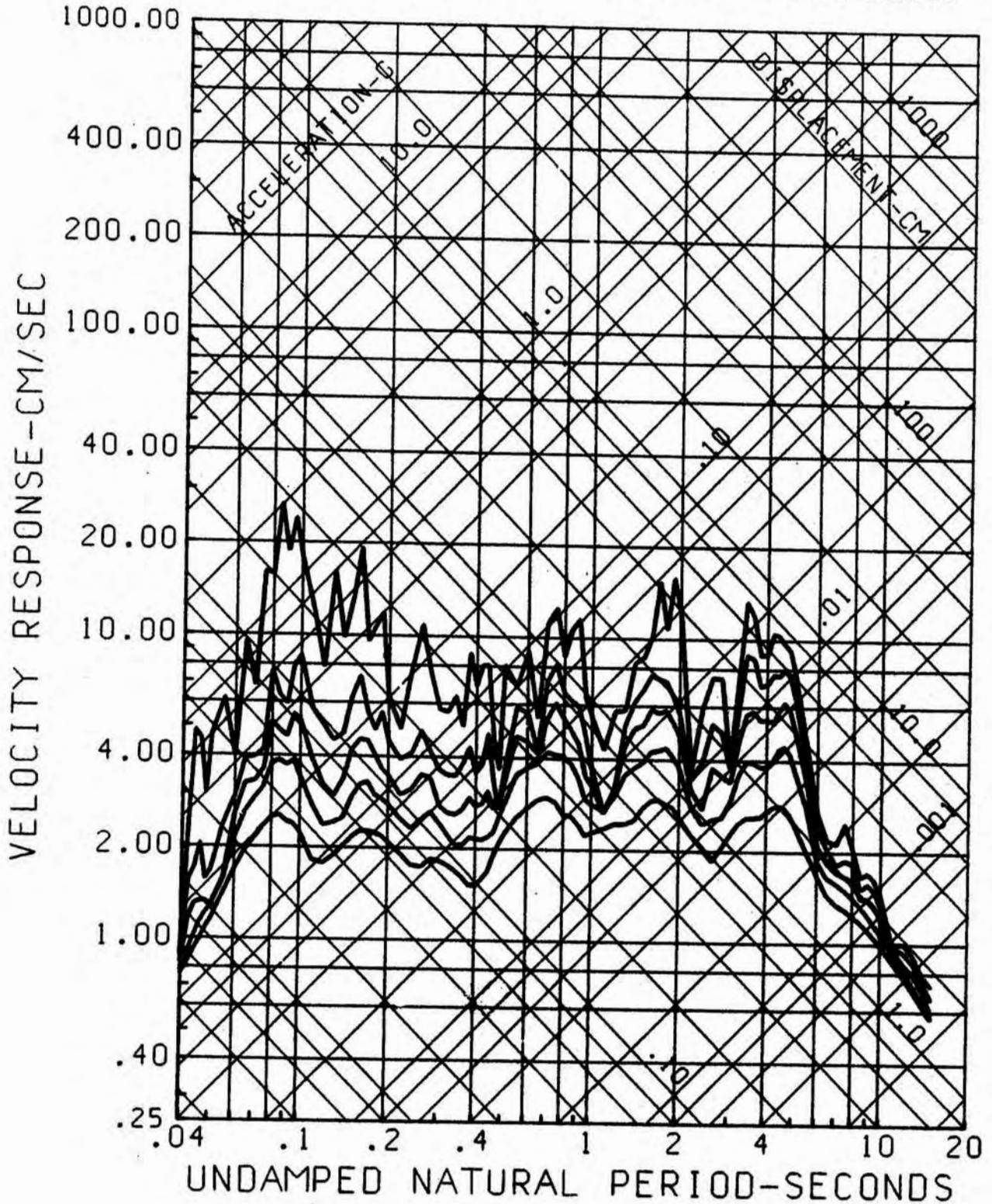
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 ASHOCK1
DMG TEMP WESTMORLAND SMA 2588 TR 2 UP

DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC

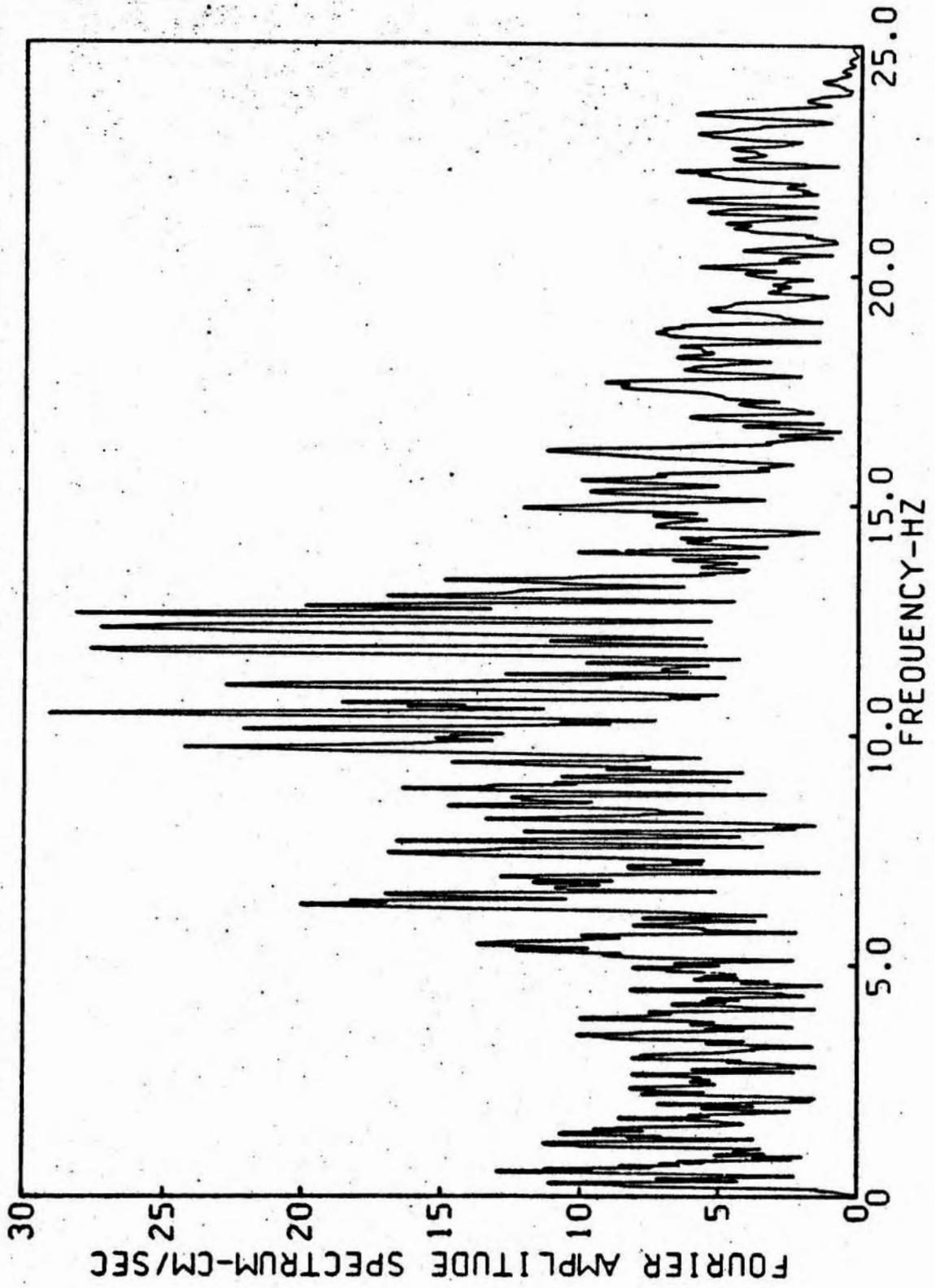
ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
PEAK VALUES ACCEL=-94.52 CM/SEC/SEC, VELOCITY=-2.790 CM/SEC, DISPL=-.920 CM



