PROCESSED CSMIP STRONG-MOTION RECORDS FROM THE LANDERS, CALIFORNIA EARTHQUAKE OF JUNE 28 1992: RELEASE NO. 5

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Report No. OSMS 95-09

California Strong Motion Instrumentation Program

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INTRODUCTION

The processed records obtained from 26 California Strong Motion Instrumentation Program (CSMIP) ground-response stations during the Landers earthquake of June 28, 1992 are included in this fifth processed data release. The epicentral distance of these 26 stations ranges from 43 to 186 km. Processed data from a total of 49 CSMIP ground-response stations have been released. Results from the first 23 ground-response stations are included in several processed data reports (CSMIP, 1992; Darragh and others, 1992; Darragh and others, 1993a-b).

Strong-motion records were recovered from 144 stations of the CSMIP following the Landers earthquake. The recovered accelerograms include 88 ground-response stations and 56 extensively-instrumented structures. The accelerograms, information on the earthquake and recording stations are presented in the CSMIP data report on this earthquake (Shakal and others, 1992). Details on accelerogram digitizing and processing will be presented in a final CSMIP processed data report.

Digitization and processing of the records recovered by CSMIP started after the data report was completed and is continuing. The preliminary results of digitizing and processing for the first release of 6 records were announced on October 9, 1992, and were included in the first release report (CSMIP, 1992). The second release of 8 stations, including 6 ground-response and 2 instrumented buildings, were announced on December 4, 1992, and were included in the second release report (Darragh, and others 1992). The third release of 10 ground-response stations were announced on February 11, 1993, and were included in the third release report (Darragh and others, 1993a). The fourth release of 2 stations, San Bernardino - I10/215 Interchange and San Bernardino - E & Hospitality, were announced on September 30, 1993, and were included in the fourth release report (Darragh and others, 1993b). In addition, the processed records are available from several additional CSMIP-instrumented buildings.

PLOTS OF PROCESSED DATA

For each ground-response station the plots are numbered in the upper right corner of each page. For each station, the page number, station name, station number and epicentral distance are given below as:

Page No.	Station Name	Station No.	Distance (km)
5	Anaverde Valley - City Ranch	24576	167
9	Big Bear Lake - Civic Center Grounds	22561	46
13	Desert Shores	12626	93
17	Elizabeth Lake	24575	186
21	Hesperia - 4th & Palm	23583	83
25	Indio - Riverside County Fairgrounds	12543	59

Page No.	Station Name	Station No.	Distance (km)
29	Lake Cahuilla	12624	67
33	Littlerock - Brainard Canyon	23595	145
37	Los Angeles - City Terrace	24592	161
41	Los Angeles - Pico & Sentous	24612	170
45	Los Angeles - Temple & Hope	24611	168
49	Los Angeles - University Hospital FF	24605	163
53	Mecca - CVWD Yard	11625	83
57	Mt. Baldy - Elementary School	23572	113
61	Northshore - Durmid	11591	104
65	Northshore - Salton Sea State Park HQ	11613	92
69	Palmdale - Black Butte	23585	125
73	Pearblossom - Pallet Creek	23584	138
77	Phelan - Wilson Ranch Road	23597	103
81	Rancho Cucamonga - Deer Canyon	23598	105
85	Salton City	11628	111
89	San Bernardino - 2nd & Arrowhead	23522	79
93	Snow Creek	12630	43
97	Wrightwood - Jackson Flat	23590	121
101	Wrightwood - Nielson Ranch	23573	103
105	Wrightwood - Swarthout Valley	23574	114

The order of the plots for each station is as follows:

1. Phase 2 (Vol. 2) data: Instrument and baseline-corrected acceleration, velocity and displacement. The data for first 40 seconds are plotted with equal scaling for all channels. The Usable Data Bandwidth used in the processing is indicated on the plots. Three channels of acceleration, velocity and displacement are plotted on one page.

2. Phase 1 (Vol. 1) data: Uncorrected accelerations. Acceleration for the first 80 seconds is plotted with each channel individually scaled; three channels are plotted on one page. For these ground-response stations the full processed length is generally greater than 80 seconds.

3. Phase 3 (Vol. 3) data: Response spectra. The absolute acceleration spectra (SA) for 0%, 2%, 5%, 10% and 20% dampings are plotted against period with linear-linear scaling from 0 to 4 seconds. The spectra are plotted for periods within the Usable Data Bandwidth. Three channels are plotted on one page.

4. Phase 3 (Vol. 3) data: Response spectra. The pseudo-velocity spectra (PSV), the pseudo-acceleration spectra (PSA), and the displacement spectra (SD) are presented on a tripartite logarithmic plot for each channel for 0%, 2%, 5%, 10%, and 20% dampings. The spectra are plotted for periods within the Usable Data Bandwidth. Three channels are plotted on one page.

REFERENCES

CSMIP Staff (1992). Preliminary processed strong-motion data for the Landers earthquake of 28 June 1992, Calif. Div. Mines and Geology, Office of Strong Motion Studies, Report No. OSMS 92-11, 60 p.

Darragh, R., T. Cao, C. Cramer, F. Su, M. Huang and A. Shakal (1992). Processed strong-motion records from the Landers earthquake of 28 June 1992: Release No. 2, Calif. Div. Mines and Geology, Office of Strong Motion Studies, Report No. OSMS 92-13, 156 p.

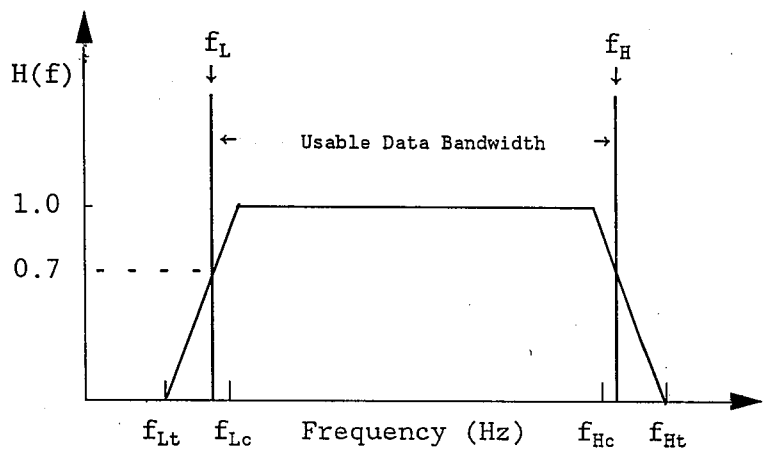
Darragh, R., T. Cao, M. Huang and A. Shakal (1993a). Processed strong-motion records from the Landers earthquake of 28 June 1992: Release No. 3, Calif. Div. Mines and Geology, Office of Strong Motion Studies, Report No. OSMS 93-01, 104 p.

Darragh, R., T. Cao, M. Huang and A. Shakal (1993b). Processed CSMIP strong-motion records from the Landers and Big Bear, California earthquakes of 28 June 1992: San Bernardino - I10/215 Interchange, Calif. Div. Mines and Geology, Office of Strong Motion Studies, Report No. OSMS 93-08, 234 p.

Shakal, A., M. Huang, T. Cao, R. Sherburne, R. Sydnor, P. Fung, P. Malhotra, C. Cramer, F. Su, R. Darragh and J. Wampole (1992). CSMIP strong-motion records from the Landers, California earthquake of 28 June 1992, Calif. Div. Mines and Geology, Office of Strong Motion Studies, Report No. OSMS 92-09, 330 p.

DEFINITION OF USABLE DATA BANDWIDTH

The filter bands for each record are indicated on the plots for the Phase 2 and Phase 3 data. In standard processing, the digitized data are processed and filtered using Ormsby filters. The data are first low-pass filtered using a high-frequency filter with a corner frequency of 46 Hz and a roll-off termination frequency of 50 Hz. Then the data are high-pass filtered using a low-frequency filter with a corner frequency of 0.07 Hz and a roll-off termination of 0.05 Hz. Therefore, the Phase 2 data is the result of the digitized data being filtered by the bandpass filter H(f) with ramps as shown in the figure:



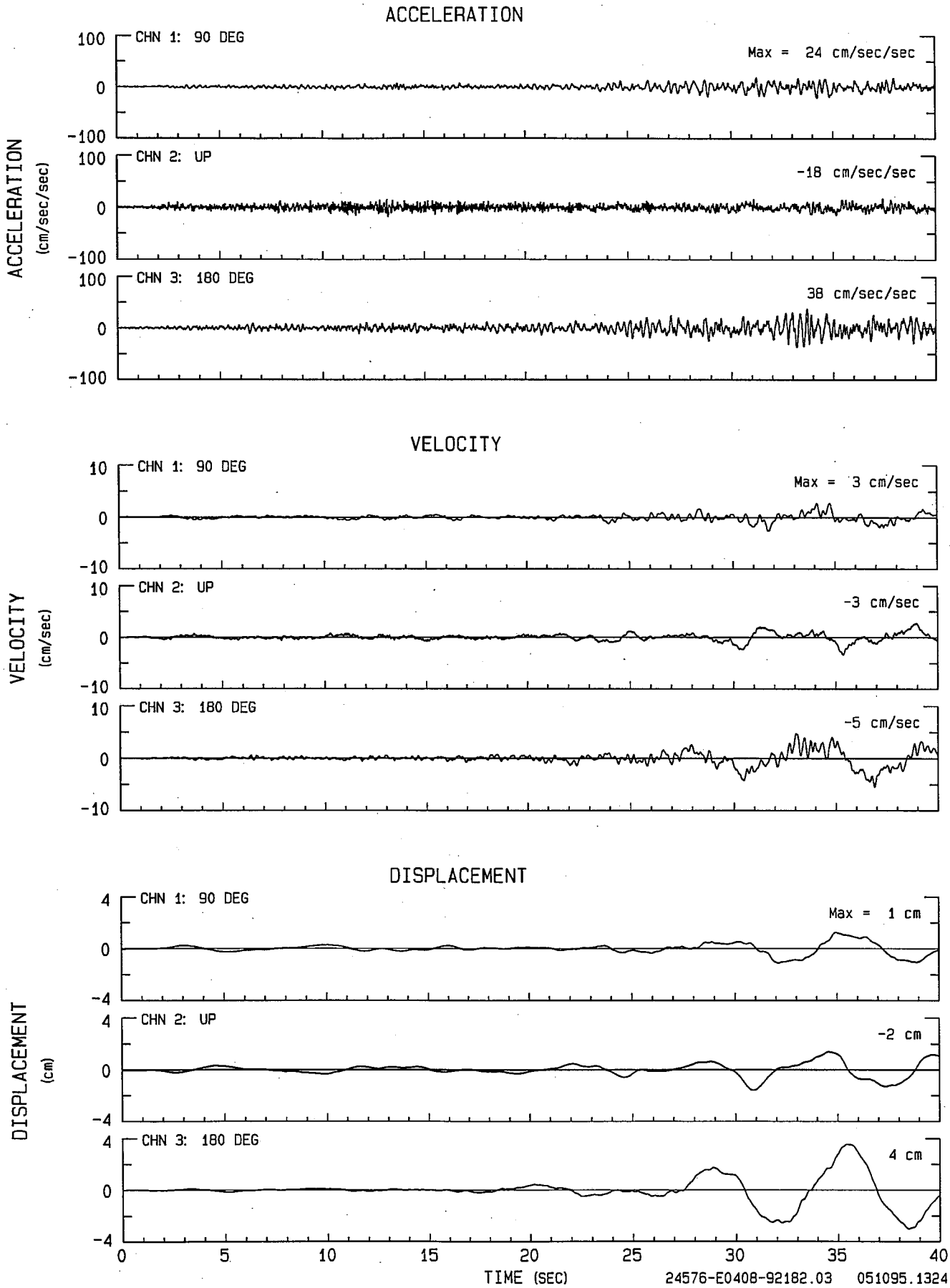
The Usable Data Bandwidth is defined as the band between frequencies f_H and f_L, where f_H and f_L are the -3 dB points on the high-frequency and low-frequency ramps, respectively. The value of H(f) is approximately equal to 0.7 for -3 dB (see Notes). The user should only use these data for analyses within this bandwidth.

Notes:

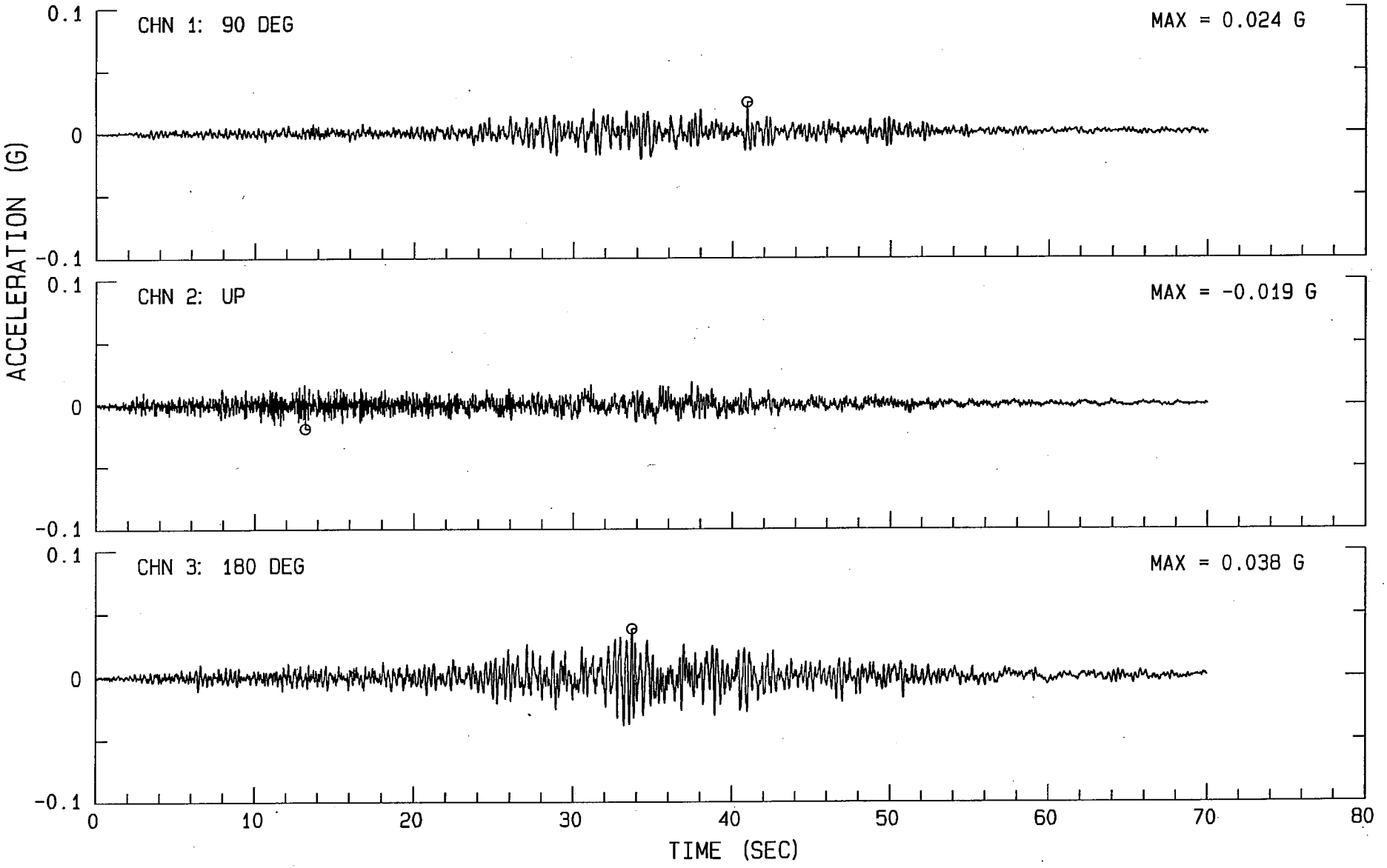
1) The values of f_H and f_L can be calculated from the corner frequencies (f_{Hc}, f_{Lc}) and the roll-off termination frequencies (f_{Ht}, f_{Lt}) used in the processing by using the formulas $f_H = f_{Hc} + 0.3 * (f_{Ht} - f_{Hc})$ and $f_L = f_{Lc} - 0.3 * (f_{Lc} - f_{Lt})$. For example, the Usable Data Bandwidth for data bandpass-filtered with ramps at 0.30 to 0.60 Hz and 23.0 to 25.0 Hz is 0.51 Hz to 23.6 Hz (0.042 to 2.0 seconds period).

2) It is common in signal processing to plot 20 $\log_{10}[H(f)]$ versus frequency, and express the ordinate value in decibels (abbreviated dB). Accordingly, 0 dB corresponds to a value of H(f) equal to 1; 20 dB is equivalent to H(f) = 10, and -20 dB corresponds to H(f) = 0.1. Thus, at the -3 dB frequency point, the amplitude of the transfer function, H(f) is reduced to 0.7, while the power transmitted by the filter, $H^2(f)$, is reduced to 0.5.

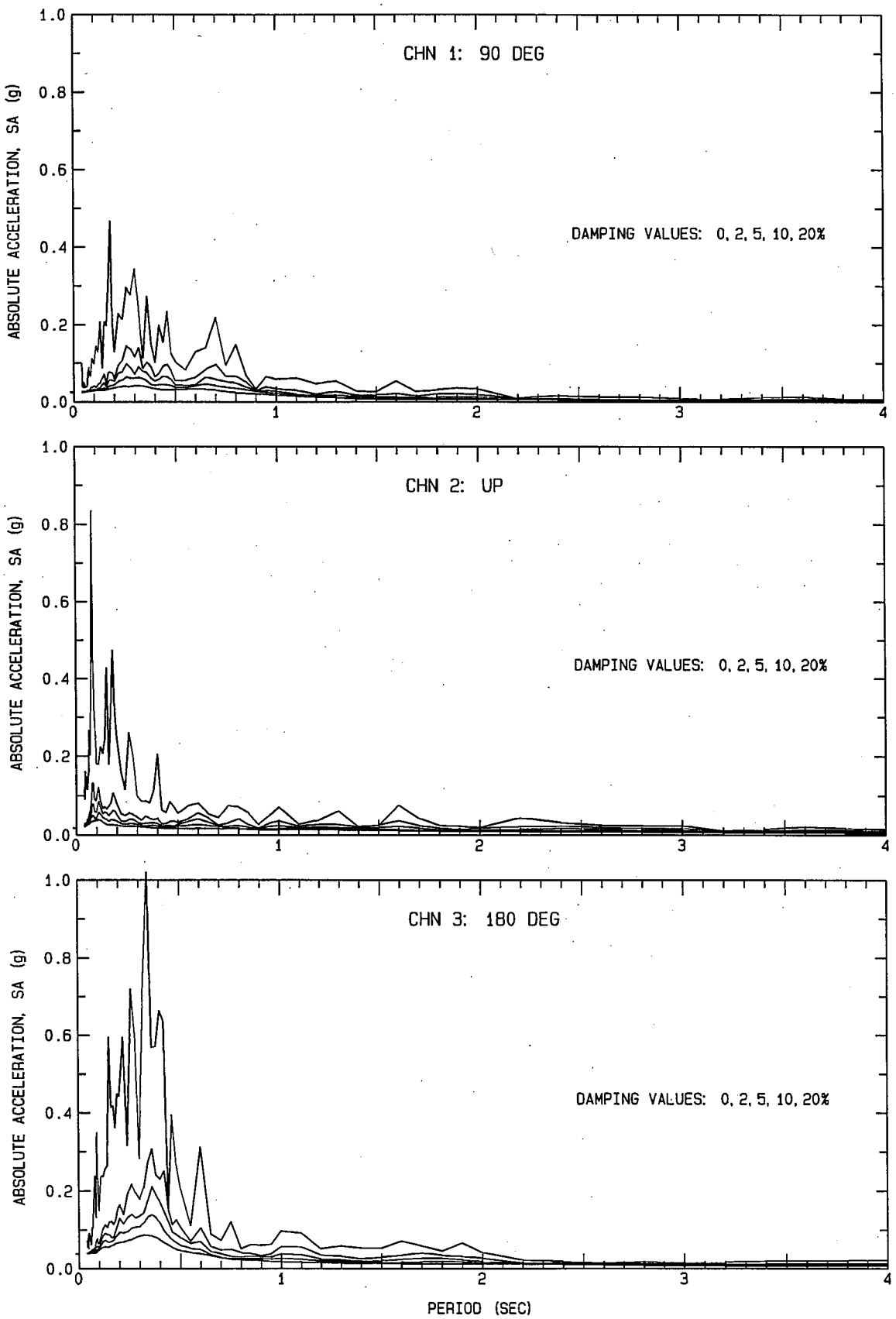
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
ANAVERDE VALLEY - CITY RANCH CSMIP Sta Num 24576
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
ANAVERDE VALLEY - CITY RANCH
UNCORRECTED ACCELEROGRAM 24576-E0408-92182.03 051095.1322-QL92A576



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
ANAVERDE VALLEY - CITY RANCH
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
24576-E0408-92182.03 051095.1327-QL92A576



ANAVERDE VALLEY - CITY RANCH: CSMIP S/N 576

LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
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(0.02 TO 9.80 SEC)

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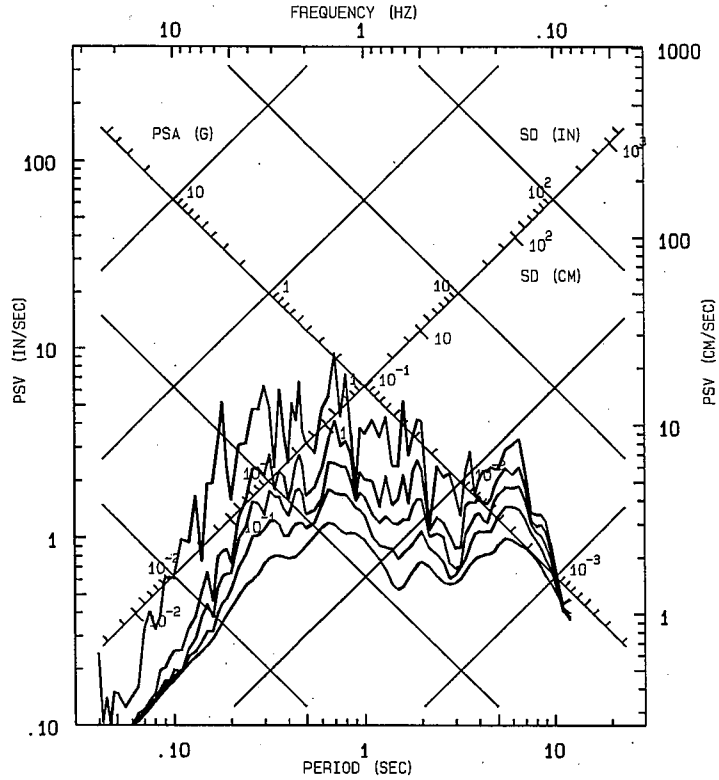
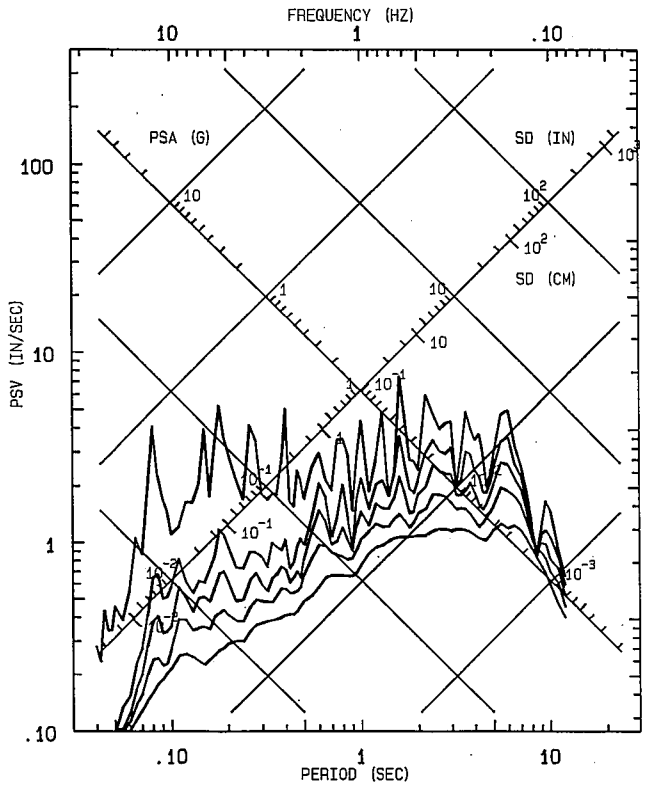
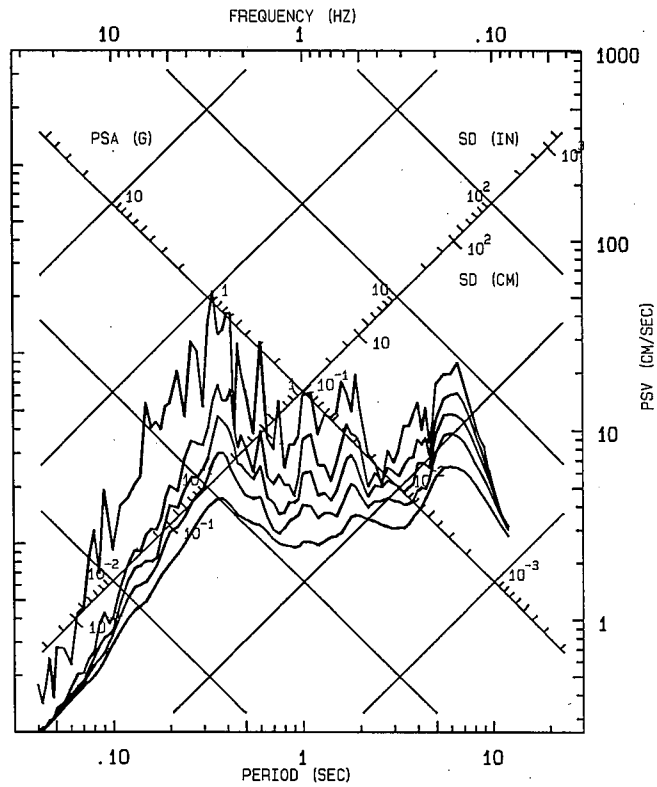
CHN 1: 90 DEG



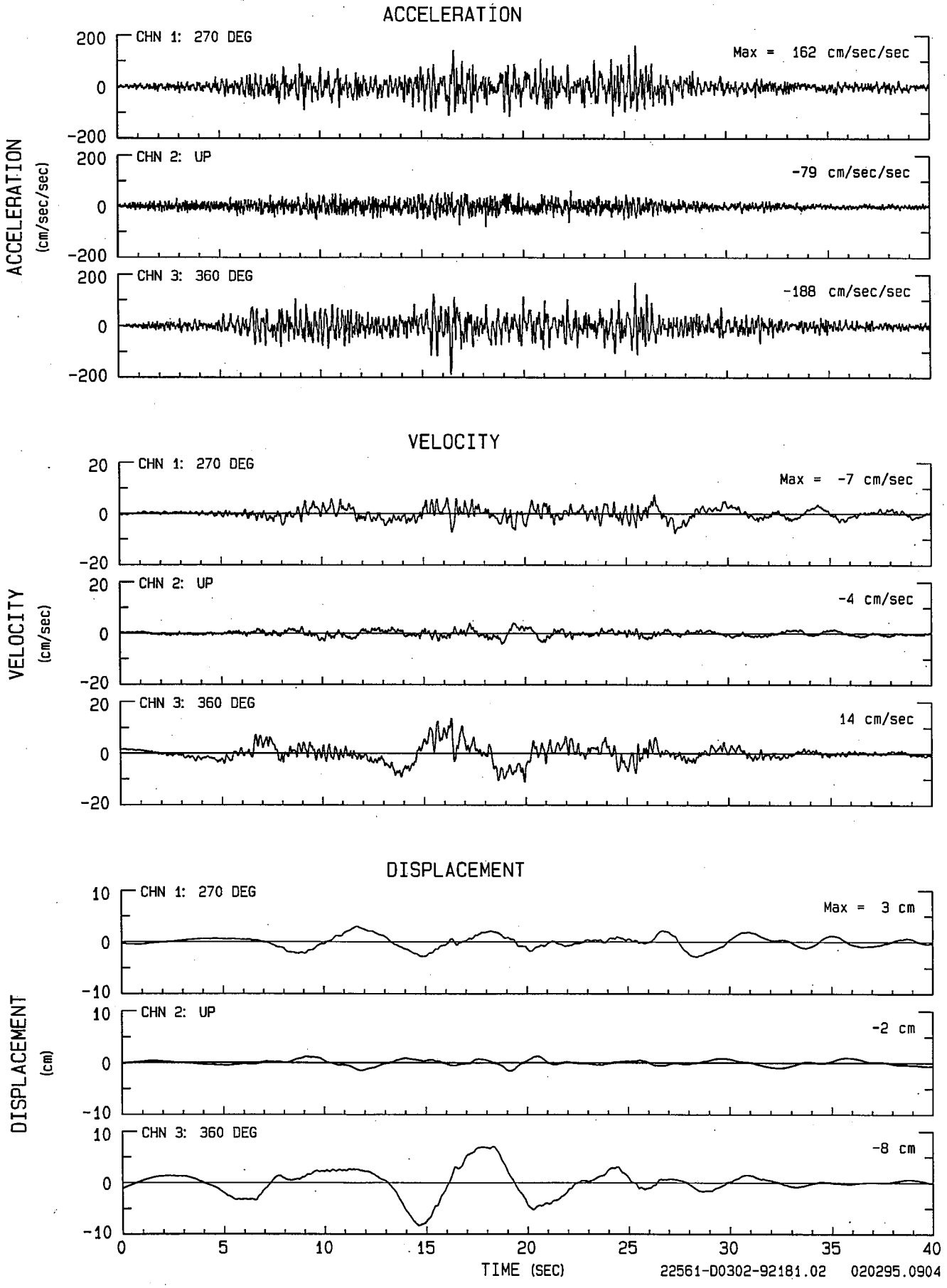
CHN 2: UP



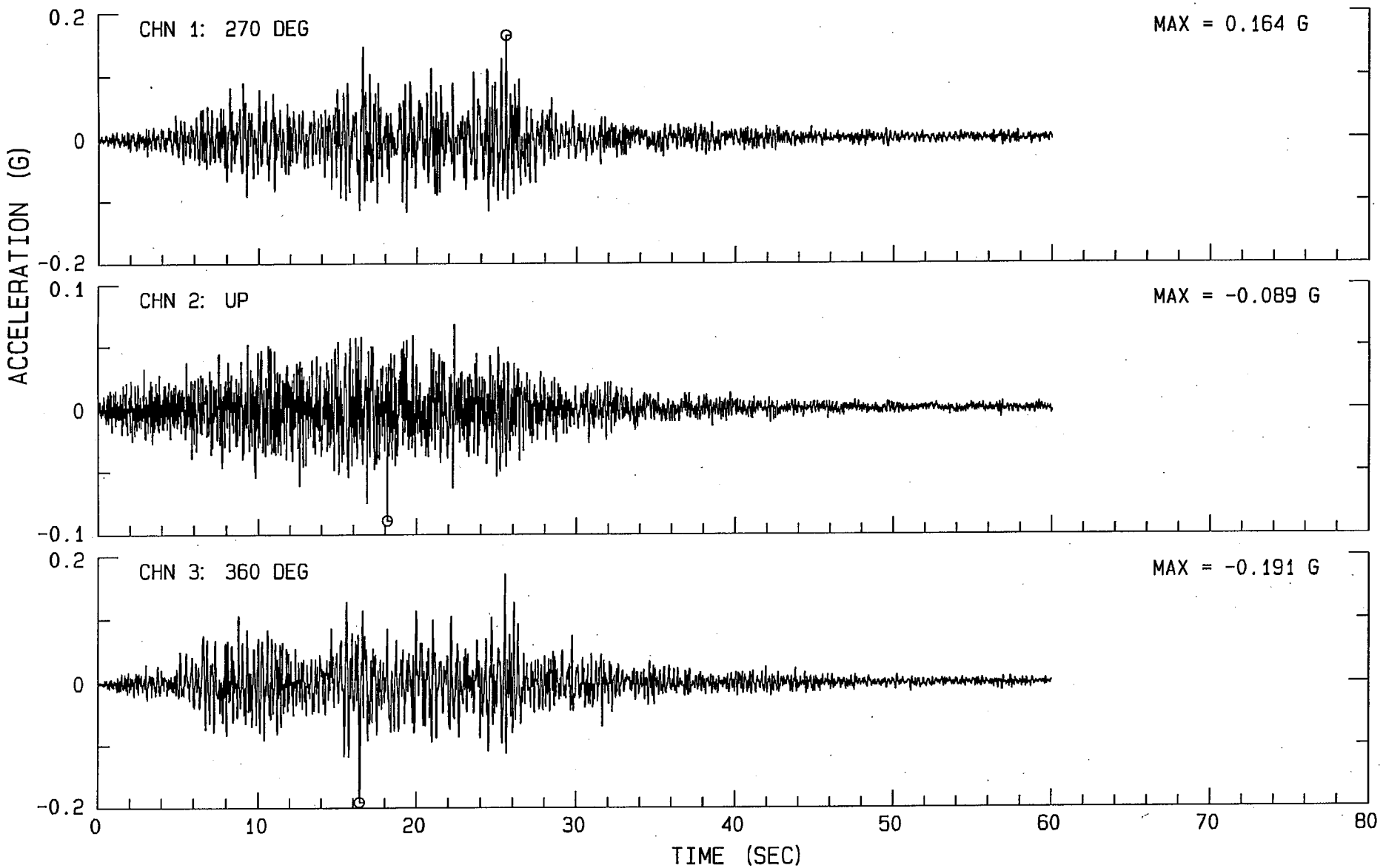
CHN 3: 180 DEG



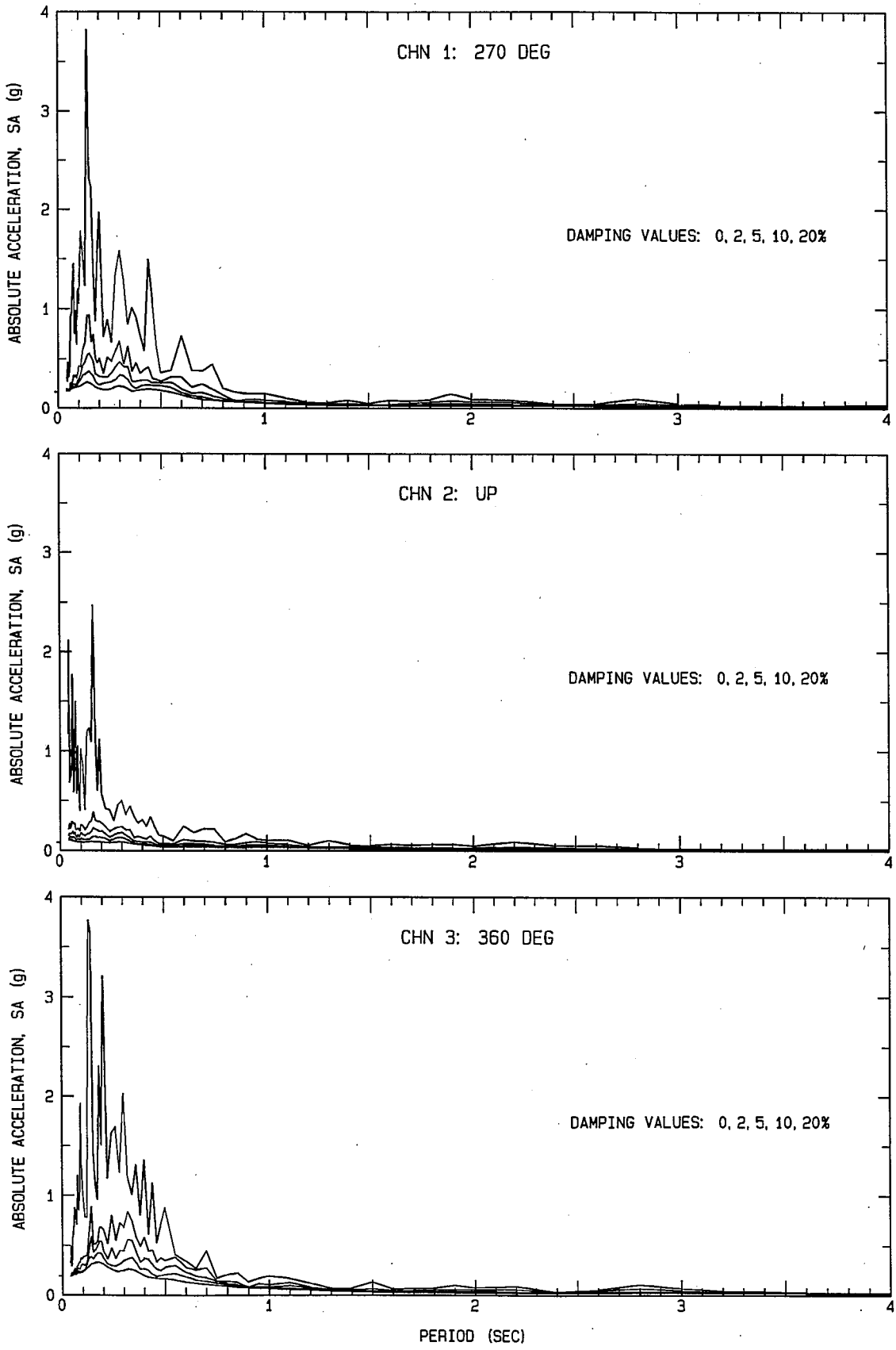
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
BIG BEAR LAKE - CIVIC CENTER GROUNDS CSMIP Sta Num 22561
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
BIG BEAR LAKE - CIVIC CENTER GROUNDS
UNCORRECTED ACCELEROGRAM 22561-D0302-92181.02 020295.0901-QL92A561



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
BIG BEAR LAKE - CIVIC CENTER GROUNDS
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
22561-D0302-92181.02 020295.0906-QL92A561



BIG BEAR LAKE - CIVIC CENTER GROUNDS: CSMIP S/N 561

LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

RECORD ID: 22561-D0302-92181.02

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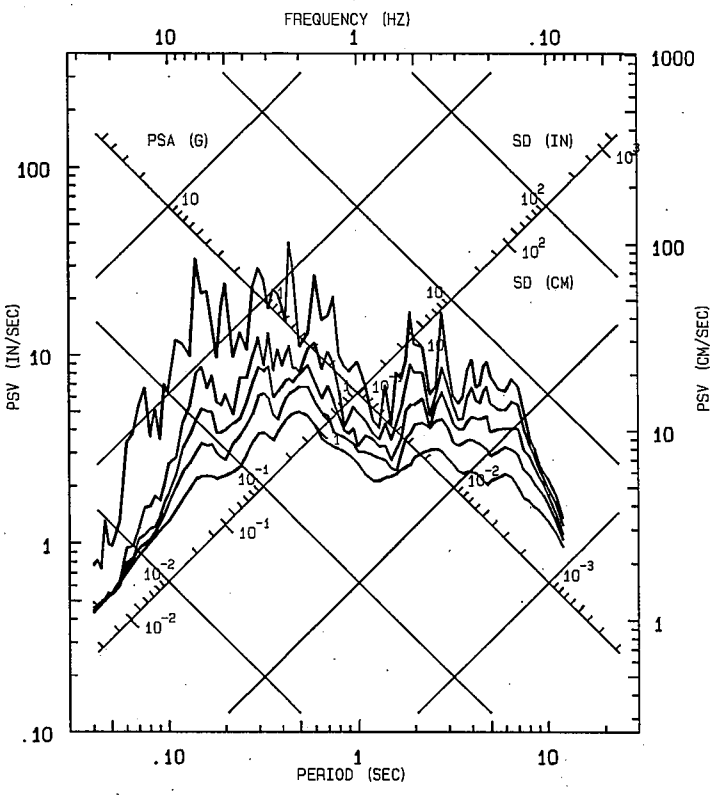
DAMPING VALUES: 0, 2, 5, 10, 20%

CHN 1: 270 DEG



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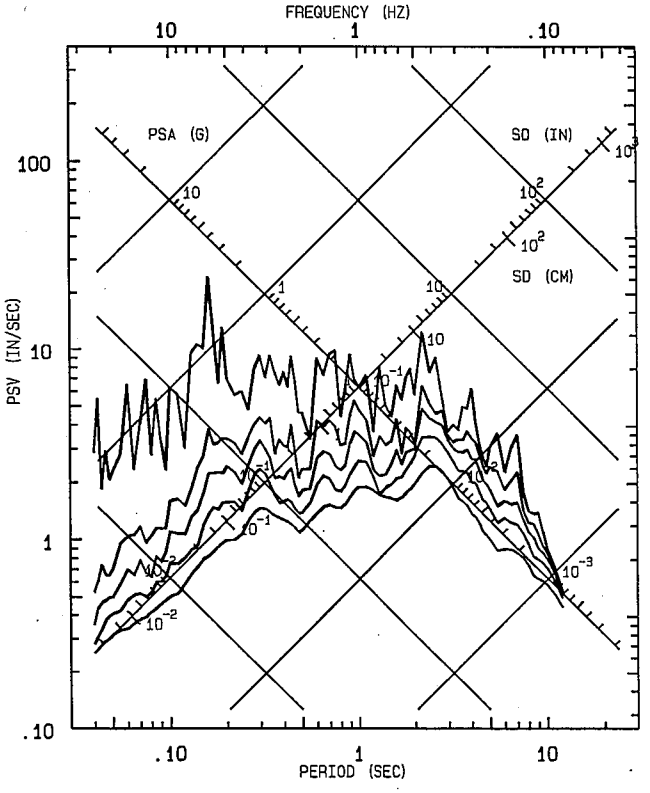
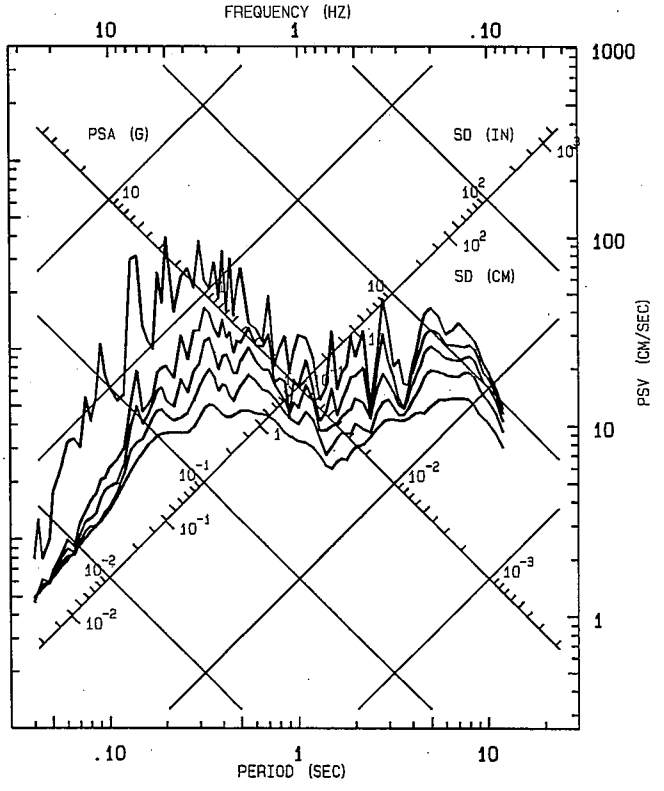
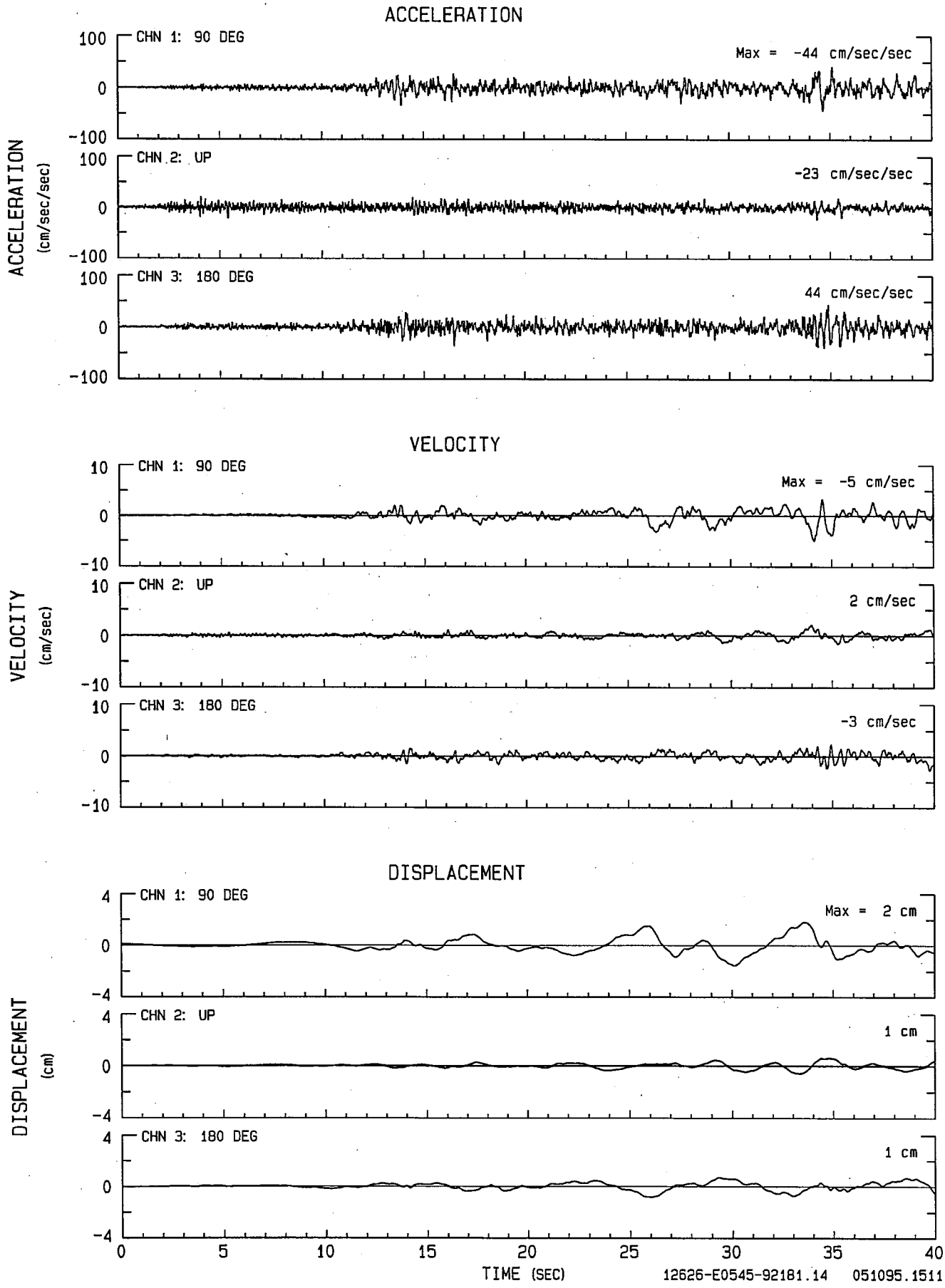


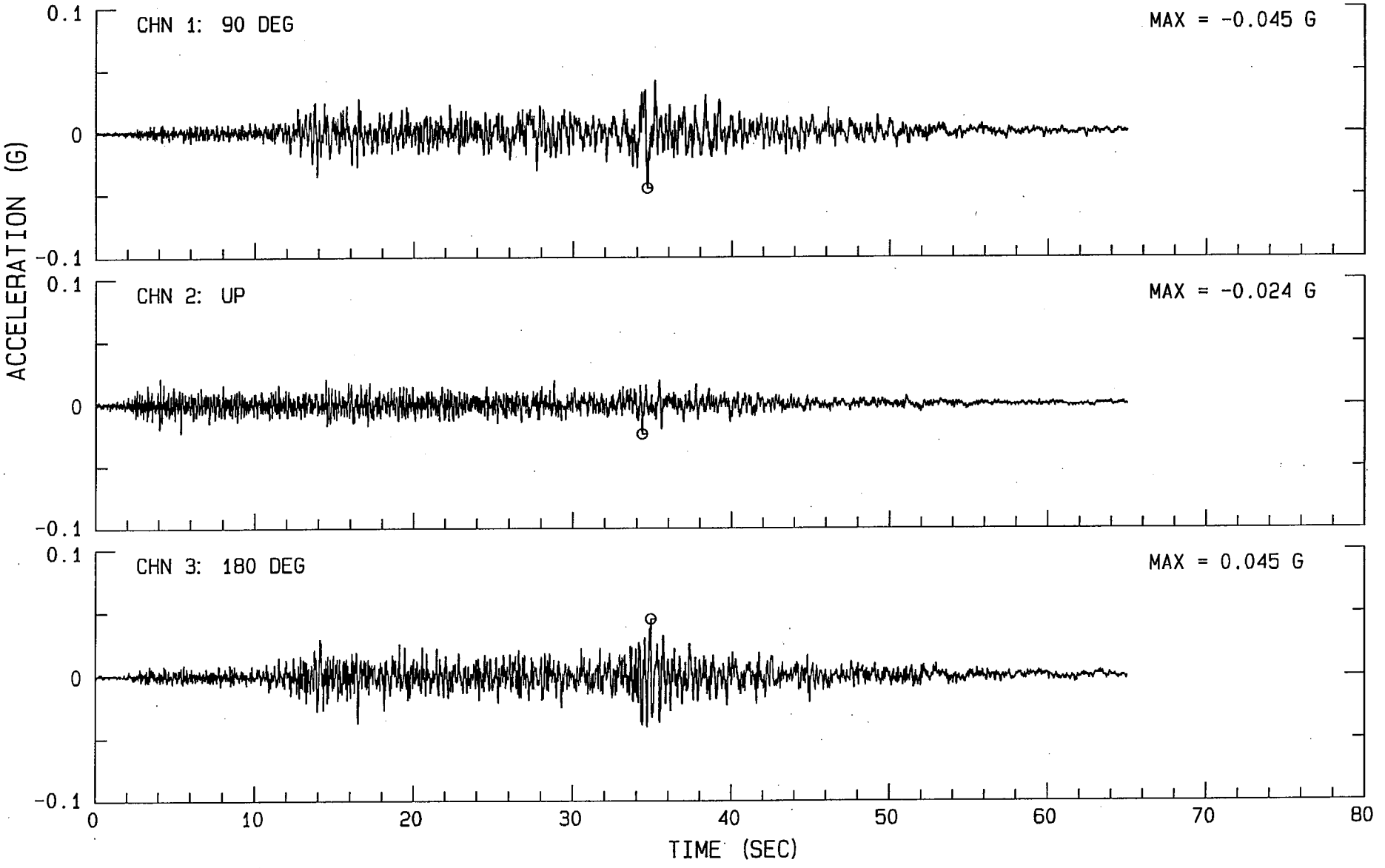
CHN 3: 360 DEG



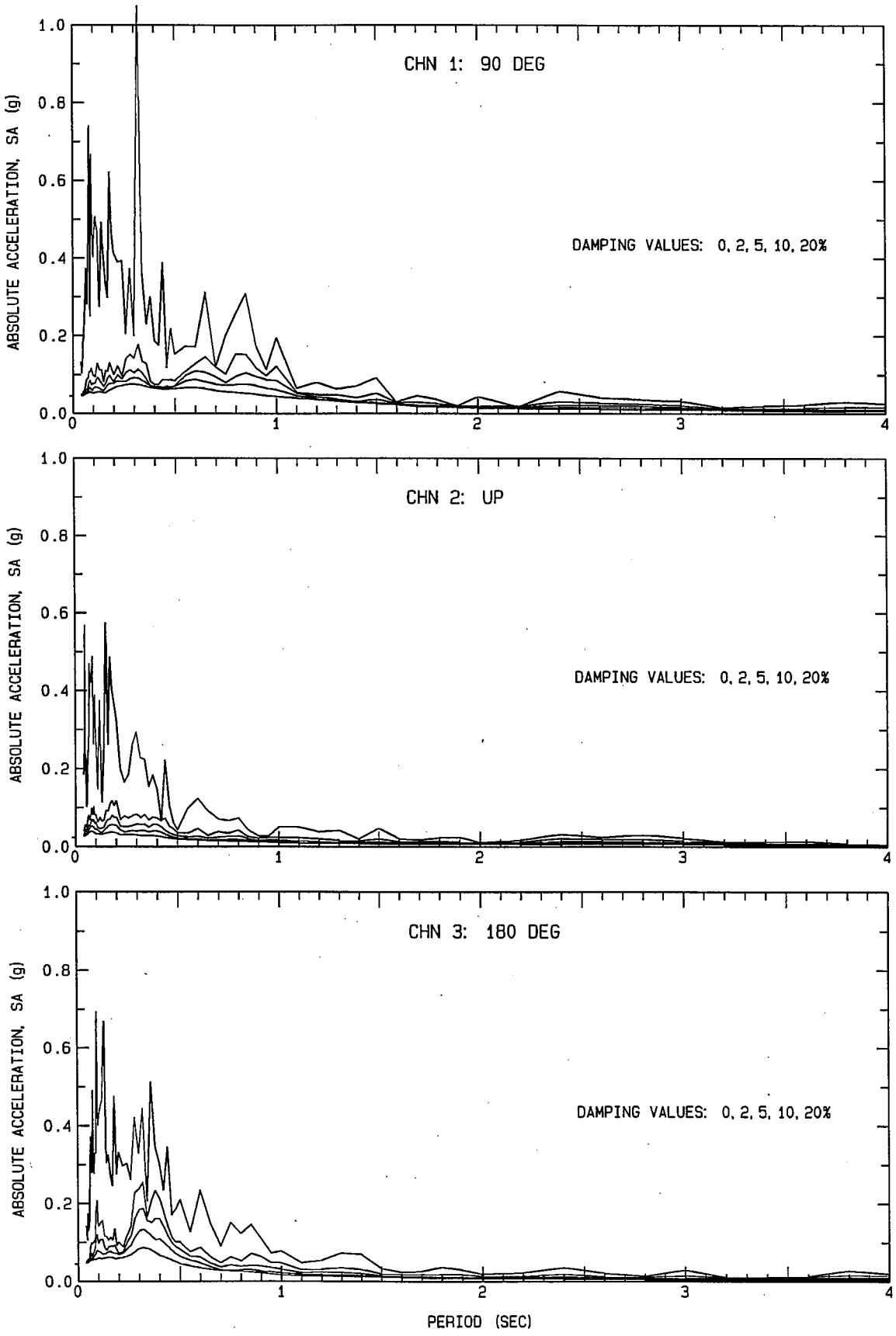
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
DESERT SHORES CSMIP Sta Num 12626
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
DESERT SHORES
UNCORRECTED ACCELEROGRAM 12626-E0545-92181.14 051095.1509-QL92A626



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
DESERT SHORES
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
12626-E0545-92181.14 051095.1513-QL92A626



DESERT SHORES: CSMIP S/N 626

LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

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(0.02 TO 9.80 SEC)

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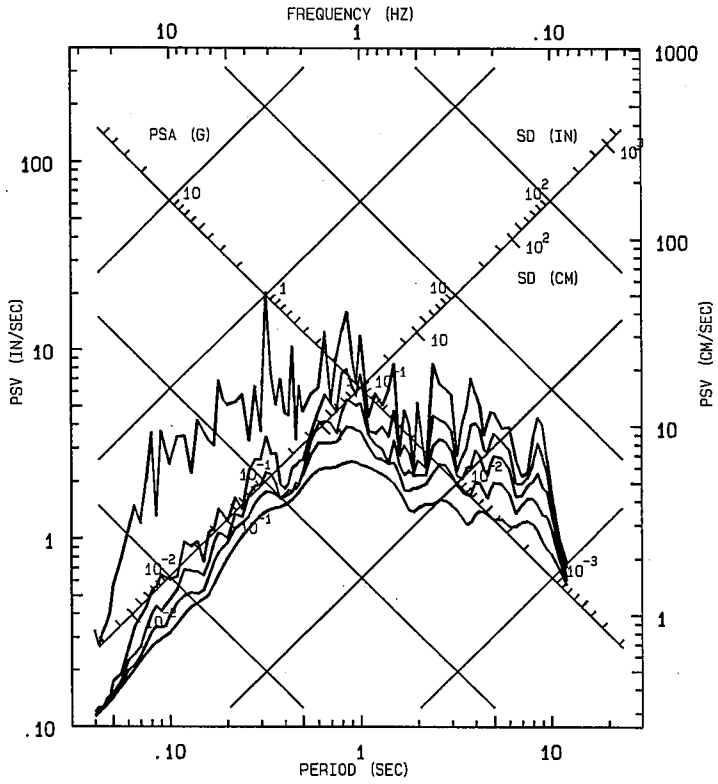

