VERTAC DRUMMED WASTE INCINERATION PROJECT

Jacksonville, Arkansas

VERTAC SITE CONTRACTORS
INCINERATOR AT
JACKSONVILLE, ARKANSAS

DAILY DIOXIN TESTING

MRK INCINERATION, INC.

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL SERVICES GROUP

F I
MAY 2 1991

VERTAC SITE CONTRACTORS
INCINERATOR AT
JACKSONVILLE, ARKANSAS

DAILY DIOXIN TESTING

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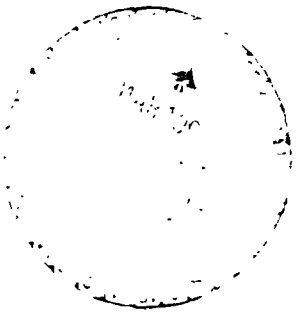

VERTAC SITE CONTRACTORS INCINERATOR AT JACKSONVILLE, ARKANSAS

DAILY DIOXIN TESTING

For September 28, 1990
to
October 13, 1990

Submitted by:

Vertac Site Contractors
1302 Marshall Road
Jacksonville, Arkansas 72076

Submitted to:

Arkansas Department of Pollution
Control and Ecology
P.O. Box 8913
Little Rock, Arkansas 72219-8913

Prepared by:

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8525 Arjons Drive, Suite M
San Diego, CA 92126

YRC/FES Job #: S1-262-01

March 26, 1991

INTRODUCTION

This report presents the results of Dioxin monitoring conducted on a daily basis on a Thermal Destruction Unit (TDU) located at the Vertac Chemical Facility, Jacksonville. Arkansas. The TDU, owned and operated by Vertac Site Contractors (VSC) of Jacksonville, Arkansas, was tested by York Research Consultants (YORK), a division of Flint Environmental Services (FES) of Tulsa, Oklahoma. The daily dioxin testing was conducted over a three month period from September 28, 1990 through December 3. 1990.

The material incinerated during this period consisted of drums containing 2.4-Dichlorophenoxyacetic Acid (2,4-D) waste. In addition, to the still bottoms contained in these drums, a variety of incidental waste material such as contaminated soil, lab articles. protective clothing, rain water, and water form decontamination procedures, were also included in the incineration.

During the three (3) month period of dioxin monitoring, a total of sixteen (16) stack gas tests were conducted. One sample was taken during each twenty-four (24) hour period that the TDU was operating on 2,4-D wastes. A complete list of tests and dates conducted is presented below:

Sample ID#	Date	Comments
FG-01	09/28/90	Submitted
FG-02	10/01/90	Submitted
FG-03	10/11/90	Submitted
FG-04	10/13/90	Submitted
FG-05	10/14/90	VOID
FG-06	10/15/90	VOID
FG-07	10/19/90	VOID
FG-08	11/01/90	
FG-09	11/02/90	
FG-10	11/03/90	
FG-11	11/07/90	
FG-13*	11/08/90	
FG-14	11/14/90	
FG-15	11/23/90	
FG-16	12/01/90	
FG 17	12/03/90	

*Sample FG-12 was conducted for HCB and is not included in this report.

Data for Dioxin sampling FG-01 through FG-04 were submitted by YORK in an earlier report. Dioxin tests for samples FG-05 through FG-07 were voided due to problems with the TDU, such as flame out or feed interruptions, which prevented the procurement of a complete and valid sample.

DISCUSSION OF SAMPLING AND MONITORING RESULTS

Flue gas sampling was conducted during the each 24 hour period, that the TDU was in operation on 2,4-D wastes. Samples were collected using an EPA Modified Method 5 (MM5) sampling train and recover of the sample from the MM5 train was conducted as per EPA Method 23. Extraction and analysis of the sample was conducted as per EPA Method 8280.

The results of the 8280 analysis for each sample are presented in Tables 1.1 through 1.4, Summary of PCDD/PCDF Analytes. A summary of testing parameters is presented in Table 2, Summary of Modified Method 5 PCDD/PCDF Results.

Table 2 also lists the total PCDD/PCDF for each sample and the calculated PCDD/PCDF emission rate of the TDU. It should be noted that the PCDD/PCDF collected value presented at the bottom of Table 2 is a sum of both detected PCDD/PCDF isomers and the experimental detection limit (EDL) of non-detected isomers.

Laboratory data, field data, and chain-of-custody forms for each sample are contained in Appendix A.

SUMMARY OF PCDD/PCDF ANALYTES TABLE 1.1
VERTAC SITE CONTRACTORS
JACKSONVILLE,ARKANSAS

TEST 01 - 9/28/90
SAMPLE # FG-01 : LAB ID# 1323

ANALYTE	RF	AREA	AMOUNT DET. (ng)	* EDL (ng)
POLYCHLORINATED DIBENZODIOXINS				
2,3,7,8-TCDD	1.13	0.40	ND	0.680
1,2,3,7,8-PeCDD	0.80	1.00	ND	1.200
1,2,3,4,7,8-HxCDD	0.53	1.00	ND	0.800
1,2,3,6,7,8-HxCDD	0.53	1.00	ND	0.800
1,2,3,7,8,9-HxCDD	0.53	0.10	ND	0.080
1,2,3,4,6,7,8-HpCDD	1.86	0.10	ND	0.080
POLYCHLORINATED DIBENZOFURANS				
2,3,7,8-TCDF	1.57	22.00	21.10	0.000
1,2,3,7,8-PeCDF	0.94	12.00	ND	16.99
2,3,4,7,8-PeCDF	0.94	7.10	ND	10.05
1,2,3,4,7,8-HxCDF	0.77	1.00	ND	1.16
1,2,3,6,7,8-HxCDF	0.77	13.00	ND	15.08
1,2,3,7,8,9-HxCDF	0.77	1.00	ND	1.160
2,3,4,6,7,8-HxCDF	0.77	1.00	ND	1.160
1,2,3,4,6,7,8-HpCDF	2.77	1.00	ND	4.170
1,2,3,4,7,8,9-HpCDF	2.77	1.00	ND	4.170

0 0 1 0 2 2

2.11

* EDL = EXPERIMENTAL DETECTION LIMIT. CALCULATED ON A SAMPLE PER SAMPLE BASIS.

2.11

SUMMARY OF PCDD/PCDF ANALYTES
VERTAC SITE CONTRACTORS
JACKSONVILLE,ARKANSAS

TABLE 1.2

TEST 02 - 10/1/90
SAMPLE # FG-02 : LAB ID# 1324

ANALYTE	RF	AREA	AMOUNT DET. (ng)	* EDL (ng)
POLYCHLORINATED DIBENZODIOXINS				
2,3,7,8-TCDD	1.13	1.00	ND	1.037
1,2,3,7,8-PeCDD	0.80	0.50	ND	0.367
1,2,3,4,7,8-HxCDD	0.53	1.00	ND	0.486
1,2,3,6,7,8-HxCDD	0.53	0.10	ND	0.049
1,2,3,7,8,9-HxCDD	0.53	0.10	ND	0.049
1,2,3,4,6,7,8-HpCDD	1.86	0.10	ND	0.174
POLYCHLORINATED DIBENZOFURANS				
2,3,7,8-TCDF	1.57	3.00	ND	4.321
1,2,3,7,8-PeCDF	0.94	1.00	ND	0.862
2,3,4,7,8-PeCDF	0.94	1.00	ND	0.862
1,2,3,4,7,8-HxCDF	0.77	1.00	ND	0.706
1,2,3,6,7,8-HxCDF	0.77	1.00	ND	0.706
1,2,3,7,8,9-HxCDF	0.77	1.00	ND	0.706
2,3,4,6,7,8-HxCDF	0.77	1.00	ND	0.706
1,2,3,4,6,7,8-HpCDF	2.77	1.00	ND	2.541
1,2,3,4,7,8,9-HpCDF	2.77	1.00	ND	2.541

* EDL = EXPERIMENTAL DETECTION LIMIT. CALCULATED ON A SAMPLE PER SAMPLE BASIS.

SUMMARY OF PCDD/PCDF ANALYTES TABLE 1.3
VERTAC SITE CONTRACTORS
JACKSONVILLE,ARKANSAS

TEST 03 - 10/11/90
SAMPLE # FG-03 : LAB ID# 1325

ANALYTE	RF	AREA	AMOUNT DET. (ng)	* EDL (ng)
POLYCHLORINATED DIBENZODIOXINS				
2,3,7,8-TCDD	1.13	0.40	ND	0.340
1,2,3,7,8-PeCDD	0.80	1.00	ND	0.602
1,2,3,4,7,8-HxCDD	0.53	1.00	ND	0.399
1,2,3,6,7,8-HxCDD	0.53	0.10	ND	0.040
1,2,3,7,8,9-HxCDD	0.53	0.10	ND	0.040
1,2,3,4,6,7,8-HpCDD	1.86	0.10	ND	0.140
POLYCHLORINATED DIBENZOFURANS				
2,3,7,8-TCDF	1.57	0.10	ND	0.118
1,2,3,7,8-PeCDF	0.94	0.10	ND	0.071
2,3,4,7,8-PeCDF	0.94	0.10	ND	0.071
1,2,3,4,7,8-HxCDF	0.77	0.10	ND	0.058
1,2,3,6,7,8-HxCDF	0.77	0.10	ND	0.058
1,2,3,7,8,9-HxCDF	0.77	0.10	ND	0.058
2,3,4,6,7,8-HxCDF	0.77	0.10	ND	0.058
1,2,3,4,6,7,8-HpCDF	2.77	0.10	ND	0.209
1,2,3,4,7,8,9-HpCDF	2.77	0.10	ND	0.209

* EDL = EXPERIMENTAL DETECTION LIMIT. CALCULATED ON A SAMPLE PER SAMPLE BASIS.

SUMMARY OF PCDD/PCDF ANALYTES
VERTAC SITE CONTRACTORS
JACKSONVILLE,ARKANSAS

TABLE 1.4

TEST 04 - 10/13/90
SAMPLE # FG-04 : LAB ID# 1326

ANALYTE	RF	AREA	AMOUNT DET. (ng)	* EDL (ng)
POLYCHLORINATED DIBENZODIOXINS				
2,3,7,8-TCDD	1.13	1.00	ND	1.066
1,2,3,7,8-PeCDD	0.80	1.00	ND	0.755
1,2,3,4,7,8-HxCDD	0.53	1.00	ND	0.500
1,2,3,6,7,8-HxCDD	0.53	1.00	ND	0.500
1,2,3,7,8,9-HxCDD	0.53	1.00	ND	0.500
1,2,3,4,6,7,8-HpCDD	1.86	1.00	ND	1.755
POLYCHLORINATED DIBENZOFURANS				
2,3,7,8-TCDF	1.57	1.00	2.70	0.000
1,2,3,7,8-PeCDF	0.94	1.00	1.50	0.000
2,3,4,7,8-PeCDF	0.94	1.00	ND	0.887
1,2,3,4,7,8-HxCDF	0.77	1.00	ND	0.726
1,2,3,6,7,8-HxCDF	0.77	1.00	ND	0.726
1,2,3,7,8,9-HxCDF	0.77	1.00	ND	0.726
2,3,4,6,7,8-HxCDF	0.77	1.00	ND	0.726
1,2,3,4,6,7,8-HpCDF	2.77	1.00	ND	2.613
1,2,3,4,7,8,9-HpCDF	2.77	1.00	ND	2.613

* EDL = EXPERIMENTAL DETECTION LIMIT. CALCULATED ON A SAMPLE PER SAMPLE BASIS.

TABLE 2

DAILY DIOXIN TESTING
SUMMARY OF MODIFIED METHOD 5 PCDD/PCDF RESULTS
VERTAC SITE CONTRACTORS
JACKSONVILLE, ARKANSAS

PARAMETER	UNITS	FG-01 TEST 01 9/28/90	FG-02 TEST 09 10/1/90	FG-03 TEST 10 10/11/90	FG-04 TEST 11 10/13/90
SAMPLE TIME	MINS.	192	192	192	192
SAMPLE VOLUME (DRY STANDARD)	DSCF	112.990	116.560	108.100	112.320
STACK GAS VOLUMETRIC FLOWRATE	ACFM	27,107.0	27,976.0	26,372.0	26,747.0
STACK GAS VOLUMETRIC FLOWRATE	DSCFM	12,194.0	12,141.0	10,561.0	11,985.0
STACK GAS TEMPERATURE	DEG. F	199.0	205.0	206.0	200.0
STACK GAS MOISTURE	% H20	41.9	43.4	47.7	42.0
OXYGEN CONCENTRATION	% DRY	12.1	10.5	10.5	11.4
CARBON DIOXIDE CONCENTRATION	% DRY	5.0	6.5	6.5	5.2
PERCENT ISOKINETIC	%	88.0	92.0	98.0	89.0
PCDD/PCDF COLLECTED (LESS THAN)	ng	78.88	16.11	2.47	18.29
PCDD/PCDF CONCENTRATION	ng/DSCF	0.698	0.138	0.023	0.163
PCDD/PCDF CONCENTRATION	mg/HOUR	510.769	100.682	14.479	117.097

APPENDIX A

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

DESCRIPTION OF TEST FACILITY

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #1
TEST DATE	:	28 SEPT 1990
TEST RUN	:	1 - COMPLETED AT 06:02
PLANT	:	JACKSONVILLE ARKANSAS
UNIT	:	INCINERATOR
LOCATION	:	STACK
CONDITION	:	D WASTE BURN
OPERATORS	:	M. DILLARD / P. CADENHEAD
FILTER ID	:	N/A
SAMPLE UNIT	:	N/A
CONTROL UNIT	:	#1

SPECIAL TEST FACTORS

METER CORR. FACTOR, Yd	1.000	
NOZZLE DIAMETER	0.310	in.
PITOT FACTOR (Cp)	0.84	
BARO. PRESSURE (Pb)	28.90	in.Hg. (incl. ALT CORR)
STATIC PRESSURE(Pg)	-.20	in.H20
METER VOLUME	120.607	ACF uncorrected
TEST DURATION	192.0	min.
IMPINGER CONDENSATE (H20)	2093.3	ml. (EST)
STACK AREA	9.61	sq.ft.
PERCENT CO2	6.50	%
PERCENT CO	0.00	%
PERCENT O2	10.50	%
PERCENT N2	83.00	%
H2O VP PERMITTED AT IMPINGER TEMP	0.000	in.Hg. (Si-Gel)
H2O VP PERMITTED AT STACK TEMP	43.000	in.Hg. (est)
NUMBER OF TRAVERSE POINTS	24	
WT. OF PARTICULATE MATTER	0.0000	grams.
VOLUME OF NAT.GAS BURNED	0.	SCF
STD TEMPERATURE	68	deg.F.
STD PRESSURE	29.92	in.Hg.
MOLE C / MOLE NAT.GAS	1.056	

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TEST DATE	:	28 SEPT 1990
TEST RUN	:	1 - COMPLETED AT 06:02

STACK TRAVERSE DATA

POINT	Ts	dP	VEL	dH	T1	T2	Pm	Ti	%CO2	%O2
A-1	204	0.520	50.6	1.56	102.0	102.0	11.0	61.0	6.50	10.50
A-2	205	0.510	50.1	1.53	107.0	104.0	12.0	65.0	6.50	10.50
A-3	206	0.570	53.0	1.69	113.0	107.0	11.0	66.0	6.50	10.50
A-4	206	0.570	53.0	1.69	115.0	109.0	12.0	65.0	6.50	10.50
A-5	206	0.610	54.9	1.81	117.0	111.0	12.0	65.0	6.50	10.50
A-6	205	0.440	46.6	1.31	114.0	110.0	12.0	63.0	6.50	10.50
A-7	206	0.340	41.0	1.33	109.0	113.0	11.0	62.0	6.50	10.50
A-8	206	0.340	41.0	1.00	112.0	109.0	9.0	68.0	6.50	10.50
A-9	206	0.320	39.7	0.95	111.0	108.0	9.0	60.0	6.50	10.50
A-10	206	0.290	37.8	0.86	113.0	109.0	9.0	60.0	6.50	10.50
A-11	205	0.300	38.5	0.89	113.0	109.0	8.0	61.0	6.50	10.50
A-12	205	0.300	38.5	0.89	115.0	110.0	8.0	60.0	6.50	10.50
B-1	205	0.520	50.6	1.56	111.0	109.0	10.0	58.0	6.50	10.50
B-2	206	0.480	48.7	1.50	114.0	109.0	12.0	58.0	6.50	10.50
B-3	205	0.480	48.6	1.50	115.0	110.0	11.0	57.0	6.50	10.50
B-4	206	0.500	49.7	1.50	110.0	110.0	12.0	60.0	6.50	10.50
B-5	206	0.480	48.7	1.42	115.0	110.0	12.0	55.0	6.50	10.50
B-6	207	0.440	46.6	1.33	116.0	111.0	11.0	55.0	6.50	10.50
B-7	206	0.440	46.6	1.30	116.0	111.0	11.0	55.0	6.50	10.50
B-8	206	0.350	41.6	1.03	116.0	111.0	10.0	57.0	6.50	10.50
B-9	207	0.350	41.6	1.00	115.0	111.0	10.0	57.0	6.50	10.50
B-10	206	0.400	44.4	1.20	114.0	110.0	10.0	56.0	6.50	10.50
B-11	204	0.410	44.9	1.26	112.0	108.0	10.0	56.0	6.50	10.50
B-12	204	0.340	40.9	1.20	109.0	107.0	10.0	56.0	6.50	10.50
AVE	206	0.424	45.7	1.30	112.7	109.1	10.5	59.8	6.50	10.50

VEL = 85.48 * Cp * SQ.RT.((dP*Ts)/(Ps*Ms))

GAS METER VOLUME (uncorr.) = 120.6070

GAS METER FACTOR Yd = 1.000

NOTES

1. AVE PITOT TUBE PRESSURE (dP) IS THE SQUARE OF THE MEAN SQUARE ROOT
2. AVE % CO2 AND AVE % O2 ARE VELOCITY WEIGHTED

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #1
TEST DATE	:	28 SEPT 1990
TEST RUN	:	1 - COMPLETED AT 06:02

SAMPLE GAS CALCULATIONS

A.	Vm	METER VOLUME, UNCORRECTED*METER FACTOR	=	%120.61	cu.ft.
B.	Pm	METER PRESSURE, Pb + dH/13.6	=	29.00	in.Hg.
C.	Tm	METER TEMPERATURE, 460+(T1+T2)/2	=	571	xR
D.	Ti	IMPINGER TEMPERATURE	=	60	xF
E.	Ts	STACK TEMPERATURE	=	666	xR
F.	Ps	STACK PRESSURE, Pb+Pg/13.6	=	28.89	in.Hg.
G.	VPi	MAX.H2O VP PERMITTED AT Ti	=	0.000	in.Hg.
H.	Vlc	VOLUME OF CONDENSED H2O	=	2093	ml.
I.	Vcalc	H2O VAPOR, METER COND., H*C/B*0.00267	=	%110.04	cu.ft.
J.	Vwv	MOISTURE METERED AT METER COND., A*G/B	=	0.00	cu.ft.
K.	Vdry	SAMPLE VOLUME AT METER COND., DRY, A-J	=	%120.61	cu.ft.
L.	% Mc	PER CENT MOISTURE CALC. 100*(I+J)/(A+I)	=	47.71	%
M.	VPs	MAX H2O VP PERMITTED AT Ts (SEE APPENDIX)	=	43.00	in.Hg.
N.	%Ms	PERCENT MOISTURE PERMITTED, M/F*100	=	148.9	%
	Bws	ENTER LOWER OF L OR N	=	47.7	%
O.	M.C.	MOISTURE CORRECTION FACTOR (100-L OR N)/100	=	0.523	
P.	Vm(std)	SAMPLE VOL., STD COND. (DRY) K*528/29.92*B/C	=	%108.10	SCF
S.	mn	WEIGHT OF PARTICULATE MATTER COLLECTED	=	0.0000	gms.

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STACK GAS CALCULATIONS

GAS ANALYSIS

COMPONENT	VOL%/100	* MOISTURE CORR.	* MOL.WT.	= WT./MOLE WET BASIS
WATER	0.4771	* 1.0000	* 18.0	= 8.588
OXYGEN	0.1050	* 0.5229	* 32.0	= 1.757
CARBON MONOXIDE	0.0000	* 0.5229	* 28.0	= 0.000
CARBON DIOXIDE	0.0650	* 0.5229	* 44.0	= 1.496
NITROGEN / INERTS	0.8300	* 0.5229	* 28.2	= 12.239

AA. Ms AVERAGE MOLECULAR WEIGHT = 24.079

DD.	Cp PITOT TUBE CORRECTION FACTOR	=	0.84	
EE.	Vs STACK VELOCITY @ STACK COND.	=	45.74	ft/sec
FF.	Vs(std) VELOCITY @ STD.COND.(DRY) EE*528/29.92*F/E*O	=	18.32	ft/sec
GG.	DURATION OF SAMPLING	=	192	min.
HH.	AVERAGE SAMPLING RATE (DRY), P/GG	=	0.563	SCFM
II.	SELECTED NOZZLE DIAMETER	=	0.310	in.
JJ.	SAMPLING VELOCITY AT STD. CONDITIONS, HH/II^2*144/60/PI	=	17.90	ft/sec
KK.	ISOKINETIC VARIATION, JJ/FF*100	=	98	%
LL.	As AREA OF STACK	=	9.610	sq.ft.
MM	Qsd FLOW RATE AT STD COND (DRY), FF*LL*60	=	10561	SCFM
NN	Qs FLOW RATE AT STACK COND., EE*LL*60	=	26372	ACFM
UU	PARTICULATE EMISSION RATE, 0.00858*T*MM	=	0.00	lb/hr

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PROJECT NUMBER	:	S1-262-01
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TEST DATE	:	28 SEPT 1990
TEST RUN	:	1 - COMPLETED AT 06:02

COMBUSTION CALCULATIONS

T.	CS GRAIN LOADING (DRY)	=	0.000	grains/ DSCF
UU.	PARTICULATE EMISSION RATE 0.00857*T*MM	=	0.00	lb/hr
OO.	%CO2 (GAS ANALYSIS - STACK EXHAUST)	=	6.50	%
PP.	C12 GRAIN LOADING (DRY) @ 12% CO2, T*12/OO	=	0.000	grains/ DSCF
ZZ.	EXCESS AIR = (% OXYGEN - % CO) * 100 / (0.264*(% N2)-(% OX)+0.5*(% CO))	=	92	%
QQ.	%O2 (WEIGHTED VALUE)	=	10.5	%
RR	O2 LOADING (DRY ATR 7% O2), T*14/(21-QQ)	=	0.000	grains/ DSCF

001032

INCINERATOR CALCULATIONS

MM.	Qsd FLOW RATE AT STD. COND. (DRY)	=	%10561	SCFM
AAA.	%CO2 (GAS ANALYSIS - SCRUBBER INLET)	=	3.91	%
BBB.	TOTAL FLOW RATE OF CO2, AAA*MM/100	=	412.9	SCFM
DDD.	FUEL FLOW RATE	=	0.0	SCFM
EEE.	CUBIC FEET OF CO2 PRODUCED BY 1 SCF OF FUEL	=	1.056	SCF
FFF.	CO2 FROM AUXILLIARY FUEL COMBUSTION, DDD*EEE	=	0.0	SCFM
GGG.	CO2 FROM COMBUSTION OF REFUSE, BBB-FFF	=	412.9	SCFM
HHH.	%CO2 FROM COMBUSTION OF REFUSE, GGG/(MM-FFF)*100	=	3.91	%
III.	GRAIN LOADING AT 12% CO2, T*12/HHH	=	0.000	grains/ scf

QUALITY ASSURANCE
FORM

PARTICULATE SAMPLING DATA

EPA REFERENCE METHOD 5/8/17

PAGE 1 OF

Q.A.F.: S-042
REVISION: FOUR
ORIGINATOR: WERDEN
APPROVED:
EFFECTIVE DATE: 3/23/82

TEST ID

PROJECT NO. SI-262-81
CLIENT MRK
PLANT VERTAC
UNIT STACK
LOCATION
CONDITION
DATE 9/28/80
TEST RUN ID DRAIN #1
OPERATORS BOW/ER

STACK DIMENSIONS

42"

EQUIPMENT ID

CONTROL UNIT #1
SAMPLE UNIT
D.T.I./M-M
NOZZLE .310
PROBE
PITOT TUBE
BAROMETER
PROBE SPECIFICATIONS
LINER MATERIAL GLASS
EFFECTIVE LENGTH
HEATER TEMP., °F 295°F
FILTER ID
HEATER TEMP., °F 295

LEAK-TEST DATA

INITIAL RATE
PITOT (-) ✓
PITOT (+) ✓
NOZZLE (-) ✓
ORIFICE (+) ✓
FINAL RATE
PITOT (-) ✓
PITOT (+) ✓
NOZZLE (-) ✓
ORIFICE (+) ✓

STACK PRESSURE DATA

PB, IN. HG
PSG, IN. H2O

SAMPLE RATE DATA

CP .84
Δ HA 1.97/4
TM, °F
%H2O
PB, IN. HG
PSG, IN. H2O
TS, °F
DN, IN.

TS, °F

TM, °F

PXP ISO DATA

NO OF PTS
NET TIME
PITOT CP
NOZZLE ID
Y-FACTOR
BAROMETER
STATIC
% CO2
% O2
G H2O
VM ZERO
VM END

MOISTURE DATA

	GROSS	TARE	NET
1	2063 ml	DRY	2063 ml
2	134 ml	100 ml	34 ml
3	77 ml	100 ml	-23 ml
4	1 ml	Dry	1 ml
T	153.9 gm	135.6 gms	18.3 g

PARTICULATE CATCH

PARTIAL, MG
TOTAL, MG

001033

SAMPLE POINT LOCATION

$K_3 = .27$

Date: 09/28/98

Run Number: 1 DIOXIN

FIELD DATA SHEET

QAF 5042
Page _____ of _____
Revision 4
Effective Date: 1/22/88

TRAVERSE POINT NUMBER	SAMPLING TIME, MIN.	CLOCK TIME	GAS METER READING (VM), FT^3	VELOCITY HEAD ΔP	VELOCITY HEAD ΔP^2	ORIFICE PRESSURE (ΔH)	STACK TEMP. (TS), °F	DRY GAS METER TEMPERATURE INLET (TM in)	DRY GAS METER TEMPERATURE OUTLET (TM out)	PUMP VACUUM IN HG	SAMPLE BOX TEMP. °F	IMPINGER TEMP. °F	PROBE TEMP. °F	O_2
0	0	2:43	43.194	.55		1.65	204	100	101	9	305	70	260	
1	8	2:51	48.53	.52		1.56	204	102	102	11	302	61	277	
2	16	2:59	52.61	.51		1.53	205	107	104	12	298	65	272	
3	24	3:07	059.43	.57		1.69	206	113	107	11	293	66	271	
4	32	3:15	065.09	.57		1.69	206	115	109	11	292	65	280	
5	40	3:23	070.78	.61		1.81	206	117	111	12	289	65	305	
6	48	3:31	076.61	.44		1.31	205	114	110	12	288	63	260	
7	56	3:39	081.88	.45		1.33	205	109	113	11	295	62	202	
8	64	3:46	086.48	.34		1.00	206	112	109	9	301	68	300	
9	72	3:54	091.03	.32		.95	206	111	104	9	304	60	257	
10	80	4:02	095.34	.29		.86	206	113	109	9	304	60	263	
11	88	4:10	099.53	.30		.89	205	113	109	8	304	61	267	
12	96	4:18	103.675	.30			205	115	110	8	304	68	264	
0	0	4:34	103.675	.41		1.21	204	109	109	9	304	72	266	
1	8	4:32	108.31	.52		1.56	205	111	109	10	308	56	307	
2	16	4:40	113.10	.48		1.5	206	114	109	12	285	58	296	
3	24	4:48	118.53	.48		1.5	205	115	110	11	277	57	262	
4	32	4:56	123.92	.50		1.5	206	116	110	12	278	66	274	
5	40	5:06	129.29	.46		1.42	206	115	110	12	275	55	274	
6	48	5:14	134.56	.44		1.33	207	116	111	11	272	55	260	
7	56	5:22	139.90	.44		1.3	206	116	111	11	279	55	279	
8	64	5:34	144.59	.35		1.03	206	116	111	10	286	57	275	
9	72	5:38	149.26	.35		1.0	207	115	111	10	283	57	271	
10	80	5:46	154.00	.40		1.2	206	114	110	10	278	56	270	
11	88	5:54	158.91	.40		1.2	204	112	108	10	277	54	273	
12	96	6:02	163.881	.39		1.2	204	109	107	10	273	56	256	

000134

7

Pag 1

QAF S-251
Revision:
Effective Date:

CHAIN OF CUSTODY RECORD
YORK RESEARCH CONSULTANTS

Project No: 91-262-01
Project/Client: MEK / LLERTAS
Samples taken by: EDW

Sample ID	Date/Time	Type	# Cont	Sample Location/ Description	Analysis: 2,3,7,8-TCDD					Remarks
67457	9/28/90	H_2O	1	IMPINGER CONDENSATE	✓					0.975 L
67458	9/28/90	H_2O	1	" "	✓					0.940 L
67459	9/28/90	H_2O	1	" "	✓					0.260 L
67460	9/28/90	RINSE	1	PROBE & GLASSWARE RINSE	✓					MeCl$_2$: MeOH 1:1 & TOLUENE 0.560 L
RO92801	9/28/90	Resin	1	Resin - XAD2	✓					120.607 ft^3

Relinquished by: (signature)	Date/Time:	Rec'd by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)
[signature]	9/28/90 11:35	[signature]	[signature]	10-2-90	[signature]
Relinquished by: (signature)	Date/Time:	Rec'd by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)

DIOXIN/FURAN SUMMARY FORM

SAMPLE ID: 67461

MATRIX: (FEED,FILTER,ASH,SOIL,SLUDGE,WATER) **SEMI-LIQUID**

LAB SAMPLE ID:	1323	LAB FILE ID:	Y90B 2352
SAMPLE WT/VOL: NA	1.00	DATE COLLECTED:	10/1
INSTRUMENT ID:	FINN#1	DATE RECEIVED:	10/3
GC COLUMN:	DB5	DATE EXTRACTED:	10/10
WATER PREP: (SF/CE)	NA	EXTRACT PREP: (RV/KD)	RV
DATE ANALYZED:	10/29	TIME ANALYZED:	0.19
EXTRACT VOLUME: (uL)	100 uL	INJECTION VOLUME: (uL)	2.00
TOTAL AMOUNT UNITS:	ng	CONC. UNITS:	NA

INTERNAL STANDARD RECOVERY DATA

AREA IS1: 66.4	50	IS1 RECOVERY: (%)	0.40
AREA IS2: 24.70	100	IS2 RECOVERY: (%)	0.41
AREA RS: 154	QUANT IS1: 100	QUANT IS2: 200	

001036

POLYCHLORINATED DIBENZODIOXINS				POLYCHLORINATED DIBENZOFURANS			
ANALYTE	AREA	RF	VALUE	ANALYTE	AREA	RF	VALUE
INTERNAL STANDARD 1 QUANTITATED							
2378-TCDD		1.13	0.00	2378-TCDF	22.0	1.57	21.10
TOTAL OTHER TCDD		1.13	0.00	TOTAL OTHER TCDF		1.57	0.00
12378-PeCDD		0.80	0.00	12378-PeCDF		0.94	0.00
TOTAL OTHER PeCDD		0.80	0.00	23478-PeCDF		0.94	0.00
				TOTAL OTHER PeCDF		0.94	0.00
123478-HxCDD		0.53	0.00	123478-HxCDF		0.77	0.00
123678-HxCDD		0.53	0.00	123678-HxCDF		0.77	0.00
123789-HxCDD		0.53	0.00	123789-HxCDF		0.77	0.00
TOTAL OTHER HxCDD		0.53	0.00	234678-HxCDF		0.77	0.00
				TOTAL OTHER HxCDF		0.77	0.00
INTERNAL STANDARD 2 QUANTITATED							
1234678-HpCDD		1.86	0.00	1234678-HpCDF		2.77	0.00
TOTAL OTHER HpCDD		1.86	0.00	1234789-HpCDF		2.77	0.00
				TOTAL OTHER HpCDF		2.77	0.00
TOTAL OCDD		1.32	0.00	TOTAL OCDF		1.92	0.00

0.0 = NOT DETECTED AT EDL (SEE NEXT PAGE)

VALUE = AREA SAMPLE * CONC IS1(2)/AREA IS1(2) * RF

DIOXIN/FURAN SUMMARY FORM

TOXICITY EQUIVALENT QUANTITY

SAMPLE ID: 67461 LAB ID: 1323

DATA FILE ID: Y90B 2352

	RF	EDL CODE	CALCULATION AREA	CONC	VALUE	TEF
2378-TCDD	1.13	N	0.4	0.68	0	1.0
I* OTHER TCDD	1.13	I	2.9	4.94		0.01
TOTAL OTHER TCDD	1.13	N	0.4	0.68	0	0.01
12378-PeCDD	0.8	N	1	1.20	0	0.5
I* OTHER PeCDD	0.8			0.00	0	0.005
TOTAL OTHER PeCDD	0.8	N	1	1.20	0	0.005
123478-HxCDD	0.53	I	1.0	0.80	0	0.040
123678-HxCDD	0.53	N	1	0.80	0	0.040
123789-HxCDD	0.53	N	0.1	0.08	0	0.040
TOTAL OTHER HxCDD	0.53	N	0.1	0.08	0	0.0004
1234678-HpCDD	1.86	N	0.1	0.28	0	0.0010
TOTAL OTHER HpCDD	1.86	N	0.1	0.28	0	0.0004
2378-TCDF	1.57	I	1	2.36	21.1	0.1
I* OTHER TCDF	1.57		12	28.37		0.001
TOTAL OTHER TCDF	1.57	N	1	2.36	0.000	0.001
12378-PeCDF	0.94	N	12	16.99	0.0	0.1
23478-PeCDF	0.94	N	7.1	10.05	0.0	0.1
I* OTHER PeCDF	0.94			0.00		0.0004
TOTAL OTHER PeCDF	0.94	N	1	1.42	0.0000	0.0004
123478-HxCDF	0.77	N	1	1.16	0.00	0.0100
123678-HxCDF	0.77	I	13	15.08	0.00	0.0100
123789-HxCDF	0.77	N	1	1.16	0.00	0.0100
234678-HxCDF	0.77	N	1	1.16	0.00	0.0100
TOTAL OTHER HxCDF	0.77	N	1	1.16	0.00	0.0001
1234678-HpCDF	2.77	N	1	4.17	0.000	0.0010
1234789-HpCDF	2.77	N	1	4.17	0.000	0.0010
TOTAL OTHER HpCDF	2.77	N	1.0	4.17	0.000	0.0001

CONC = EDL AREA * CONC IS1(2)/IS1(2) AREA * RF

TEQ = CONC (or VALUE) * TEF

EDL COLUMN: * I = INTERFERANT; N = NOISE;

YORK RESEARCH CONSULTANTS

antitation Report   File: Y90B2352

ta. Y90B2352.TI
/29/90 3:31:00
mple: 1323
[illegible] SUL 170DG FOR 6 MIN TO 320DG AT 3.0 DG/MIN, HOLD FOR 7MIN
[illegible] Instrument [illegible]
[illegible] by Y90B2340 Analyst APH [illegible]

[illegible] AREA * REF AMNT / REF AREA * RESP FACT
sp. Rec from Library Entry

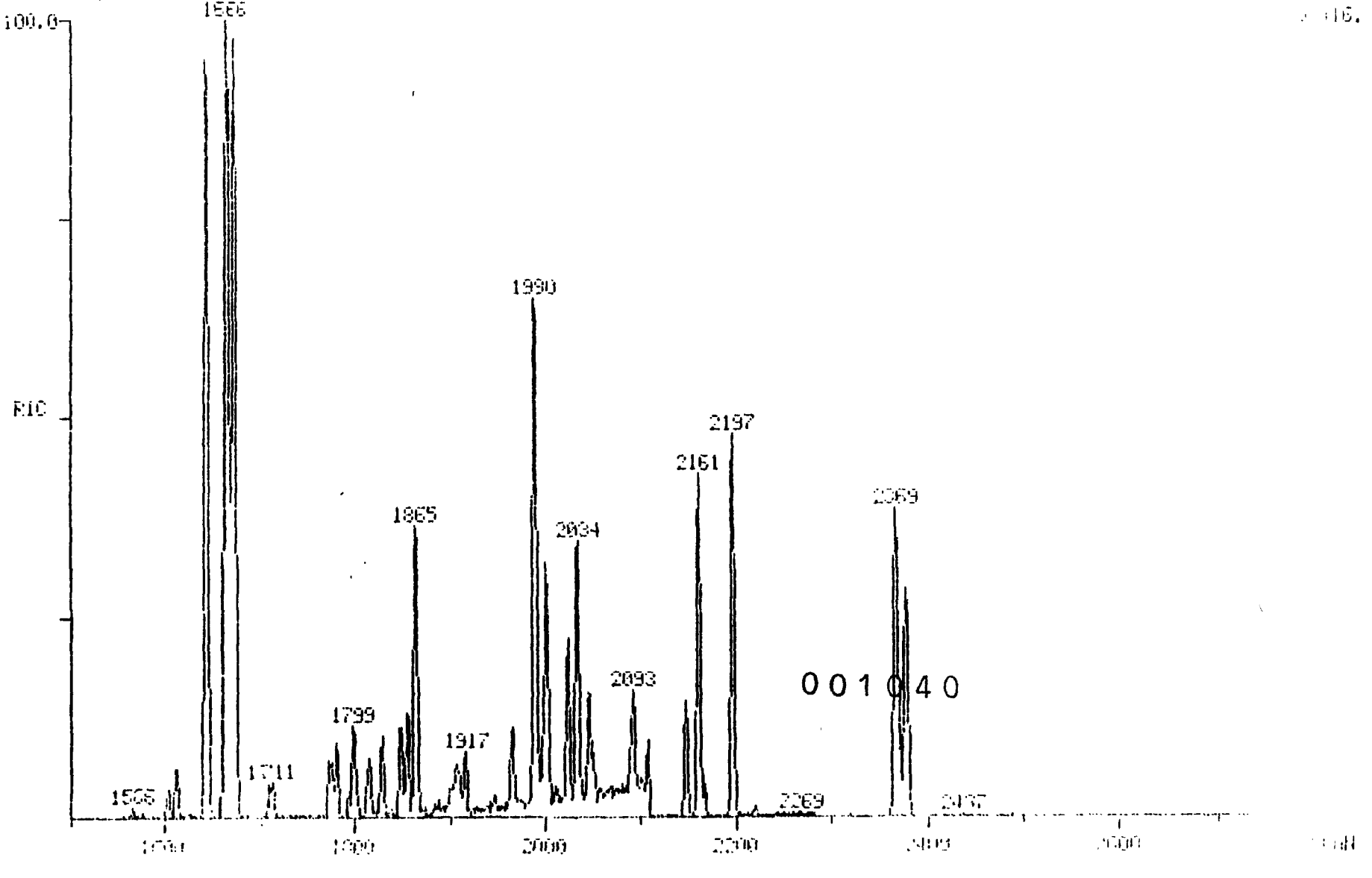
	Name
1	*RS1* 13C 1,2,3,4-TCDD (DF#1)
2	*IS1* 13C 2,3,7,8-TCDD (DF#2)
3	*IS2* 13C 1,2,3,4,6,7,8,9-OCDD (DF#3)
4	*SS1* 37CL 2,3,7,8-TCDD (DF#4)
5	2,3,7,8-TCDF (DF#5)
6	2,3,7,8-TCDD (DF#6)
7	1,2,3,7,8-PECDF (DF#7)
8	2,3,4,7,8-PECDF (DF#8)
9	1,2,3,7,8-PECDD (DF#9)
0	1,2,3,4,7,8-HXCDF (DF#10)
1	1,2,3,6,7,8-HXCDF (DF#11)
2	1,2,3,7,8,9-HXCDF (DF#12)
3	2,3,4,6,7,8-HXCDF (DF#13)
4	1,2,3,4,7,8-HXCDD (DF#14)
5	1,2,3,6,7,8-HXCDD (DF#15)
6	1,2,3,7,8,9-HXCDD (DF#16)
7	1,2,3,4,6,7,8-HPCDF (DF#17)
8	1,2,3,4,7,8,9-HPCDF (DF#18)
9	1,2,3,4,6,7,8-HPCDD (DF#19)
	1,2,3,4,6,7,8,9-OCDF (DF#20)
1	1,2,3,4,6,7,8,9-OCDD (DF#21)
2	13C 2,3,7,8-TCDD (DF#22)
3	13C 1,2,3,4,6,7,8,9-OCDD (DF#23)

o	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	334	1666	19:35	1	1.000	A BV	154343.	2000.000	PG/UL	11.61
2	334	1673	19:39	2	1.000	A VB	65223.	2000.000	PG/UL	11.61
3	472	2368	27:49	3	1.000	A BB	24713.	2000.000	PG/UL	11.61
4	NOT FOUND									
5	306	1646	19:20	2	0.984	A BB	21295.	391.418	PG/UL	2.27
6	322	1670	19:37	2	0.998	A BB	400.	10.633	PG/UL	0.06
7	340	1831	21:31	2	1.094	A BB	1458.	44.215	PG/UL	0.26
8	340	1799	21:08	2	1.075	A BB	13820.	441.816	PG/UL	2.56
9	356	1852	21:46	2	1.107	A BB	763	31.006	PG/UL	0.18
0	374	1999	23:29	2	1.195	A VB	1553.	80.540	PG/UL	0.47
1	374	1991	23:24	2	1.190	A BV	12604	548.609	PG/UL	3.18
2	NOT FOUND									
3	374	2024	23:47	2	1.210	A BB	18887.	1003.020	PG/UL	5.82
4	390	2034	23:54	2	1.216	A BB	2614	211.822	PG/UL	1.23
5	390	2034	23:54	2	1.216	A BB	2614	164.896	PG/UL	0.96
6	390	2034	23:54	2	1.216	A BB	2614	234.240	PG/UL	1.36
7	408	2147	25:14	3	0.907	A BB	12242	560.277	PG/UL	3.25
8	408	2222	26:07	3	0.938	A BB	468.	29.257	PG/UL	0.17
9	424	2197	25:49	3	0.928	A BB	25445.	1873.850	PG/UL	10.87
0	444	2379	27:57	3	1.005	A BB	1466	129.574	PG/UL	0.75

D117

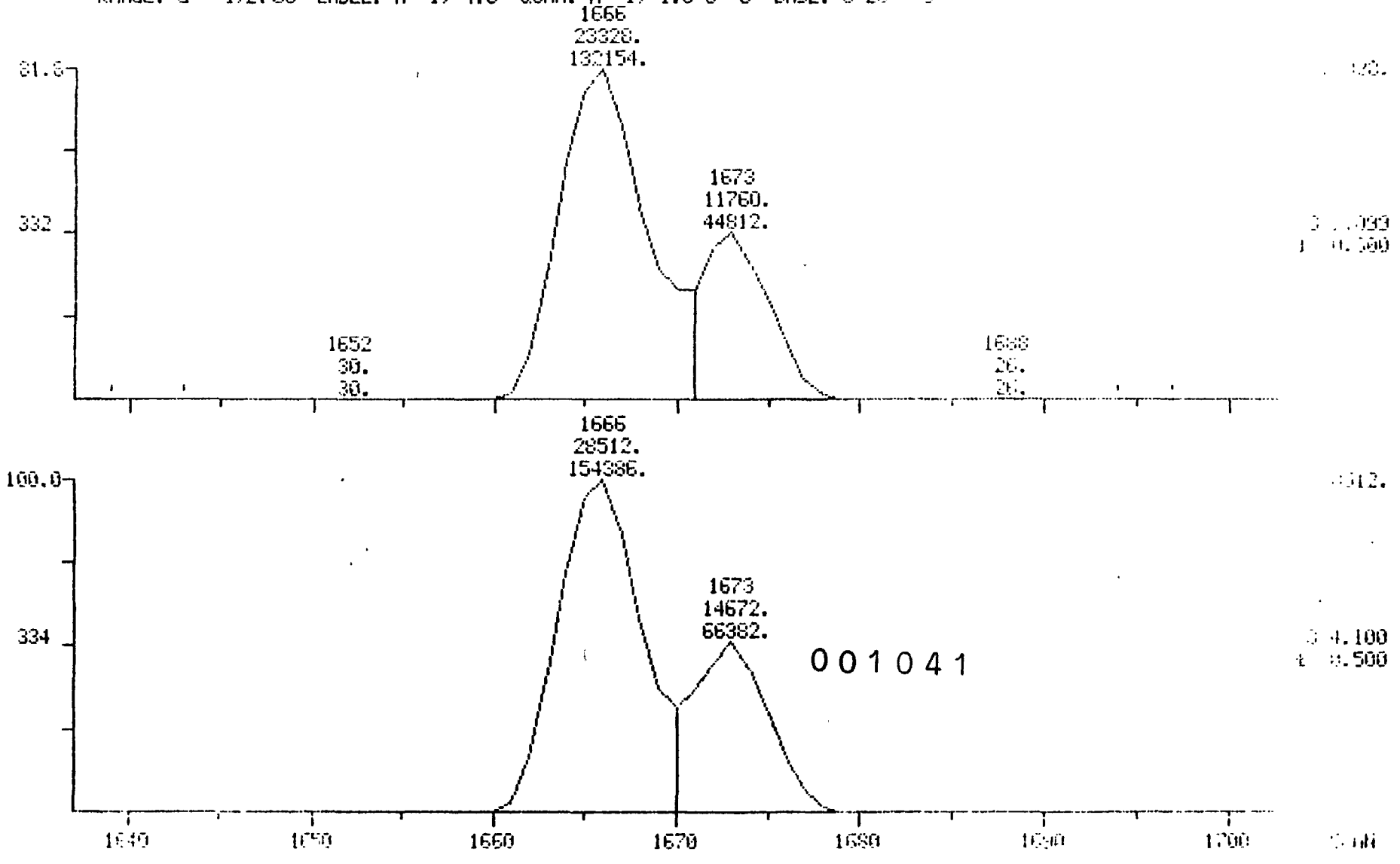
001038

p	m/z	Scan	Time	Ref		RRT	Meth	Area(Hght)	Amount		%Tot
1	460	2369	27:50	3	1	000	A BV	24429	3296 250	PG/UL	19.13
2	334	1673	19:39	1	1	004	A VB	66222.	461 643	PG/UL	2.68
3	472	2368	27:49	1	1	421	A BB	24718	1720 980	PG/UL	9.99