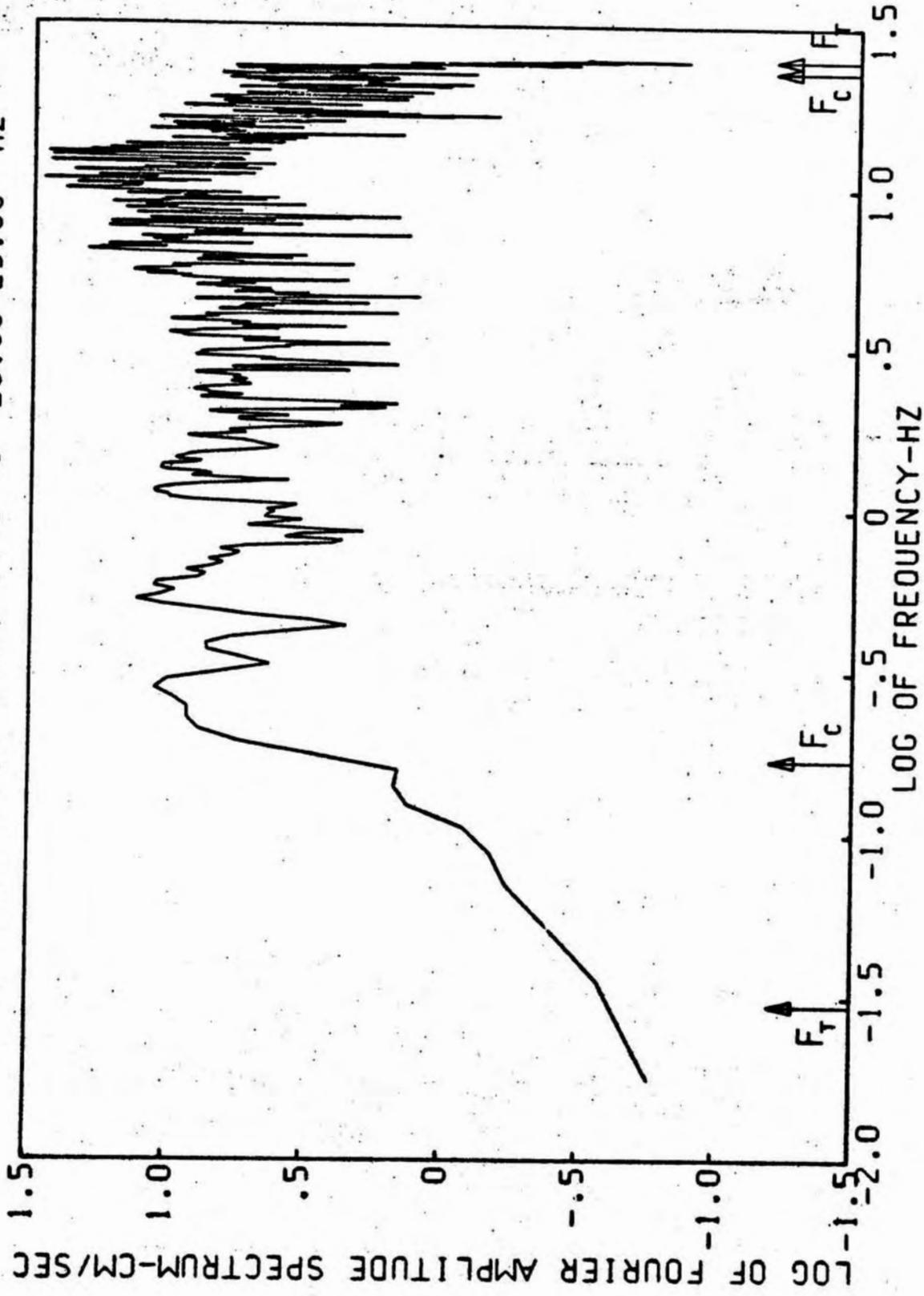
RESPONSE SPECTRA
 15 OCT 1979 ASHOCK1 WESTMORLAND TR 2
 0.2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 ASHOCKI
DMG TEMP WESTMORLAND SMA 2588 TR 2 UP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