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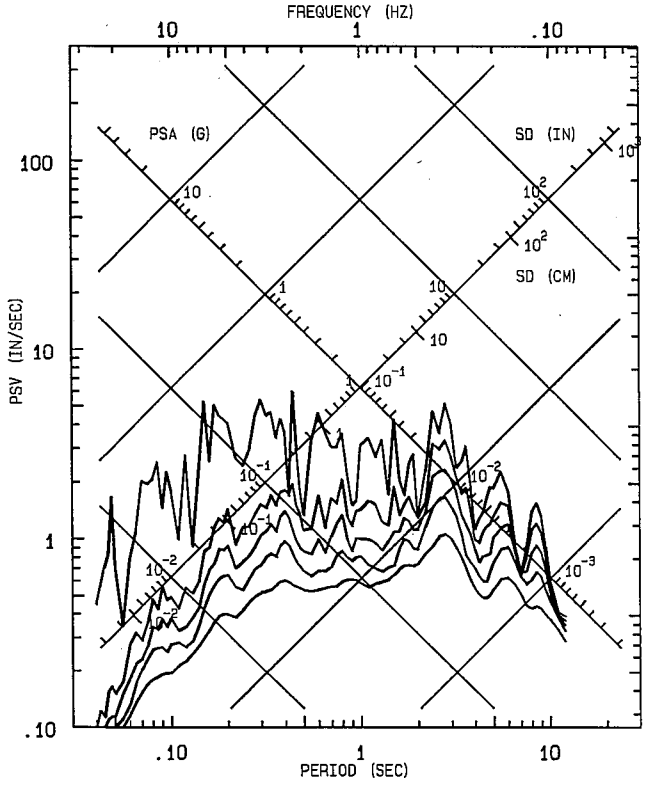
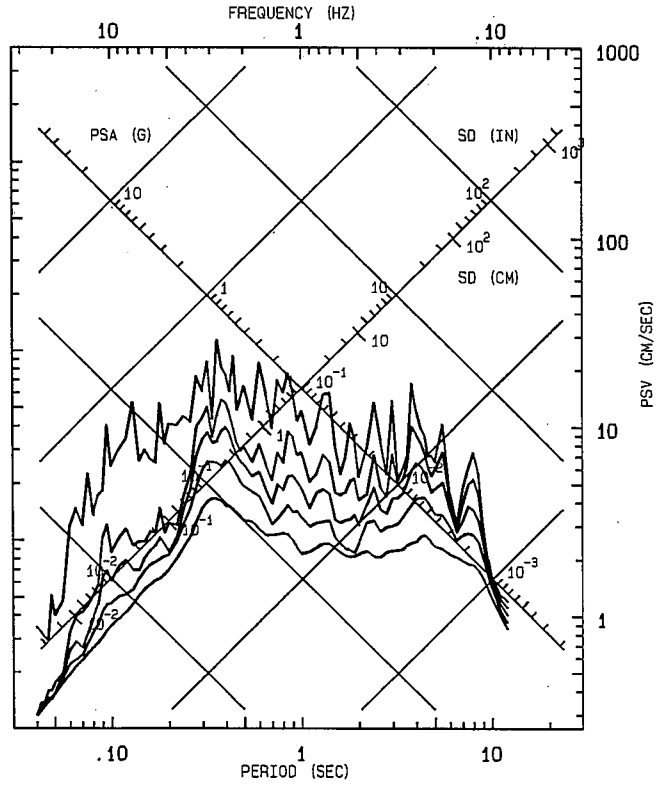
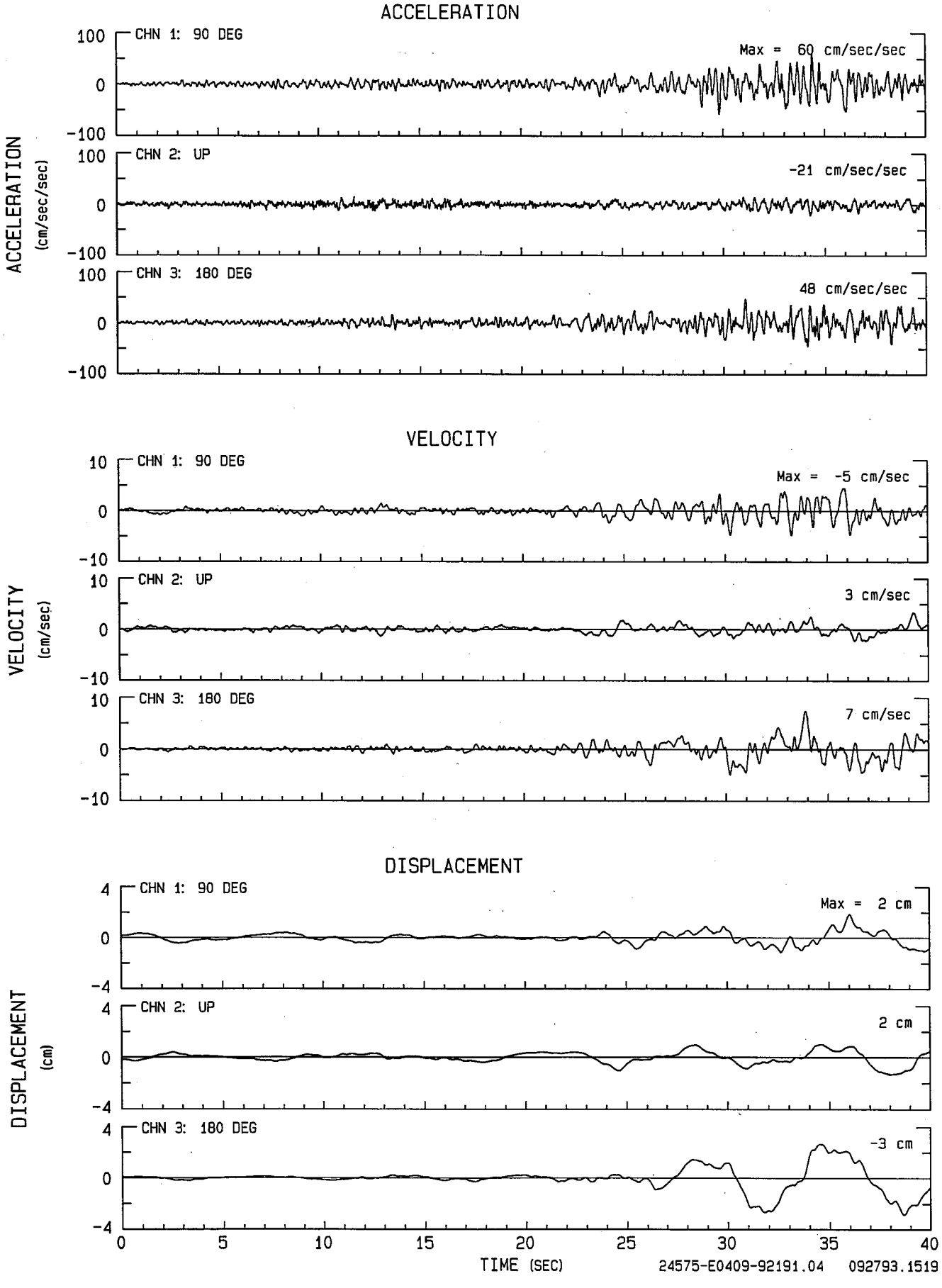


CHN 3: 180 DEG



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
ELIZABETH LAKE CSMIP Sta Num 24575
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
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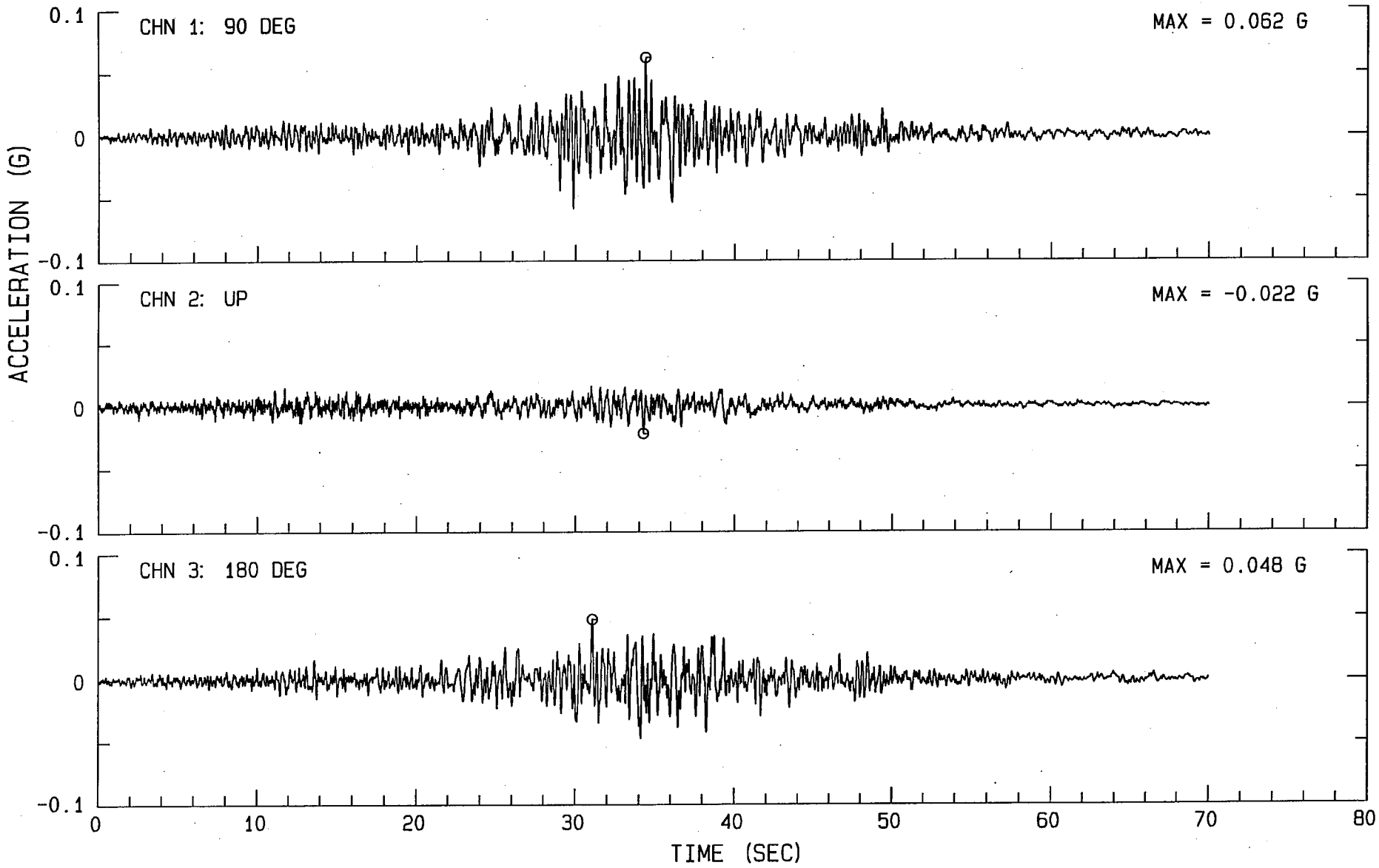
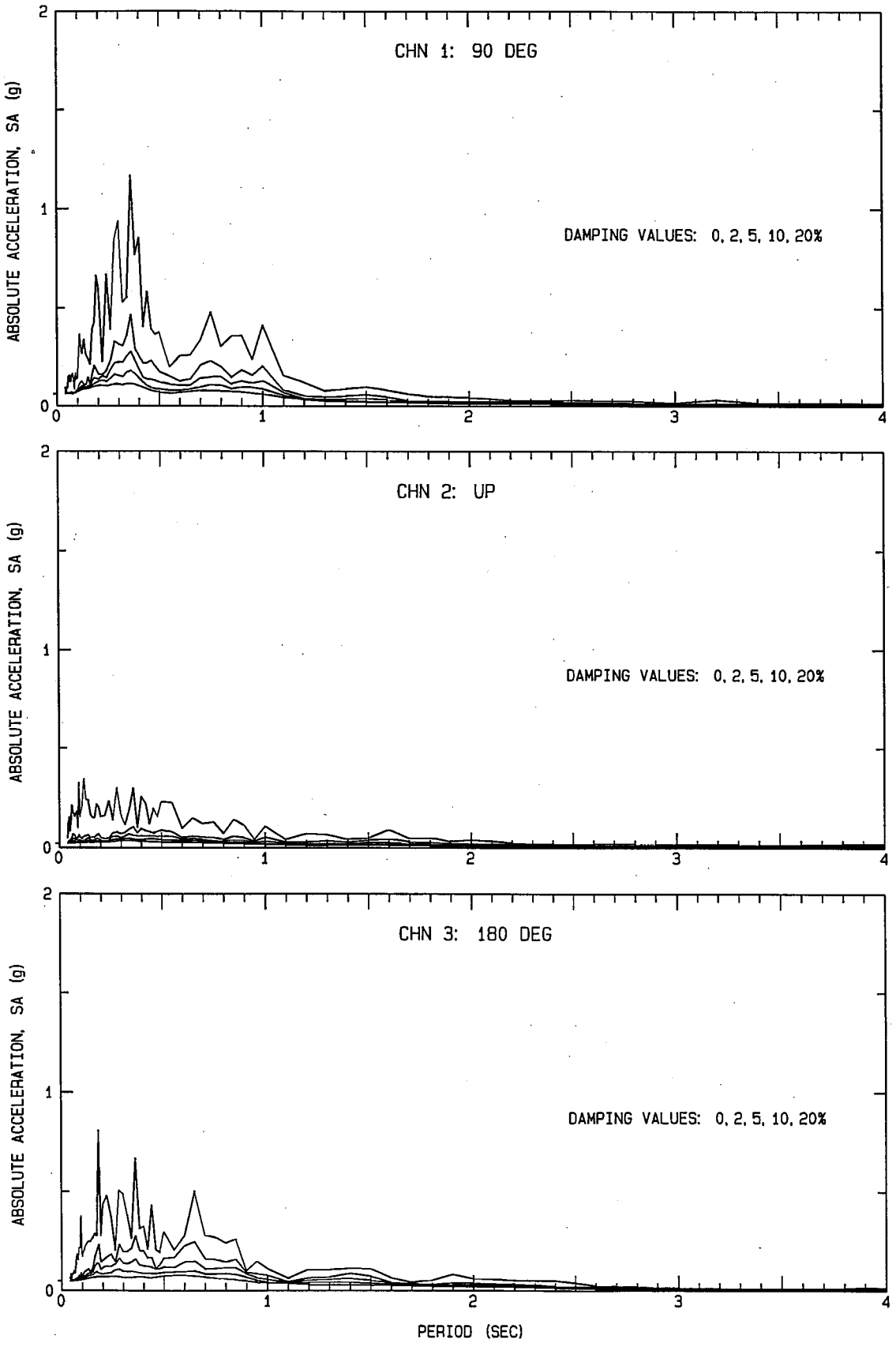


LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
ELIZABETH LAKE
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
24575-E0409-92191.04 050495.1444-QL92A575



ELIZABETH LAKE: CSMIP S/N 575

LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

RECORD ID: 24575-E0409-92191.04

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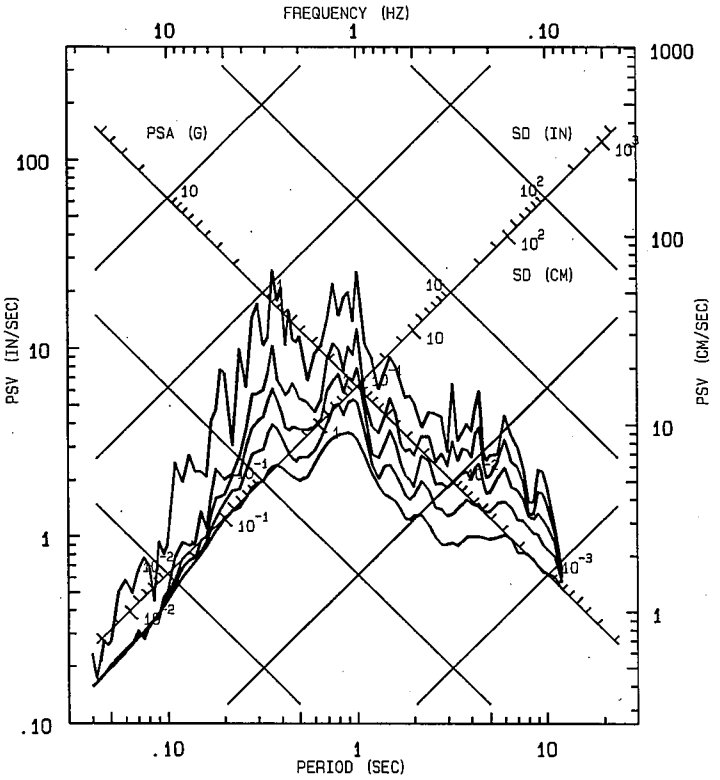
DAMPING VALUES: 0, 2, 5, 10, 20%

CHN 1: 90 DEG



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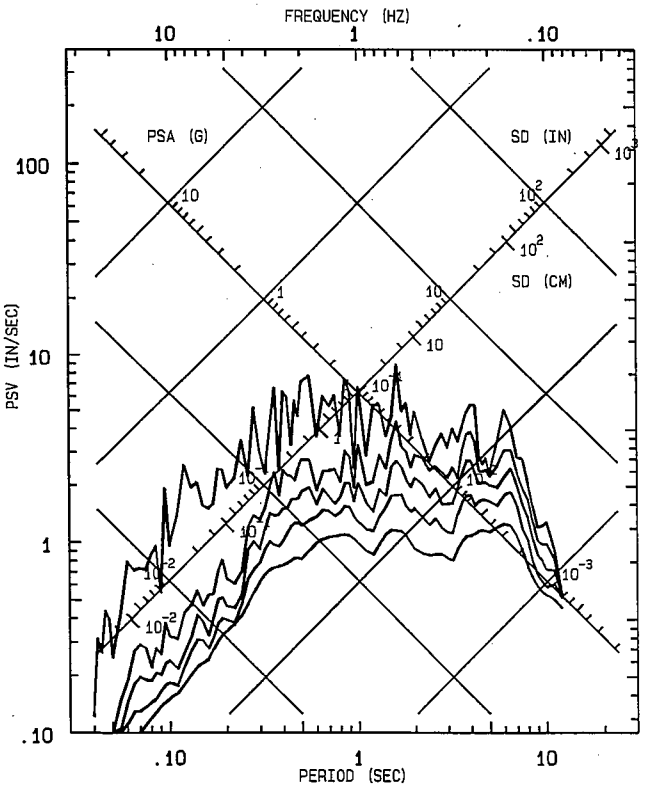
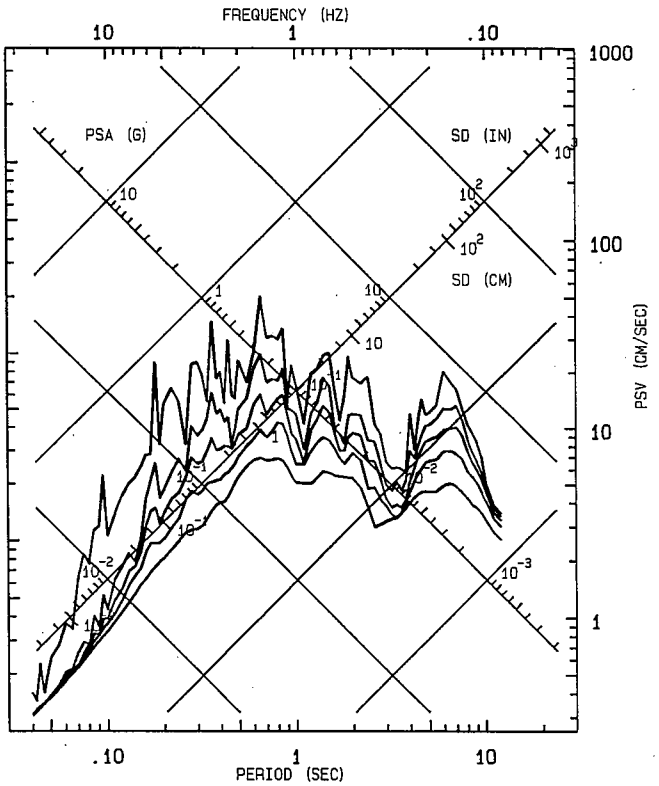
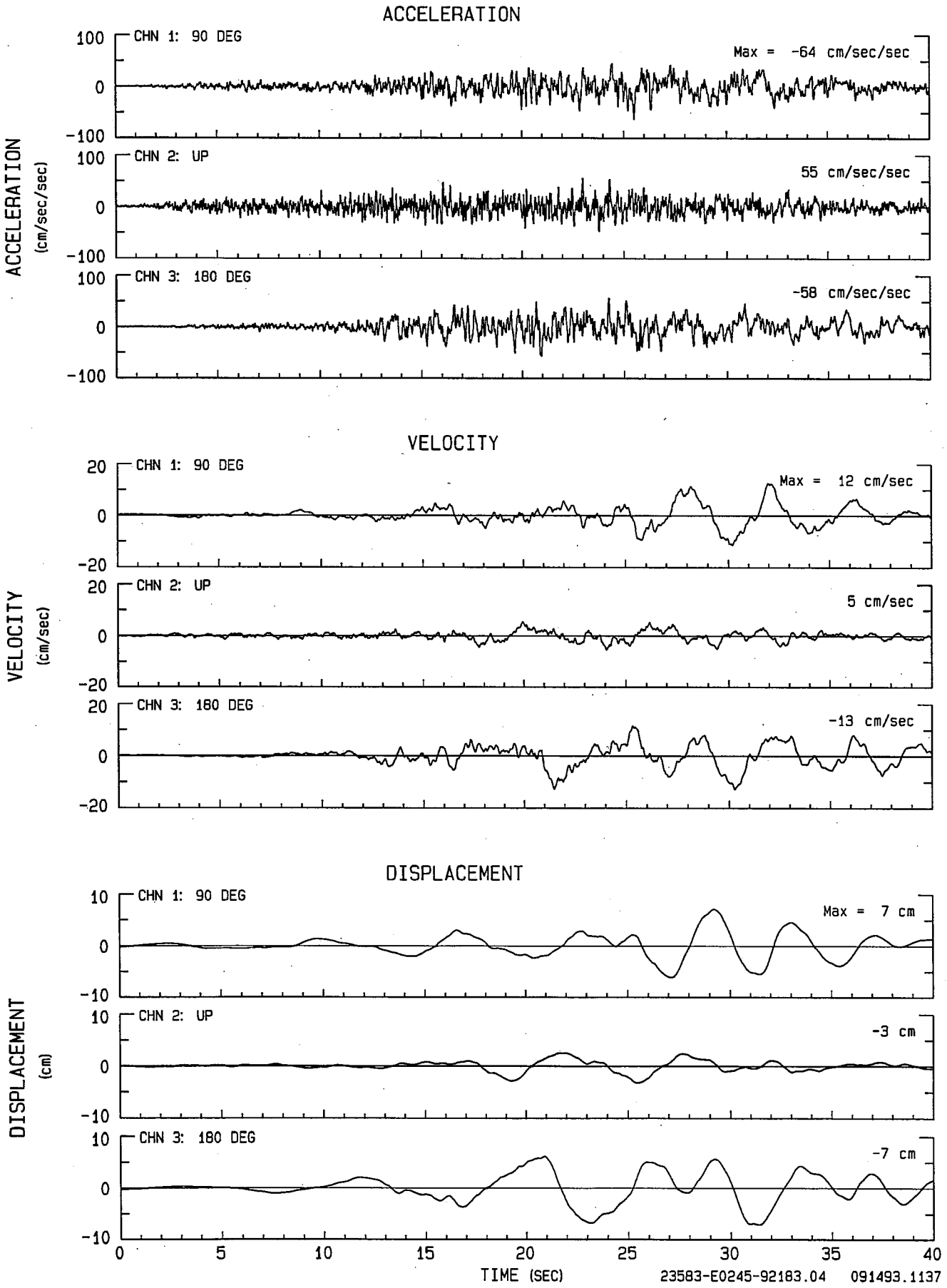


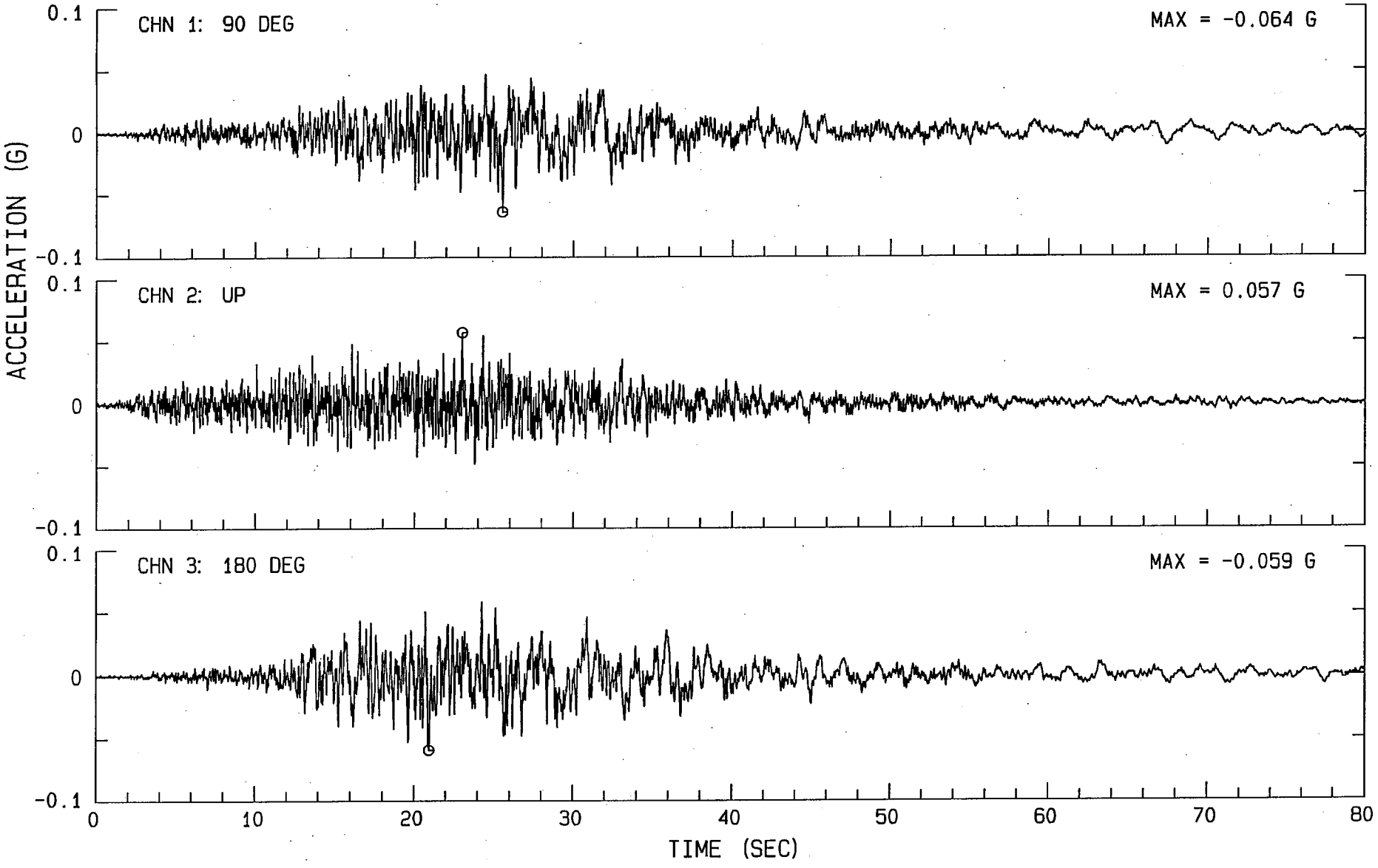
CHN 3: 180 DEG



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
HESPERIA - 4TH & PALM CSMIP Sta Num 23583
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
HESPERIA - 4TH & PALM
UNCORRECTED ACCELEROGRAM 23583-E0245-92183.04 090893.1738-QL92A583



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
HESPERIA - 4TH & PALM
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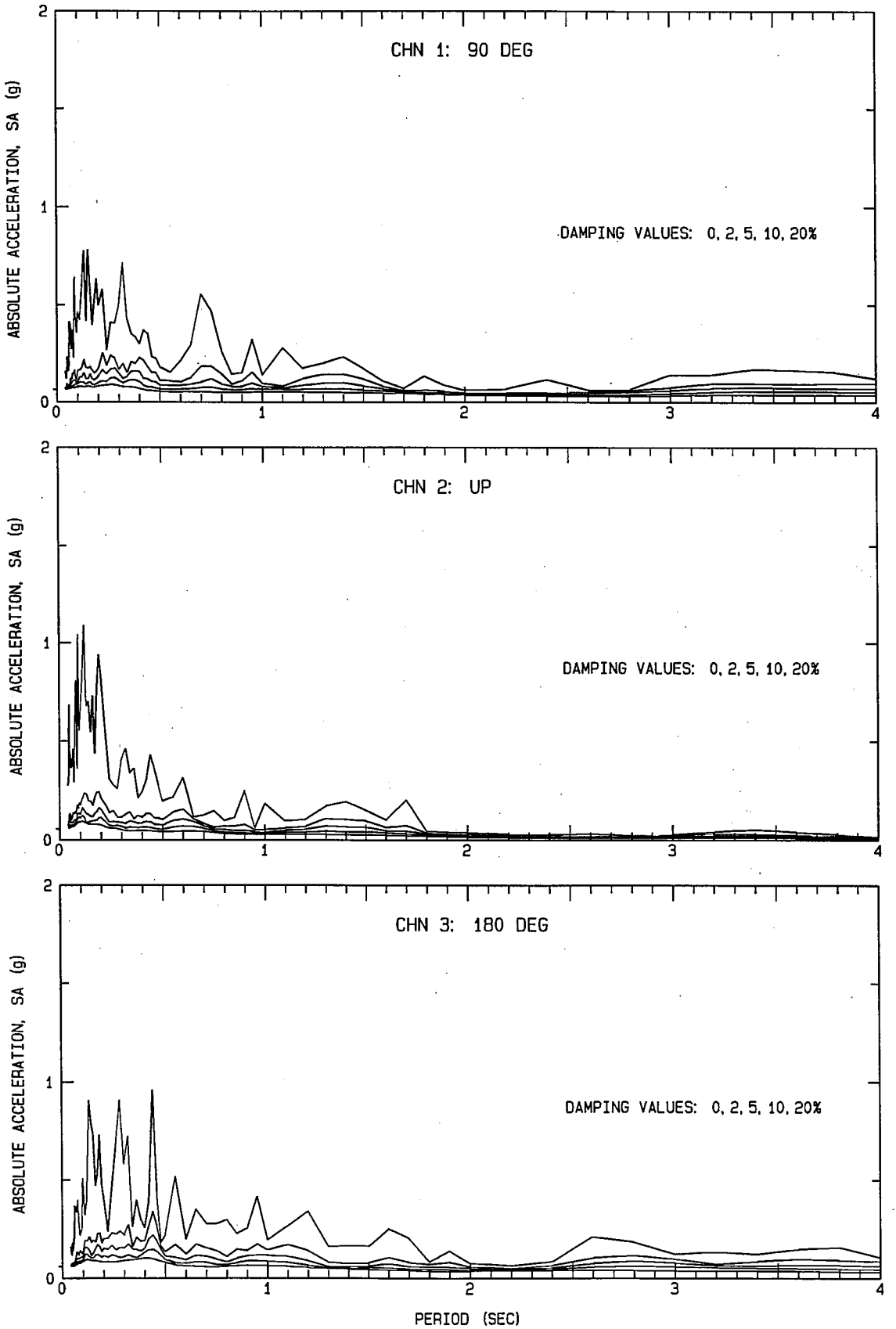
23583-E0245-92183.04 050495.1352-QL92A583



HESPERIA - 4TH & PALM: CSMIP S/N 583

LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

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DAMPING VALUES: 0, 2, 5, 10, 20%

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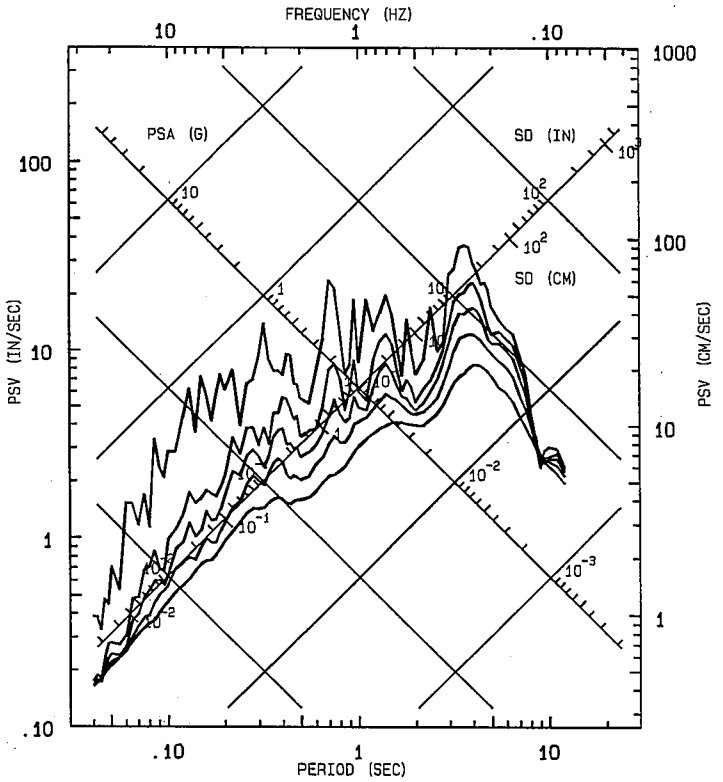
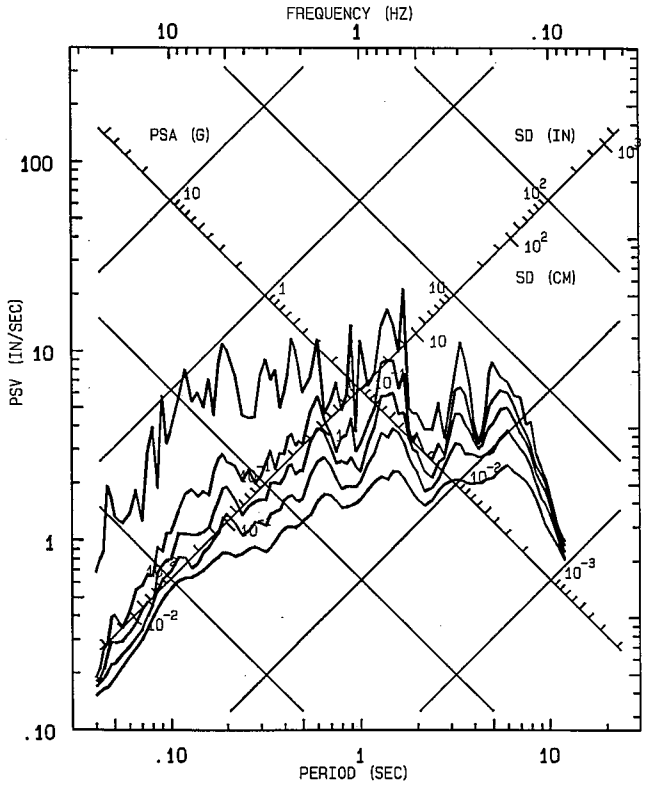
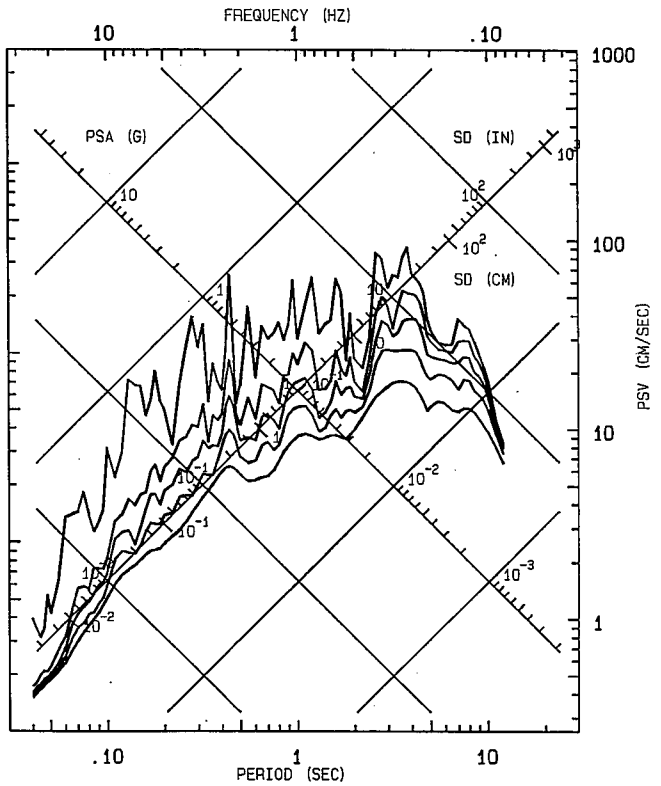


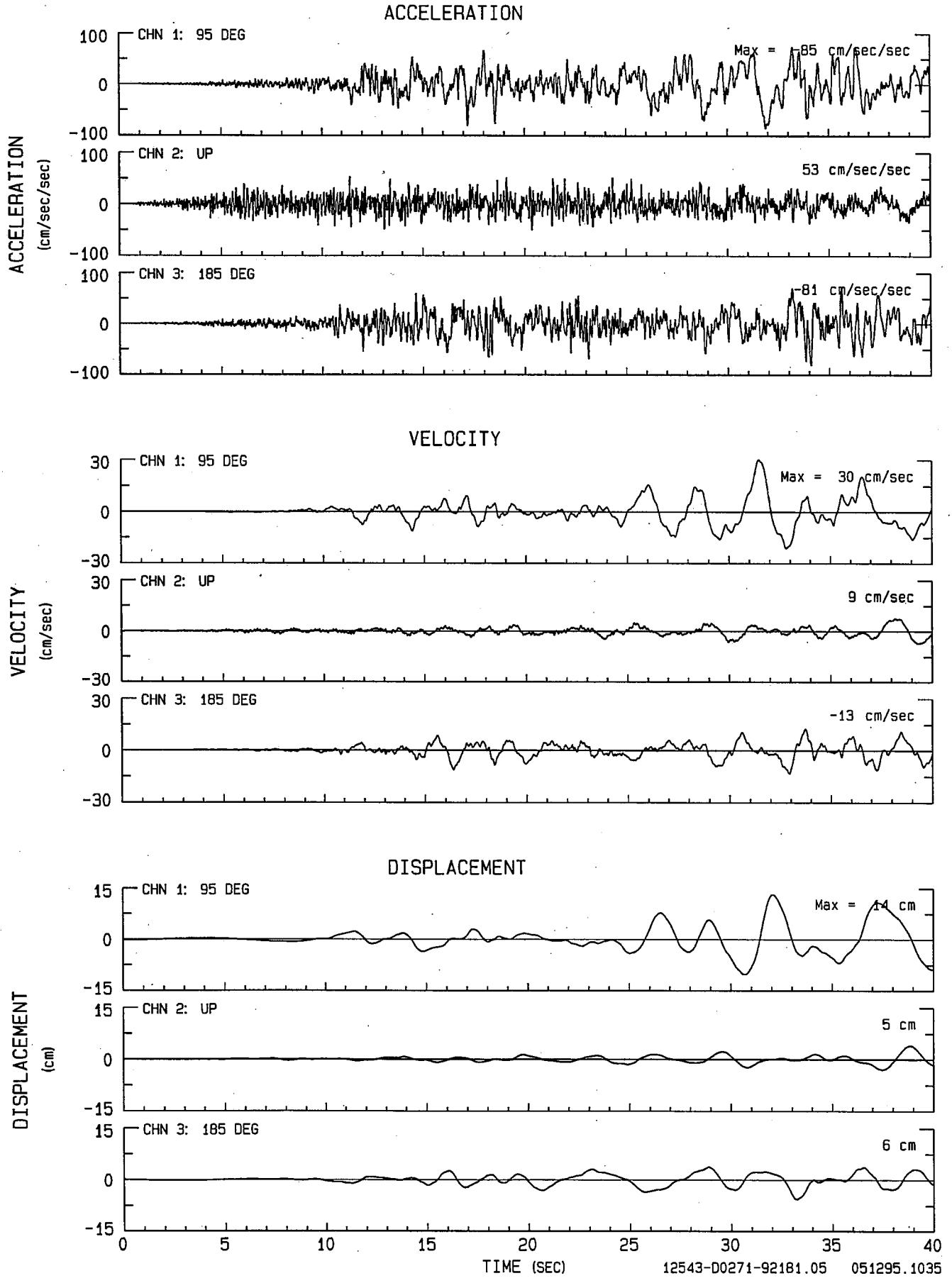
CHN 2: UP



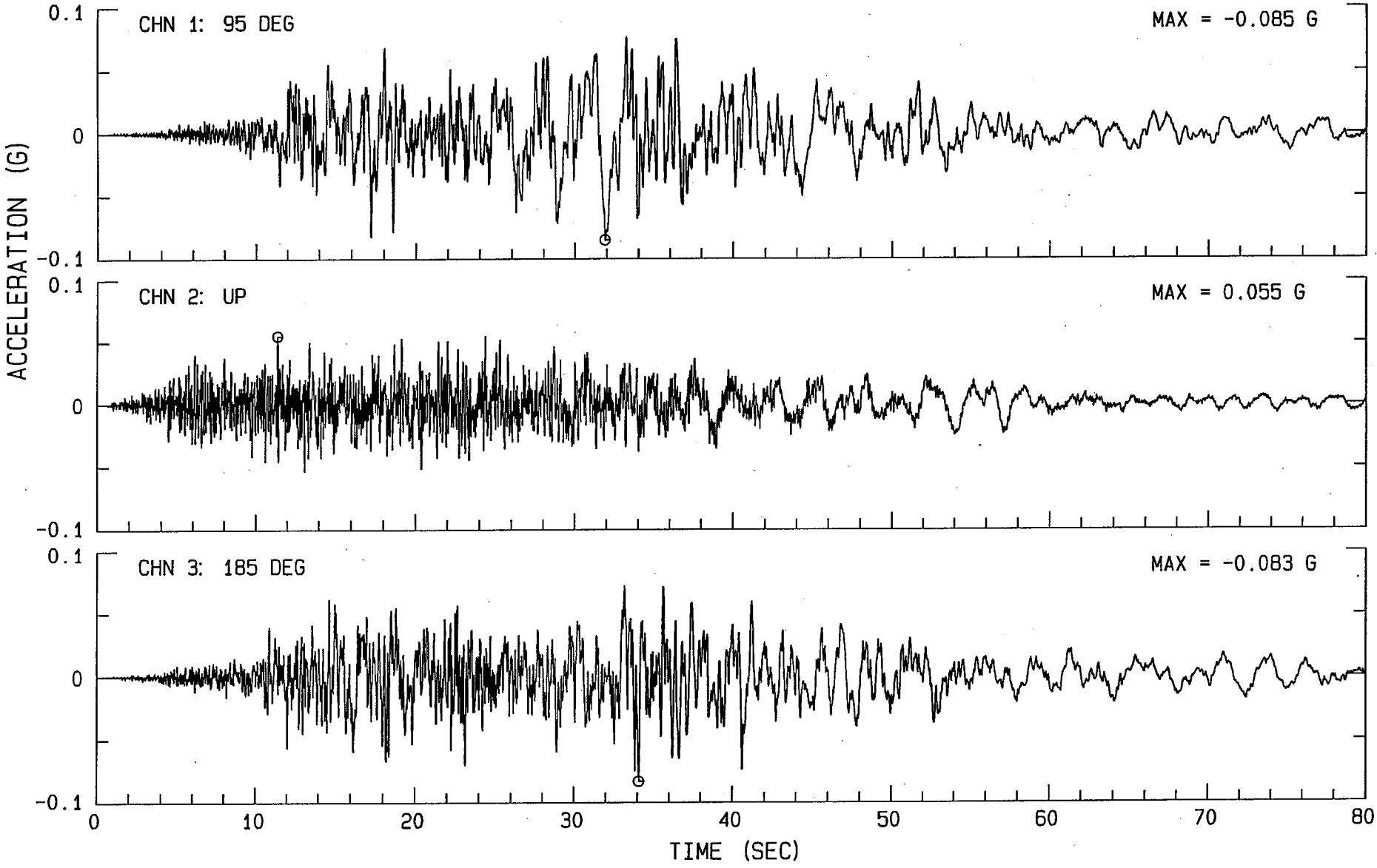
CHN 3: 180 DEG



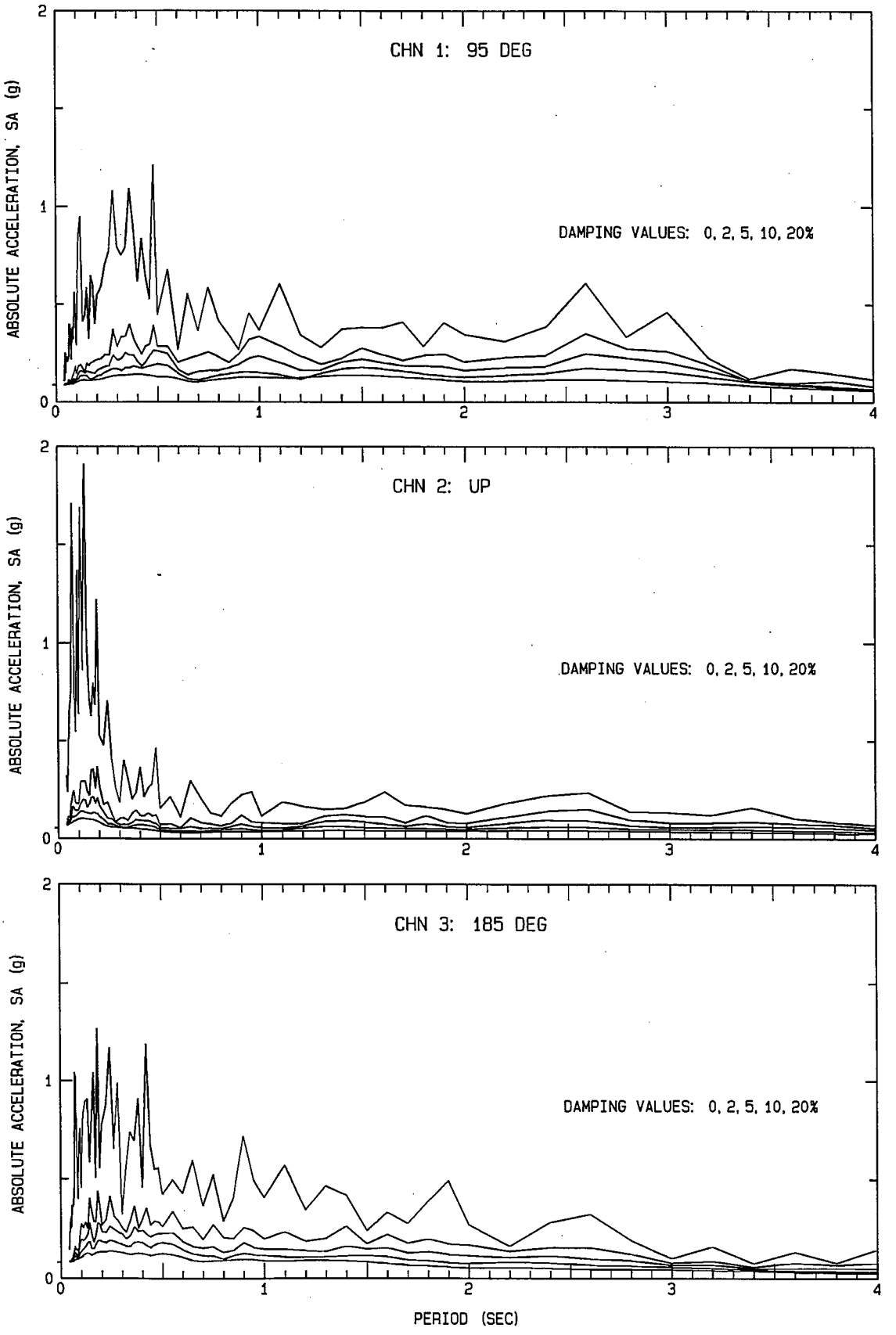
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
INDIO - RIVERSIDE CO. FAIRGROUNDS CSMIP Sta Num 12543
Usable Data Bandwidth: .12 to 47.2 Hz (.02 to 8.5 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
INDIO - RIVERSIDE CO. FAIRGROUNDS
UNCORRECTED ACCELEROGRAM 12543-D0271-92181.05 051195.1331-QL92A543



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
INDIO - RIVERSIDE CO. FAIRGROUNDS
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .07-.14 TO 46.0-50.0 HZ.
12543-D0271-92181.05 051295.1153-QL92A543



INDIO - RIVERSIDE CO. FAIRGROUNDS: CSMIP S/N 543

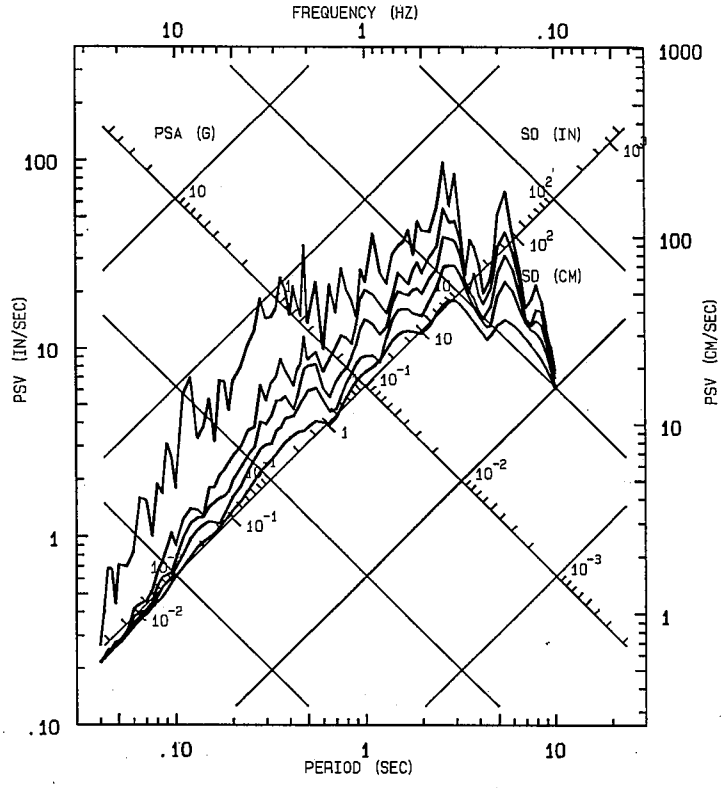
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.12 TO 47.2 HZ
(0.02 TO 8.40 SEC)