RIC
10/29/90 3:31:00
SAMPLE: 1323
RIC
100.0
1566
1711
1799
1865
1917
1990
2034
2093
2161
2197
2269
2369
2437
001040

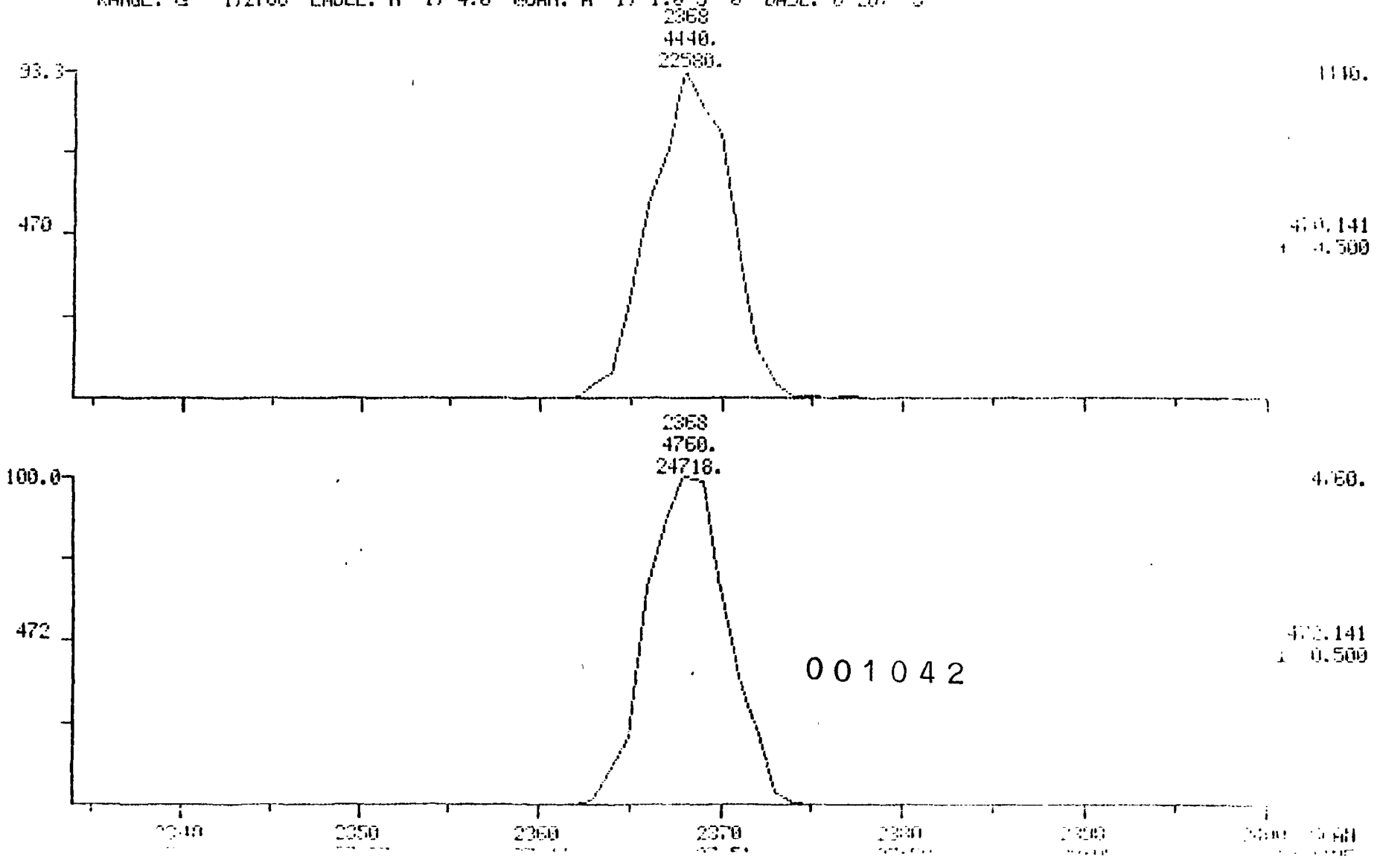
MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
#151# 13C 2,3,7,8-TCDD (DF#2)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

DATA: Y90B2352 #1670 SCANS 1637 TO 1703
CALI: FCOCT27 #3



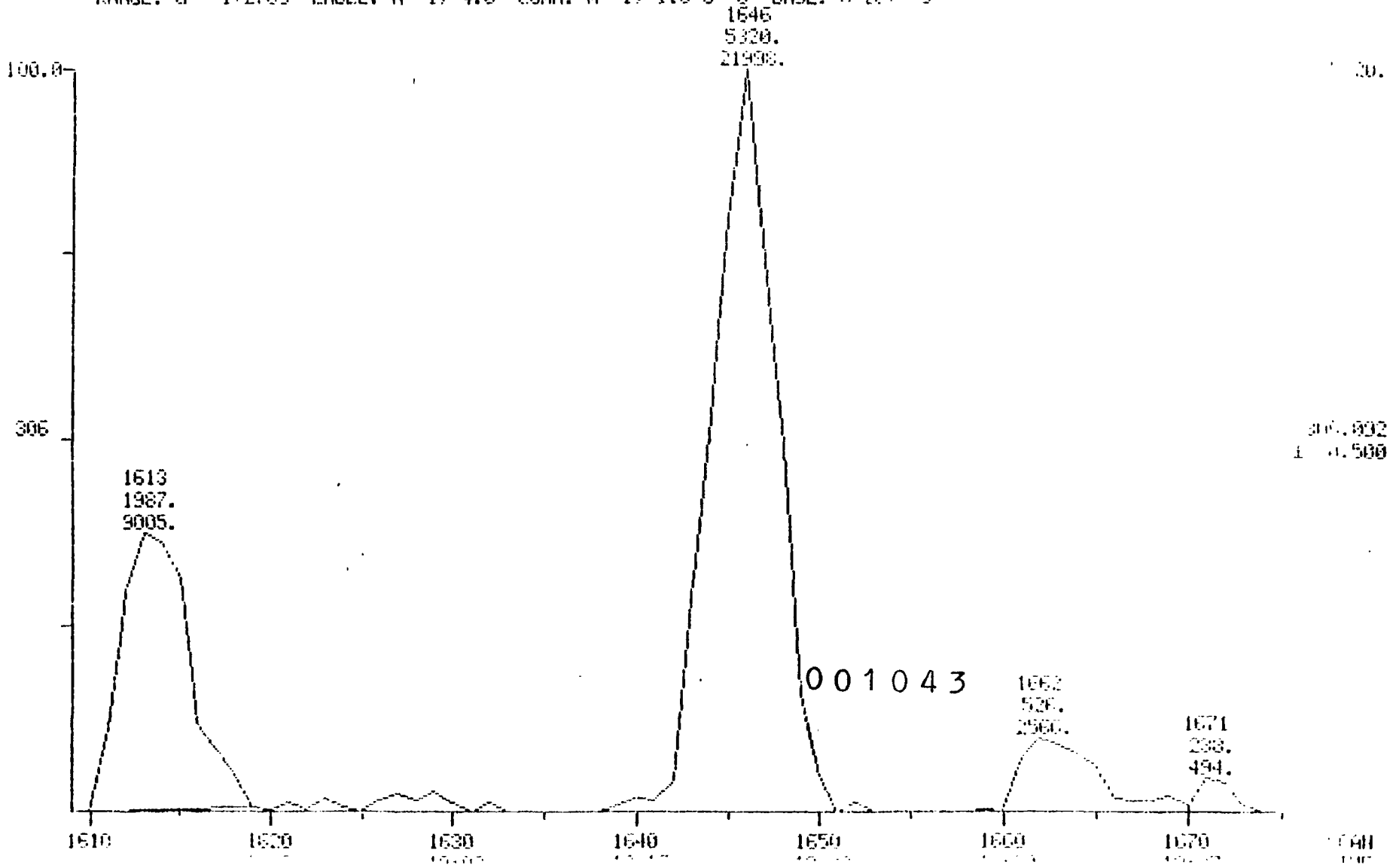
001041

MASS CHROMATOGRAMS DATA: Y90B2352 #2367 SCANS 2334 TO 2400
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
*IS2# 13C 1,2,3,4,6,7,8,9-OCDD (DF#3)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



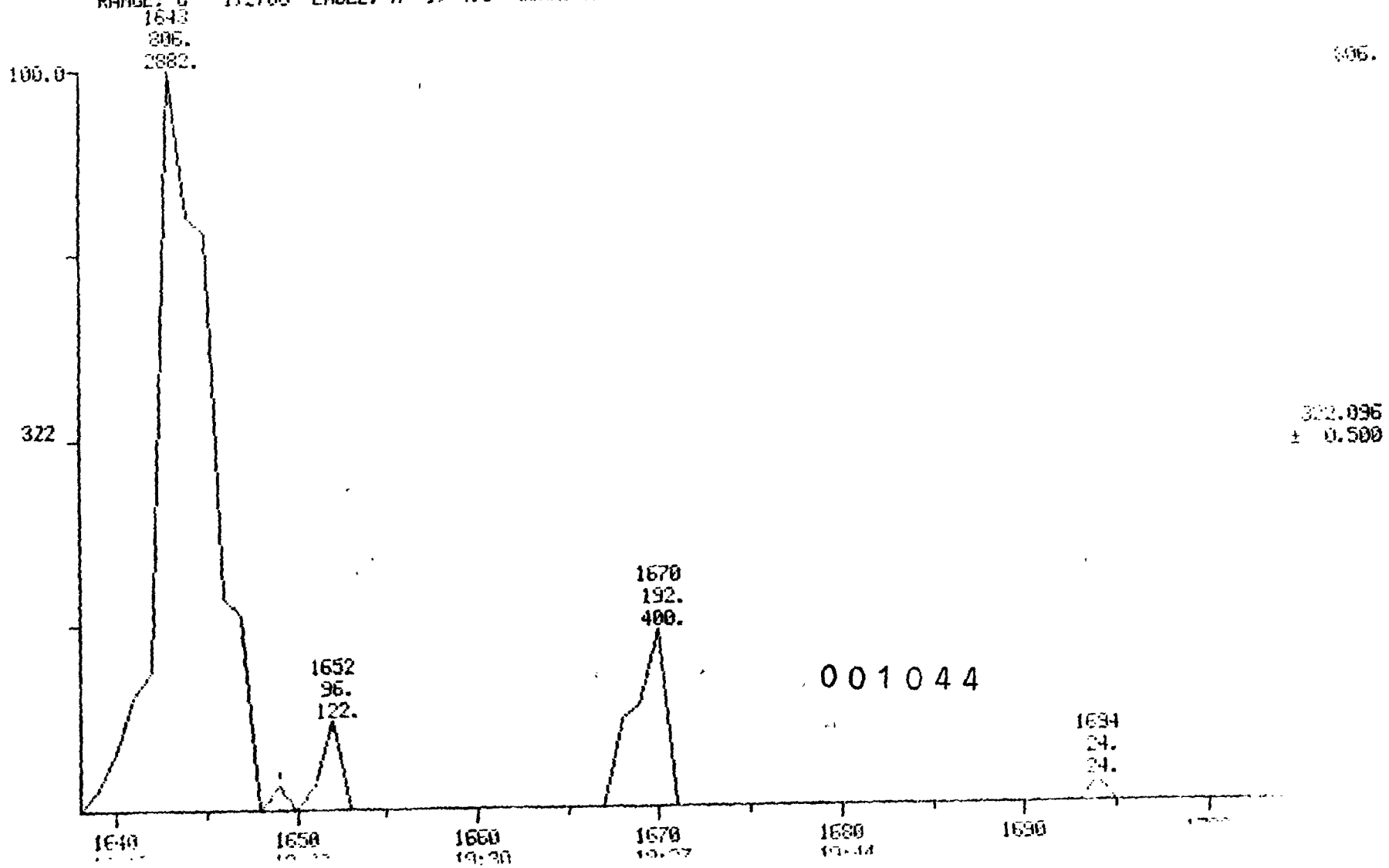
001042

MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
DATA: 790B2852 #1642
CALI: FCOCT27 #3
SCANS 1640 TO 1675
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDF (DF#5)
RANGE: G 1.2765 LABEL: H 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: H 20, 3



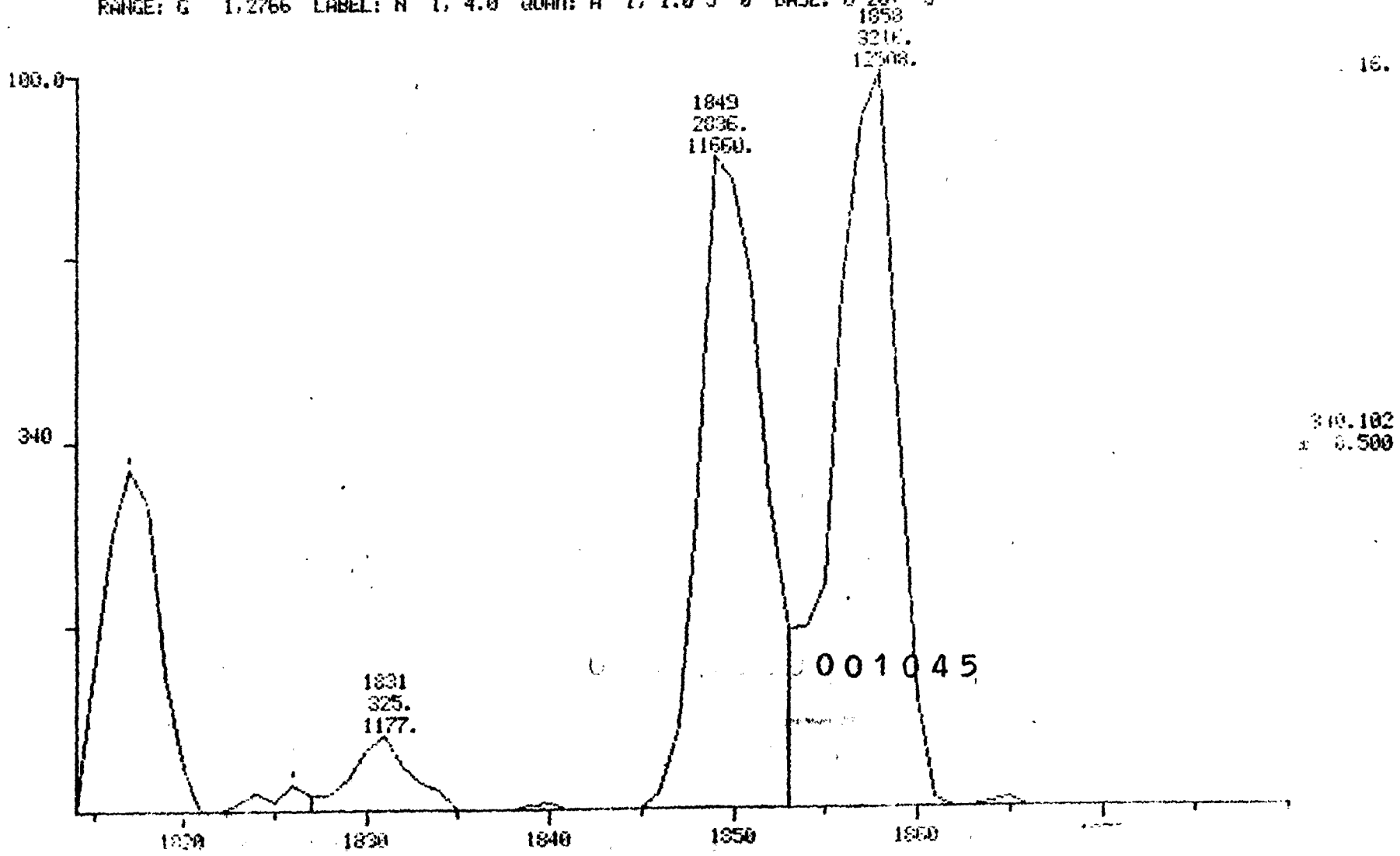
MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDD (DF#6)
RANGE: G 1.2765 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

DATA: Y90B2352 #1671 SCANS 1638 TO 1704
CALI: FCOCT27 #3

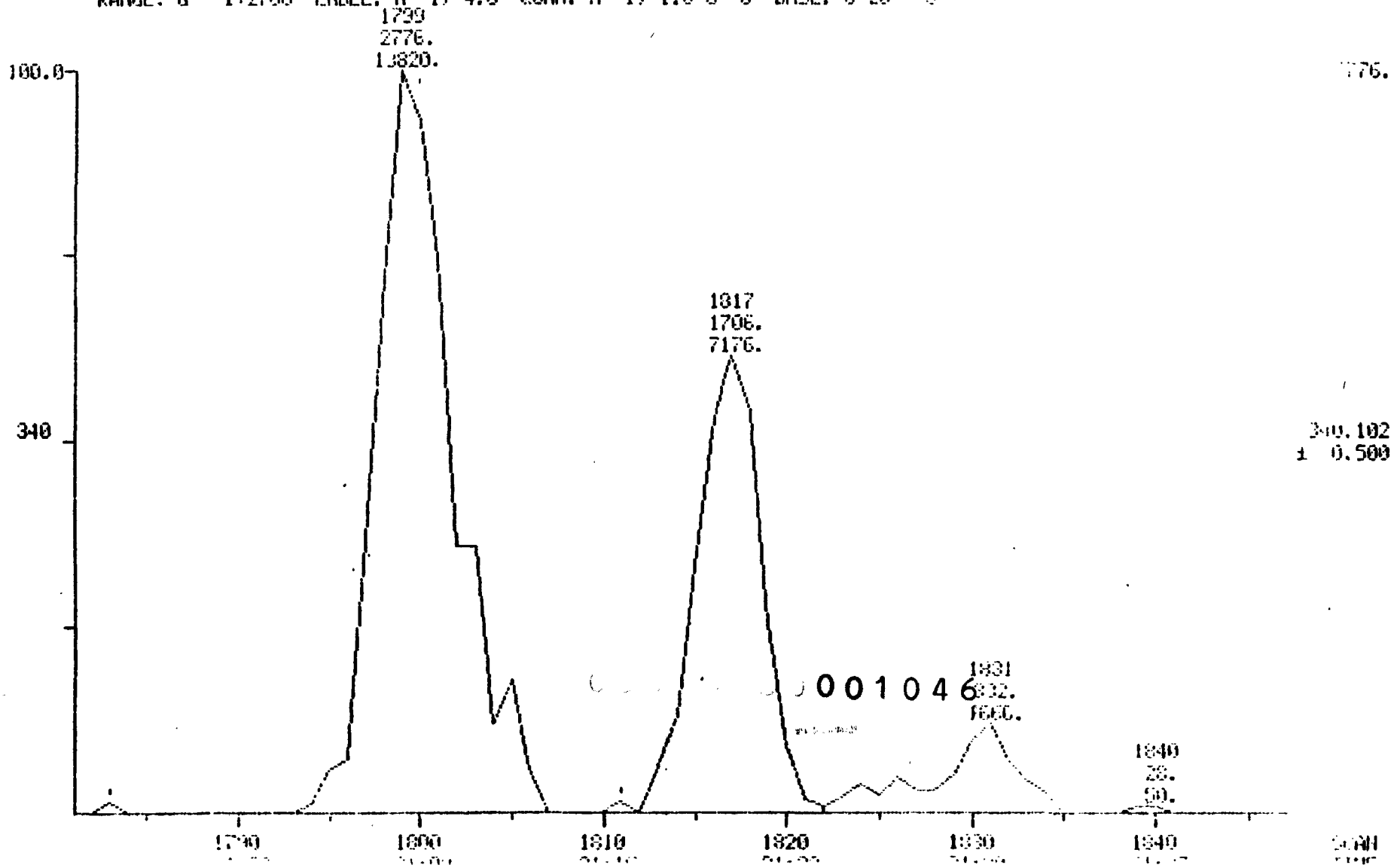


001044

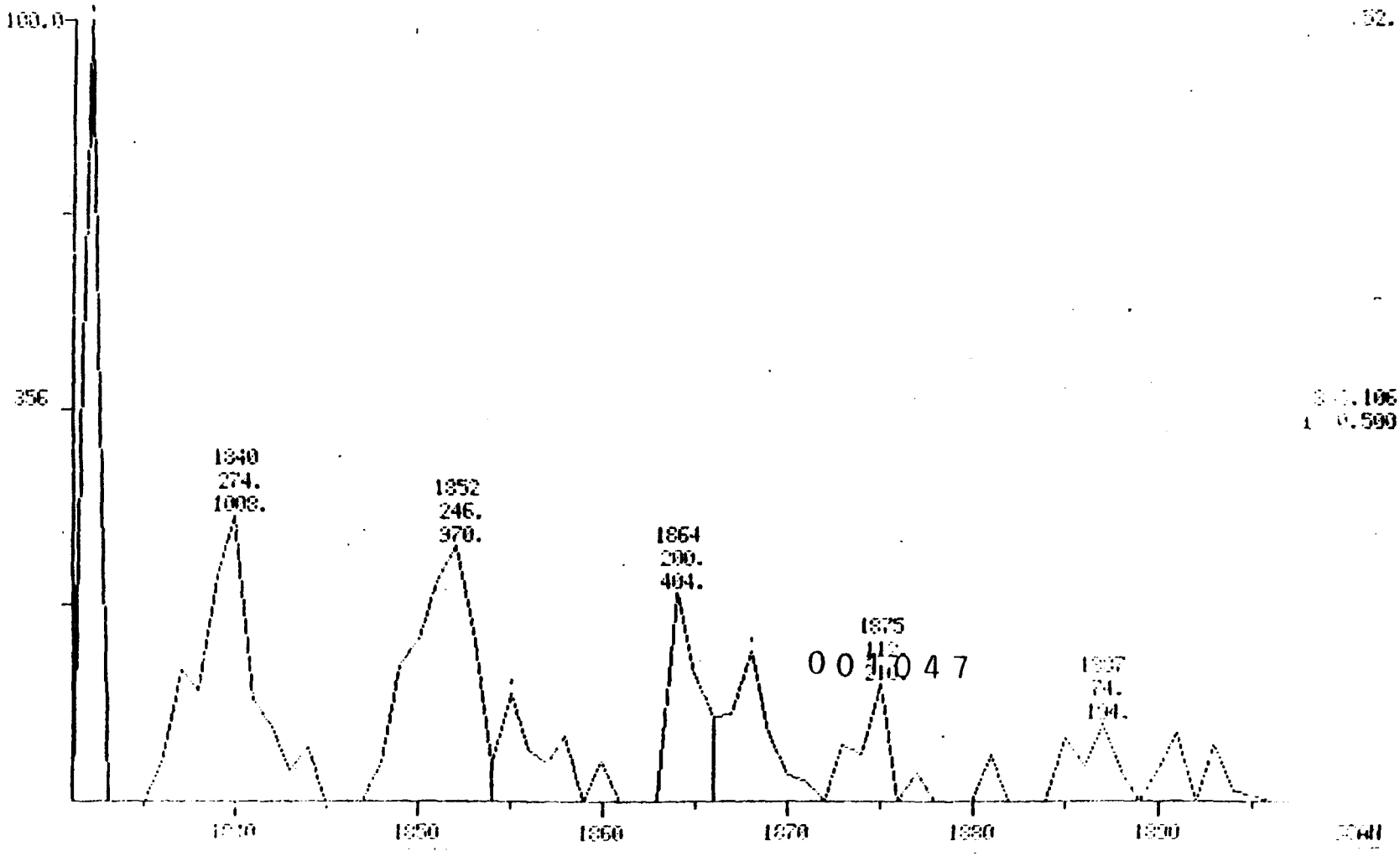
MASS CHROMATOGRAM
10/23/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #1847 SCANS 1814 TO 1830
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDF (DF#7)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



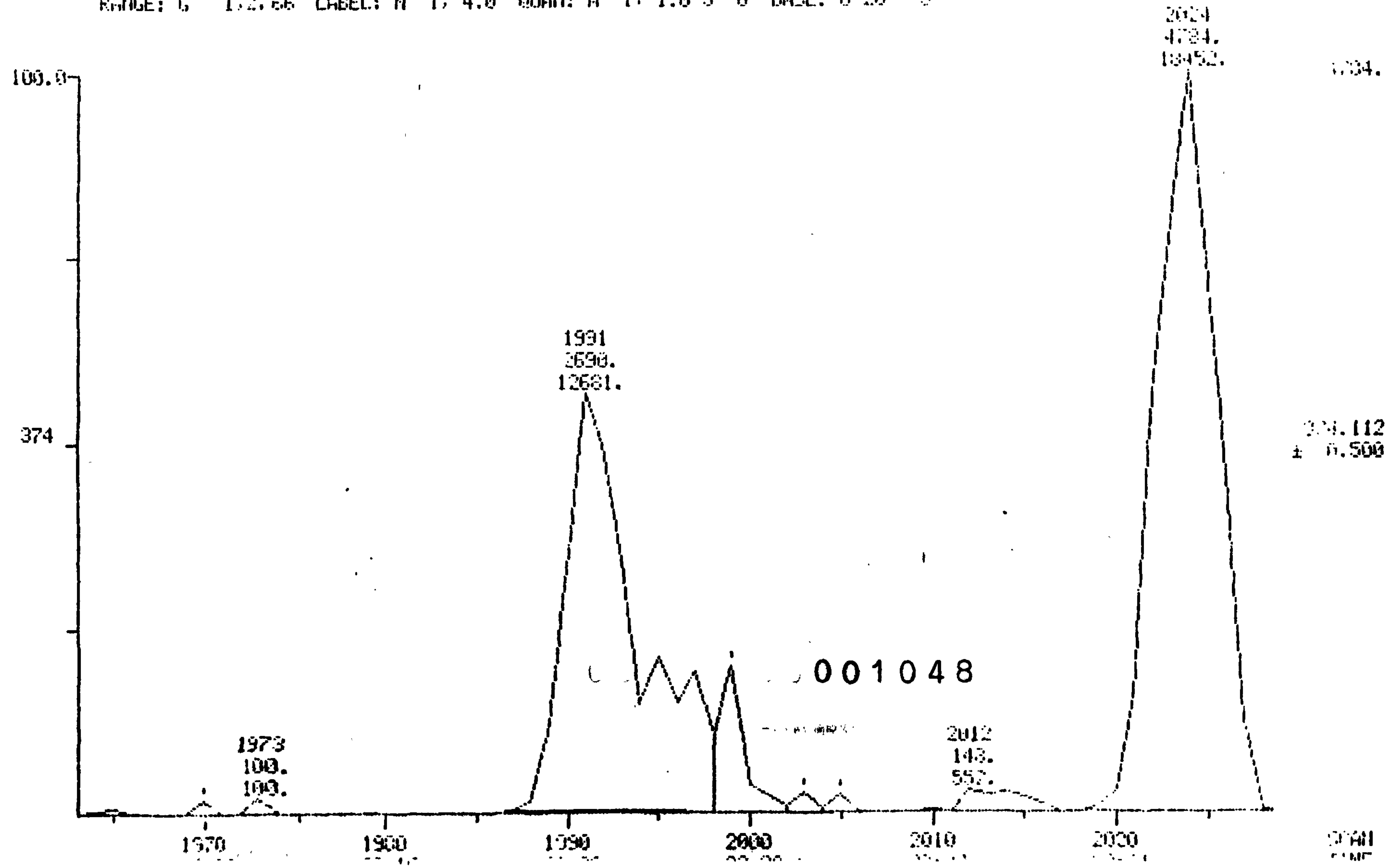
MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #1814 SCANS 1794 TO 1847
CALI: FCDCT27 #3
CONDS.: 2UL 170DG FOR 0.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,7,8-PECDF (DF#3)
RANGE: G 1.2756 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20 3



MASS CHROMATOGRAM DATA: Y90B2352 #1864 SCANS 1831 TO 1897
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1:2,3-7,8-PECDD (DF#9)
RANGE: G 1:2766 LABEL: N 1: 4.0 QUAN: A 1: 1.0 J 0 BASE: U 20. B

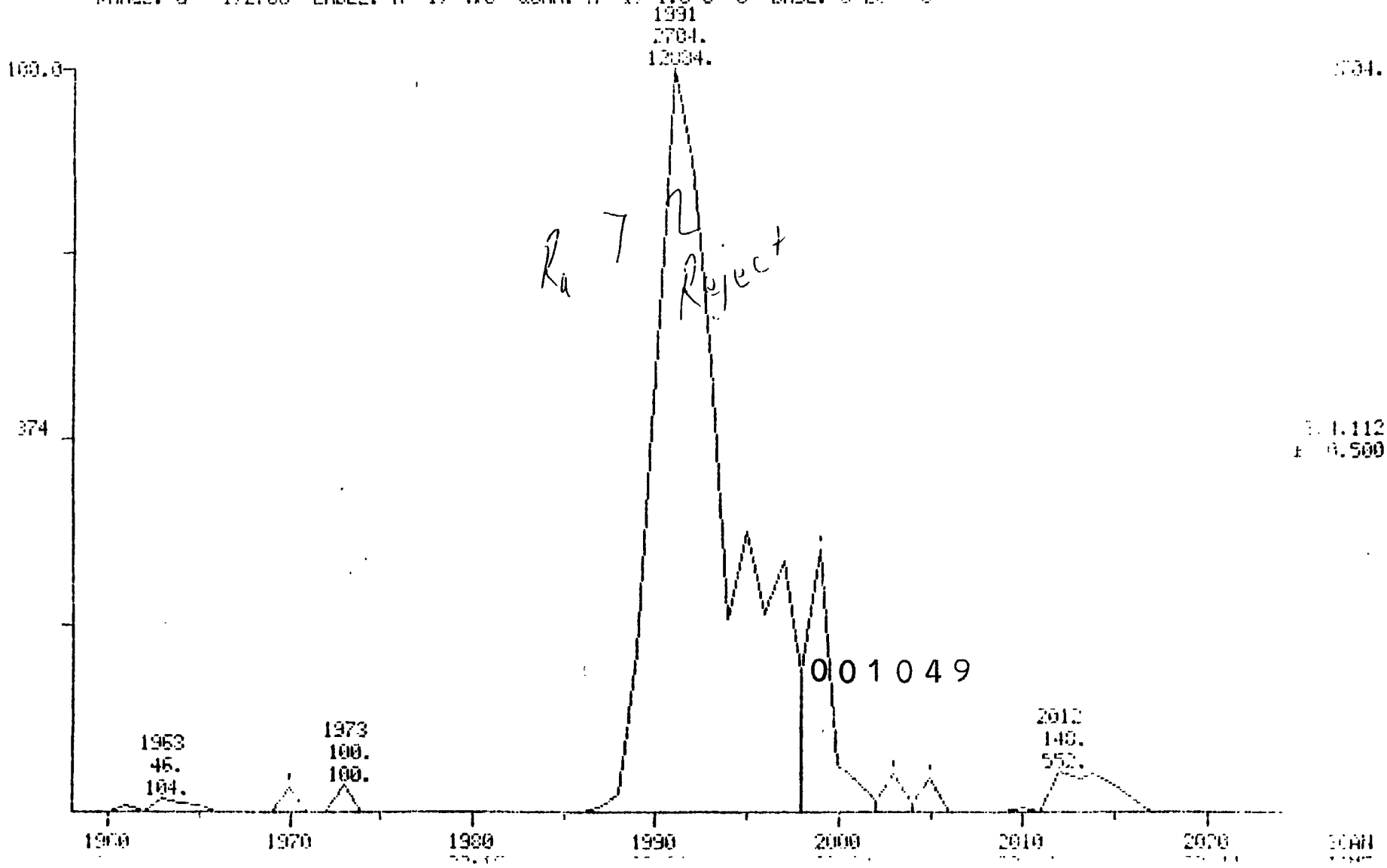


MASS CHROMATOGRAM   DATA: Y90D2352 #1996   SCANS [illegible]
10/29/90 3:31:00   CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDF (DF#10)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20



001048

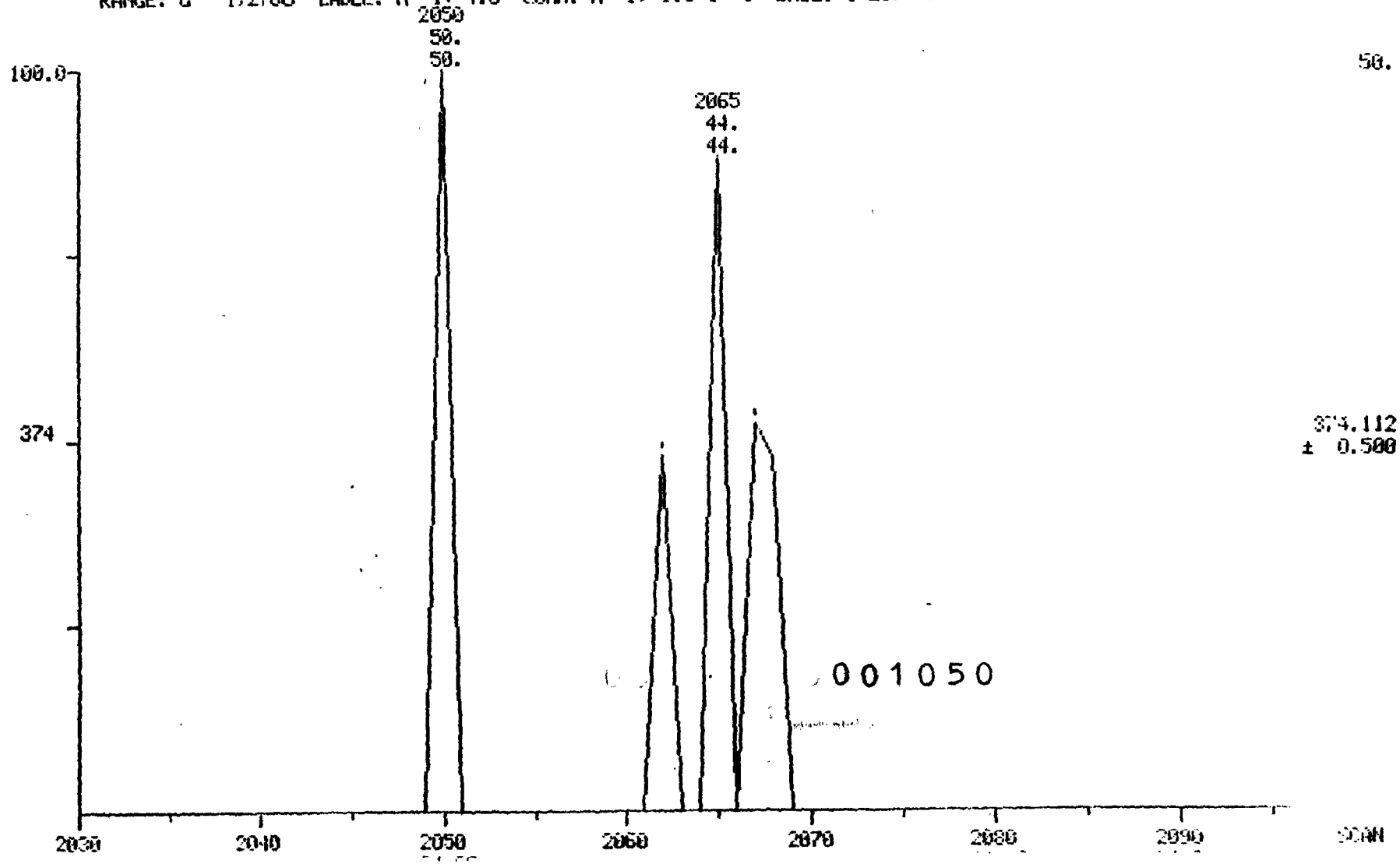
MASS CHROMATOGRAM DATA: Y90B2352 #1991 SCANS 1943 TO 2024
10/20/90 8:31:00 CALI: FOOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDF (DF#11)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 30 3



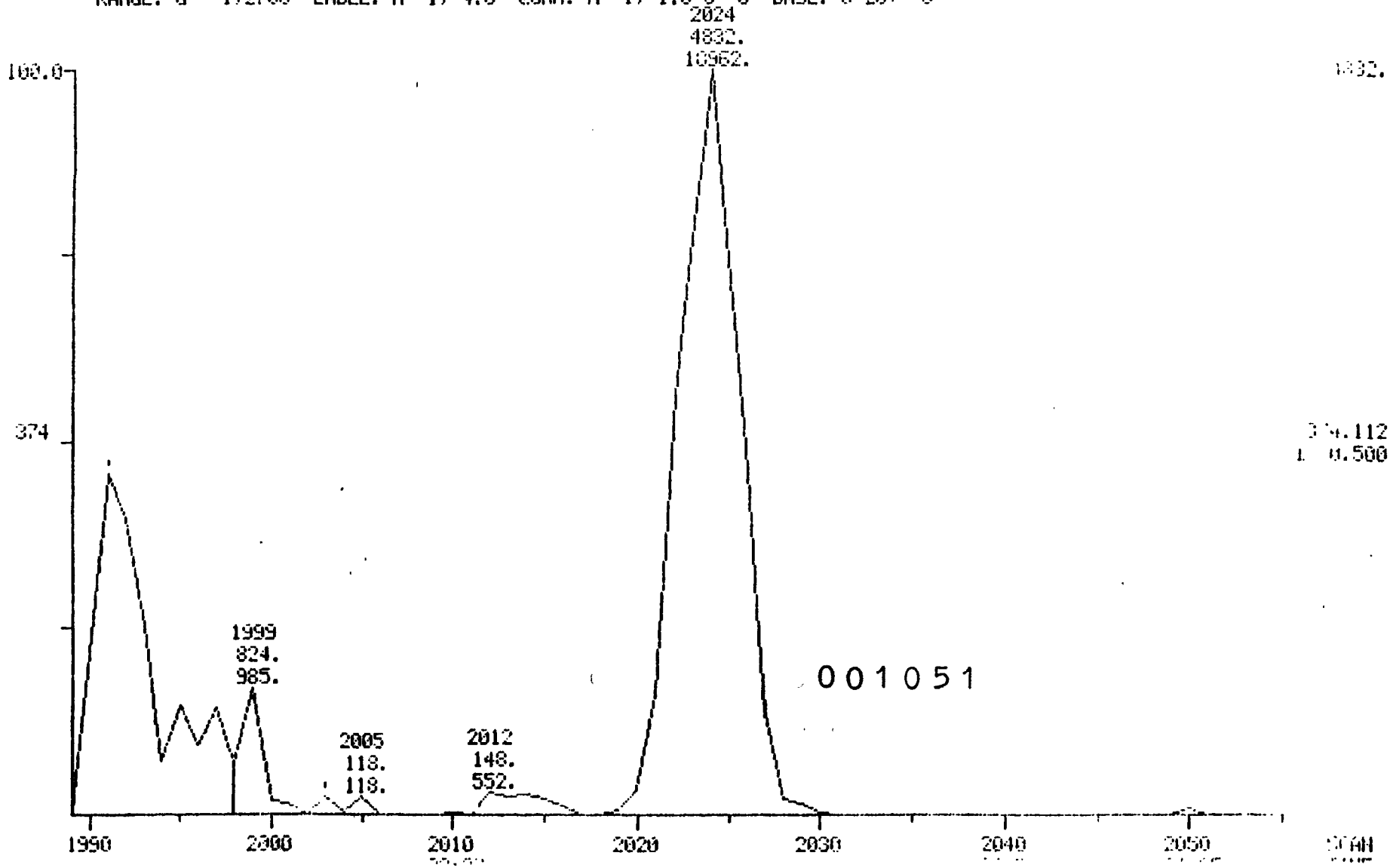
Ra 7 2 Reject

001049

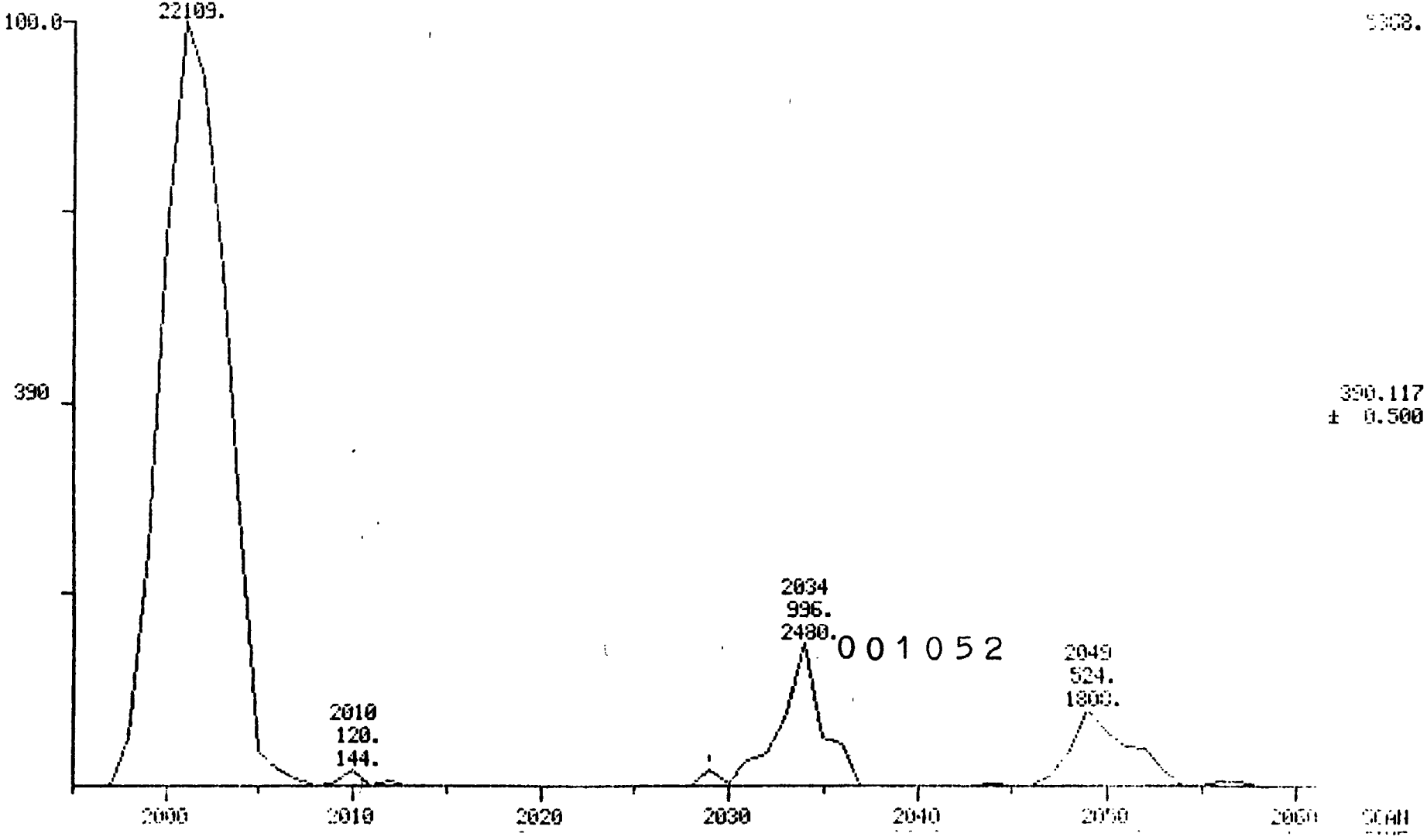
MASS CHROMATOGRAM
10/23/90 3:31:00
SAMPLE: 1323
DATA: YS062352 #2063
CALI: FCOCT27 #3
SCANS 2030 TO 2096
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-H/CDF (DF#12)
RANGE: G 1,2766 LABEL: M 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y9082352 #2022 SCANS 1930 to 2055
CALI: FCOCT27 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,6,7,8-HXCDF (DF#13)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

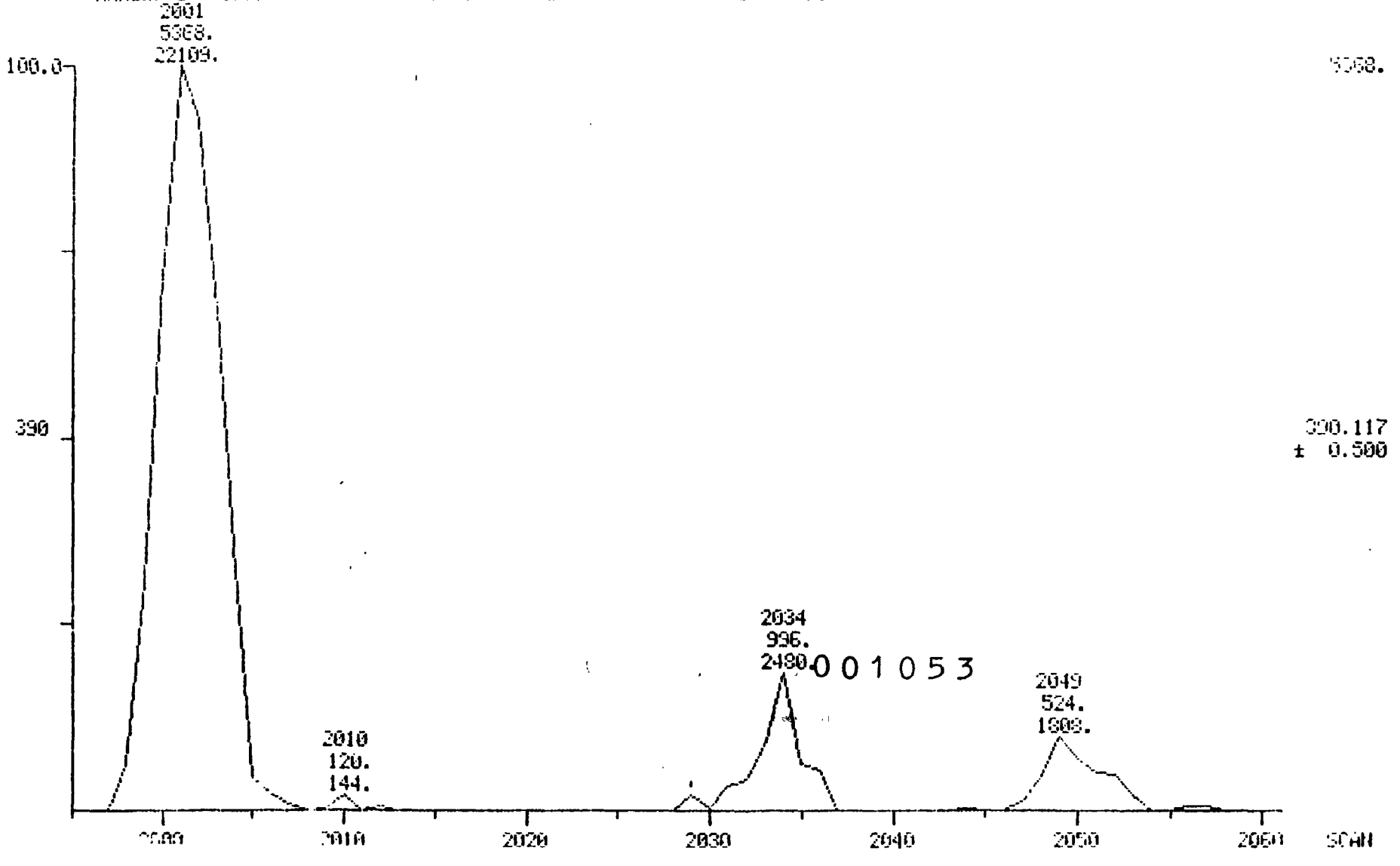


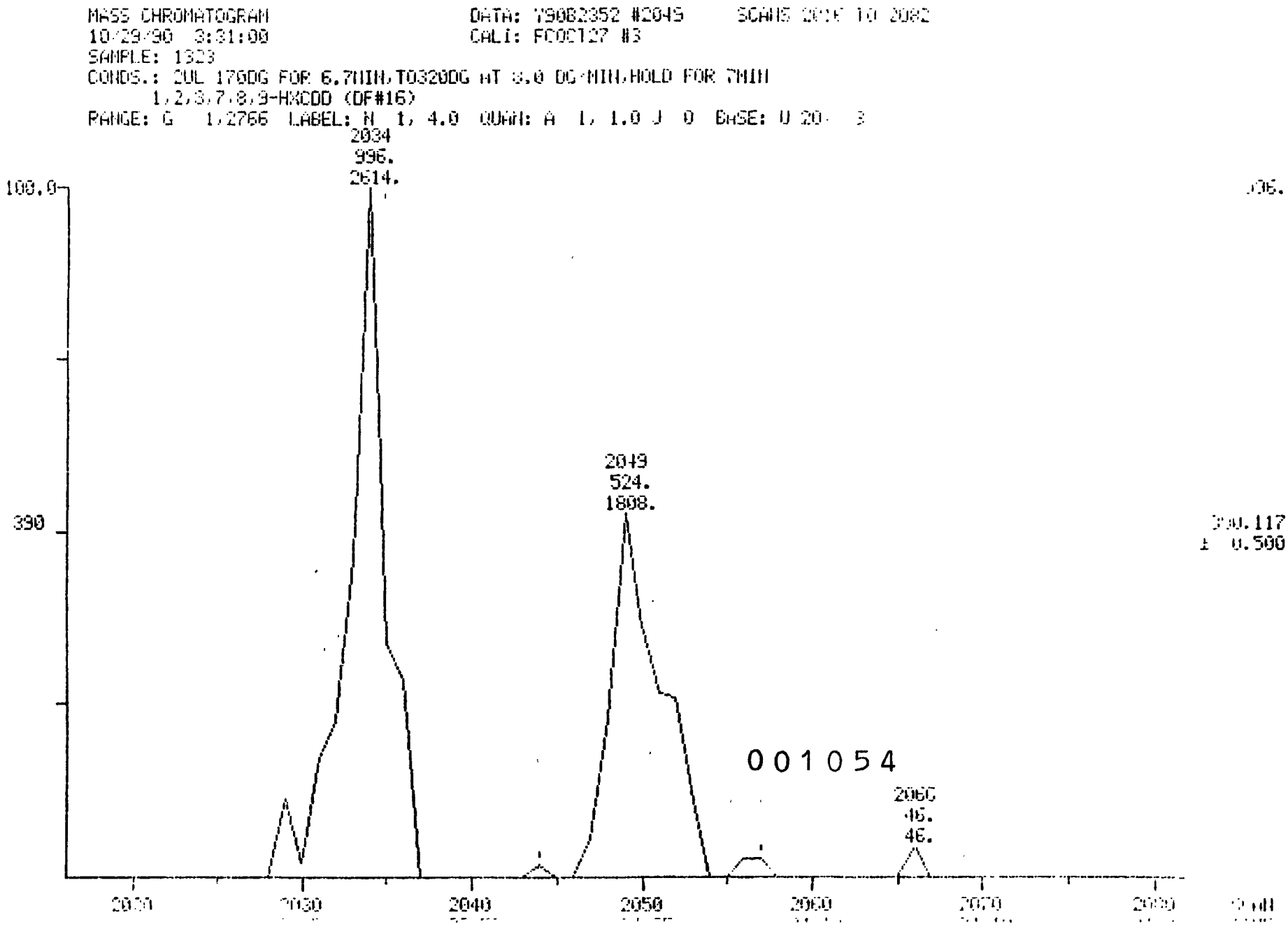
MASS CHROMATOGRAM DATA: Y90B2352 #2028 SCANS 1995 TO 2061
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDD (DF#14)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



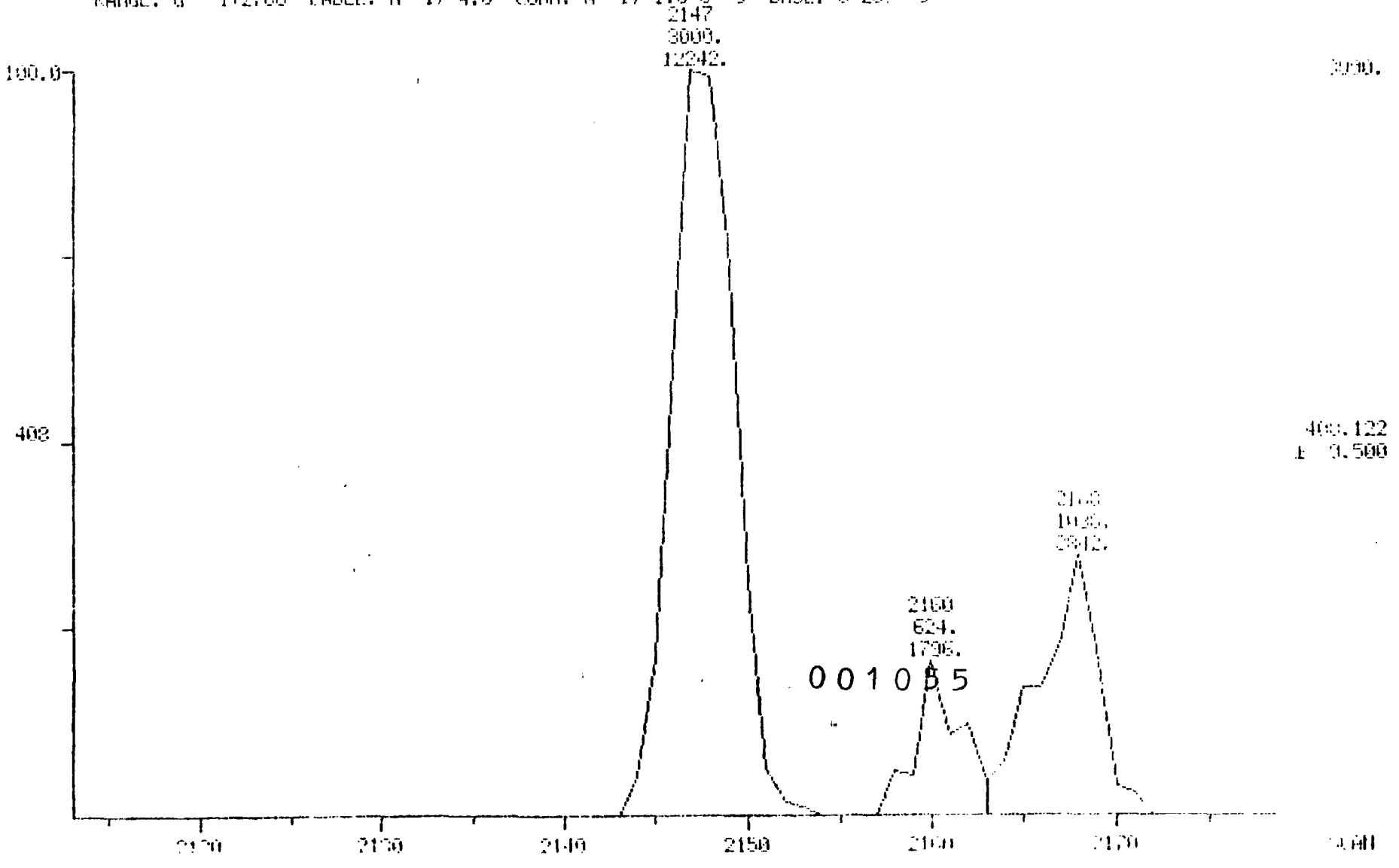
001052

MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2028 SCANS 1925 TO 2061
CALI: FCOCT27 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDD (DF#15)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3




MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2045
CALI: FOOCT27 #3
SCANS 2014 TO 2082
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 3.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDD (DF#16)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20- 3
2034
996.
2614.
2049
524.
1808.
2060
46.
48.
100.0
330
330.117
± 0.500
001054
2030
2040
2050
2060
2070

MASS CHROMATOGRAM
10-29-90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2140 SCANS 2113 TO 2179
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDF (DF#17)
RANGE: G 1.2766 LABEL: M 1, 4.0 QUAN: M 1, 1.0 J 0 BASE: U 20.