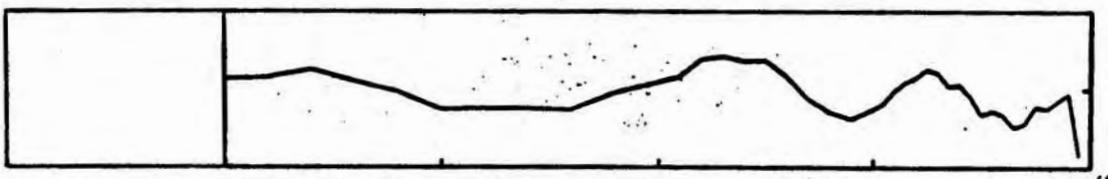
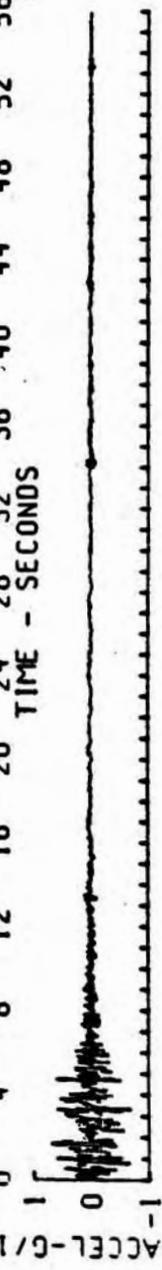
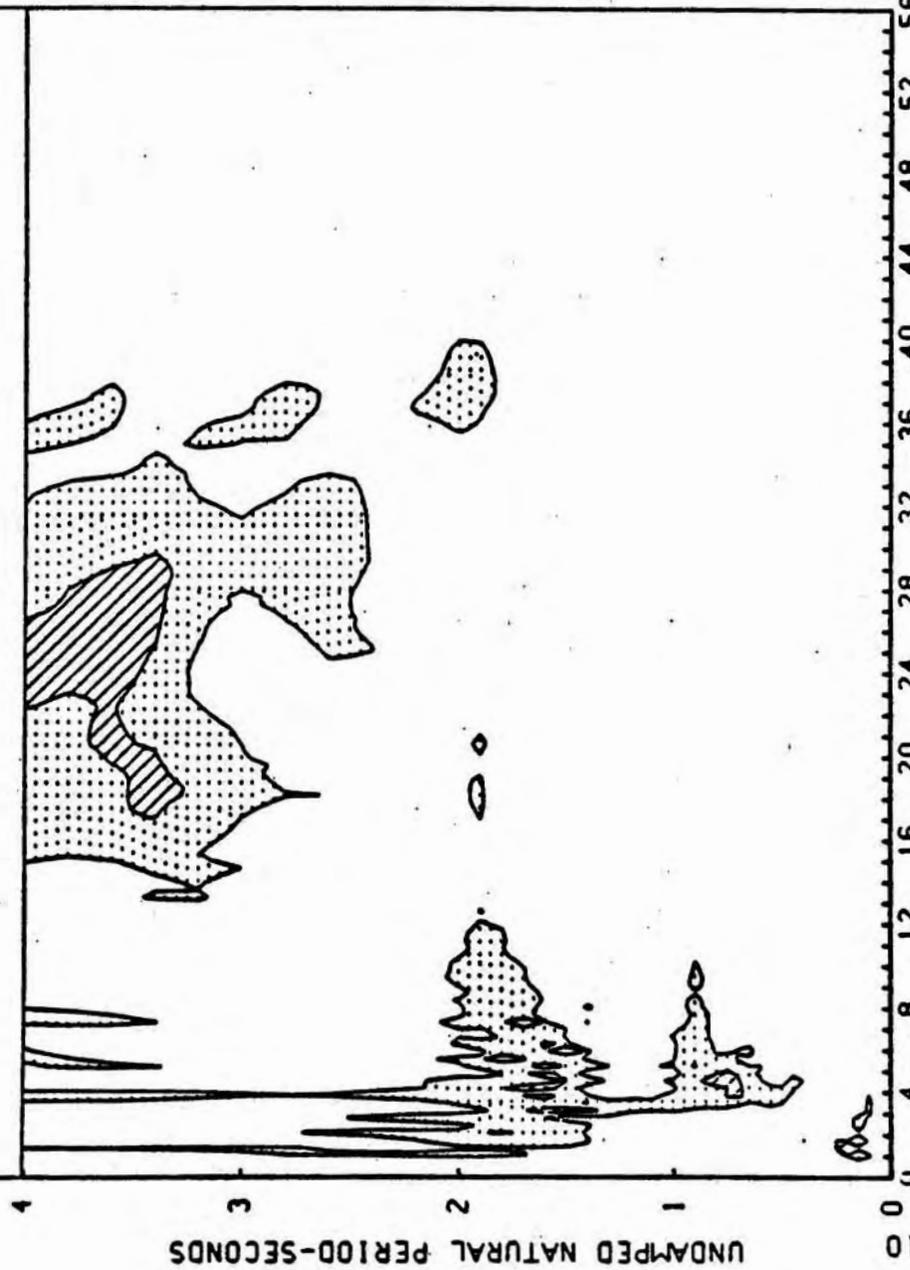
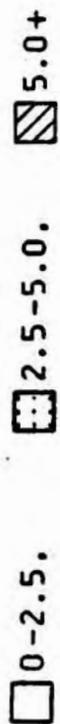


FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 ASHOCKI
DMG TEMP WESTMORLAND SMA 2588 TR 2 UP
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