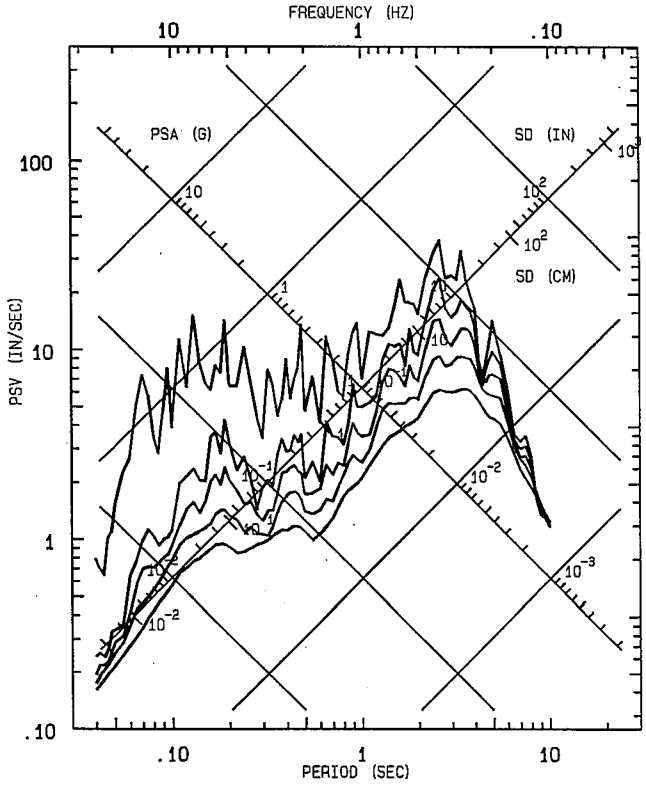
RECORD ID: 12543-D0271-92181.05

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

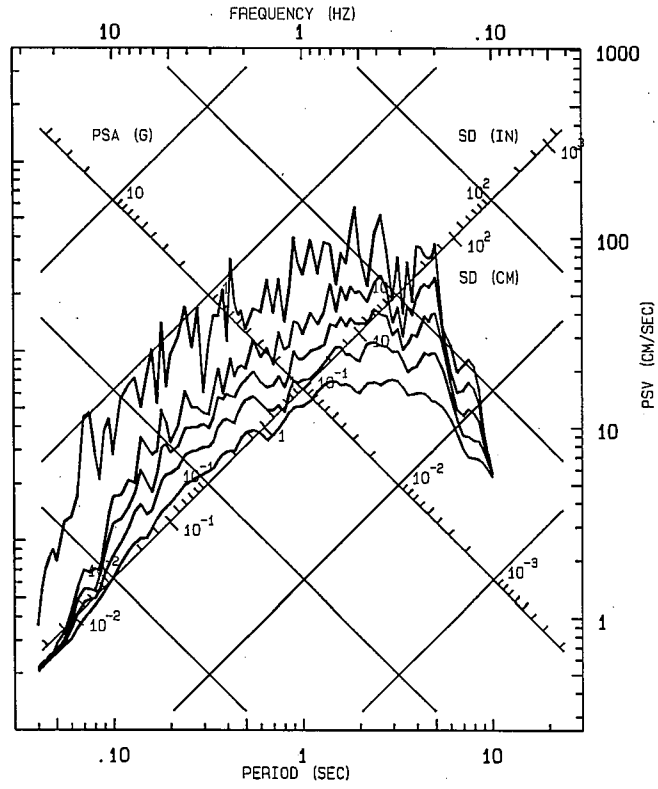
CHN 1: 95 DEG



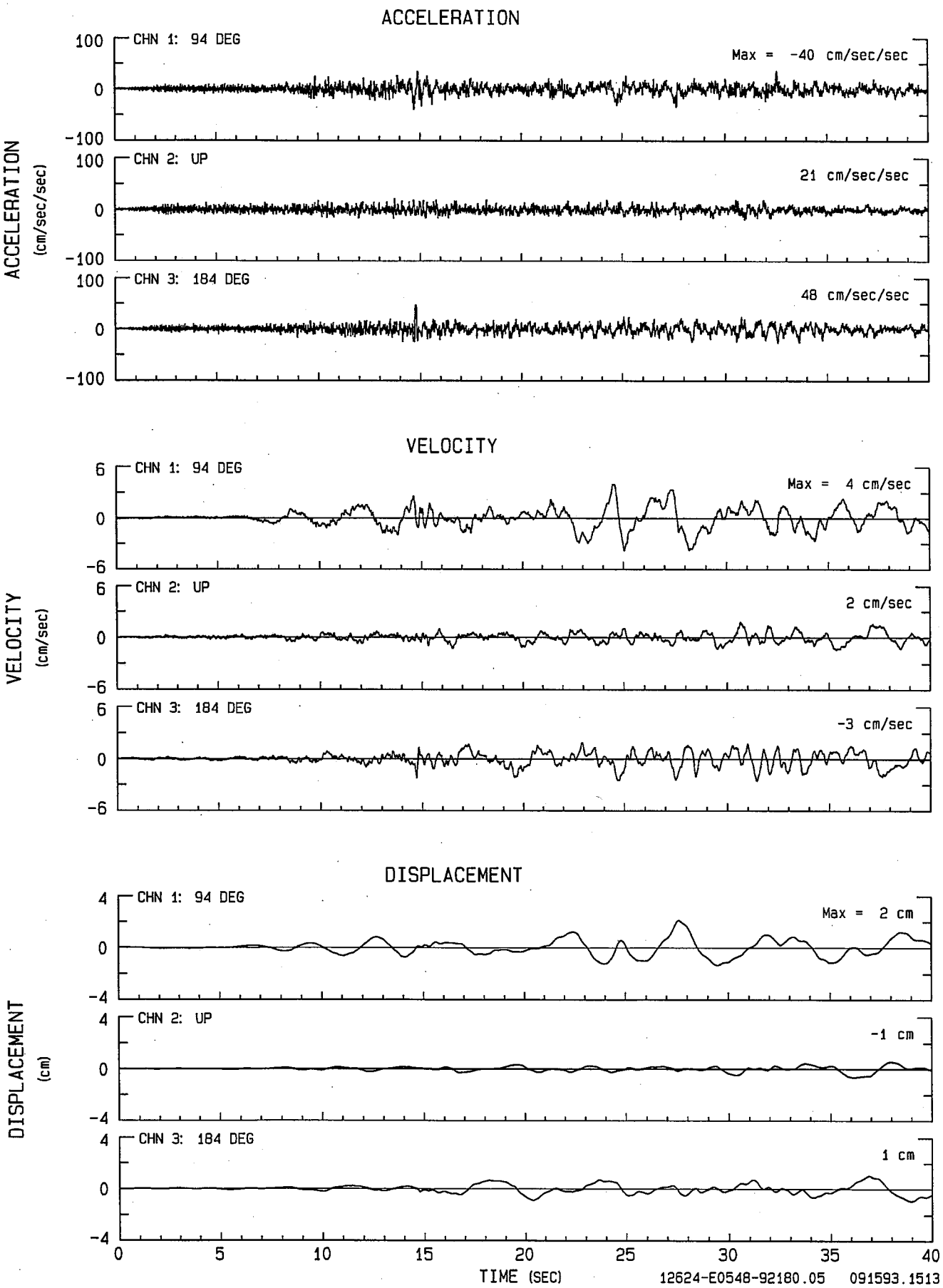
CHN 2: UP



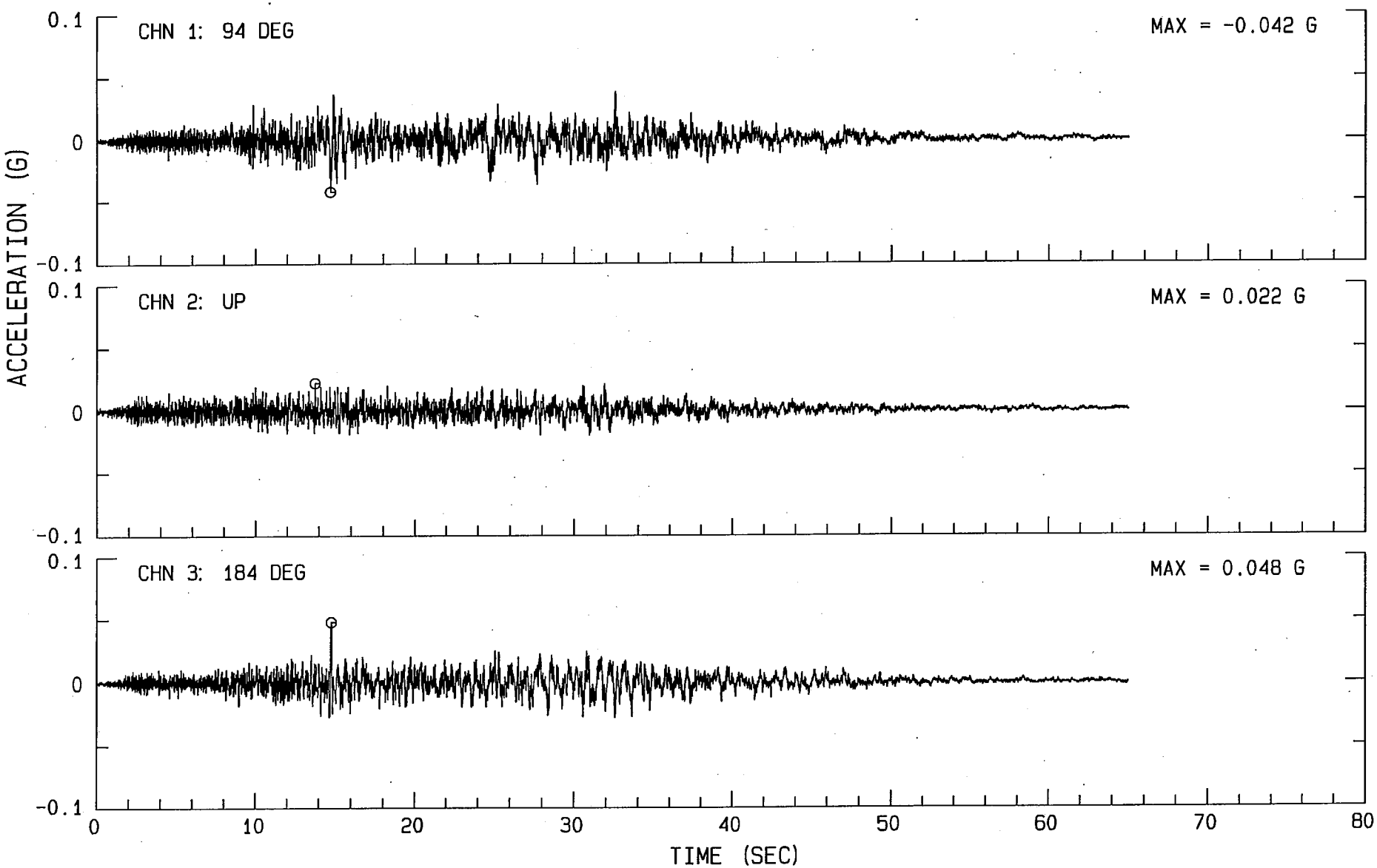
CHN 3: 185 DEG



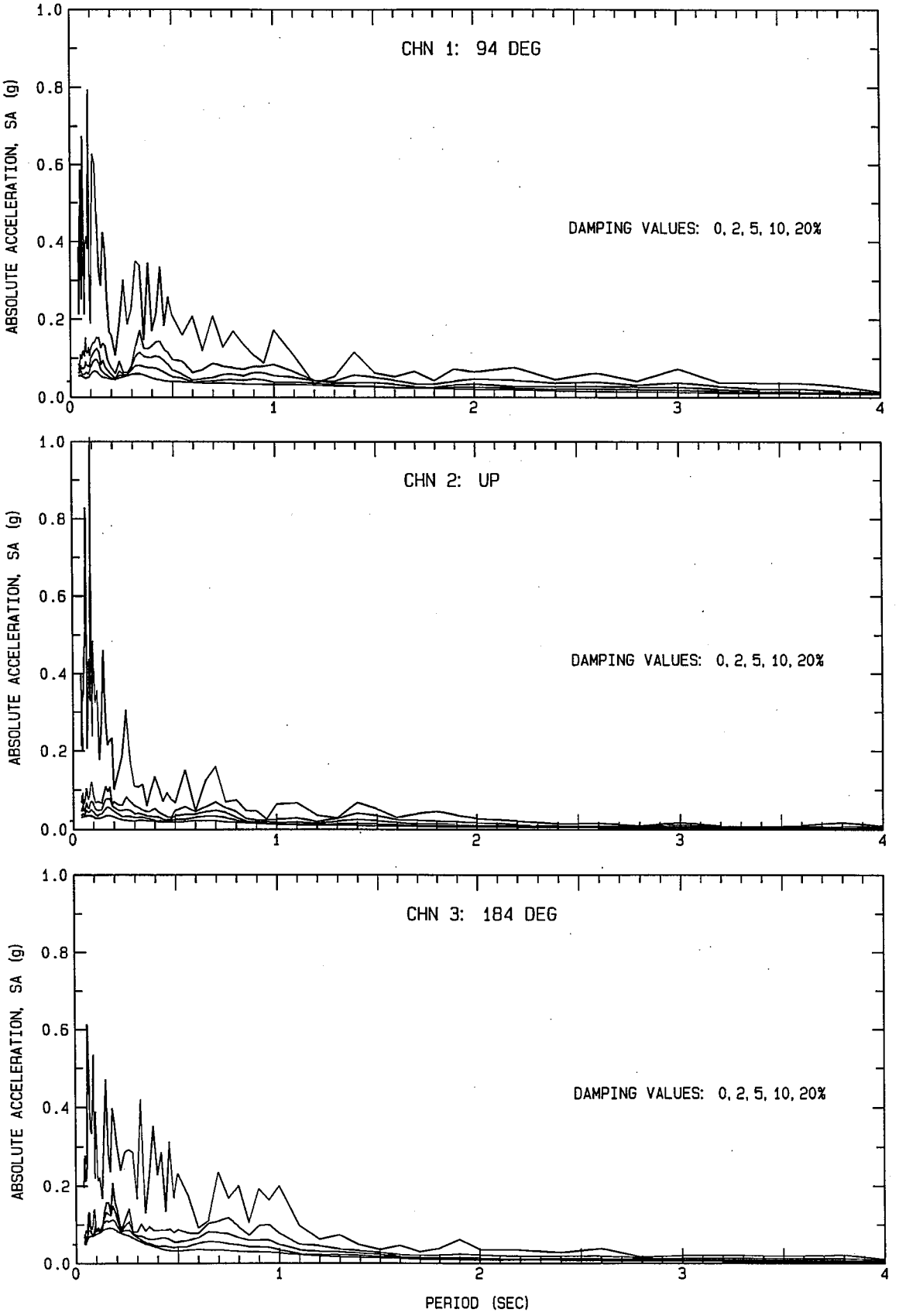
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LAKE CAHUILLA CSMIP Sta Num 12624
Usable Data Bandwidth: .14 to 47.2 Hz (.02 to 7.5 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LAKE CAHUILLA
UNCORRECTED ACCELEROGRAM 12624-E0548-92180.05 091493.1451-QL92A624



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LAKE CAHUILLA
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .08-.16 TO 46.0-50.0 HZ.
12624-E0548-92180.05 051095.1444-QL92A624



LAKE CAHUILLA: CSMIP S/N 624

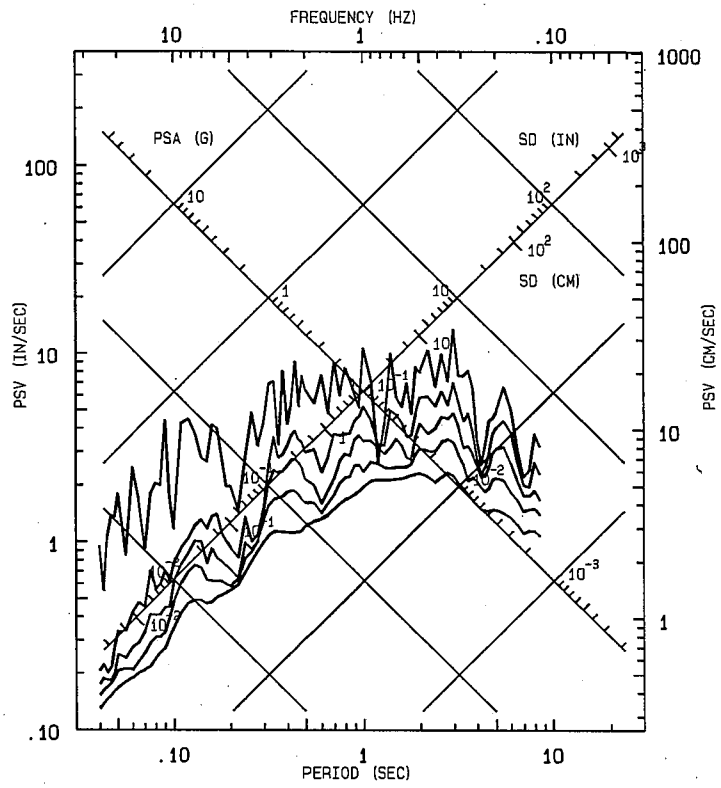
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.14 TO 47.2 HZ
(0.02 TO 7.35 SEC)

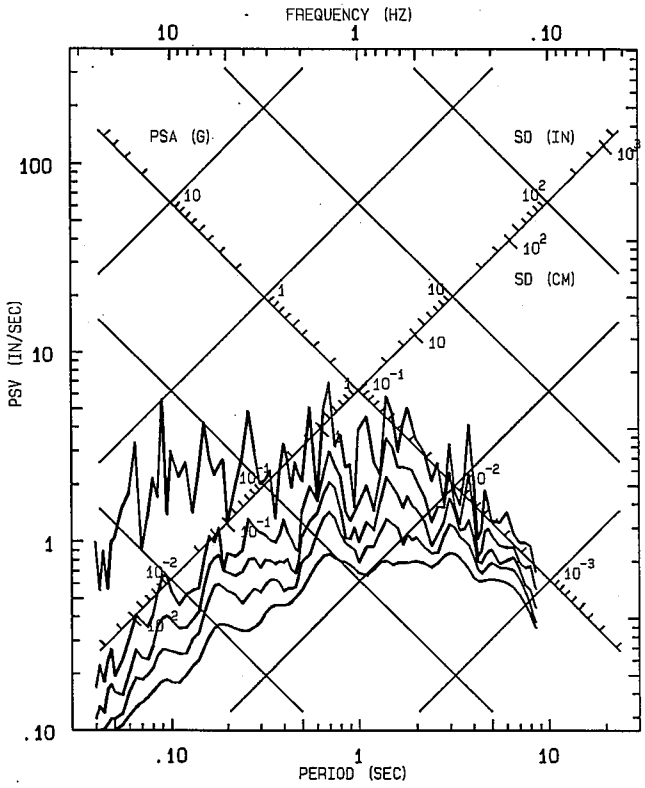
RECORD ID: 12624-E0548-92180.05

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

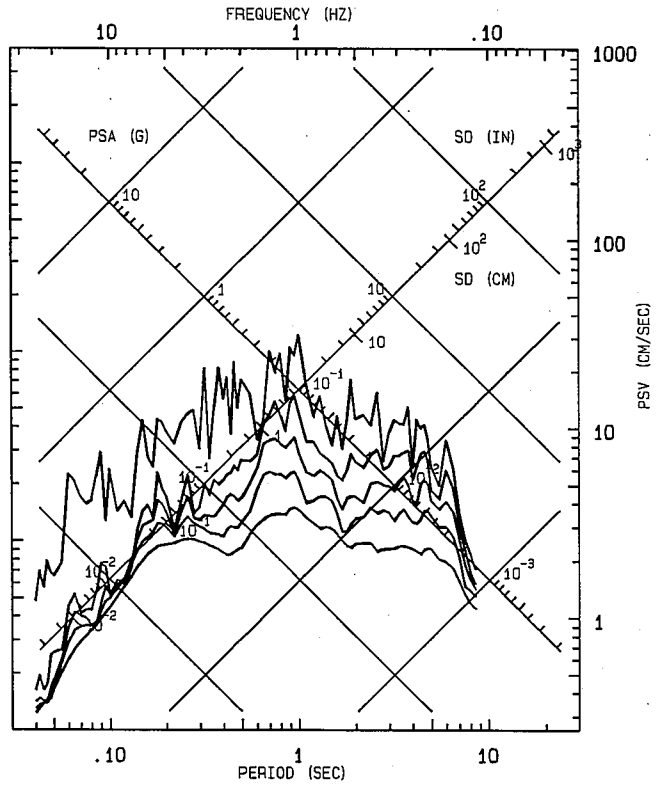
CHN 1: 94 DEG



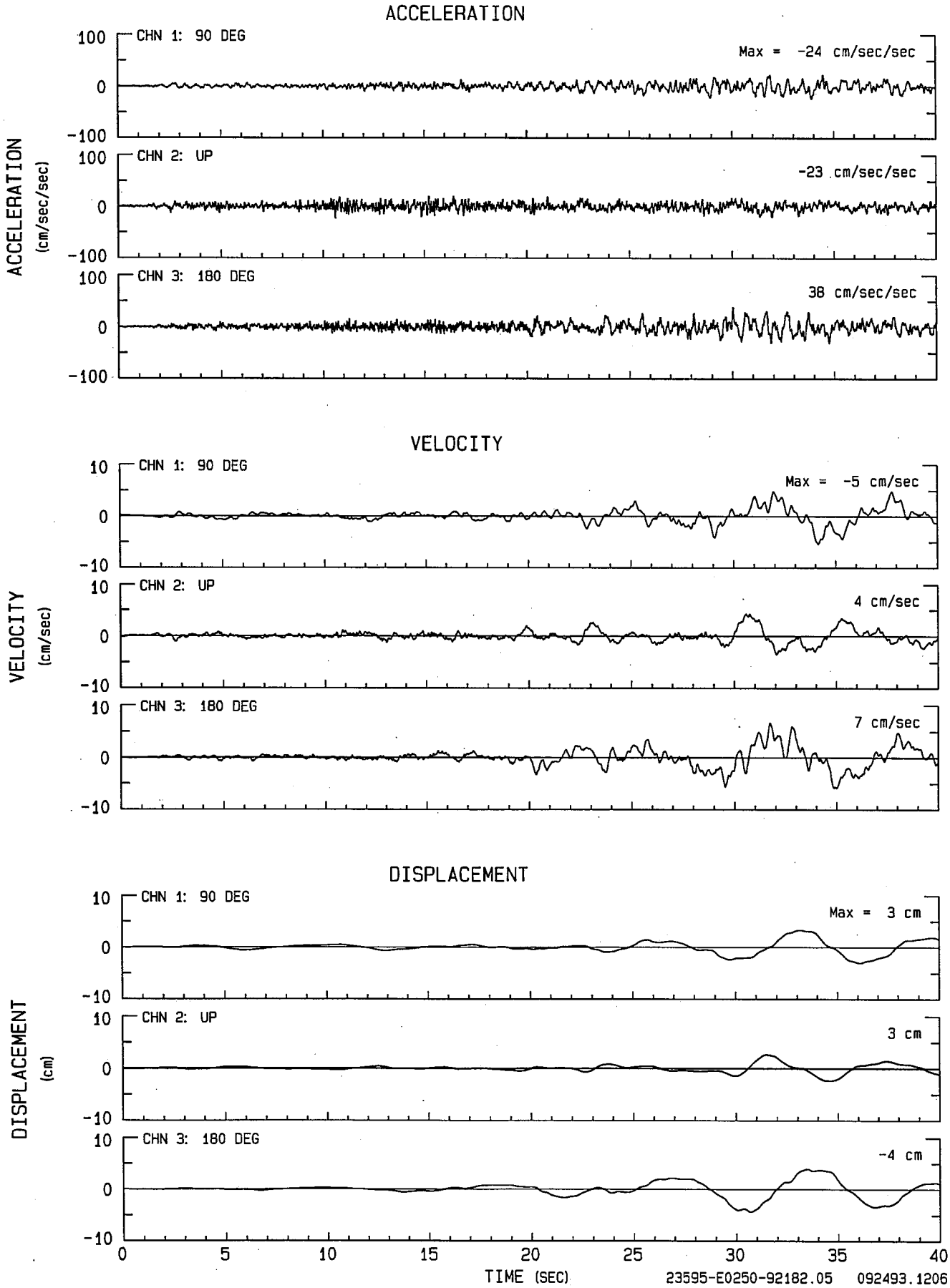
CHN 2: UP



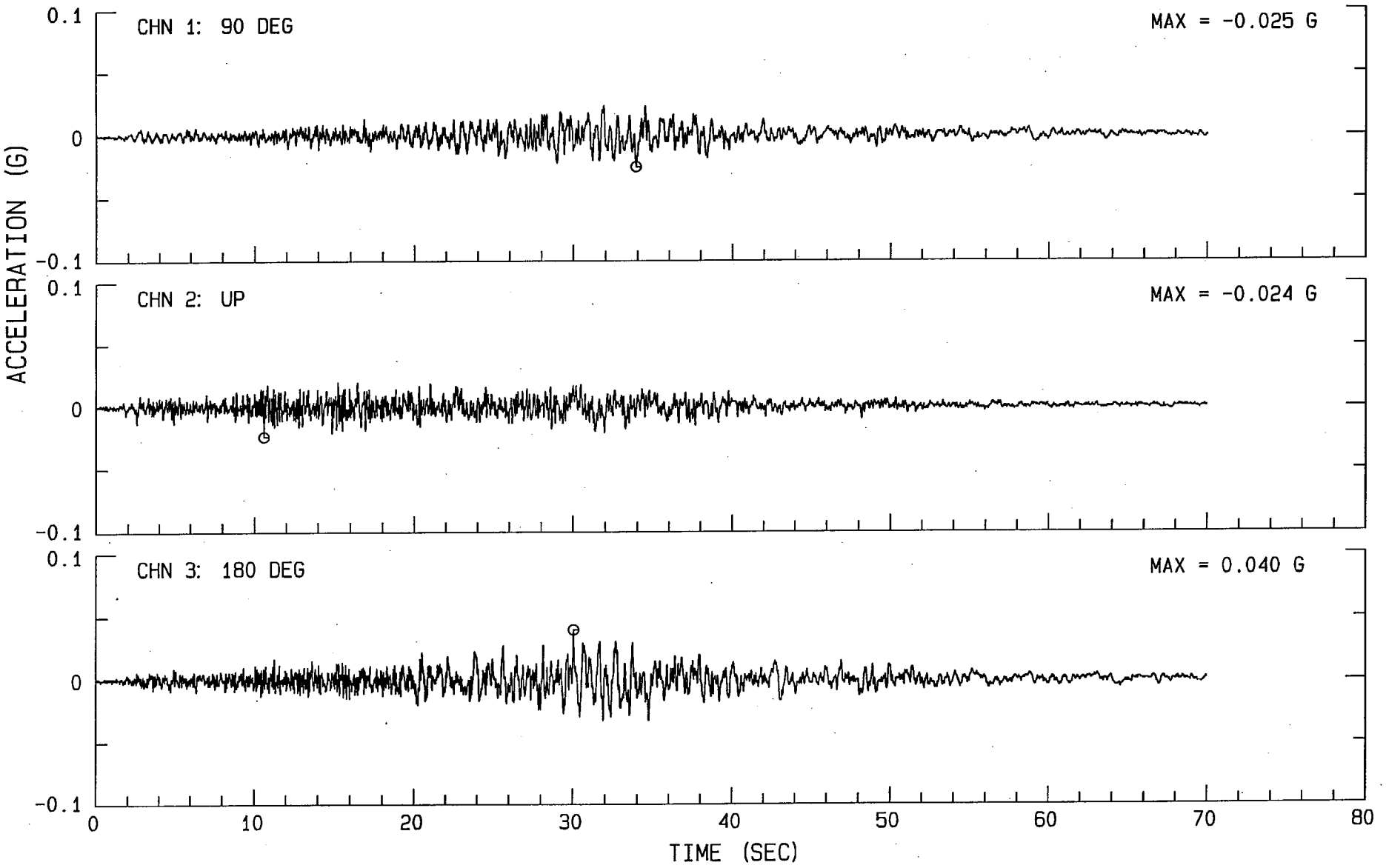
CHN 3: 184 DEG



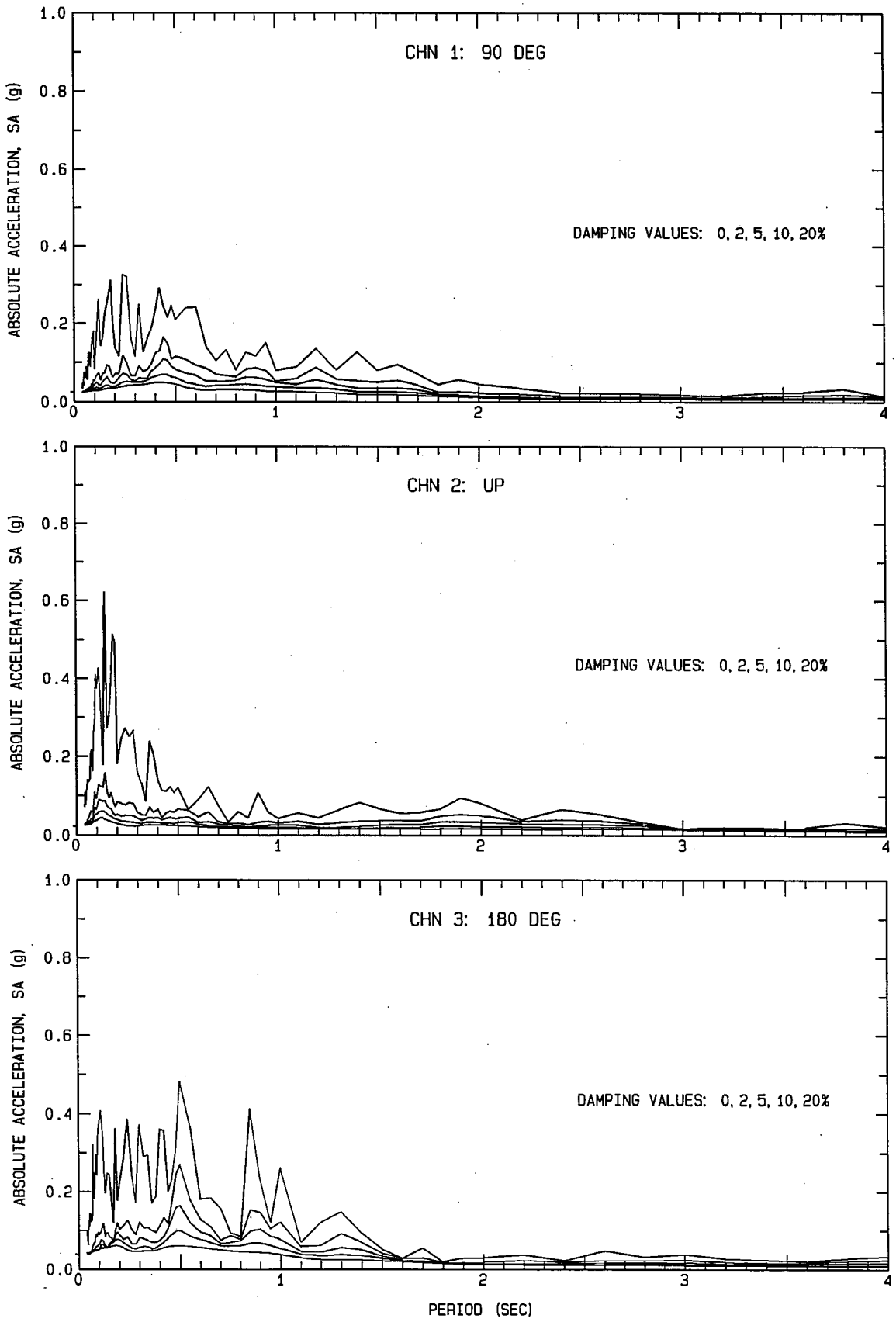
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LITTLEROCK - BRAINARD CANYON CSMIP Sta Num 23595
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LITTLEROCK - BRAINARD CANYON
UNCORRECTED ACCELEROGRAM 23595-E0250-92182.05 092493.1140-QL92A595



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LITTLEROCK - BRAINARD CANYON
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
23595-E0250-92182.05 050495.1437-QL92A595



LITTLEROCK - BRAINARD CANYON: CSMIP S/N 595

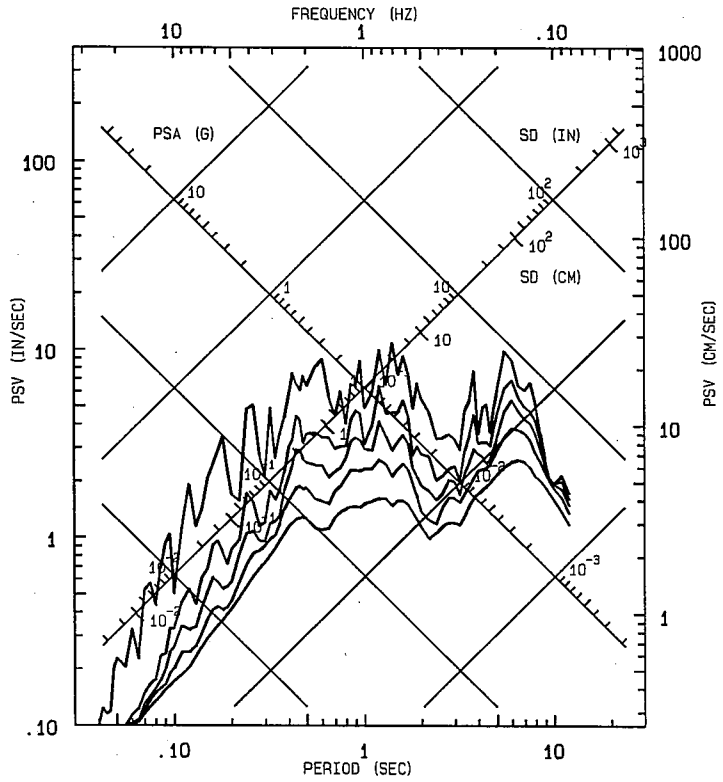
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

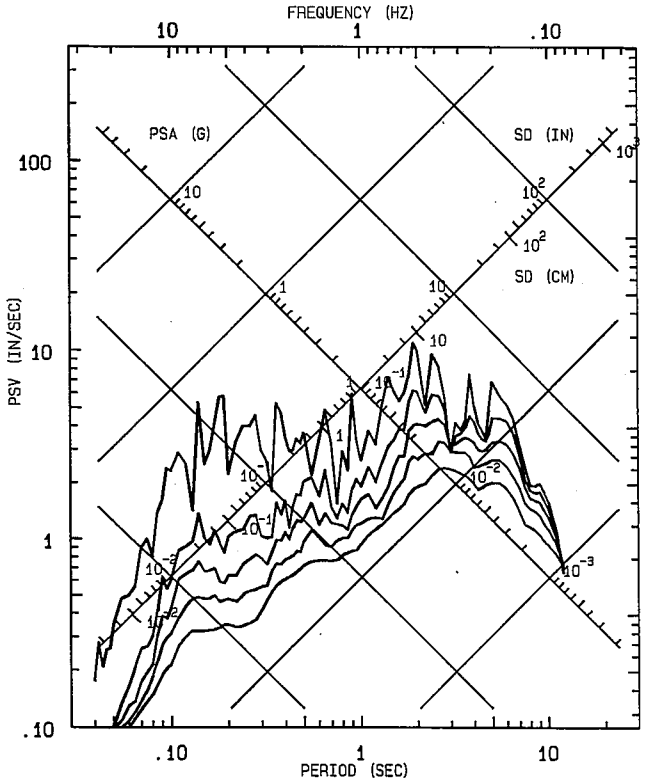
RECORD ID: 23595-E0250-92182.05

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

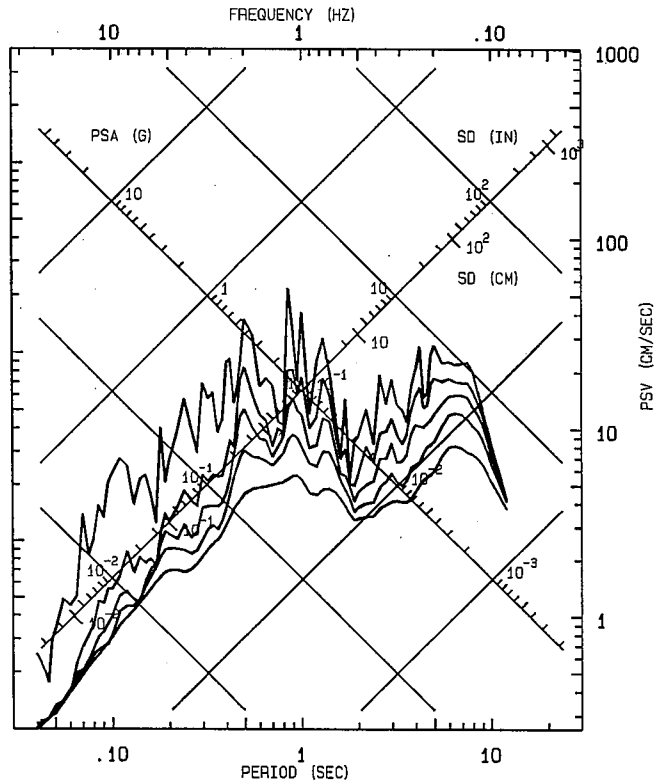
CHN 1: 90 DEG



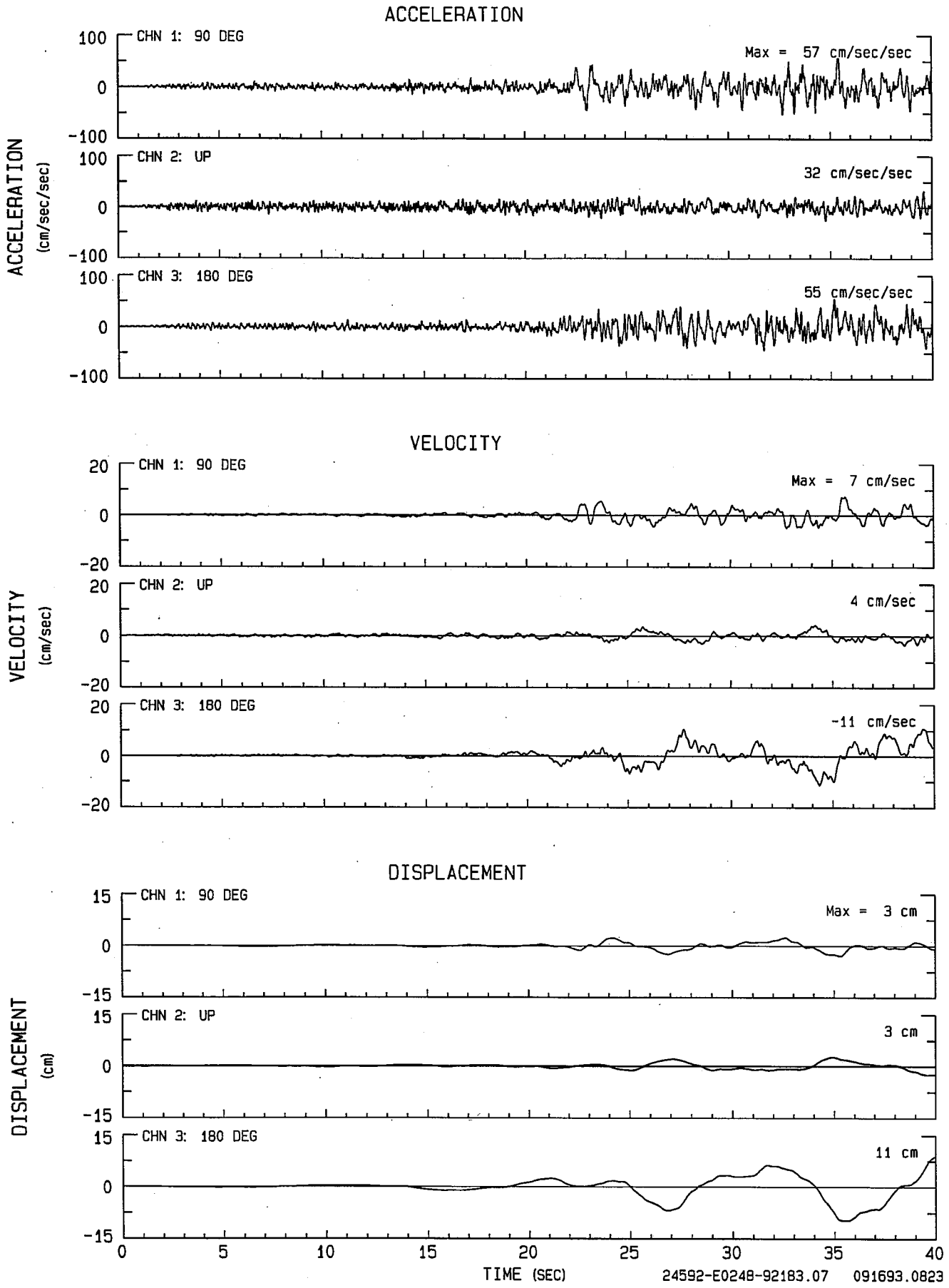
CHN 2: UP



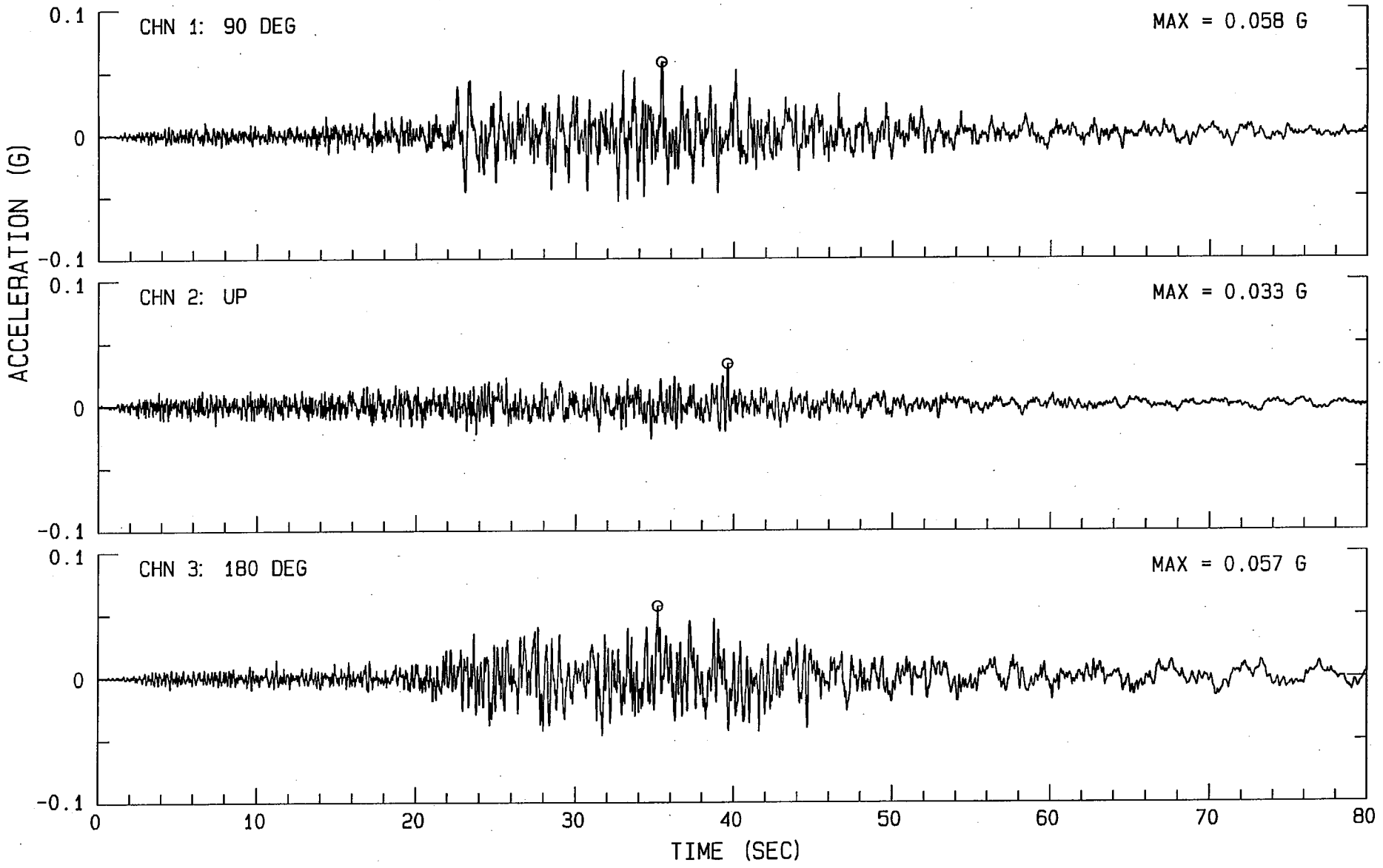
CHN 3: 180 DEG



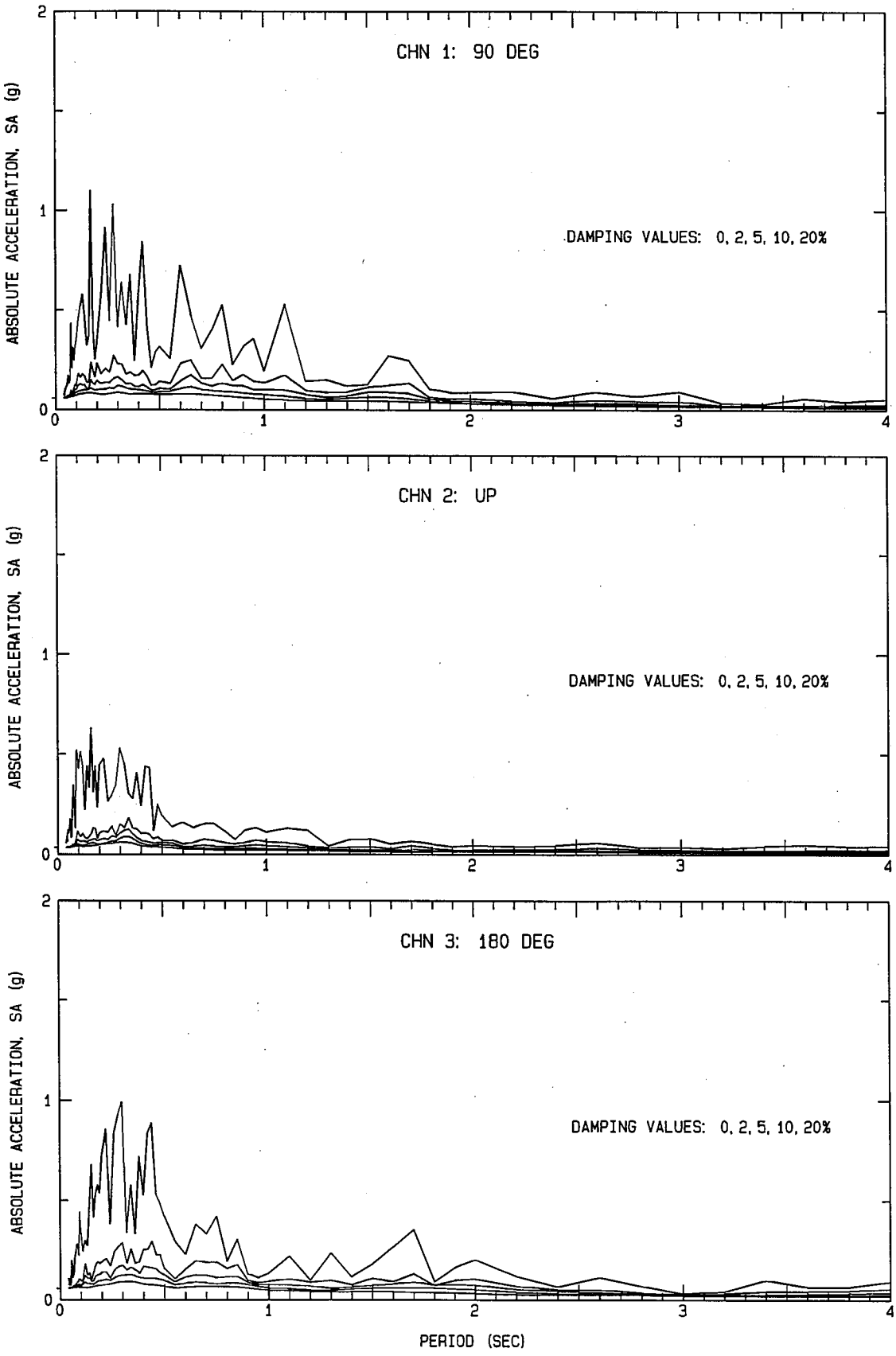
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - CITY TERRACE CSMIP Sta Num 24592
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - CITY TERRACE
UNCORRECTED ACCELEROGRAM 24592-E0248-92183.07 091593.1406-QL92A592



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - CITY TERRACE
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
24592-E0248-92183.07 050395.1308-QL92A592



LOS ANGELES - CITY TERRACE: CSMIP S/N 592

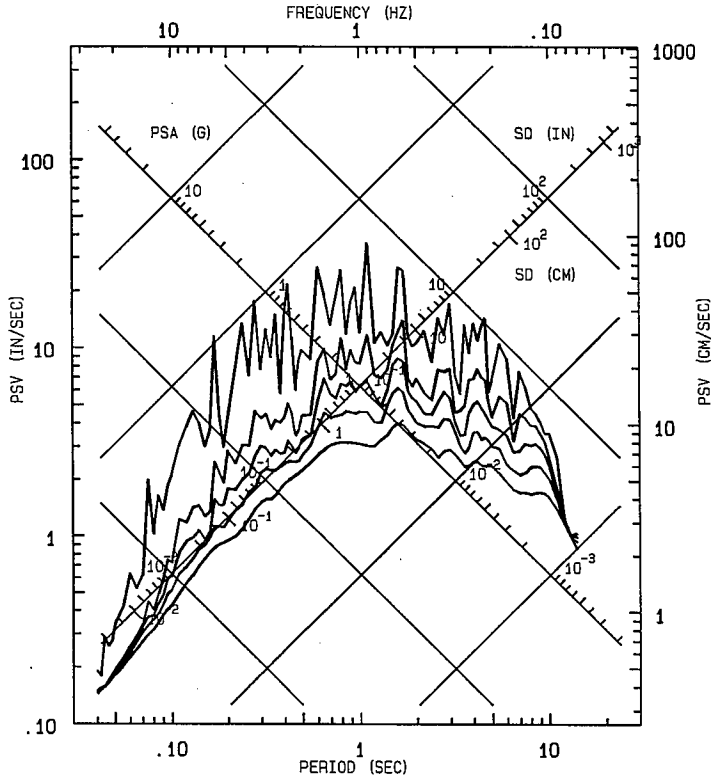
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

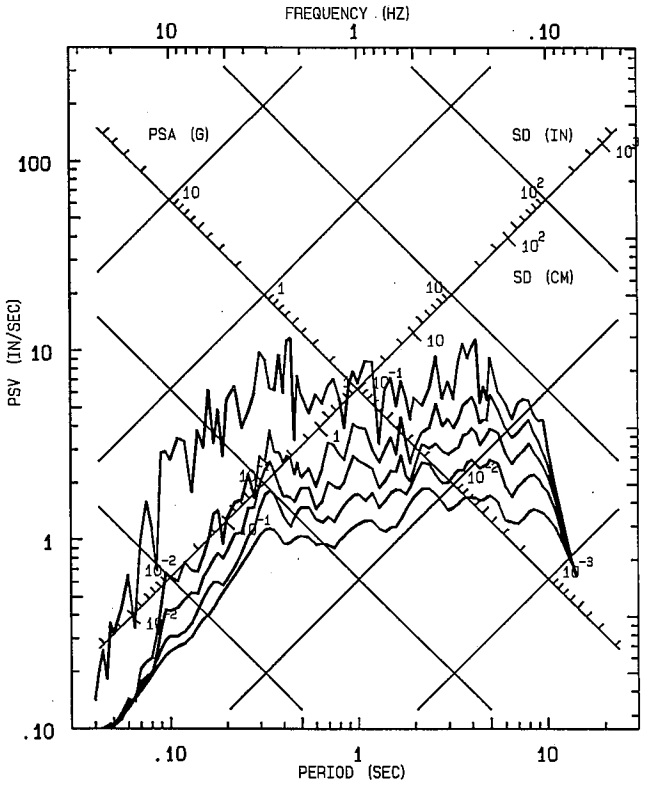
RECORD ID: 24592-E0248-92183.07

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

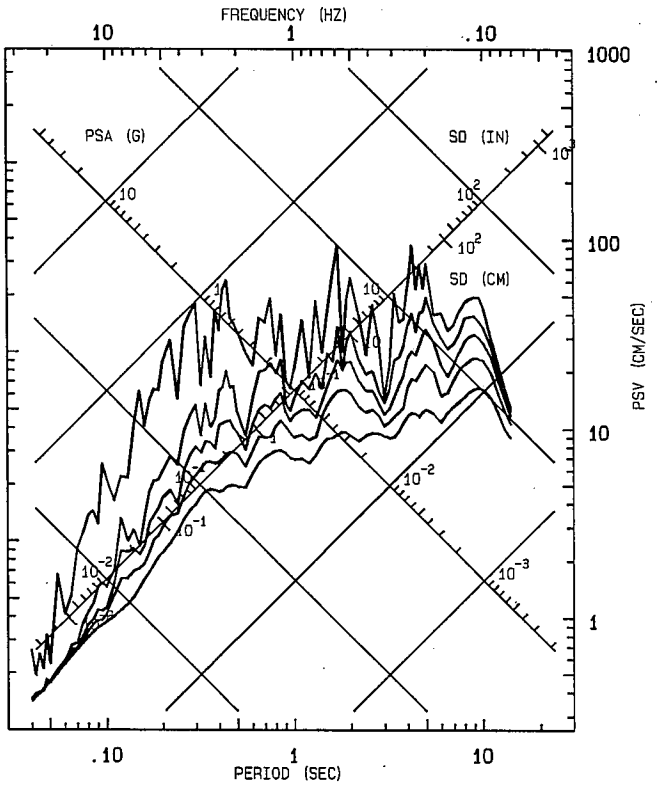
CHN 1: 90 DEG



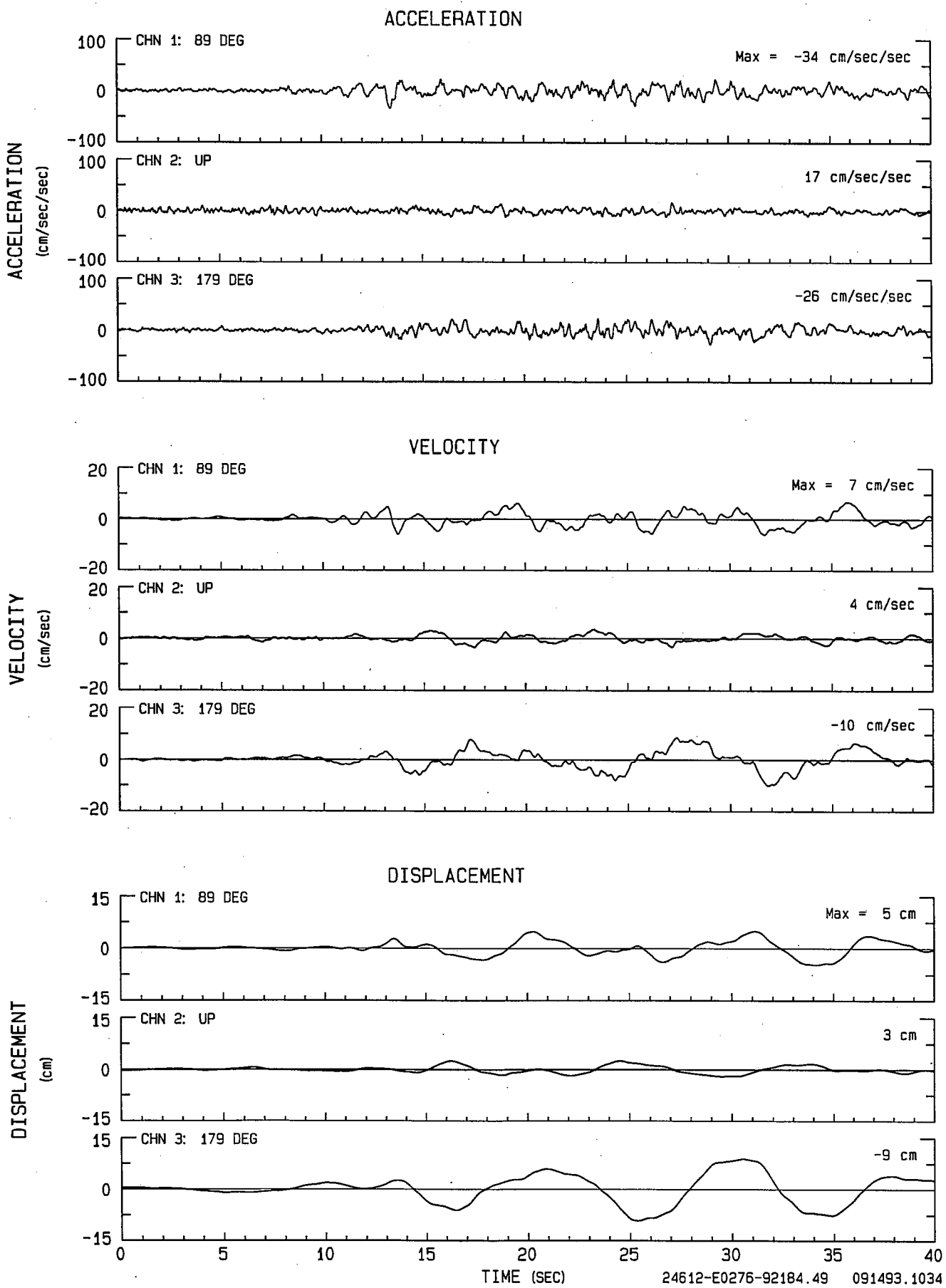
CHN 2: UP



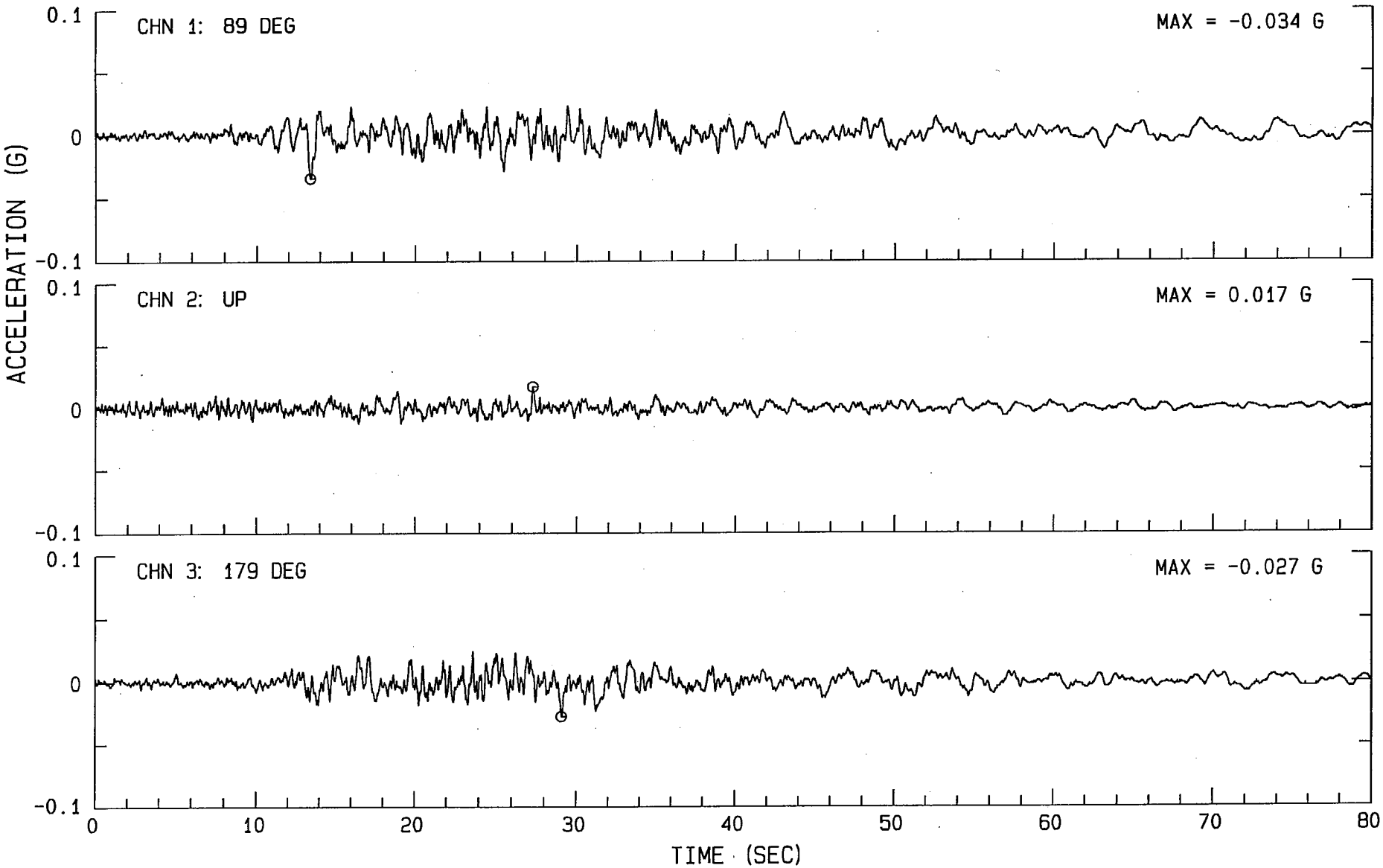
CHN 3: 180 DEG



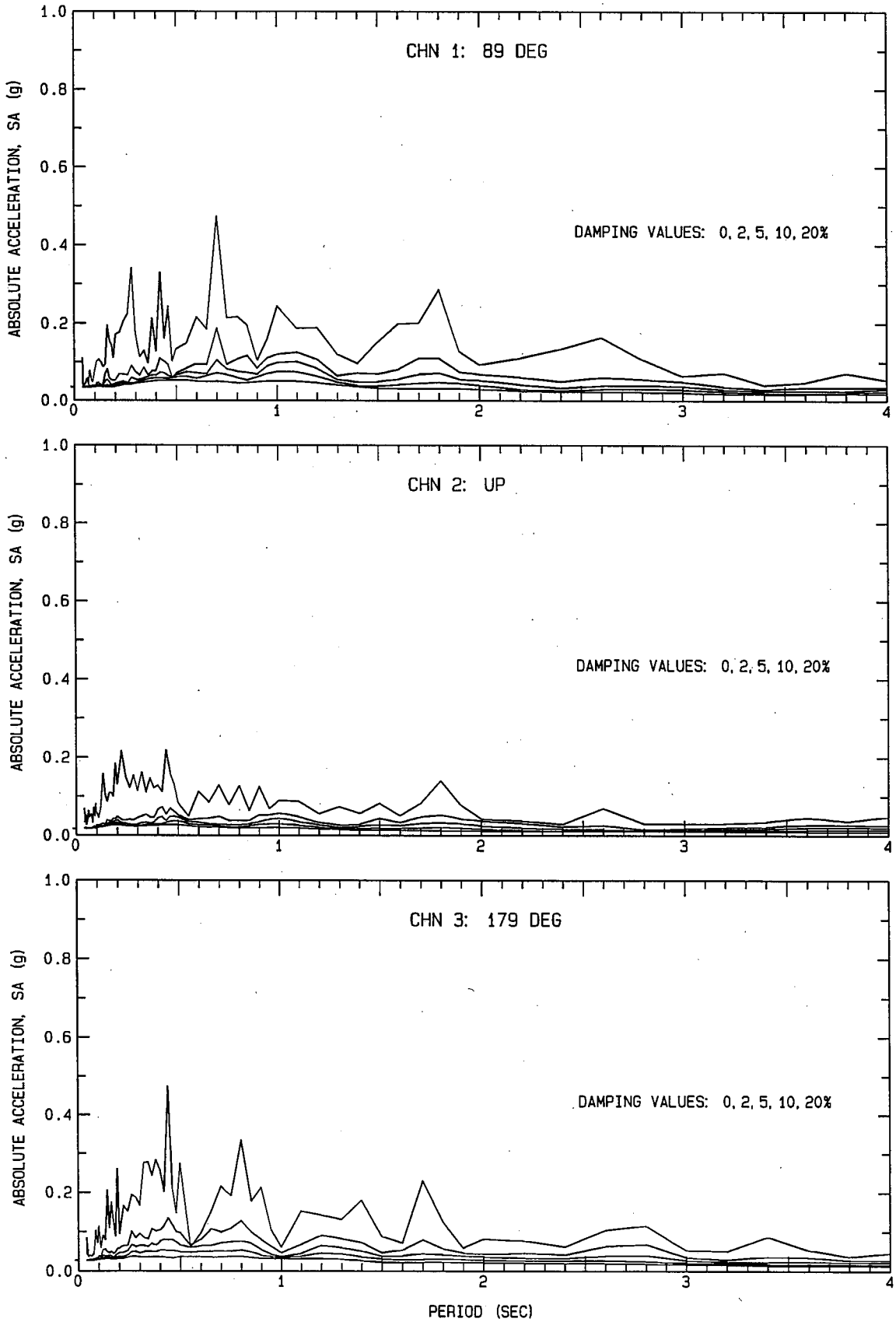
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - PICO & SENTOUS CSMIP Sta Num 24612
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - PICO & SENTOUS
UNCORRECTED ACCELEROGRAM 24612-E0276-92184.49 090393.1316-QL92A612