MASS CHROMATOGRAM
10/29/90 8:31:00
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8,9-HPCDF (DF#18)
RANGE: G 1.2766 LABEL: M 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

DATA: Y90B2352 #2219 SCANS 2196 TO 2252
CALI: FCOCT27 #3

2222
166.
468.

100.0

408

166.

408.122
1 0.500

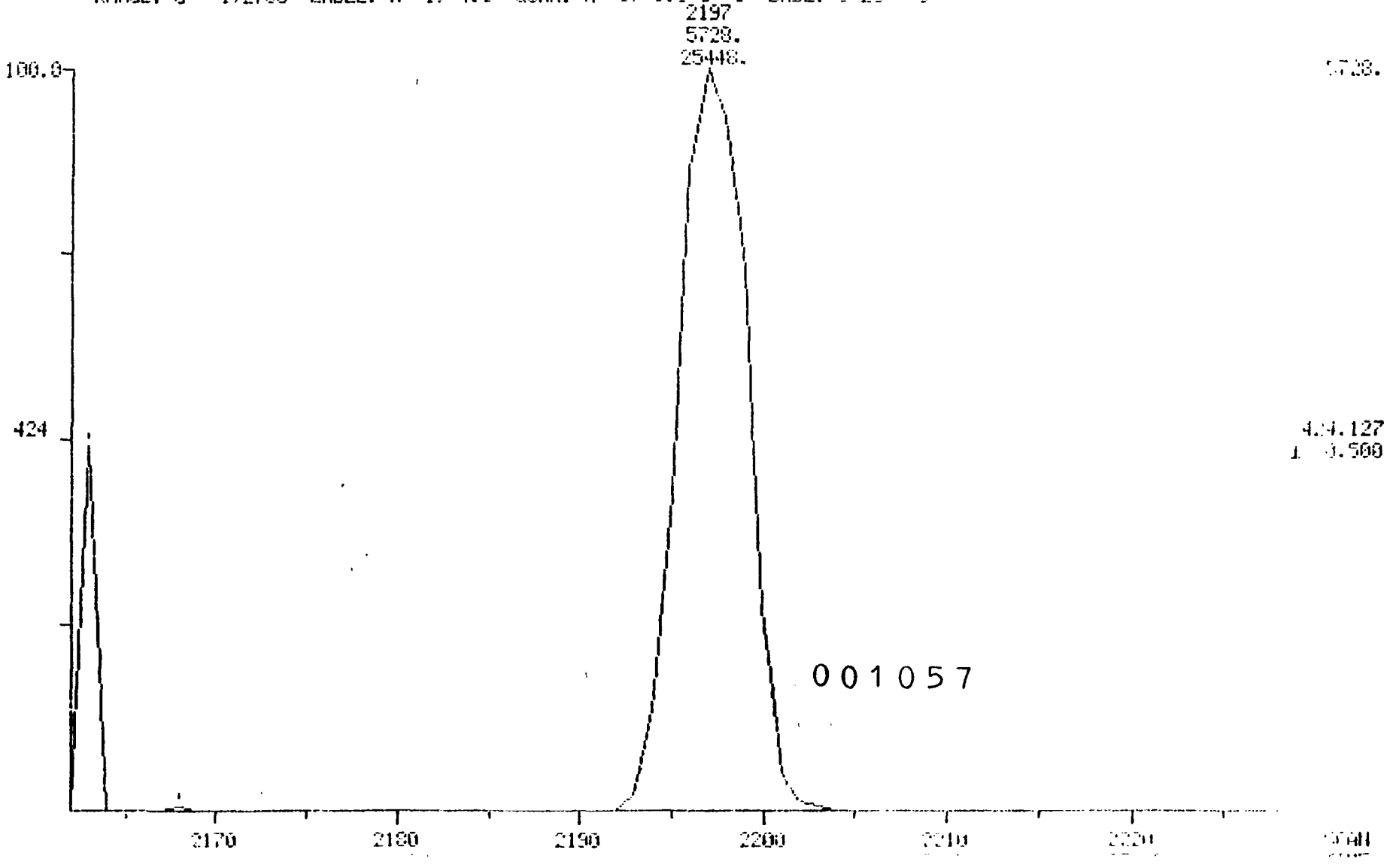
0 0 1 0 5 6

2235
16.
16.

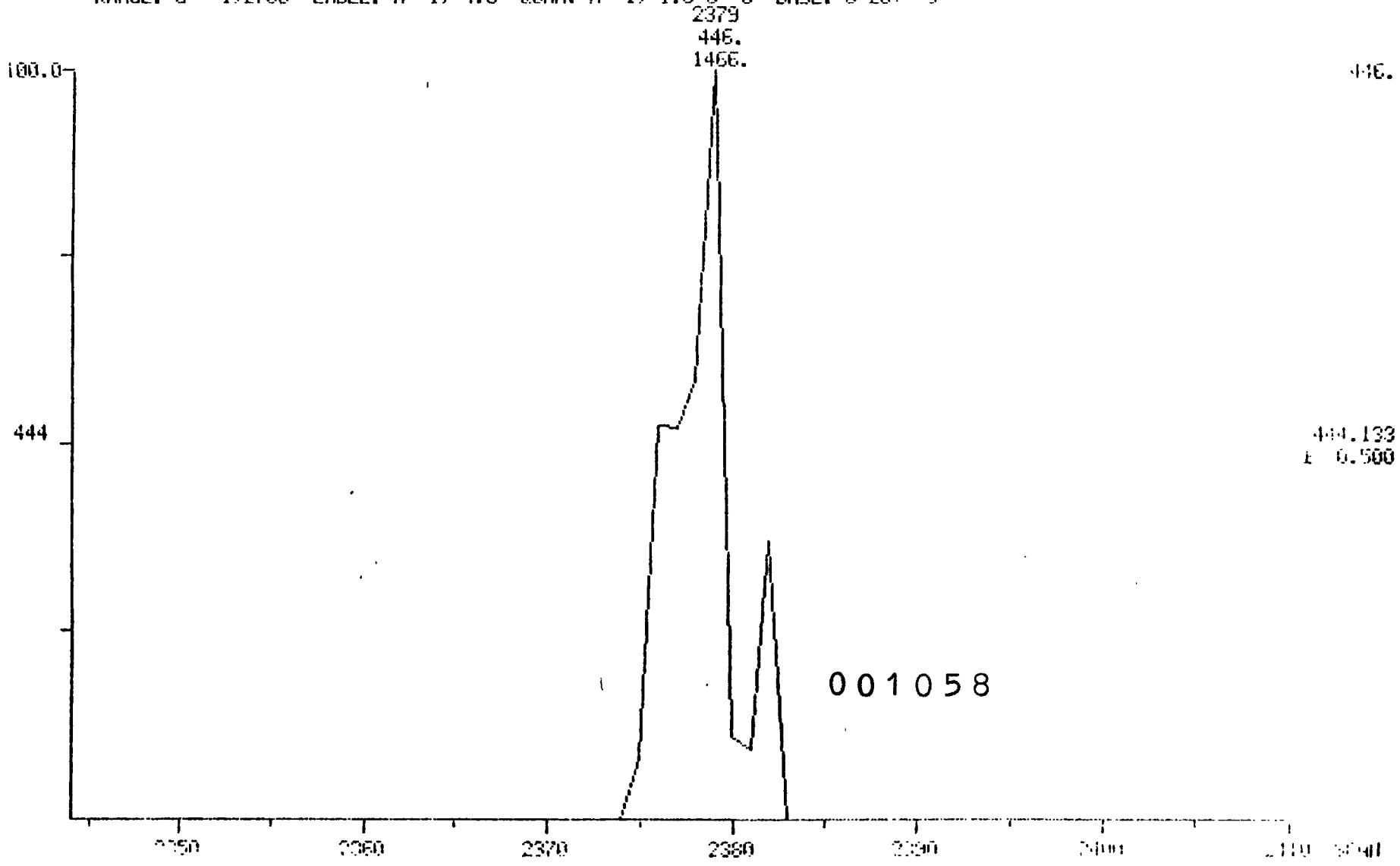
2247
20.
20.

2190 2200 2210 2220 2230 2240 2250 SCAN

MASS CHROMATOGRAM DATA: 790B2352 #2195 SCANS 2162 TO 2228
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 1700G FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDD (DF#19)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. J

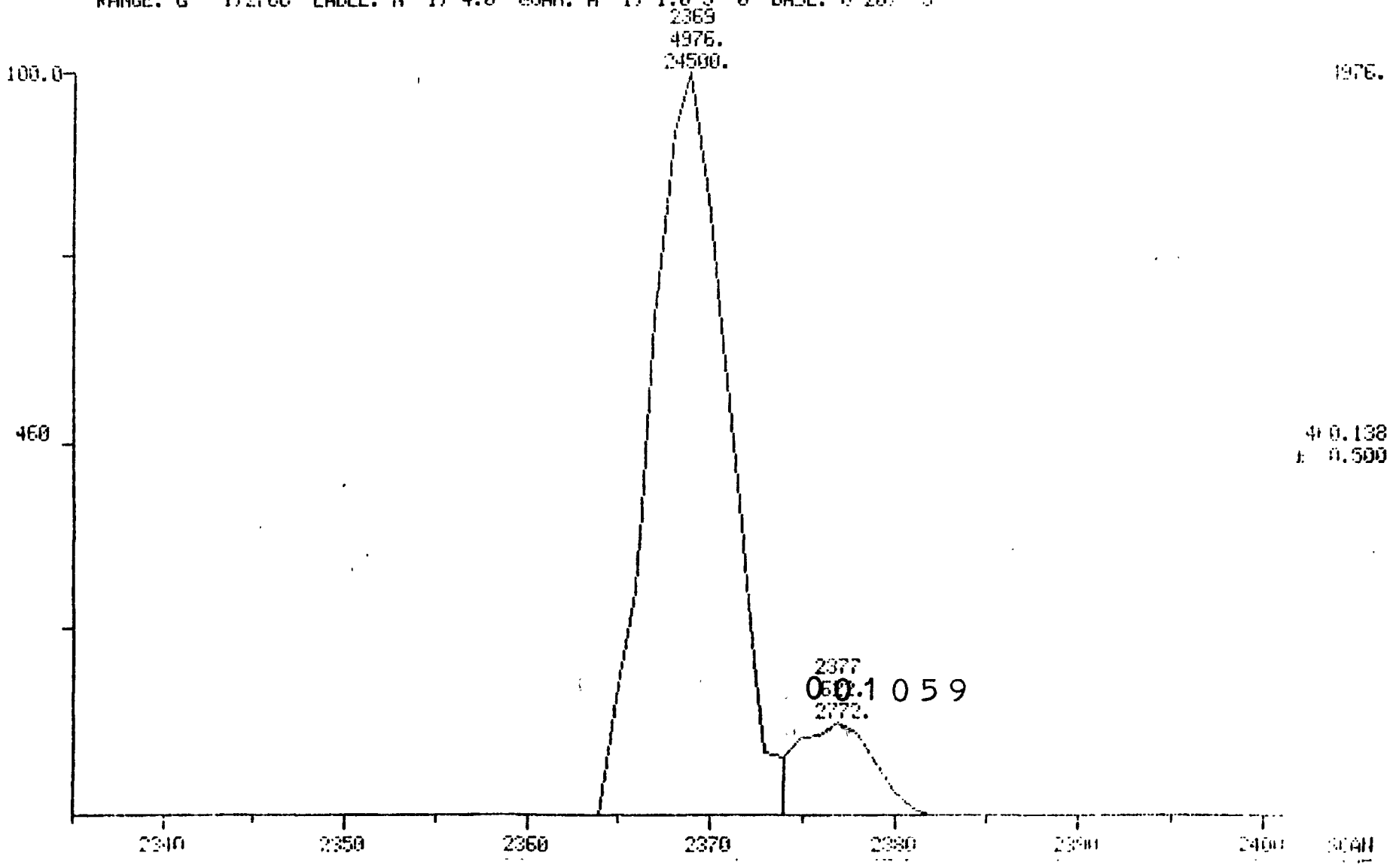


MASS CHROMATOGRAM DATA: Y90B2352 #2377 SCANS 2344 TO 2410
10/29/90 3:31:00 CALI: FCDCT27 #3
SAMPLE: 1323
COMDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDF (DF#20)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

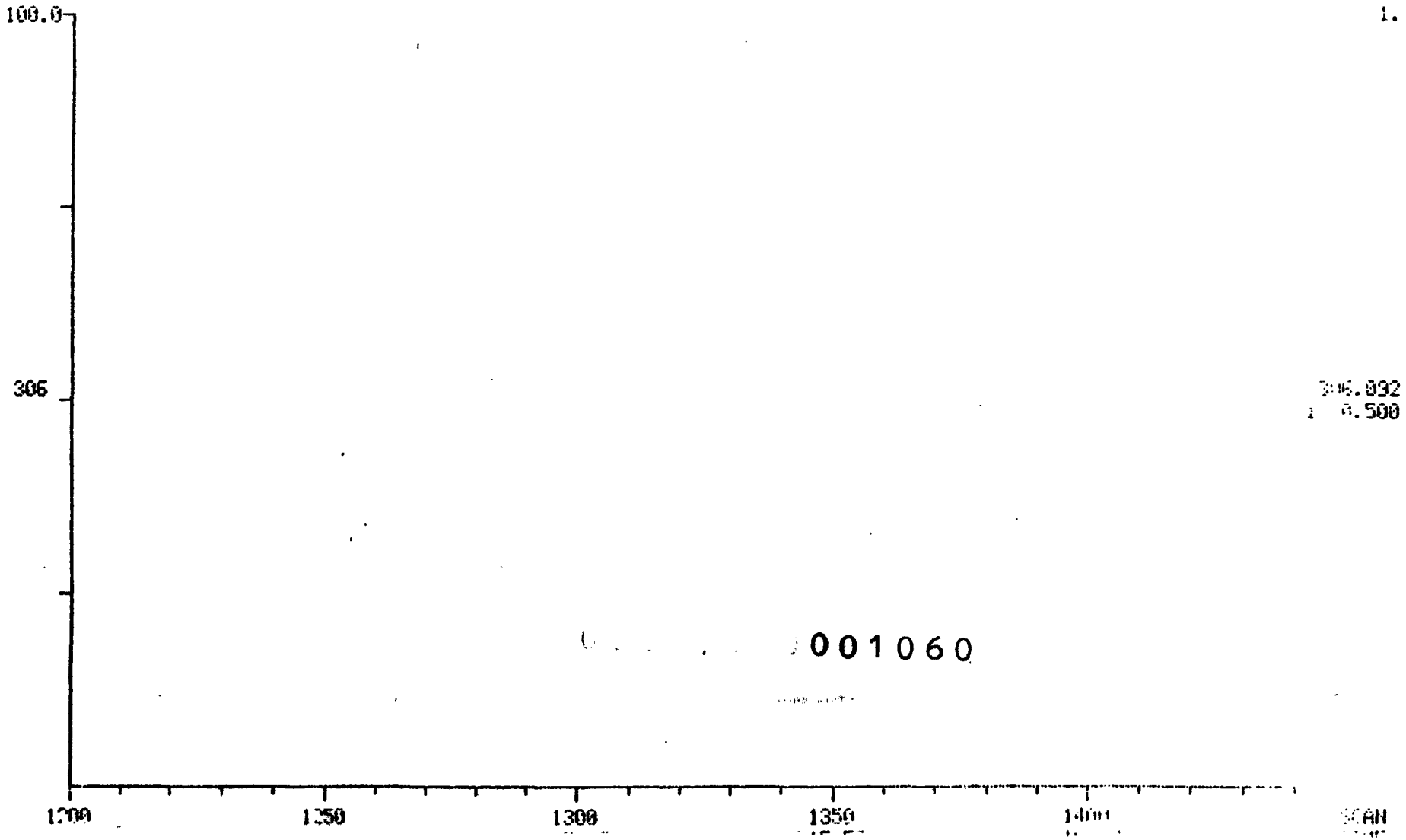


MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDD (DF#21)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

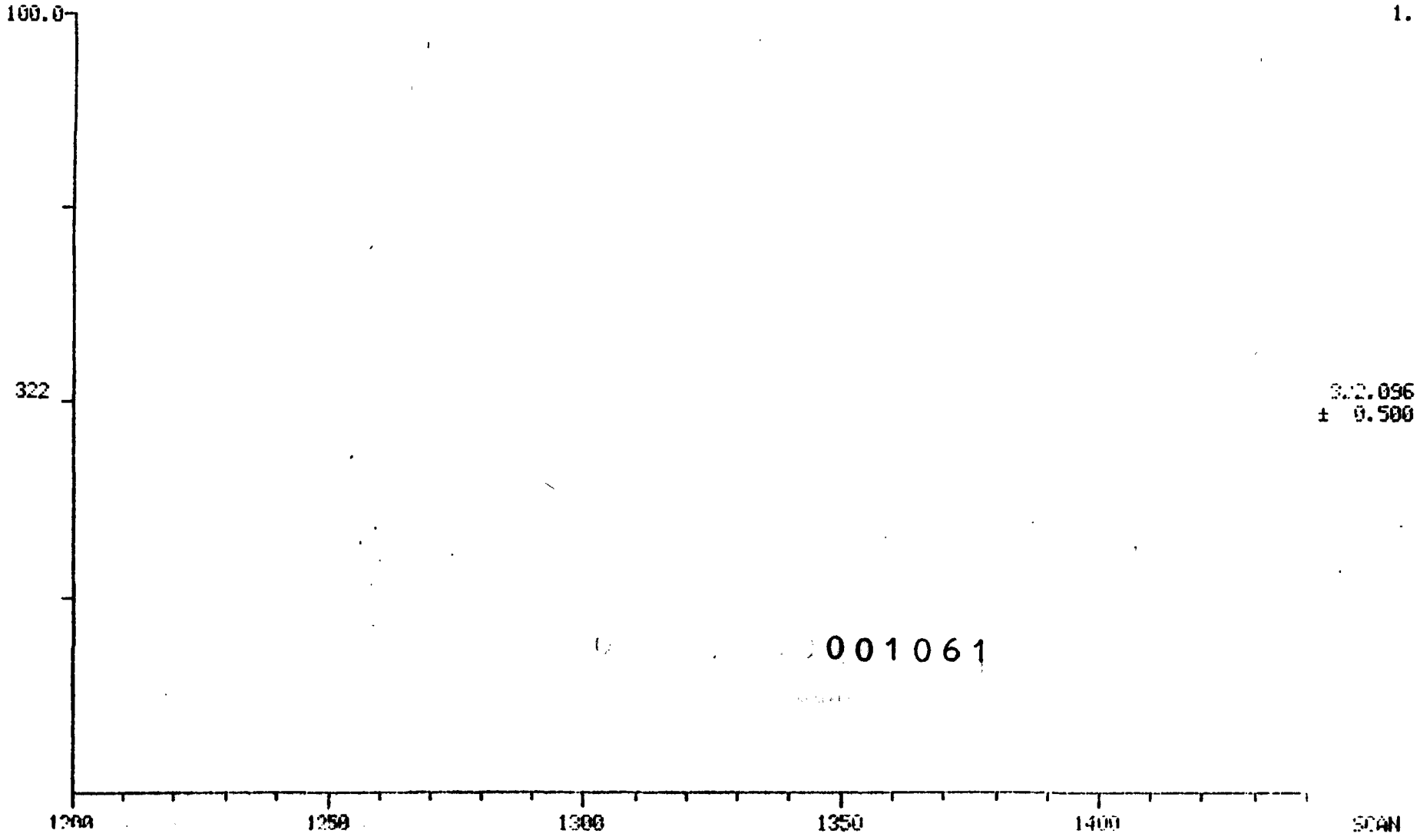
DATA: Y90B2352 #2368 SCANS 2339 TO 2401
CALI: FCOCT27 #3



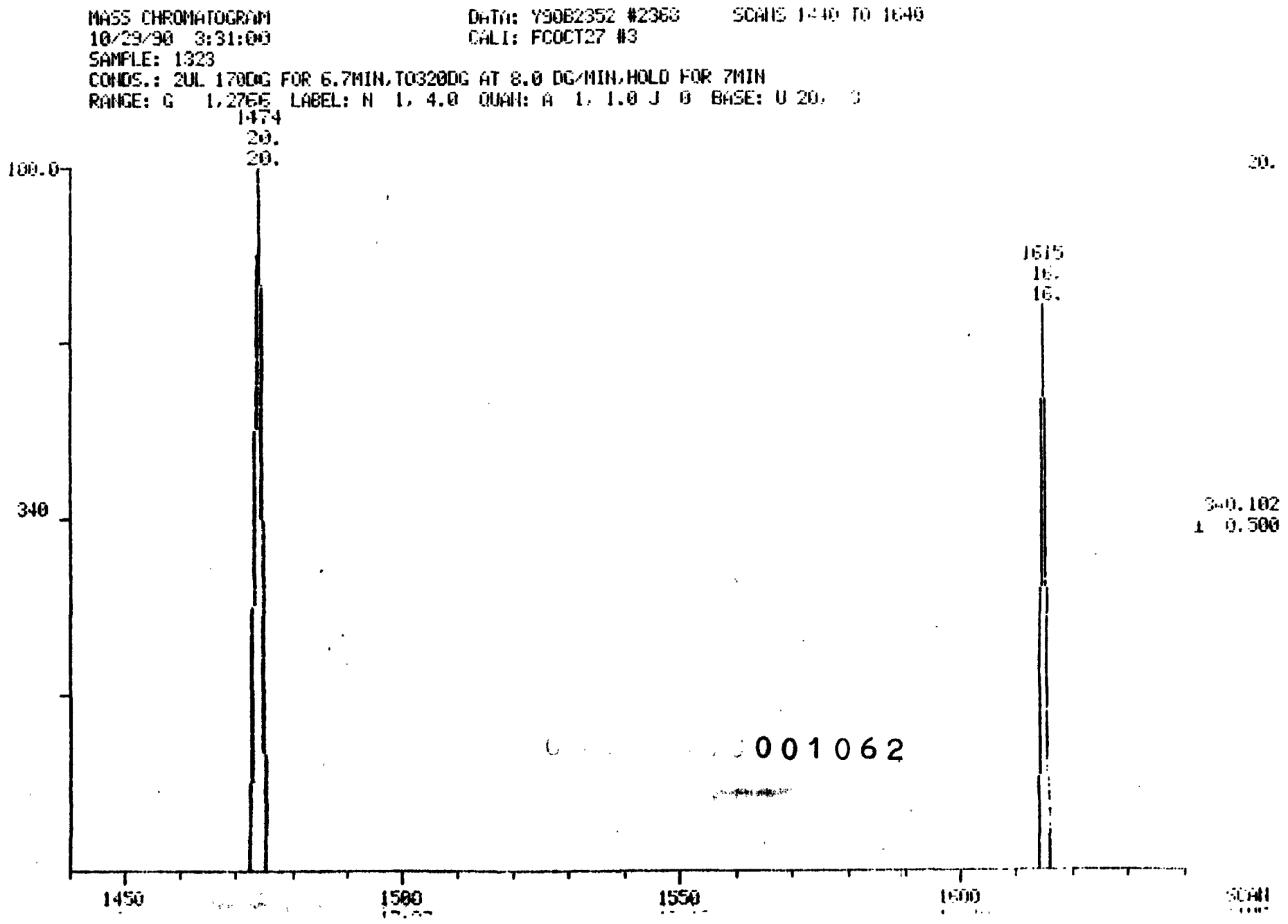
MASS CHROMATOGRAM
10/29/90 3:31:00
DATA: Y90B2352 #2368 SCANS 1,30 TO 1440
CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

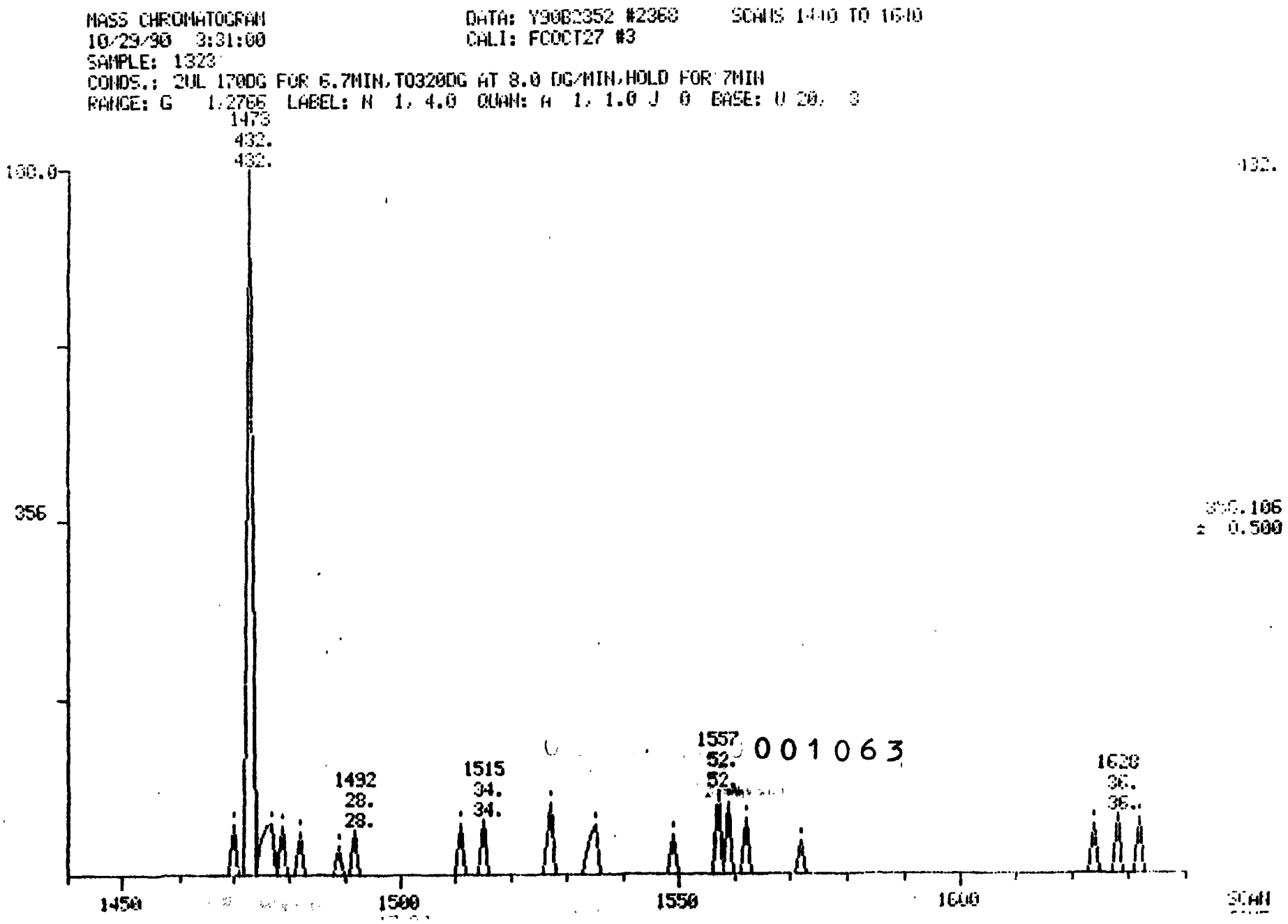


MASS CHROMATOGRAM
10/29/90 3:31:00
DATA: Y90B2352 #2368 SCANS 1200 TO 1440
CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

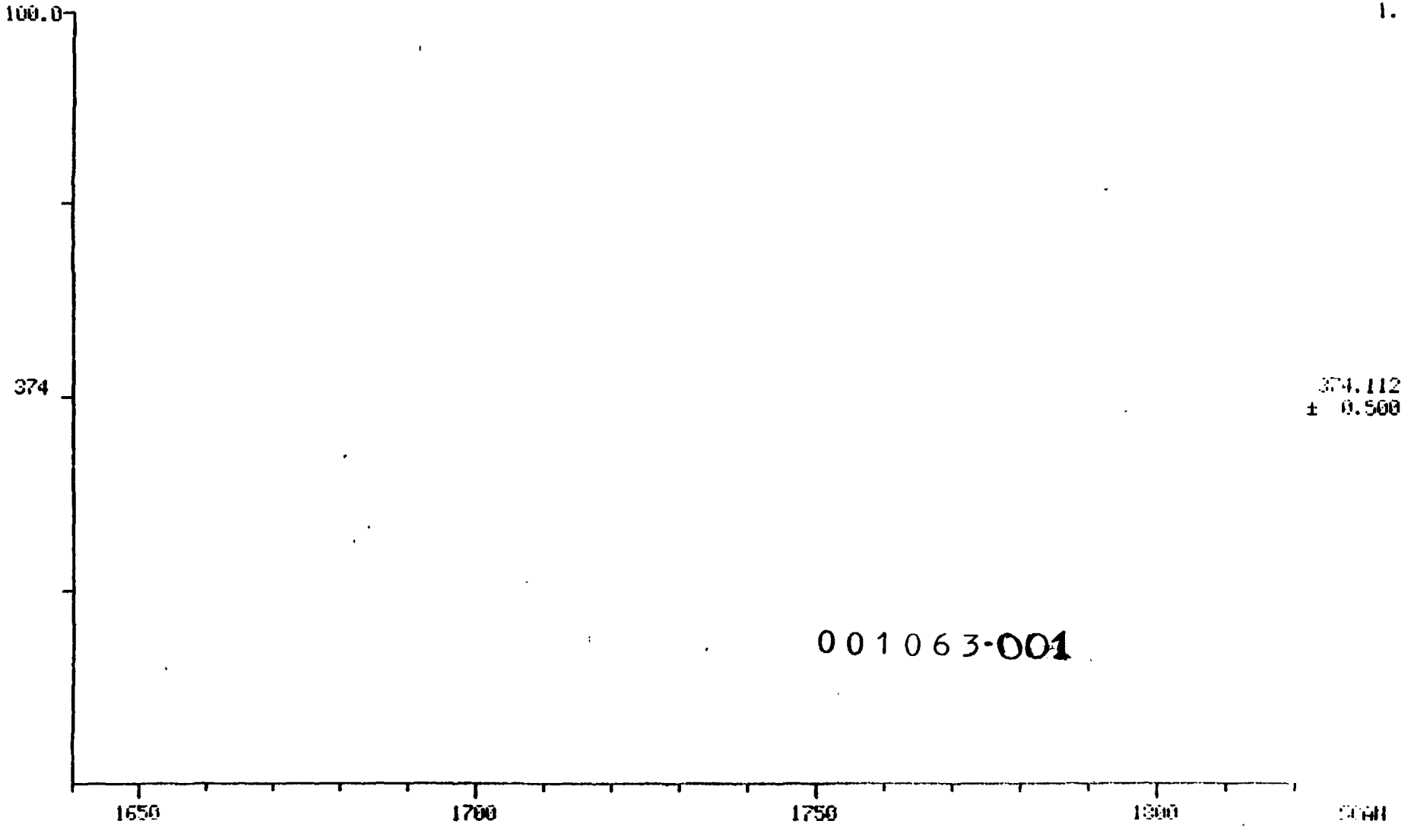


001061

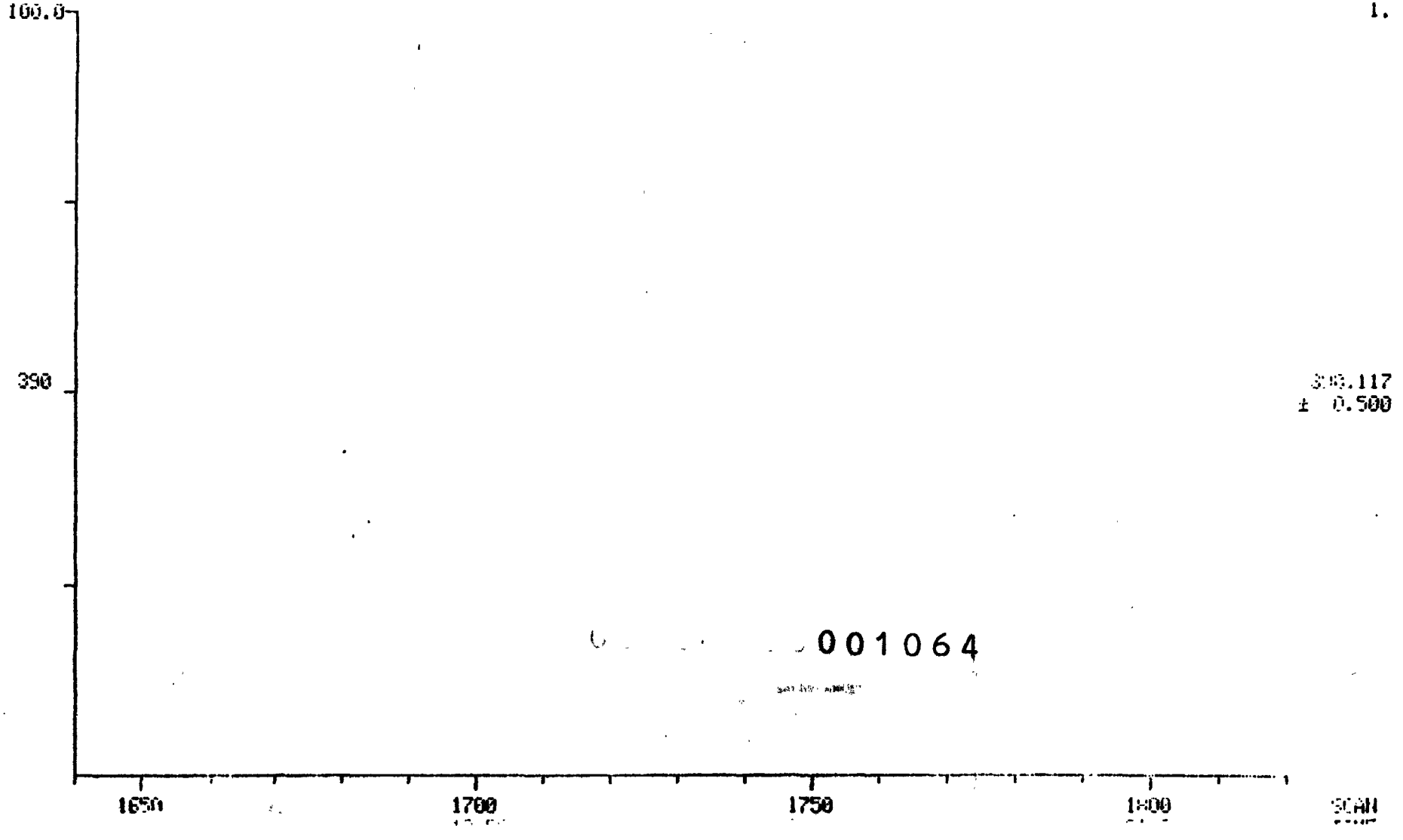

MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2368
CALI: FCOCT27 #3
SCANS 1440 TO 1640
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2765 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
1474
20.
20.
1615
16.
16.
20.
100.0
340
3=0.102
1 0.500
1450
1500
1550
1600
SCAN
001062


MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2360
CALI: FC0CT27 #3
SCANS 1440 TO 1640
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1:2765 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: 0 20, 3
1473
432.
432.
100.0
356
1492
28.
28.
1515
34.
34.
1557
52.
52.
1620
36.
36.
1450
1500
1550
1600
SCAN

MASS CHROMATOGRAM DATA: Y90B2352 #2368 SCANS 1610 TO 1630
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

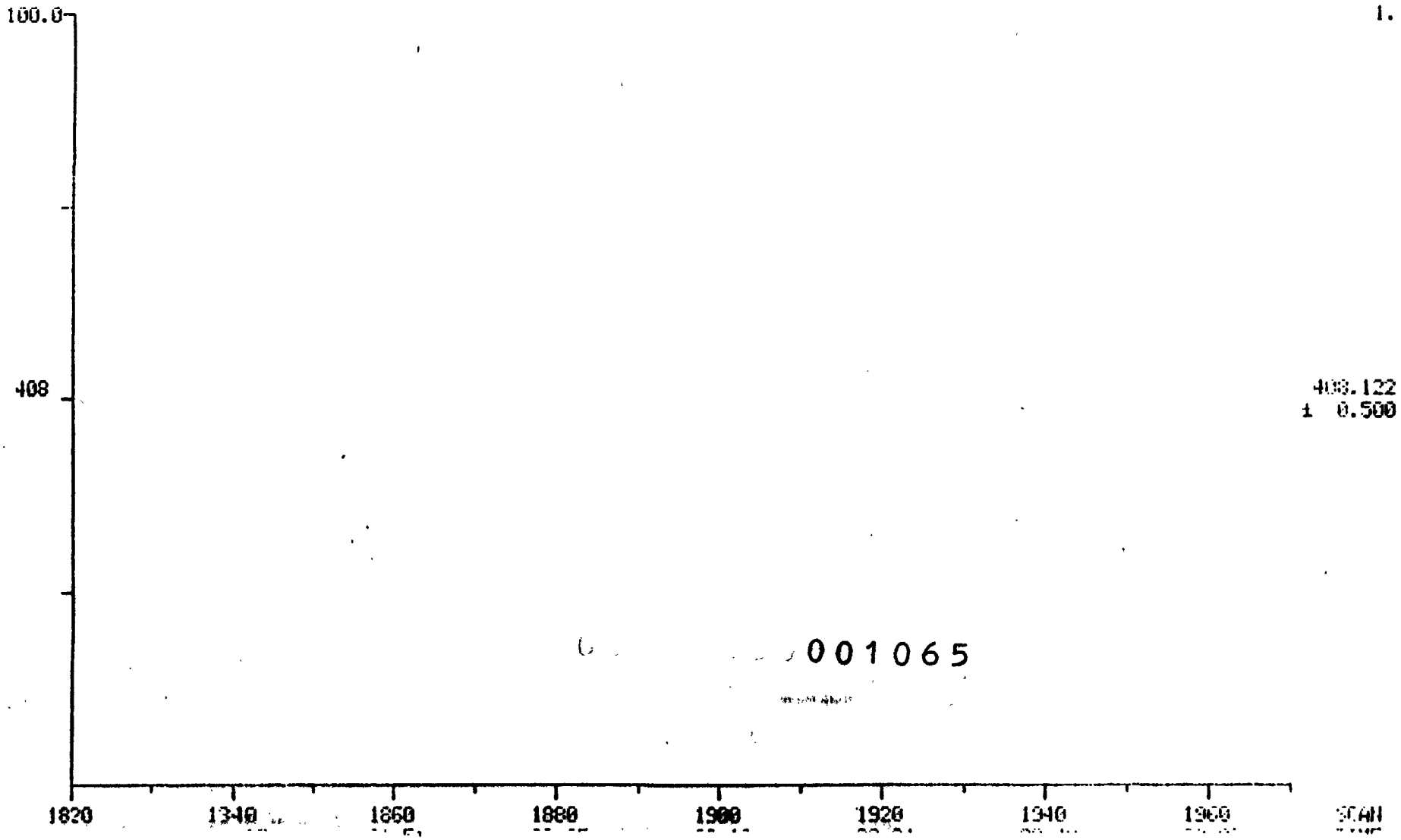


MASS CHROMATOGRAM
10/29/90 3:31:00
SAMPLE: 1323
DATA: 790B2352 #2363 SCANS 1610 TO 1830
CAL1: FCOCT27 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



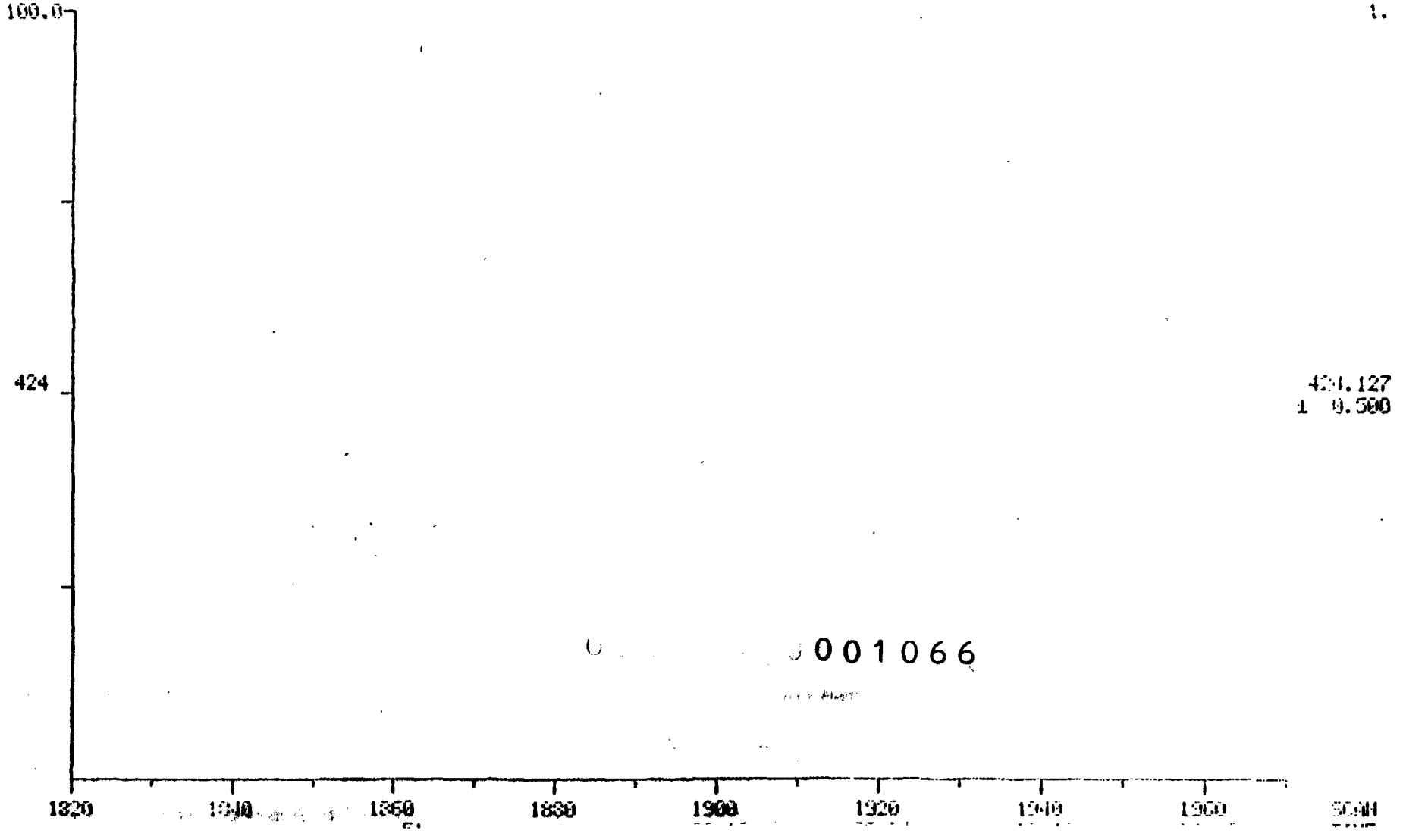
001064

MASS CHROMATOGRAM DATA: Y90B2352 #2368 SCANS 1820 TO 1970
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2765 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