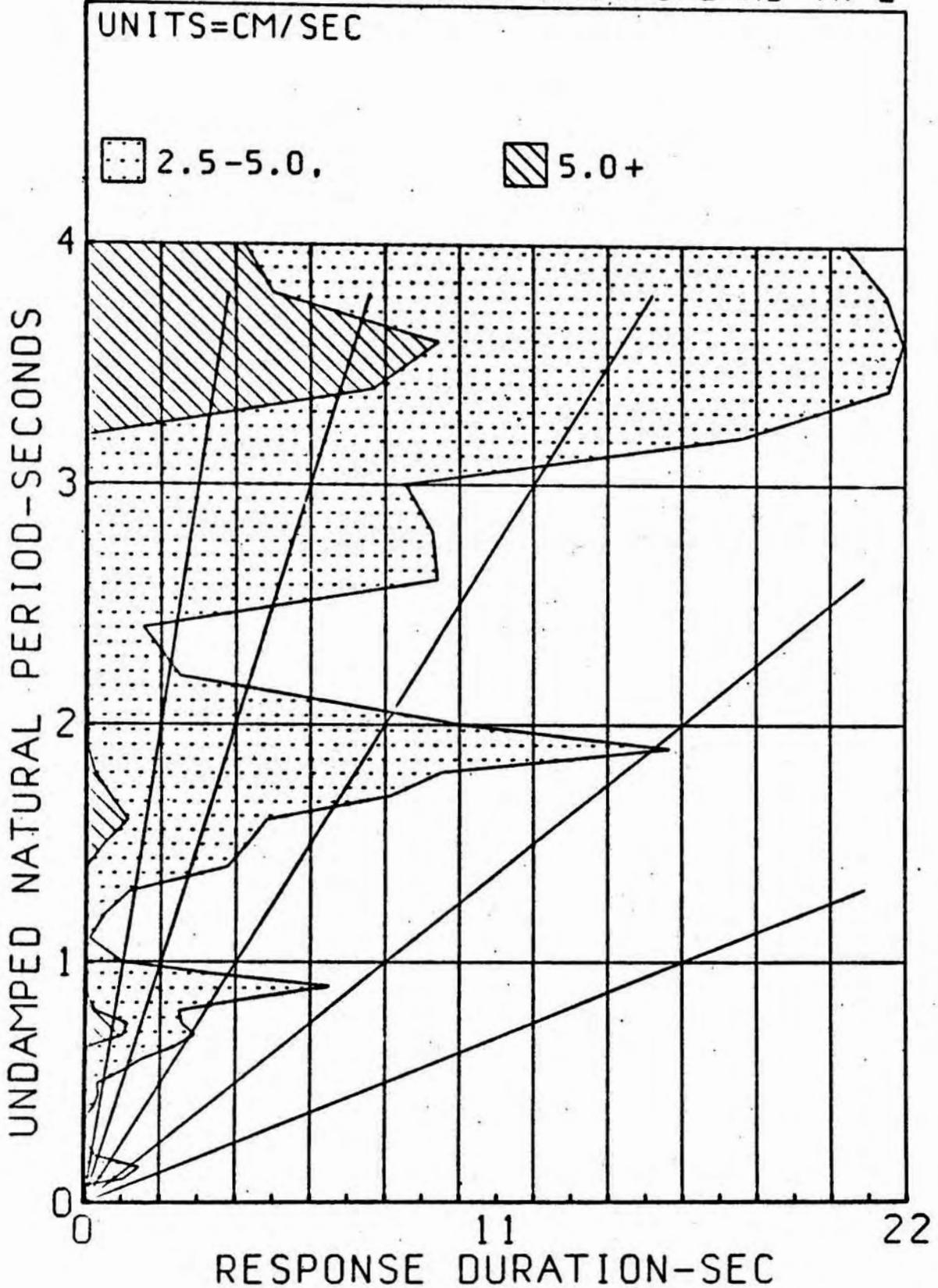


VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030 - .170 TO 23.00 - 25.00 HZ

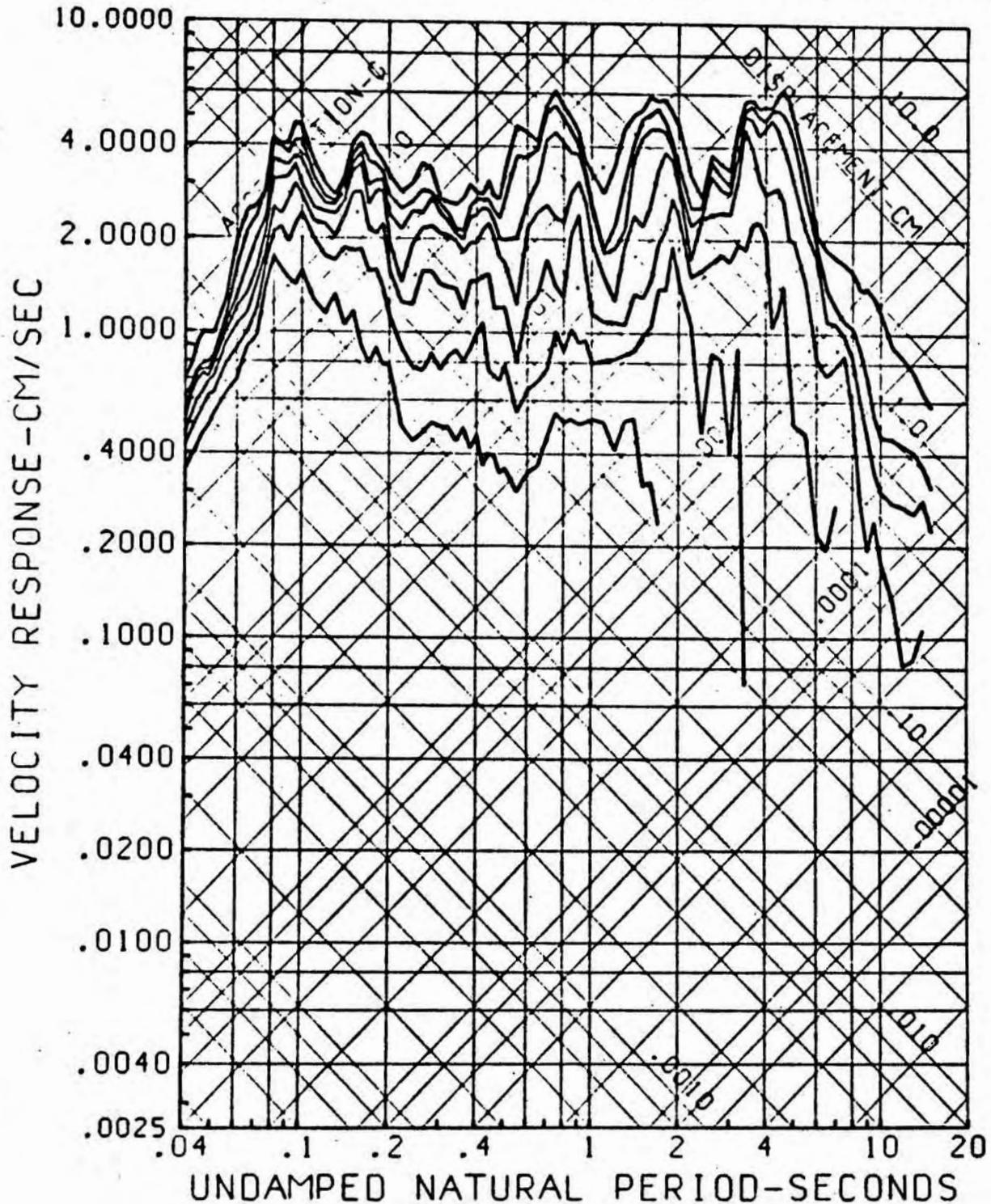
UNITS=CM/SEC
15 OCT 1979 ASHOCKI WESTMORLAND TR 2