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - PICO & SENTOUS
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
24612-E0276-92184.49 050395.1259-QL92A612



LOS ANGELES - PICO & SENTOUS: CSMIP S/N 612

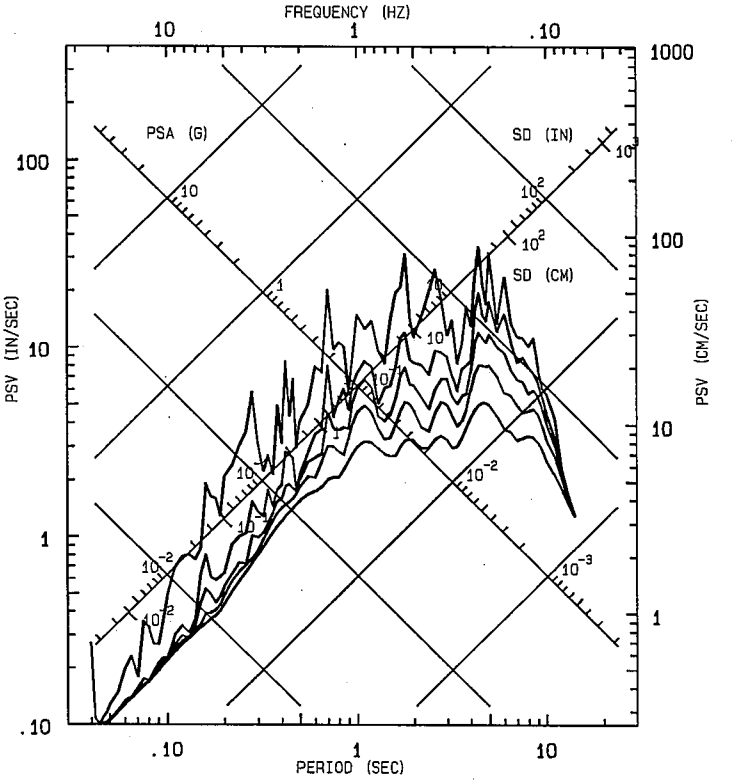
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

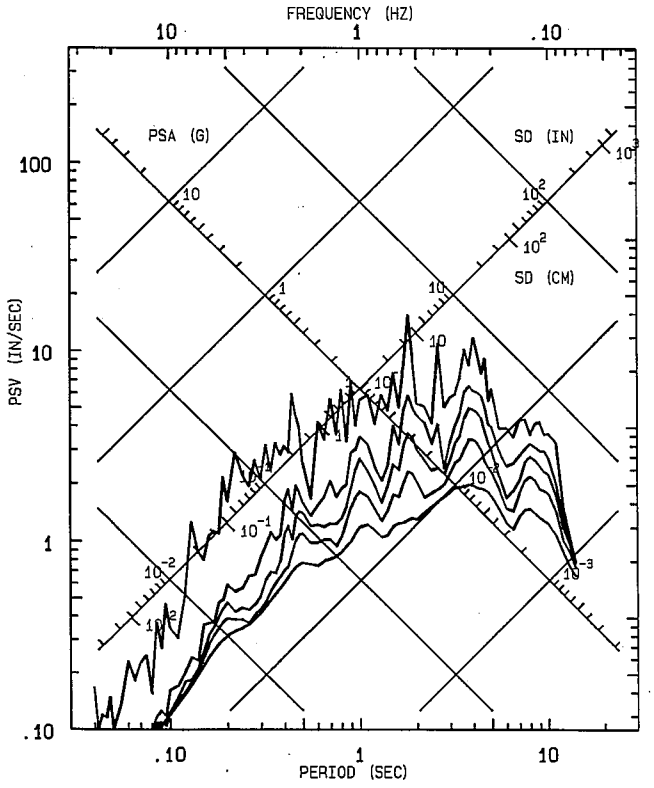
RECORD ID: 24612-E0276-92184.49

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

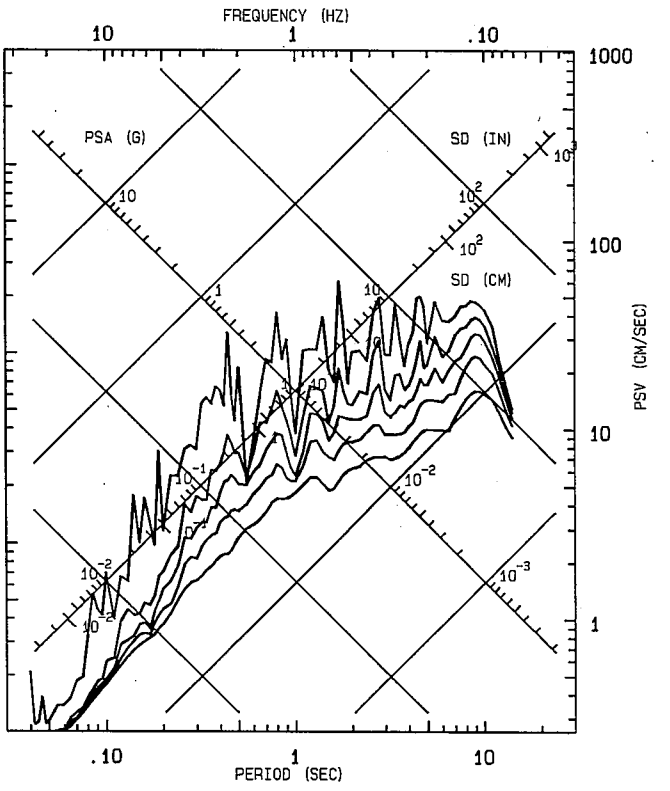
CHN 1: 89 DEG



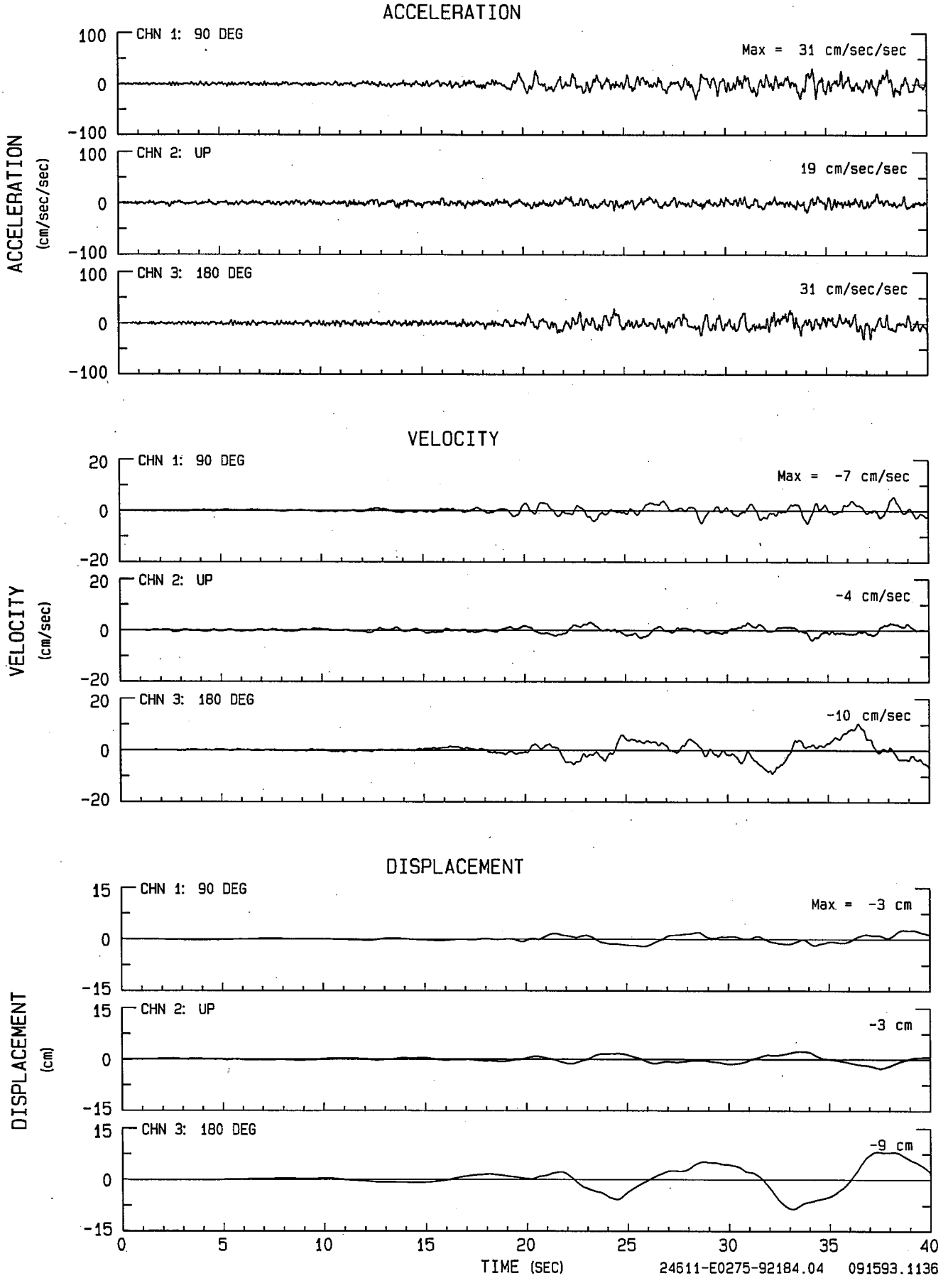
CHN 2: UP



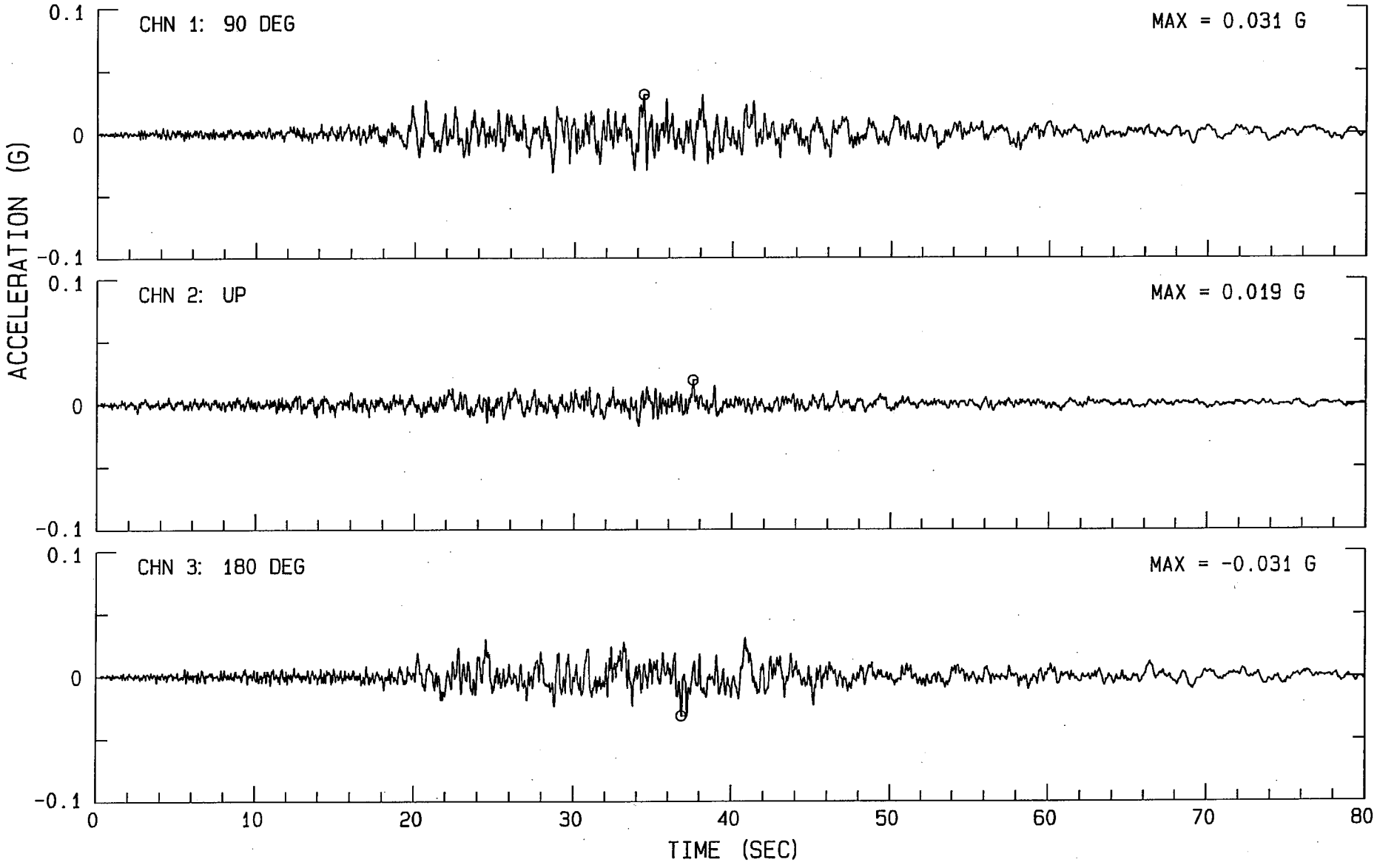
CHN 3: 179 DEG



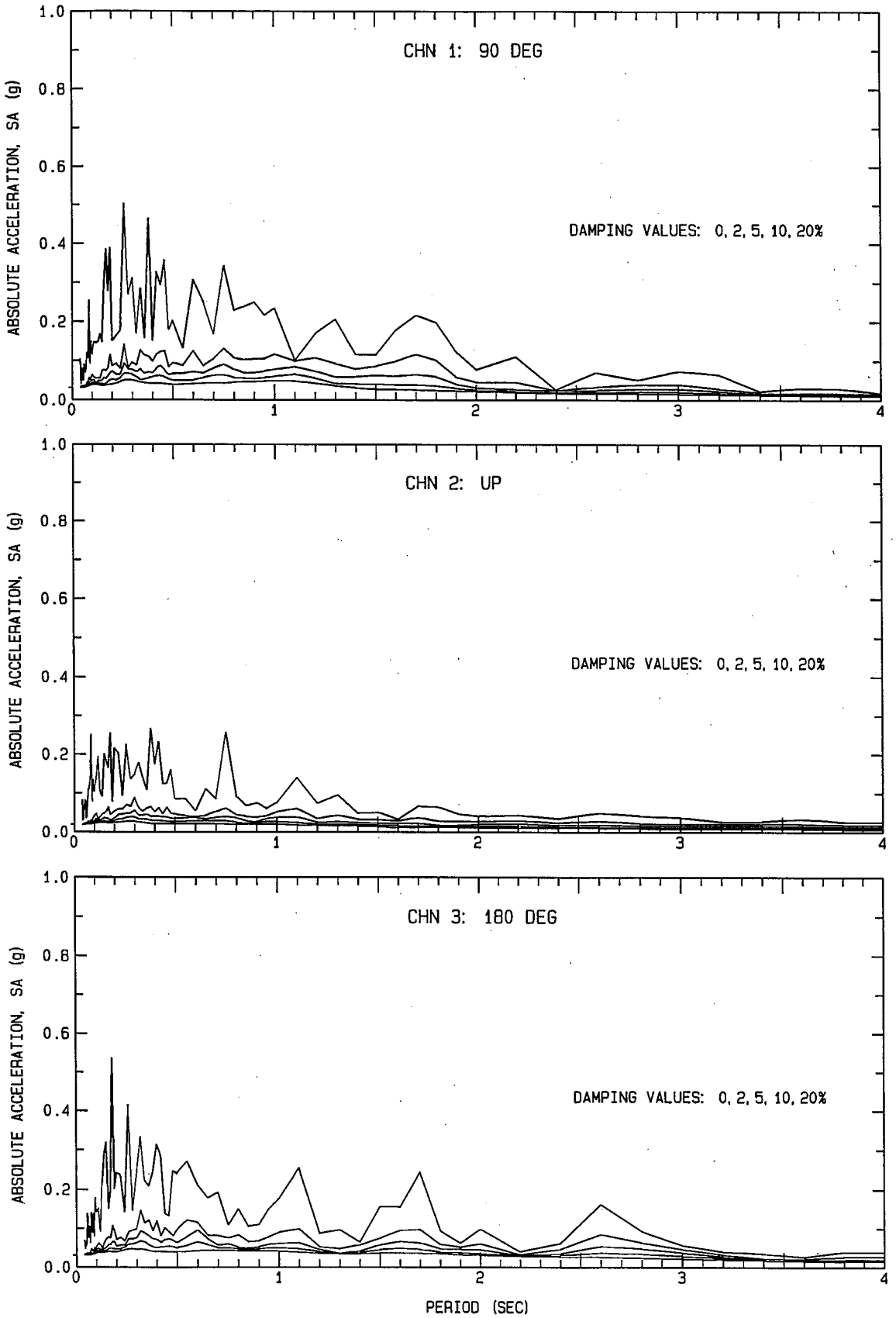
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - TEMPLE & HOPE CSMIP Sta Num 24611
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - TEMPLE & HOPE
UNCORRECTED ACCELEROGRAM 24611-E0275-92184.04 091593.1018-QL92A611



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - TEMPLE & HOPE
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
24611-E0275-92184.04 050495.1254-QL92A611



LOS ANGELES - TEMPLE & HOPE: CSMIP S/N 611

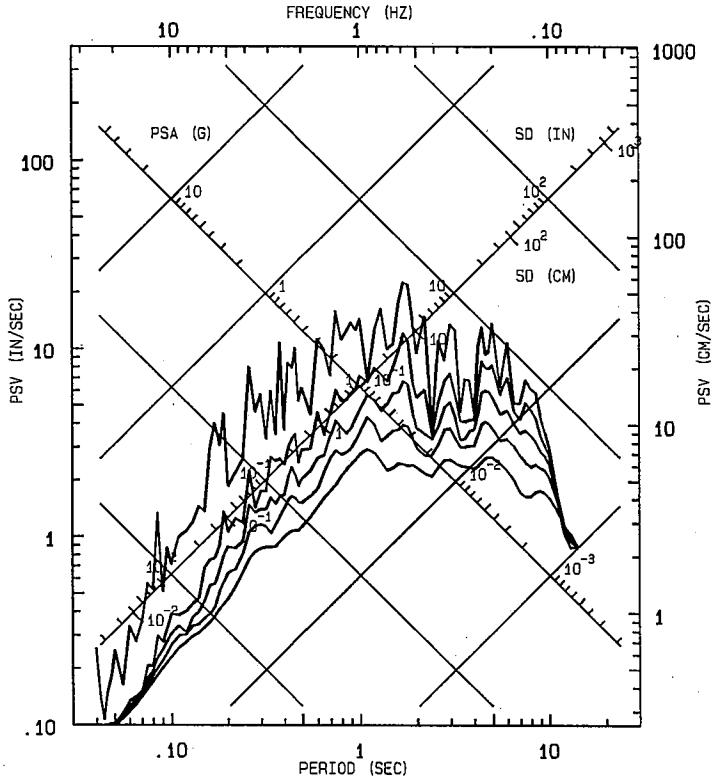
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

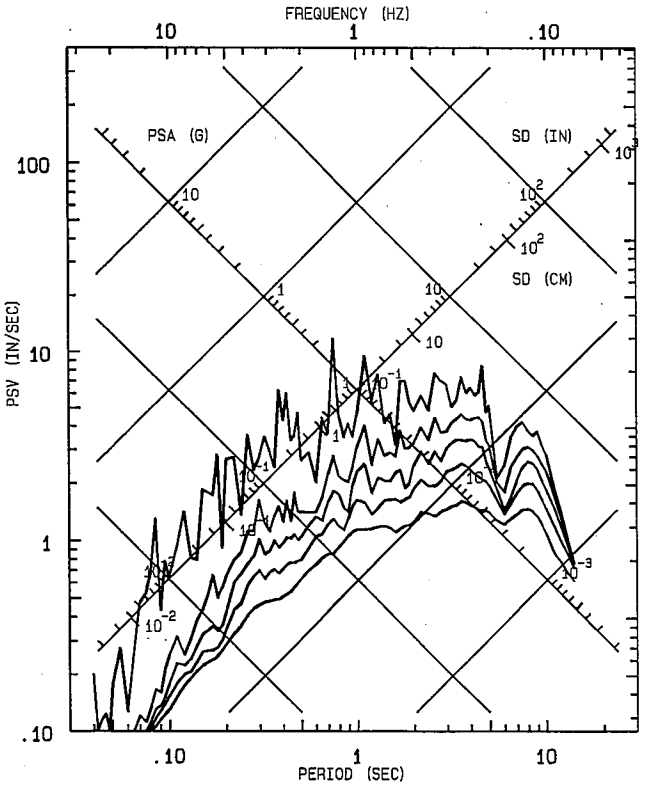
RECORD ID: 24611-E0275-92184.04

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

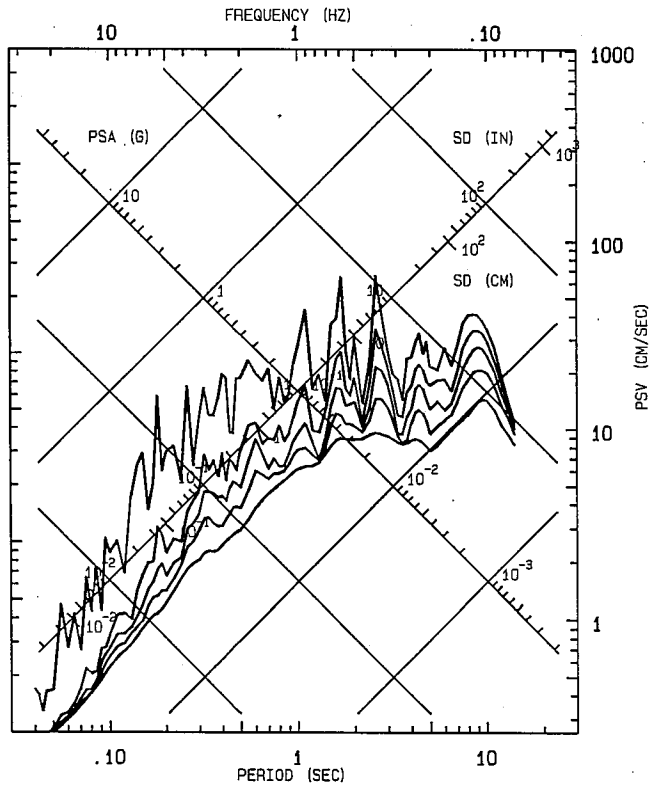
CHN 1: 90 DEG



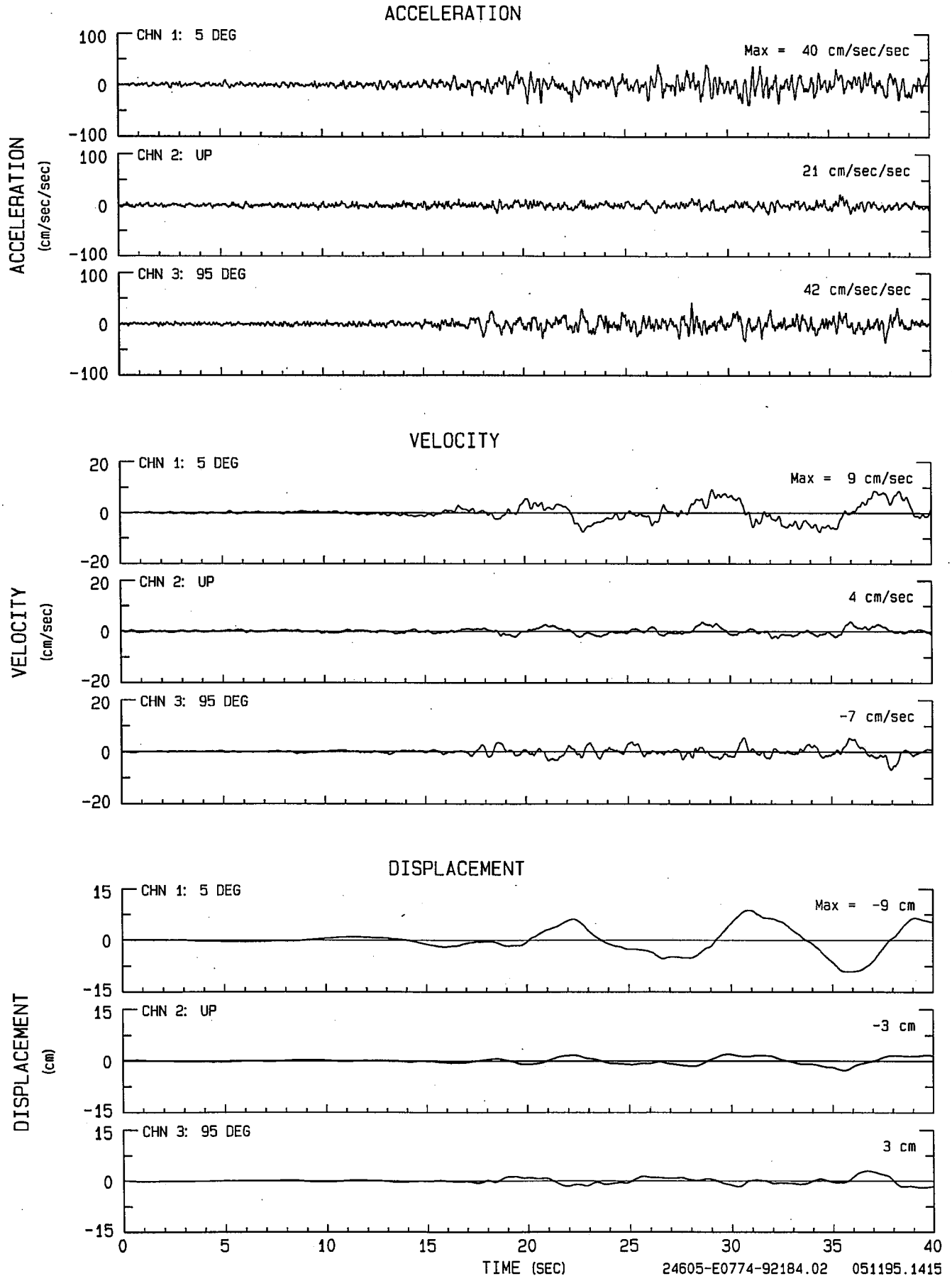
CHN 2: UP



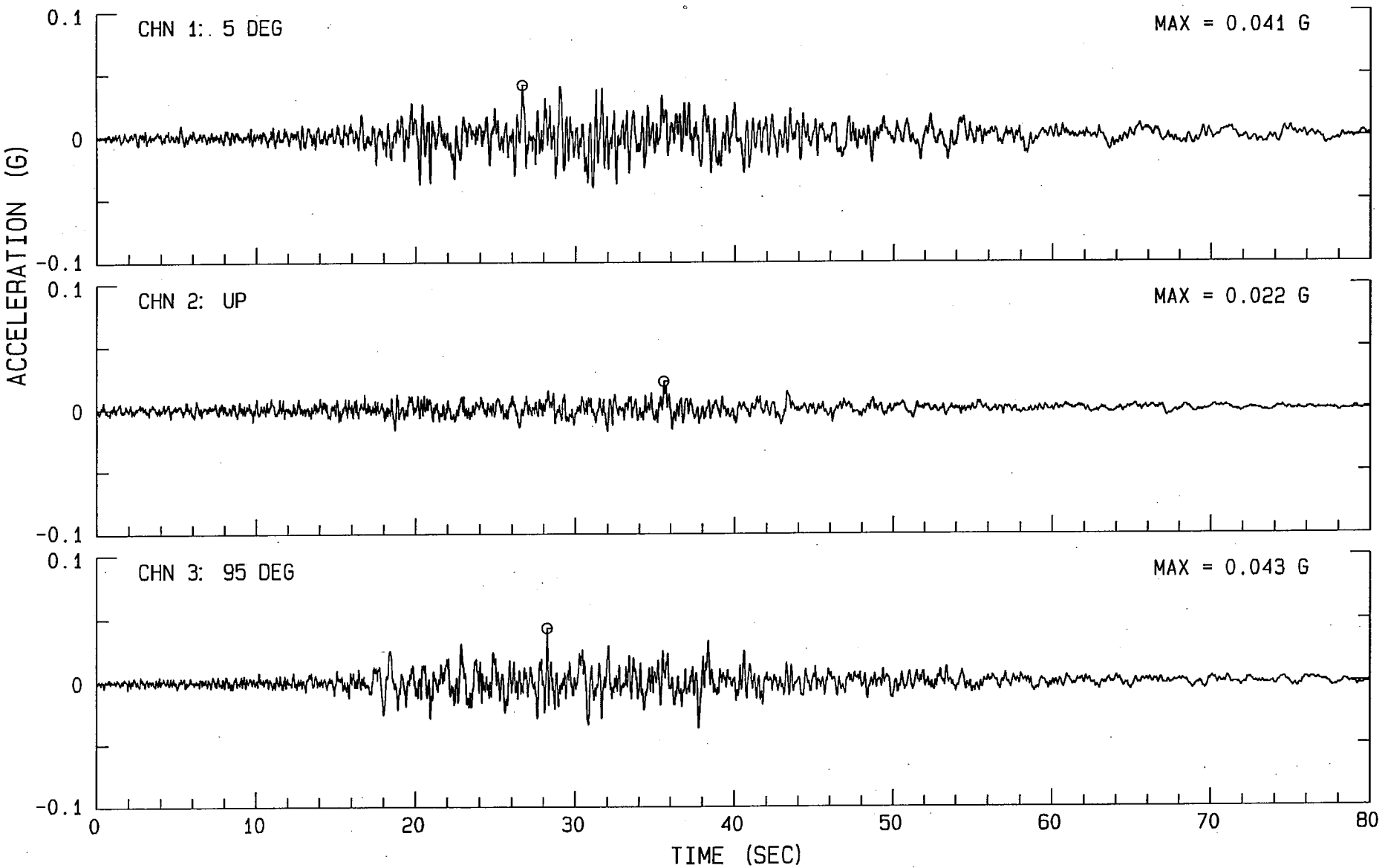
CHN 3: 180 DEG



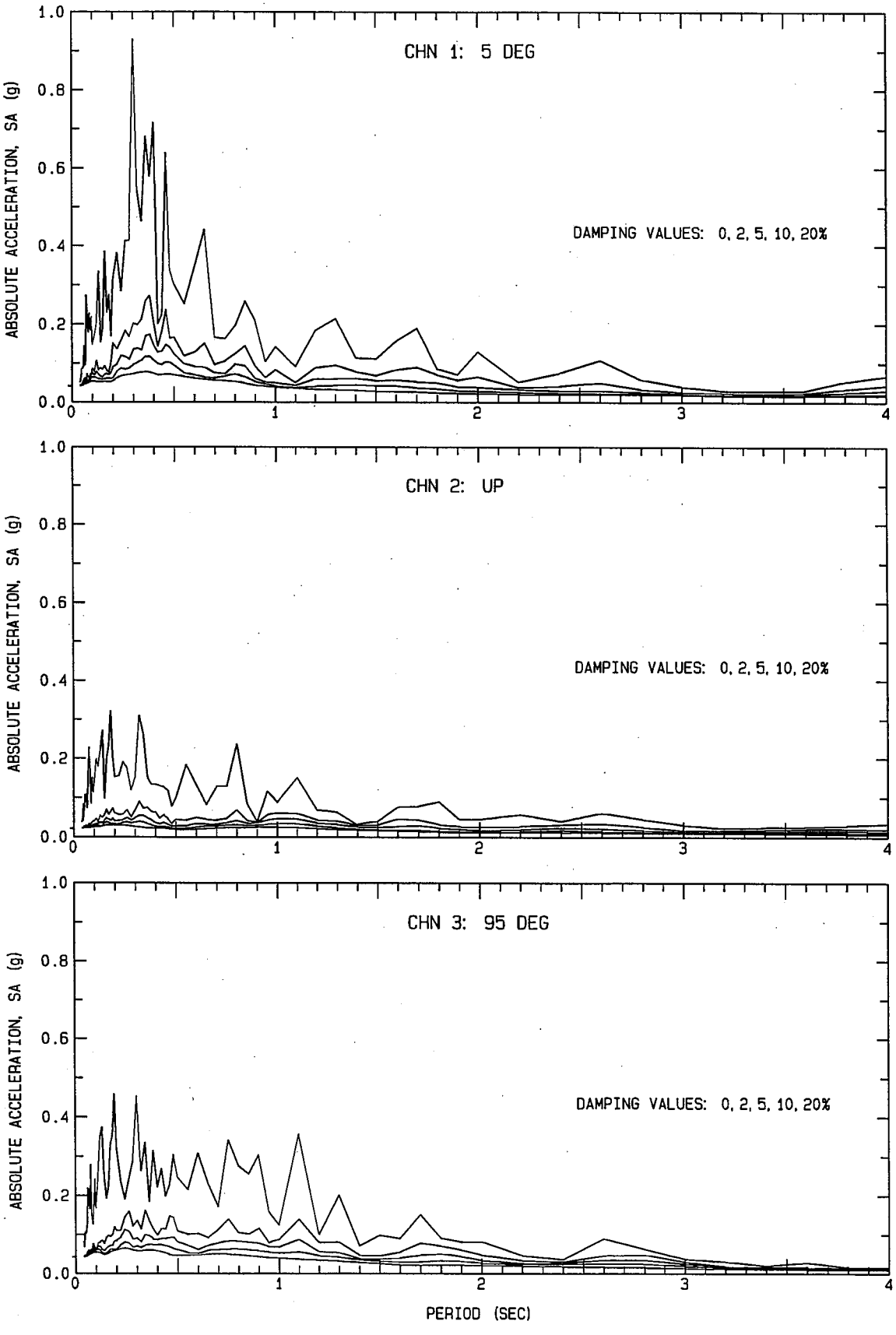
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - UNIV. HOSPITAL FREE FIELD CSMIP Sta Num 24605
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - UNIV. HOSPITAL FREE FIELD
UNCORRECTED ACCELEROGRAM 24605-E0774-92184.02 051195.1408-QL92605F



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
LOS ANGELES - UNIV. HOSPITAL FREE FIELD
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
24605-E0774-92184.02 051295.1048-QL92605F



LOS ANGELES - UNIV. HOSPITAL FREE FIELD: CSMIP S/N 605

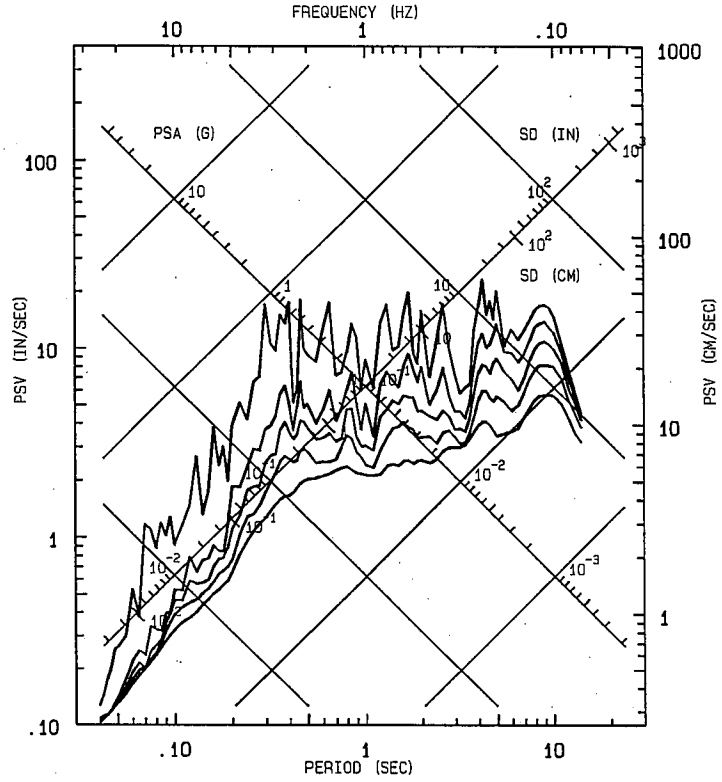
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

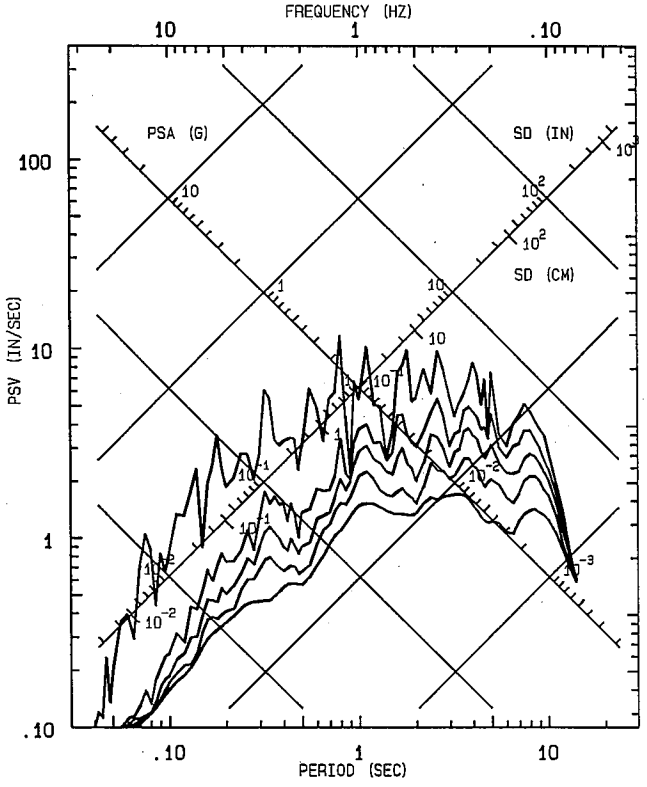
RECORD ID: 24605-E0774-92184.02

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

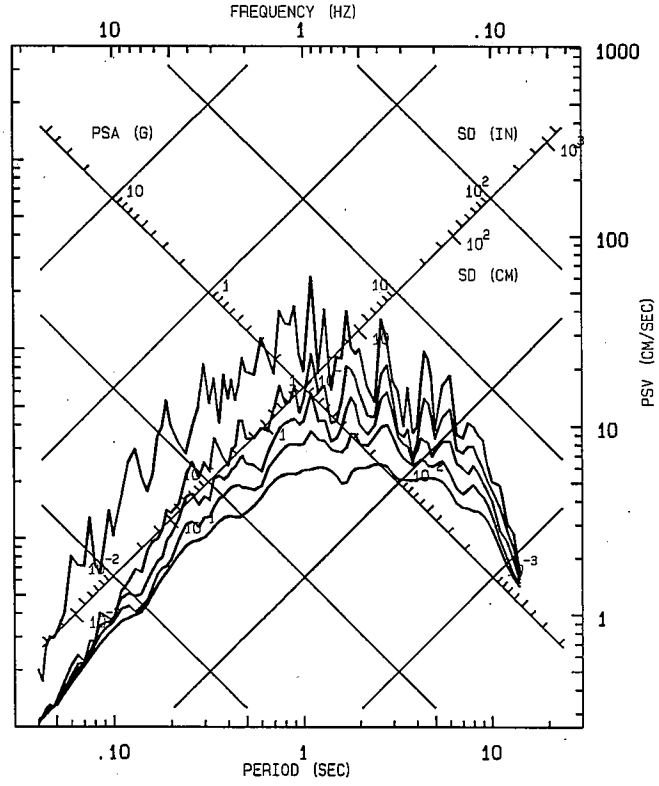
CHN 1: 5 DEG



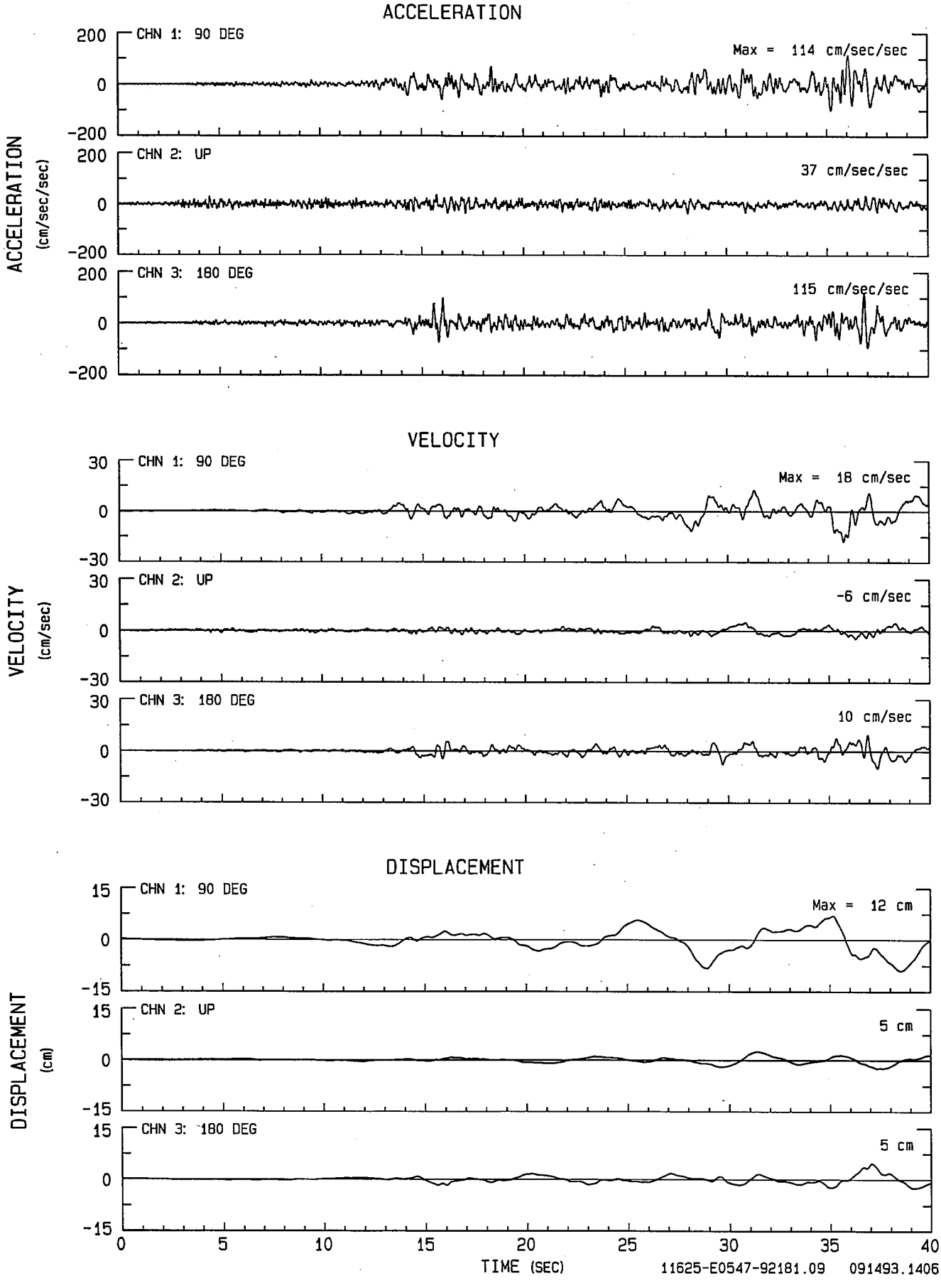
CHN 2: UP



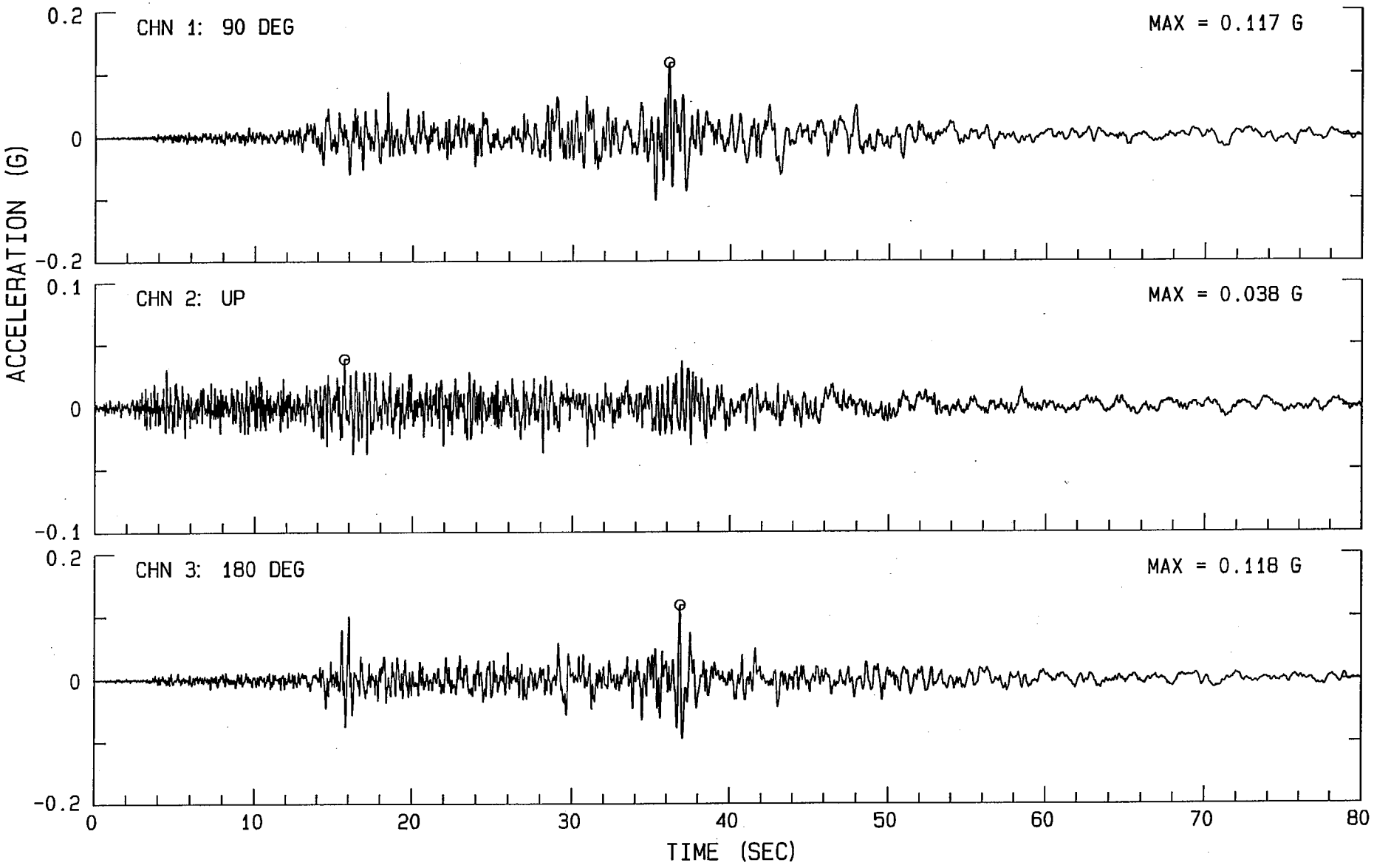
CHN 3: 95 DEG



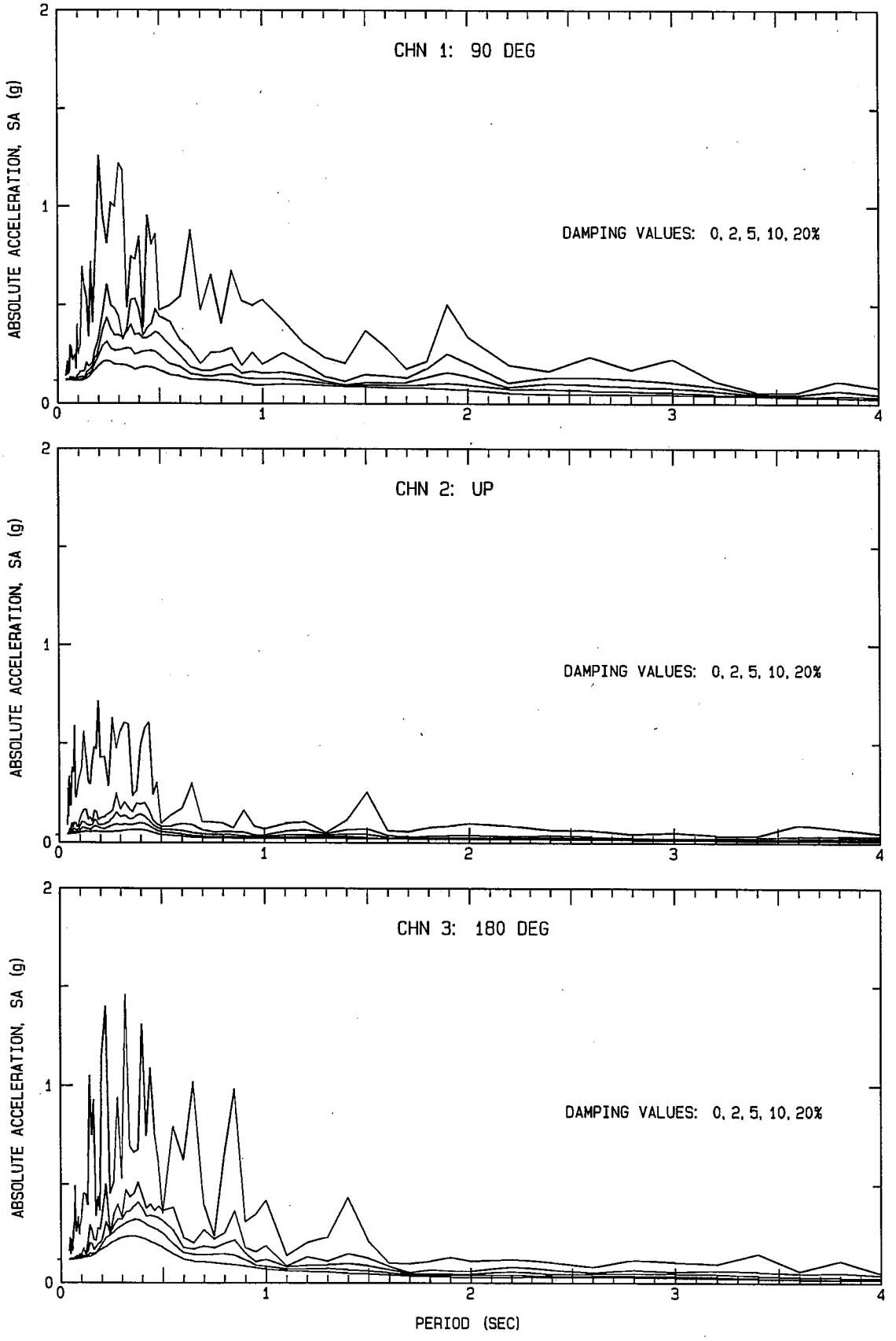
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
MECCA - CVWD YARD CSMIP Sta Num 11625
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
MECCA - CVWD YARD
UNCORRECTED ACCELEROGRAM 11625-E0547-92181.09 090293.1014-QL92A625



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
MECCA - CVWD YARD
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
11625-E0547-92181.09 050395.1355-QL92A625



MECCA - CVWD YARD: CSMIP S/N 625

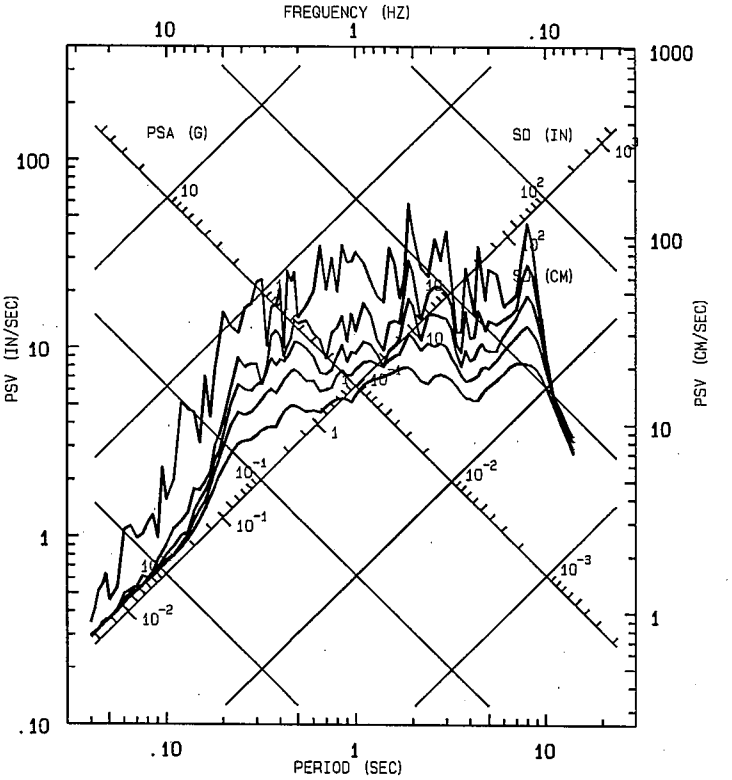
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