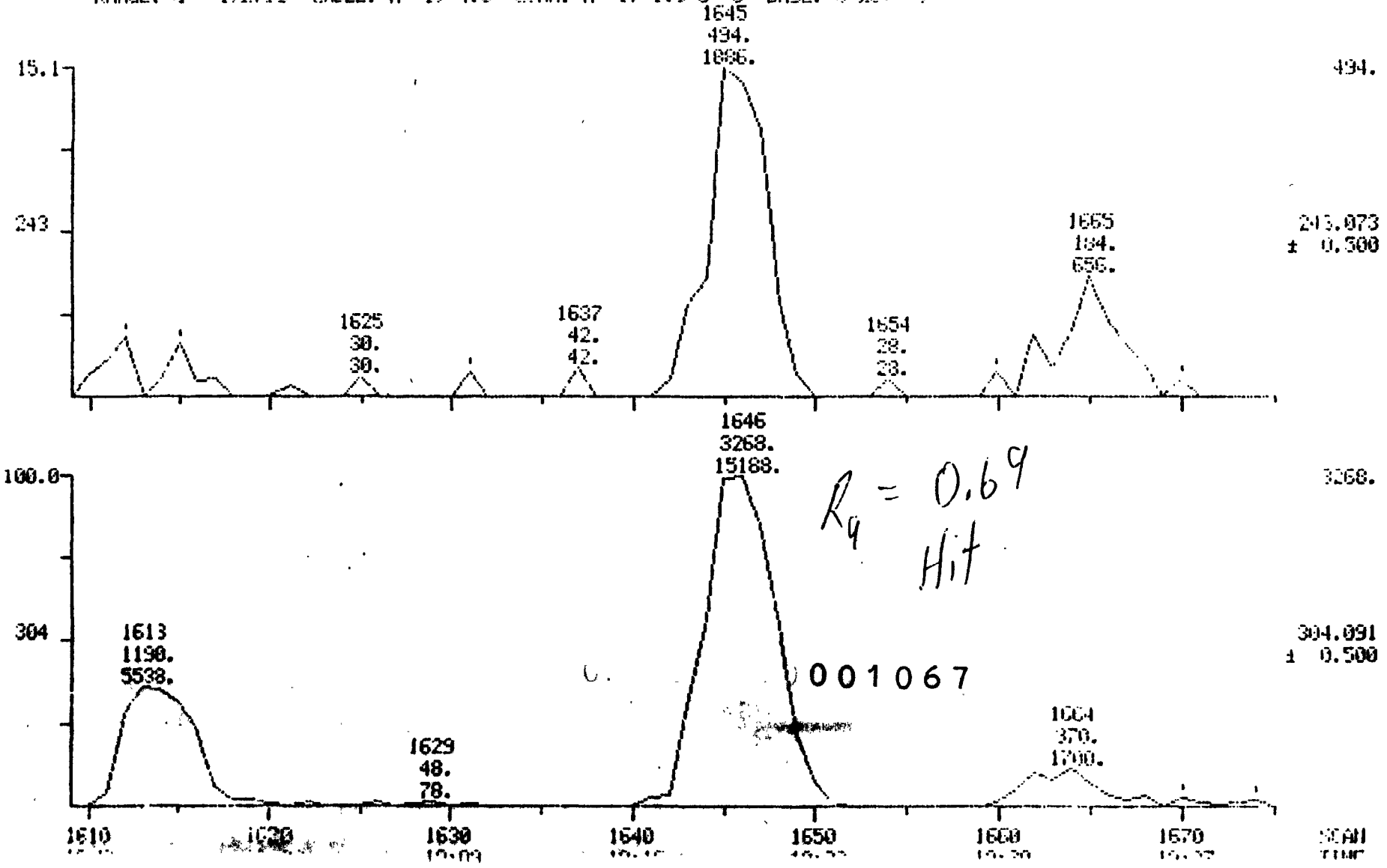


001065

MASS CHROMATOGRAM DATA: Y90B2352 #2368 SCANS 1030 TO 1070
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1303
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.27G6 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: 0 20, 3



MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y9082352 #1642 SCANS 1590 TO 1675
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDF (DF#5)
RANGE: G 1.276G LABEL: N 1, 4.0 RUN: A 1, 1.0 J 0 BASE: U 20. 9

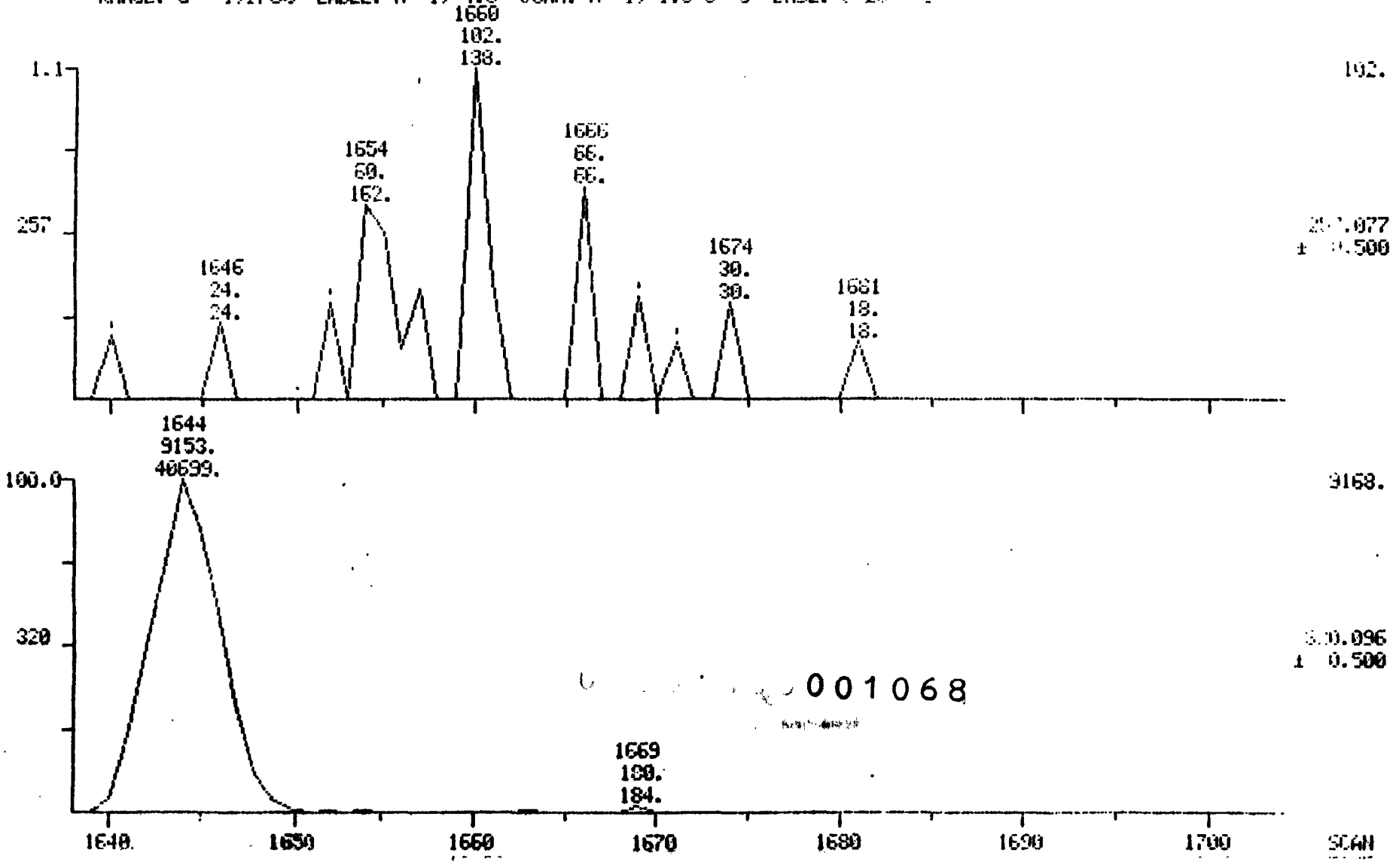


$R_q = 0.69$
Hit

001067

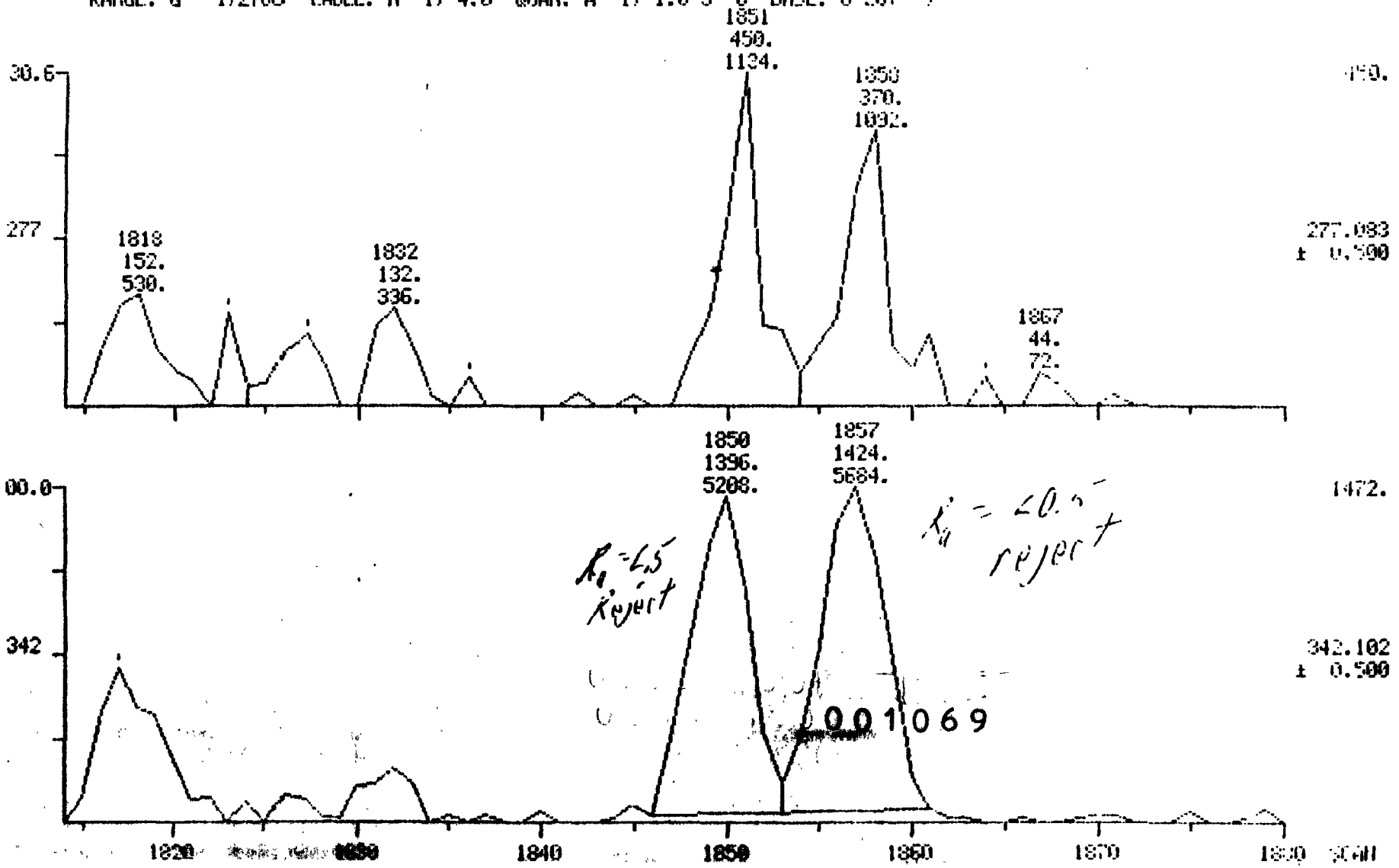
MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDD (DF#6)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. S

DATA: Y90B2352 #1671 SCANS 1630 TO 1704
CALI: FCOCT27 #3



MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDF (DF#7)
RANGE: G 1.2766 LABEL: H 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 30. 3

DATA: Y90B2352 #1847 SCANS 1814 TO 1880
CALI: FCOCT27 #3

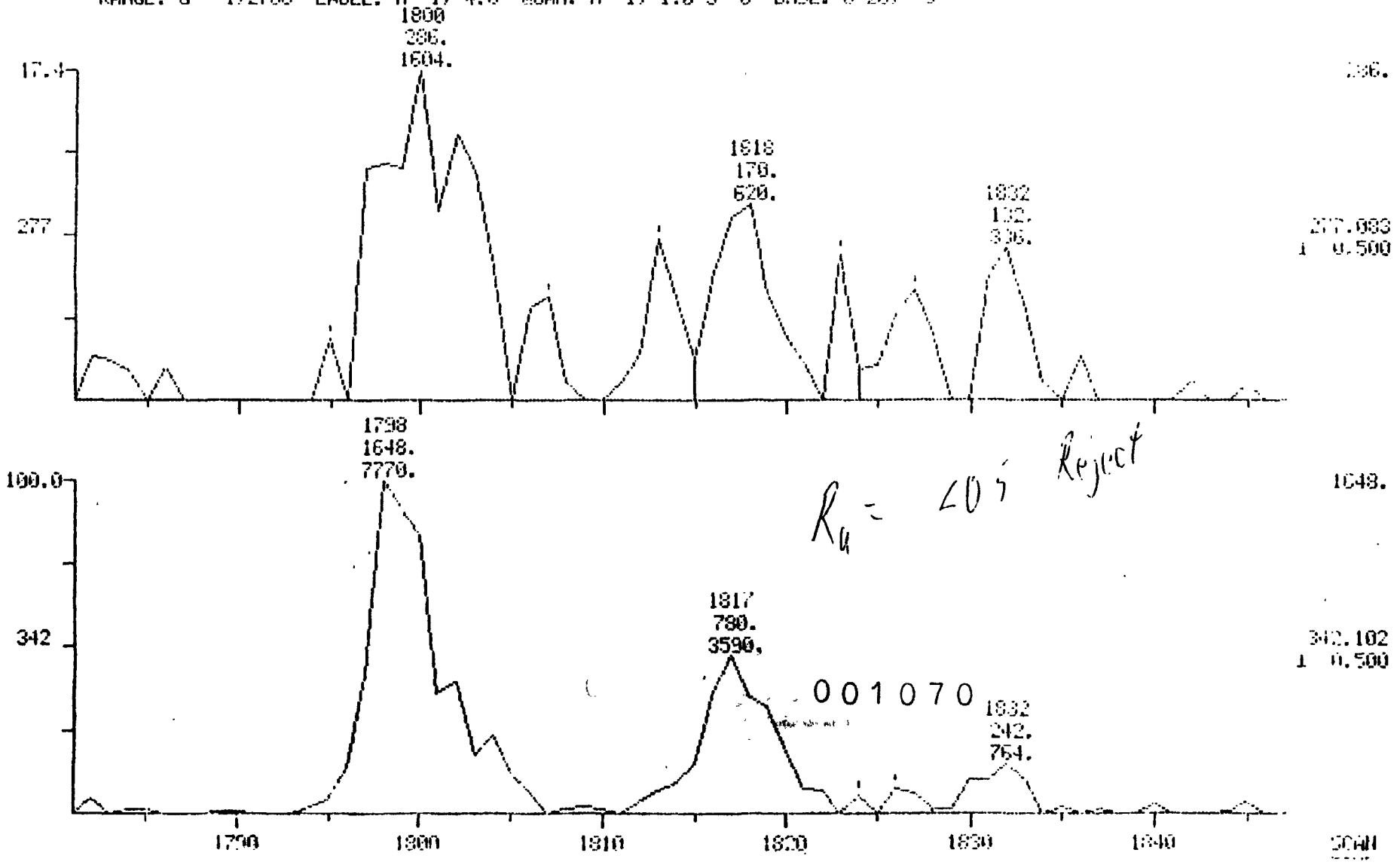


K_a = 2.5 reject

K_a = 20.5 reject

001069

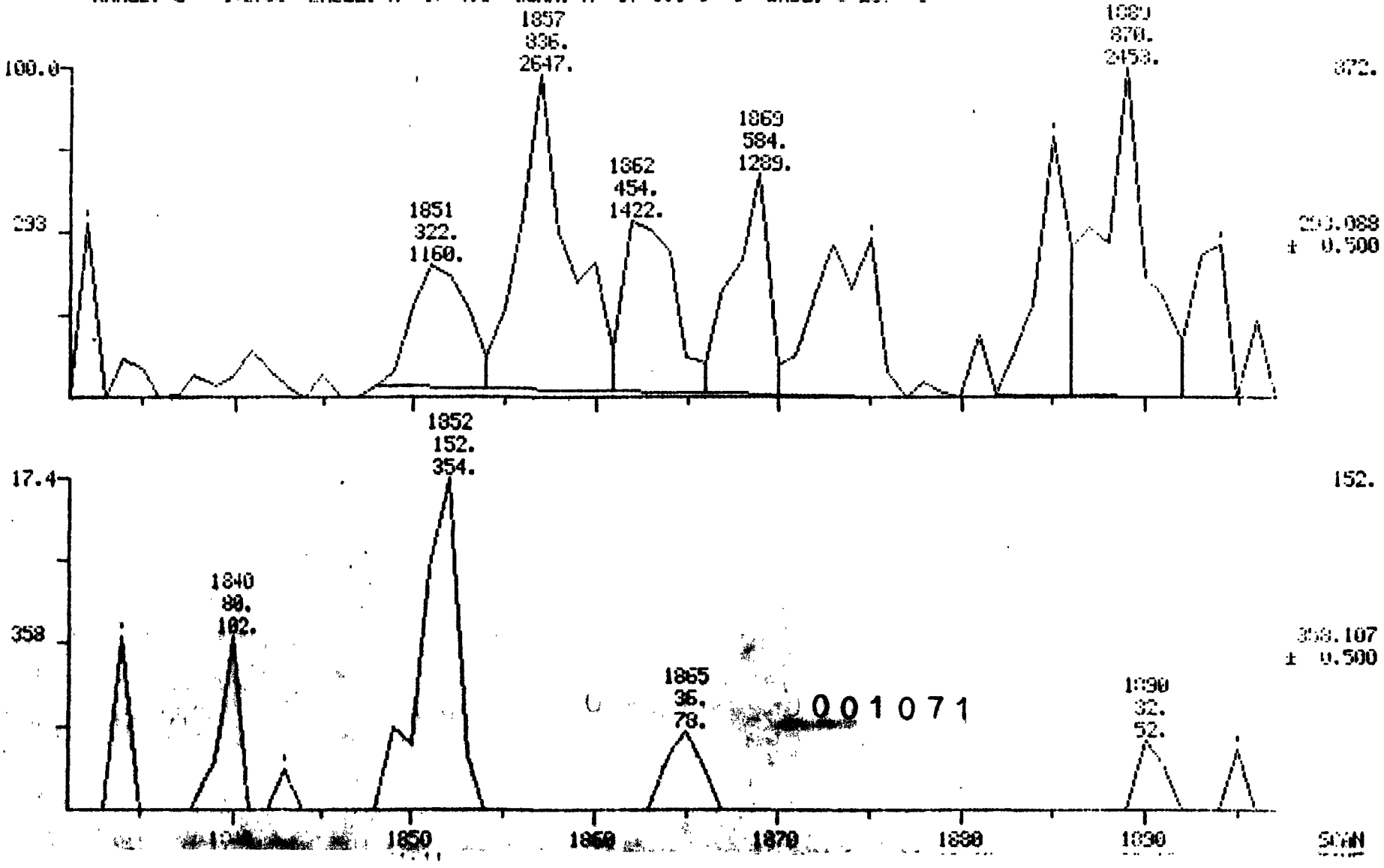
MASS CHROMATOGRAMS DATA: Y90B2352 #1814 SCANS 1731 TO 1847
10/29/90 3:31:00 CALI: FOOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,7,8-PECDF (DF#8)
RANGE: G 1.2766 LABEL: H 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3



R_4 = 40% Reject

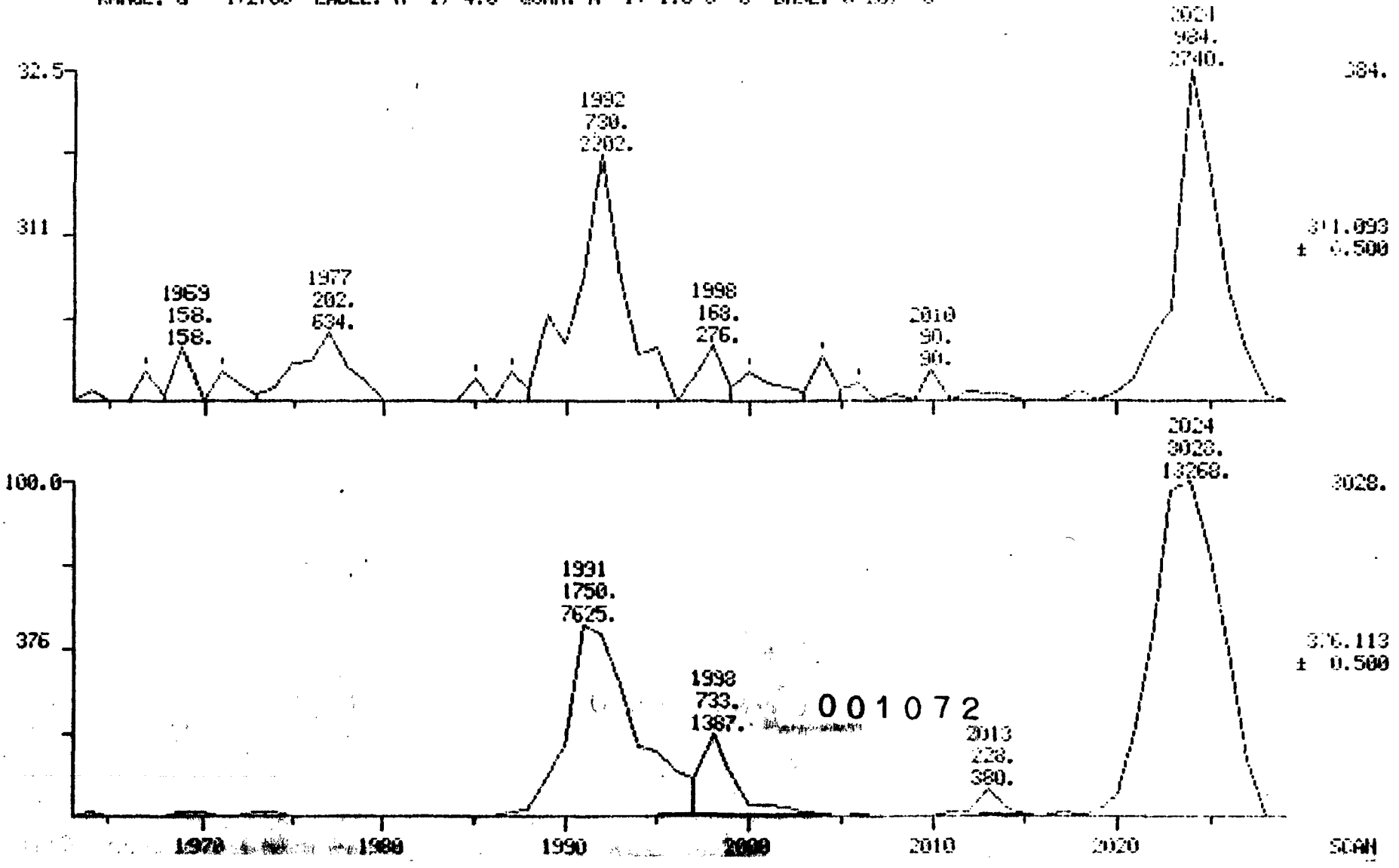
001070

MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #1864 SCANS 1831 TO 1897
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDD (DF#9)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

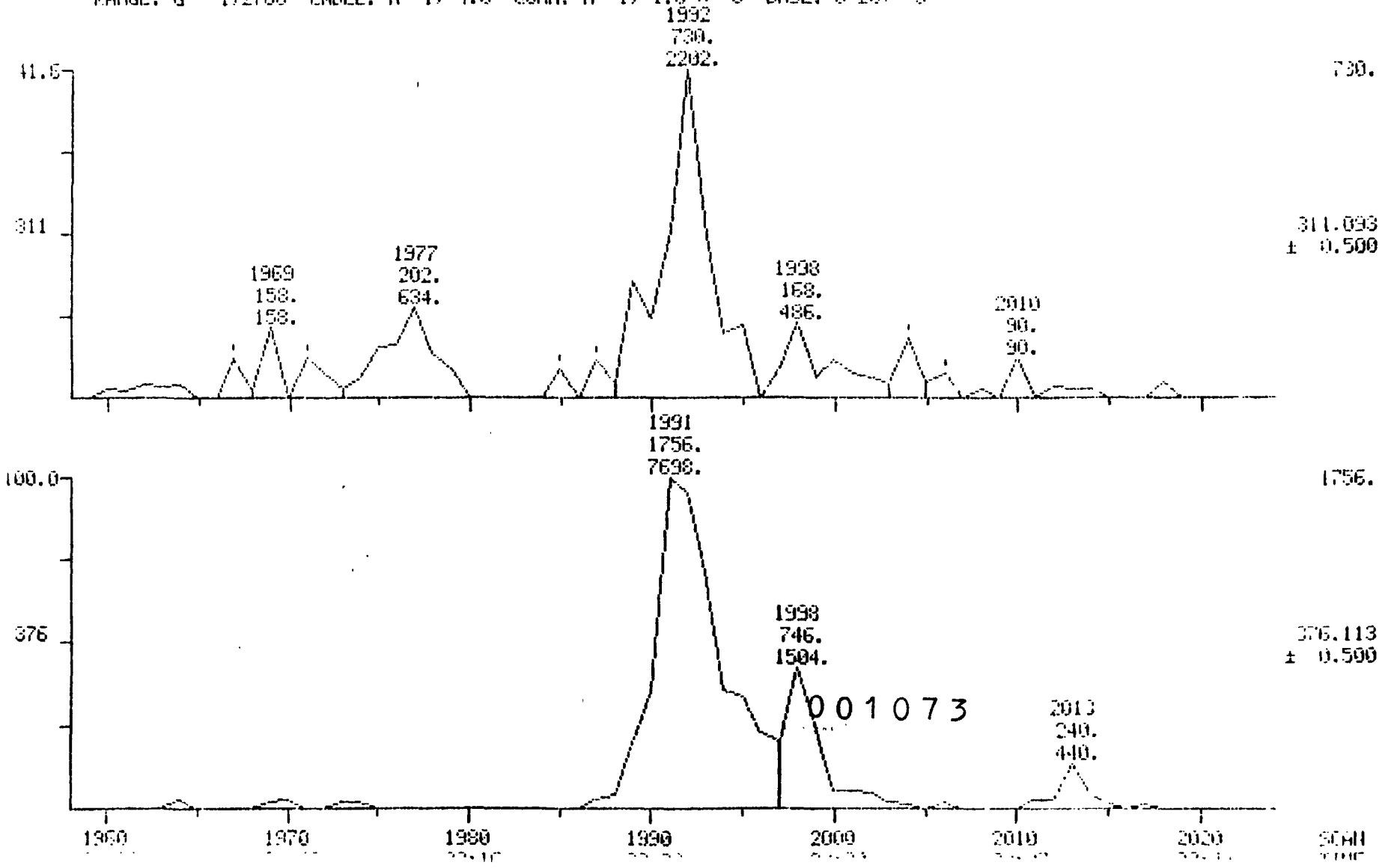


001071

MASS CHROMATOGRAMS DATA: Y90B2352 #1936 SCANS 1963 TO 2025
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDF (DF#10)
RANGE: G 1.2766 LABEL: U 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

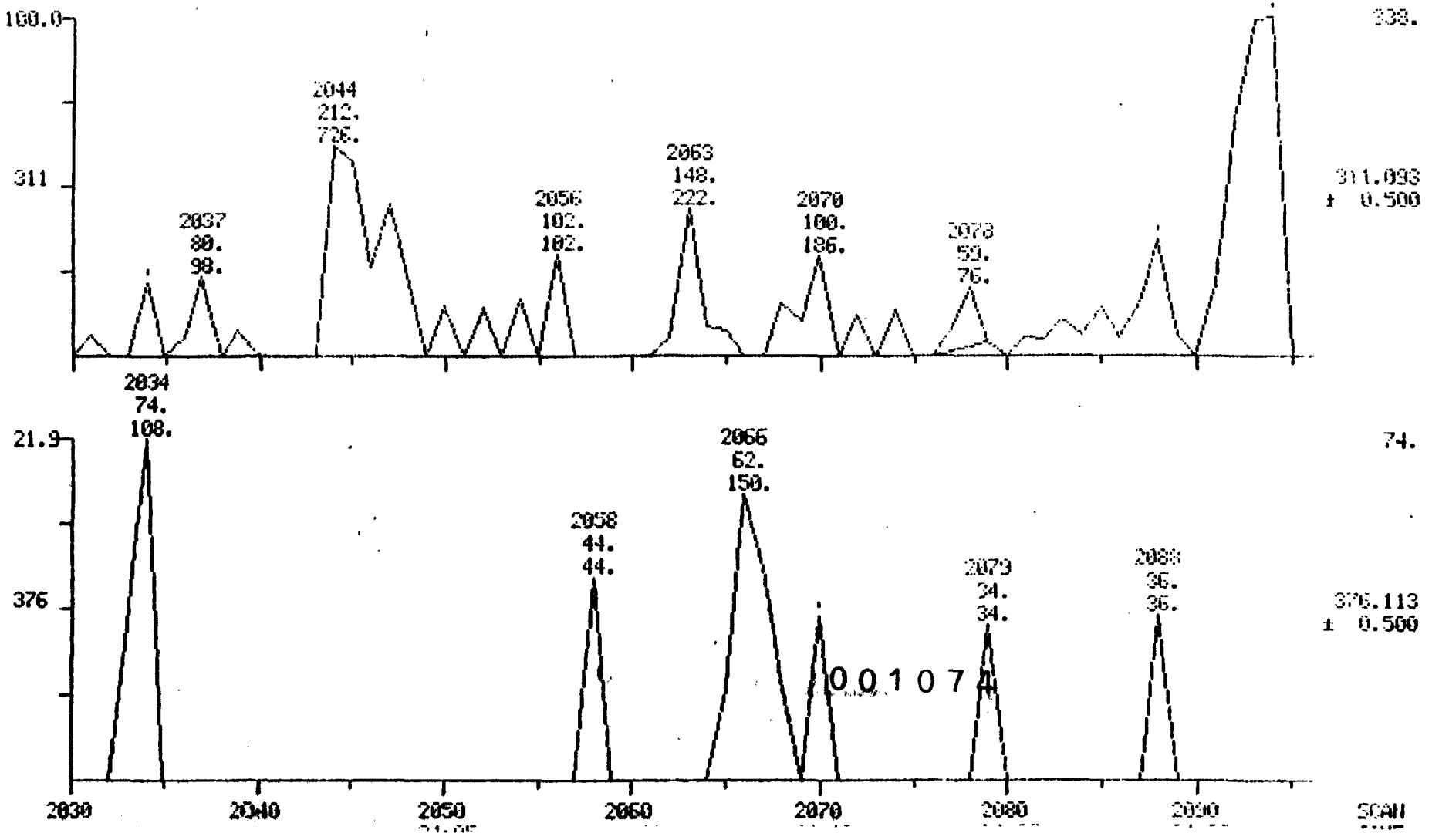


MASS CHROMATOGRAMS
10/29/90 8:31:00
SAMPLE: 1323
DATA: 790B2352 #1991
CAL1: FCDCT27 #3
SCAN 1978 TO 2034
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDF (DF#11)
RANGE: G 1.2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



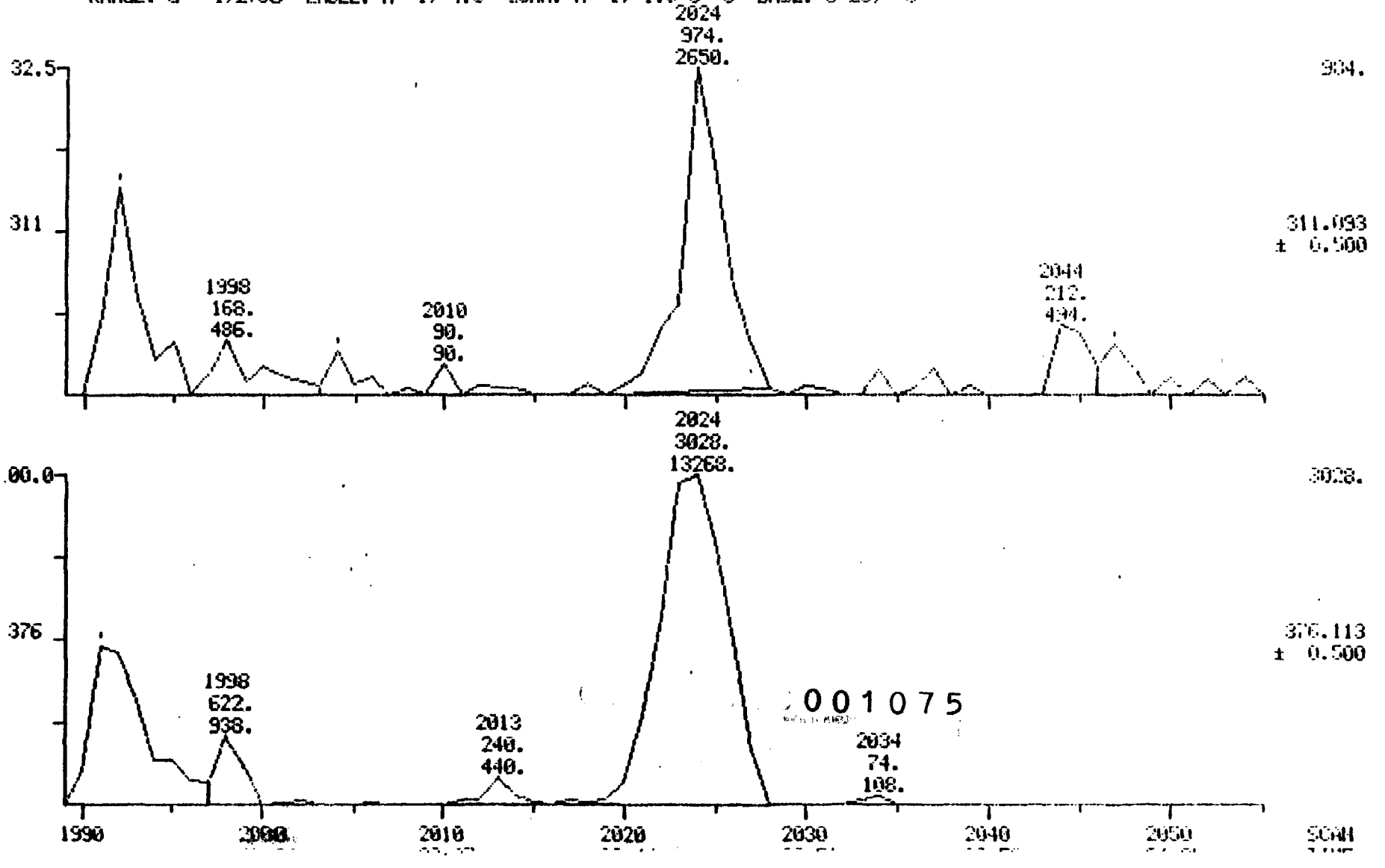
001073

MASS CHROMATOGRAMS DATA: Y90B2352 #2063 SCANS 2030 TO 2090
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDF (DF#12)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

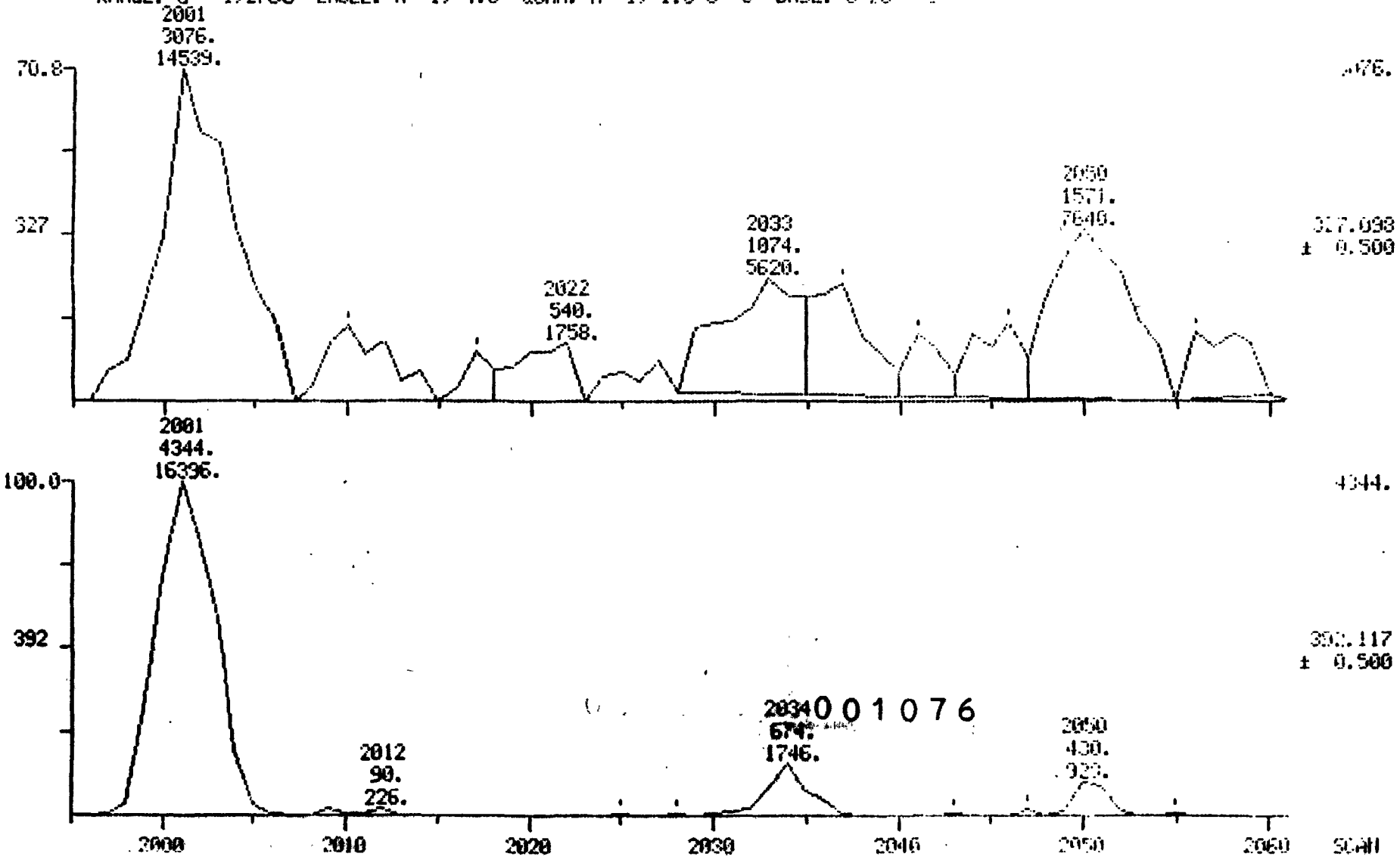


MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,6,7,8-HXCDF (DF#13)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

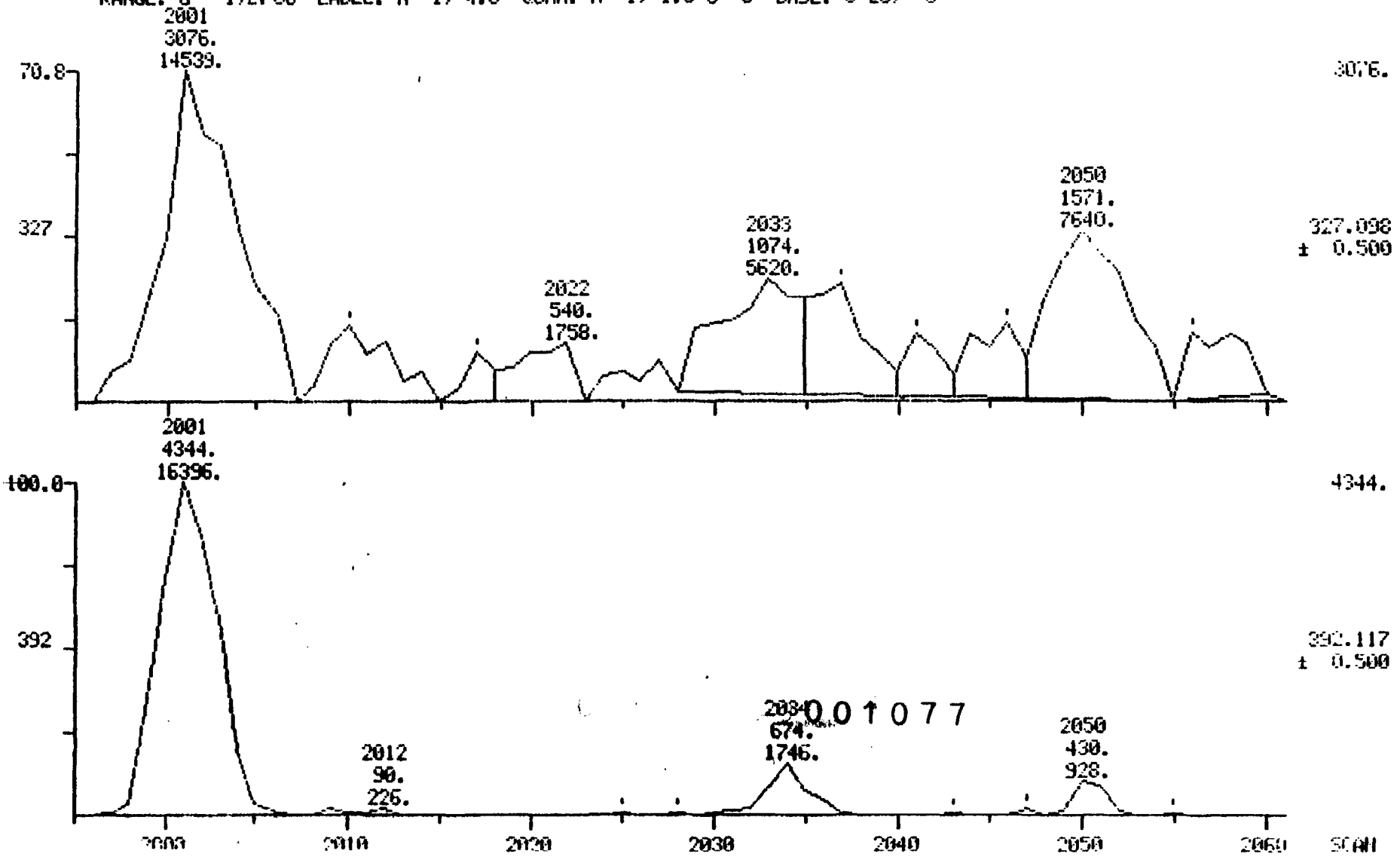
DATA: Y9062352 #2022 SCANS 1970 TO 2055
CALI: FCOCT27 #3



MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y9002352 #2028
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDD (DF#14)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20-