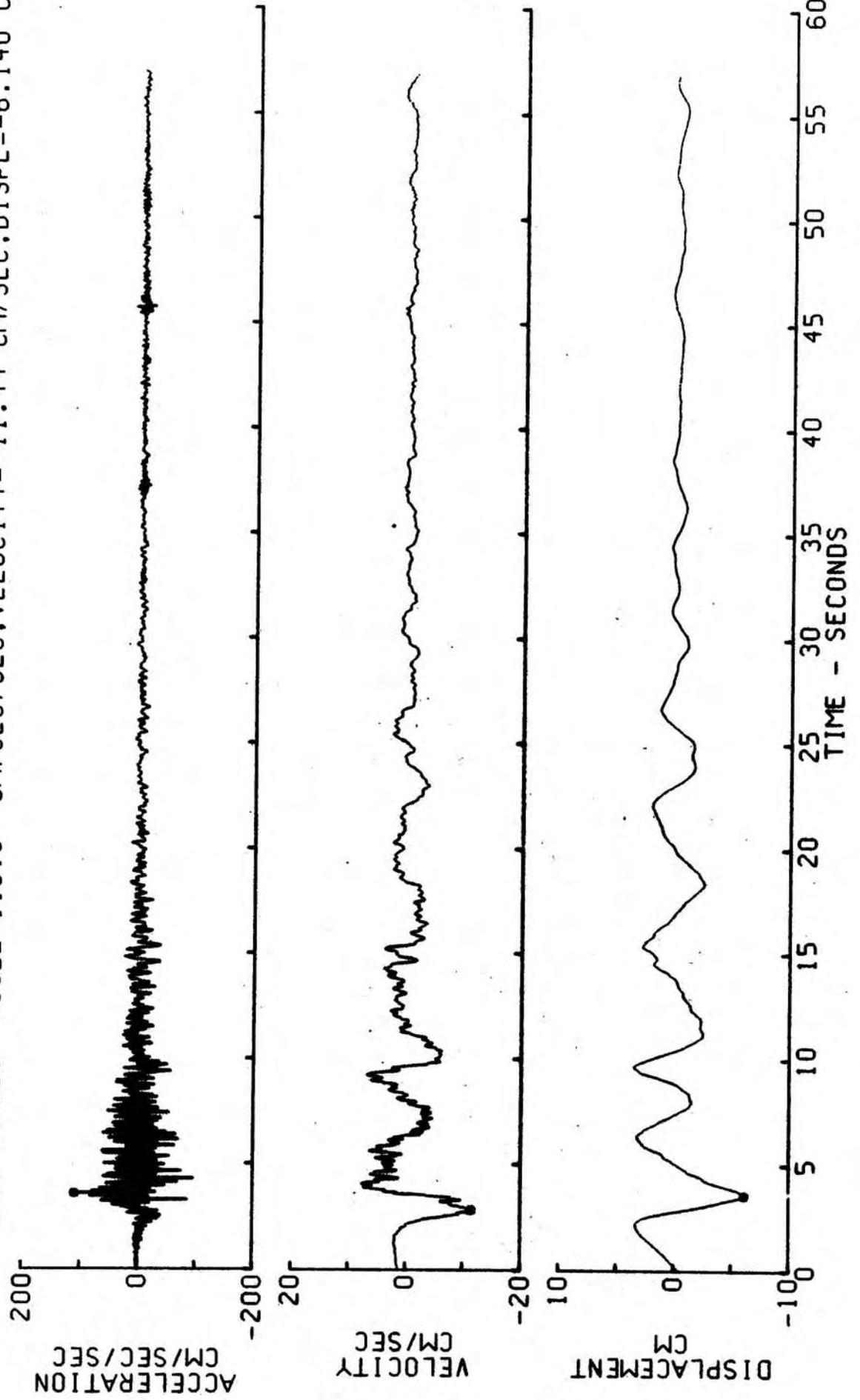
DURATION SPECTRUM OF THE VELOCITY
RESPONSE ENVELOPE, 5 PERCENT DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
15 OCT 1979 ASHOCKI WESTMORLAND TR 2



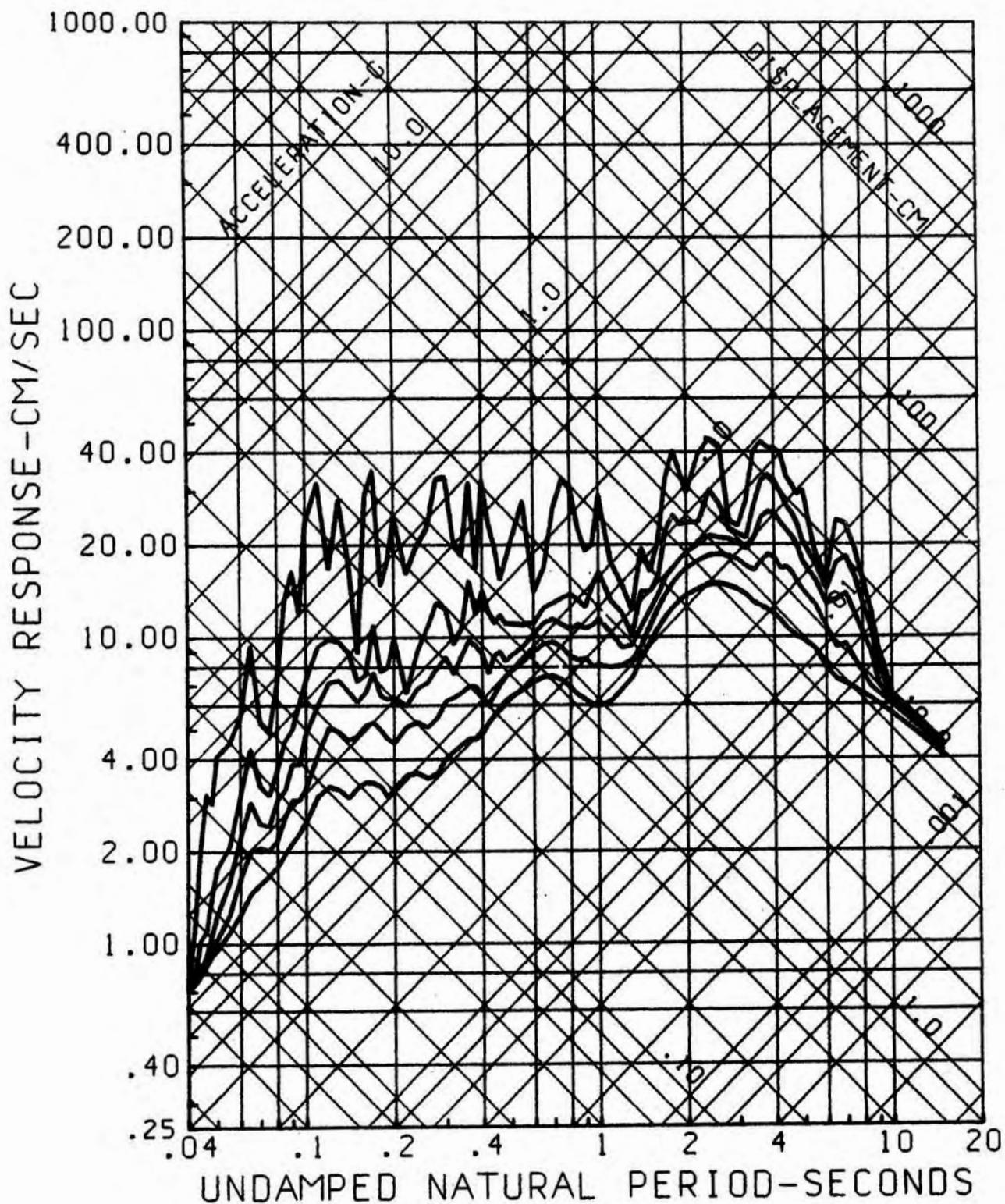
SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 ASHOCKI WESTMORLAND TR 2
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