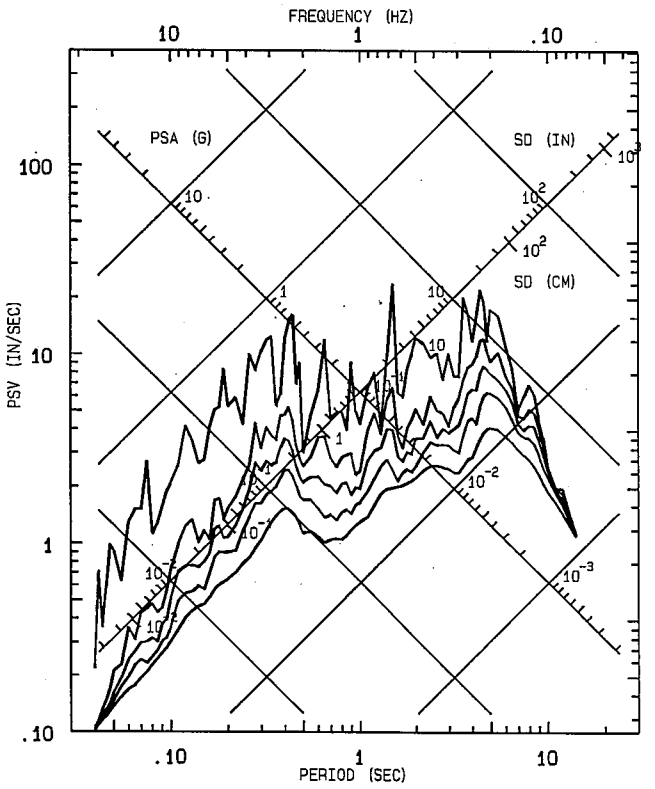
RECORD ID: 11625-E0547-92181.09

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

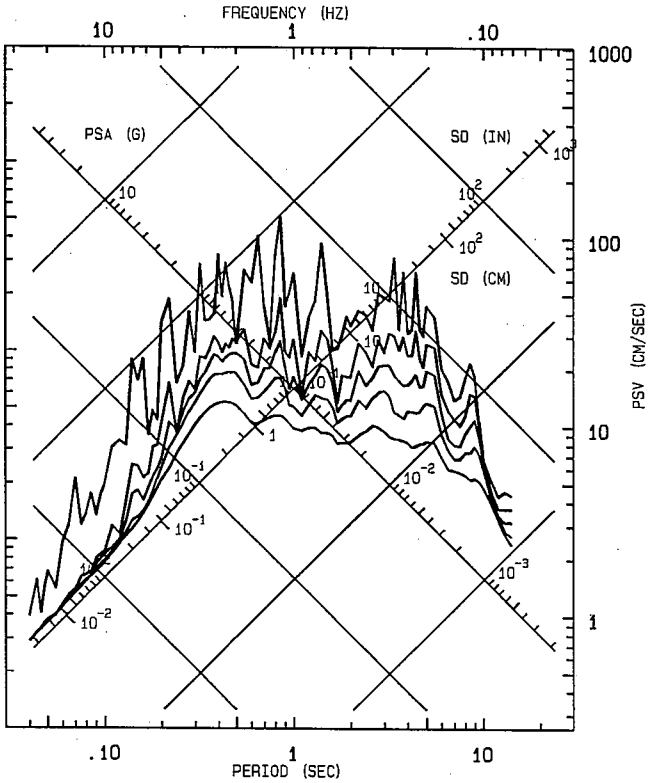
CHN 1: 90 DEG



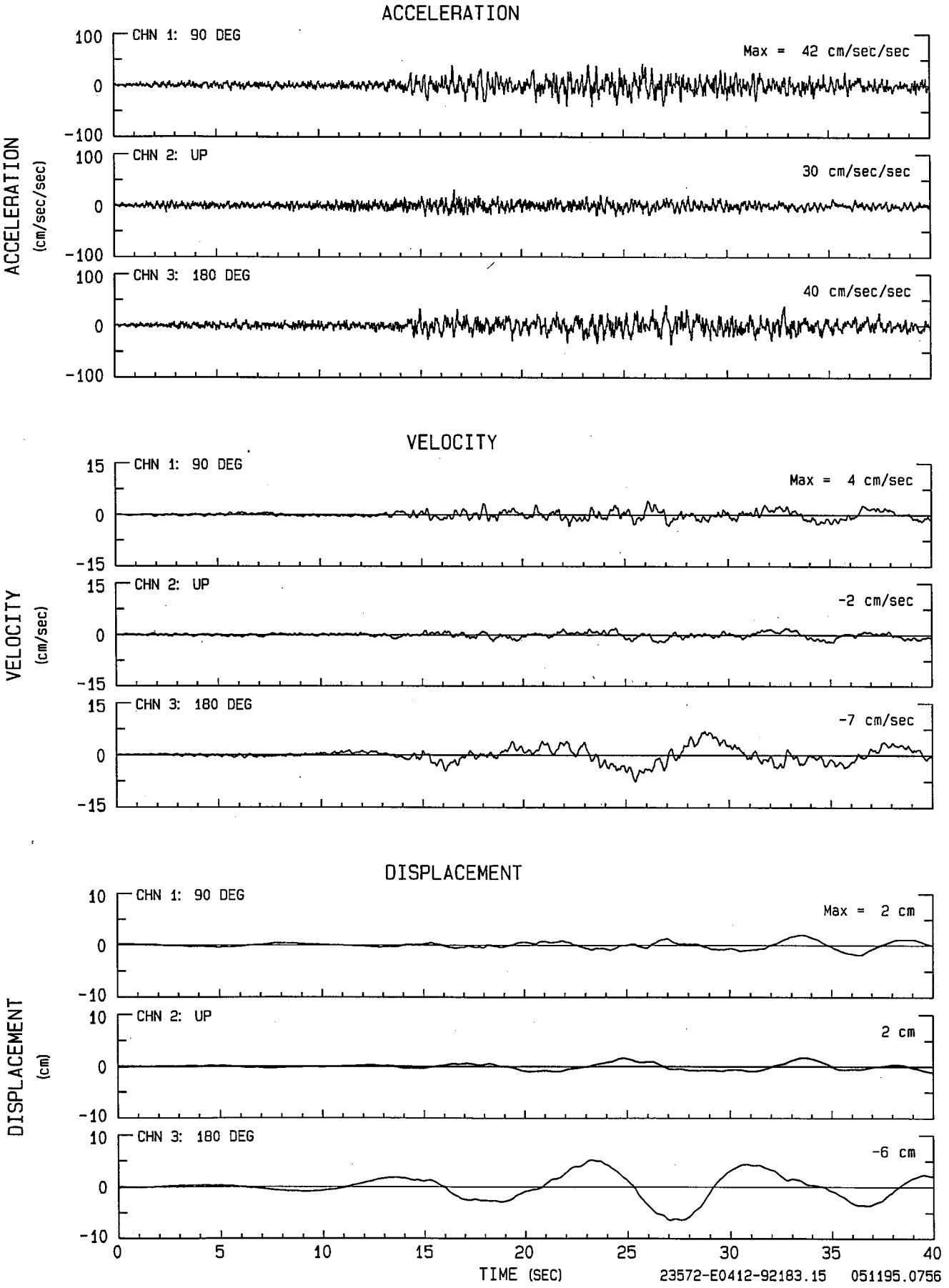
CHN 2: UP



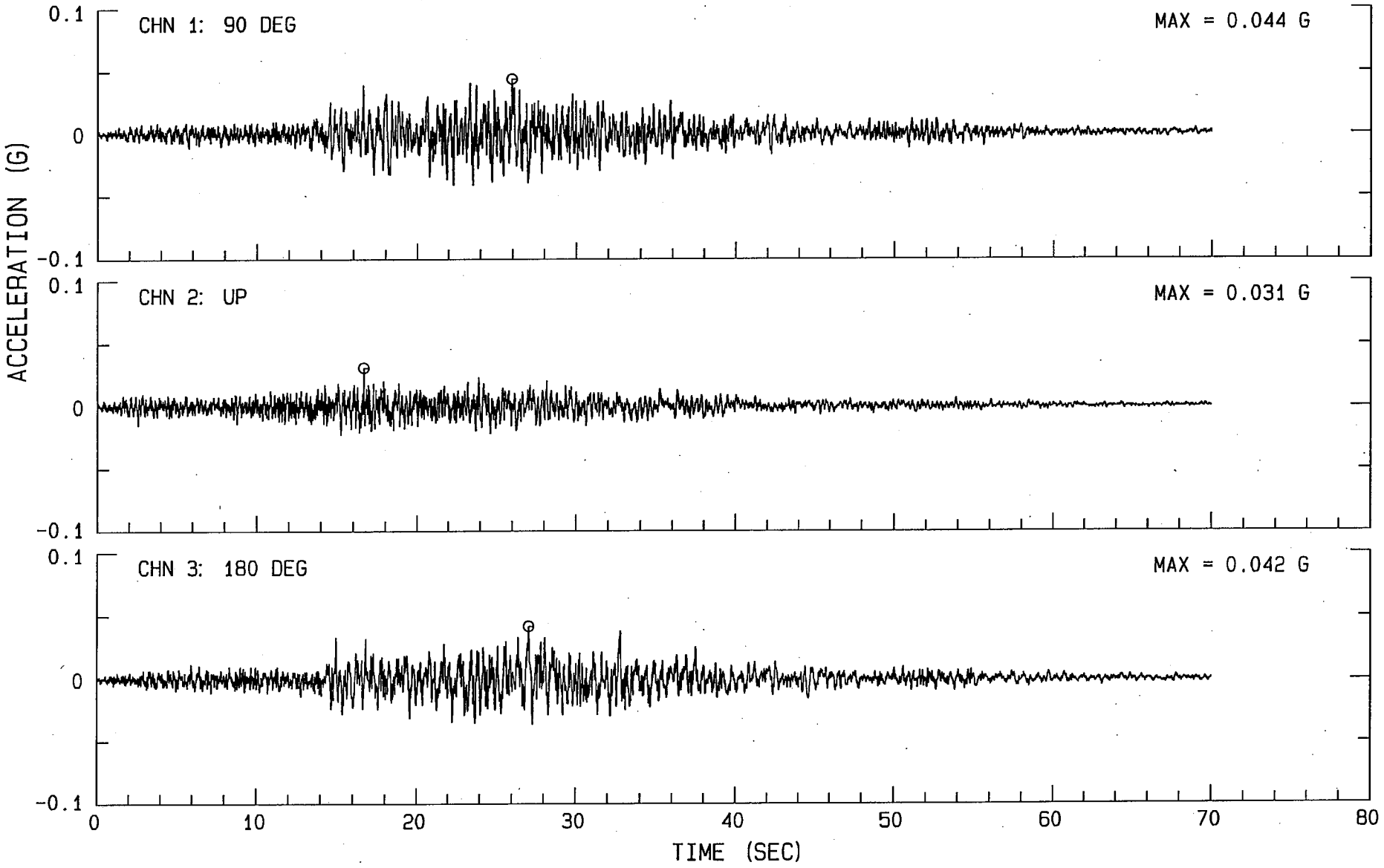
CHN 3: 180 DEG



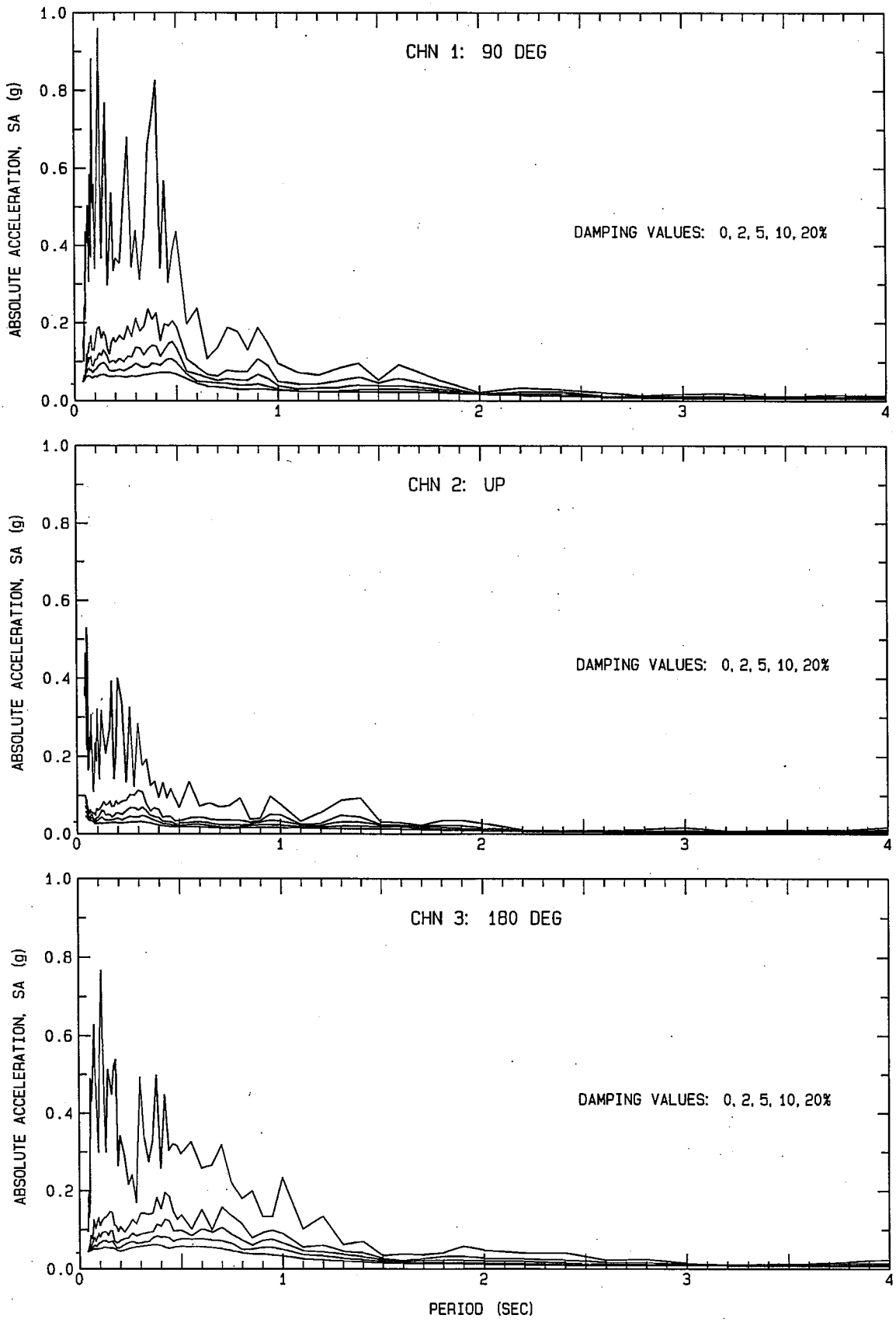
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
MT. BALDY ELEMENTARY SCHOOL CSMIP Sta Num 23572
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
MT. BALDY ELEMENTARY SCHOOL
UNCORRECTED ACCELEROGRAM 23572-E0412-92183.15 051195.0754-QL92A572



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
MT. BALDY ELEMENTARY SCHOOL
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
23572-E0412-92183.15 051195.0759-QL92A572



MT. BALDY ELEMENTARY SCHOOL: CSMIP S/N 572

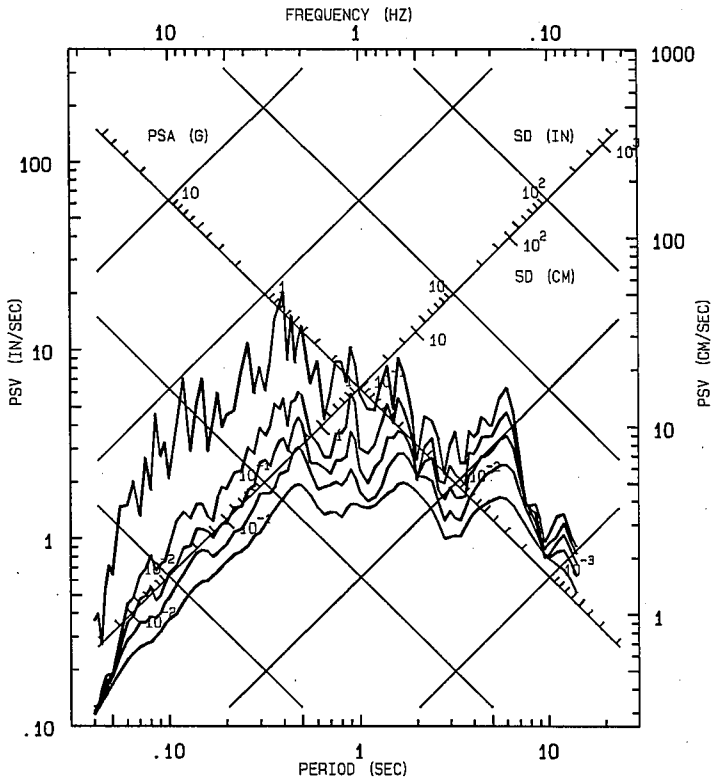
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

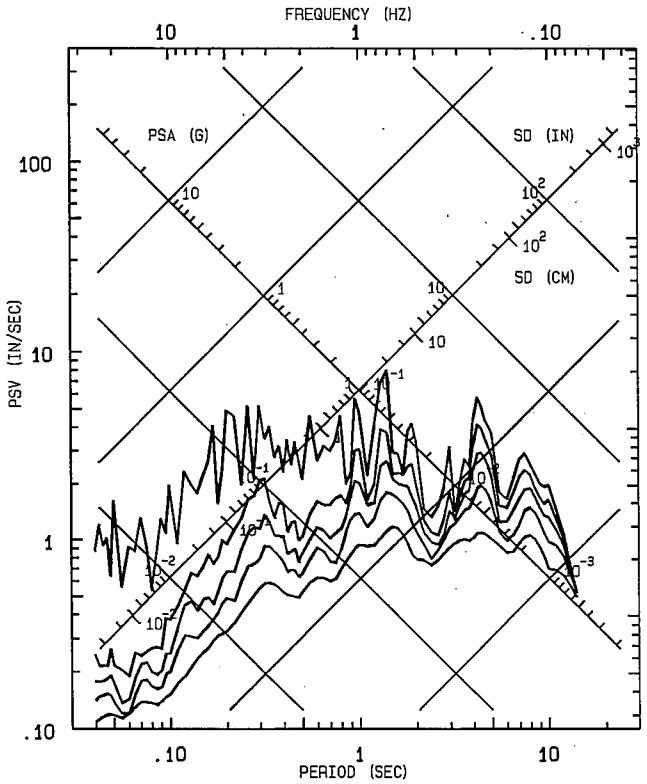
RECORD ID: 23572-E0412-92183.15

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

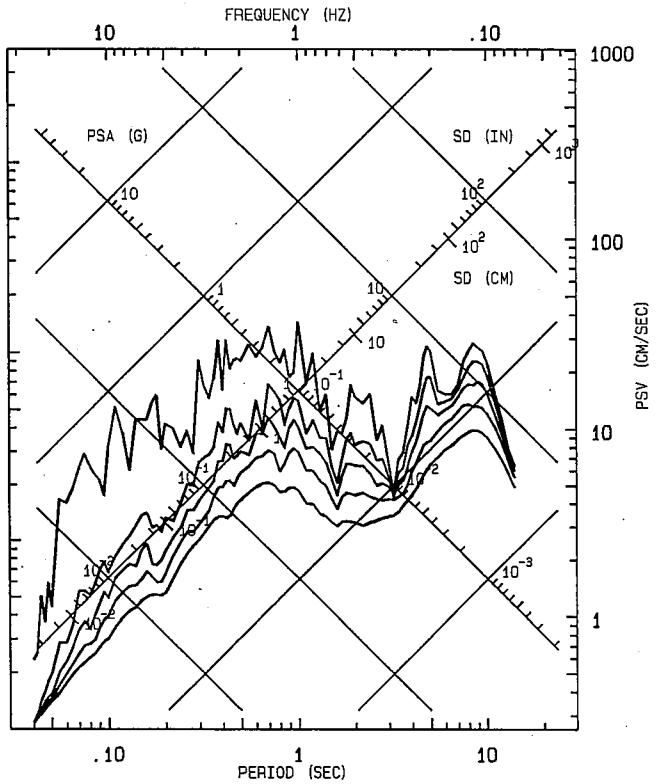
CHN 1: 90 DEG



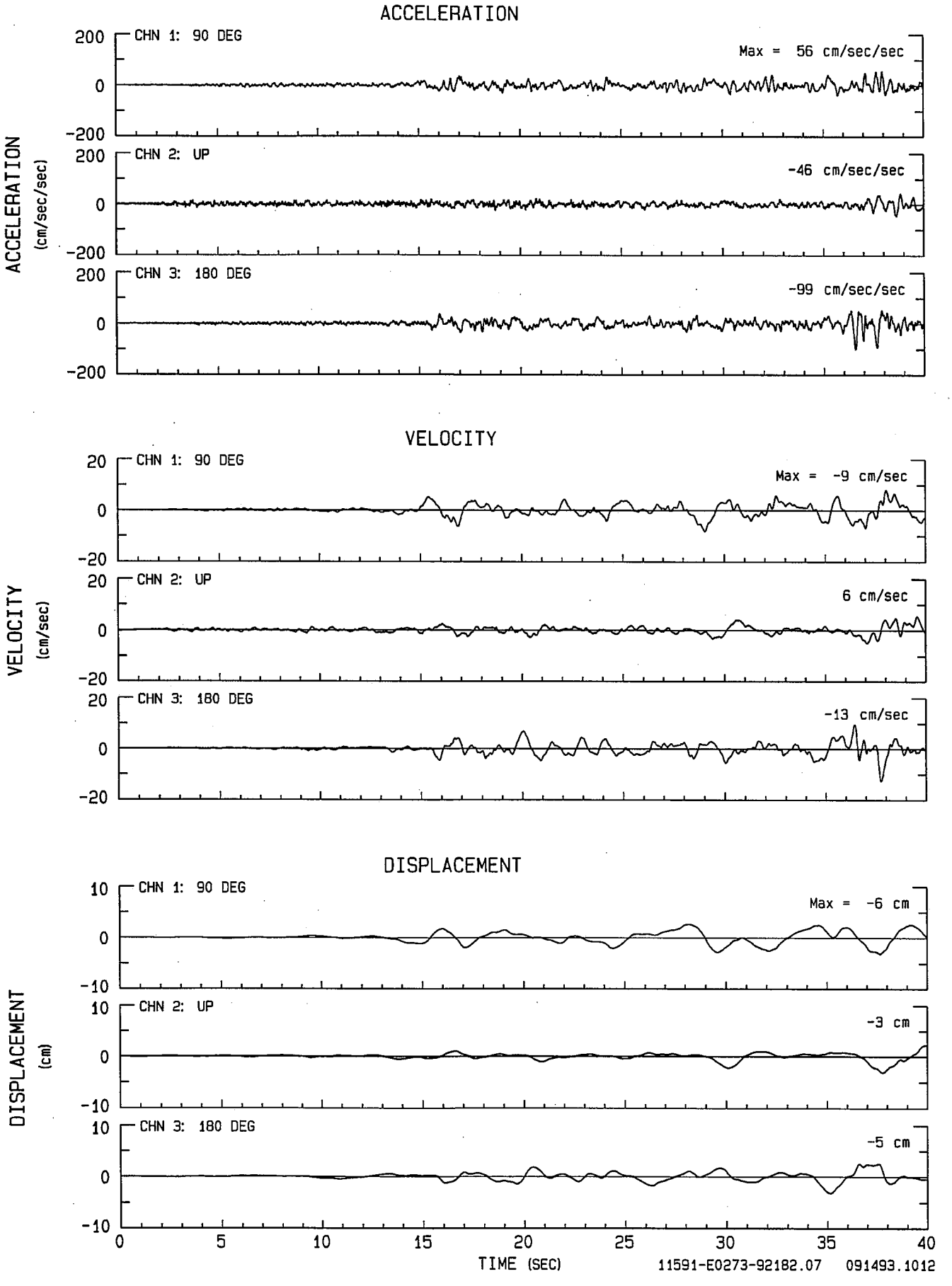
CHN 2: UP



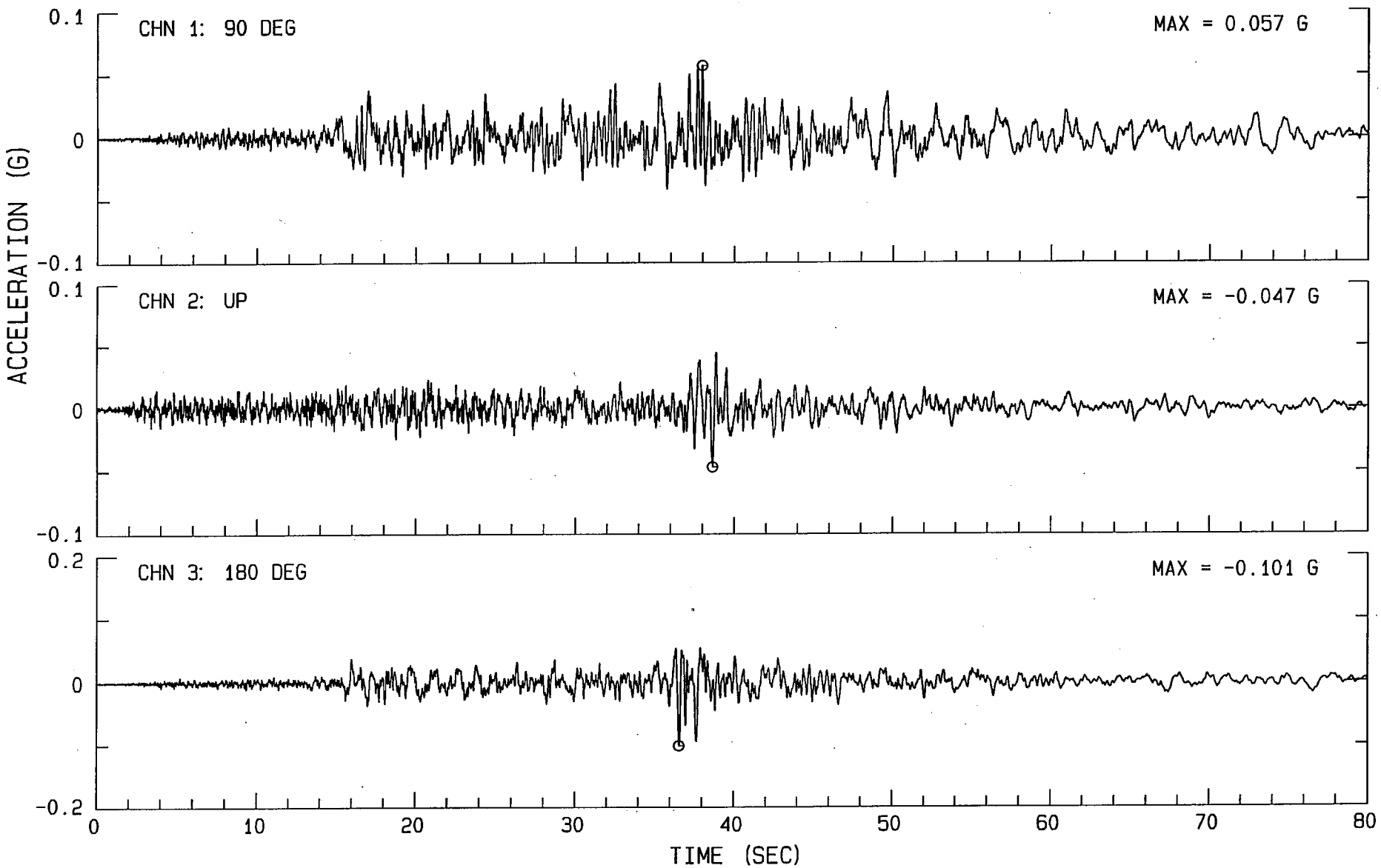
CHN 3: 180 DEG



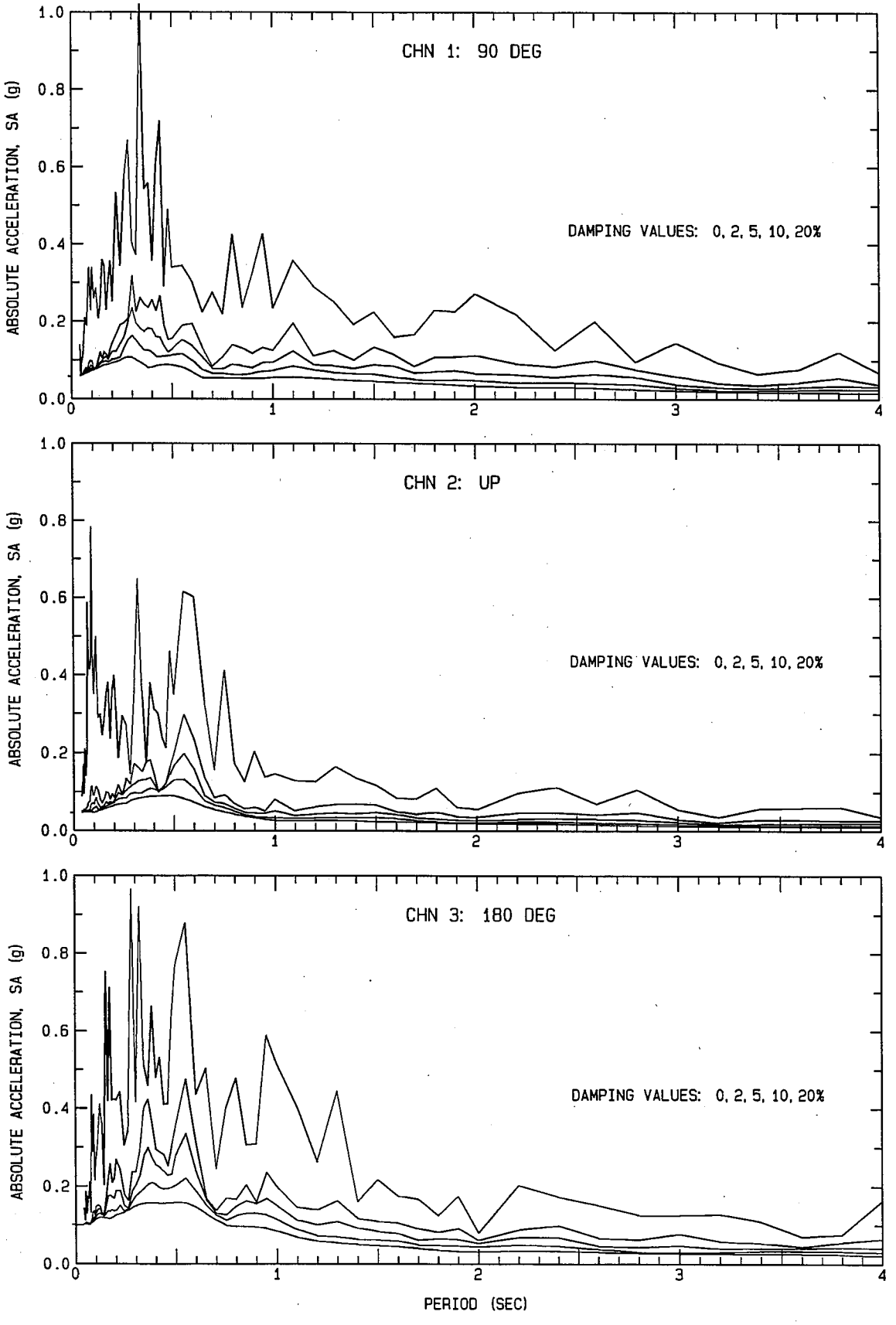
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
NORTH SHORE - DURMID CSMIP Sta Num 11591
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
NORTH SHORE - DURMID
UNCORRECTED ACCELEROGRAM 11591-E0273-92182.07 090193.1319-QL92A591



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
NORTH SHORE - DURMID
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
11591-E0273-92182.07 050395.1347-QL92A591



NORTH SHORE - DURMID: CSMIP S/N 591

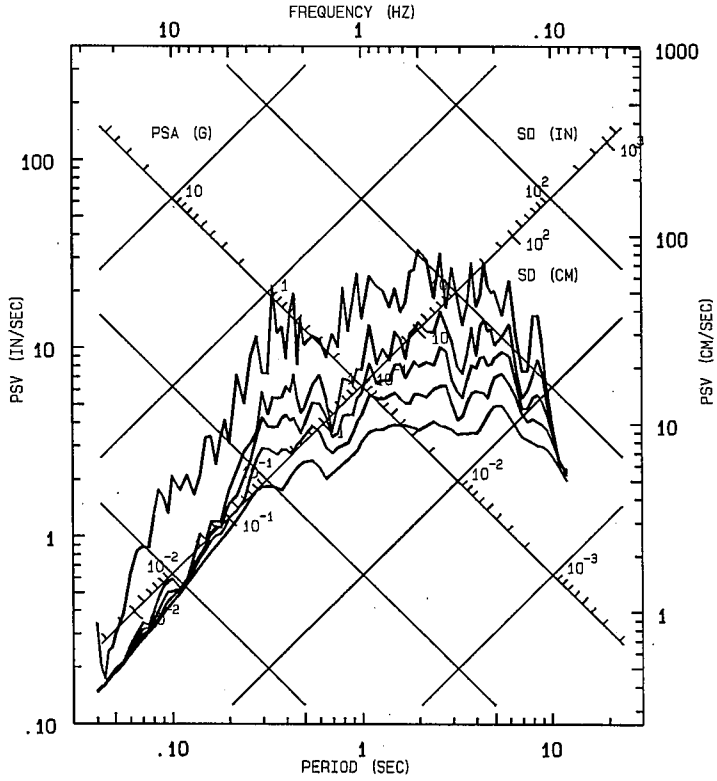
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

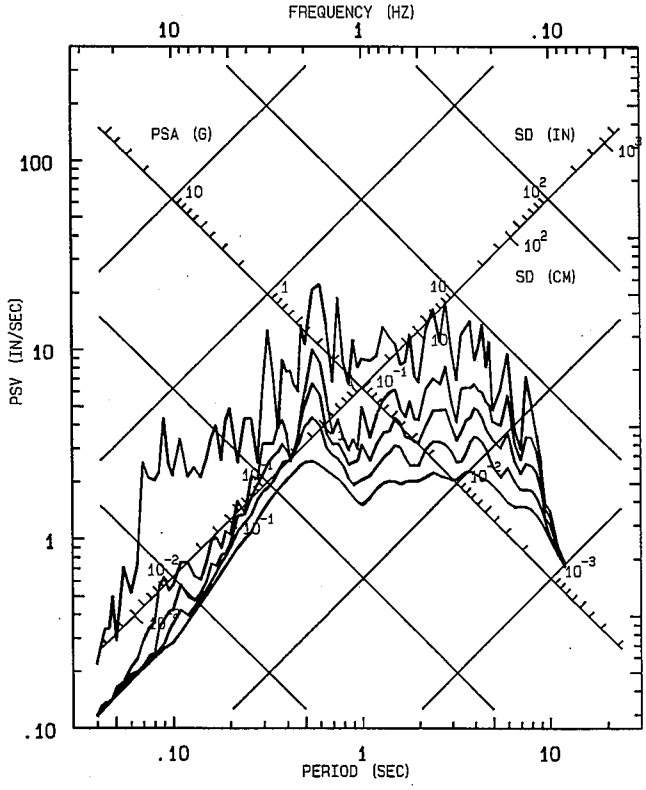
RECORD ID: 11591-E0273-92182.07

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

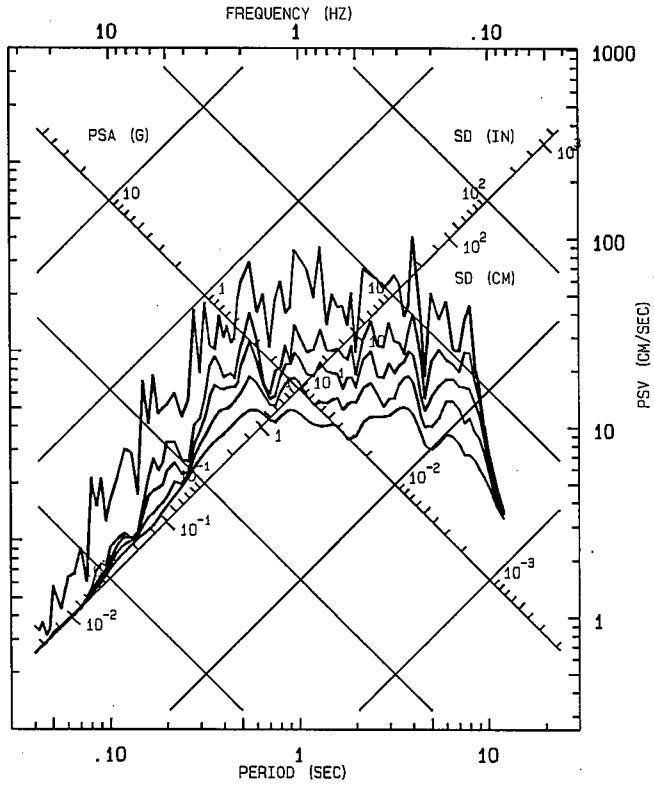
CHN 1: 90 DEG



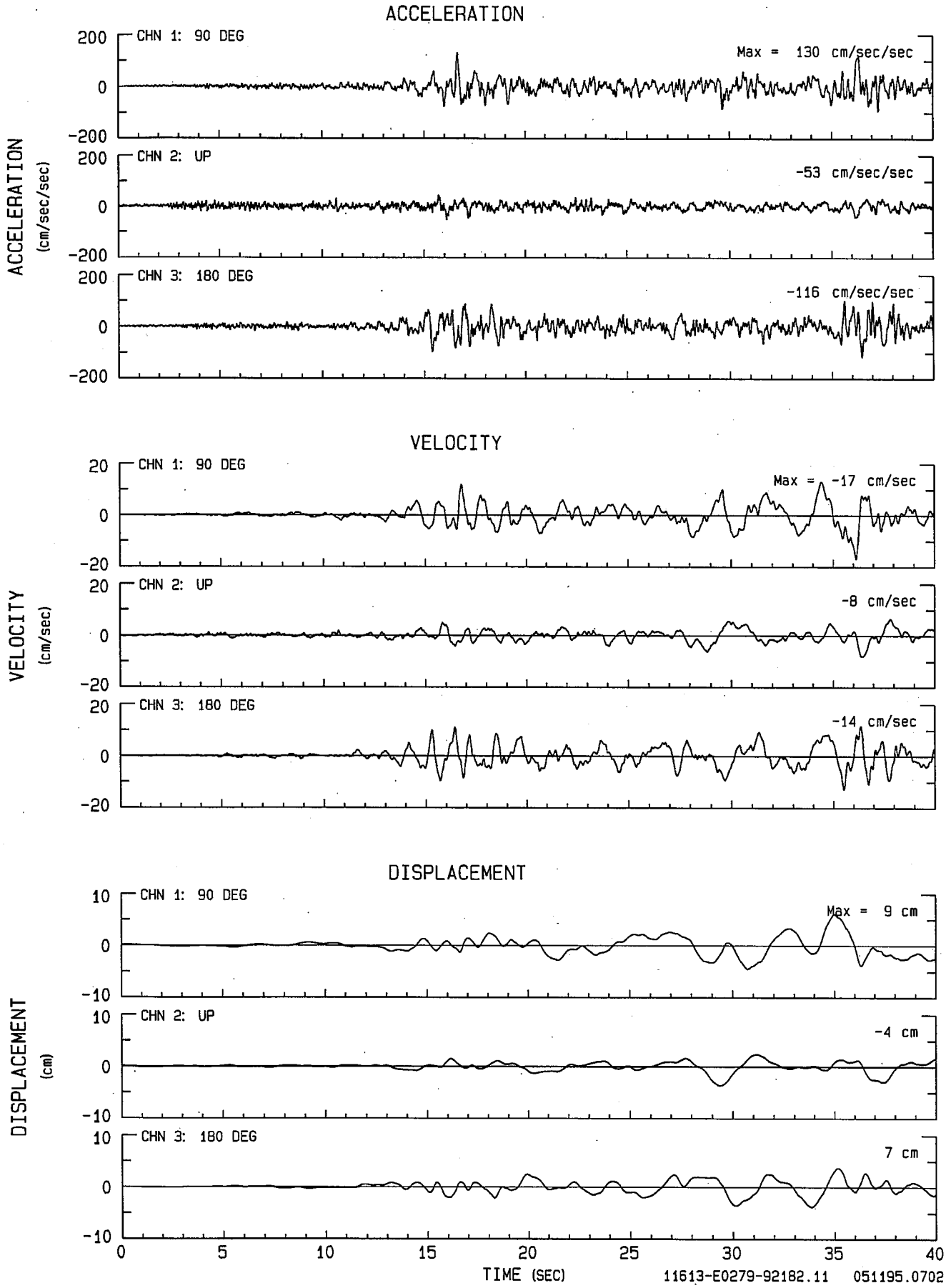
CHN 2: UP



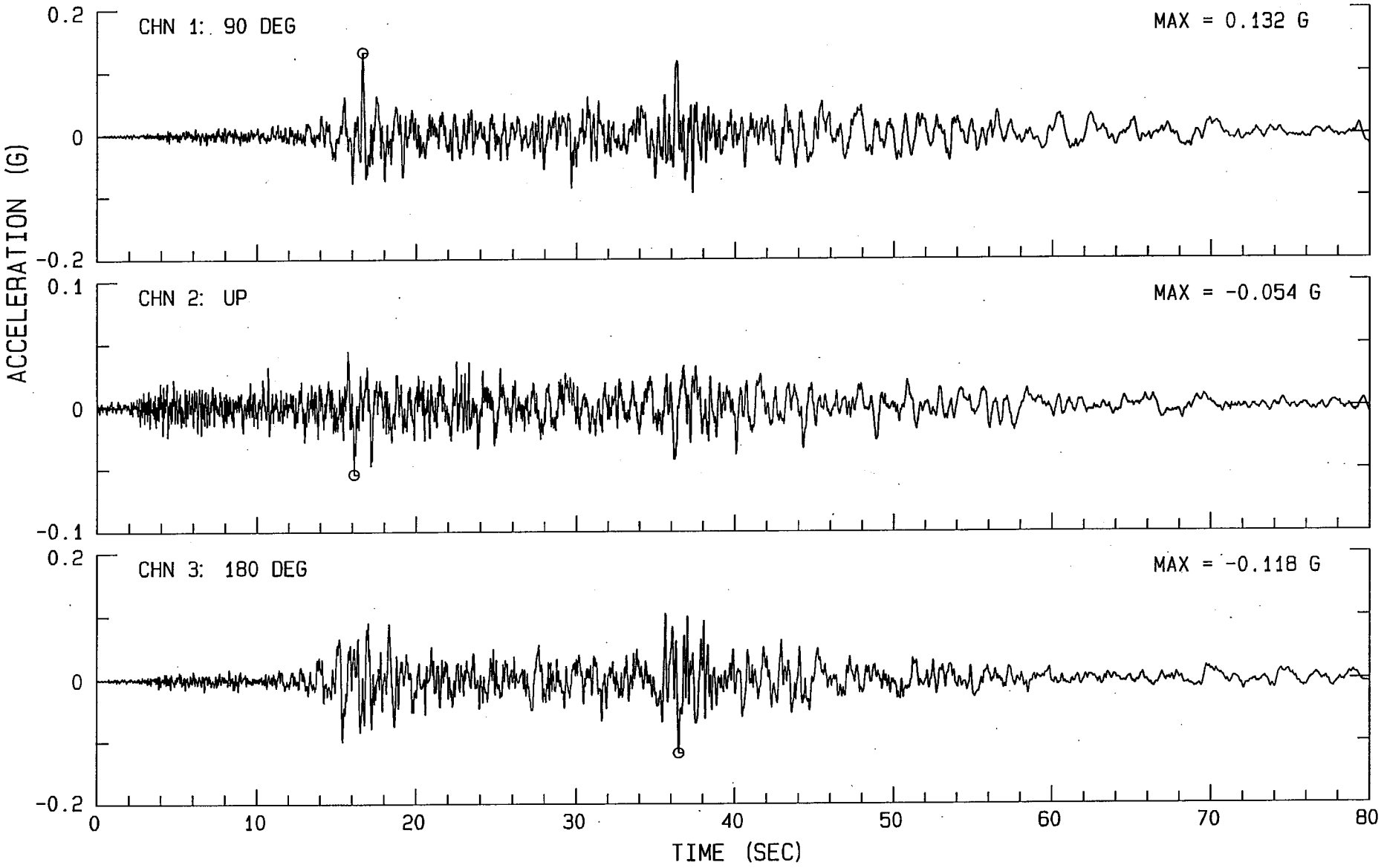
CHN 3: 180 DEG



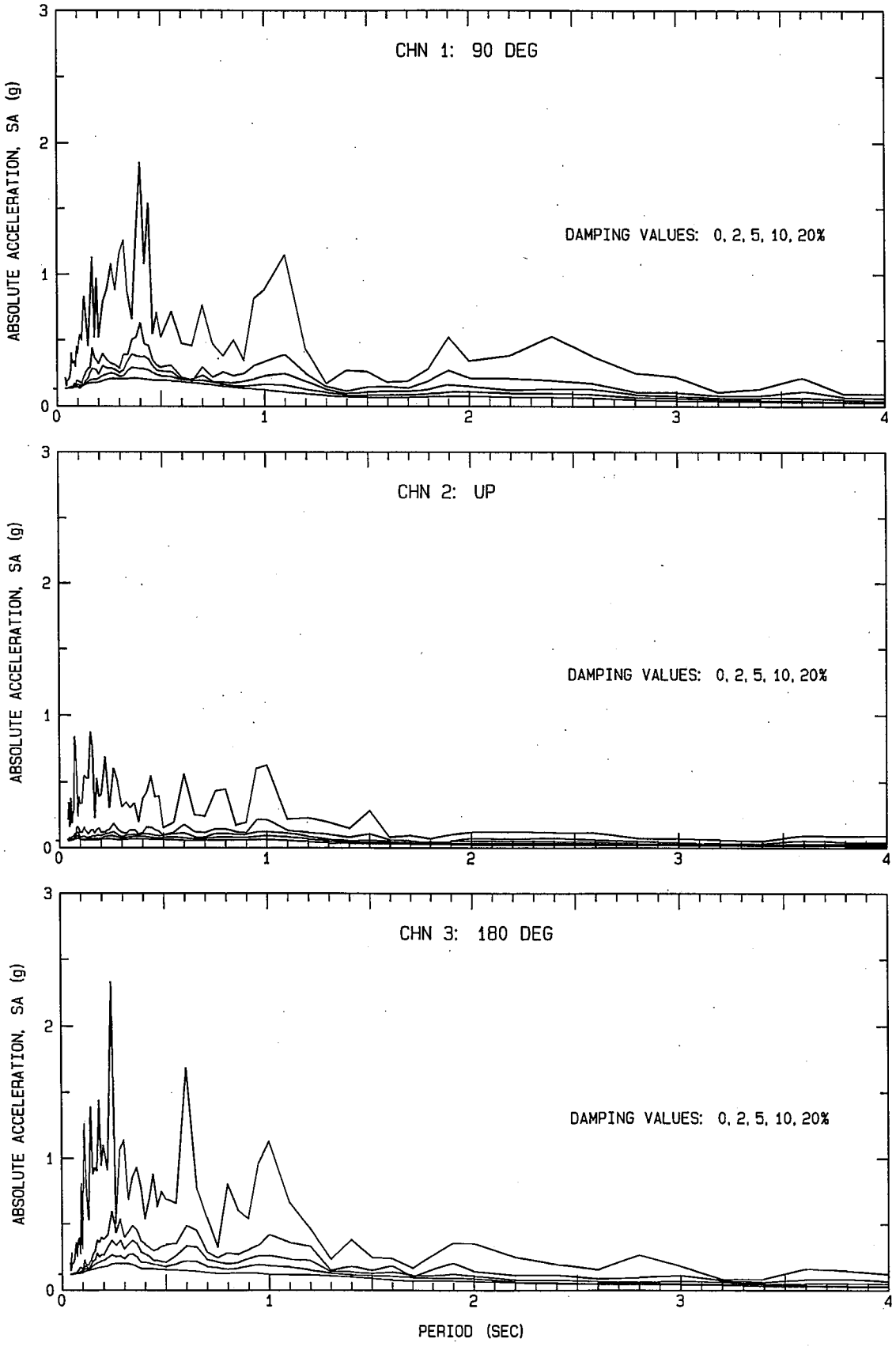
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
NORTH SHORE - SALTON SEA STATE PARK HQ CSMIP Sta Num 11613
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
NORTH SHORE - SALTON SEA STATE PARK HQ
UNCORRECTED ACCELEROGRAM 11613-E0279-92182.11 051195.0658-QL92A613



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
NORTH SHORE - SALTON SEA STATE PARK HQ
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
11613-E0279-92182.11 051195.0707-QL92A613



NORTH SHORE - SALTON SEA STATE PARK HQ: CSMIP S/N 613

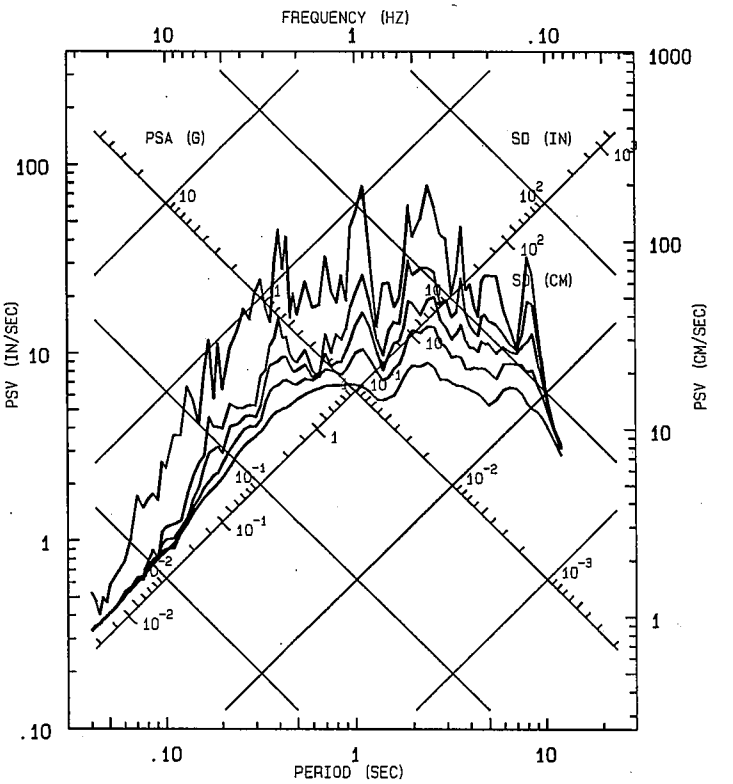
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