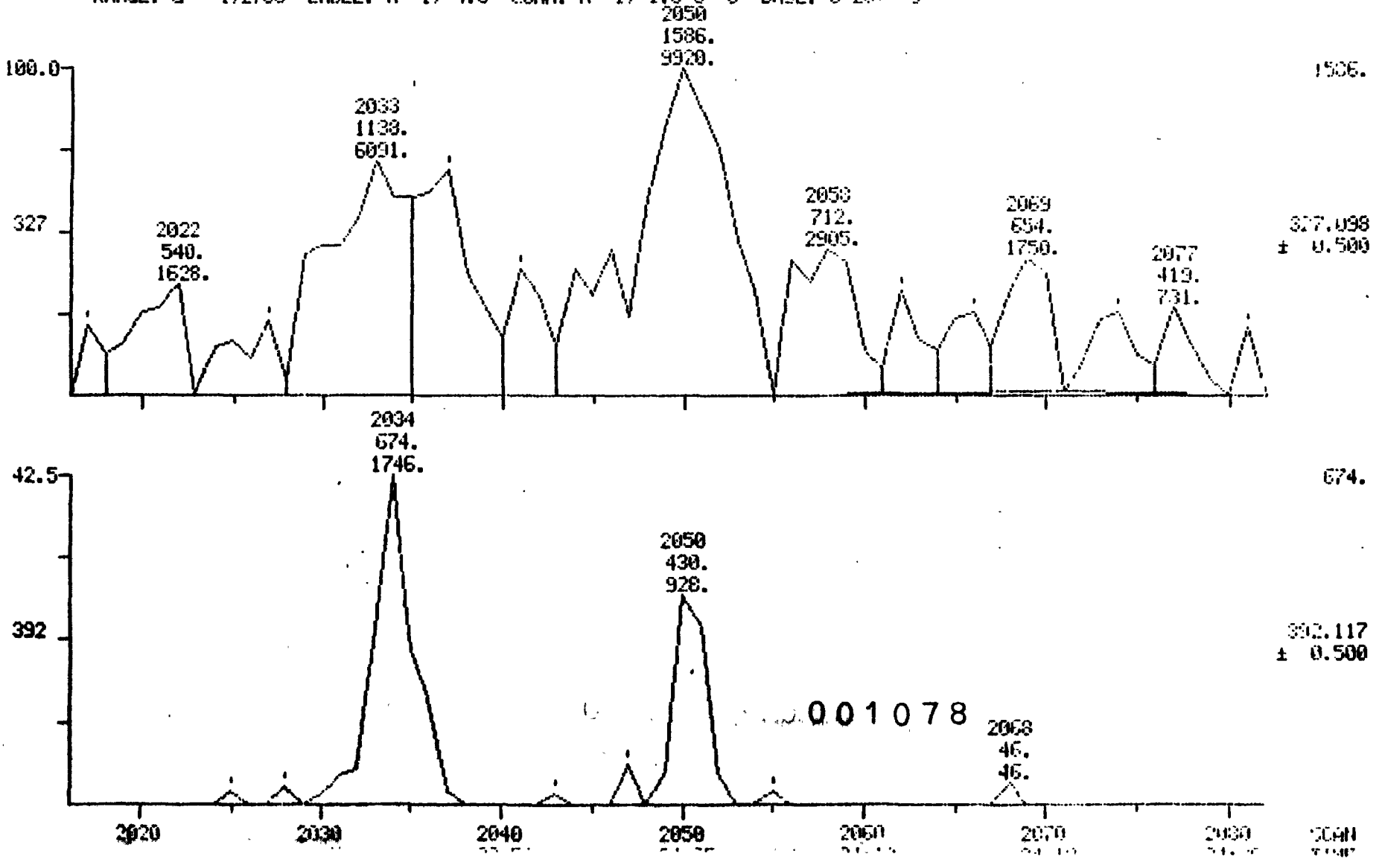


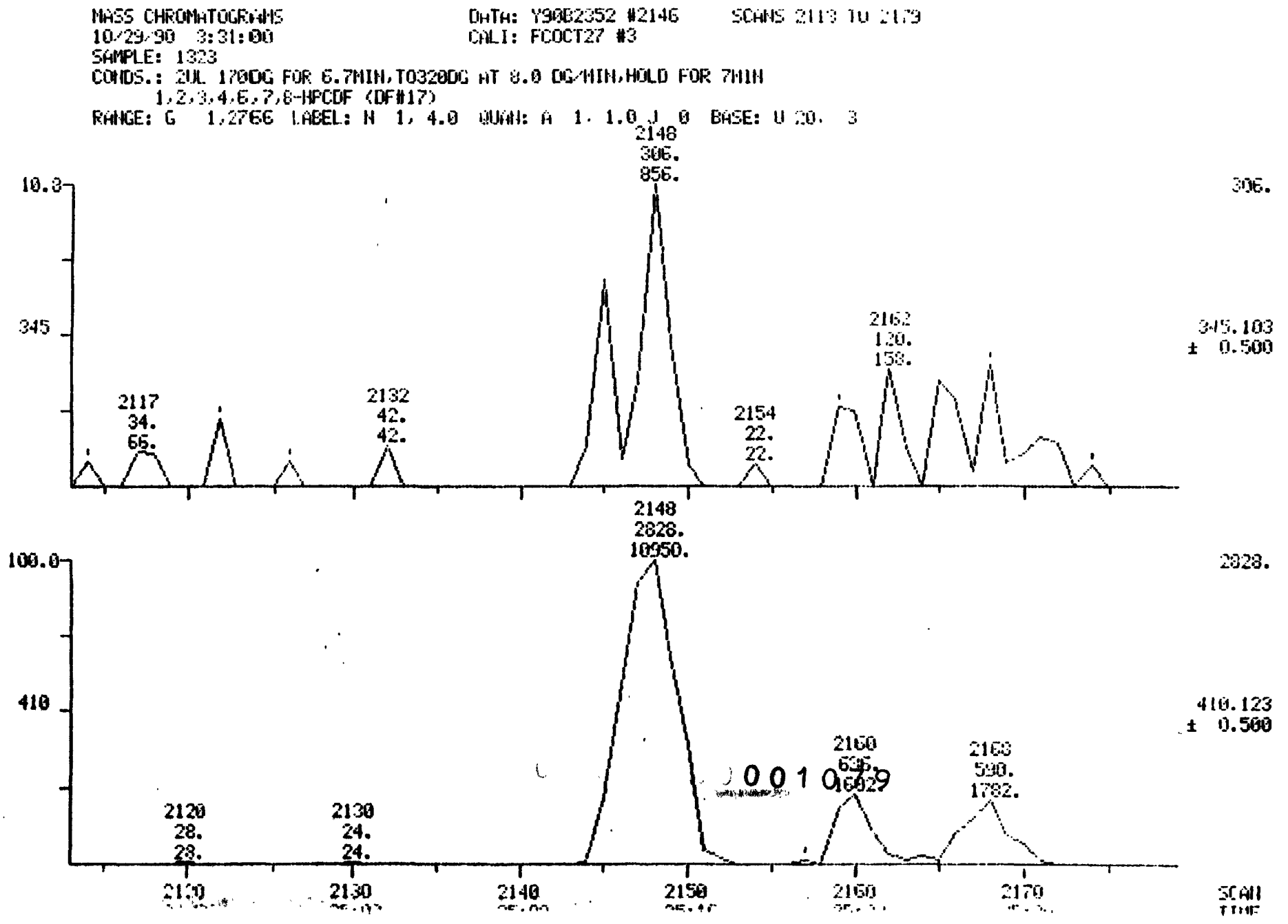
MASS CHROMATOGRAMS
10/29/90 3:31:00
DATA: YS0B2352 #2028
CALI: FCOCT27 #3
SCANS 1995 TO 2061
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDD (DF#15)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



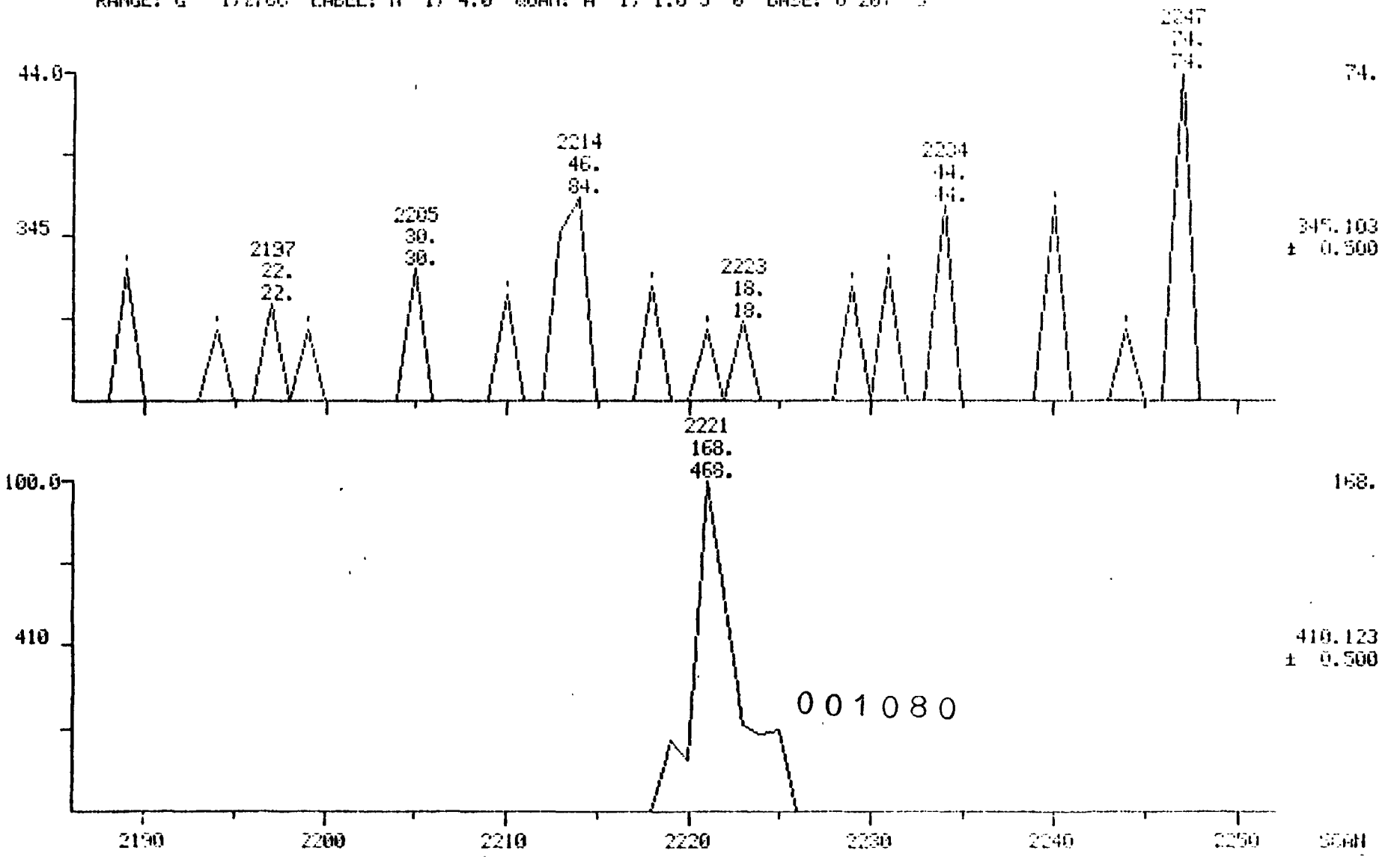
001077

MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2049 SCANS 2016 TO 2082
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-H3COD (DF#16)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. J

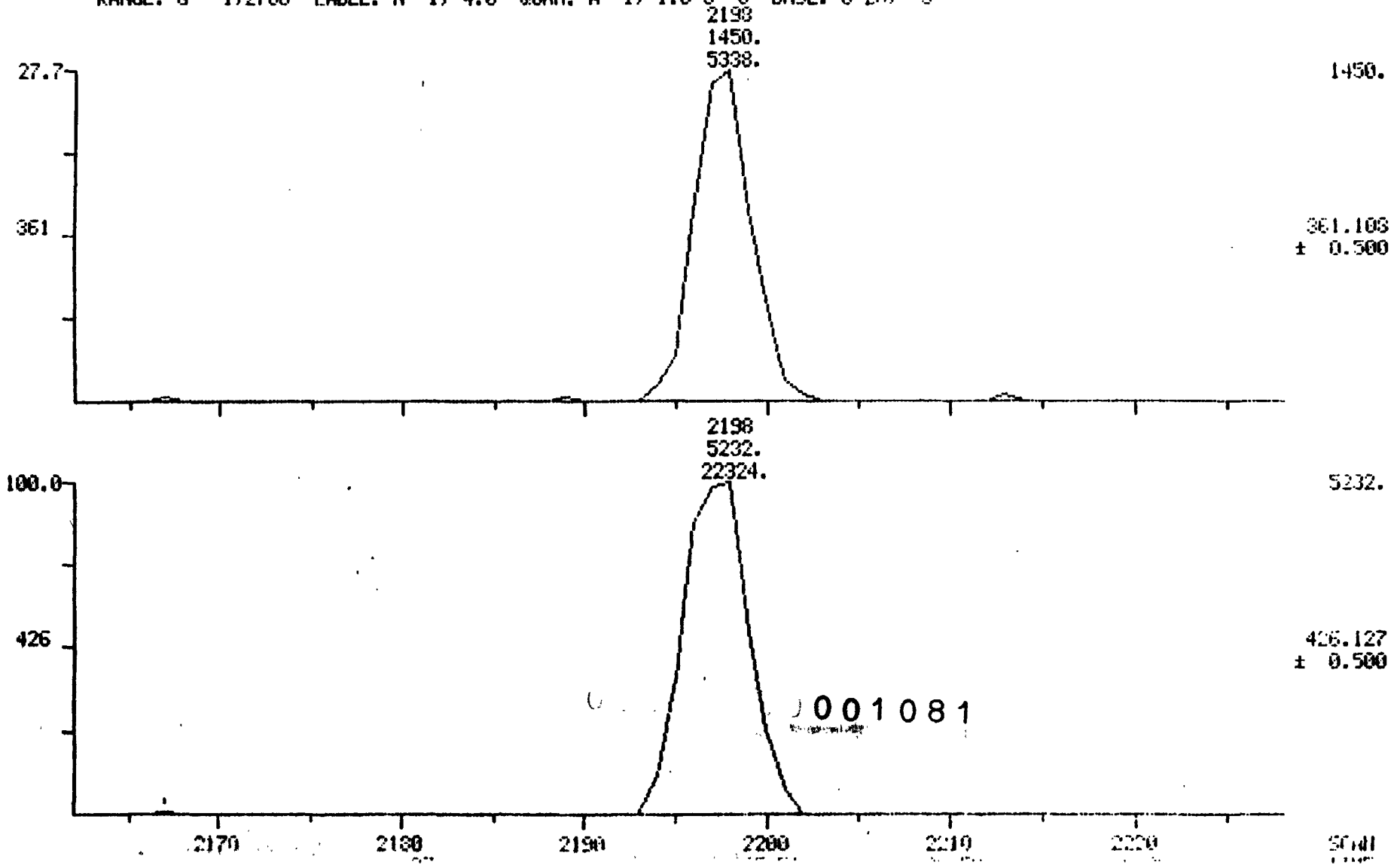



MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2146
CALI: FCOCT27 #3
SCANS 2113 TO 2179
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDF (DF#17)
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3
2148
306.
856.
10.3
345
306.
2162
120.
158.
345.103
± 0.500
2117
34.
66.
2132
42.
42.
2154
22.
22.
2148
2828.
10950.
100.0
410
2828.
410.123
± 0.500
2160
696.
1602.
2168
590.
1782.
2120
28.
28.
2130
24.
24.
2110
2130
2140
2150
2160
2170
SCAN
TIME

MASS CHROMATOGRAMS
10/29/90 8:31:00
SAMPLE: 1323
DATA: 790B2352 #2219 SCANS 2186 TO 2252
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8,9-HPCDF (DF#18)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



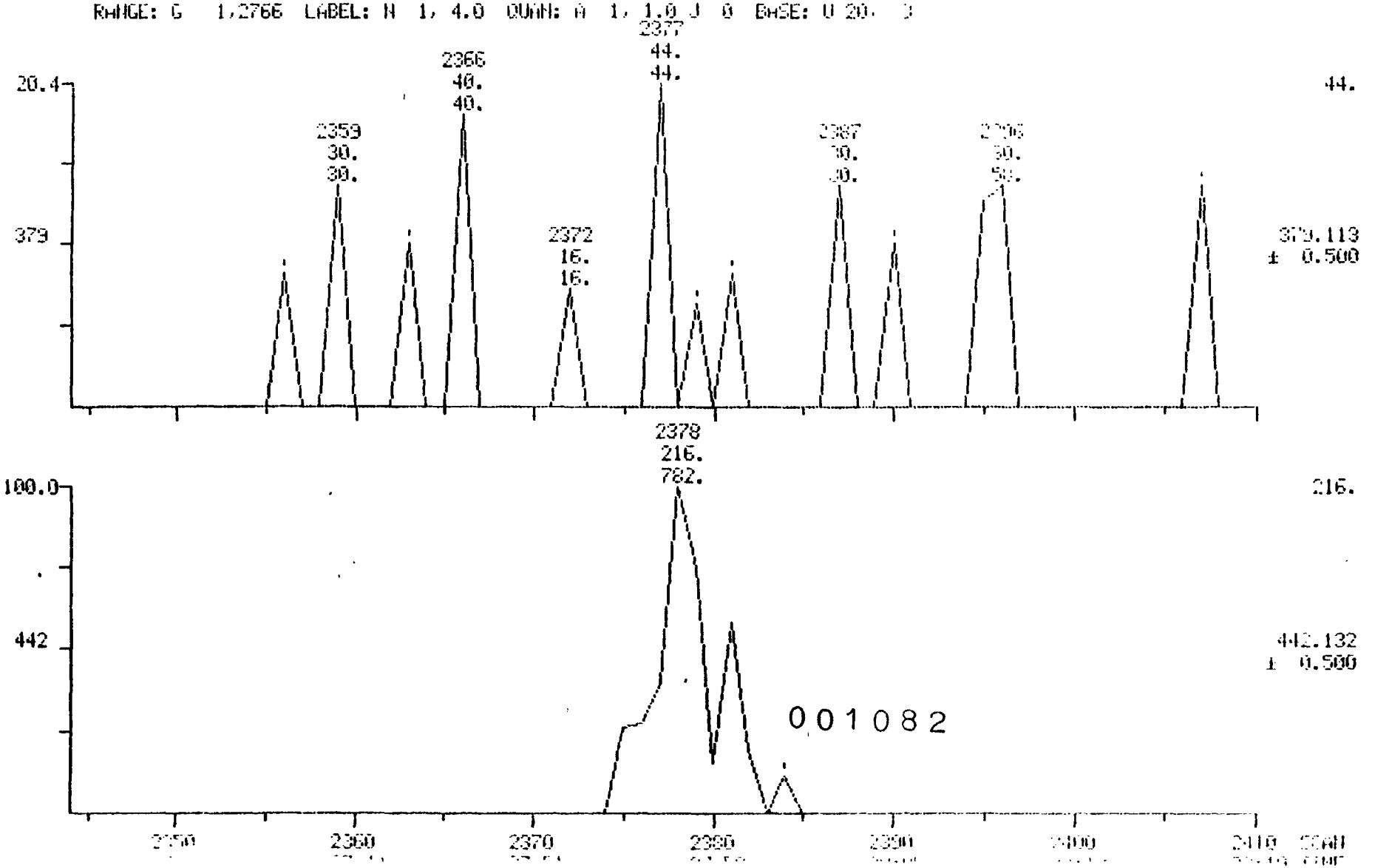
MASS CHROMATOGRAMS DATA: Y90B2352 #2195 SCANS 2152 TO 2228
10/29/90 3:31:00 CHLI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDD (DF#19)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



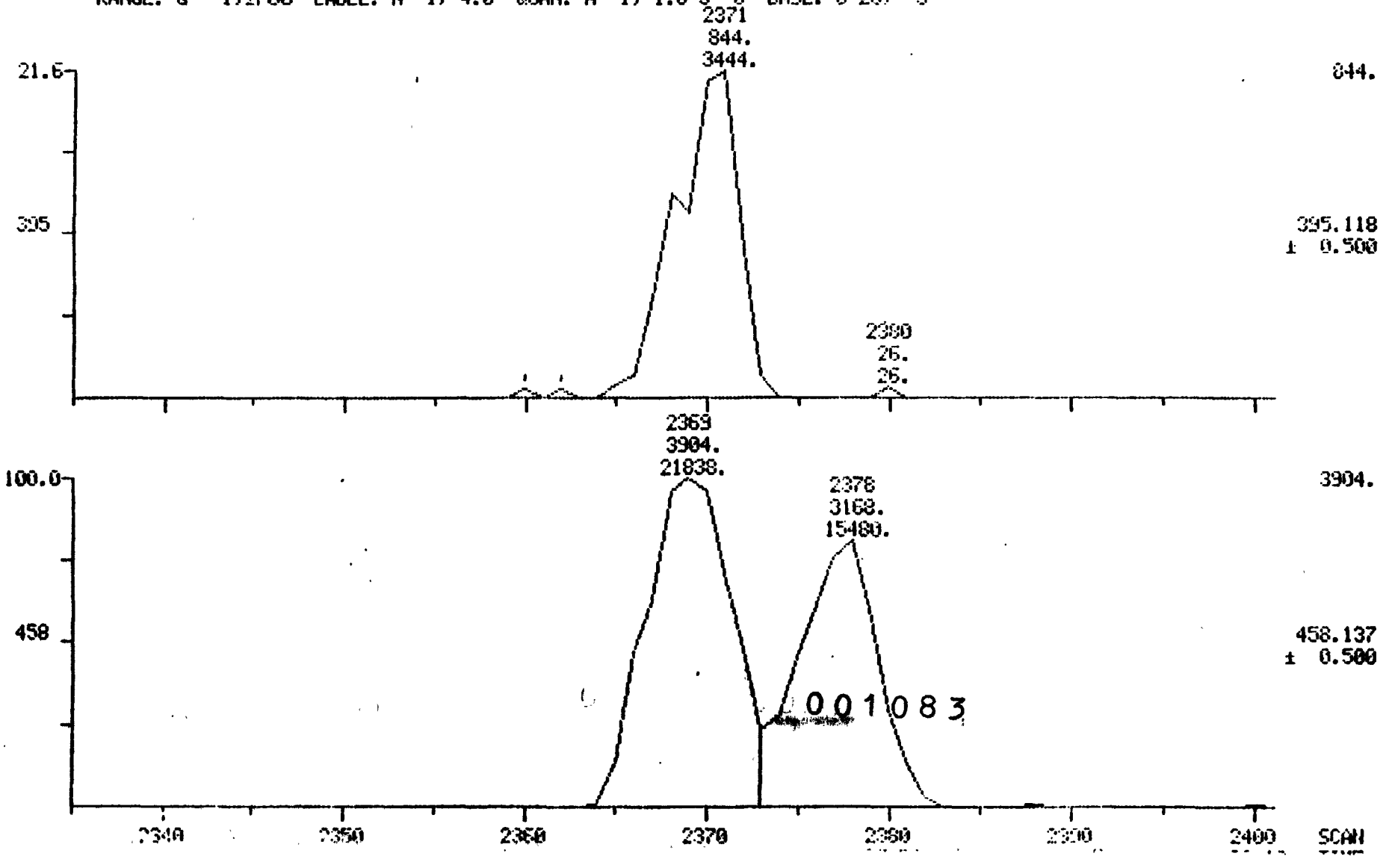
001081

MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDF (DF#20)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

DATA: Y90B2352 #2377 SCANS 2344 TO 2410
CALI: FOOCT27 #3

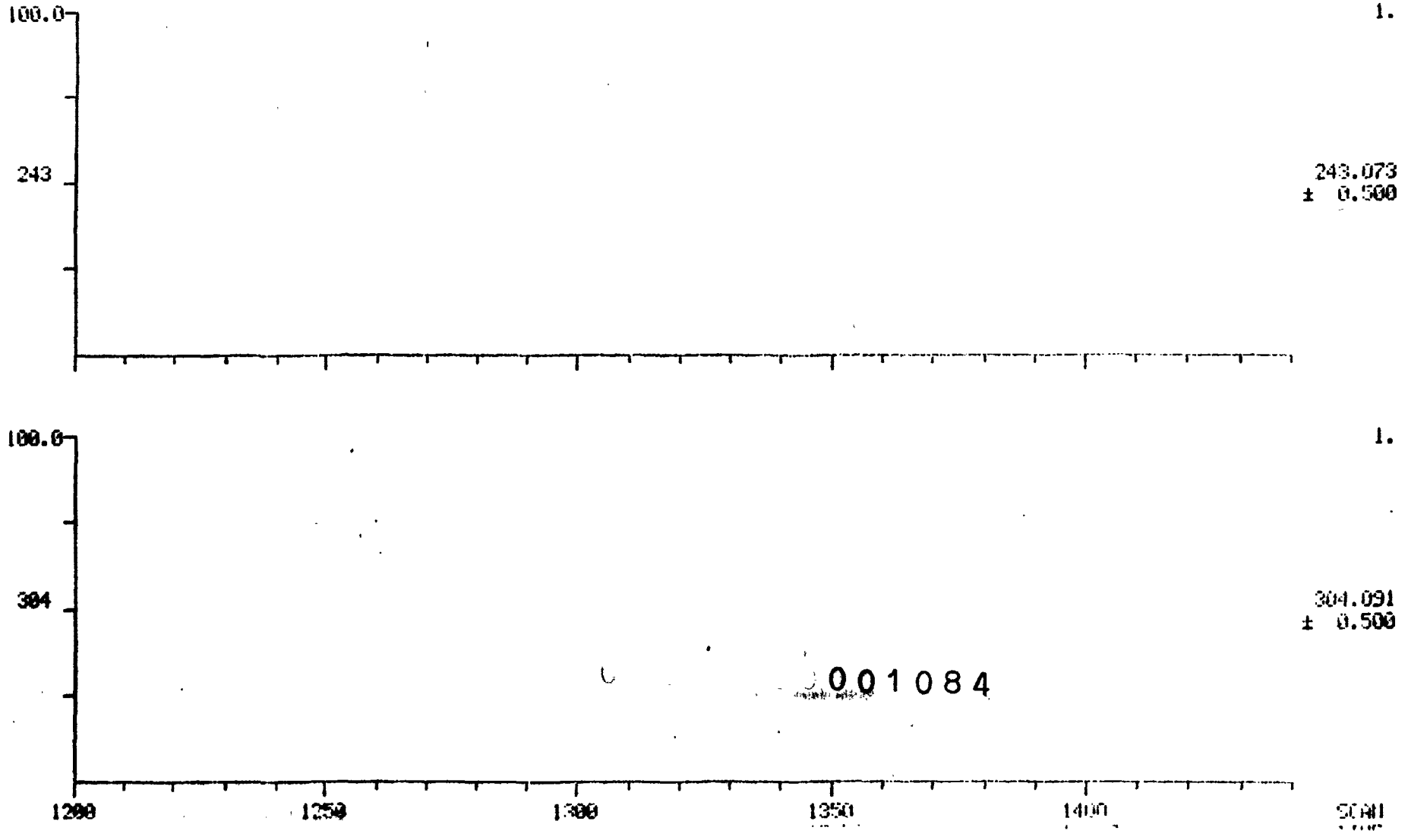


MASS CHROMATOGRAMS DATA: Y30B2352 #2368 SCANS 2335 TO 2401
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDD (DF#21)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



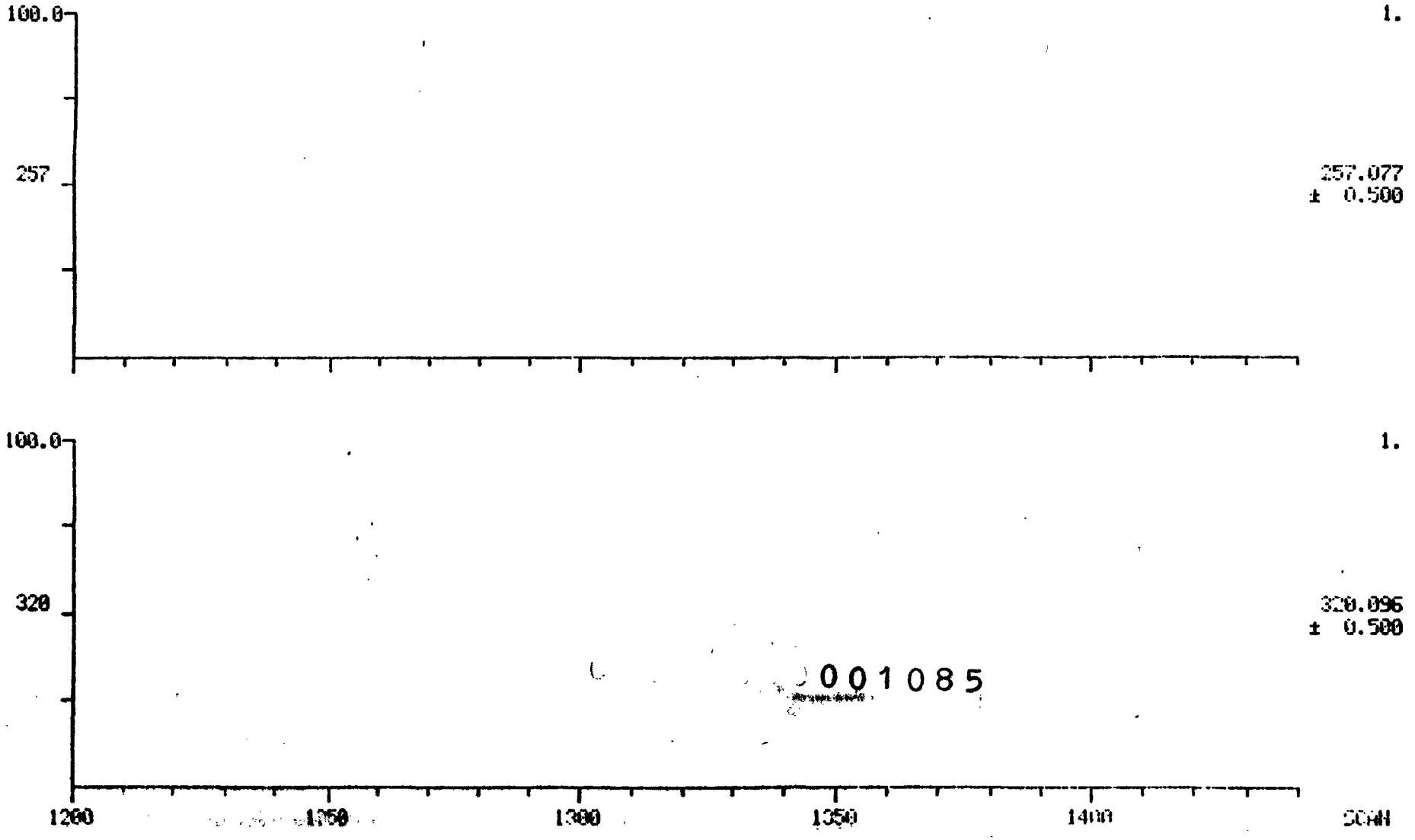
001083

MASS CHROMATOGRAMS DATA: Y9082352 #2368 SCANS 1200 TO 1440
10/29/90 3:31:00 CALI: FOOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

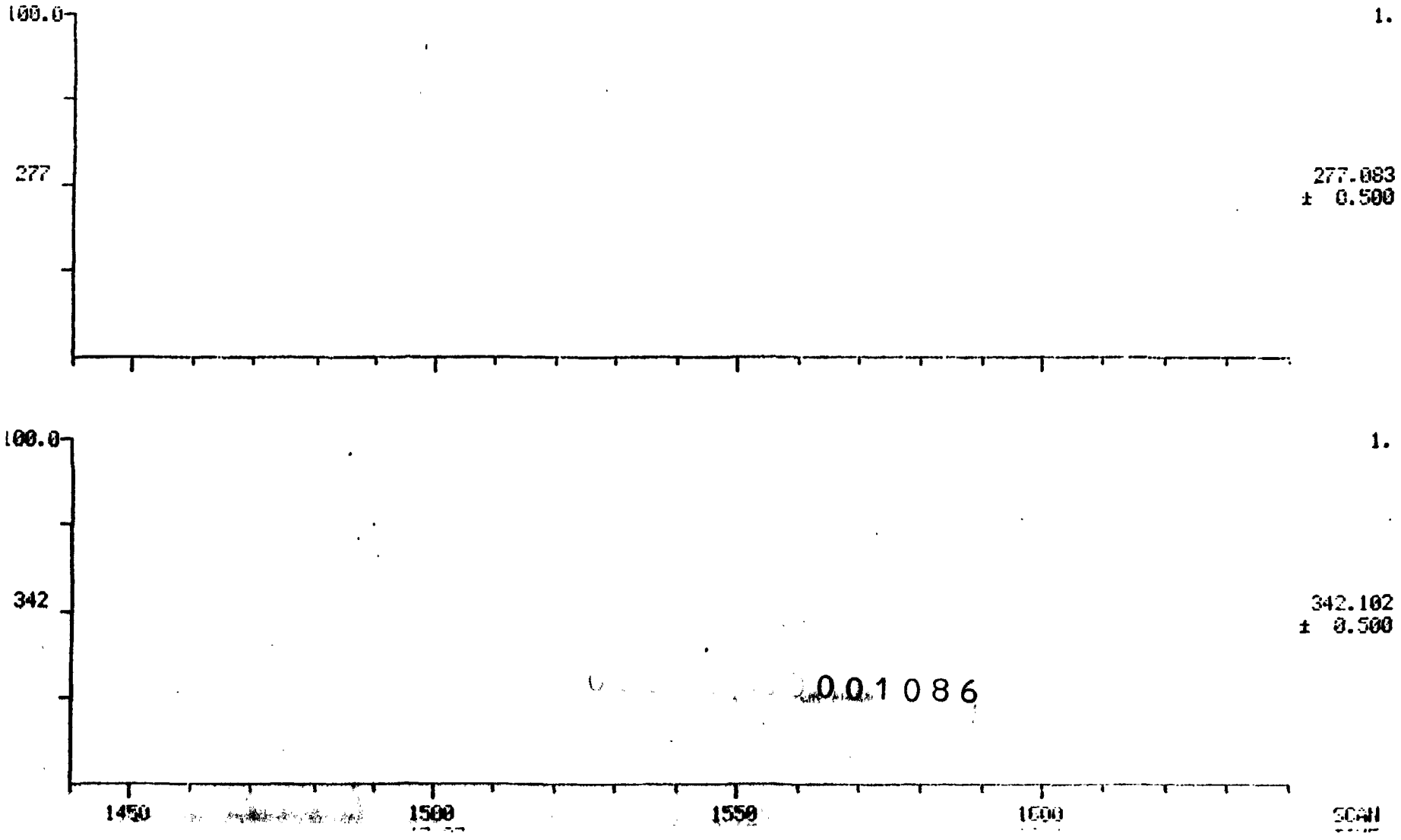


001084

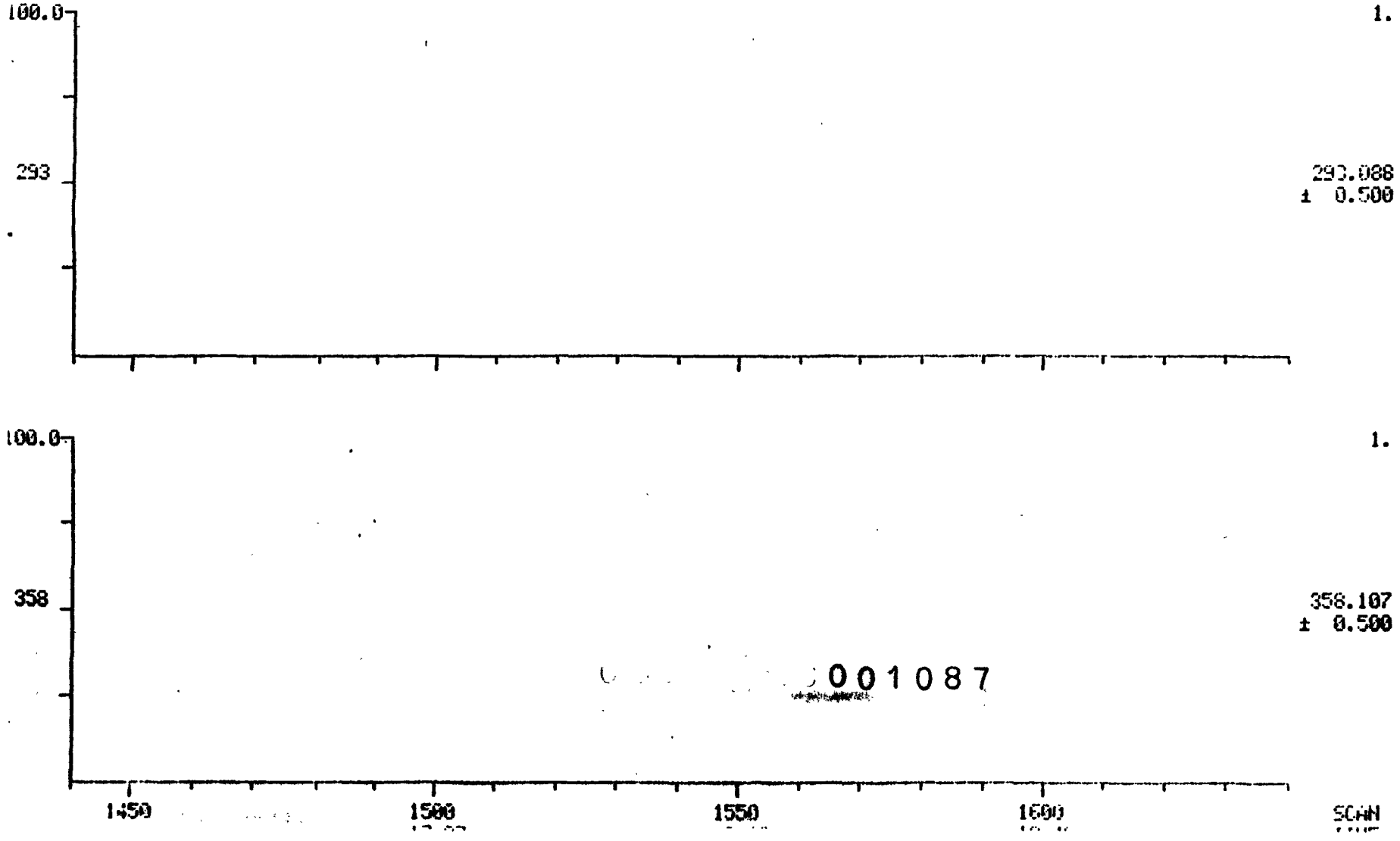
MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2360 SCANS 1200 TO 1440
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



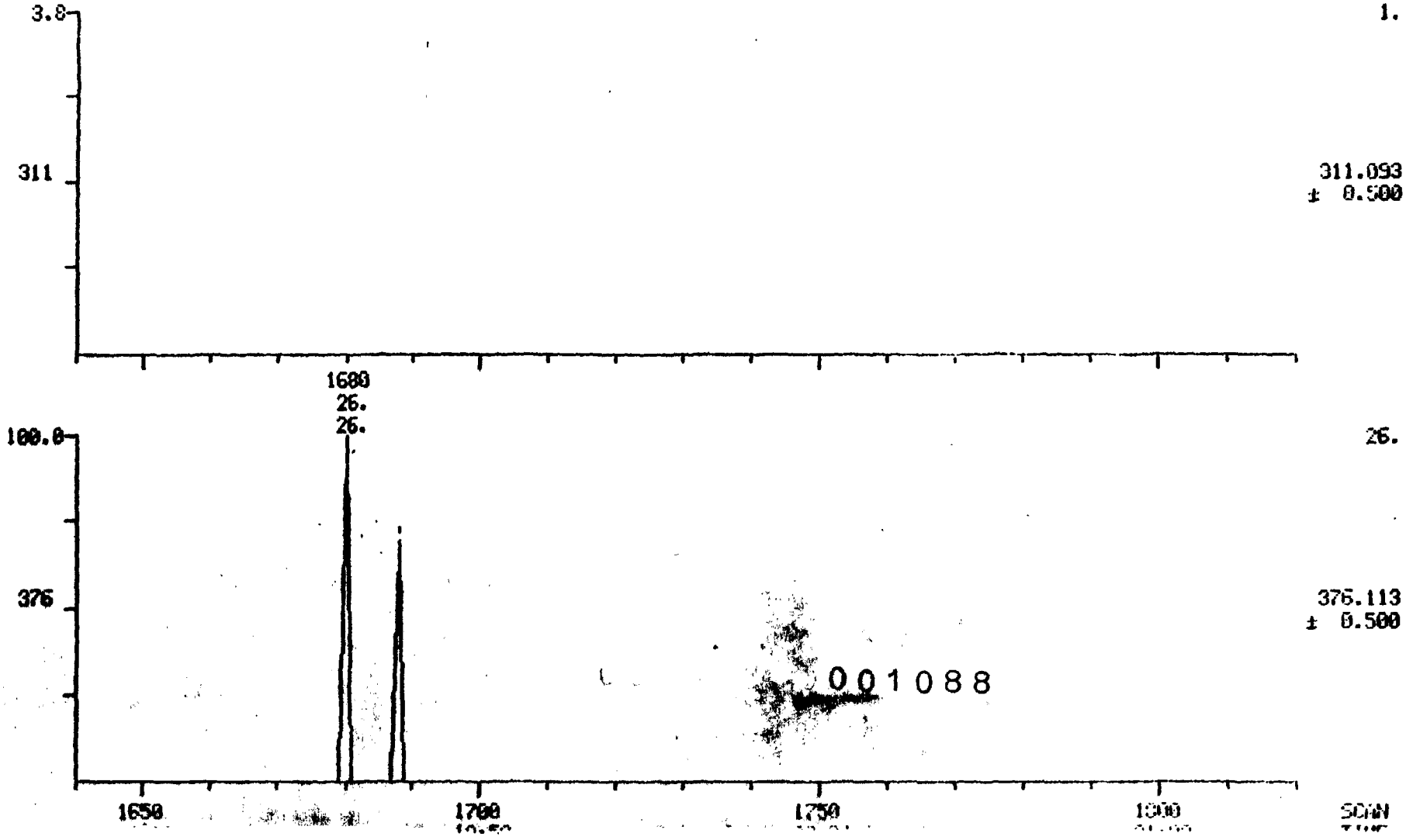
MASS CHROMATOGRAMS DATA: Y90B2352 #2368 SCANS 1440 TO 1640
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



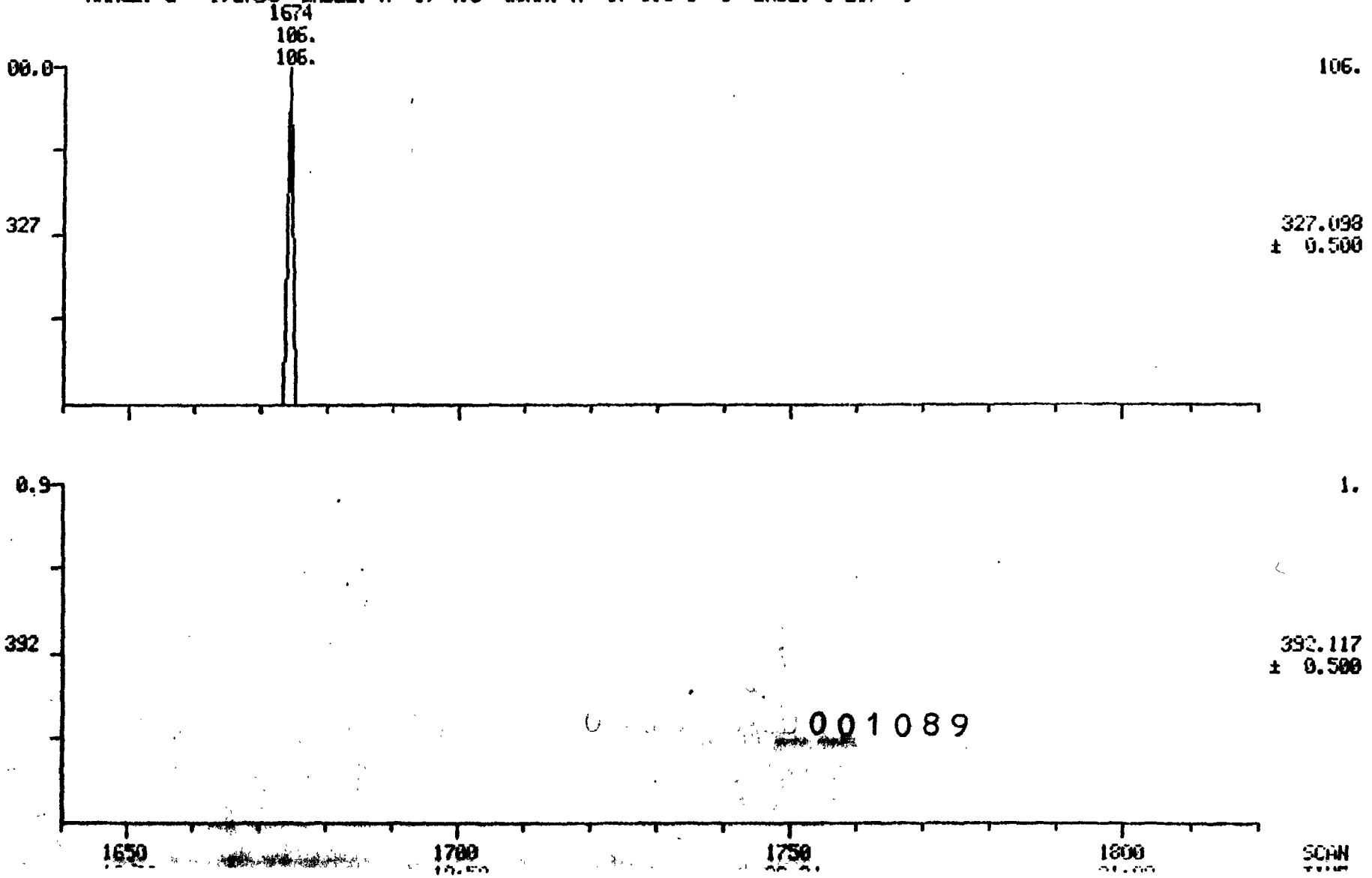
MASS CHROMATOGRAMS DATA: Y90B2352 #2368 SCANS 1440 TO 1640
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



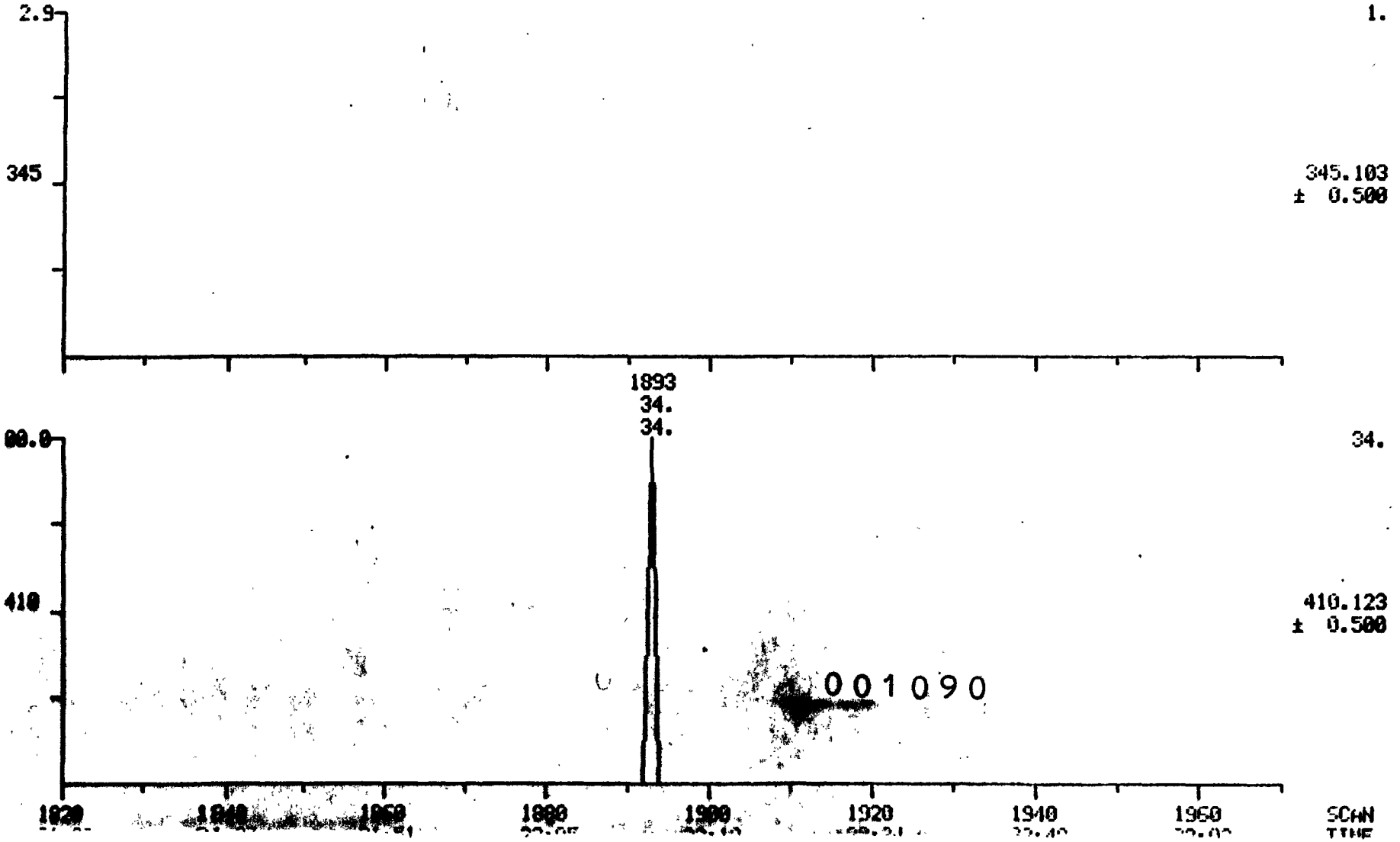
MASS CHROMATOGRAMS
10/29/90 3:31:00
DATA: Y90B2352 #2360 SCANS 1640 TO 1920
CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