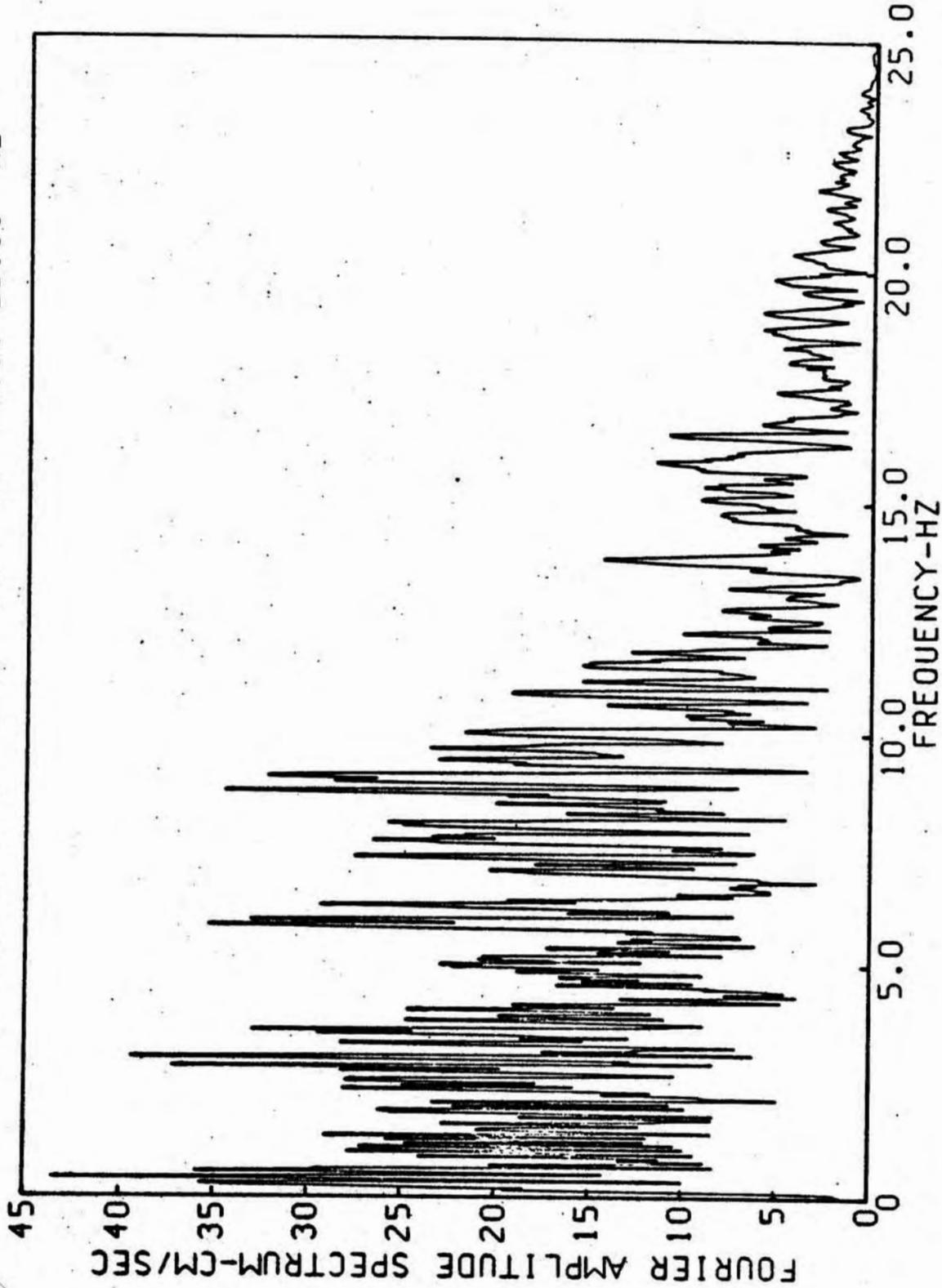
CORRECTED ACCELERATION, VELOCITY, DISPLACEMENT
 IMPERIAL VALLEY, CA, EARTHQUAKE OF 15 OCTOBER 1979 ASHOCK1
 DMG TEMP WESTMORLAND SMA 2588 TR 3 090 DEGREES
 DATA IS PLOTTED AT EQUAL TIME INCREMENTS OF .01000 SEC
 ACCELEROGRAM IS BAND PASSED, WITH RAMPS OF .030 - .170 AND 23.00 - 25.00 CYC/SEC
 • PEAK VALUES ACCEL=110.0 CM/SEC/SEC, VELOCITY=-11.44 CM/SEC, DISPL=-6.140 CM