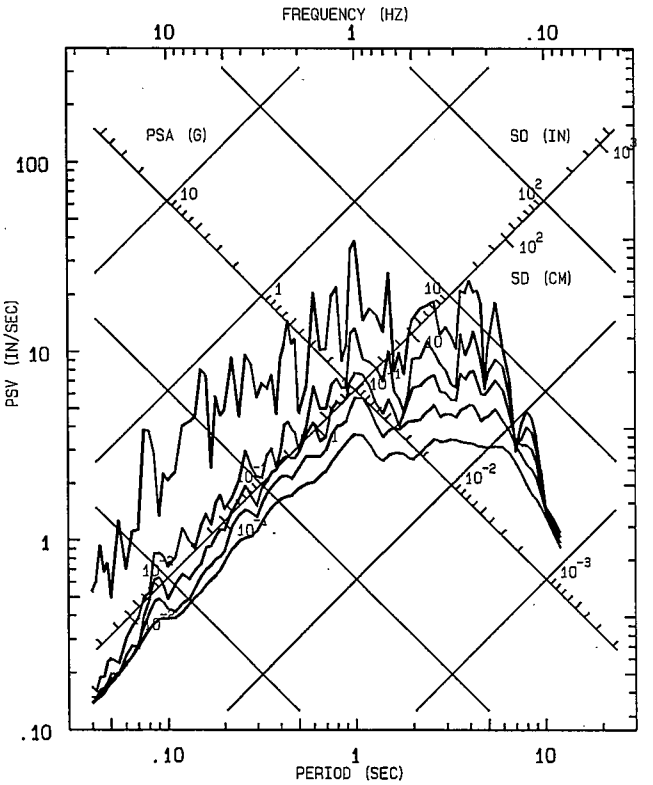
RECORD ID: 11613-E0279-92182.11

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

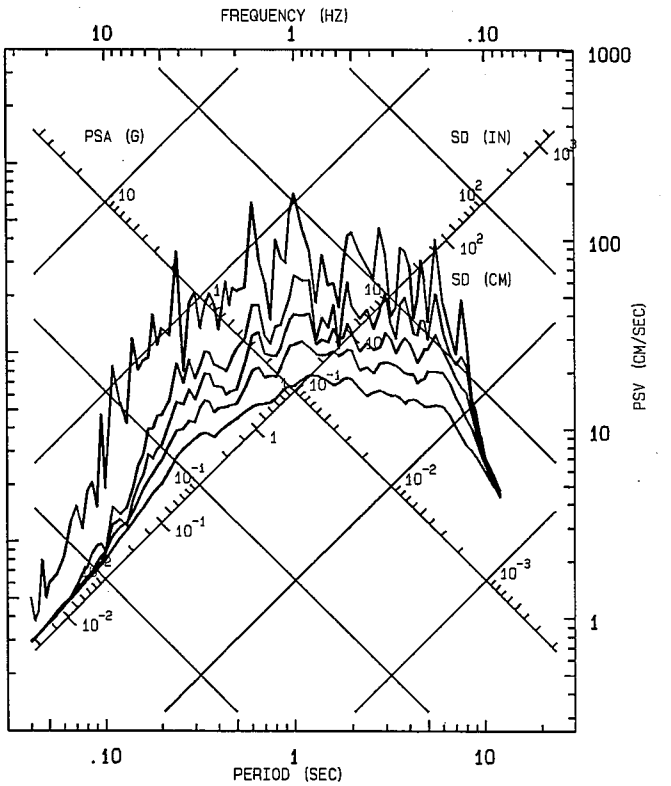
CHN 1: 90 DEG



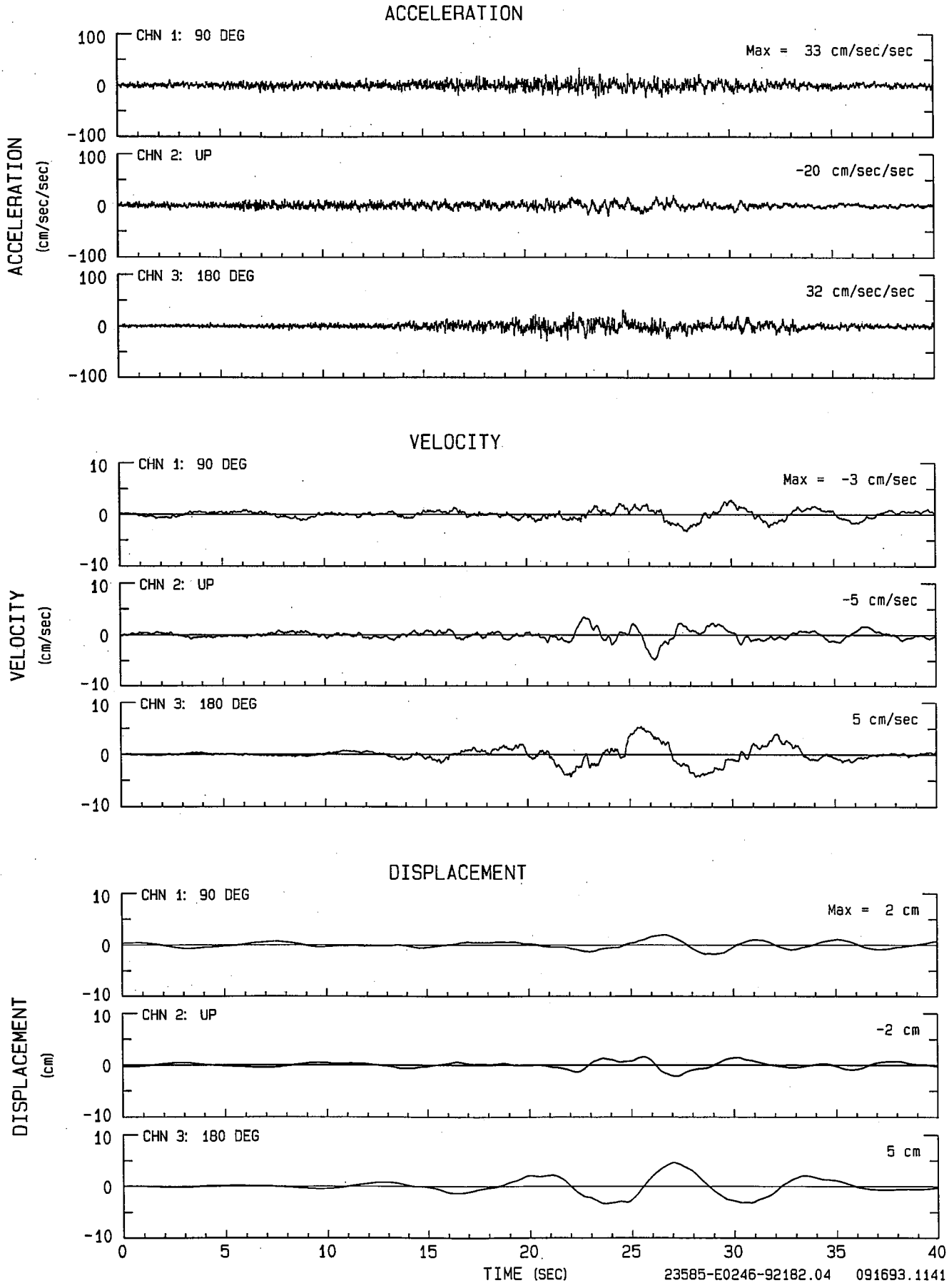
CHN 2: UP



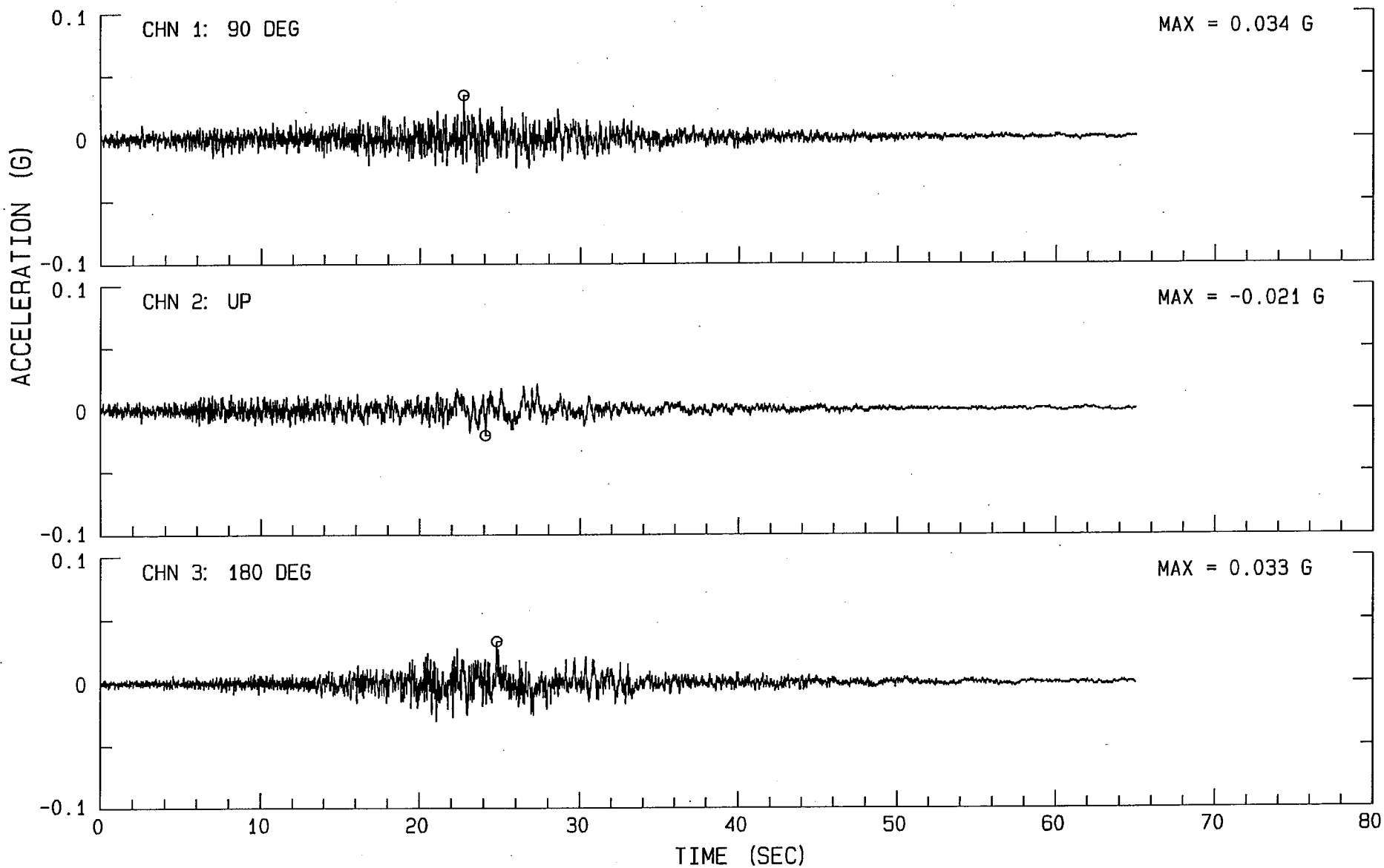
CHN 3: 180 DEG



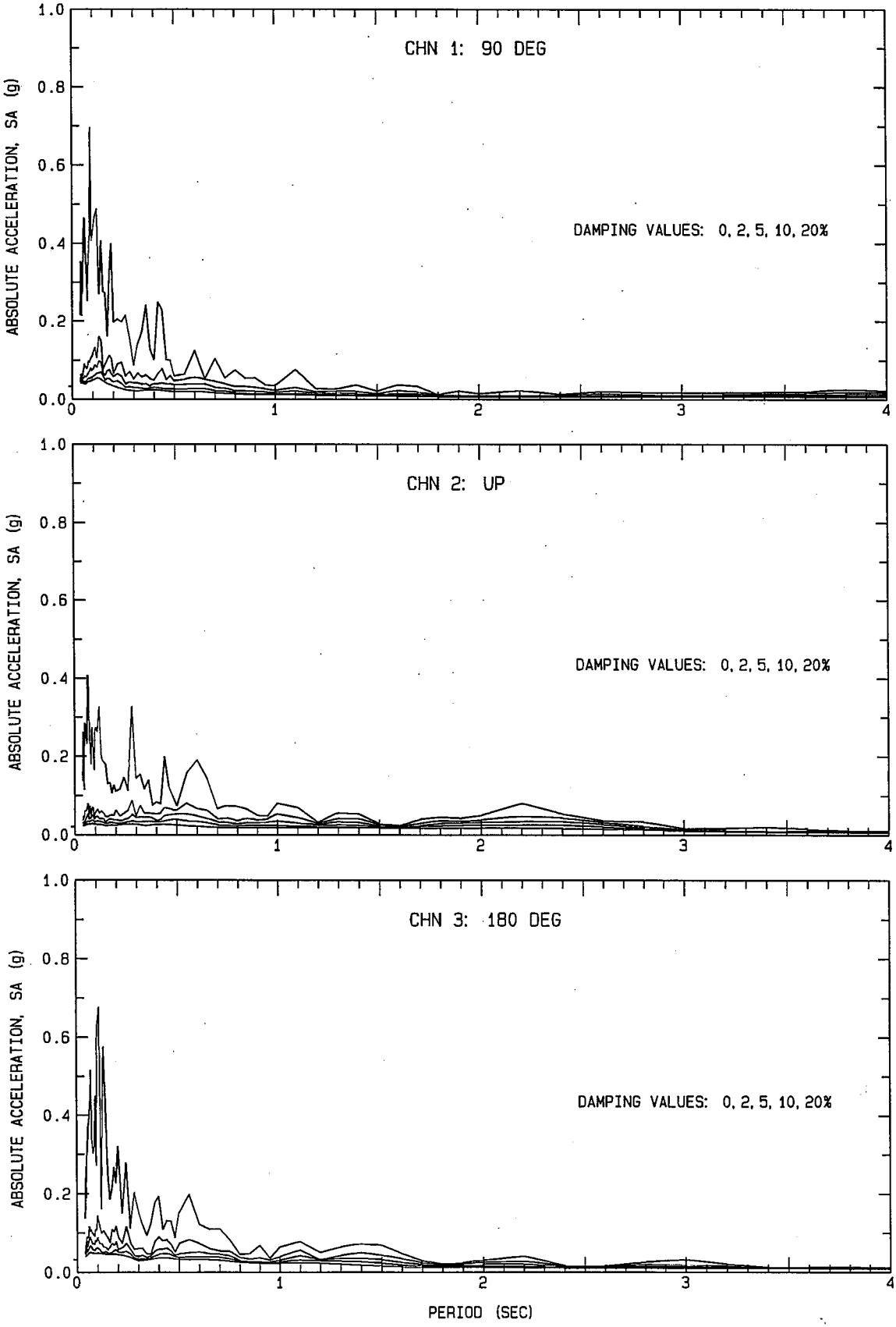
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PALMDALE - BLACK BUTTE CSMIP Sta Num 23585
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PALMDALE - BLACK BUTTE
UNCORRECTED ACCELEROGRAM 23585-E0246-92182.04 091693.1031-QL92A585



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PALMDALE - BLACK BUTTE
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
23585-E0246-92182.04 050495.1455-QL92A585



PALMDALE - BLACK BUTTE: CSMIP S/N 585

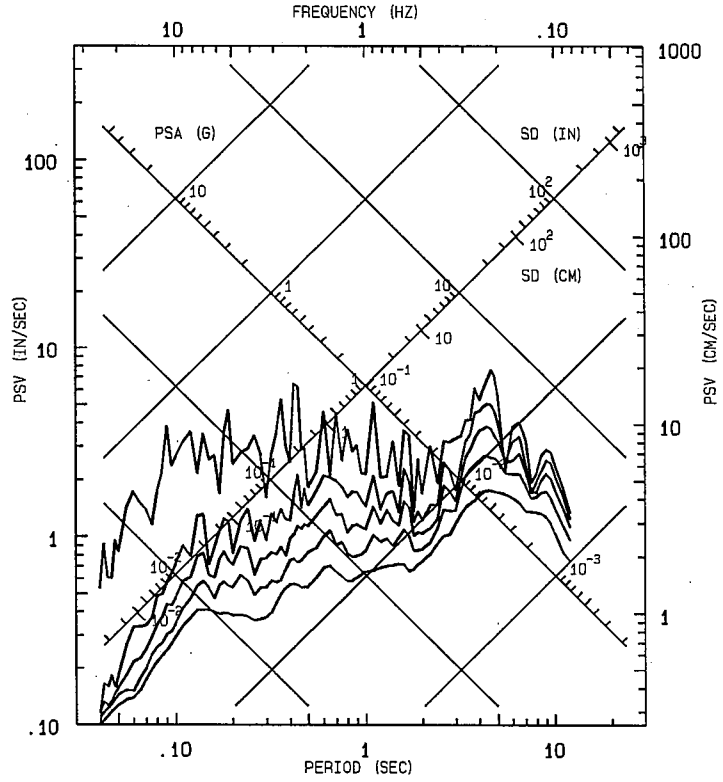
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

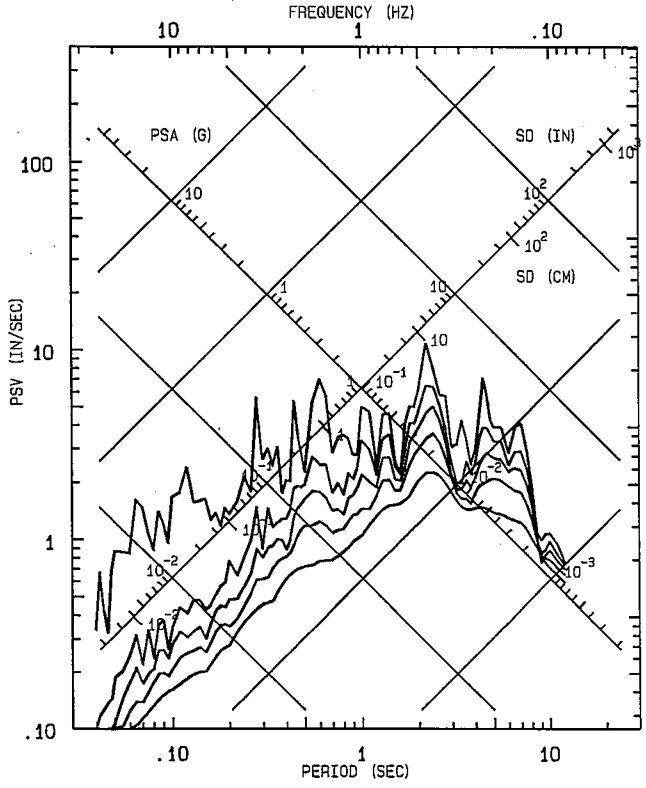
RECORD ID: 23585-E0246-92182.04

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

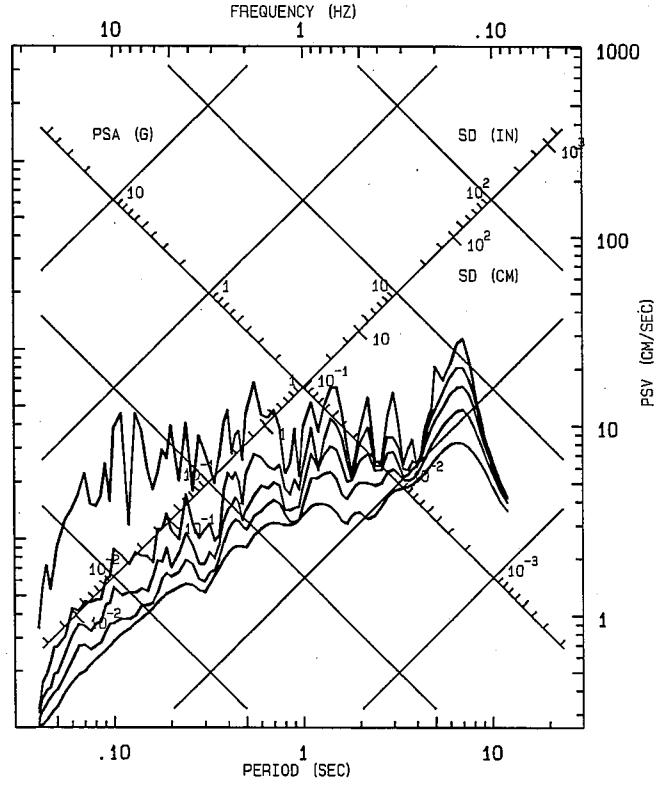
CHN 1: 90 DEG



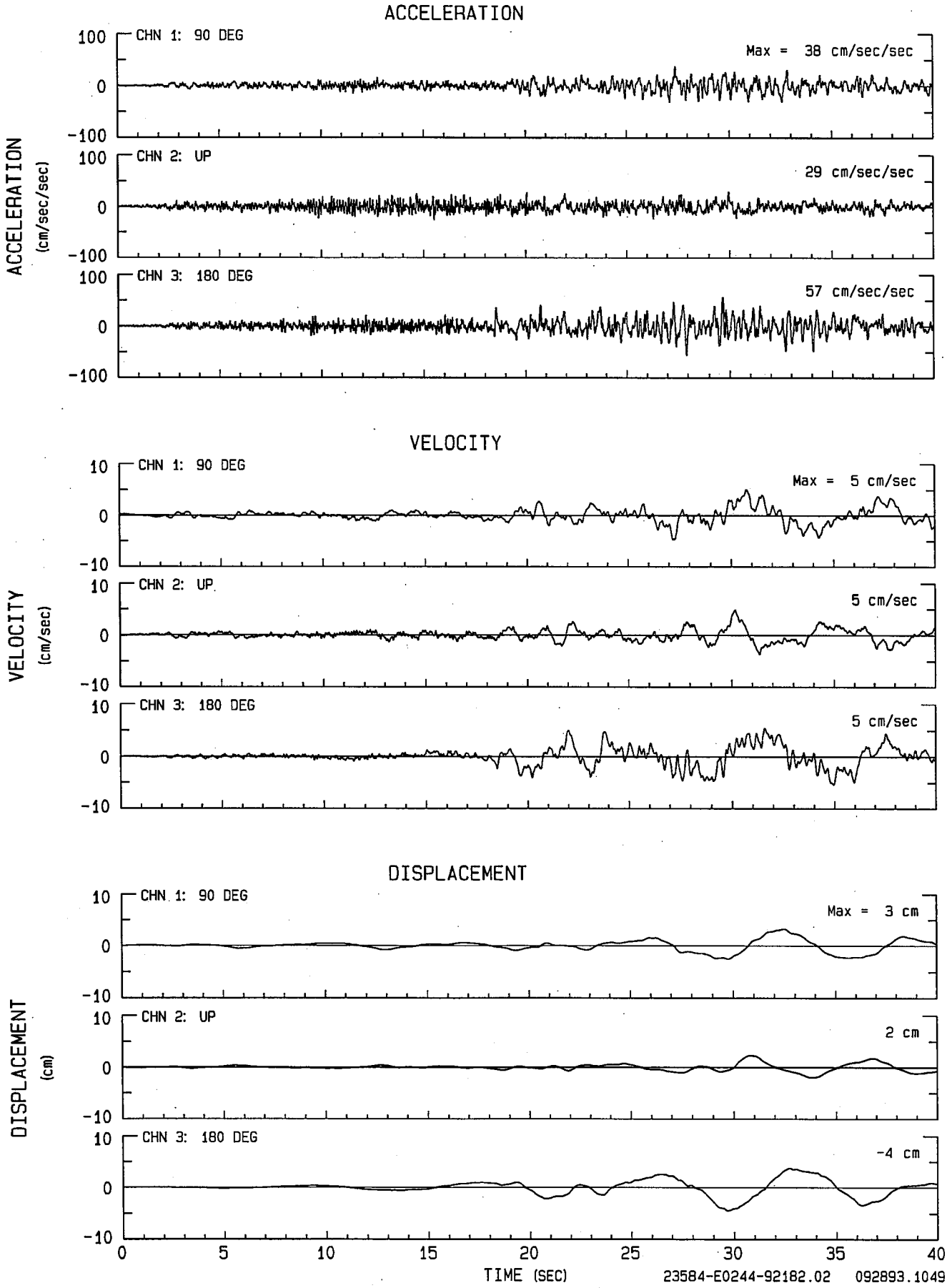
CHN 2: UP



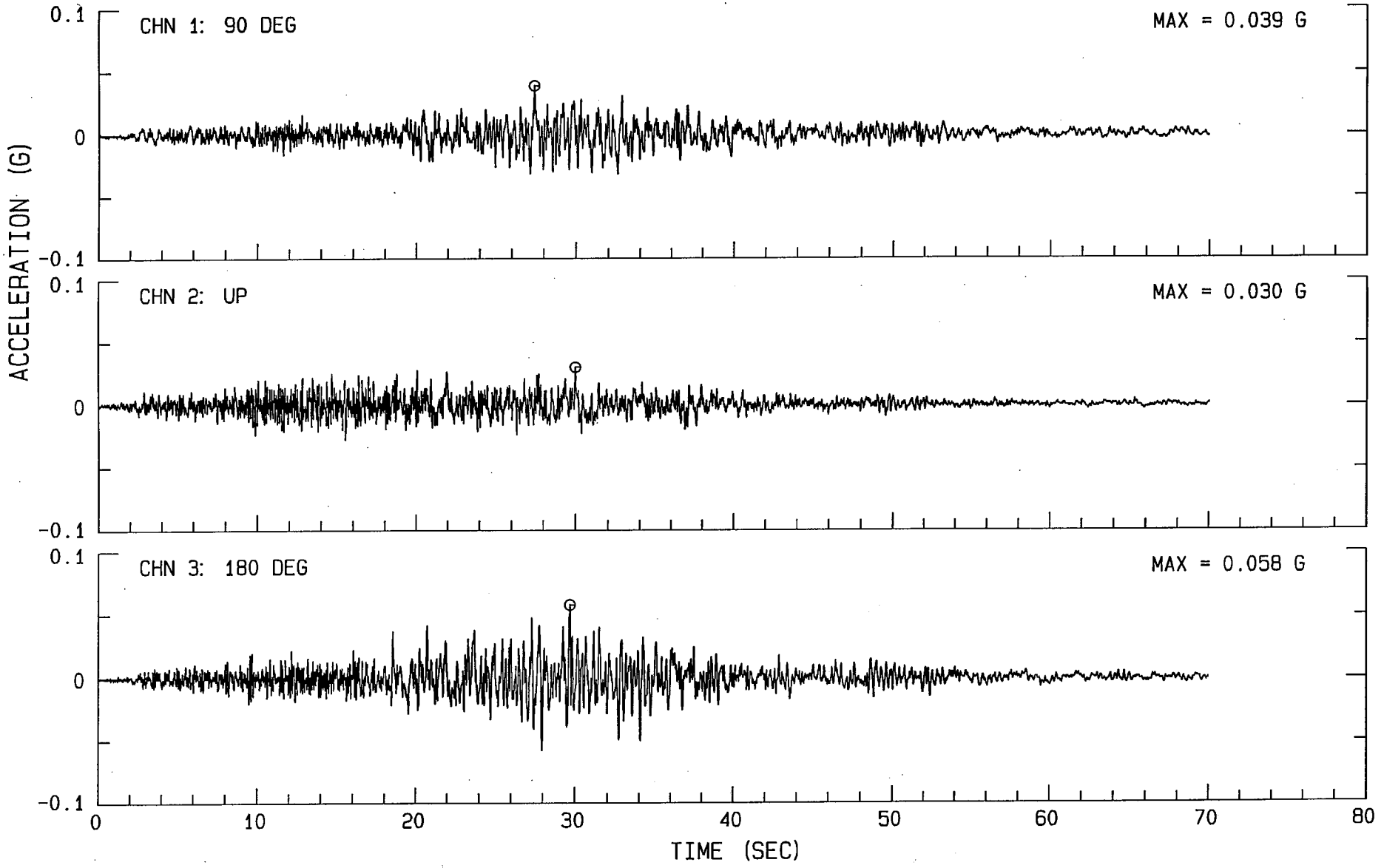
CHN 3: 180 DEG



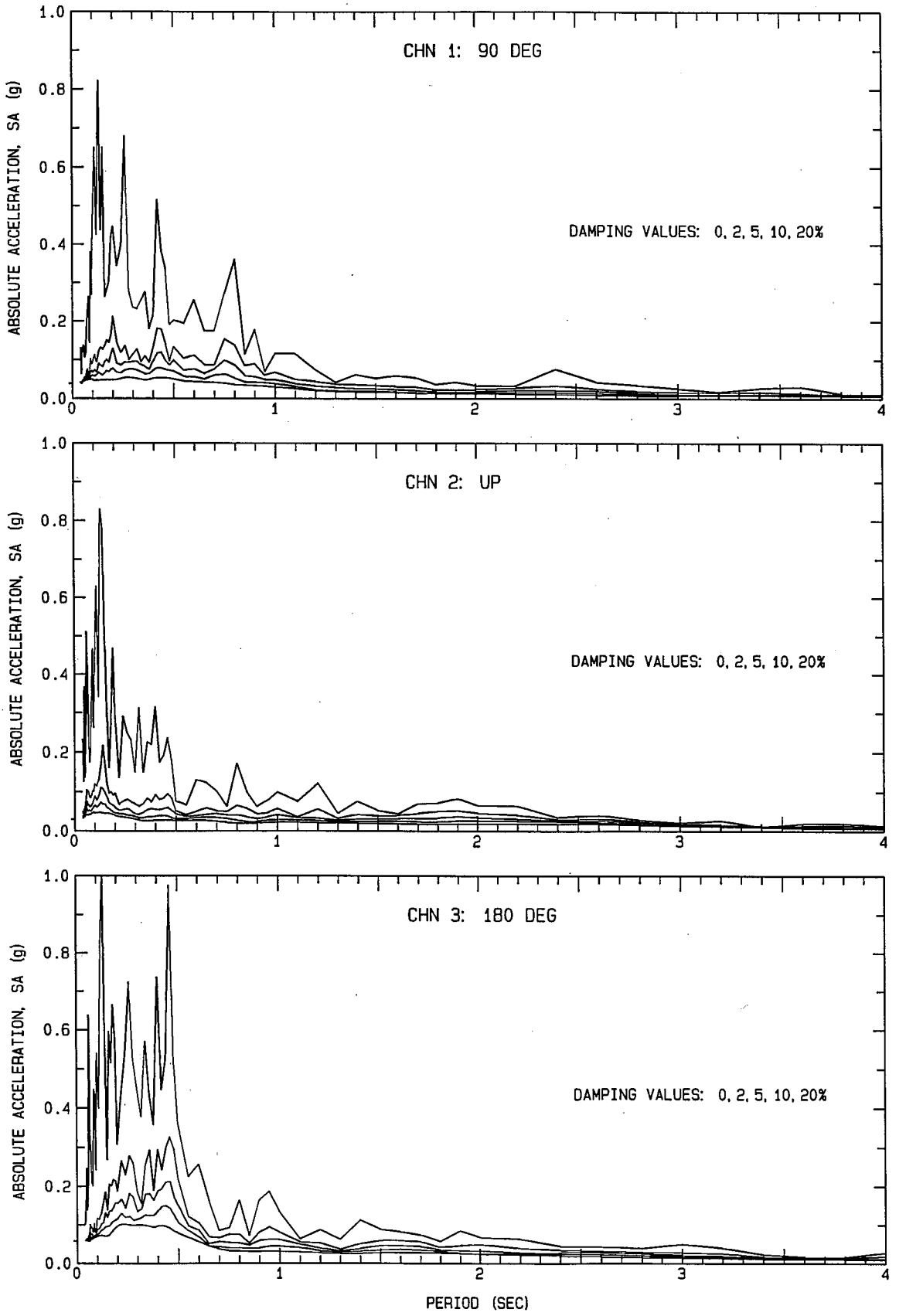
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PEARBLOSSOM - PALLET CREEK CSMIP Sta Num 23584
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PEARBLOSSOM - PALLET CREEK
UNCORRECTED ACCELEROGRAM 23584-E0244-92182.02 092893.1032-QL92A584



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PEARBLOSSOM - PALLET CREEK
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
23584-E0244-92182.02 050495.1424-QL92A584



PEARBLOSSOM - PALLET CREEK: CSMIP S/N 584

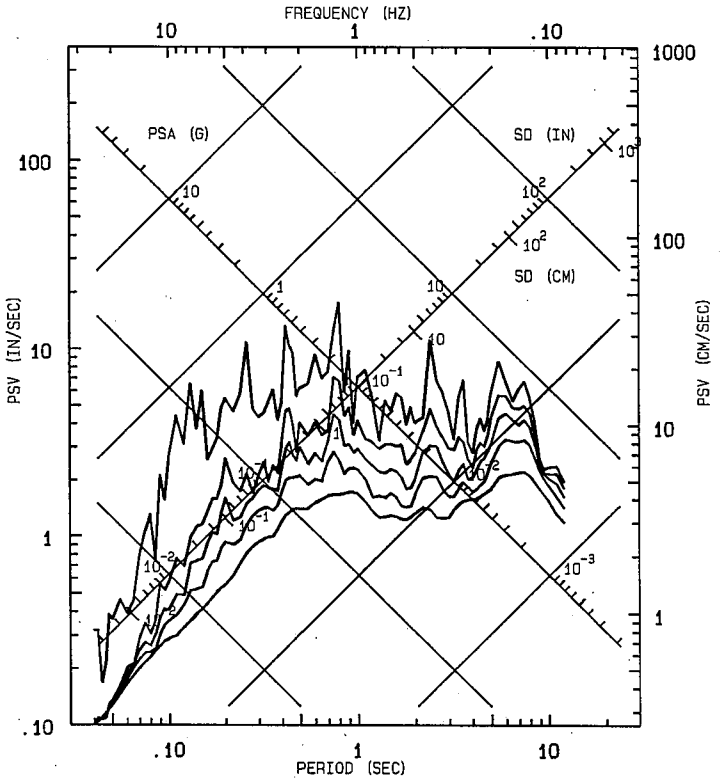
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

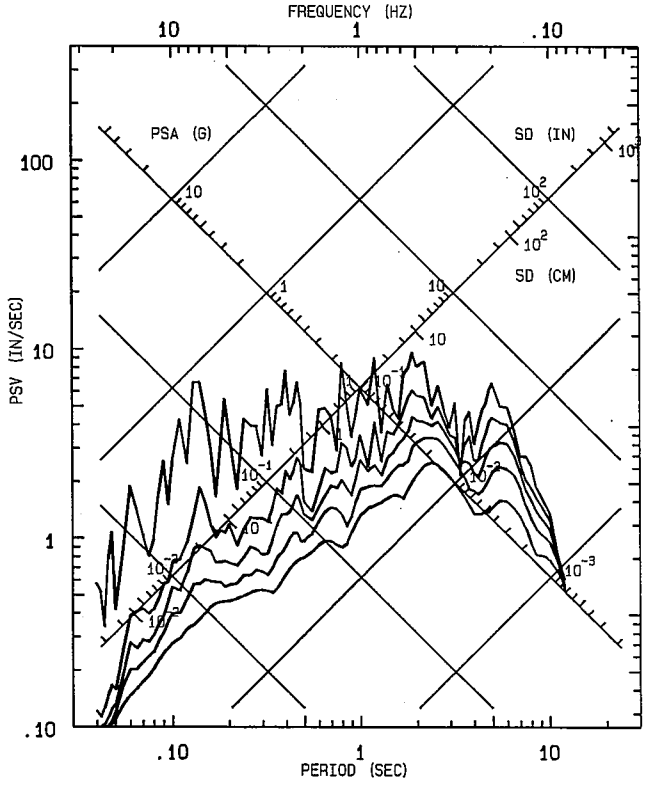
RECORD ID: 23584-E0244-92182.02

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

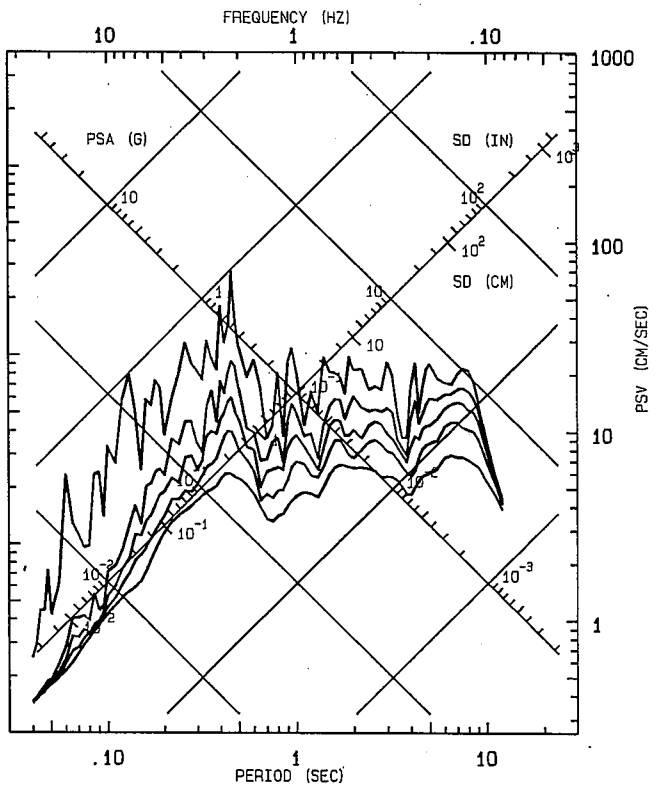
CHN 1: 90 DEG



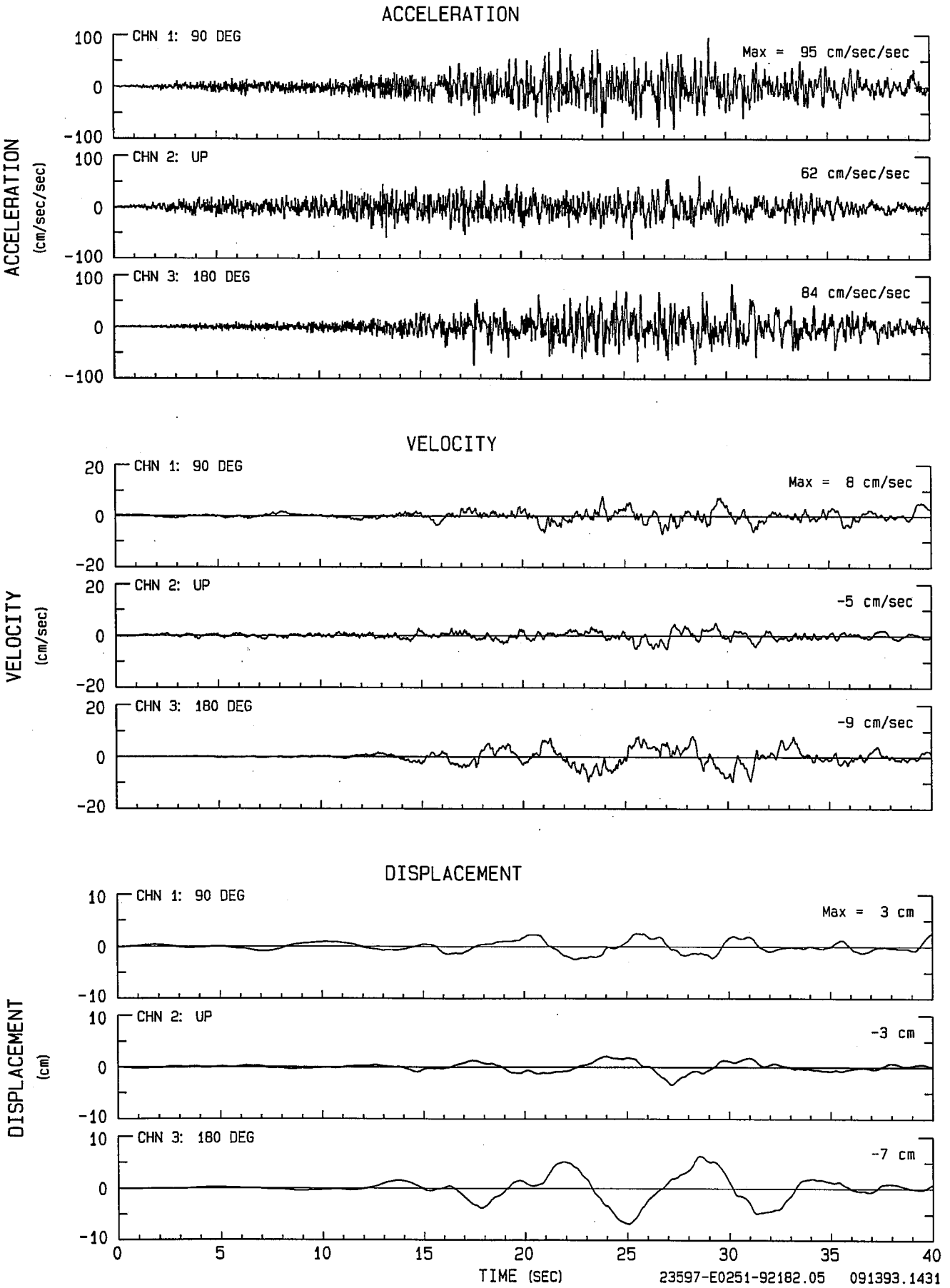
CHN 2: UP



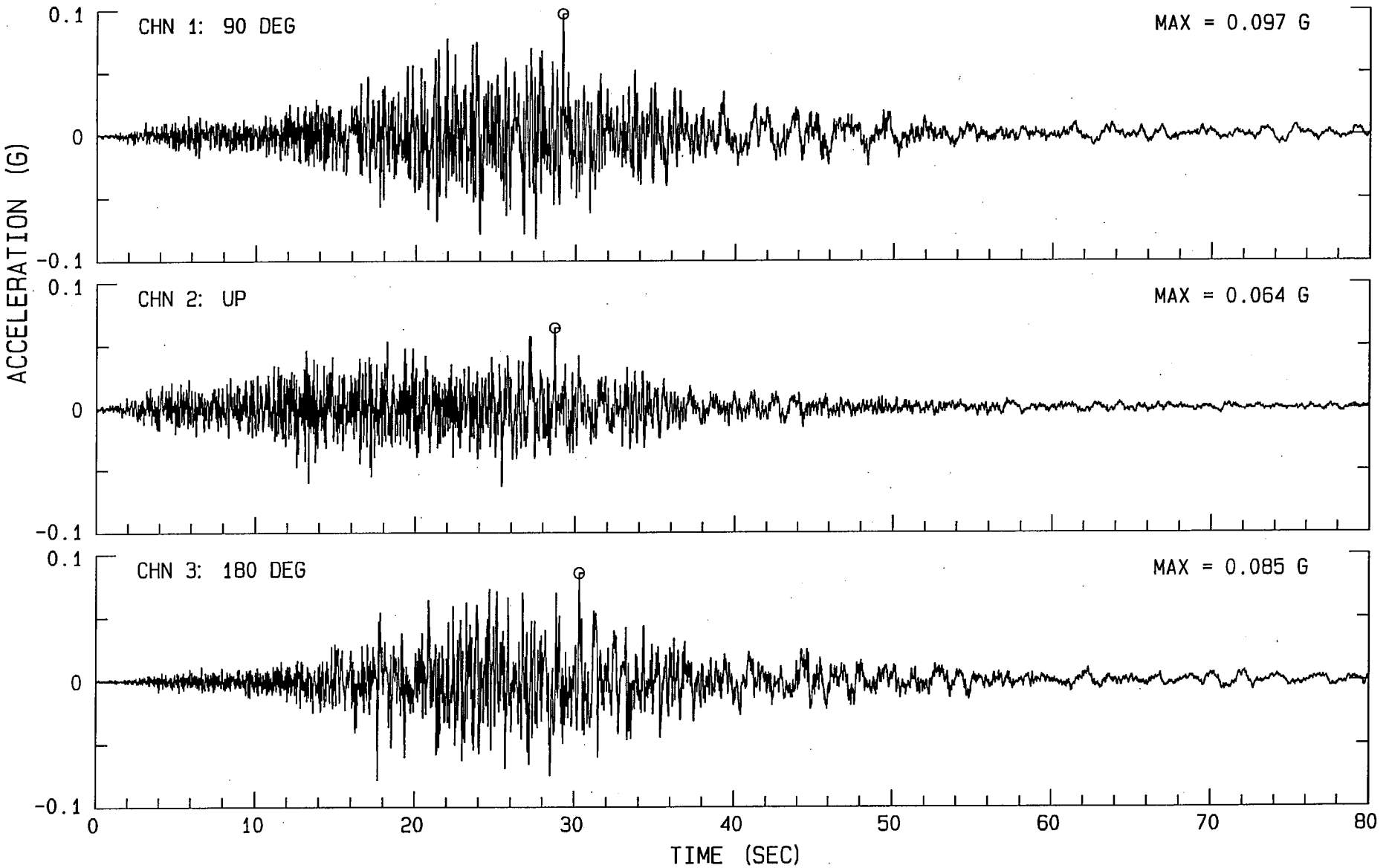
CHN 3: 180 DEG



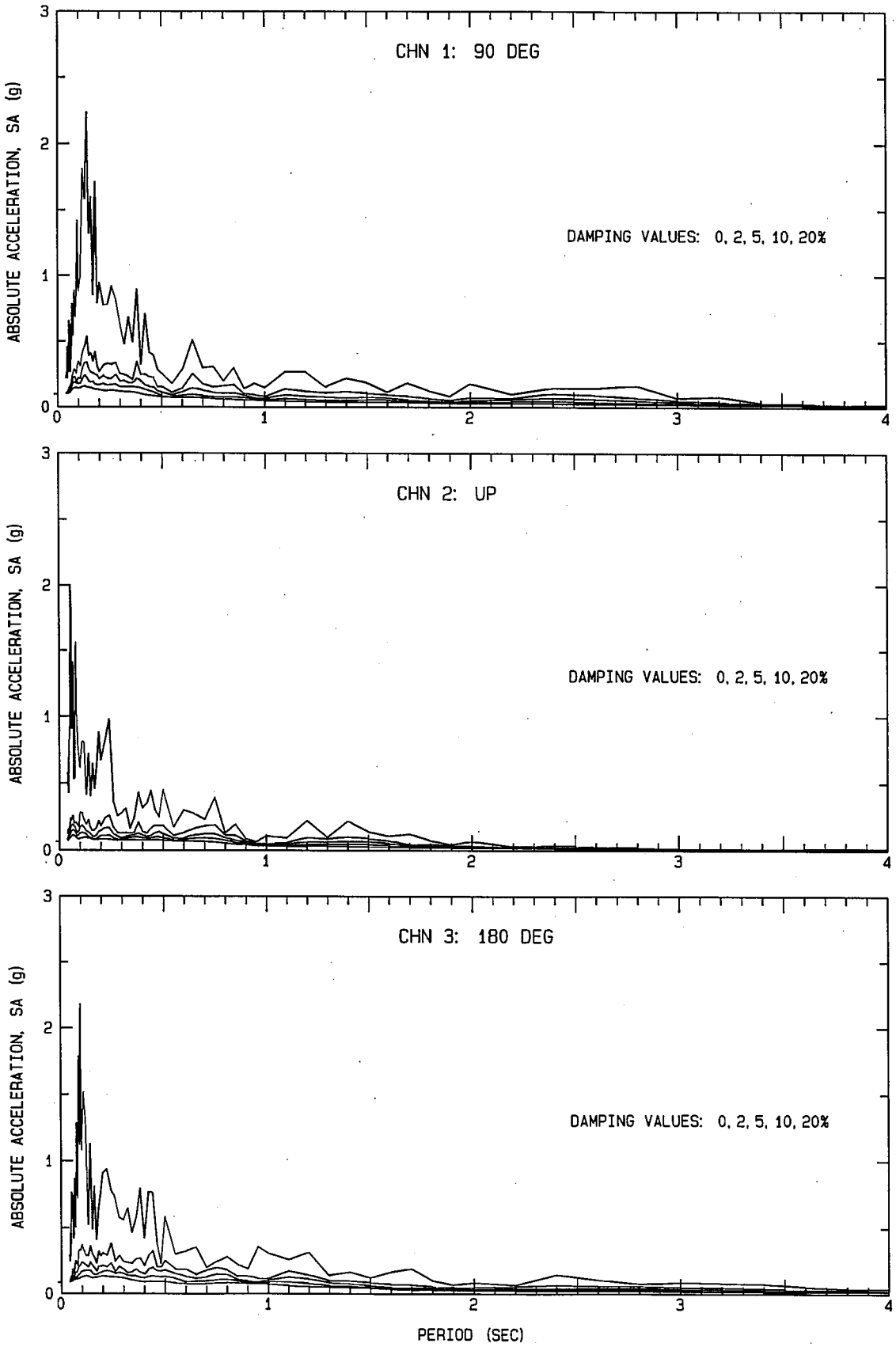
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PHELAN - WILSON RANCH ROAD CSMIP Sta Num 23597
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PHELAN - WILSON RANCH ROAD
UNCORRECTED ACCELEROGRAM 23597-E0251-92182.05 091093.0909-QL92A597



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
PHELAN - WILSON RANCH ROAD
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
23597-E0251-92182.05 050495.1211-QL92A597



PHELAN - WILSON RANCH ROAD: CSMIP S/N 597

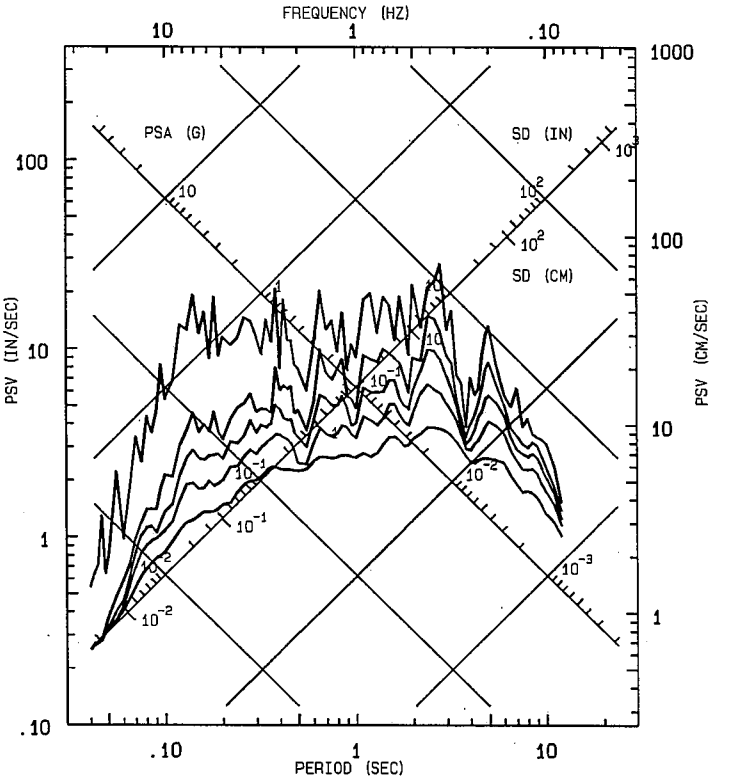
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

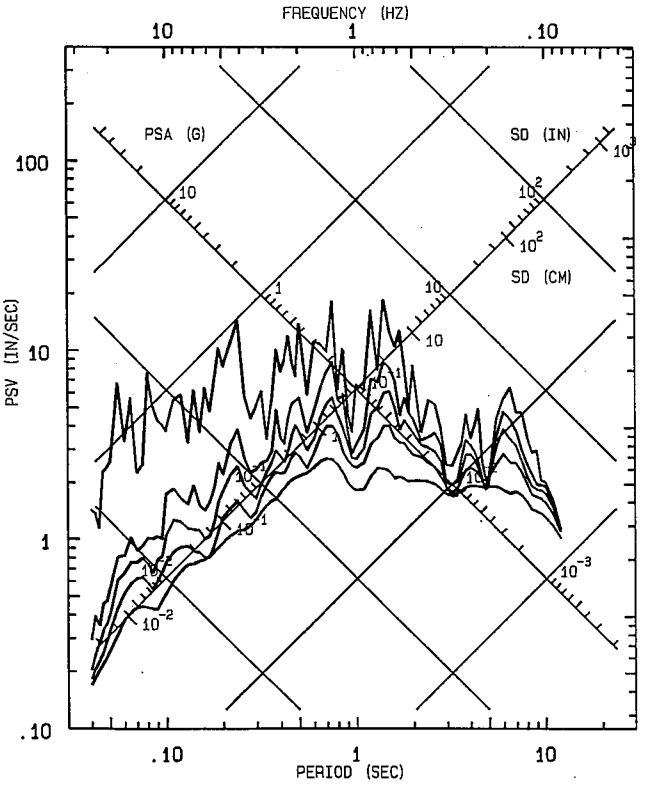
RECORD ID: 23597-E0251-92182.05

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

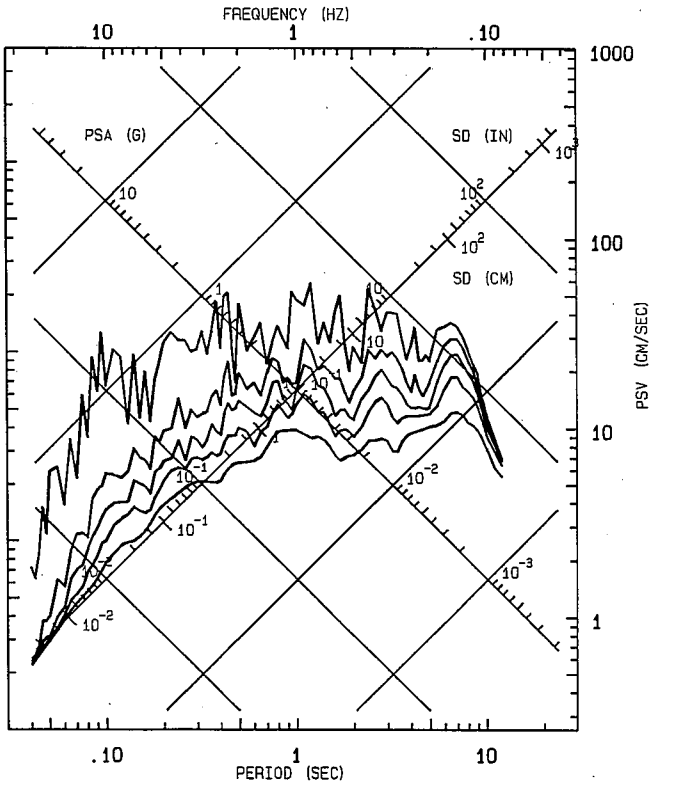
CHN 1: 90 DEG



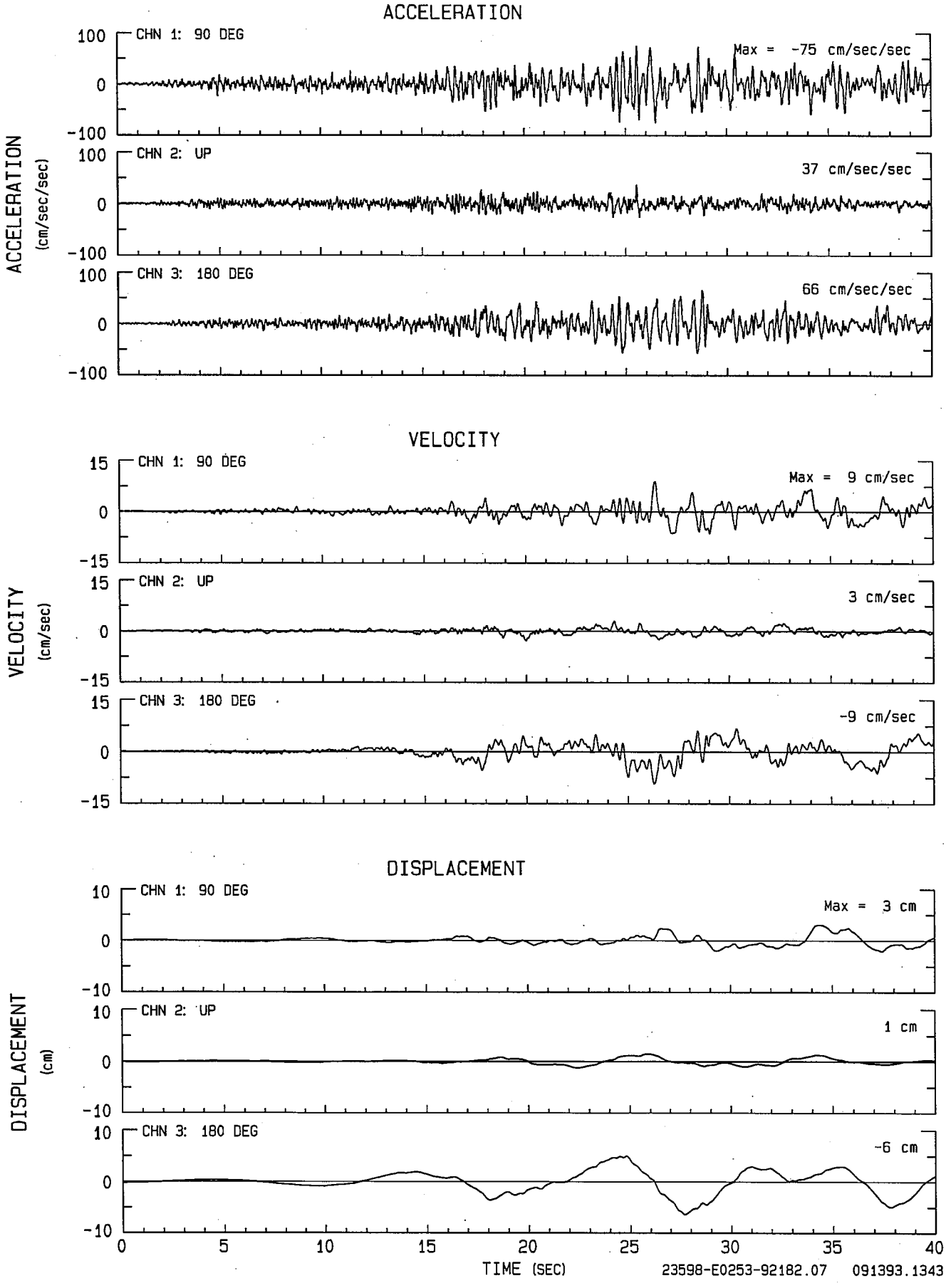
CHN 2: UP



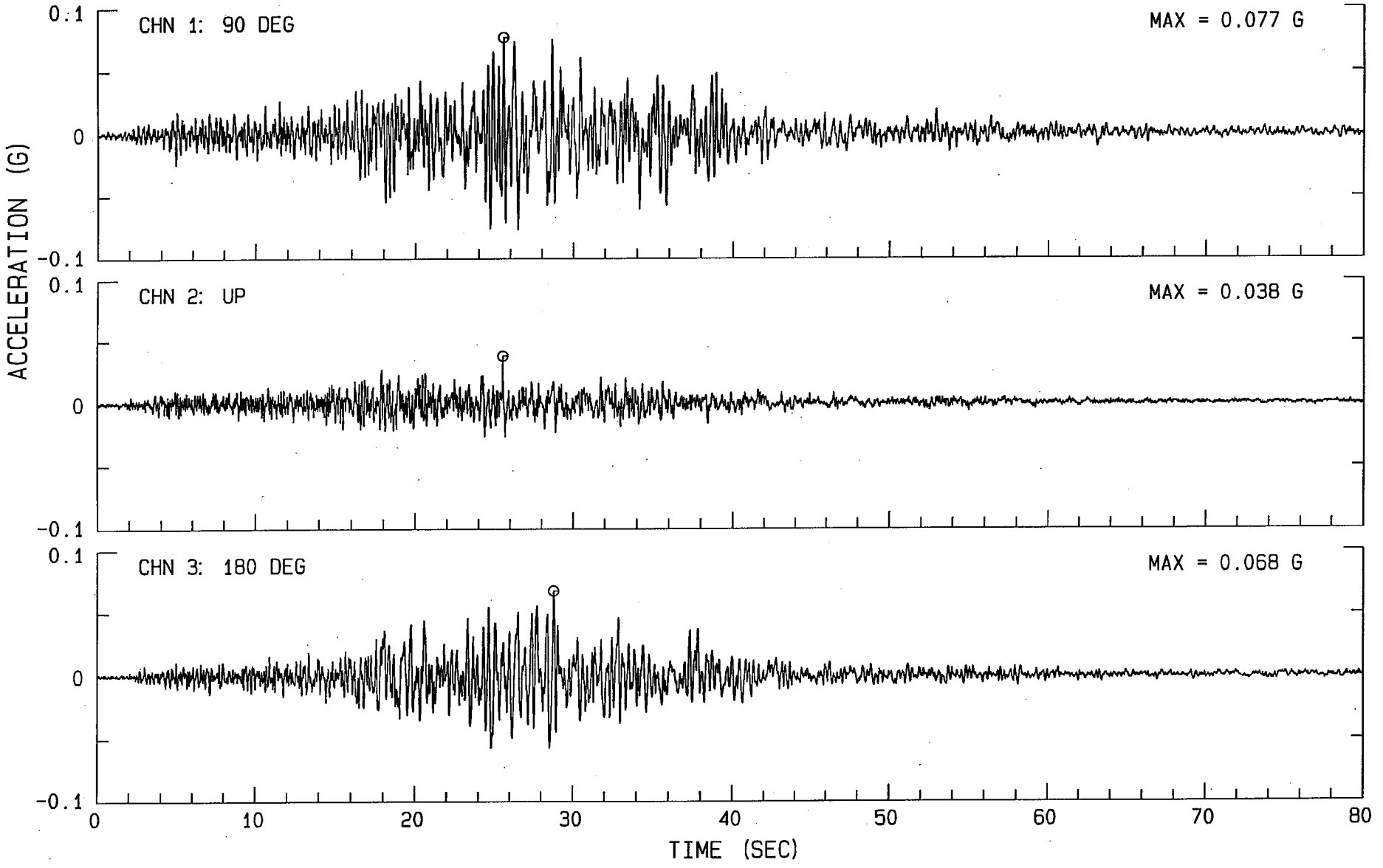
CHN 3: 180 DEG



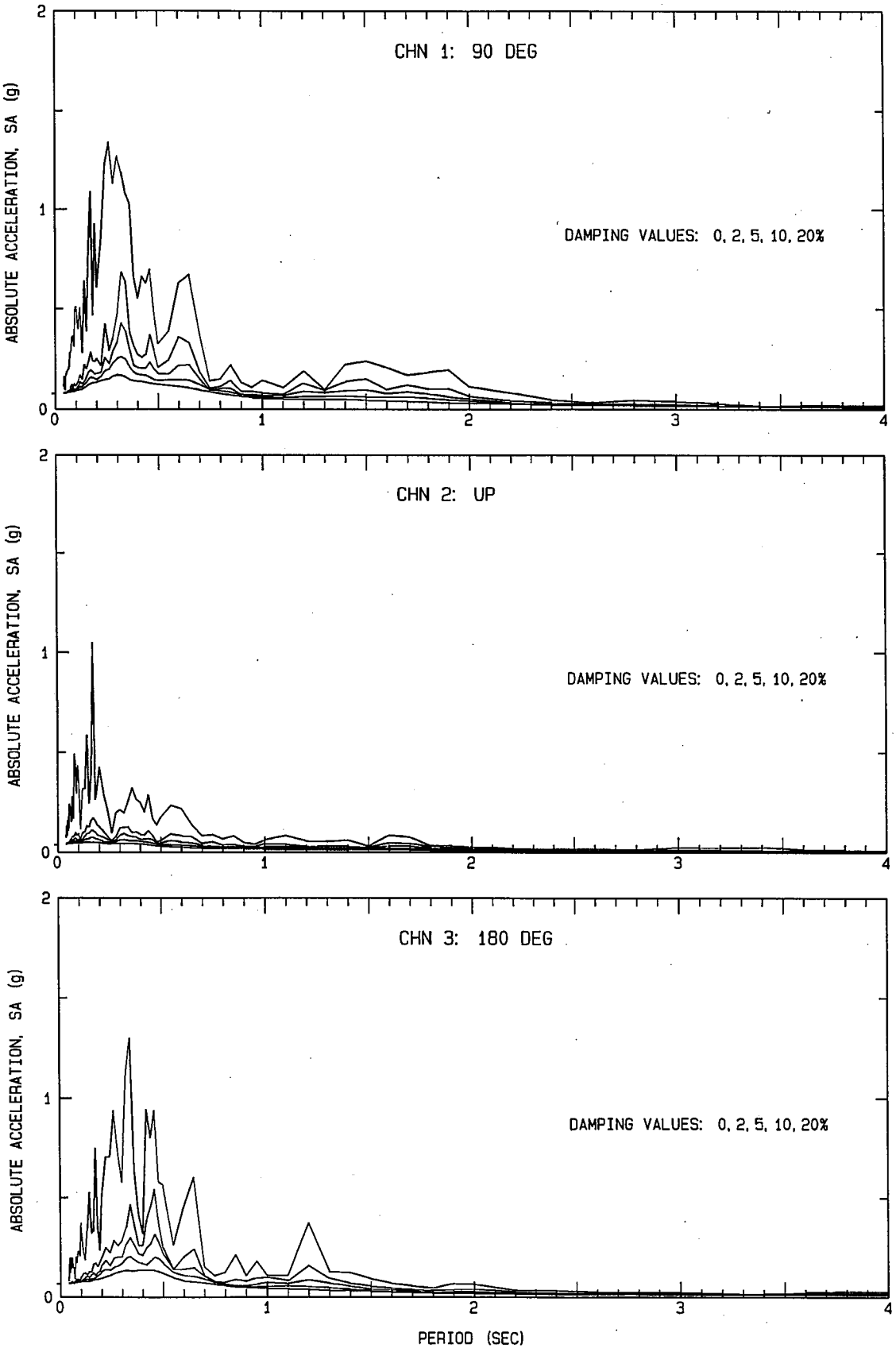
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
RANCHO CUCAMONGA - DEER CANYON CSMIP Sta Num 23598
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
RANCHO CUCAMONGA - DEER CANYON
UNCORRECTED ACCELEROGRAM 23598-E0253-92182.07 091093.0924-QL92A598