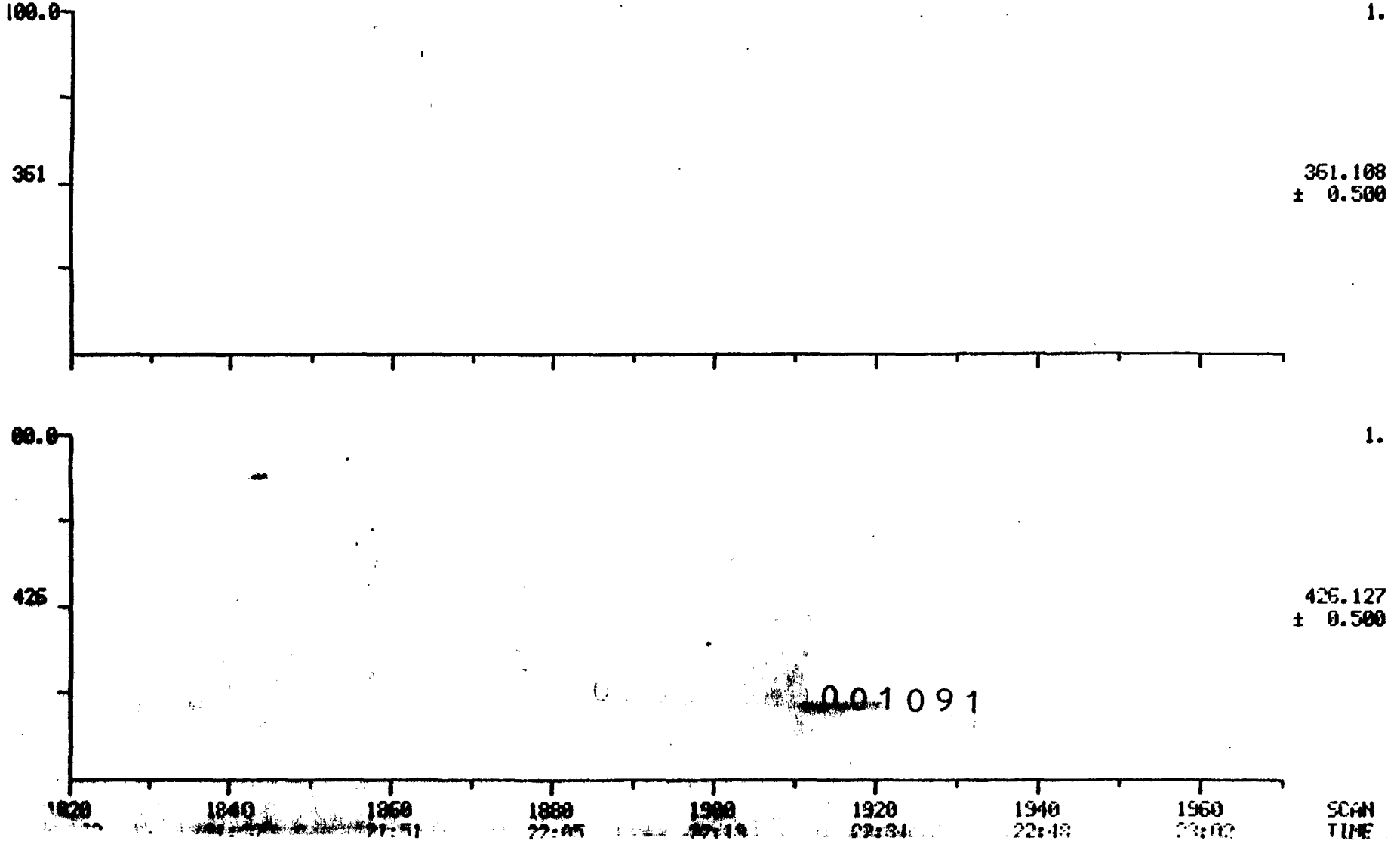
MASS CHROMATOGRAMS DATA: Y90B2352 #2368 SCANS 1640 TO 1820
10/29/90 3:31:00 CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



MASS CHROMATOGRAMS
10/29/90 3:31:00
SAMPLE: 1323
DATA: Y90B2352 #2368 SCANS 1820 TO 1970
CALI: FCOCT27 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



MASS CHROMATOGRAMS
10/29/90 3:31:00
DATA: Y90B2352 #2368 SCANS 1820 TO 1970
CALI: FCOCT27 #3
SAMPLE: 1323
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

DESCRIPTION OF TEST FACILITY

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #2
TEST DATE	:	01 OCT 1990
TEST RUN	:	1 - COMPLETED AT 04:30
PLANT	:	JACKSONVILLE ARKANSAS
UNIT	:	INCINERATOR
LOCATION	:	STACK
CONDITION	:	D WASTE BURN
OPERATORS	:	M. DILLARD / P. CADENHEAD
FILTER ID	:	N/A
SAMPLE UNIT	:	N/A
CONTROL UNIT	:	#2

SPECIAL TEST FACTORS

METER CORR. FACTOR, Yd	1.000	
RUNZZLE DIAMETER	0.310	in."
PITOT FACTOR (Cp)	0.84	
BARO. PRESSURE (Pb)	28.90	in.Hg. (incl. ALT CORR)
STATIC PRESSURE(Pg)	-.20	in.H20
METER VOLUME	126.336	ACF uncorrected
TEST DURATION	192.0	min.
IMPINGER CONDENSATE (H20)	1898.3	ml. (EST)
STACK AREA	9.61	sq.ft.
PERCENT CO2	6.50	%
PERCENT CO	0.00	%
PERCENT O2	10.50	%
PERCENT N2	83.00	%
H20 VP PERMITTED AT IMPINGER TEMP	0.000	in.Hg. (Si-Gel)
H20 VP PERMITTED AT STACK TEMP	43.000	in.Hg. (est)
NUMBER OF TRAVERSE POINTS	24	
WT. OF PARTICULATE MATTER	0.0000	grams.
VOLUME OF NAT.GAS BURNED	0.	SCF
STD TEMPERATURE	68	deg.F.
STD PRESSURE	29.92	in.Hg.
MOLE C / MOLE NAT.GAS	1.056	

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #2
TEST DATE	:	01 OCT 1990
TEST RUN	:	1 - COMPLETED AT 04:30

STACK TRAVERSE DATA

POINT	Ts	dP	VEL	dH	Ti	T2	Pm	Ti	%CO2	%O2
A-1	201	0.450	46.5	1.35	87.0	86.0	11.0	61.0	6.50	10.50
A-2	207	0.450	46.7	1.35	91.0	87.0	11.0	61.0	6.50	10.50
A-3	207	0.460	47.2	1.38	95.0	88.0	11.0	61.0	6.50	10.50
A-4	206	0.450	46.7	1.35	98.0	91.0	12.0	61.0	6.50	10.50
A-5	206	0.460	47.2	1.35	99.0	93.0	12.0	61.0	6.50	10.50
A-6	206	0.470	47.7	1.41	98.0	93.0	13.0	57.0	6.50	10.50
A-7	205	0.590	53.4	1.77	97.0	93.0	15.0	56.0	6.50	10.50
A-8	204	0.590	53.3	1.77	98.0	94.0	15.0	56.0	6.50	10.50
A-9	204	0.560	52.0	1.68	98.0	94.0	15.0	56.0	6.50	10.50
A-10	204	0.560	52.0	1.68	97.0	93.0	15.0	57.0	6.50	10.50
A-11	203	0.450	46.5	1.35	98.0	93.0	12.0	59.0	6.50	10.50
A-12	203	0.450	46.5	1.35	98.0	93.0	11.0	59.0	6.50	10.50
B-1	205	0.370	42.3	1.11	93.0	92.0	10.0	52.0	6.50	10.50
B-2	203	0.350	41.1	1.05	93.0	91.0	10.0	54.0	6.50	10.50
B-3	203	0.340	40.5	1.02	94.0	92.0	10.0	54.0	6.50	10.50
B-4	205	0.420	45.0	1.20	96.0	92.0	10.0	55.0	6.50	10.50
B-5	206	0.430	45.6	1.29	99.0	93.0	11.0	55.0	6.50	10.50
B-6	206	0.470	47.7	1.41	102.0	94.0	11.5	54.0	6.50	10.50
B-7	204	0.610	54.2	1.80	101.0	95.0	12.0	54.0	6.50	10.50
B-8	205	0.620	54.7	1.86	99.0	95.0	15.0	54.0	6.50	10.50
B-9	204	0.620	54.7	1.86	98.0	95.0	15.0	54.0	6.50	10.50
B-10	204	0.580	52.9	1.74	98.0	95.0	15.0	55.0	6.50	10.50
B-11	205	0.520	50.1	1.86	101.0	96.0	14.0	55.0	6.50	10.50
B-12	205	0.520	50.1	1.86	101.0	96.0	13.0	55.0	6.50	10.50
AVE	205	0.488	48.5	1.49	97.0	92.7	12.5	56.5	6.50	10.50

001093

VEL = 85.48 * Cp * SQ.RT.((dP*Ts)/(Ps*Ms))

GAS METER VOLUME (uncorr.) = 126.3360

GAS METER FACTOR Yd = 1.000

NOTES

1. AVE PITOT TUBE PRESSURE (dP) IS THE SQUARE OF THE MEAN SQUARE ROOT
2. AVE % CO2 AND AVE % O2 ARE VELOCITY WEIGHTED

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #2
TEST DATE	:	01 OCT 1990
TEST RUN	:	1 - COMPLETED AT 04:30

SAMPLE GAS CALCULATIONS

A.	Vm	METER VOLUME, UNCORRECTED*METER FACTOR	=	%126.34	cu.ft.
B.	Pm	METER PRESSURE, Pb + dH/13.6	=	29.01	in.Hg.
C.	Tm	METER TEMPERATURE, 460+(T1+T2)/2	=	555	xR
D.	Ti	IMPINGER TEMPERATURE	=	57	xF
E.	Ts	STACK TEMPERATURE	=	665	xR
F.	Ps	STACK PRESSURE, Pb+Pg/13.6	=	28.89	in.Hg.
G.	VPi	MAX.H2O VP PERMITTED AT Ti	=	0.000	in.Hg.
H.	Vlc	VOLUME OF CONDENSED H2O	=	1898	ml.
I.	Vcalc	H2O VAPOR, METER COND., H*C/B*0.00267	=	96.94	cu.ft.
J.	Vwv	MOISTURE METERED AT METER COND., A*G/B	=	0.00	cu.ft.
K.	Vdry	SAMPLE VOLUME AT METER COND., DRY, A-J	=	%126.34	cu.ft.
L.	% Mc	PER CENT MOISTURE CALC. 100*(I+J)/(A+I)	=	43.42	%
M.	VPs	MAX H2O VP PERMITTED AT Ts (SEE APPENDIX)	=	43.00	in.Hg.
N.	%Ms	PERCENT MOISTURE PERMITTED, M/F*100	=	148.9	%
	Bws	ENTER LOWER OF L OR N	=	43.4	%
O.	M.C.	MOISTURE CORRECTION FACTOR (100-L OR N)/100	=	0.566	
P.	Vm(std)	SAMPLE VOL., STD COND. (DRY) K*528/29.92*B/C	=	%116.56	SCF .
S.	mn	WEIGHT OF PARTICULATE MATTER COLLECTED	=	0.0000	gms.
T.	os	GRAIN LOADING (DRY), 15.43*S/P	=	0.000	grains/scf

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #2
TEST DATE	:	01 OCT 1990
TEST RUN	:	1 - COMPLETED AT 04:30

STACK GAS CALCULATIONS

GAS ANALYSIS	VOL%/100	* MOISTURE CORR.	* MOL.WT.	= WT./MOLE WET BASIS
WATER	0.4342	* 1.0000	* 18.0	= 7.815
OXYGEN	0.1050	* 0.5658	* 32.0	= 1.901
CARBON MONOXIDE	0.0000	* 0.5658	* 28.0	= 0.000
CARBON DIOXIDE	0.0650	* 0.5658	* 44.0	= 1.618
NITROGEN / INERTS	0.8300	* 0.5658	* 28.2	= 13.244

AA. Ms AVERAGE MOLECULAR WEIGHT = 24.578

DD.	Cp PITOT TUBE CORRECTION FACTOR	=	0.84	
EE.	Vs STACK VELOCITY @ STACK COND.	=	48.52	ft/sec
FF.	Vs(std) VELOCITY @ STD.COND.(DRY) EE*528/29.92*F/E*O	=	21.06	ft/sec
GG.	DURATION OF SAMPLING	=	192	min.
HH.	AVERAGE SAMPLING RATE (DRY), P/GG	=	0.607	SCFM
II.	SELECTED NOZZLE DIAMETER	=	0.310	in.
JJ.	SAMPLING VELOCITY AT STD. CONDITIONS, HH/II^2*144/60/PI	=	19.30	ft/sec
KK.	ISOKINETIC VARIATION, JJ/FF*100	=	92	%
LL.	As AREA OF STACK	=	9.610	sq.ft.
MM	Qsd FLOW RATE AT STD COND (DRY), FF*LL*60	=	12141	SCFM
NN	Qs FLOW RATE AT STACK COND., EE*LL*60	=	27976	ACFM
UU	PARTICULATE EMISSION RATE, 0.00858*T*MM	=	0.00	lb/hr

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #2
TEST DATE	:	01 OCT 1990
TEST RUN	:	1 - COMPLETED AT 04:30

COMBUSTION CALCULATIONS

T.	CS GRAIN LOADING (DRY)	=	0.000	grains/ DSCF
UU.	PARTICULATE EMISSION RATE 0.00857*T*MM	=	0.00	lb/hr
00.	%CO2 (GAS ANALYSIS - STACK EXHAUST)	=	6.50	%
PP.	C12 GRAIN LOADING (DRY) @ 12% CO2, T*12/OO	=	0.000	grains/ DSCF
ZZ.	EXCESS AIR = $\frac{(\%\ \text{OXYGEN} - \%\ \text{CO}) * 100}{0.264*(\%\ \text{N2})-(\%\ \text{OX})+0.5*(\%\ \text{CO})}$	=	92	%
QQ.	%O2 (WEIGHTED VALUE)	=	10.5	%
RR	O2 LOADING (DRY ATR 7% O2), T*14/(21-QQ)	=	0.000	grains/ DSCF

QAF S042
Page 1 of 1
Revision 4
Effective Date: 1/22/88

FIELD DATA SHEET

Date: 10/1/90

Run Number: [illegible] #2

K=3.0

TRAVERSE POINT NUMBER	SAMPLING TIME, MIN.	CLOCK TIME	GAS METER READING (VM), FT^3	VELOCITY HEAD ΔP	ΔP^2	ORIFICE PRESSURE (ΔH)	STACK TEMP. (TS), °F (1)	DRY GAS METER TEMPERATURE INLET (TM in)	DRY GAS METER TEMPERATURE OUTLET (TM out)	PUMP VACUUM IN HG	SAMPLE BOX TEMP. °F (3)	IMPINGER TEMP. °F (4)	PROBE TEMP. °F (2)	O_2
			235.836											
Initial	0		235.830	.42		1.26	206	85	85	9.0	257	63	229	
1	8		240.150	.45		1.35	201	87	86	11.0	288	61	259	
2	16		244.730	.45		1.35	207	91	87	11.0	283	61	270	
3	24		249.360	.46		1.38	207	95	88	11.0	282	61	265	
4	32		253.180	.45		1.35	206	98	91	12.0	282	61	257	
5	40		258.865	.46		1.55	206	99	93	12.0	282	61	254	
6	48	[illegible]	263.710	.57		1.49	206	98	93	13.0	280	57	247	
7	56		269.310	.59		1.77	205	97	93	15.0	278	56	256	
8	64		274.840	.59		1.77	204	98	94	15.0	273	56	255	
9	72		280.490	.56		1.68	204	98	94	15.0	280	56	255	
10	80		285.000	.56		1.68	204	97	93	15.0	276	57	250	
11	88		290.035	.45		1.35	203	98	93	12.0	280	54	251	
12	96		295.820	.4		1.20								
		leak check → okay .003 ft³/min												
Initial	0		295.925	.37		1.11								
1	8		300.340	.37		1.11	205	93	92	10.0	279	52	257	
2	16		304.790	.35		1.05	203	93	91	10.0	278	54	257	
3	24		309.280	.34		1.02	203	94	92	10.0	278	54	253	
4	32		313.770	.40		1.20	205	96	92	10.0	279	55	259	
5	40		318.385	.43		1.29	206	99	93	14.0	283	55	262	
6	48	[illegible]	323.160	.47		1.41	206	102	94	11.5	284	54	264	
7	56		328.085	.61		1.80	204	101	95	12.0	279	54	257	
8	64		333.700	.62		1.86	205	99	95	15.0	276	54	250	
9	72		339.520	.62		1.86	204	98	95	15.0	275	54	252	
10	80		345.310	.58		1.74	204	98	95	15.0	278	55	255	
11	88		351.025	.52		1.56	205	101	96	14.0	278	55	257	
12	96		356.293	.4		1.20								

leak check → .003 ft³/min

001097

QUALITY ASSURANCE
FORM

Q.A.F.: S-042
REVISION: FOUR
ORIGINATOR: WERDEN
APPROVED:
EFFECTIVE DATE: 3/23/82

PARTICULATE SAMPLING DATA

EPA REFERENCE METHOD 5/8/17

PAGE 1 OF

TEST ID

PROJECT NO. SI-262-01
CLIENT MRK/UE
PLANT VERIAS
UNIT STACK
LOCATION
CONDITION
DATE 09/28/90 10/1/90
TEST RUN ID DEMIN #2
OPERATORS ROW/RB
PKC/MD

STACK DIMENSIONS
42"

EQUIPMENT ID

CONTROL UNIT #1
SAMPLE UNIT
D.T.I./M-M
NOZZLE Ø.31Ø
PROBE
PITOT TUBE
BAROMETER 29.8Ø
PROBE SPECIFICATIONS
LINER MATERIAL GLASS
EFFECTIVE LENGTH
HEATER TEMP., °F 275°
FILTER ID
HEATER TEMP., °F 275°

LEAK-TEST DATA

INITIAL RATE
PITOT (-)
PITOT (+)
NOZZLE (-)
ORIFICE (+)
FINAL RATE
PITOT (-)
PITOT (+)
NOZZLE (-)
ORIFICE (+)

STACK PRESSURE DATA
PB, IN. HG
PSG, IN. H2O

SAMPLE RATE DATA

CP Ø.84
Δ HA 1.9714
TM, °F
%H2O
PB, IN. HG
PSG, IN. H2O
TS, °F
DN, IN.

TS, °F

TM, °F

PXP ISO DATA

NO OF PTS 24
NET TIME
PITOT CP .84
NOZZLE ID .310"
Y-FACTOR
BAROMETER
STATIC -2"
% CO2
% O2
G H2O
VM ZERO
VM END

MOISTURE DATA

	GROSS	TARE	NET
1	1850 ml	Ø.Ø	1850
2	105	100ml	5
3	122	100 ml	22
4	Ø	Ø.Ø	Ø
T	478.7	459.4	19.3

W/O INSERT

1896.3

PARTICULATE CATCH

PARTIAL, MG
TOTAL, MG

001098

SAMPLE POINT LOCATION

QAF S-251
Revision:
Effective Date:

CHAIN OF CUSTODY RECORD
YORK RESEARCH CONSULTANTS

Project No: 91-262-01
Project/Client: VERTAC
Samples taken by: M. DILLARD / T. CADENHEAD

Sample ID	Date/Time	Type	# Cont	Sample Location/ Description	Analysis 8260	Remarks
67461	10-8-90	STACK	1	M-23 SAMPLING TRAIN	X	

Relinquished by: (signature)	Date/Time:	Rec'd by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)
[signature]	10-9-90	[signature] 10/9/90			
Relinquished by: (signature)	Date/Time:	Rec'd by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)

001099

DIOXIN/FURAN SUMMARY FORM

SAMPLE ID: 67464

MATRIX: (FEED,FILTER,ASH,SOIL,SLUDGE,WATER) **SEMI-LIQUID**

LAB SAMPLE ID:		1324	LAB FILE ID:	Y90B	2353
SAMPLE WT/VOL:	g__,ml__	1.00	DATE COLLECTED:	~~10/11~~	10/10
INSTRUMENT ID:		FINN#1	DATE RECEIVED:	~~10/18~~	
GC COLUMN:		DB5	DATE EXTRACTED:	~~10/18~~	10/18
WATER PREP:(SF/CE)		NA	EXTRACT PREP:(RV/KD)	RV	RV
DATE ANALYZED:		10/29	TIME ANALYZED:	3:31	4:27
EXTRACT VOLUME:(uL)		100 uL	INJECTION VOLUME:(uL)	2	2.000
TOTAL AMOUNT UNITS:		ng	CONC. UNITS:	NA	NA

INTERNAL STANDARD RECOVERY DATA

AREA IS1: 109		100	IS1 RECOVERY:(%)	69.1%
AREA IS2: 28.20		200	IS2 RECOVERY:(%)	49.5%
AREA RS: 146	QUANT IS1:	100	QUANT IS2: 200	

0001100

POLYCHLORINATED DIBENZODIOXINS				POLYCHLORINATED DIBENZOFURANS			
ANALYTE	AREA	RF	VALUE	ANALYTE	AREA	RF	VALUE
INTERNAL STANDARD 1 QUANTITATED							
2378-TCDD		1.13	0.00	2378-TCDF		1.57	0.000
TOTAL OTHER TCDD		1.13	0.00	TOTAL OTHER TCDF		1.57	0.000
12378-PeCDD		0.80	0.00	12378-PeCDF		0.94	0.000
TOTAL OTHER PeCDD		0.80	0.00	23478-PeCDF		0.94	0.000
				TOTAL OTHER PeCDF		0.94	0.000
123478-HxCDD		0.53	0.00	123478-HxCDF		0.77	0.000
123678-HxCDD		0.53	0.00	123678-HxCDF		0.77	0.000
123789-HxCDD		0.53	0.00	123789-HxCDF		0.77	0.000
TOTAL OTHER HxCDD		0.53	0.00	234678-HxCDF		0.77	0.000
				TOTAL OTHER HxCDF		0.77	0.000
INTERNAL STANDARD 2 QUANTITATED							
1234678-HpCDD		1.86	0.00	1234678-HpCDF		2.77	0.00
TOTAL OTHER HpCDD		1.86	0.00	1234789-HpCDF		2.77	0.00
				TOTAL OTHER HpCDF		2.77	0.00
TOTAL OCDD		1.32	0.00	TOTAL OCDF		1.92	0.00

0.0 = NOT DETECTED AT EDL (SEE NEXT PAGE)

VALUE = AREA SAMPLE * CONC IS1(2)/AREA IS1(2) * RF

DIOXIN/FURAN SUMMARY FORM

TOXICITY EQUIVALENT QUANTITY

SAMPLE ID: 67464 LAB ID: 1324

DATA FILE ID: Y90B 2353

	RF	EDL CODE	CALCULATION AREA	CONC	VALUE	TEF
2378-TCDD	1.13	N	1.0	1.037	0	1.0
I* OTHER TCDD	1.13	N	0.5	0.518		0.01
TOTAL OTHER TCDD	1.13	N	0.1	0.104	0	0.01
12378-PeCDD	0.8	I	0.5	0.367	0	0.5
I* OTHER PeCDD	0.8			0.000	0	0.005
TOTAL OTHER PeCDD	0.8	N	0.1	0.073	0	0.005
123478-HxCDD	0.53	I	1.0	0.486	0	0.040
123678-HxCDD	0.53	N	0.1	0.049	0	0.040
123789-HxCDD	0.53	N	0.1	0.049	0	0.040
TOTAL OTHER HxCDD	0.53	N	0.1	0.049	0	0.0004
1234678-HpCDD	1.86	N	0.1	0.171	0	0.0010
TOTAL OTHER HpCDD	1.86	N	0.1	0.171	0	0.0004
2378-TCDF	1.57	I	3	4.321	0.0	0.1
I* OTHER TCDF	1.57			0.000		0.001
TOTAL OTHER TCDF	1.57	N	1	1.440	0.000	0.001
12378-PeCDF	0.94	N	1	0.862	0.0	0.1
23478-PeCDF	0.94	N	1	0.862	0.0	0.1
I* OTHER PeCDF	0.94			0.000		0.0004
TOTAL OTHER PeCDF	0.94	N	1	0.862	0.0000	0.0004
123478-HxCDF	0.77	N	1	0.706	0.00	0.0100
123678-HxCDF	0.77	N	1	0.706	0.00	0.0100
123789-HxCDF	0.77	N	1	0.706	0.00	0.0100
234678-HxCDF	0.77	N	1	0.706	0.00	0.0100
TOTAL OTHER HxCDF	0.77	N	1	0.706	0.00	0.0001
1234678-HpCDF	2.77	N	1	2.541	0.000	0.0010
1234789-HpCDF	2.77	N	1	2.541	0.000	0.0010
TOTAL OTHER HpCDF	2.77	N	1.0	2.541	0.000	0.0001

CONC = EDL AREA * CONC IS1(2)/IS1(2) AREA * RF

TEQ = CONC (or VALUE) * TEF

* I = INTERFERANT; N = NOISE;

YORK RESEARCH CONSULTANTS

antitation Report File: Y90B2353

ta: Y90B2353.TI
29/90 4:06:00

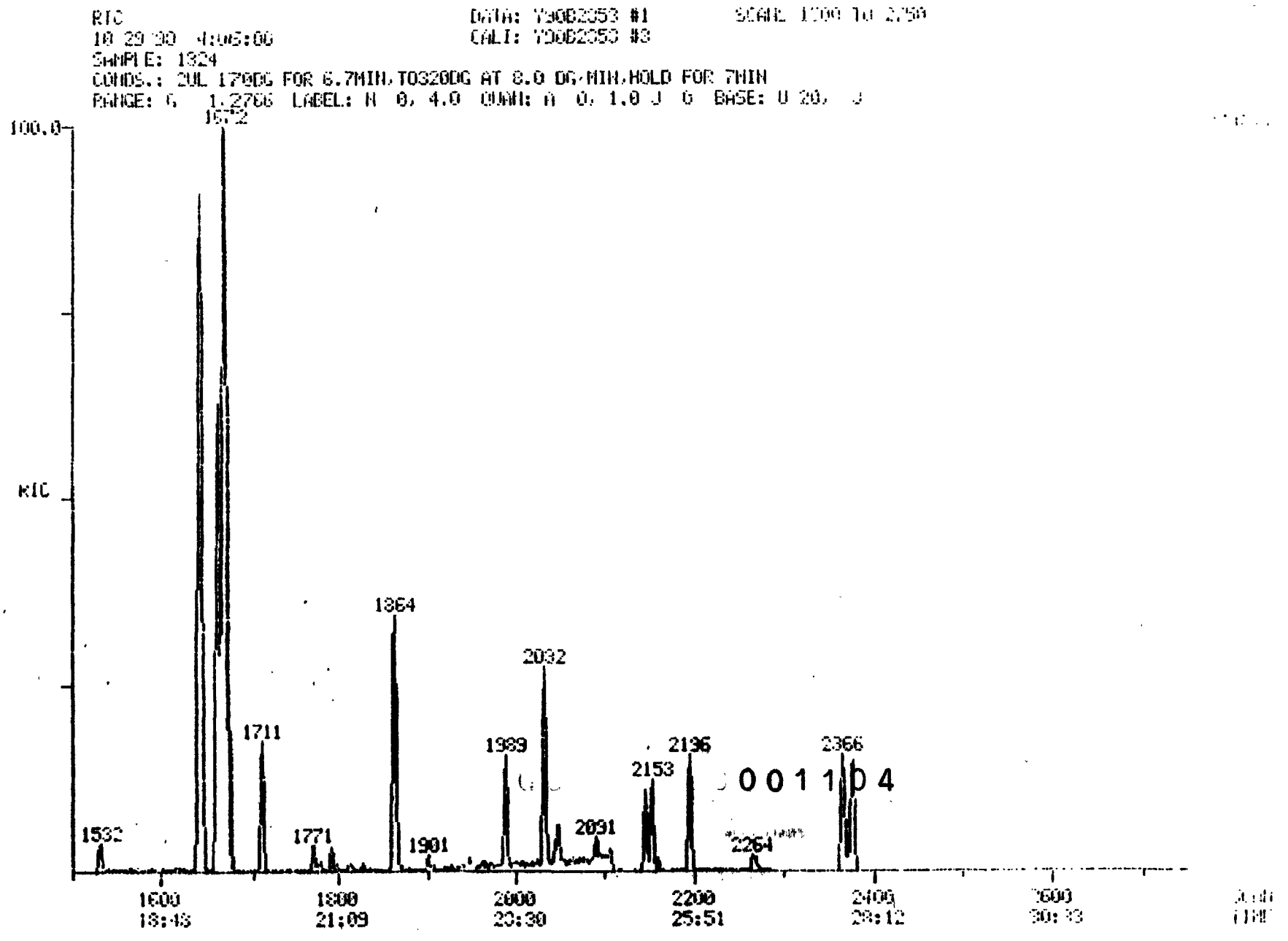
LCNT=AREA * REF AMNT/(REF AREA * RESP FACT)
sp. fac. from Library Entry

	Name
1	*RS1* 13C 1,2,3,4-TCDD (DF#1)
2	*IS1* 13C 2,3,7,8-TCDD (DF#2)
3	*IS2* 13C 1,2,3,4,6,7,8,9-OCDD (DF#3)
4	*SS1* 37Cl 2,3,7,8-TCDD (DF#4)
5	2,3,7,8-TCDF (DF#5)
6	2,3,7,8-TCDD (DF#6)
7	1,2,3,7,8-PECDF (DF#7)
8	2,3,4,7,8-PECDF (DF#8)
9	1,2,3,7,8-PECDD (DF#9)
10	1,2,3,4,7,8-HXCDF (DF#10)
11	1,2,3,6,7,8-HXCDF (DF#11)
12	1,2,3,7,8,9-HXCDF (DF#12)
13	2,3,4,6,7,8-HXCDF (DF#13)
14	1,2,3,4,7,8-HXCDD (DF#14)
15	1,2,3,6,7,8-HXCDD (DF#15)
16	1,2,3,7,8,9-HXCDD (DF#16)
17	1,2,3,4,6,7,8-HPCDF (DF#17)
18	1,2,3,4,7,8,9-HPCDF (DF#18)
19	1,2,3,4,6,7,8-HPCDD (DF#19)
20	1,2,3,4,6,7,8,9-OCDF (DF#20)
21	1,2,3,4,6,7,8,9-OCDD (DF#21)
22	13C 2,3,7,8-TCDD (DF#22)
23	13C 1,2,3,4,6,7,8,9-OCDD (DF#23)

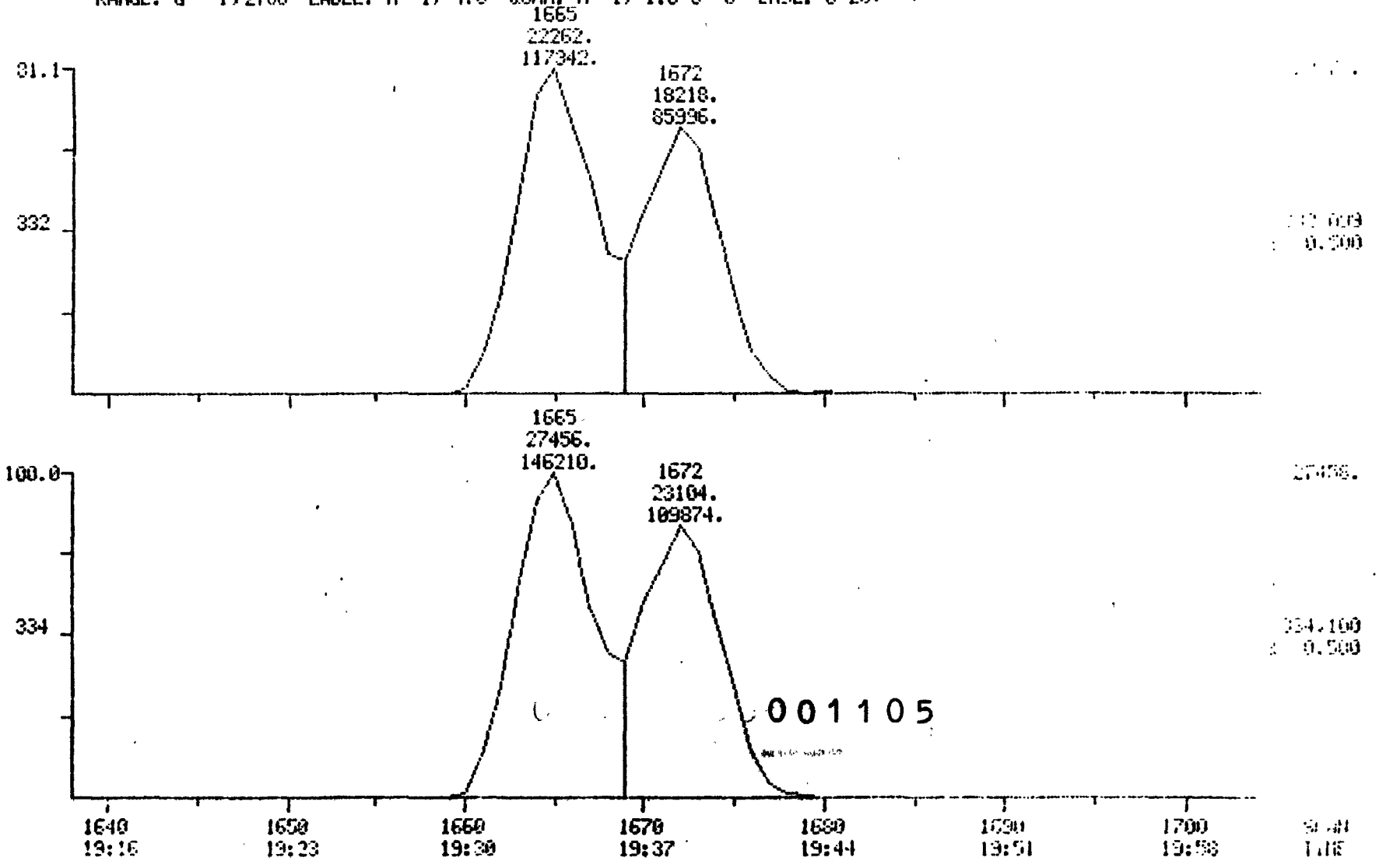
	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	334	1665	19:34	1	1.000	A BV	146069.	2000.000	PG/UL	21.52
2	334	1672	19:39	2	1.000	A VB	109306.	2000.000	PG/UL	21.52
3	472	2366	27:48	3	1.000	A BB	28284.	2000.000	PG/UL	21.52
4	NOT FOUND									
5	306	1645	19:20	2	0.984	A BB	2780.	30.958	PG/UL	0.33
6	NOT FOUND									
7	340	1854	21:47	2	1.109	A BB	338.	6.044	PG/UL	0.07
8	340	1798	21:08	2	1.075	A BB	922.	17.558	PG/UL	0.19
9	NOT FOUND									
10	374	1990	23:23	2	1.190	A BB	422.	13.262	PG/UL	0.14
11	374	1990	23:23	2	1.190	A BB	422.	10.929	PG/UL	0.12
12	NOT FOUND									
13	NOT FOUND									
14	NOT FOUND									
15	NOT FOUND									
16	NOT FOUND									
17	408	2147	25.14	3	0.907	A BB	1812.	72.474	PG/UL	0.78
18	NOT FOUND									
19	424	2197	25:49	3	0.929	A BB	1340.	85.230	PG/UL	0.93
20	NOT FOUND									

001102

p	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	460	2366	27:48	3	1.000	A BV	1436.	169.334	PG/UL	1.82
2	334	1672	19:39	1	1.004	A VB	109306.	805.135	PG/UL	8.67
3	[illegible]	[illegible]	[illegible]	1	1.421	A BB	[illegible]	[illegible]	PG/UL	[illegible]

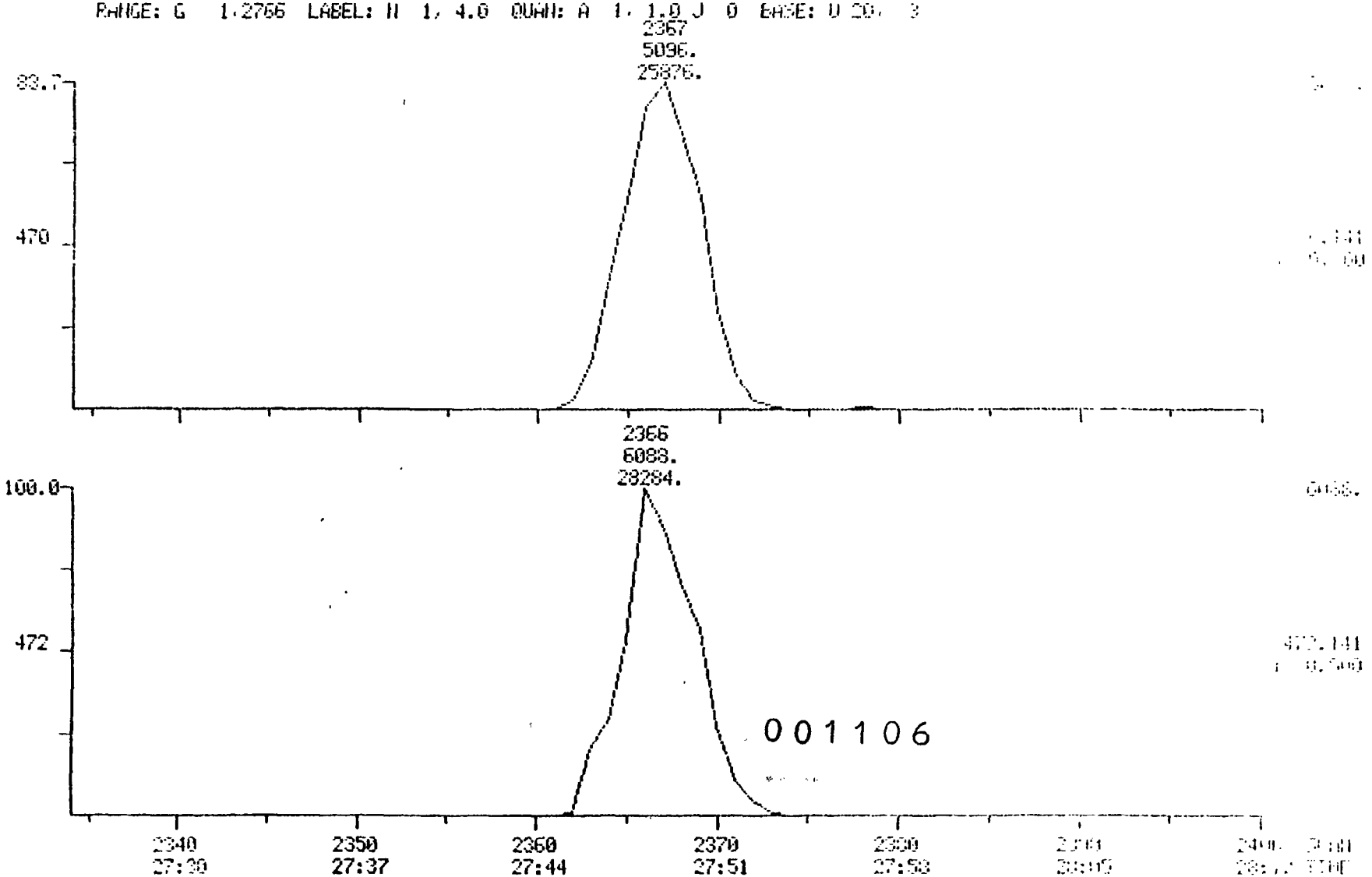

RIC
10 29 '00 4:05:00
DATA: Y00B2053 #1
CALI: Y00B2053 #3
SCANS 1000 To 2,750
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 0, 4.0 OVAR: A 0, 1.0 J 0 BASE: U 20, J
100.0
RIC
1532
1711
1771
1864
1901
1989
2032
2091
2153
2136
2264
2366
1600
18:46
1800
21:09
2000
23:30
2200
25:51
2400
28:12
3600
30:33

MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y9082353 #1671 SCANS 1636 TO 1704
CALI: Y9082353 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
%IS% 13C 2,3,7,8-TCDD (DF#2)
RANGE: G 1,2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20.

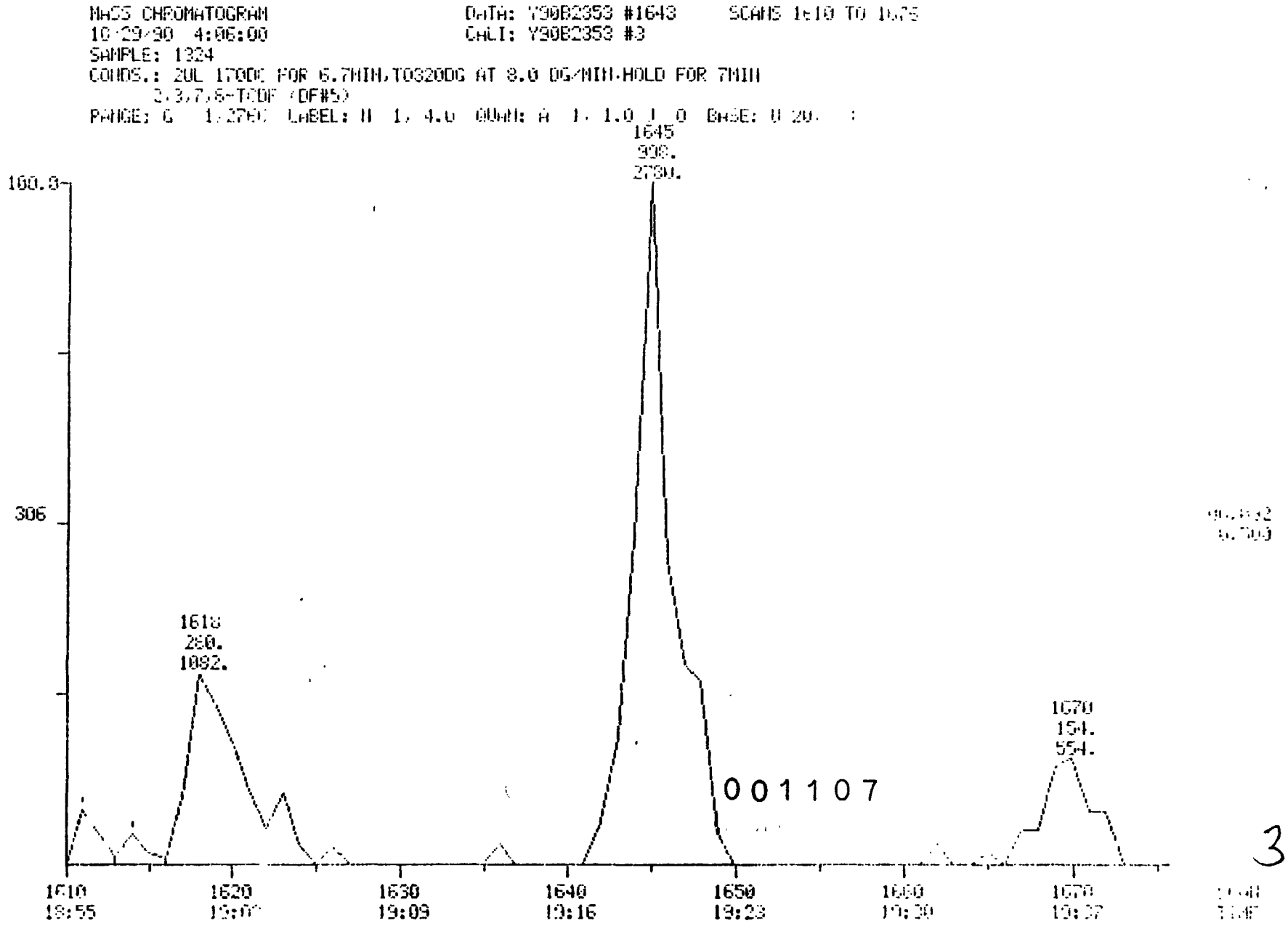


001105

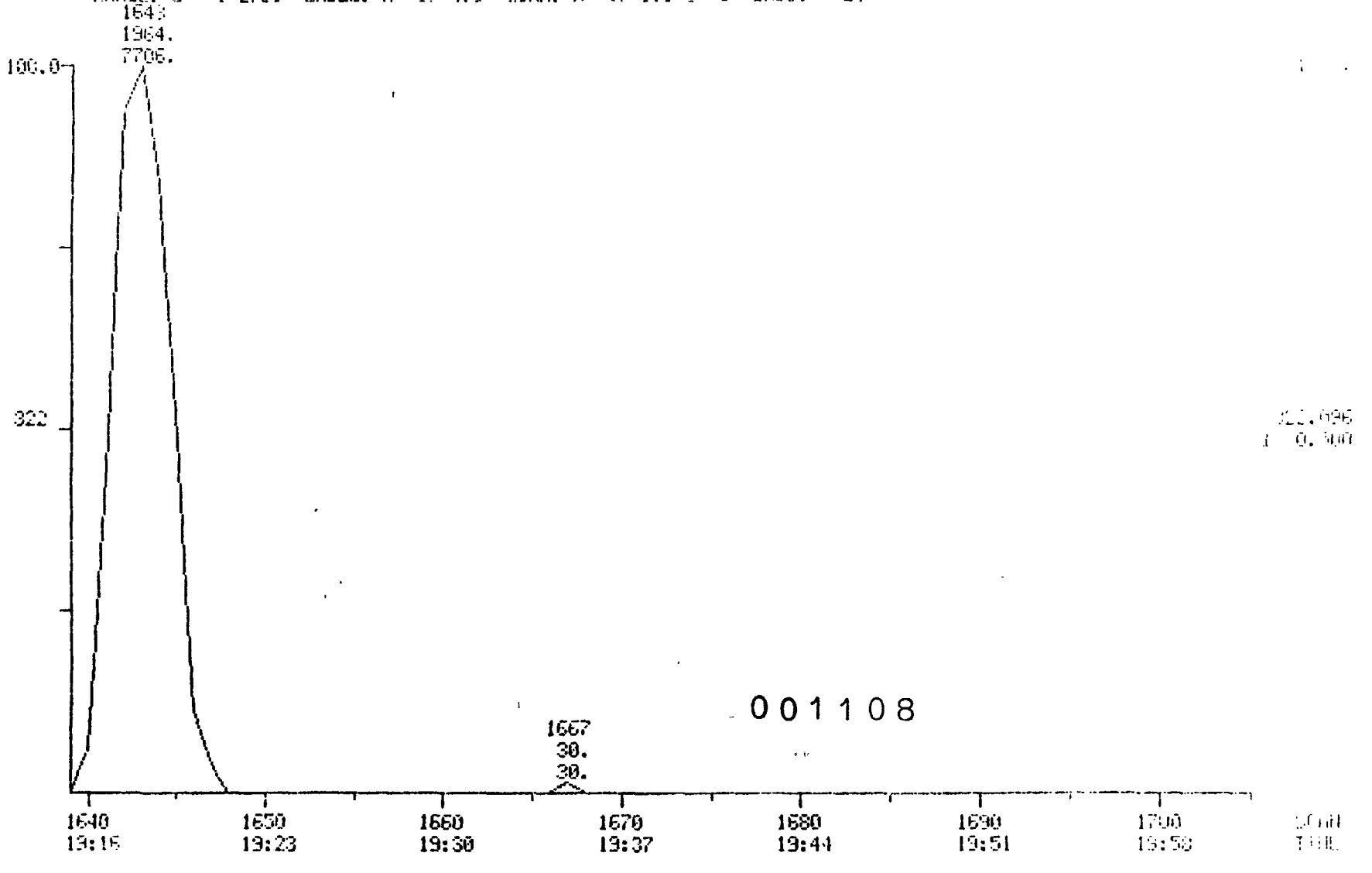
MASS CHROMATOGRAMS DATA: Y90B2353 #2367 SCANS 2334 TO 2400
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
HISI HRC 1,2,3,4,6,7,8,9-OCDD (DF#3)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