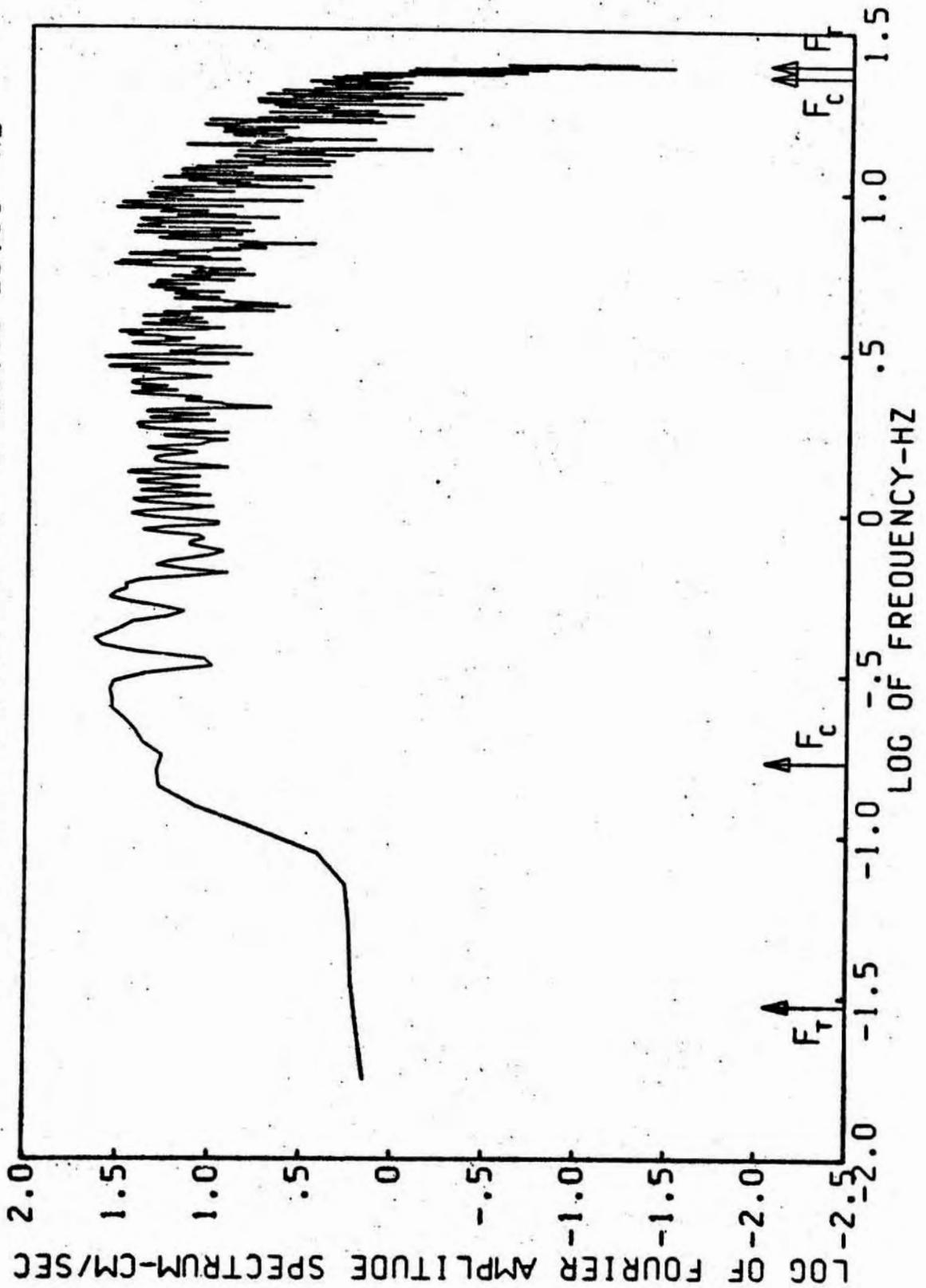
RESPONSE SPECTRA
 15 OCT 1979 ASHOCK1 WESTMORLAND TR 3
 0,2,5,10,20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



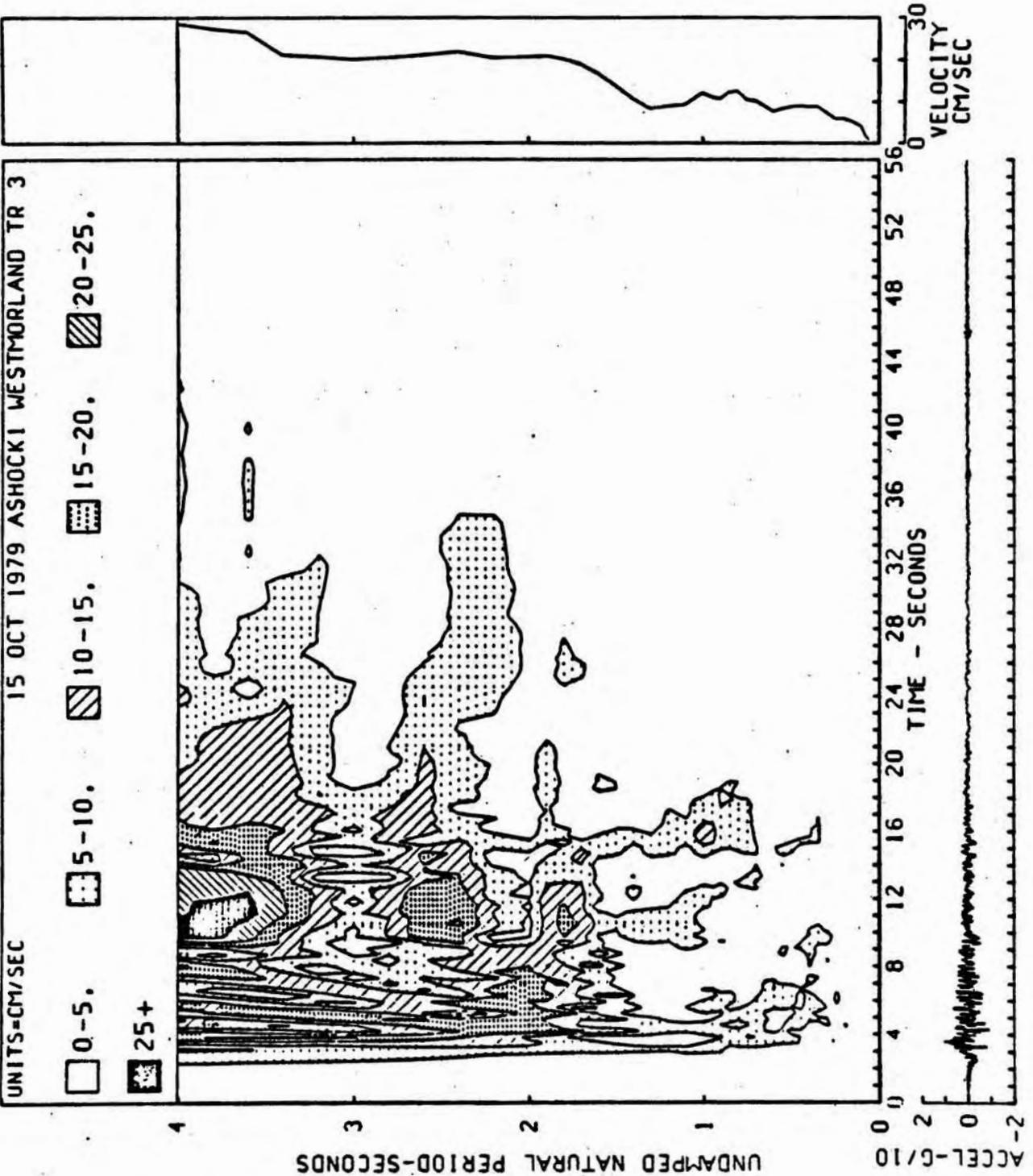
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 ASHOCK1
DMC TEMP WESTMORLAND SMA 2588 TR 3 090 DEGREES
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