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
RANCHO CUCAMONGA - DEER CANYON
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
23598-E0253-92182.07 050495.1247-QL92A598



RANCHO CUCAMONGA - DEER CANYON: CSMIP S/N 598

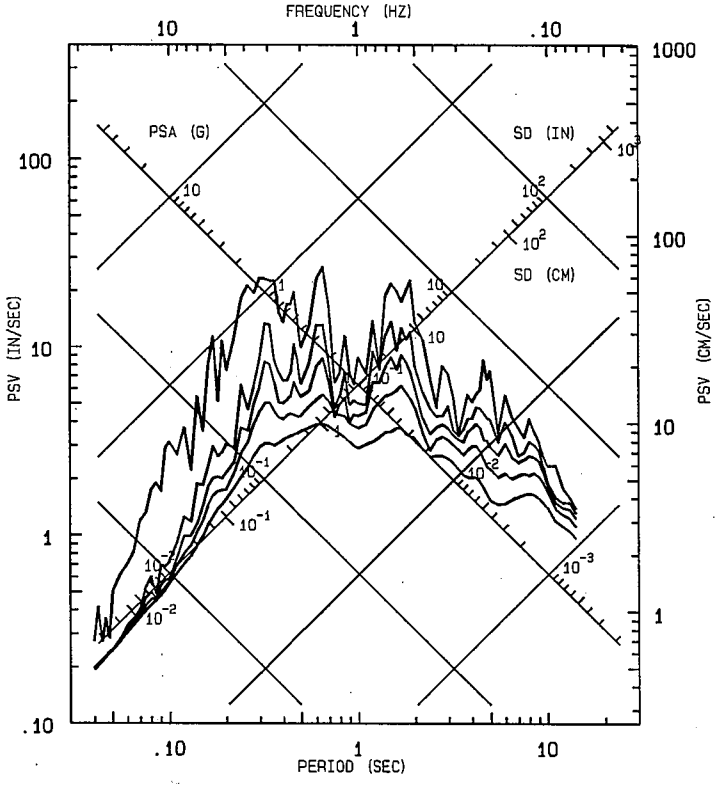
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

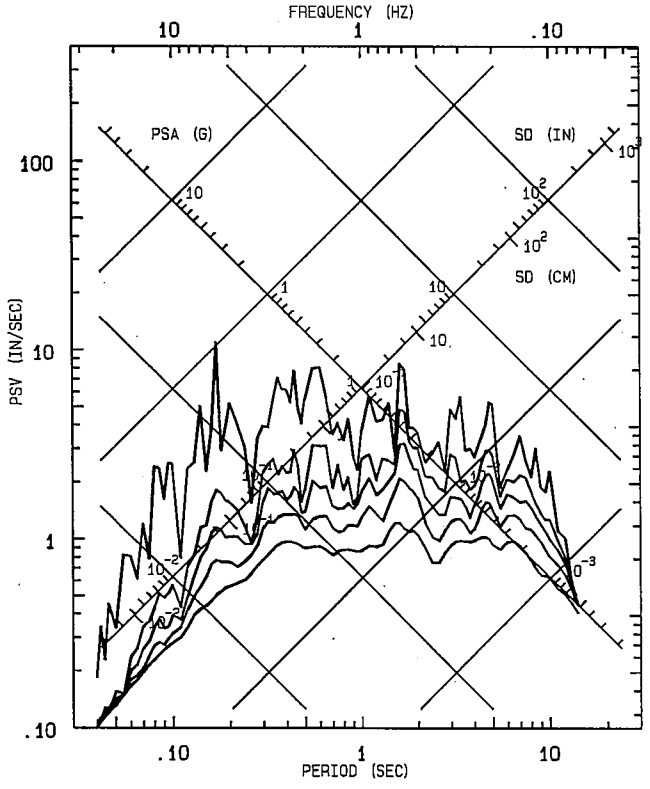
RECORD ID: 23598-E0253-92182.07

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

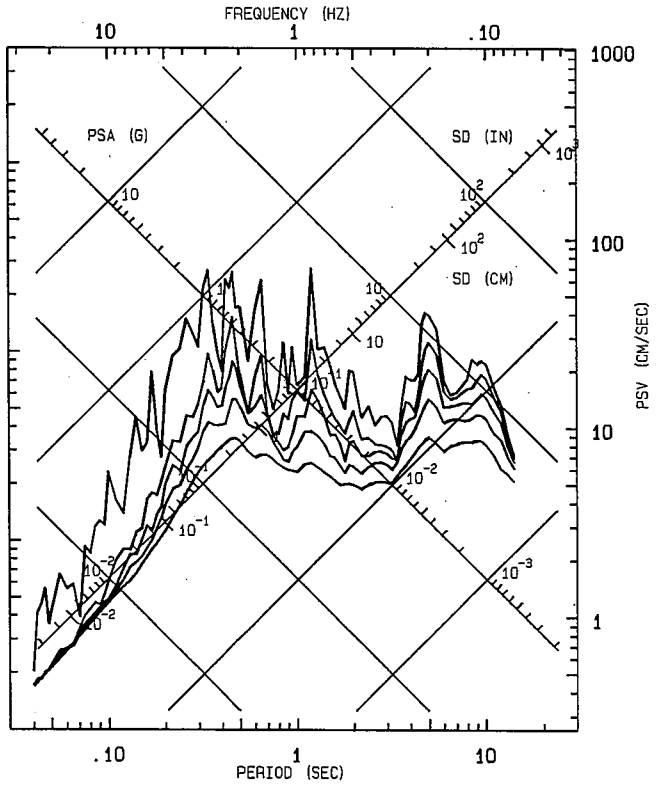
CHN 1: 90 DEG



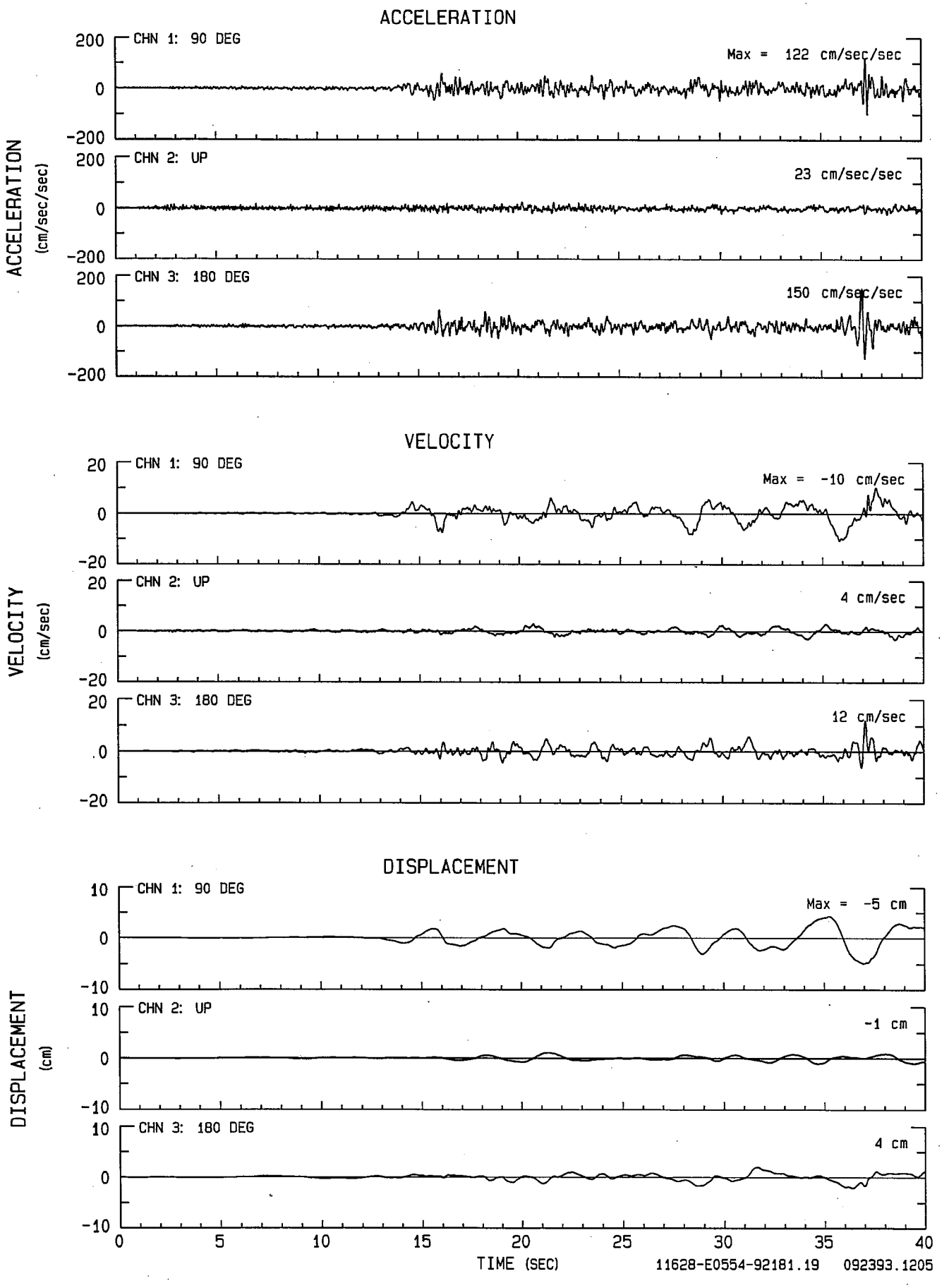
CHN 2: UP



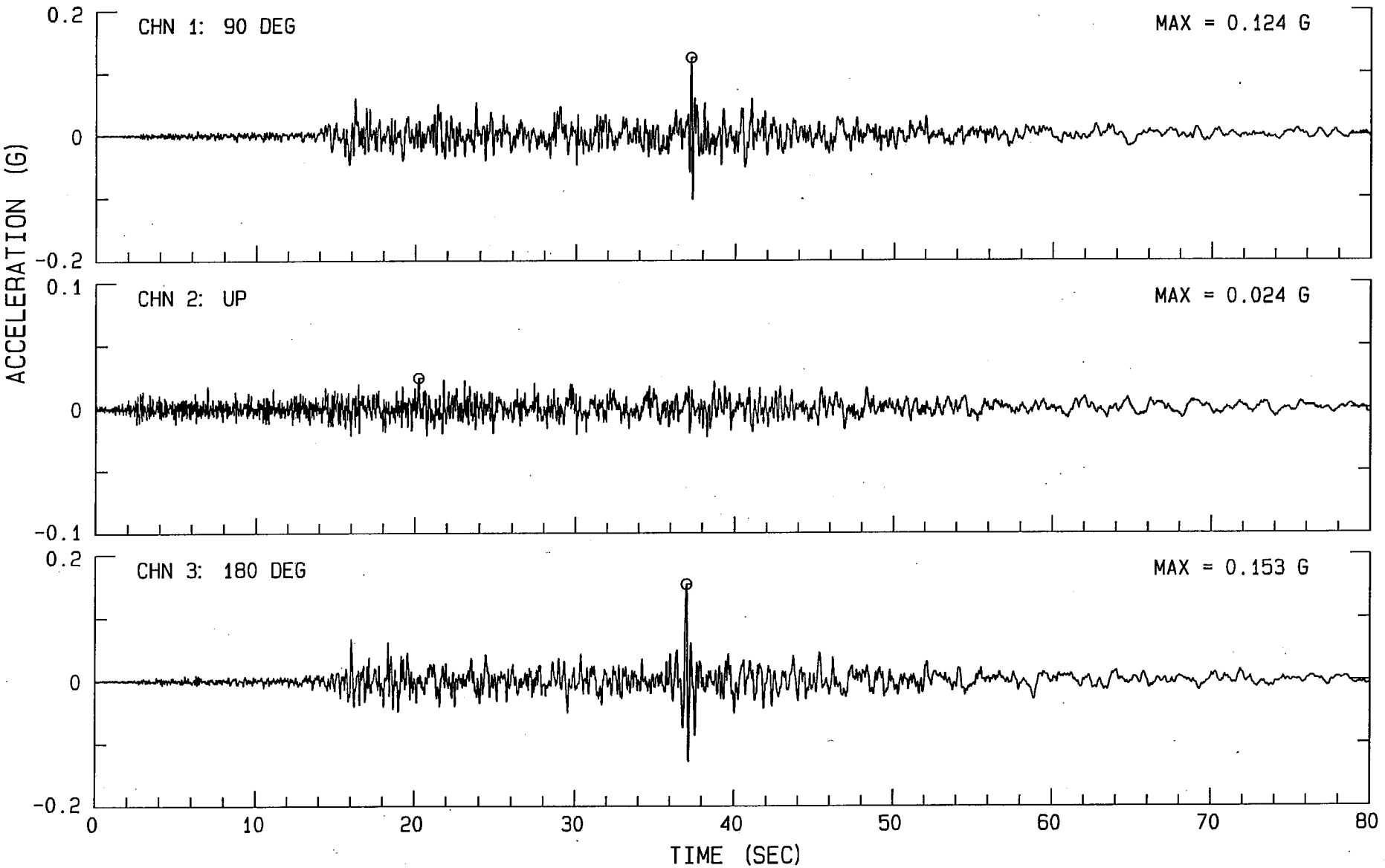
CHN 3: 180 DEG



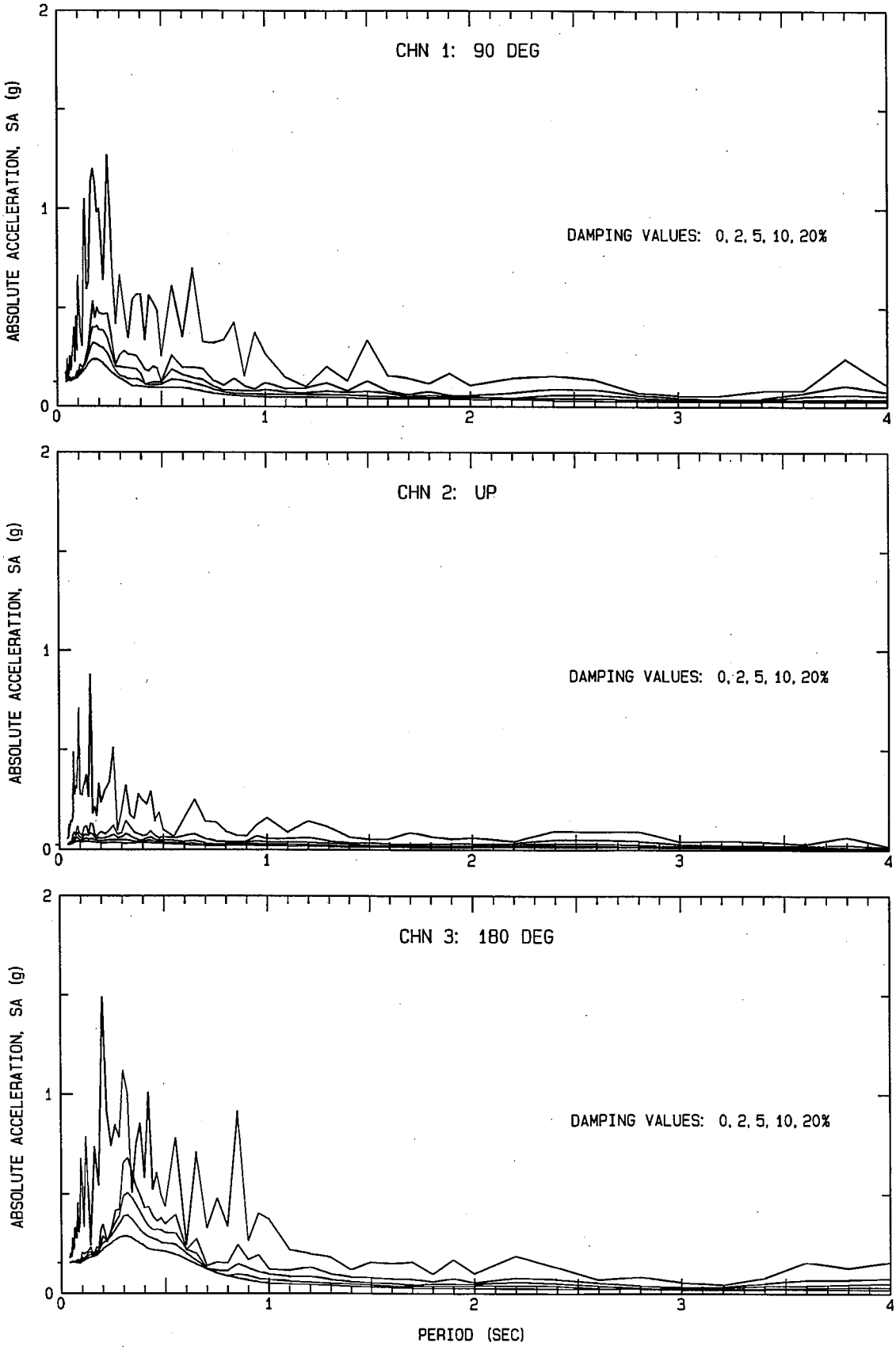
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SALTON CITY CSMIP Sta Num 11628
Usable Data Bandwidth: .10 to 47.2 Hz (.02 to 10.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SALTON CITY
UNCORRECTED ACCELEROGRAM 11628-E0554-92181.19 092393.1139-QL92A628



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SALTON CITY
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .06-.12 TO 46.0-50.0 HZ.
11628-E0554-92181.19 050495.1409-QL92A628



SALTON CITY: CSMIP S/N 628

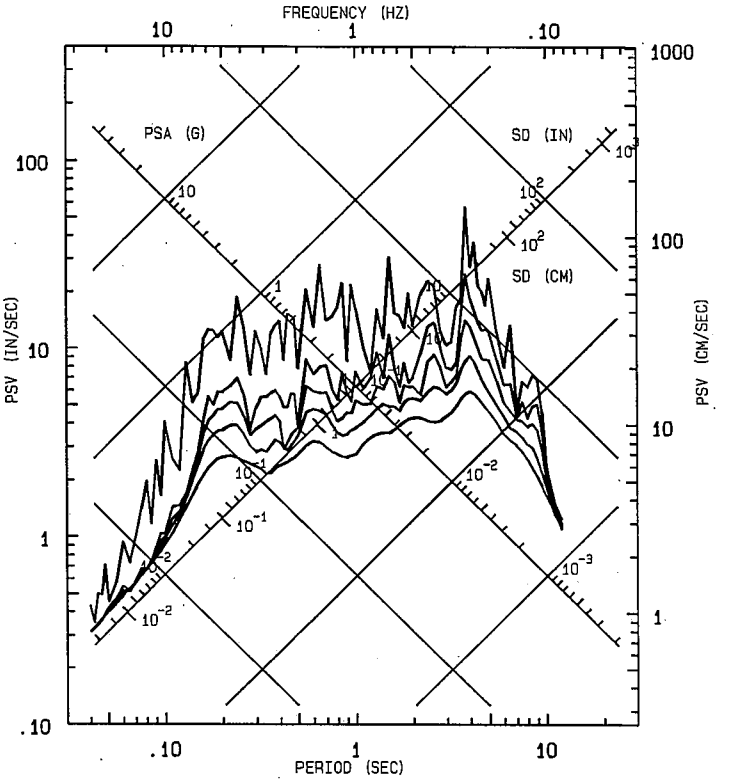
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.10 TO 47.2 HZ
(0.02 TO 9.80 SEC)

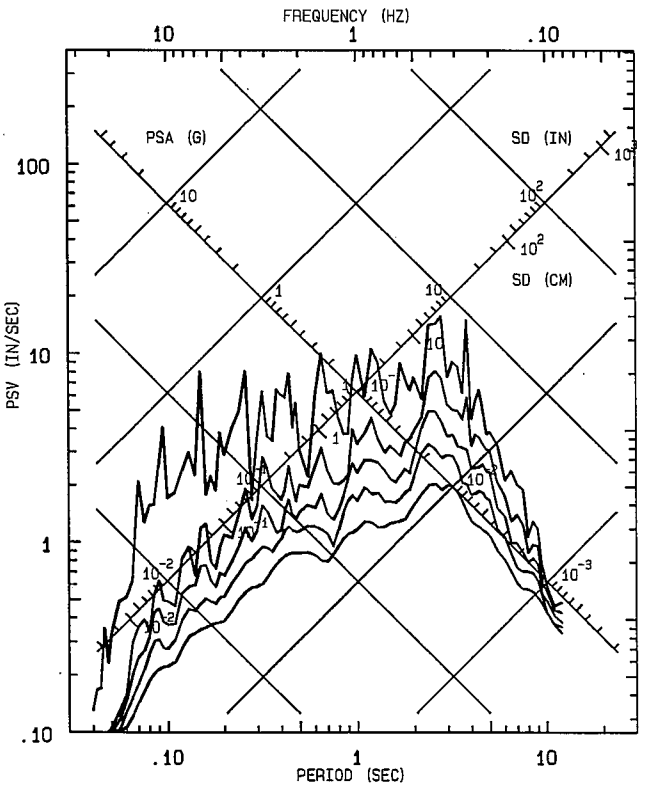
RECORD ID: 11628-E0554-92181.19

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

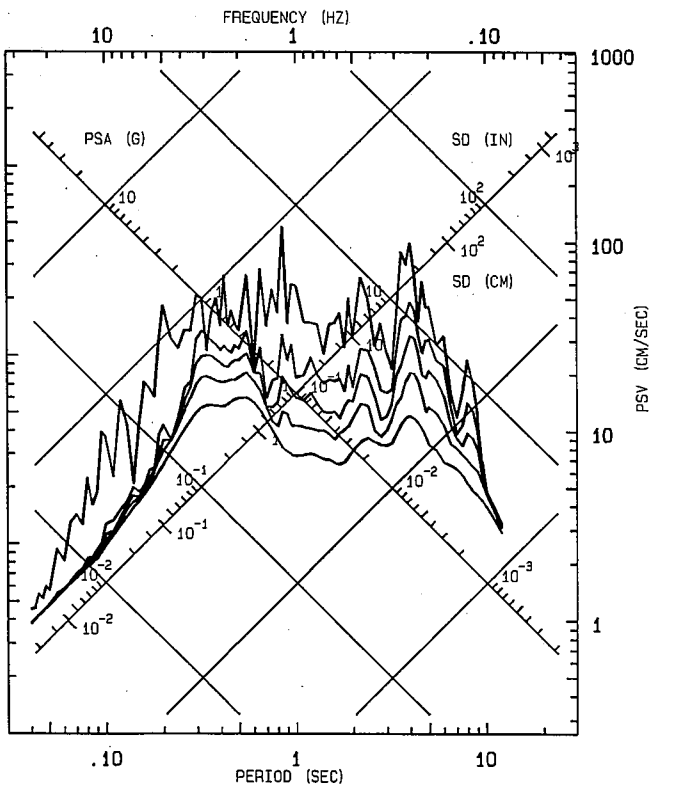
CHN 1: 90 DEG



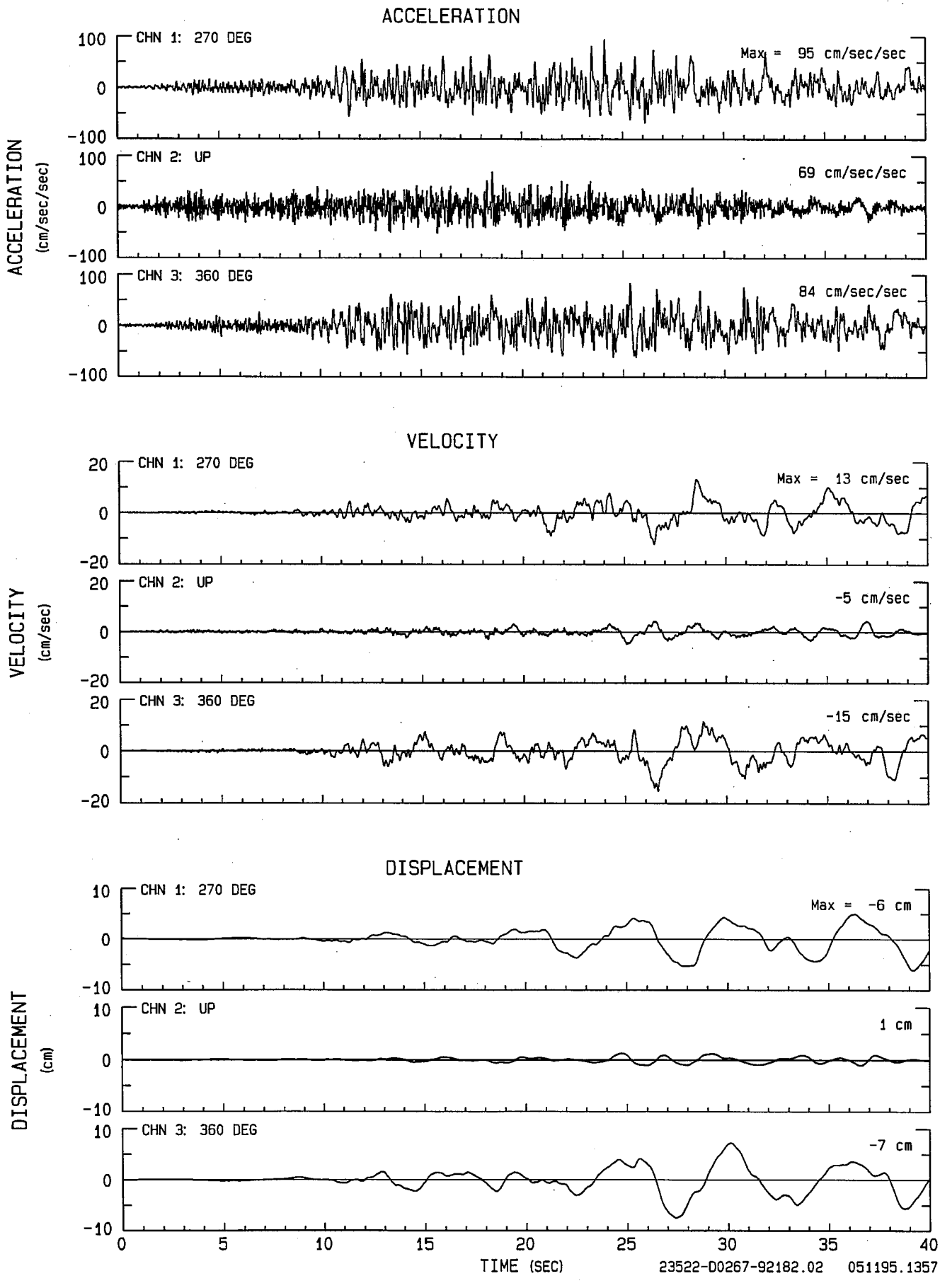
CHN 2: UP



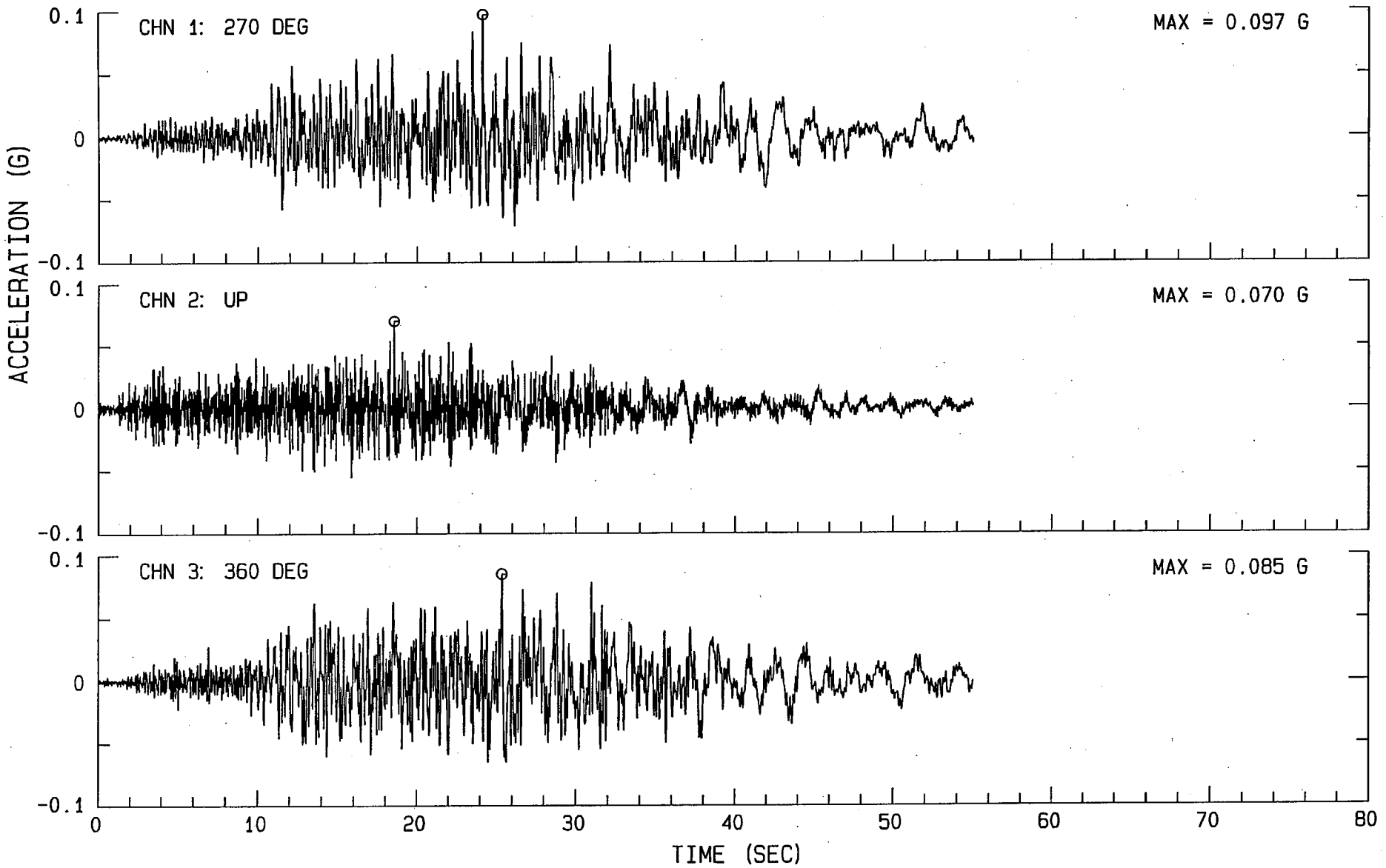
CHN 3: 180 DEG



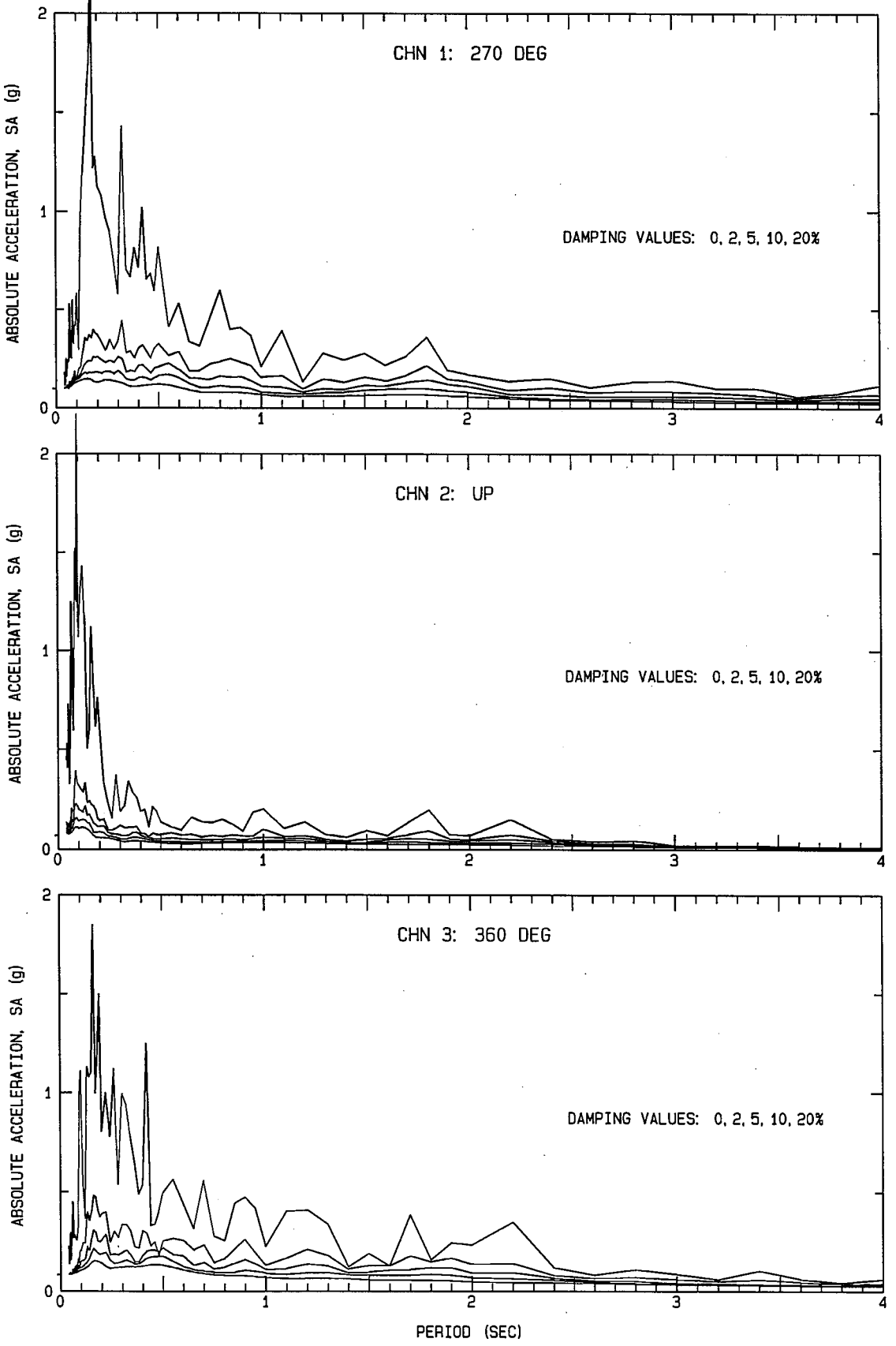
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SAN BERNARDINO - 2ND & ARROWHEAD CSMIP Sta Num 23522
Usable Data Bandwidth: .14 to 47.2 Hz (.02 to 7.5 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SAN BERNARDINO - 2ND & ARROWHEAD
UNCORRECTED ACCELEROGRAM 23522-D0267-92182.02 051195.1349-QL92A522



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SAN BERNARDINO - 2ND & ARROWHEAD
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .08-.16 TO 46.0-50.0 HZ.
23522-D0267-92182.02 051295.1157-QL92A522



SAN BERNARDINO - 2ND & ARROWHEAD: CSMIP S/N 522

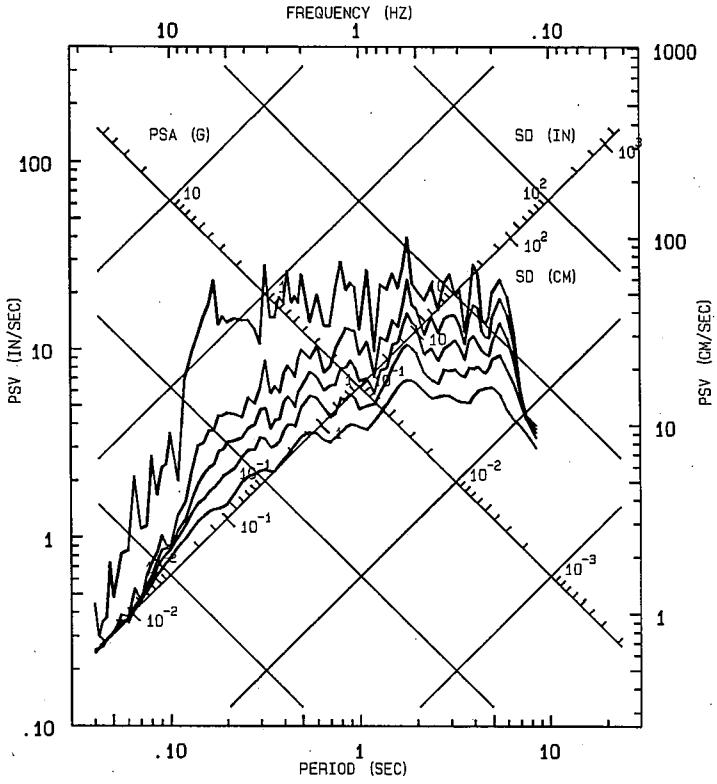
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.14 TO 47.2 HZ
(0.02 TO 7.35 SEC)

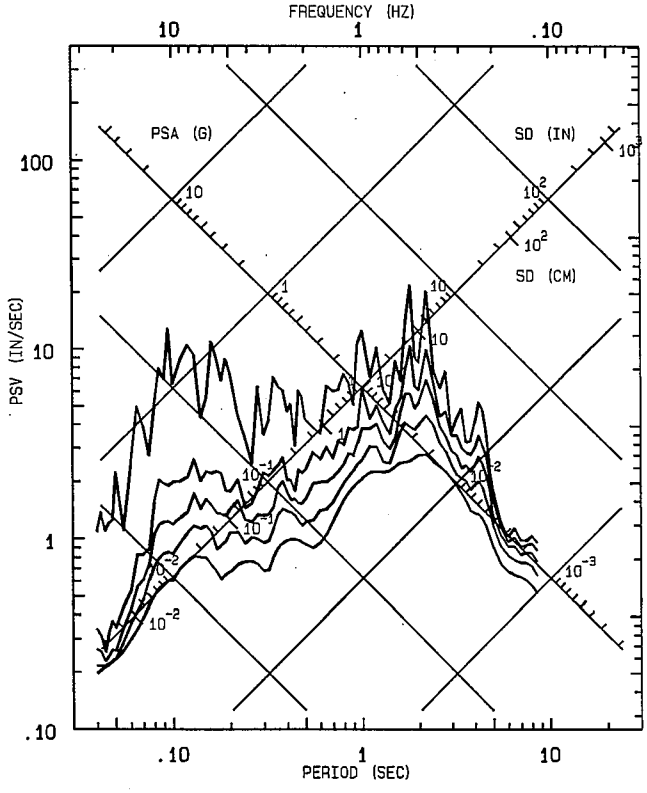
RECORD ID: 23522-D0267-92182.02

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

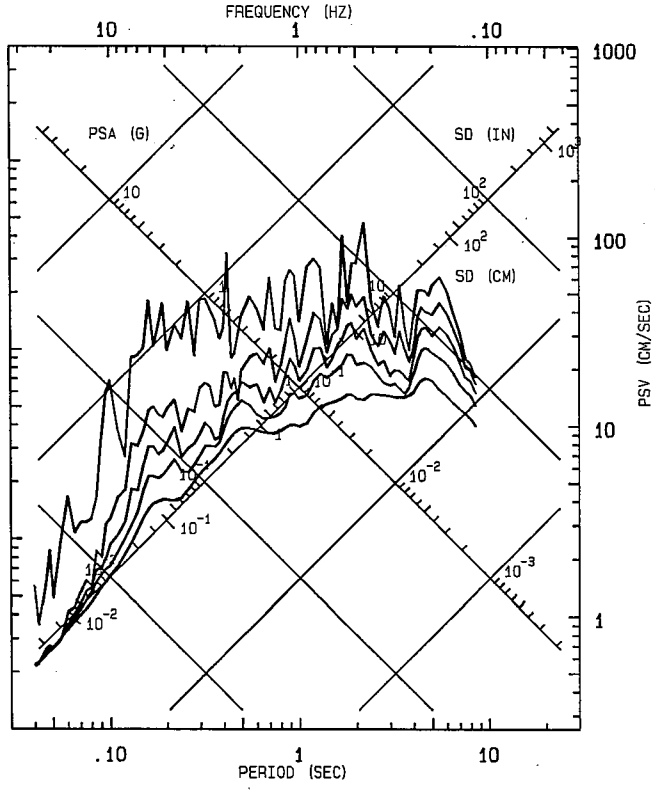
CHN 1: 270 DEG



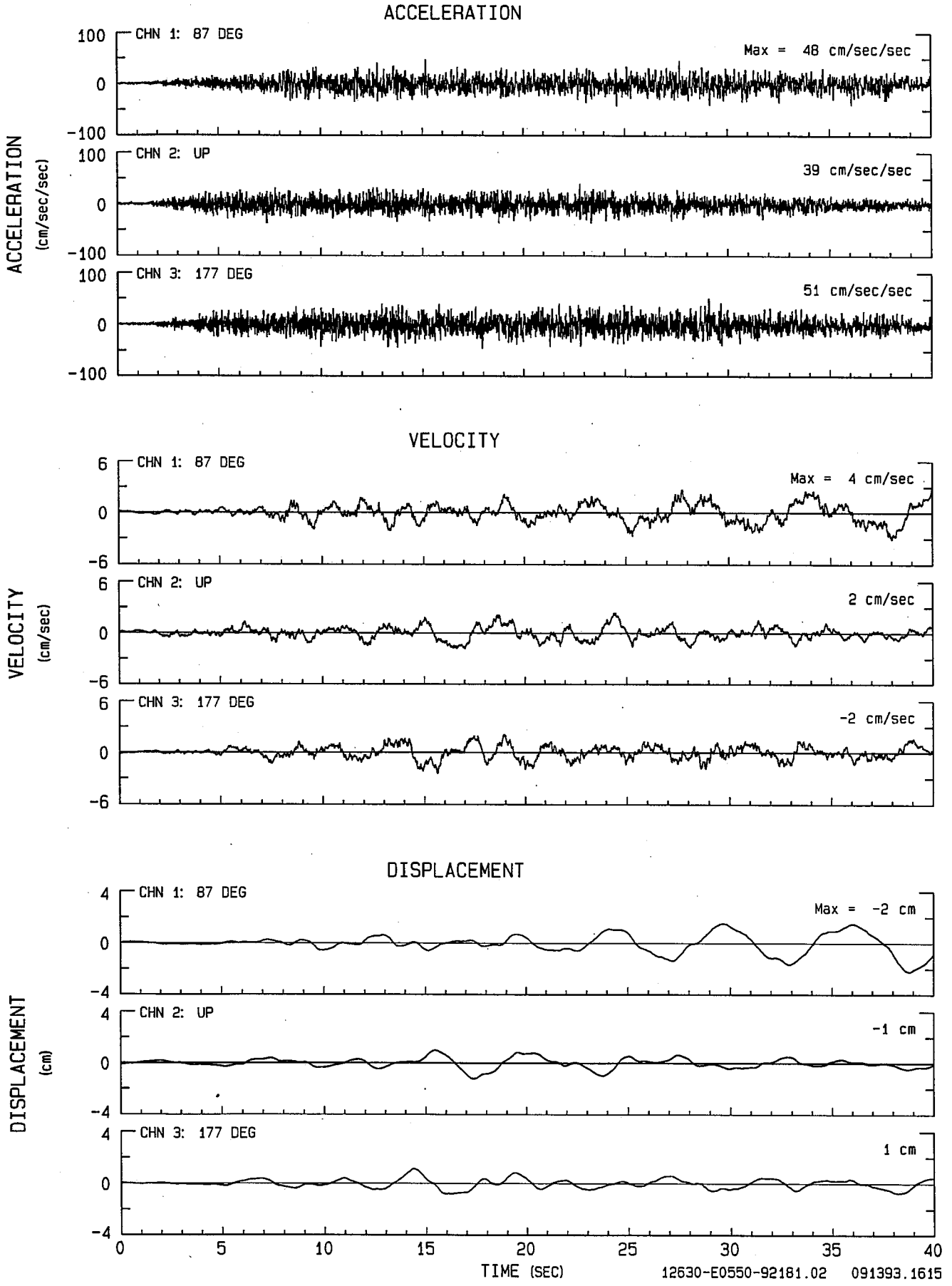
CHN 2: UP



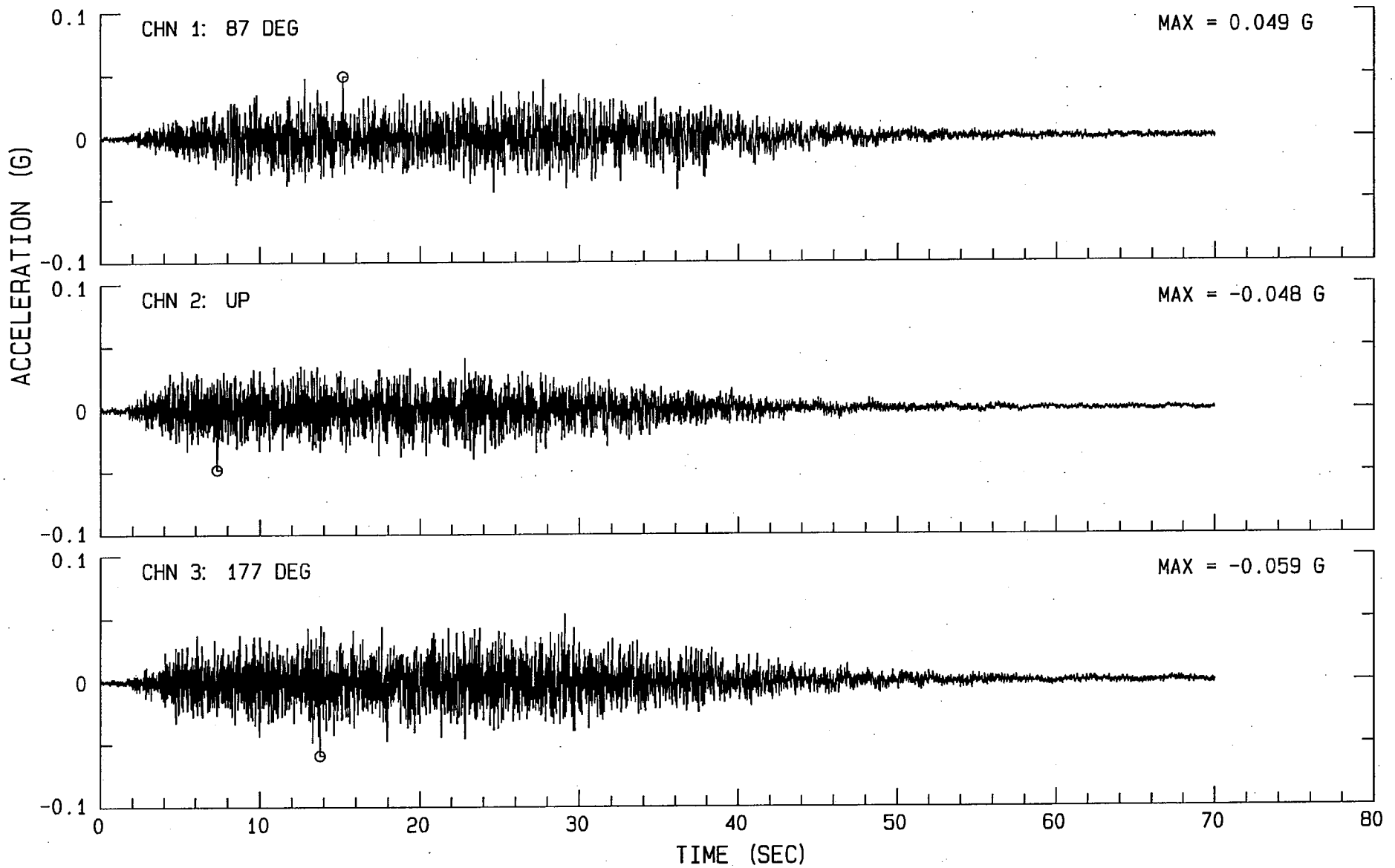
CHN 3: 360 DEG



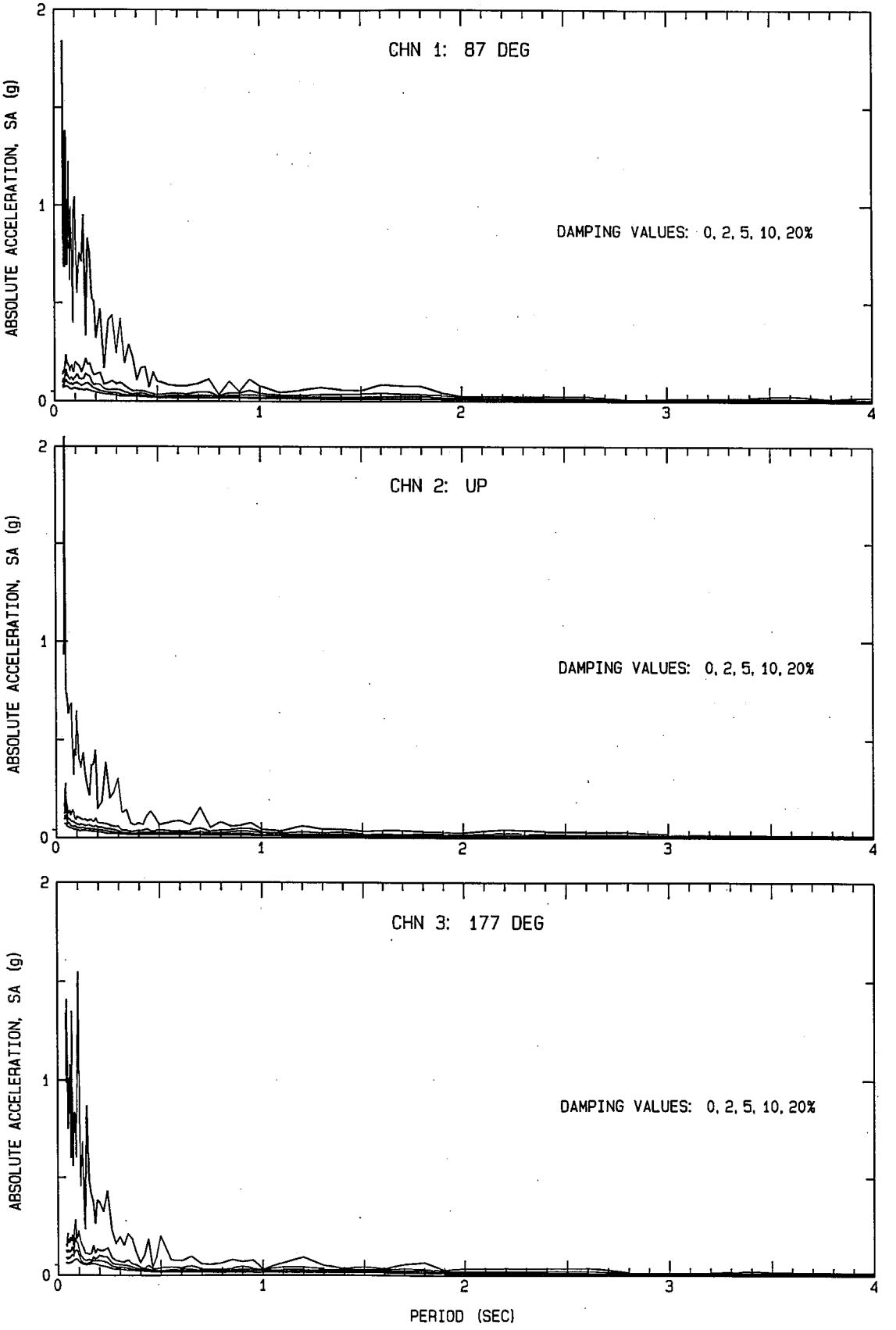
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SNOW CREEK CSMIP Sta Num 12630
Usable Data Bandwidth: .14 to 47.2 Hz (.02 to 7.5 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SNOW CREEK
UNCORRECTED ACCELEROGRAM 12630-E0550-92181.02 090393.1026-QL92A630



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
SNOW CREEK
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .08-.16 TO 46.0-50.0 HZ.
12630-E0550-92181.02 050395.0853-QL92A630