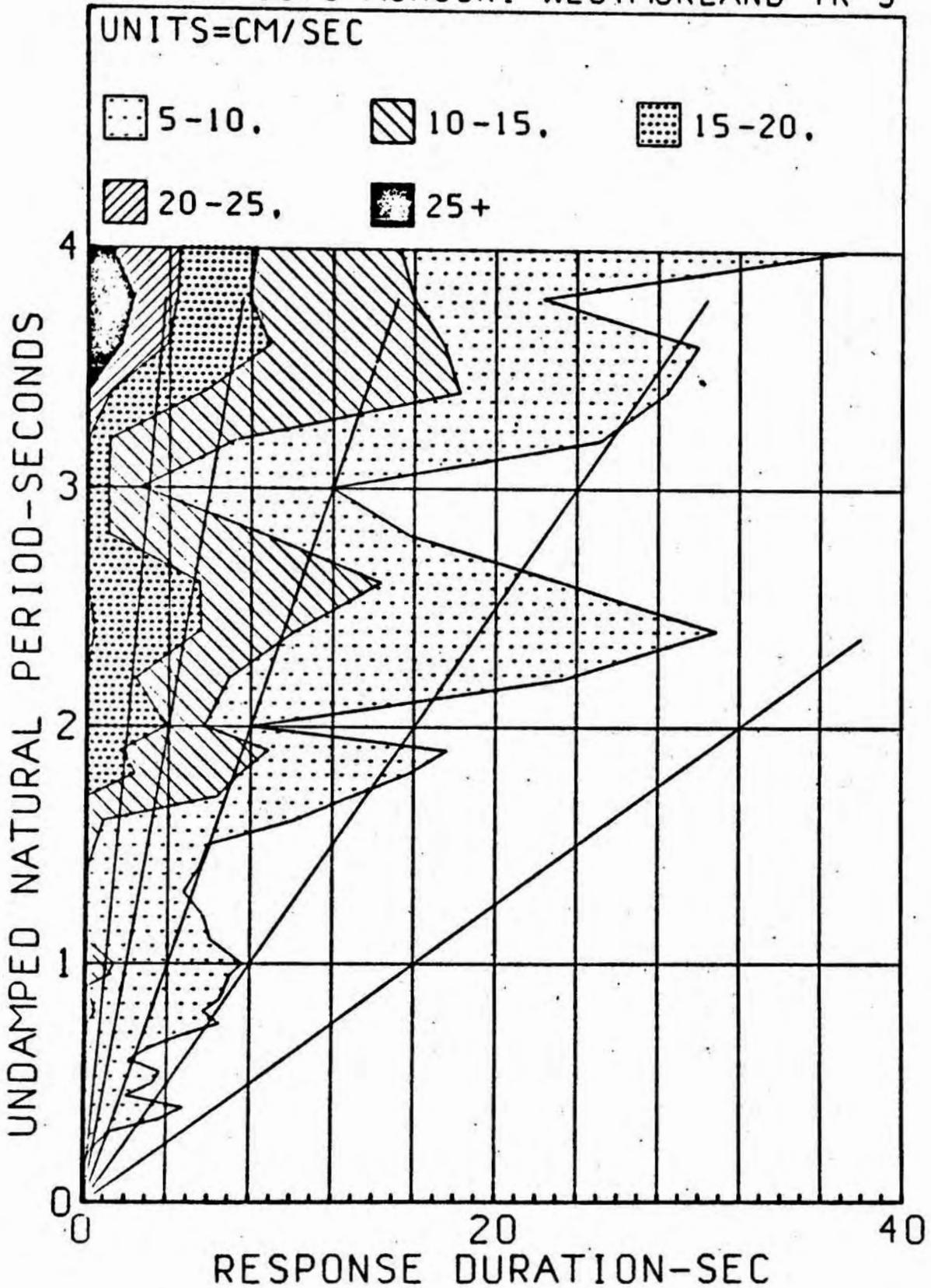
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 IMPERIAL VALLEY, CA. EARTHQUAKE OF 15 OCTOBER 1979 ASHOCKI
 DMG TEMP WESTMORLAND SMA 2588 TR 3 090 DEGREES
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



VELOCITY RESPONSE ENVELOPE SPECTRUM, 5 PERCENT CRITICAL DAMPING
BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ



DURATION SPECTRUM OF THE VELOCITY
 RESPONSE ENVELOPE, 5 PERCENT DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ
 15 OCT 1979 ASHOCKI WESTMORLAND TR 3



SPECTRA OF AMPLITUDES SUSTAINED
 FOR ANY GIVEN NUMBER OF CYCLES
 15 OCT 1979 ASHOCKI WESTMORLAND TR 3
 5 PERCENT CRITICAL DAMPING
 BAND PASSED FROM .030- .170 TO 23.00-25.00 HZ