SNOW CREEK: CSMIP S/N 630

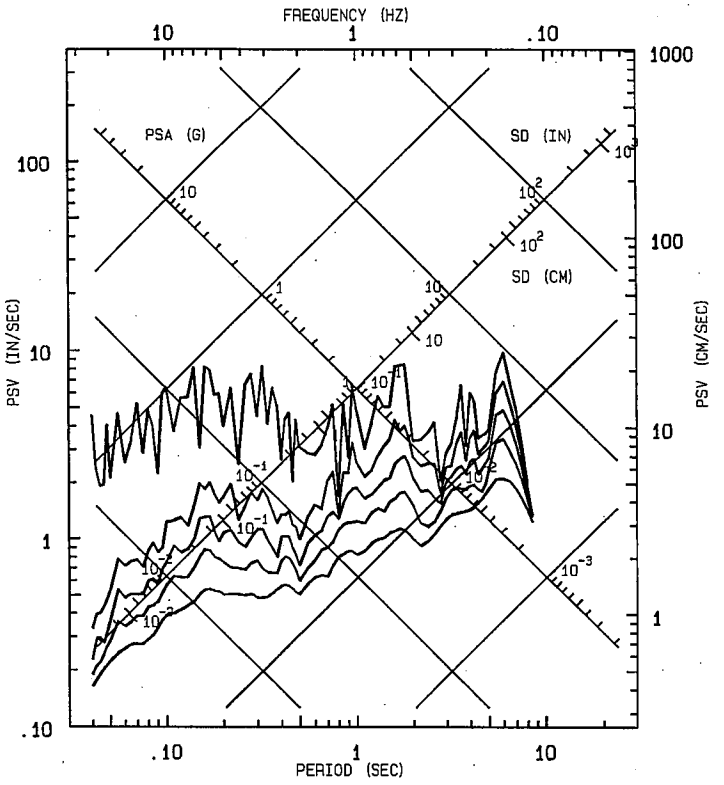
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.14 TO 47.2 HZ
(0.02 TO 7.35 SEC)

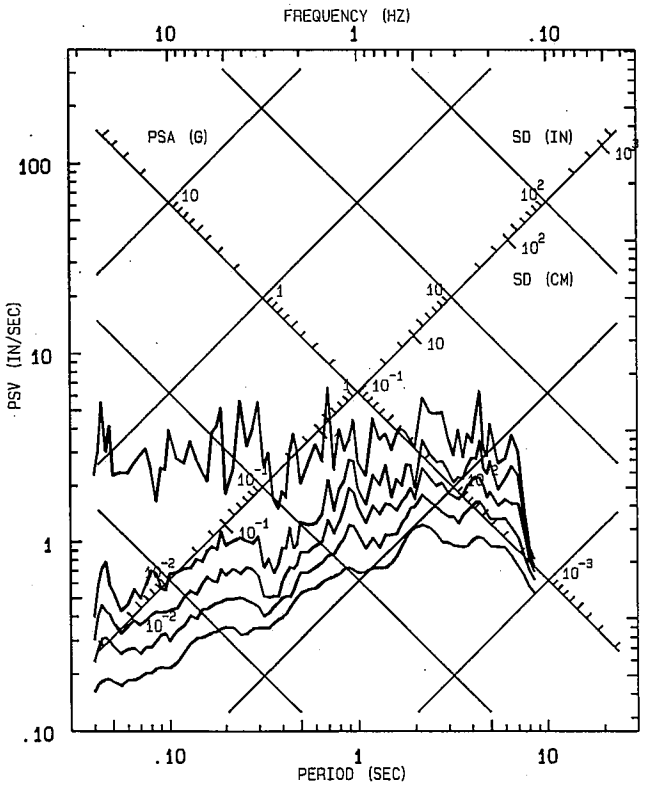
RECORD ID: 12630-E0550-92181.02

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

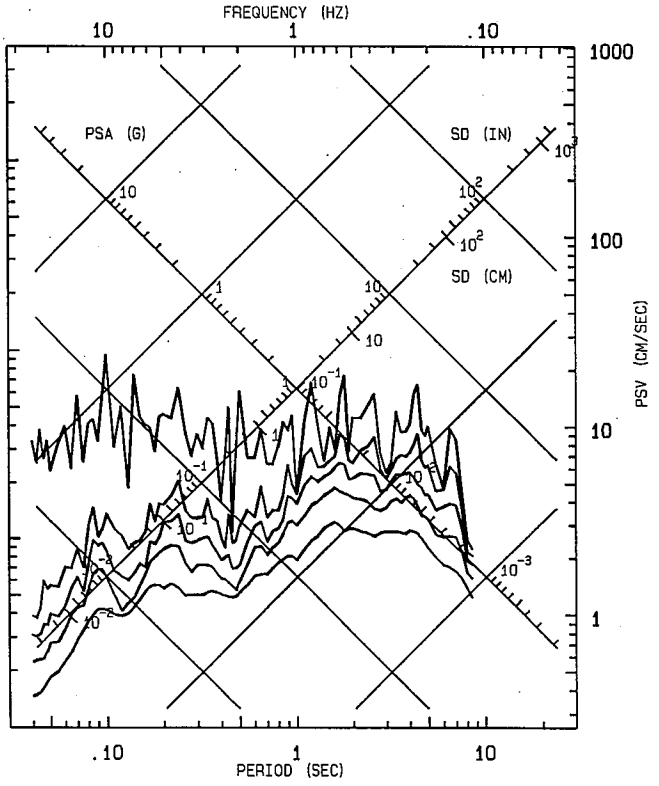
CHN 1: 87 DEG



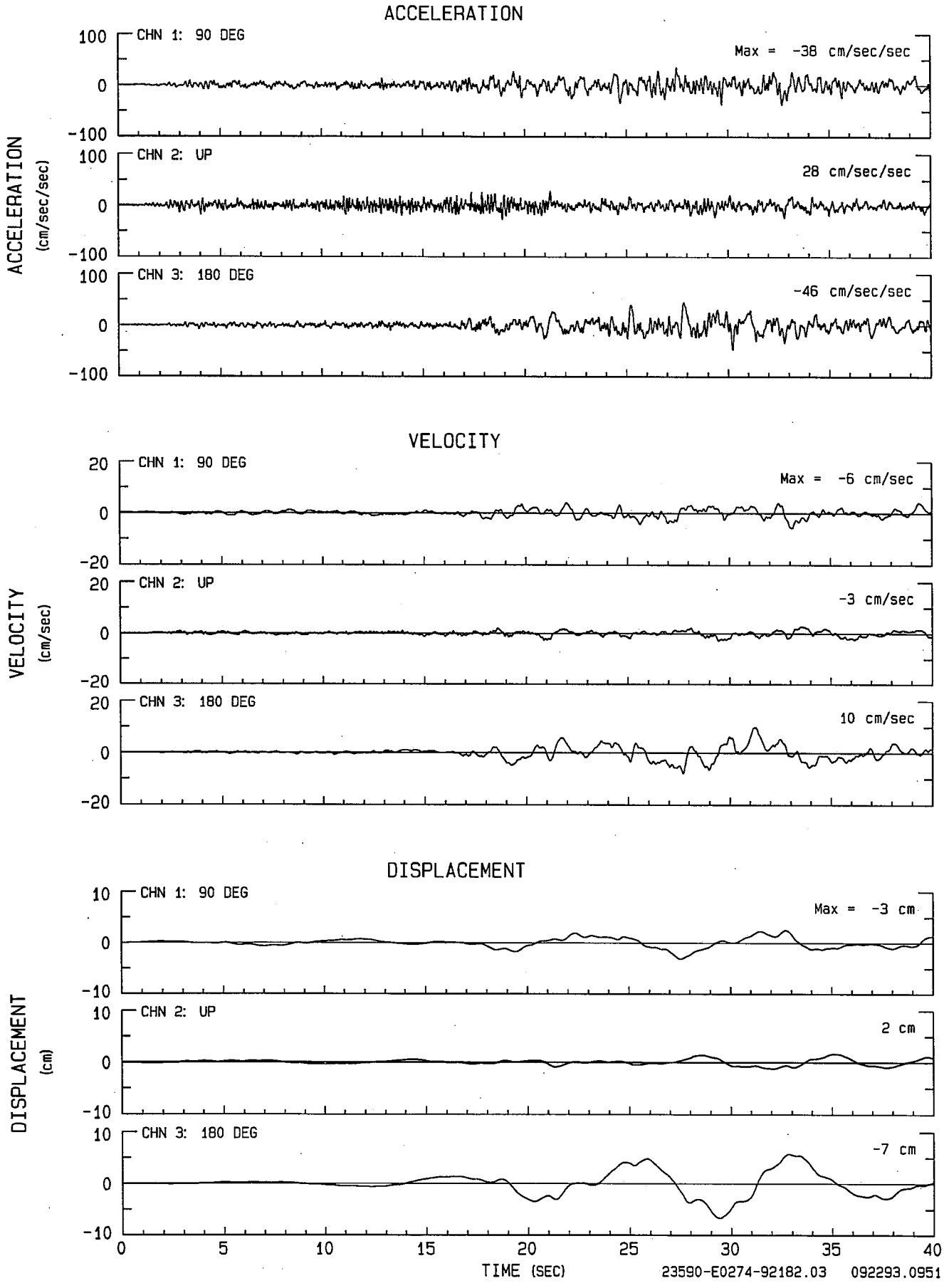
CHN 2: UP



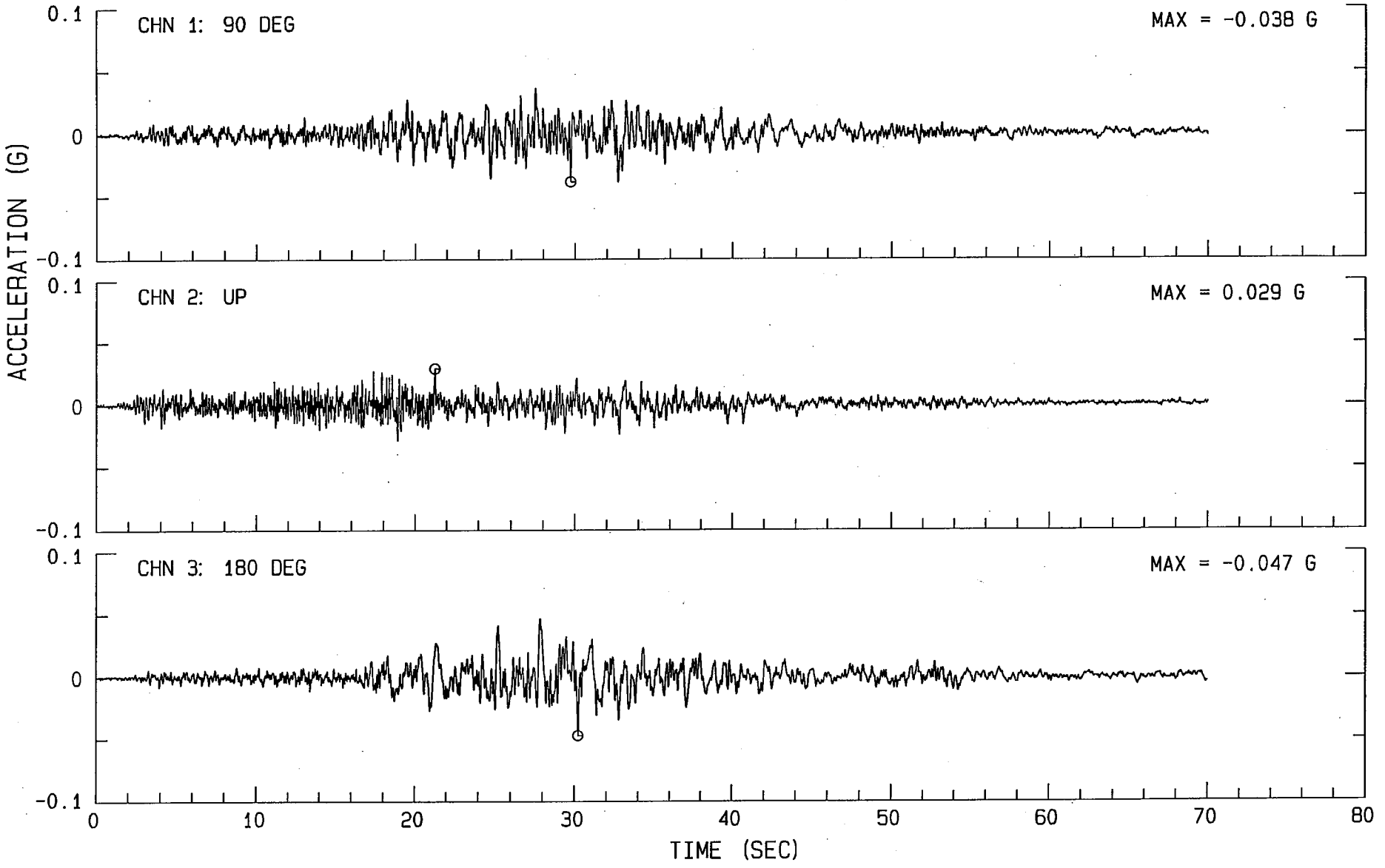
CHN 3: 177 DEG



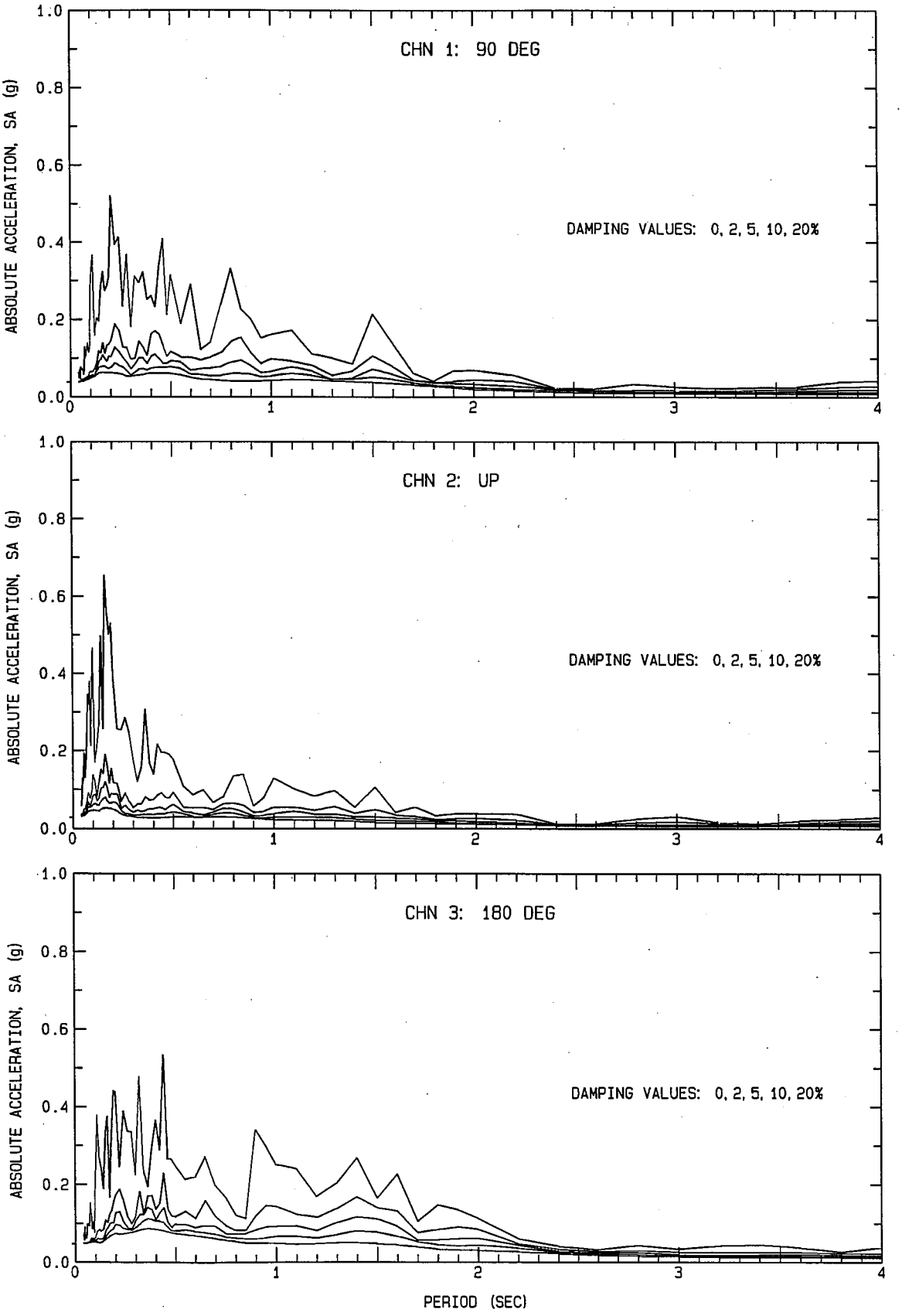
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - JACKSON FLAT CSMIP Sta Num 23590
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - JACKSON FLAT
UNCORRECTED ACCELEROGRAM 23590-E0274-92182.03 092293.0933-QL92A590



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - JACKSON FLAT
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
23590-E0274-92182.03 050495.1506-QL92A590



WRIGHTWOOD - JACKSON FLAT: CSMIP S/N 590

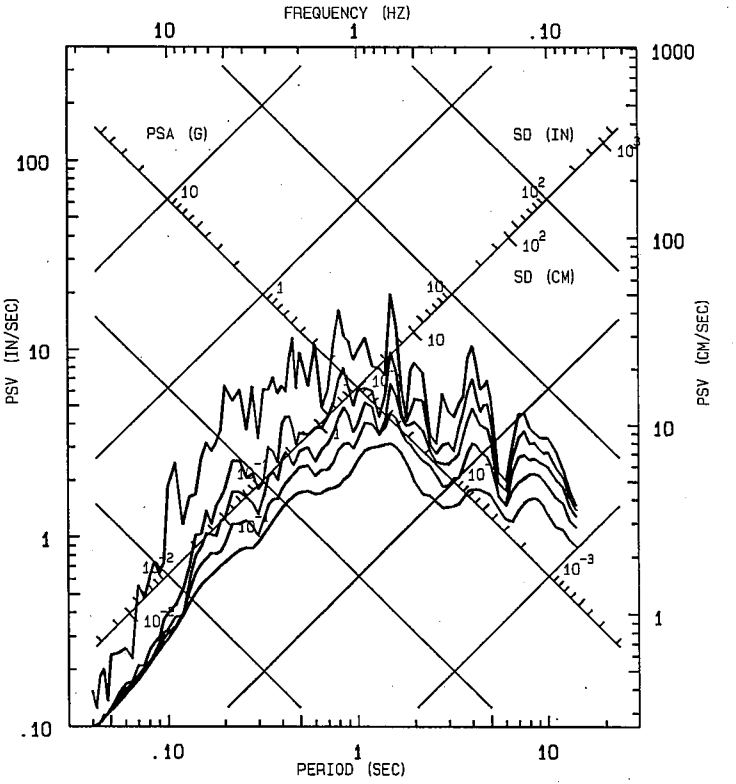
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

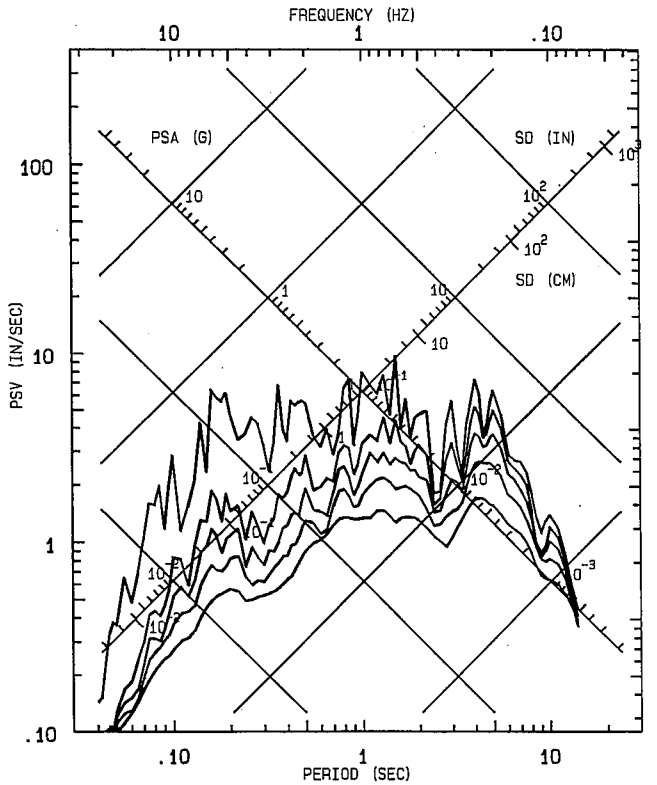
RECORD ID: 23590-E0274-92182.03

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

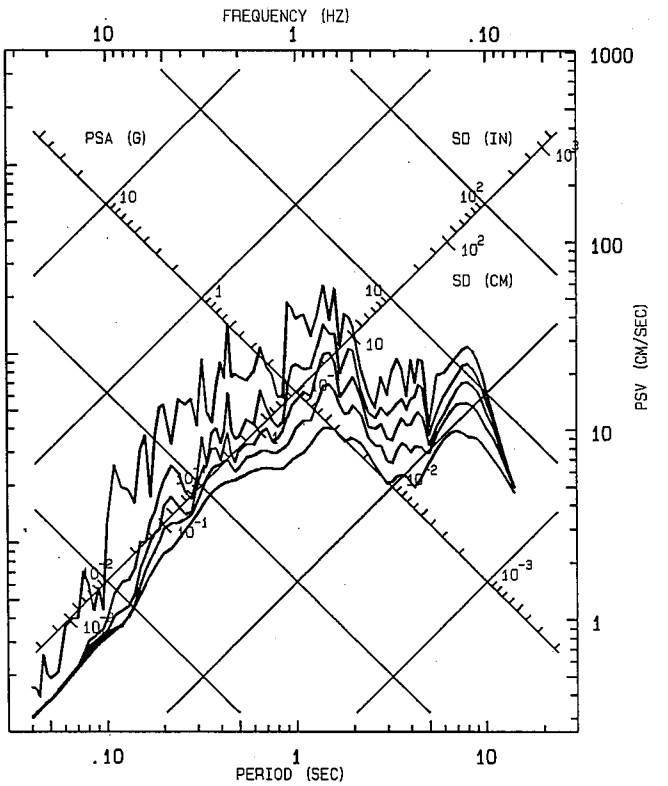
CHN 1: 90 DEG



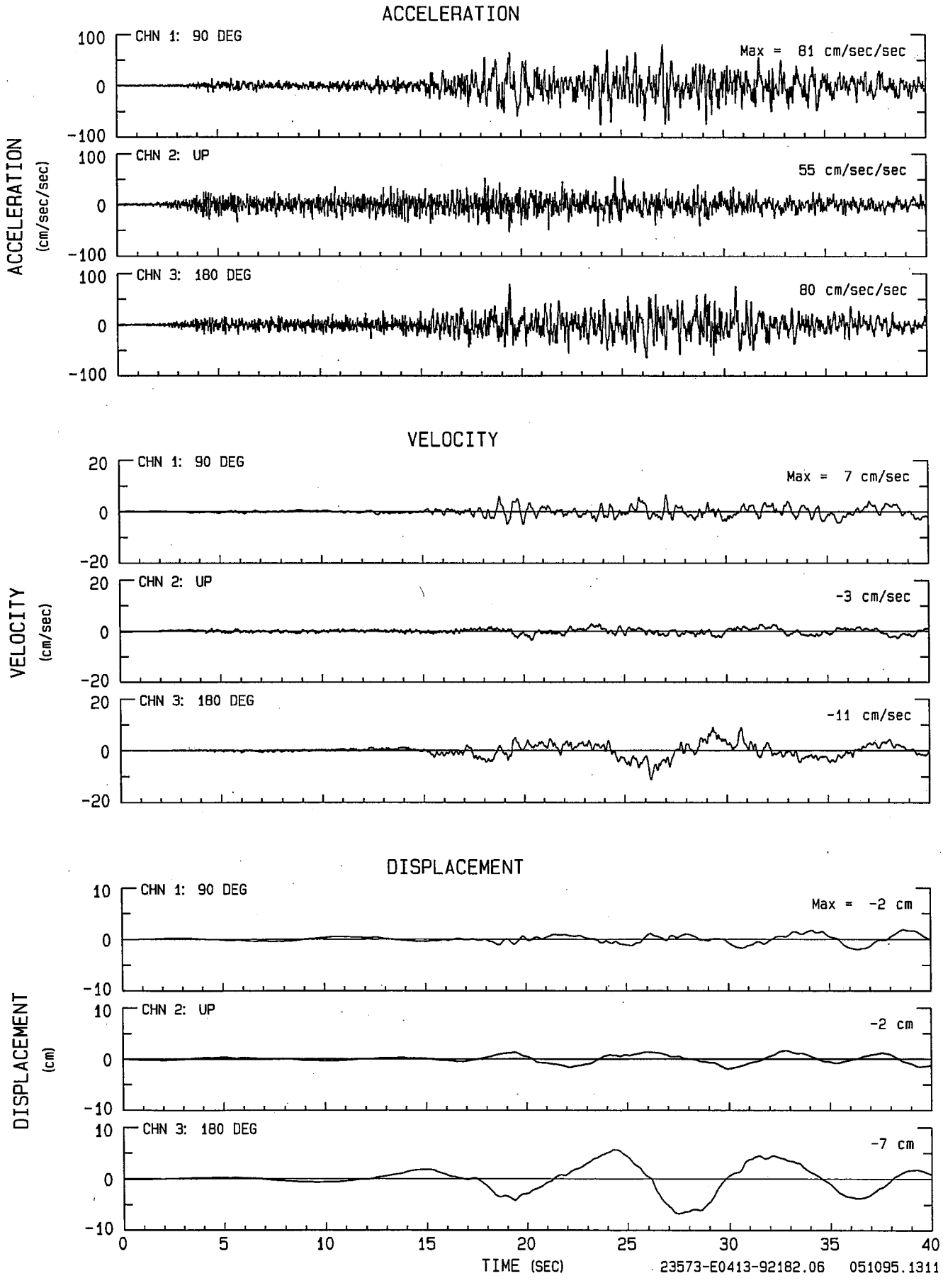
CHN 2: UP



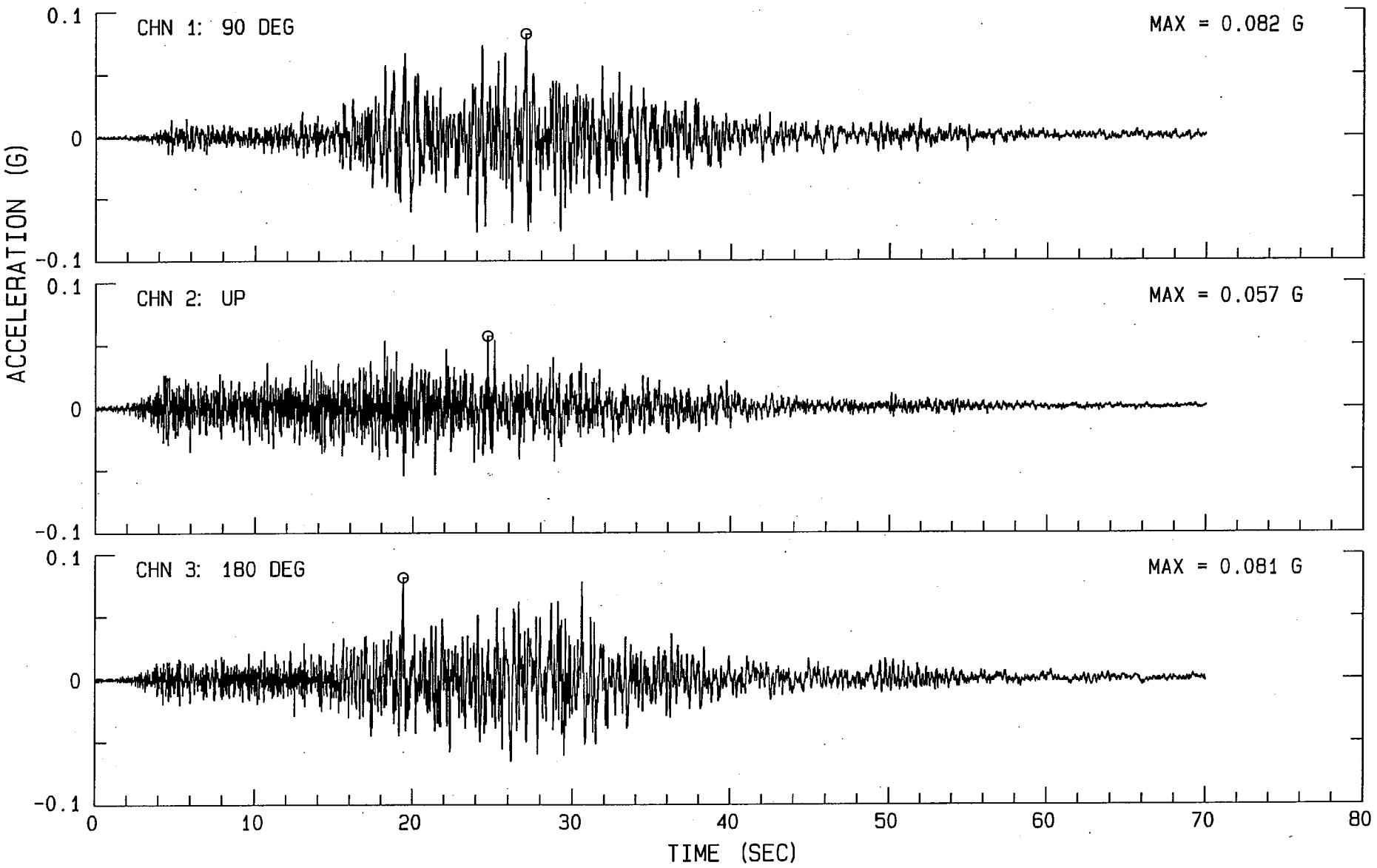
CHN 3: 180 DEG



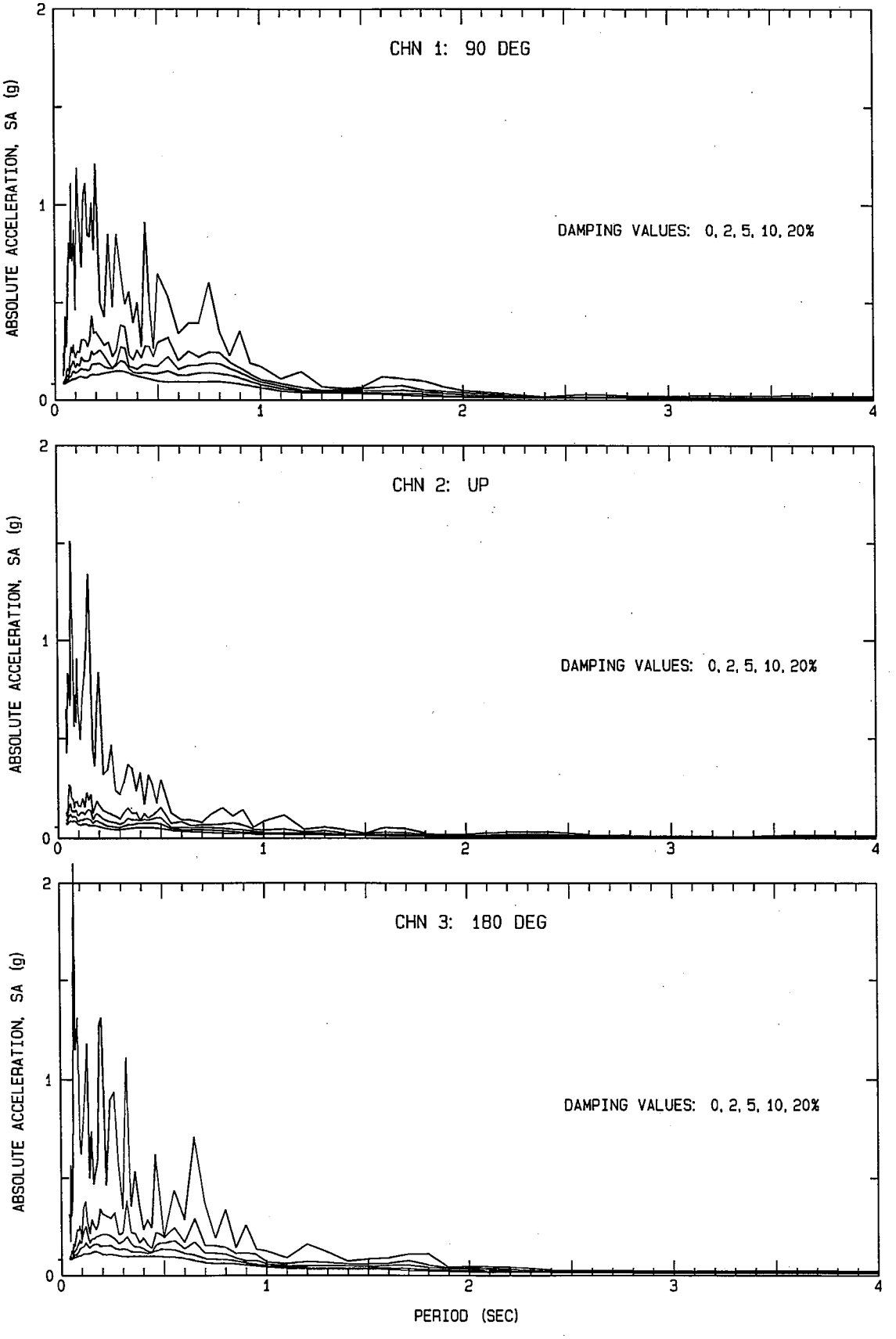
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - NIELSON RANCH CSMIP Sta Num 23573
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - NIELSON RANCH
UNCORRECTED ACCELEROGRAM 23573-E0413-92182.06 051095.1309-QL92A573



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - NIELSON RANCH
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
23573-E0413-92182.06 051095.1314-QL92A573



WRIGHTWOOD - NIELSON RANCH: CSMIP S/N 573

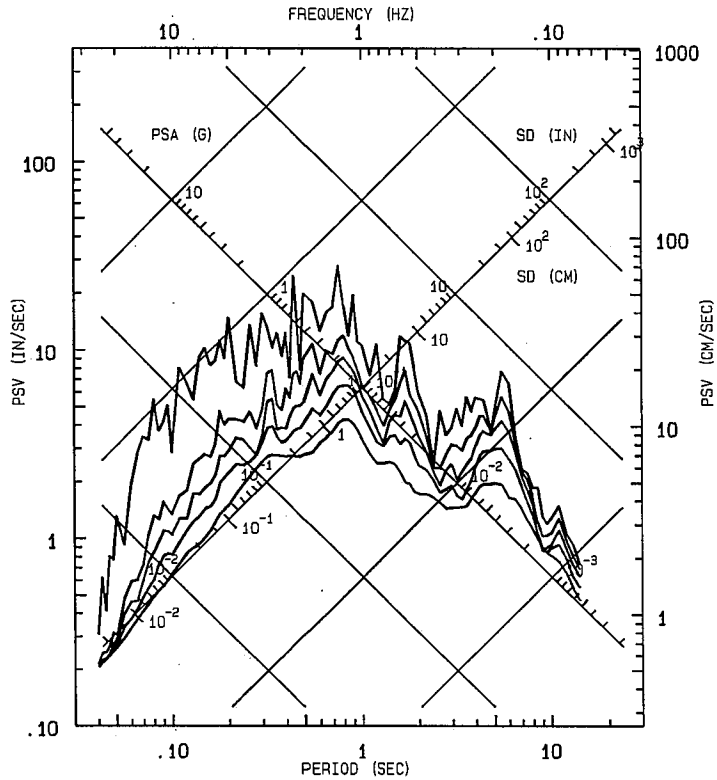
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

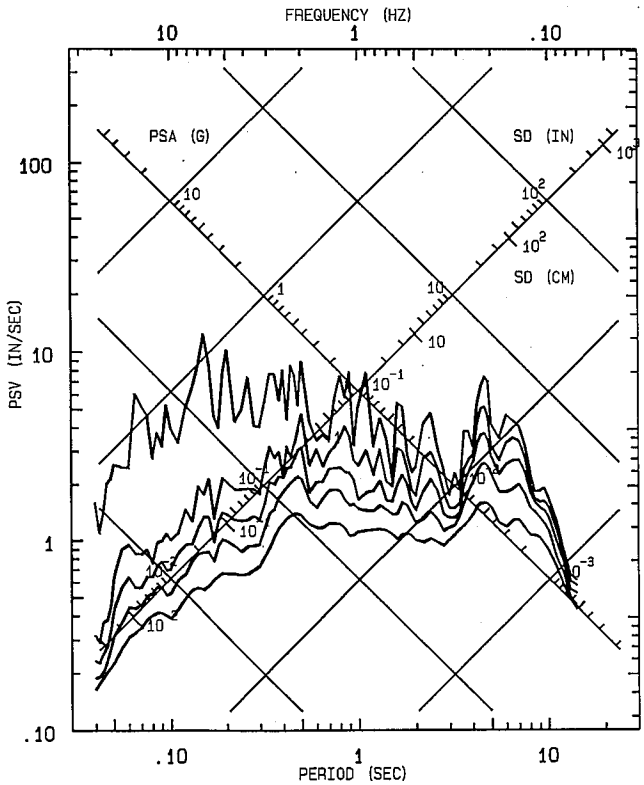
RECORD ID: 23573-E0413-92182.06

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

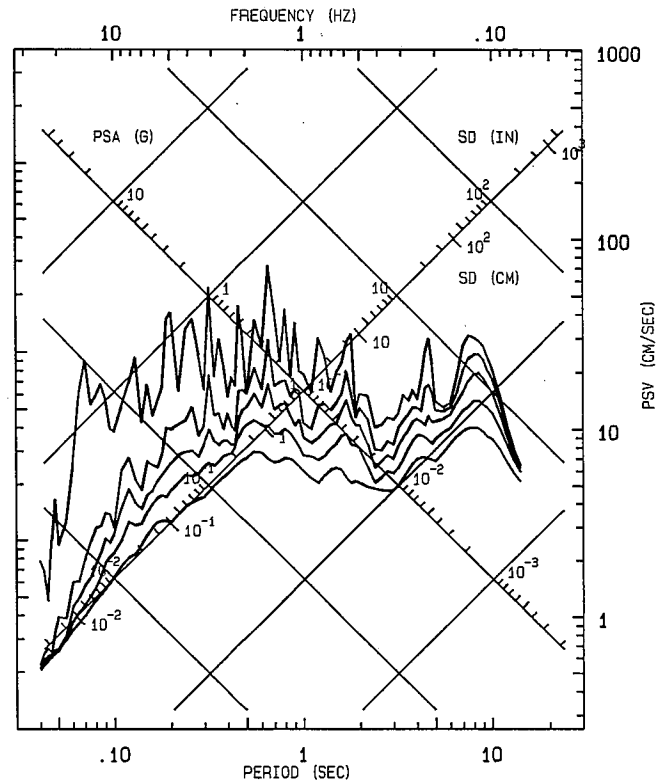
CHN 1: 90 DEG



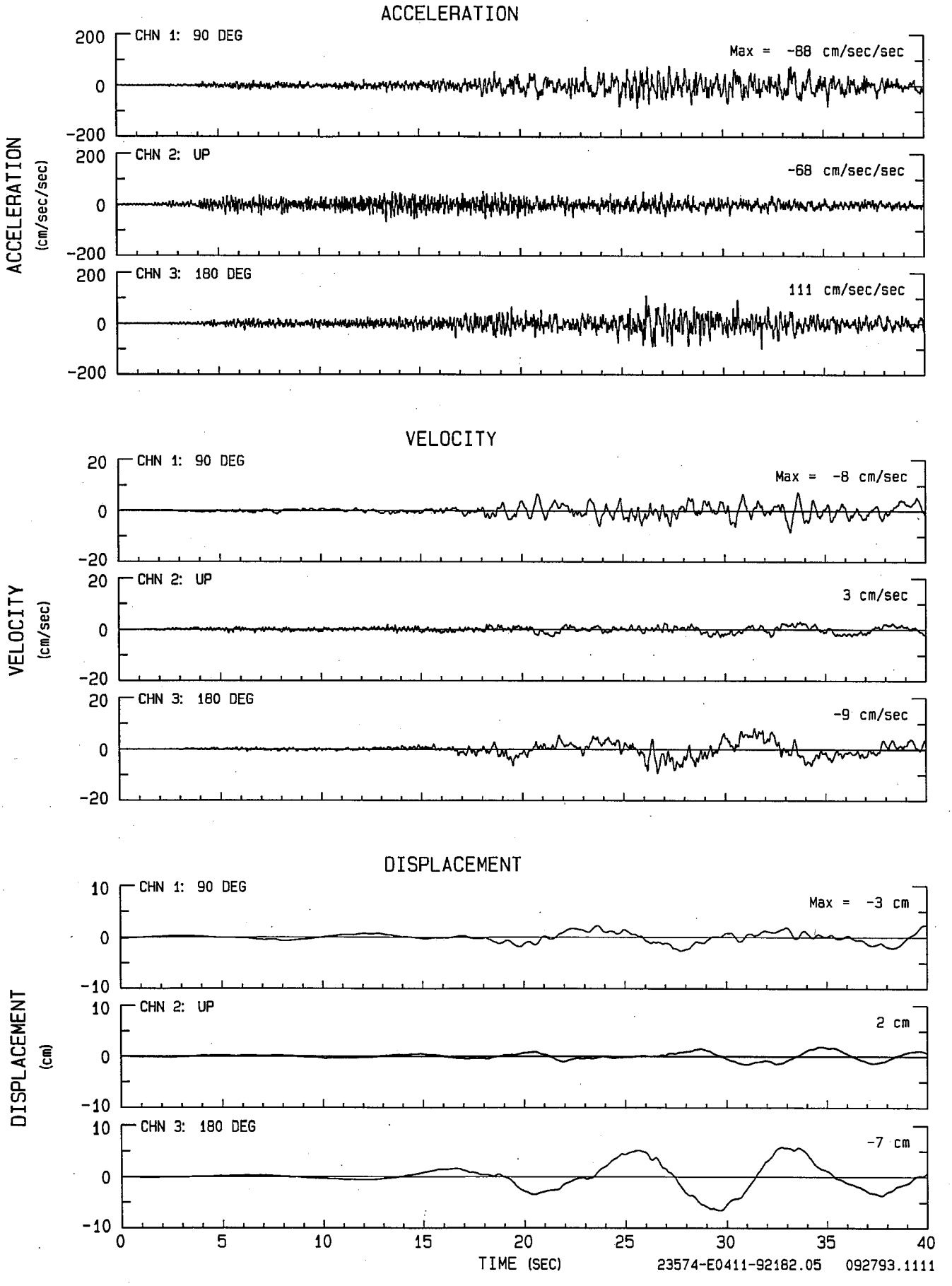
CHN 2: UP



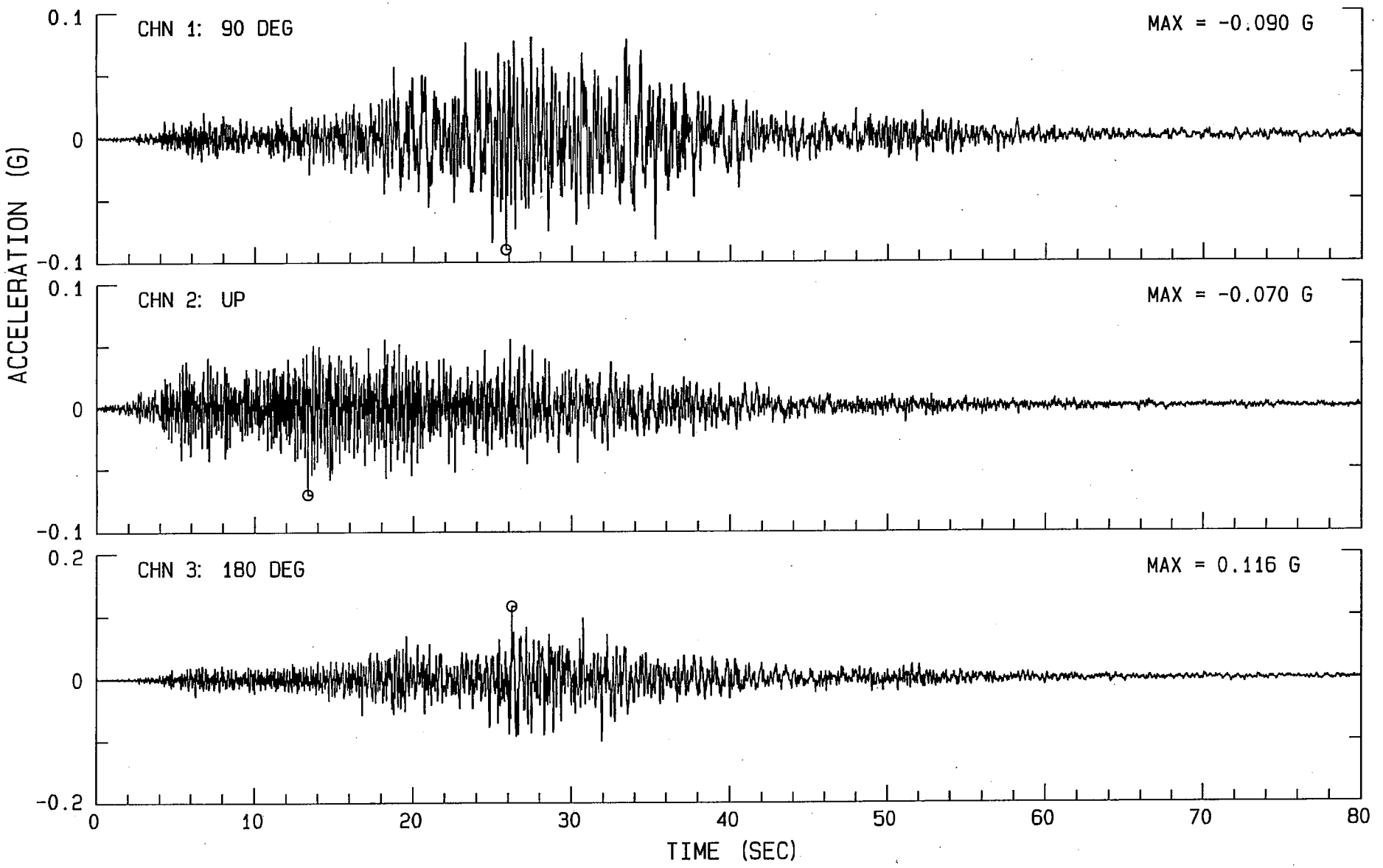
CHN 3: 180 DEG



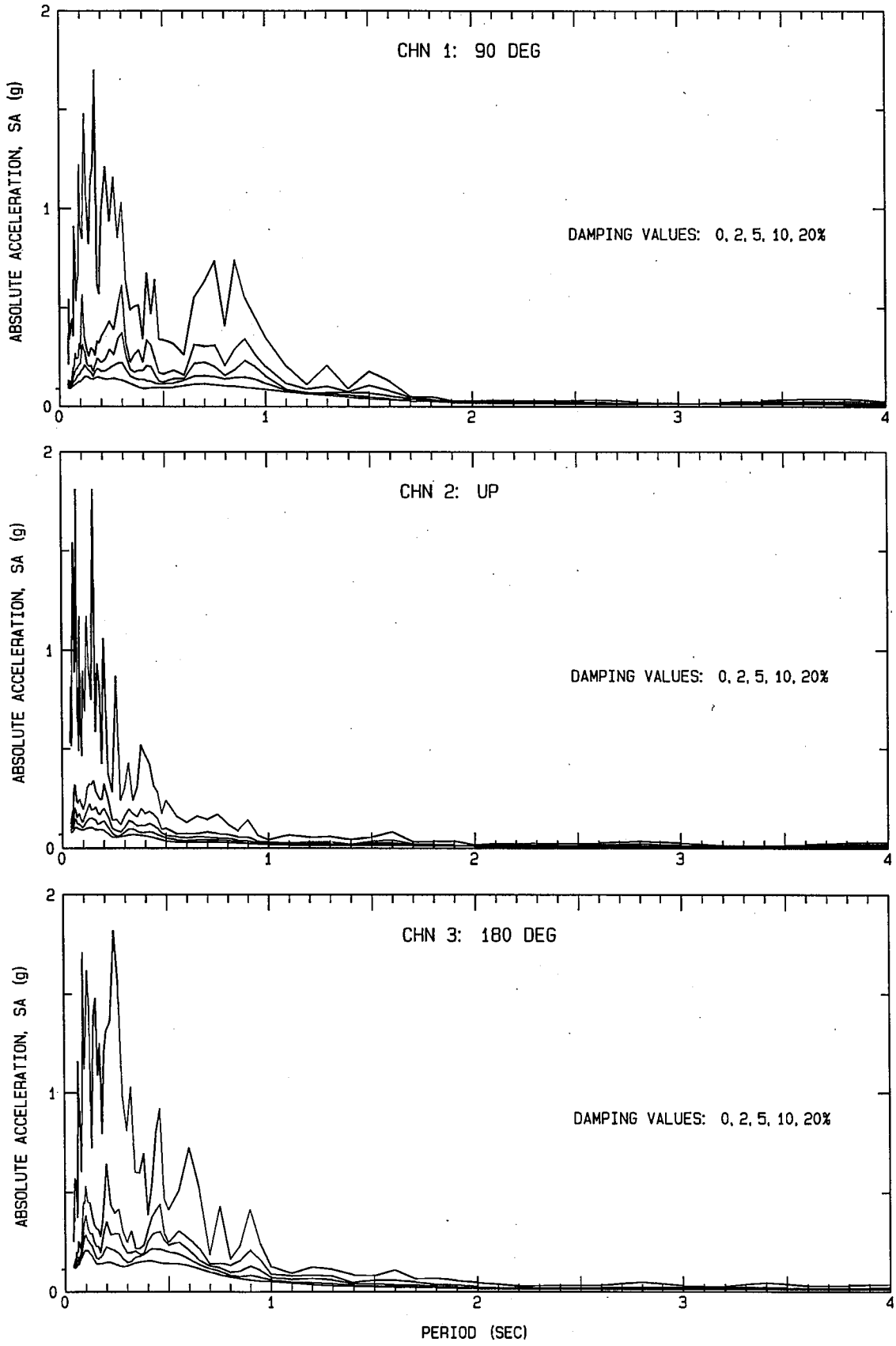
LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - SWARTHOUT VALLEY CSMIP Sta Num 23574
Usable Data Bandwidth: .09 to 47.2 Hz (.02 to 12.0 Sec)



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - SWARTHOUT VALLEY
UNCORRECTED ACCELEROGRAM 23574-E0411-92182.05 092793.1100-QL92A574



LANDERS EARTHQUAKE JUNE 28, 1992 04:58 PDT
WRIGHTWOOD - SWARTHOUT VALLEY
ACCELEROGRAM BANDPASS-FILTERED WITH RAMPS AT .05-.10 TO 46.0-50.0 HZ.
23574-E0411-92182.05 050495.1338-QL92A574



WRIGHTWOOD - SWARTHOUT VALLEY: CSMIP S/N 574

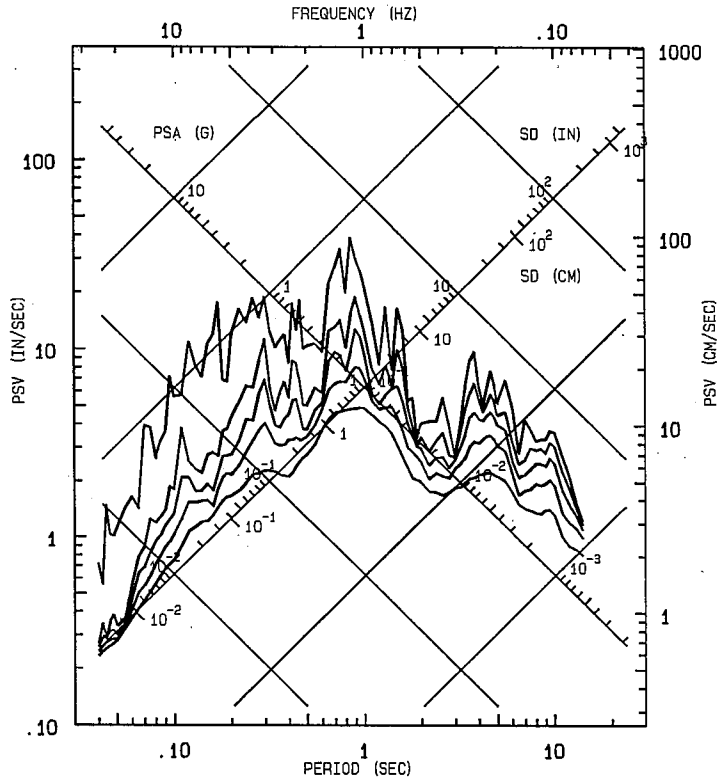
LANDERS EARTHQUAKE
JUNE 28, 1992 04:58 PDT

PHASE 3 DATA: RESPONSE SPECTRA
USABLE DATA BANDWIDTH: 0.09 TO 47.2 HZ
(0.02 TO 11.8 SEC)

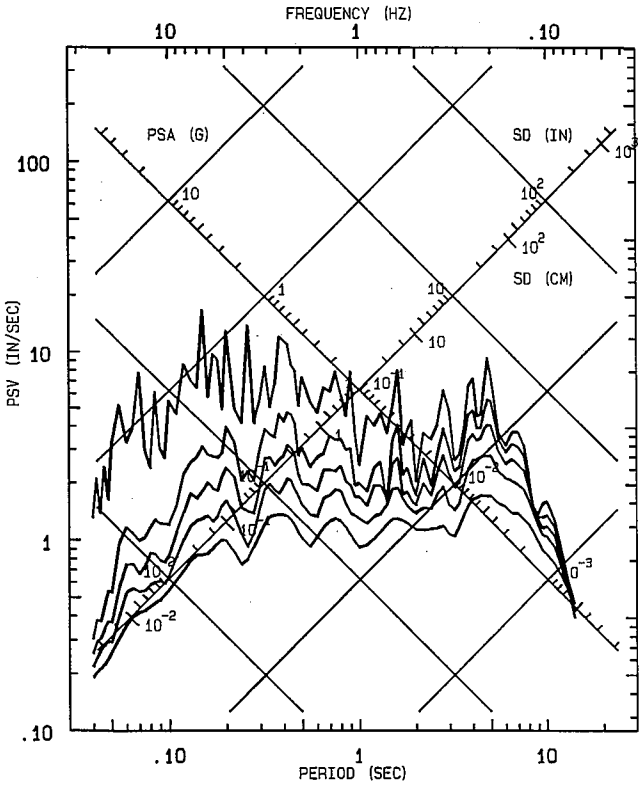
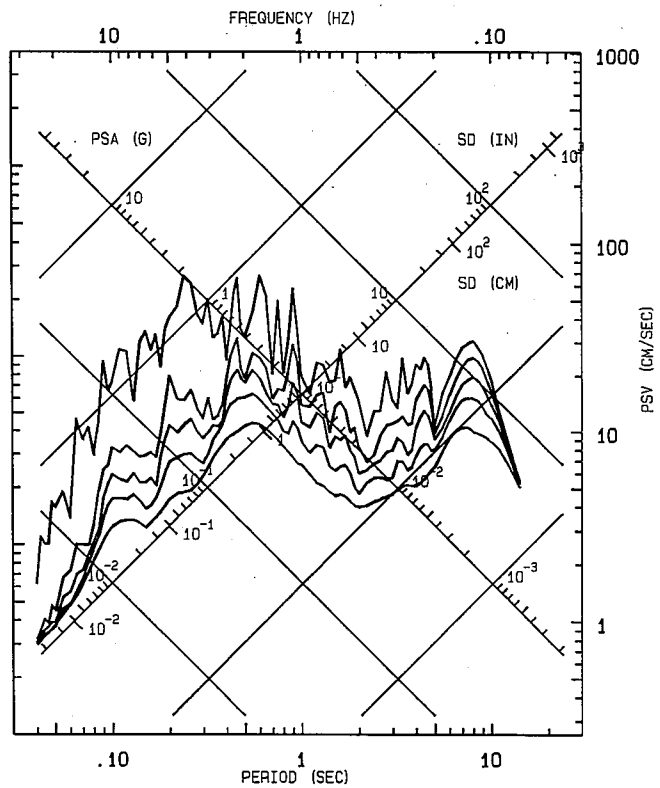
RECORD ID: 23574-E0411-92182.05

—— RESPONSE SPECTRA: PSV, PSA & SD
DAMPING VALUES: 0, 2, 5, 10, 20%

CHN 1: 90 DEG



CHN 2: UP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