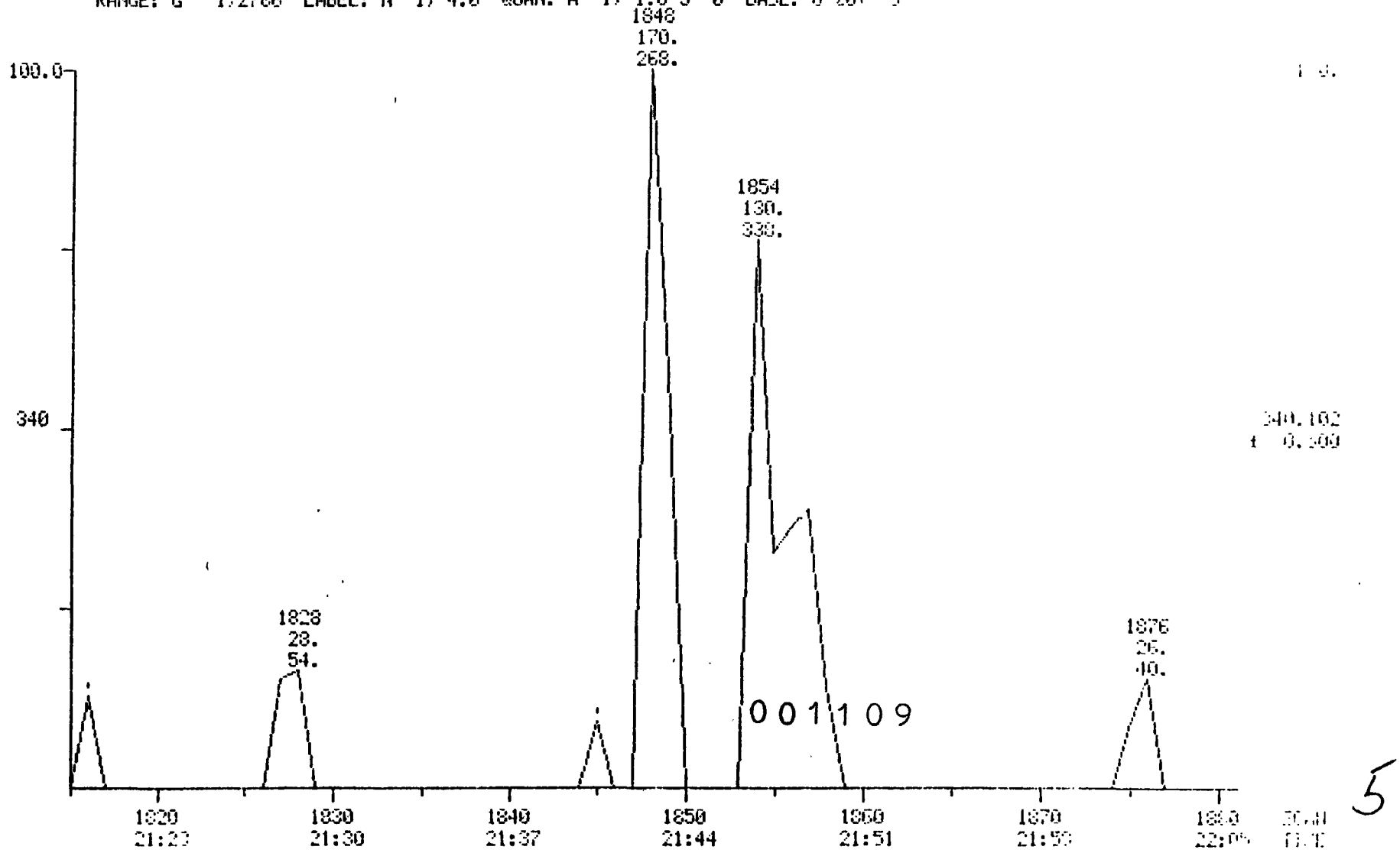
2


MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #1643
CALI: Y90B2353 #3
SCANS 1610 TO 1675
CONDS.: 2UL 170DC FOR 5.7MIN,TO320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
2,3,7,8-TCDF (DF#5)
RANGE: G 1.276C LABEL: N 1. 4.0 DOWN: A 1. 1.0 J 0 BASE: 0 20.
160.8
306
1645
908.
2790.
1618
280.
1082.
1670
154.
554.
001107
1610
19:55
1620
19:02
1630
19:09
1640
19:16
1650
19:23
1660
19:30
1670
19:37
3

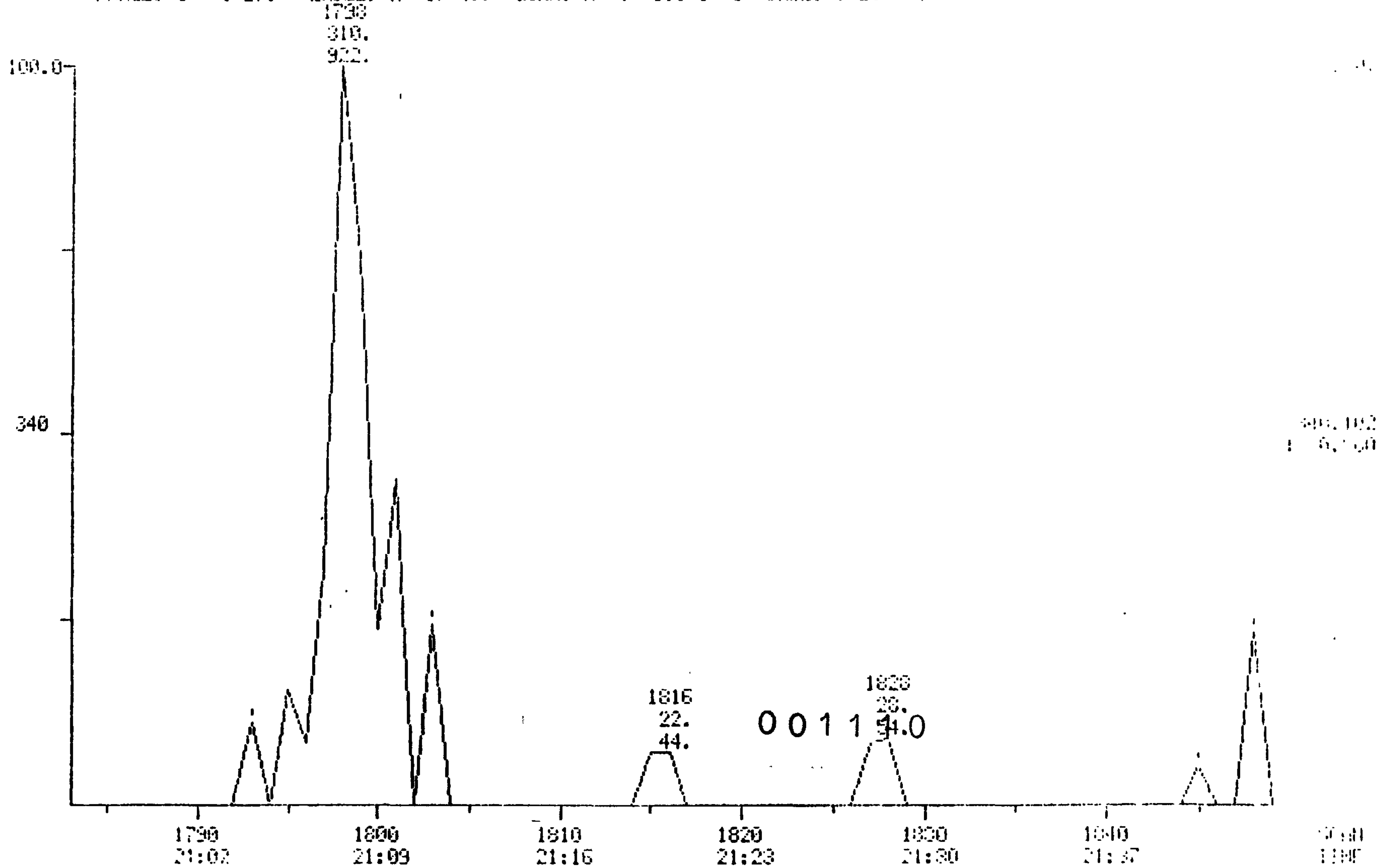
MASS CHROMATOGRAM DATA: Y90B2353 #1672 SCANS 1630 TO 1705
10/20/90 4:06:00 CAL1: Y90B2353 #3
SAMPLE: 1324
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDD (DF#6)
RANGE: G 1.2760 LABEL: H 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: H 20. %



4


MASS CHROMATOGRAM
10/29/30 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #1848
CALI: Y90B2353 #3
SCANS 1815 TO 1881
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDF (DF#7)
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3
100.0
340
1848
170.
268.
1854
130.
330.
1828
28.
54.
1876
26.
40.
001109
340.102
1820
21:23
1830
21:30
1840
21:37
1850
21:44
1860
21:51
1870
21:58
1880
22:05
5

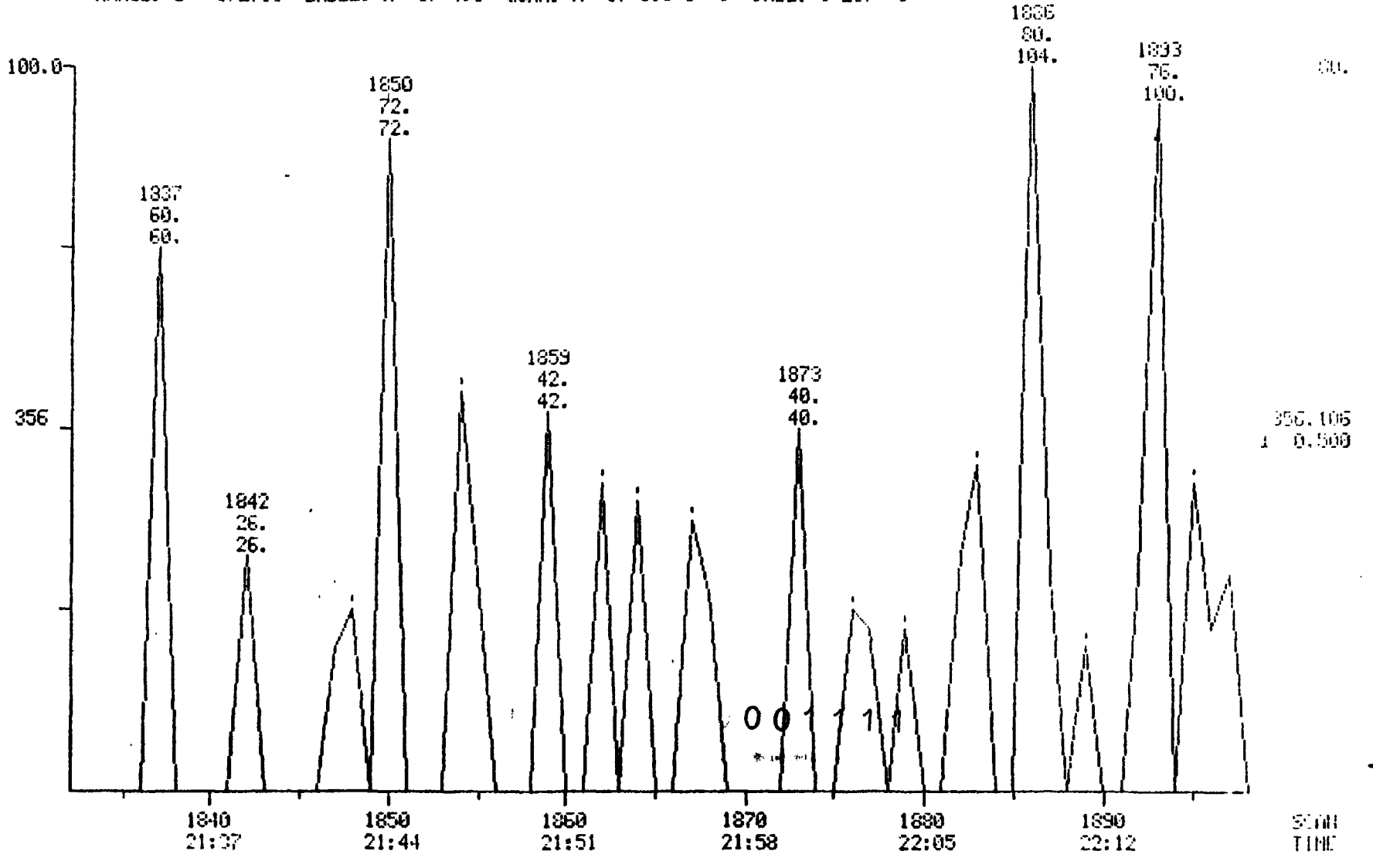
MASS CHROMATOGRAM   DATA: Y90B2353 #1816   SCANS 1783 TO 1849
10/29/90 4:06:00   CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,7,8-PECDF (DF18)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



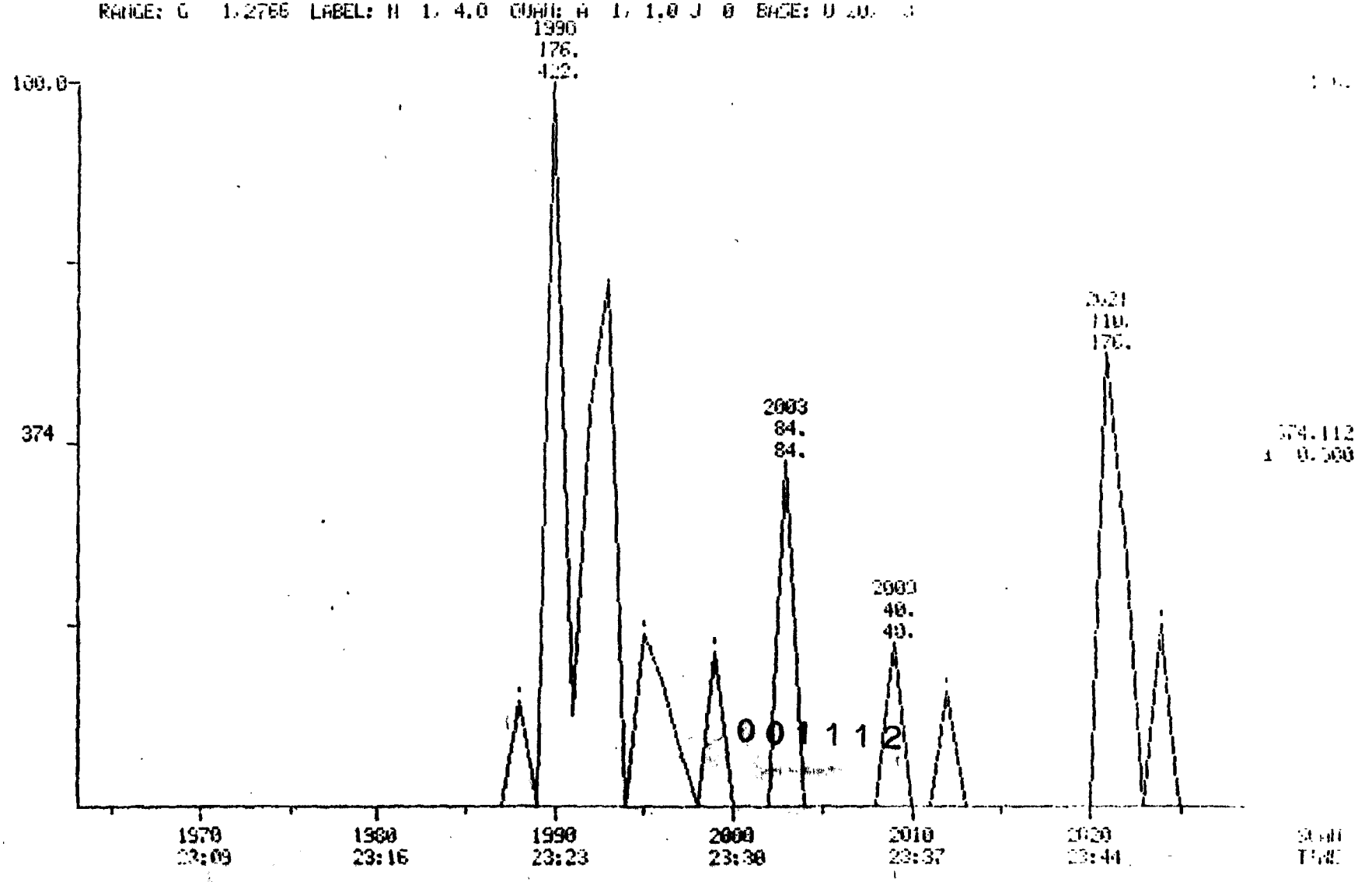
001140

6

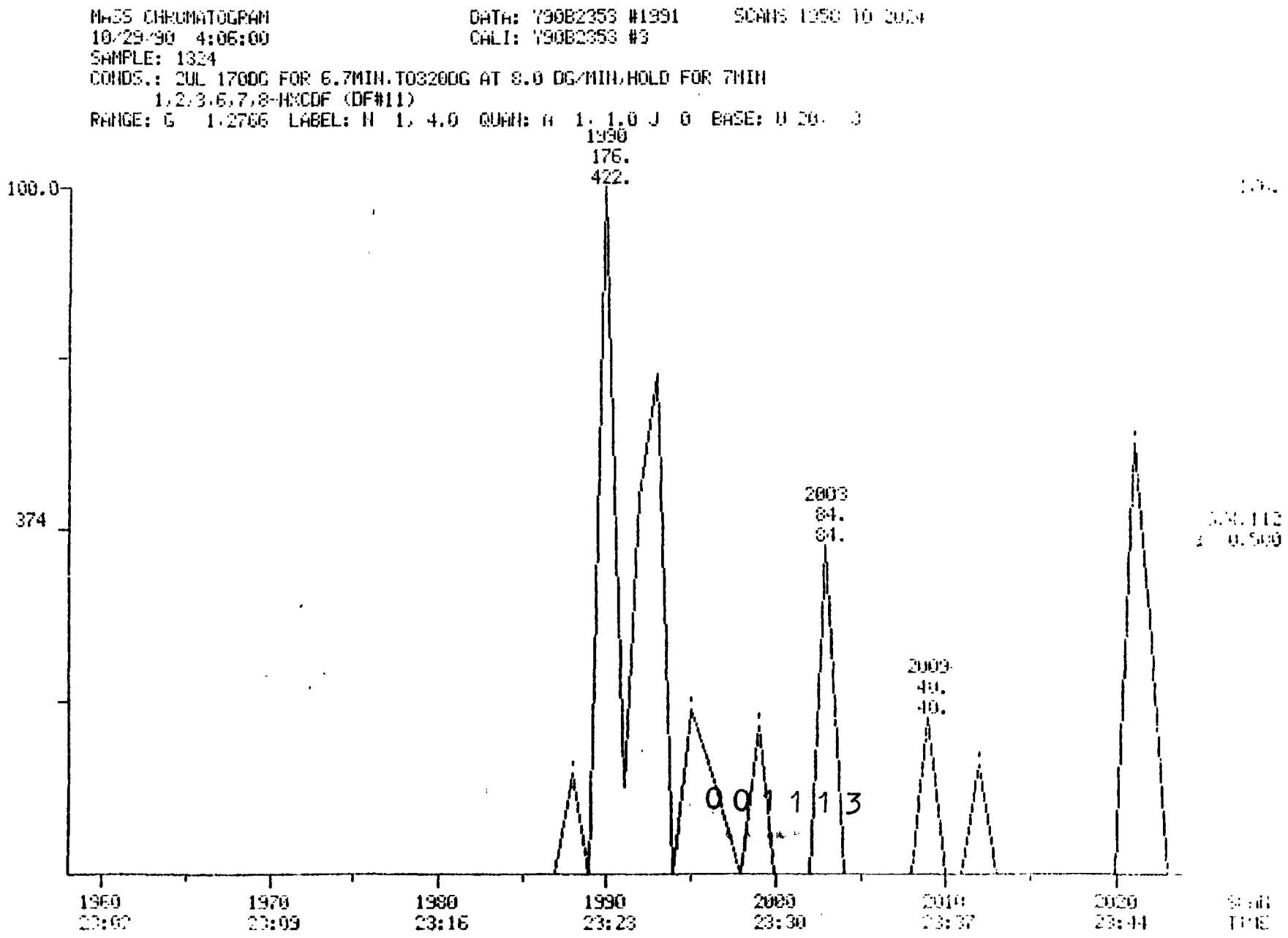
MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y9082353 #1865 SCANS 1832 TO 1898
CALI: Y9082353 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDD (DF#5)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



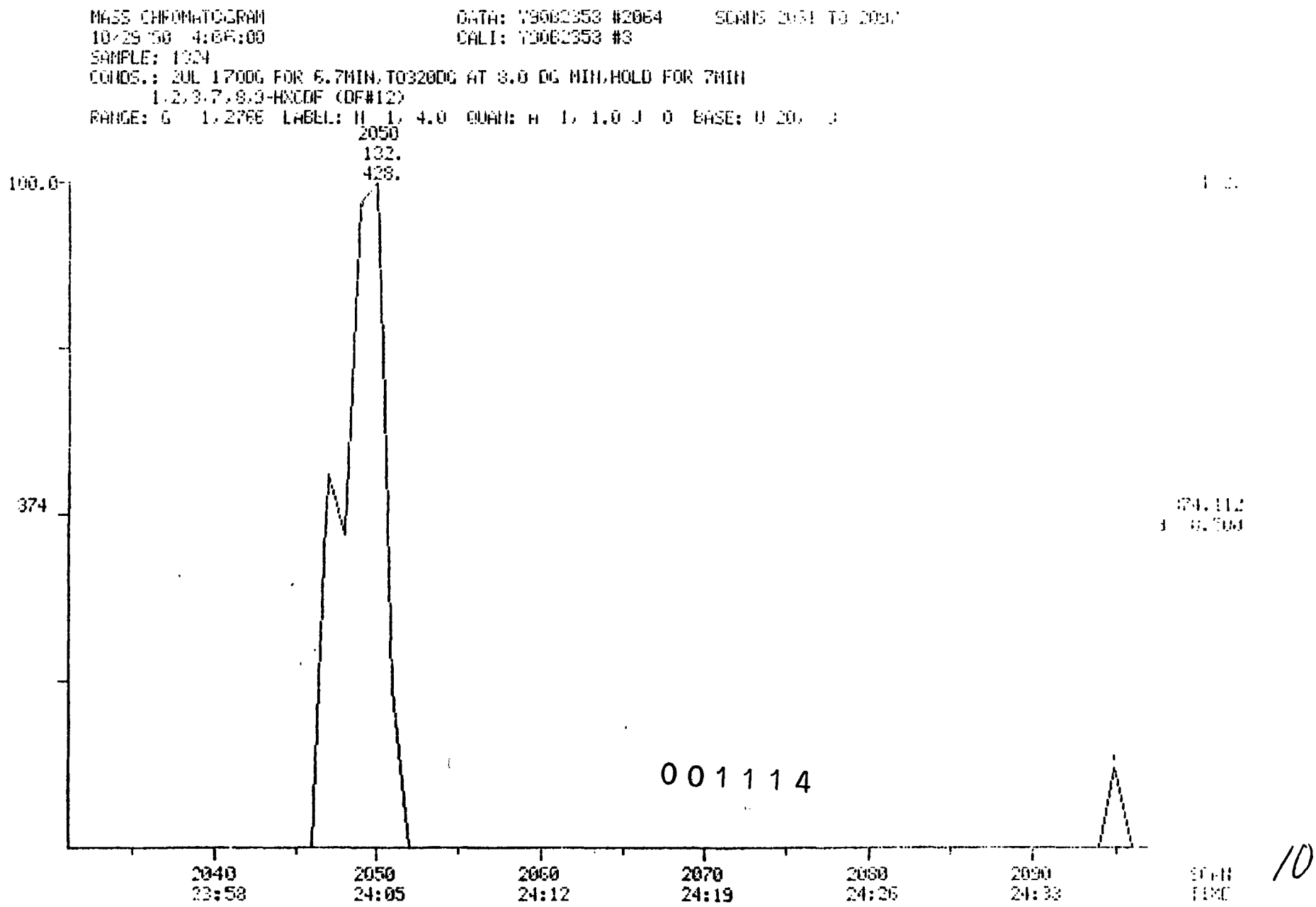
7


MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDF (DF#10)
DATA: Y90B2353 #1996
CALI: Y90B2353 #3
SCANS 1963 TO 2029
100.0
374
1990
176.
402.
2003
84.
84.
2000
40.
40.
2021
110.
176.
374.112
1970
23:09
1980
23:16
1990
23:23
2000
23:30
2010
23:37
2020
23:44

8


MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #1891
CALI: Y90B2353 #3
SCANS 1950 TO 2024
CONDS.: 2UL 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDF (DF#11)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20.
100.0
374
1990
176.
422.
2003
84.
81.
2009
40.
40.
1960
23:02
1970
23:09
1980
23:16
1990
23:23
2000
23:30
2010
23:37
2020
23:44

9


MASS CHROMATOGRAM
10/25/88 4:06:00
SAMPLE: 1324
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG MIN/HOLD FOR 7MIN
1,2,3,7,8,9-HXCDF (DF#12)
RANGE: G 1.2788 LABEL: H 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20,
DATA: Y8802353 #2064 SCANS 2031 TO 2087
CALI: Y8802353 #3
2050
132.
428.
100.0
374
001114
2040
23:58
2050
24:05
2060
24:12
2070
24:19
2080
24:26
2090
24:33
TIME

10

MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
CONDS.: 30% 1700G FOR 6.7MIN,TO3200G AT 0.0 DG MIN-HOLD FOR 7MIN
2,3,4,6,7,8-HXCDF (DF#13)
RANGE: G 1.37e6 LABEL: N 1, 4.0 QUAN: n 1, 1.0 J 0 BASE: U 20,

DATA: Y90B2353 #2023 SCANS 1990 TO 2056
CALI: Y90B2353 #3

100.0
374

2003
84.
84.

2009
40.
40.

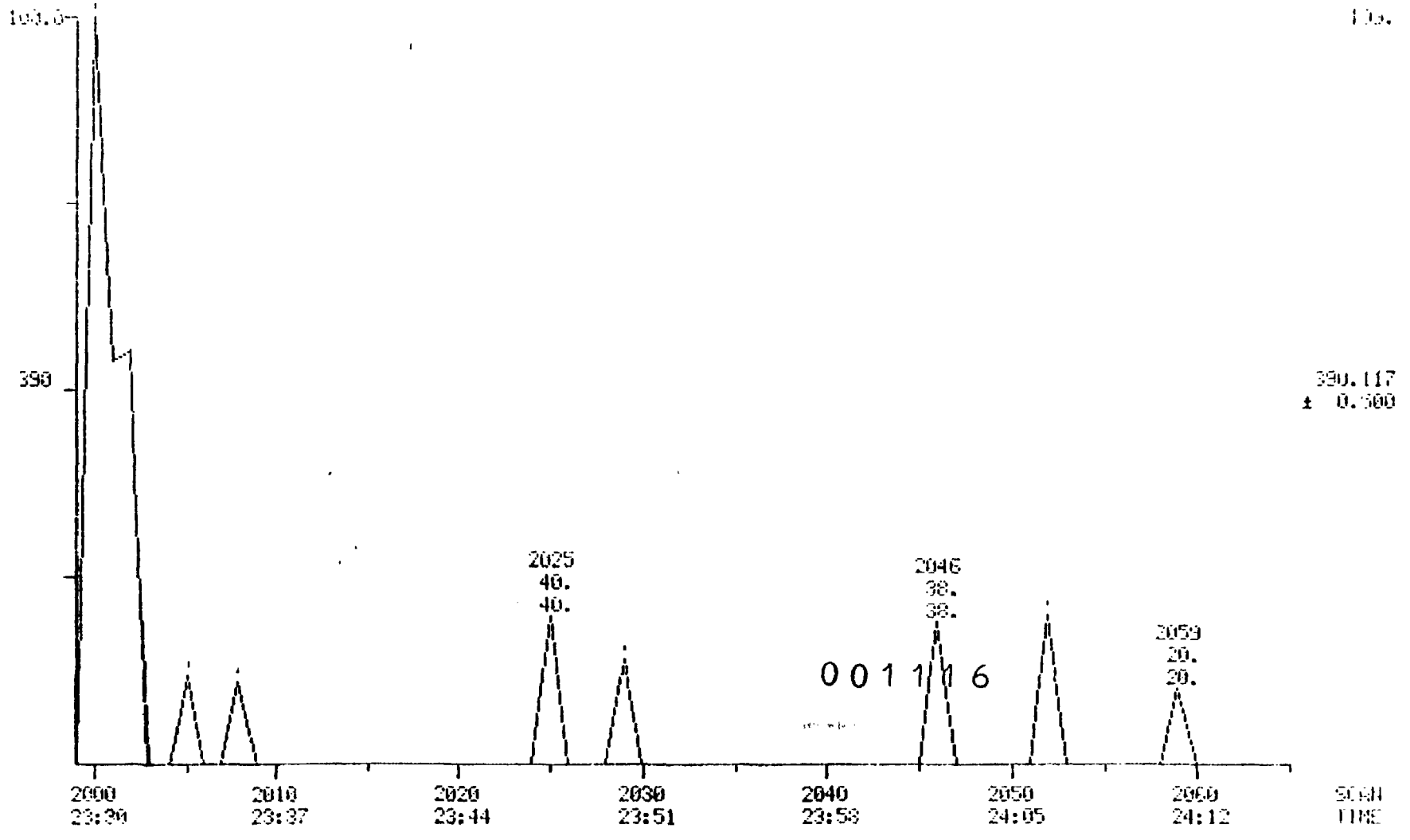
2021
110.
176.

2050
132.
426.

001115

1990
23:23
2000
23:30
2010
23:37
2020
23:44
2030
23:51
2040
23:58
2050
24:05

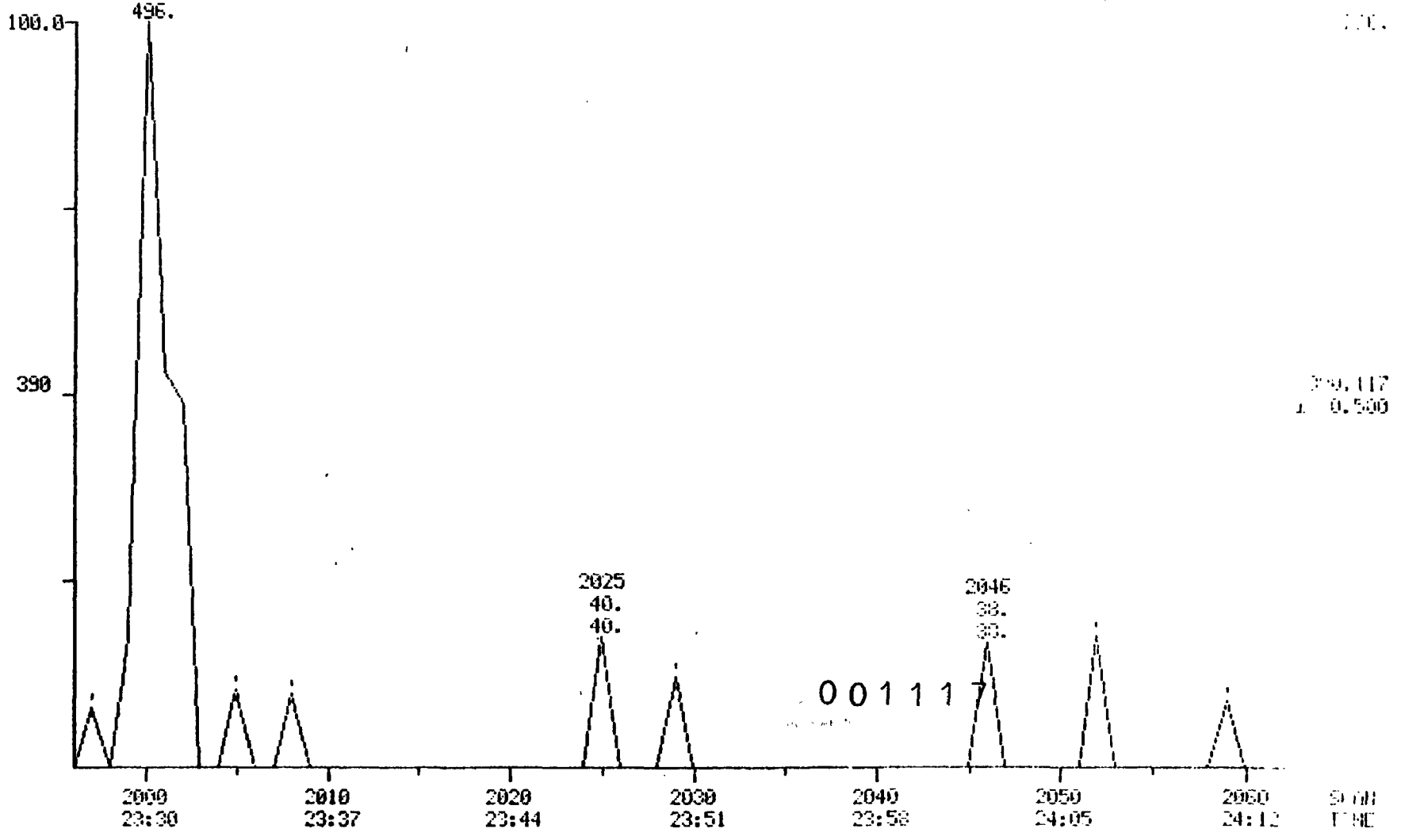
MASS CHROMATOGRAM DATA: V90B2353 #2032 SCANS 1936 TO 2065
10/29/90 4:06:00 CALI: V90B2353 #3
SAMPLE: 1324
CONDS.: 30L 170DG FOR 6.7MIN,TO220DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDD (UF#14)
RANGE: G 1/2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



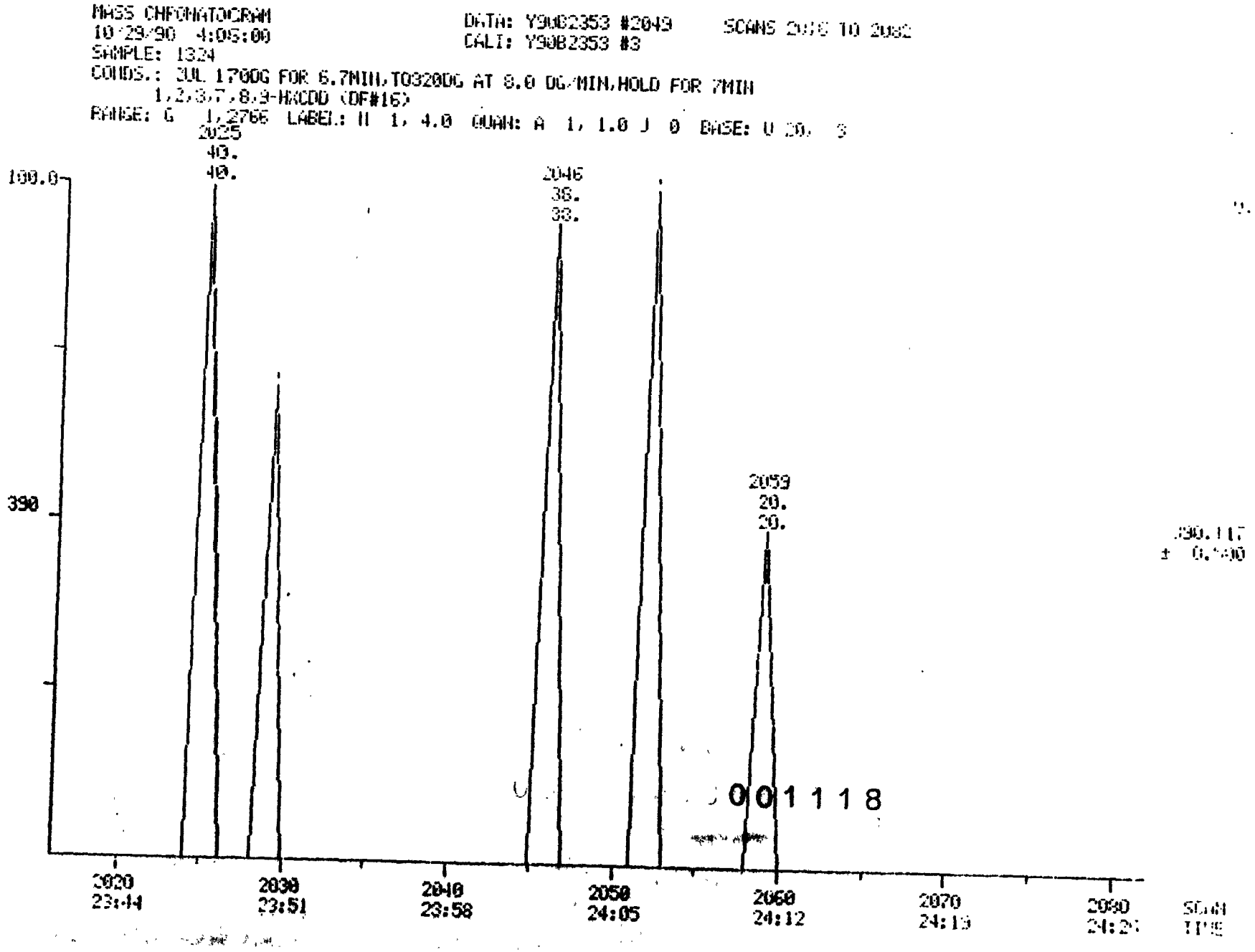
390.117
± 0.500

12

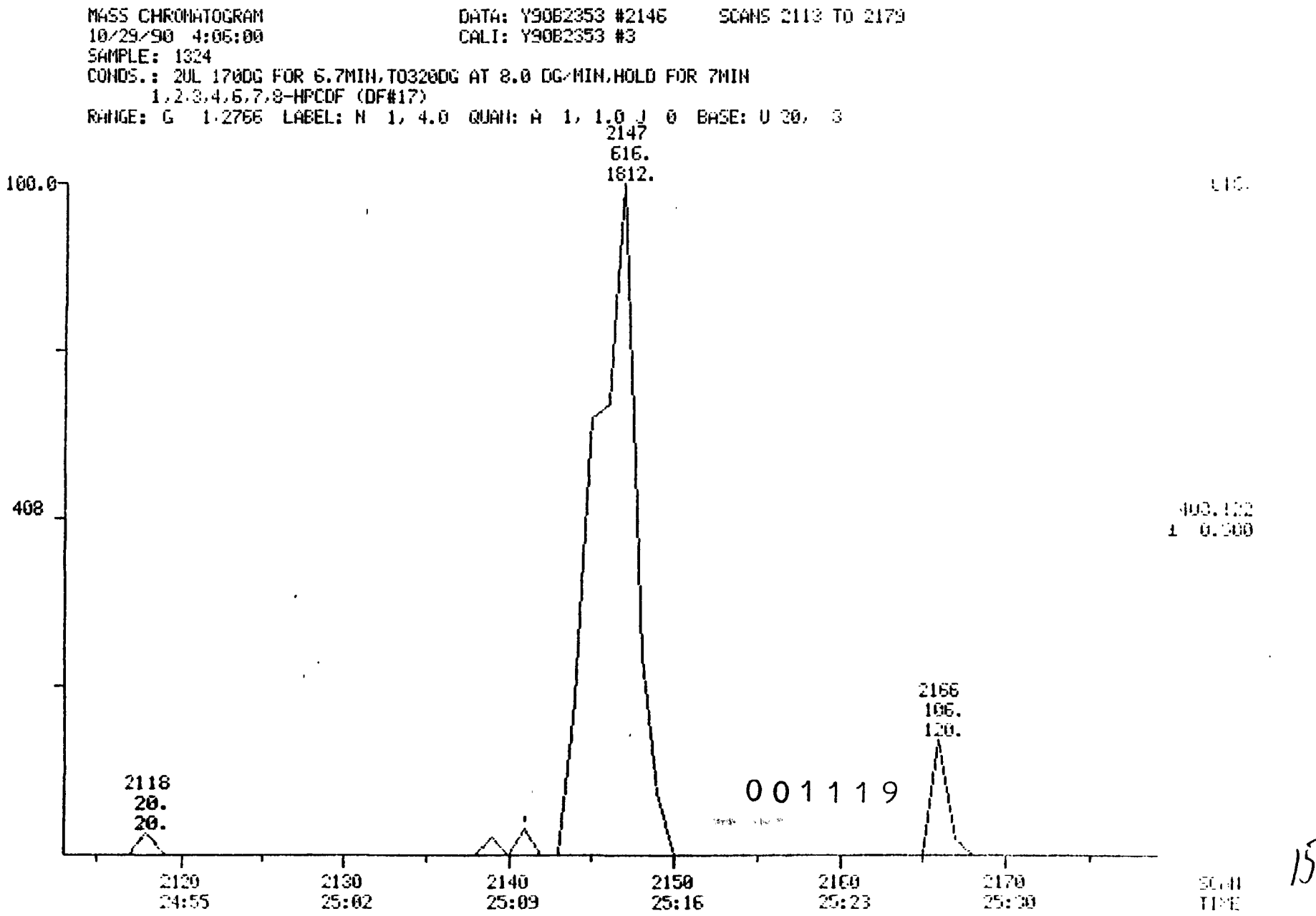
MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2029 SCANS 1996 TO 2062
CALI: Y90B2353 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDD (DF#15)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

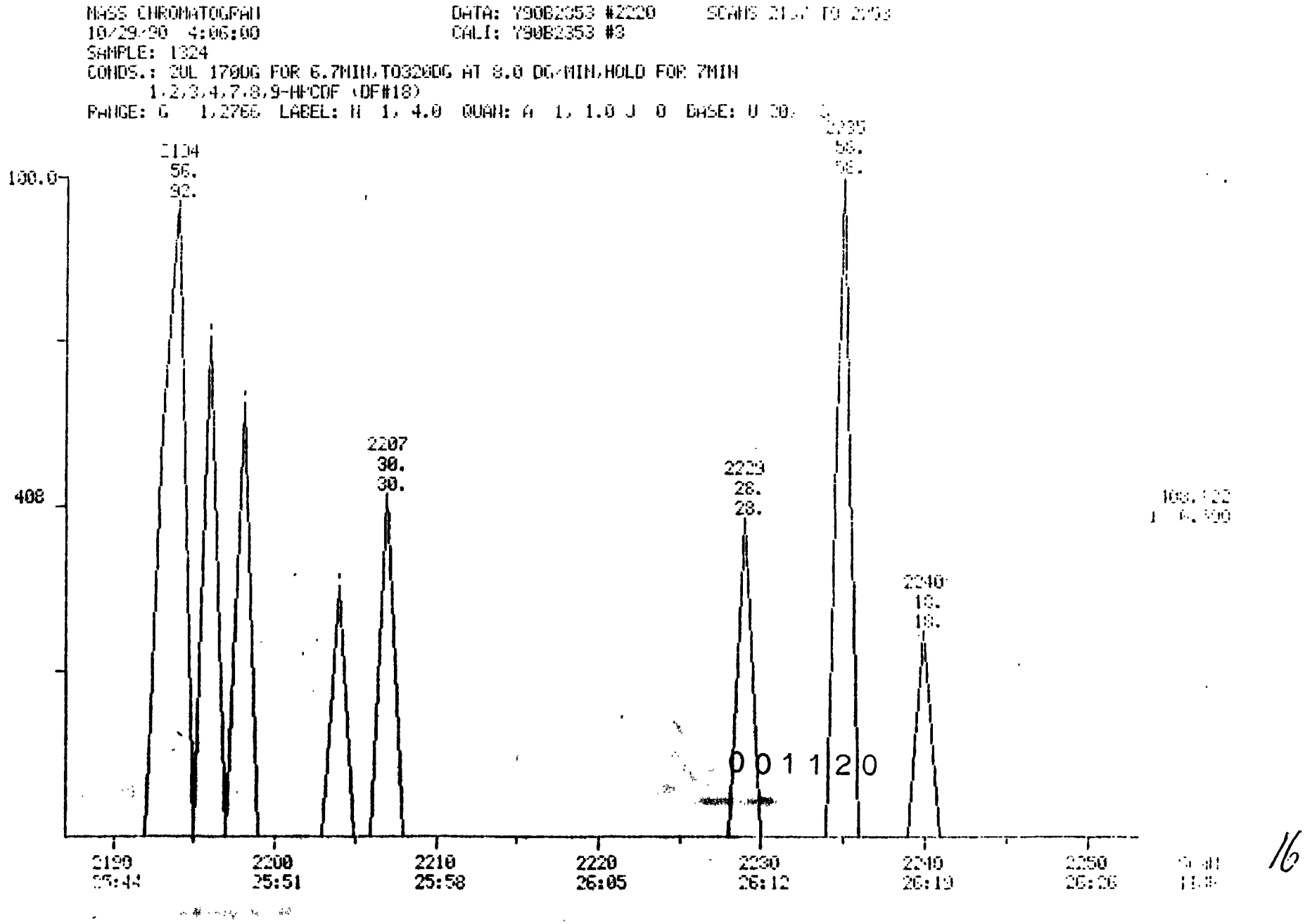


13


MASS CHROMATOGRAM
10/29/90 4:05:00
SAMPLE: 1324
DATA: Y9082353 #2049
CALI: Y9082353 #3
SCANS 2018 TO 2082
COMDS.: 30L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDD (DF#16)
RANGE: G 1,2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3
100.0
390
2025
40.
40.
2046
36.
38.
2059
20.
20.
390.117
± 0.390
001118
2020
23:44
2030
23:51
2040
23:58
2050
24:05
2060
24:12
2070
24:19
2080
24:26
SCAN
TIME

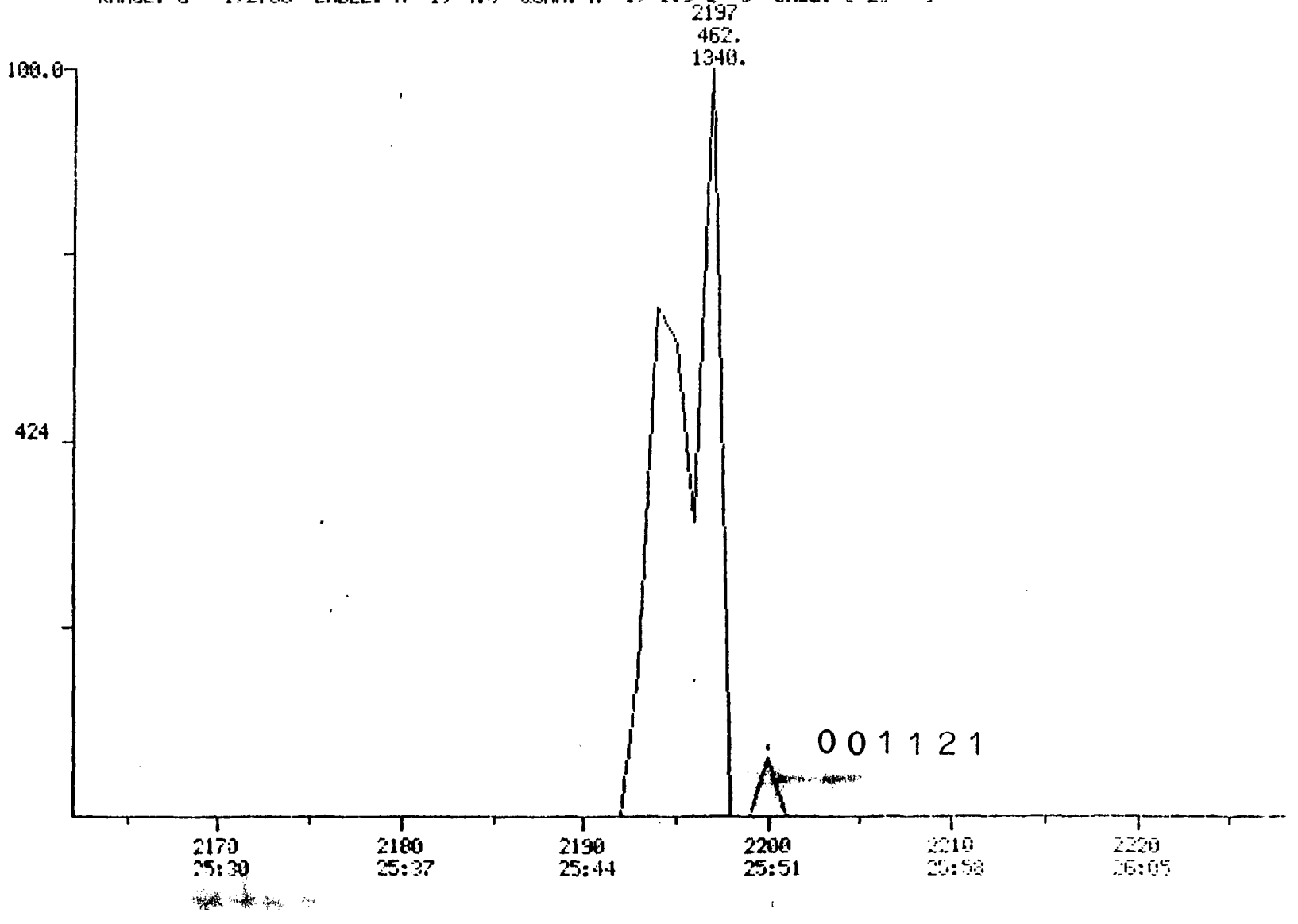
14


MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2146
CALI: Y90B2353 #3
SCANS 2113 TO 2179
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDF (DF#17)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
100.0
408
2147
616.
1812.
2166
106.
120.
2118
20.
20.
001119
2120
24:55
2130
25:02
2140
25:09
2150
25:16
2160
25:23
2170
25:30
403.122
1 0.300
15


MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2053 #2220
CALI: Y90B2353 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8,9-HPCDF (DF#18)
RANGE: G 1,2765 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 30.
2104
56.
92.
2207
30.
30.
2229
28.
28.
2235
58.
98.
2240
18.
18.
100.0
408
2190
25:44
2200
25:51
2210
25:58
2220
26:05
2230
26:12
2240
26:19
2250
26:26
0 0 1 1 2 0

16

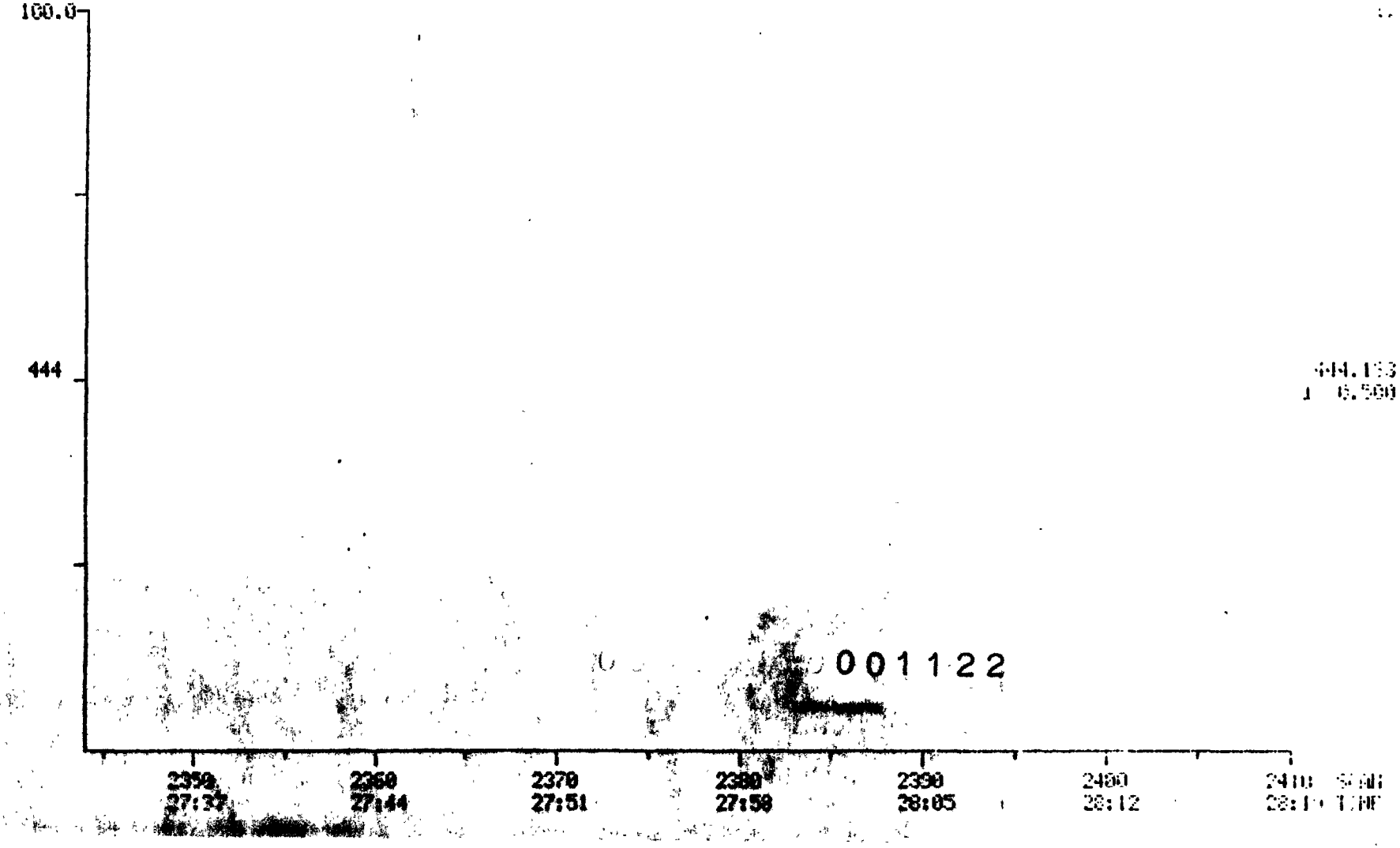
MASS CHROMATOGRAM DATA: Y90B2353 #2195 SCANS 2152 TO 2228
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDD (DF#19)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



424.127
0.000

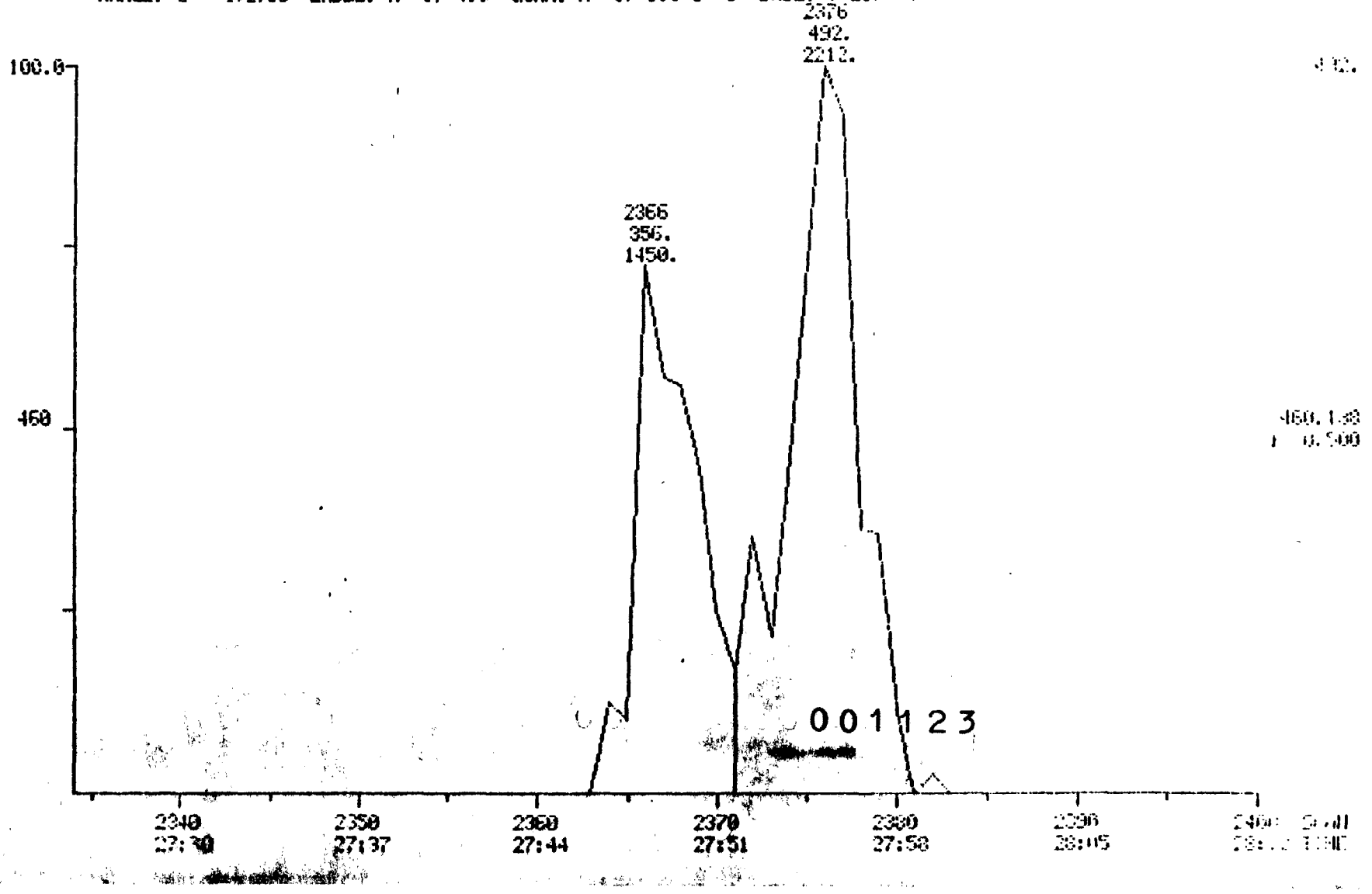
17

MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y9082353 #2377 SCANS 2344 TO 2410
CALI: Y9082353 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDF (OF#20)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



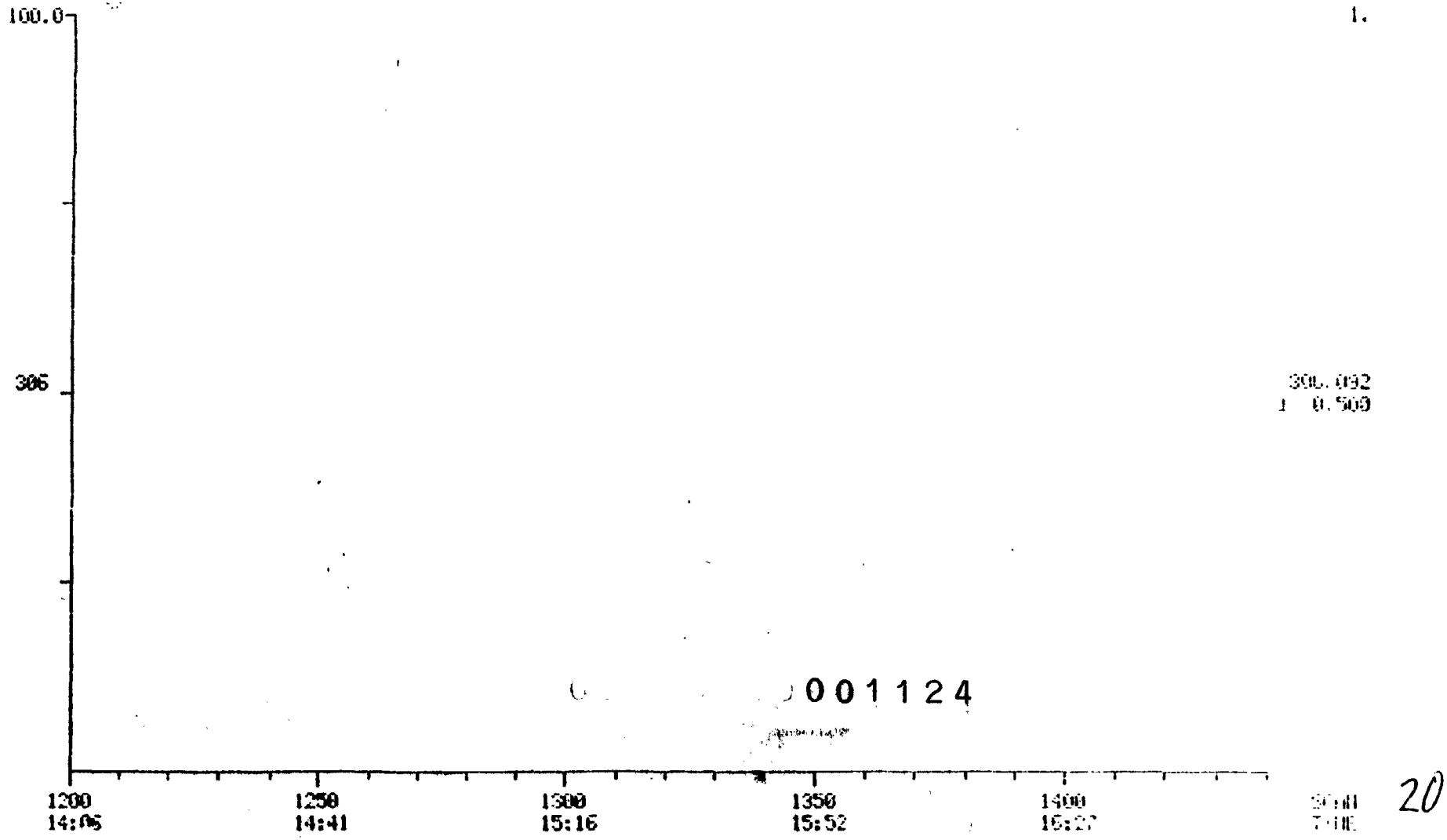
18

MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2367
CALI: Y90B2353 #3
SCANS 2[illegible] TO 2400
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDD (DF#21)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



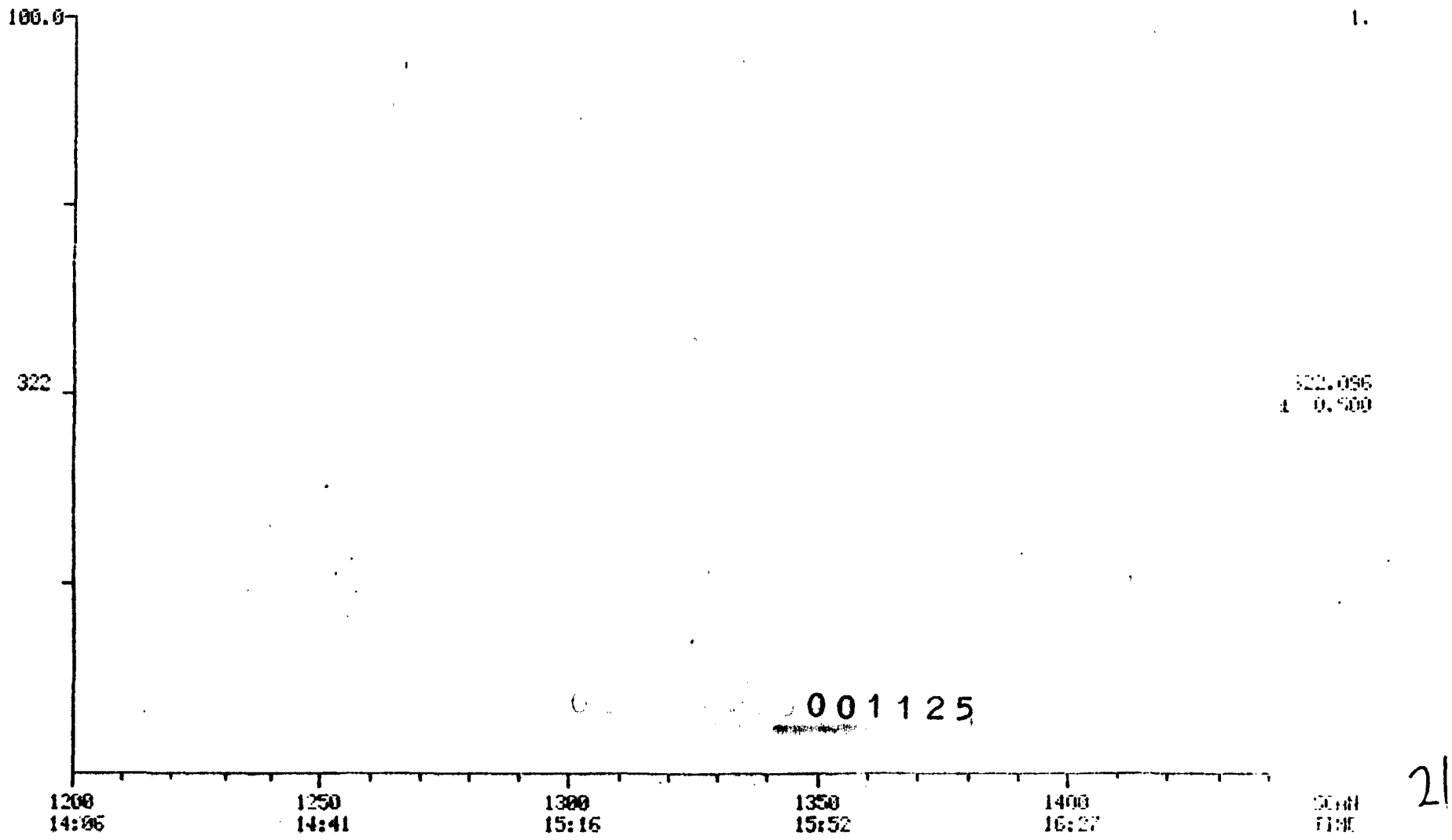
19

MASS CHROMATOGRAM DATA: Y90B2353 #2367 SCANS 1200 TO 1440
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3

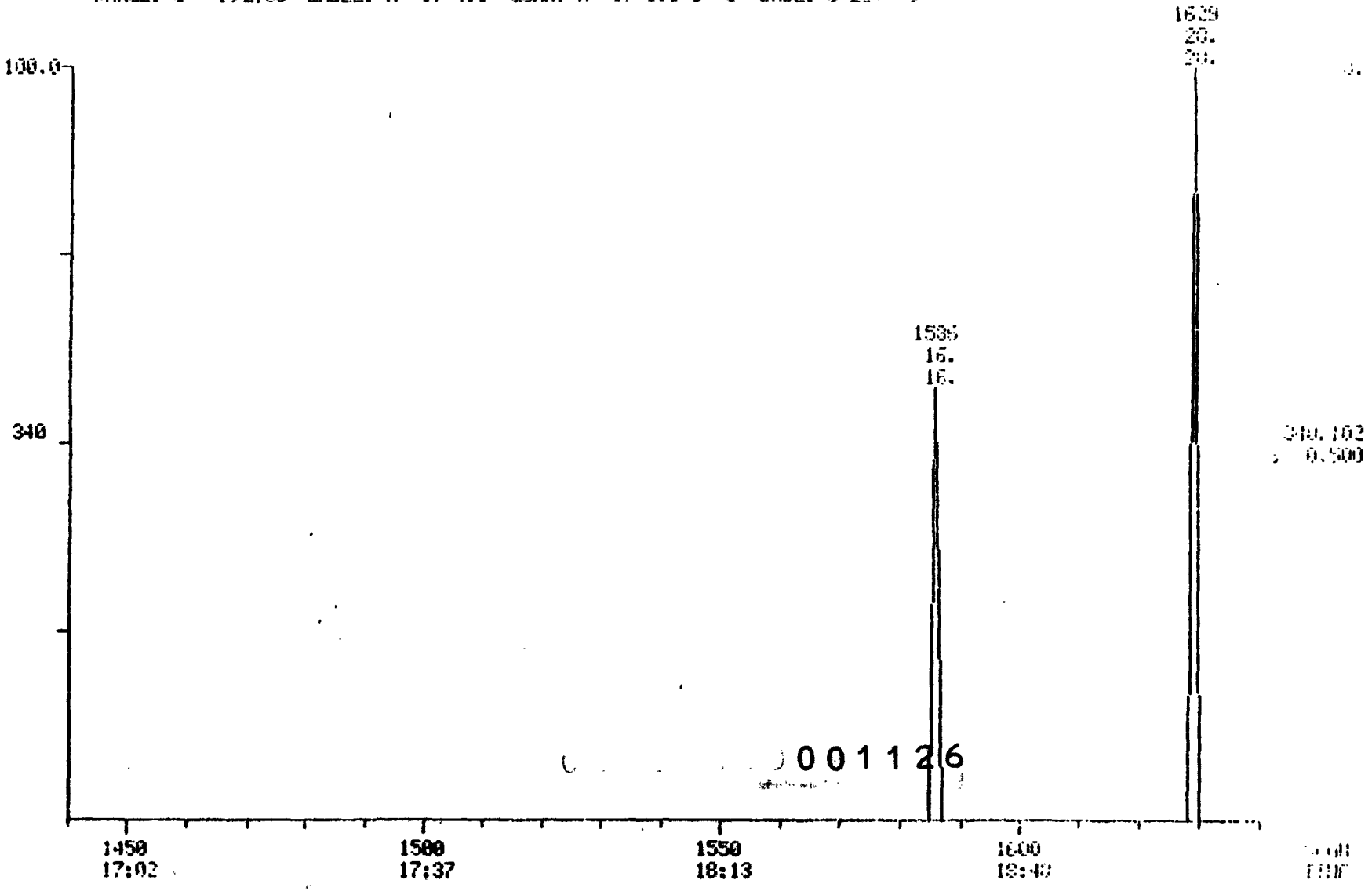


20

MASS CHROMATOGRAM DATA: Y90B2353 #2367 SCANS 1200 TO 1440
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

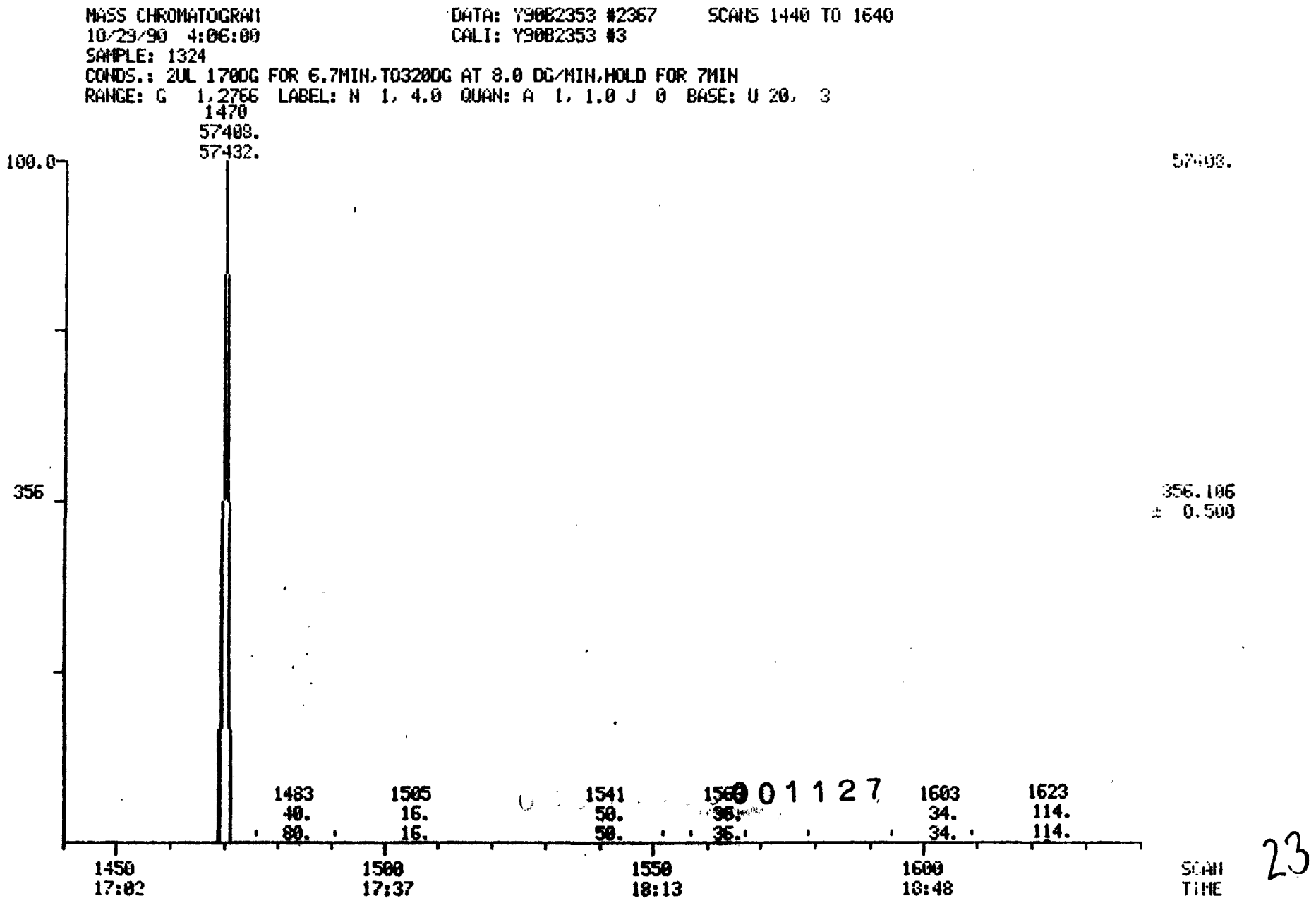


MASS CHROMATOGRAM DATA: Y9082353 #2367 SCANS 1440 TO 1640
10/29/90 4:06:00 CALI: Y9082353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



001126

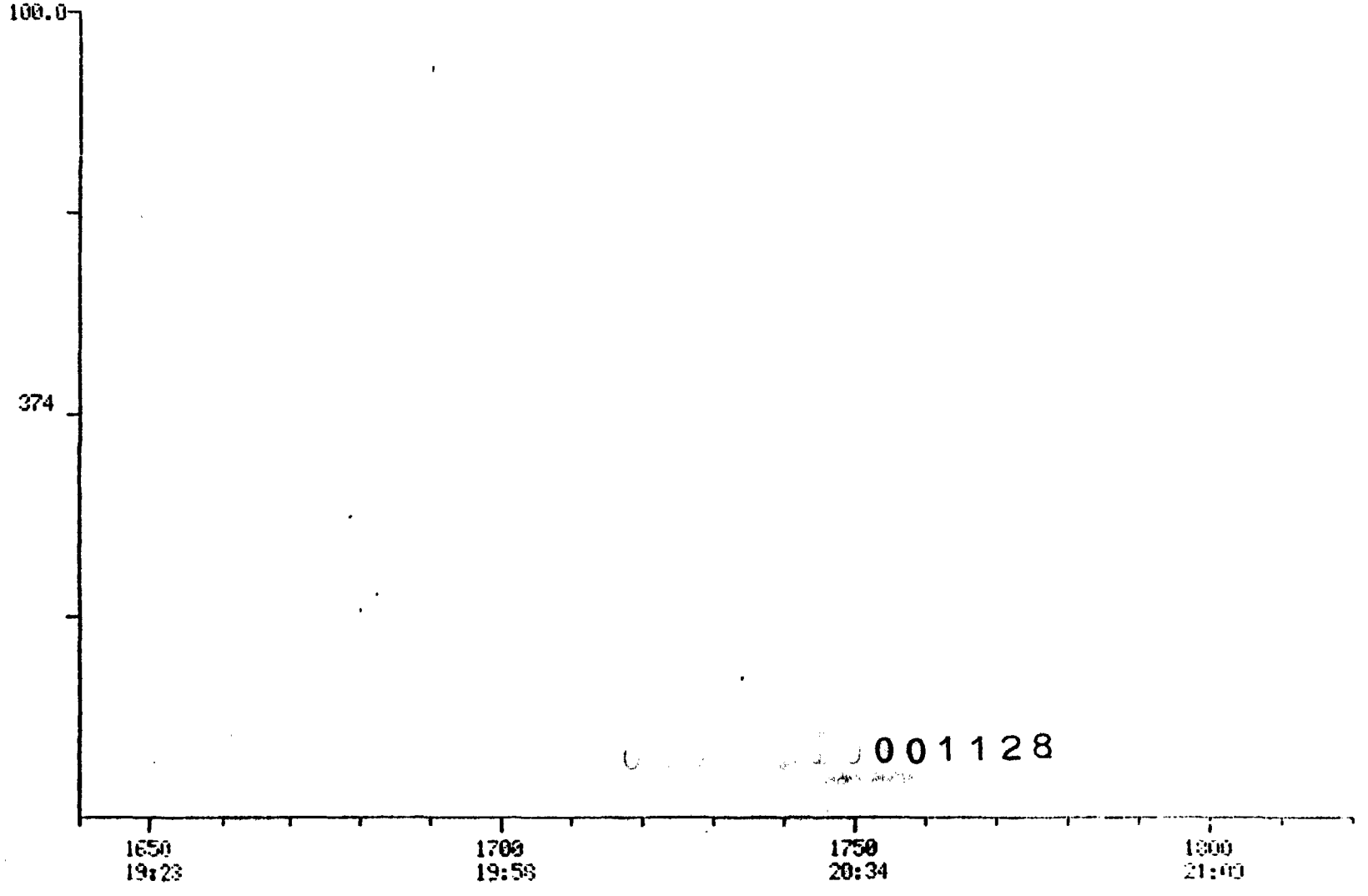
22


MASS CHROMATOGRAM
10/23/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2367
CALI: Y90B2353 #3
SCANS 1440 TO 1640
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
1470
57408.
57432.
100.0
356
57408.
356.106
± 0.500
1483
40.
80.
1505
16.
16.
1541
50.
50.
1560
96.
36.
1603
34.
34.
1623
114.
114.
1450
17:02
1500
17:37
1550
18:13
1600
18:48
SCAN
TIME

MASS CHROMATOGRAM
10/29/90 4:06:00
SAMPLE: 1324

DATA: Y90B2353 #2367 SCANS 1640 TO 1620
CALI: Y90B2353 #3

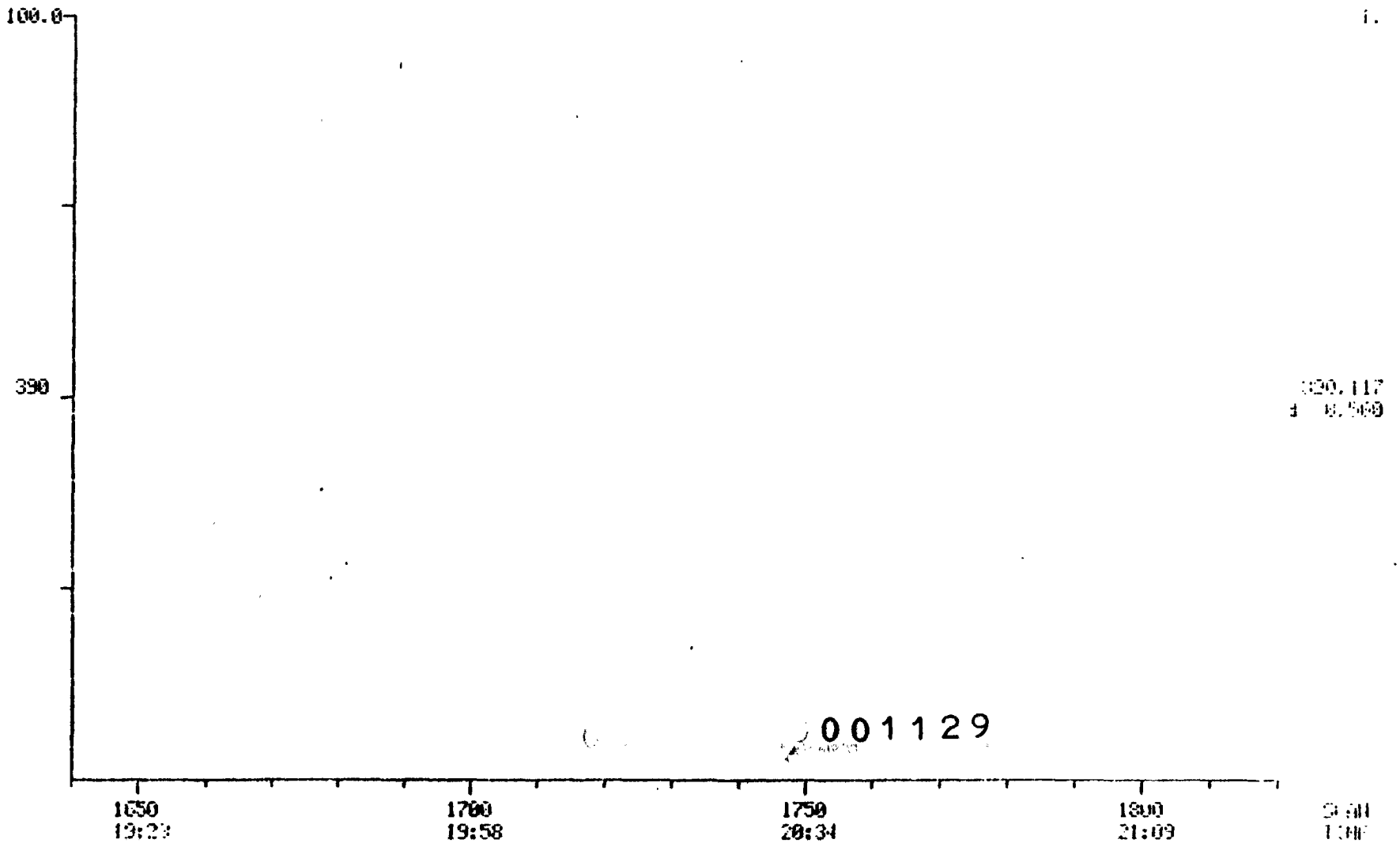
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20. 3



001128

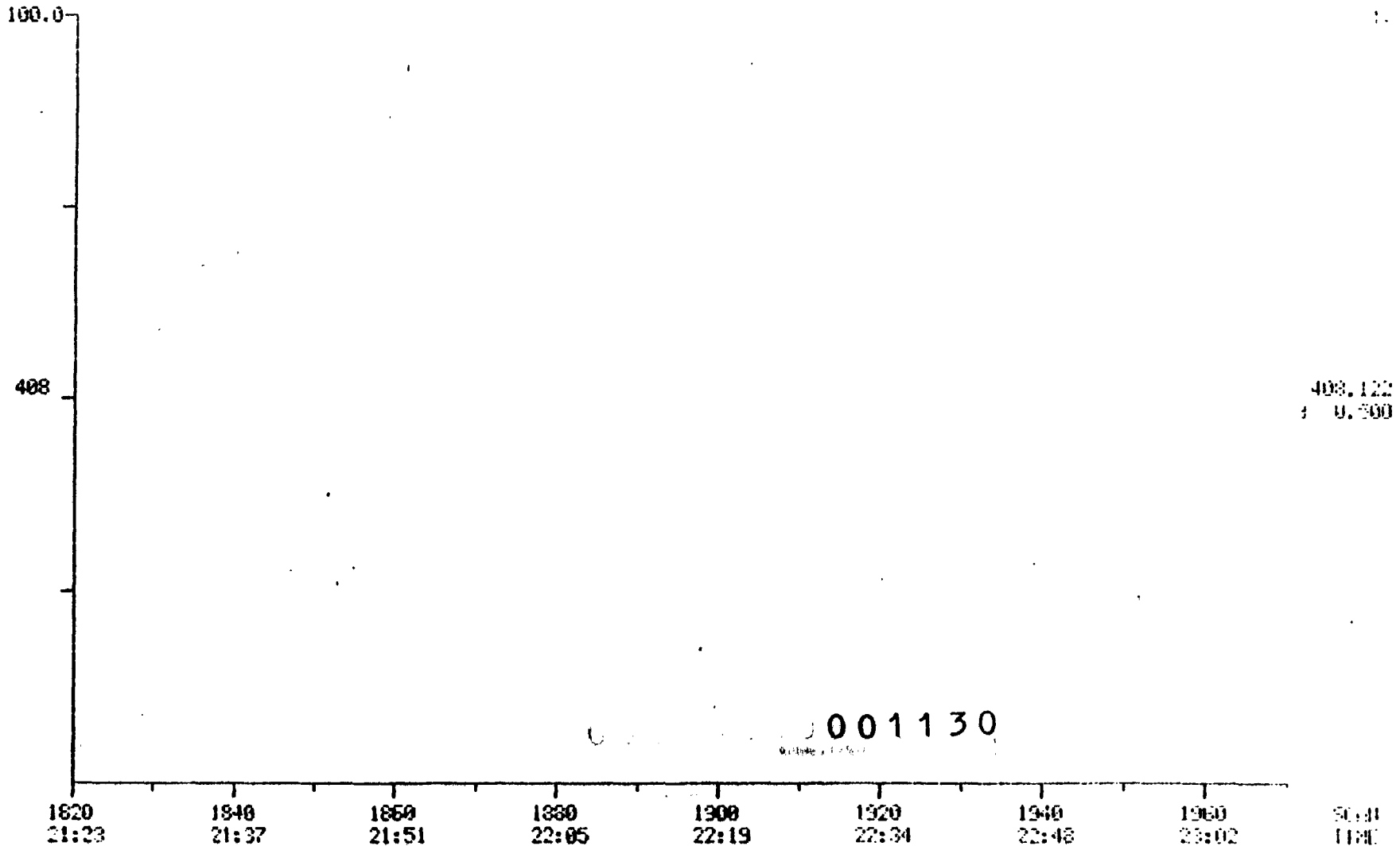
24

MASS CHROMATOGRAM DATA: Y90B2353 #2367 SCANS 1640 TO 1820
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

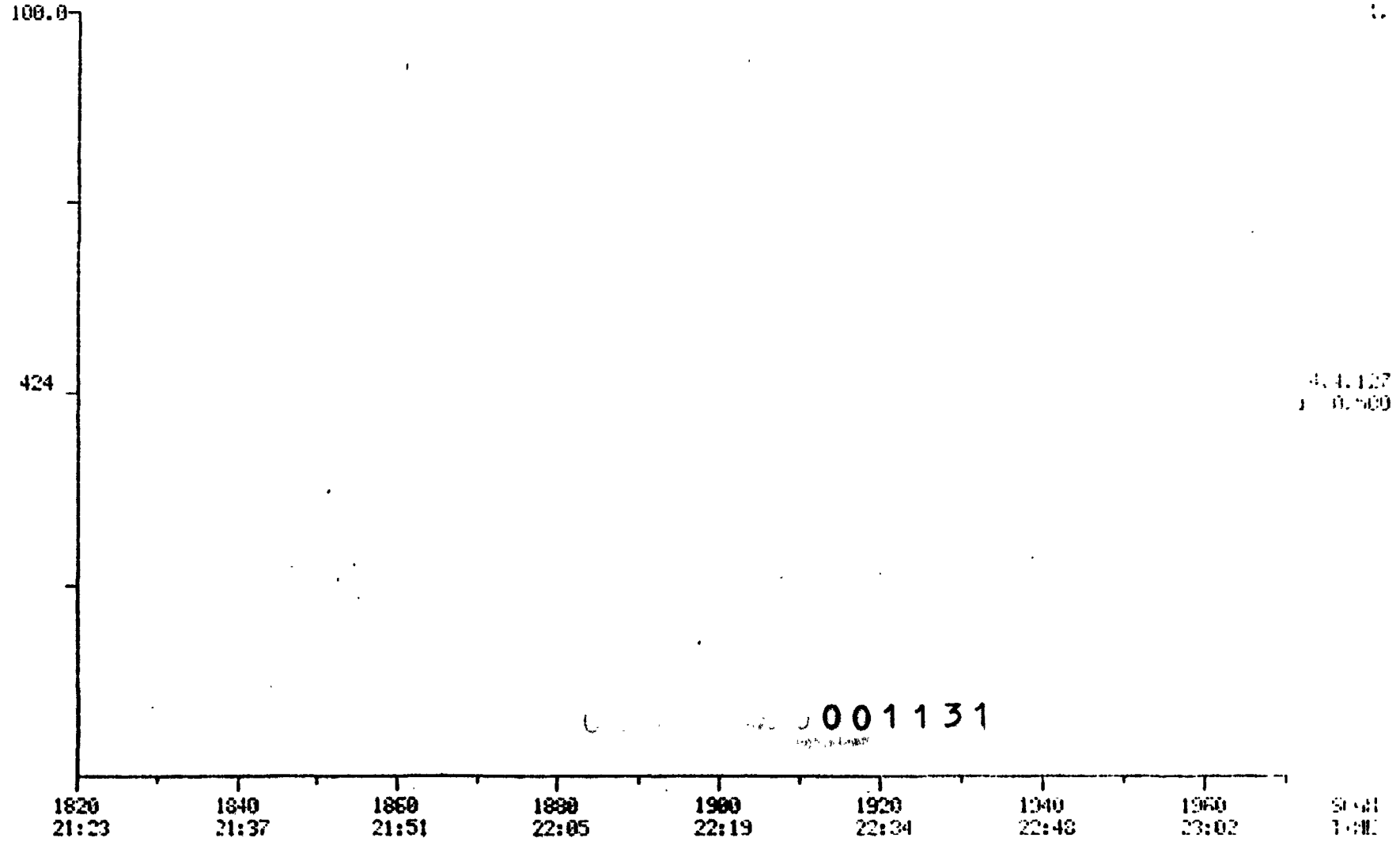


25

MASS CHROMATOGRAM DATA: Y90B2353 #2367 SCANS 1820 TO 1970
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

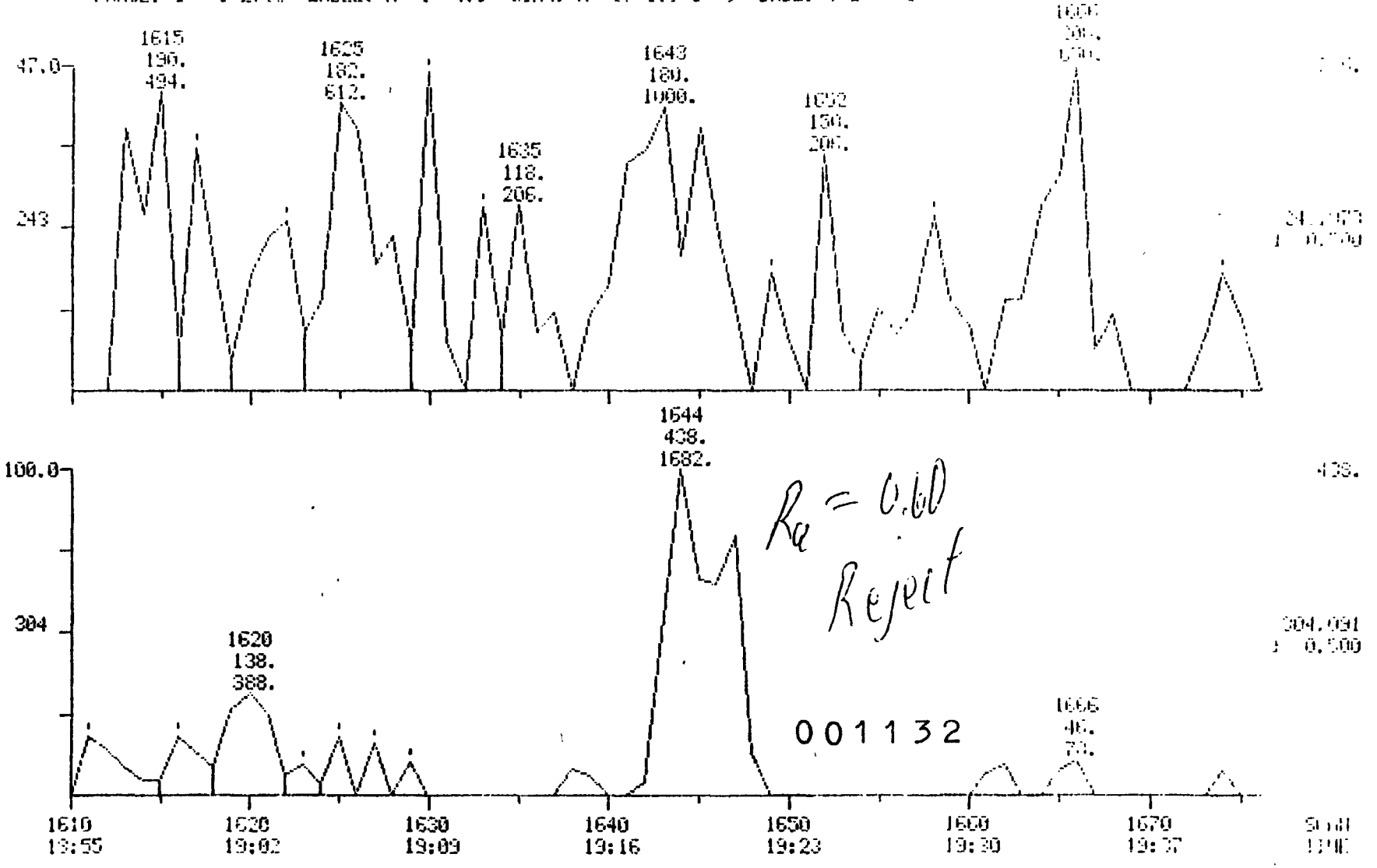


MASS CHROMATOGRAM DATA: Y9082353 #2367 SCANS 1820 TO 1970
10/29/90 4:06:00 CALI: Y9082353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2765 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



27

MASS CHROMATOGRAMS DATA: Y90B2353 #1643 SCANS 1610 T
10/29 90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
2,3,7,8-TCDF (DF#5)
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20.

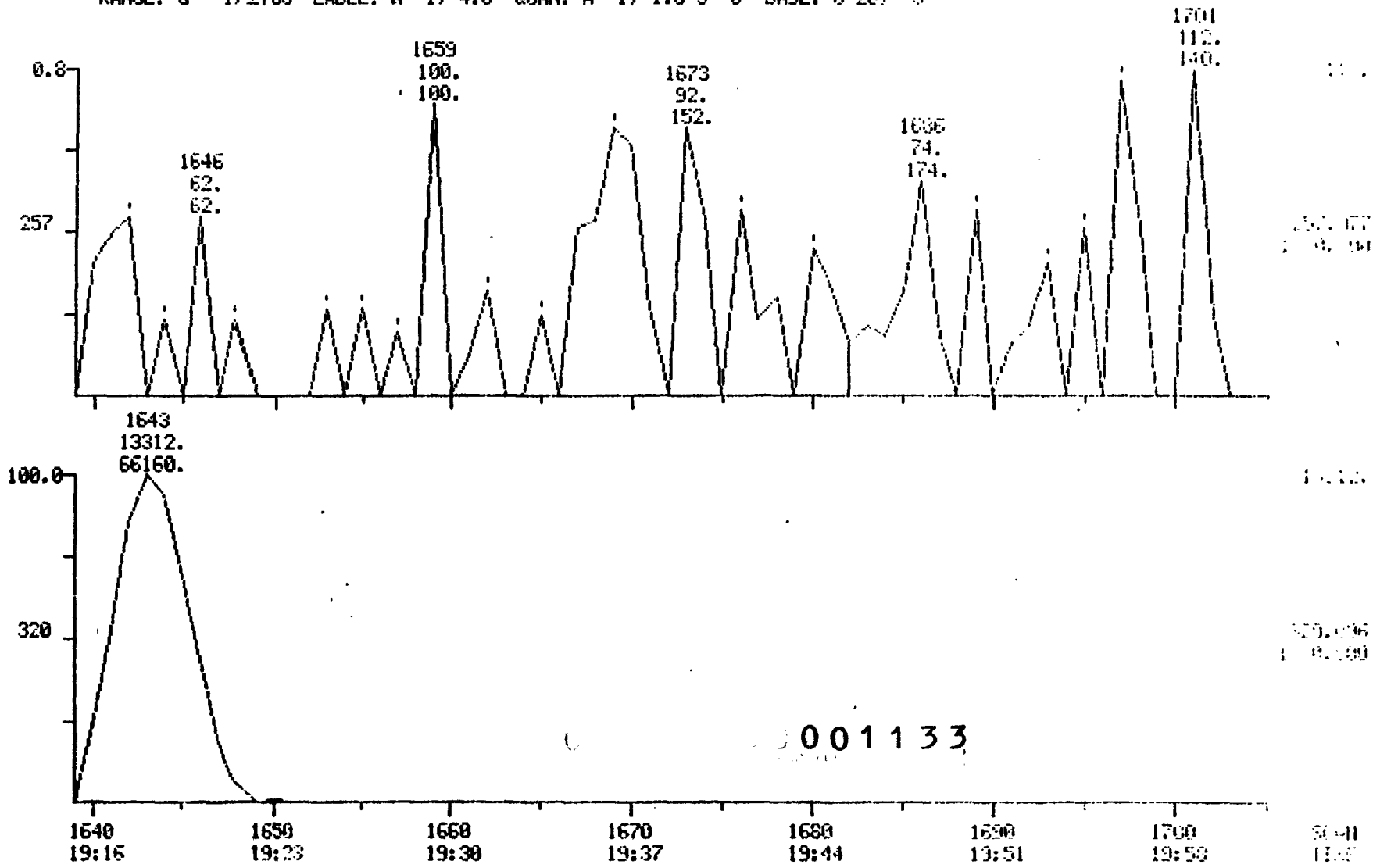


$R_a = 0.60$
Reject

001132

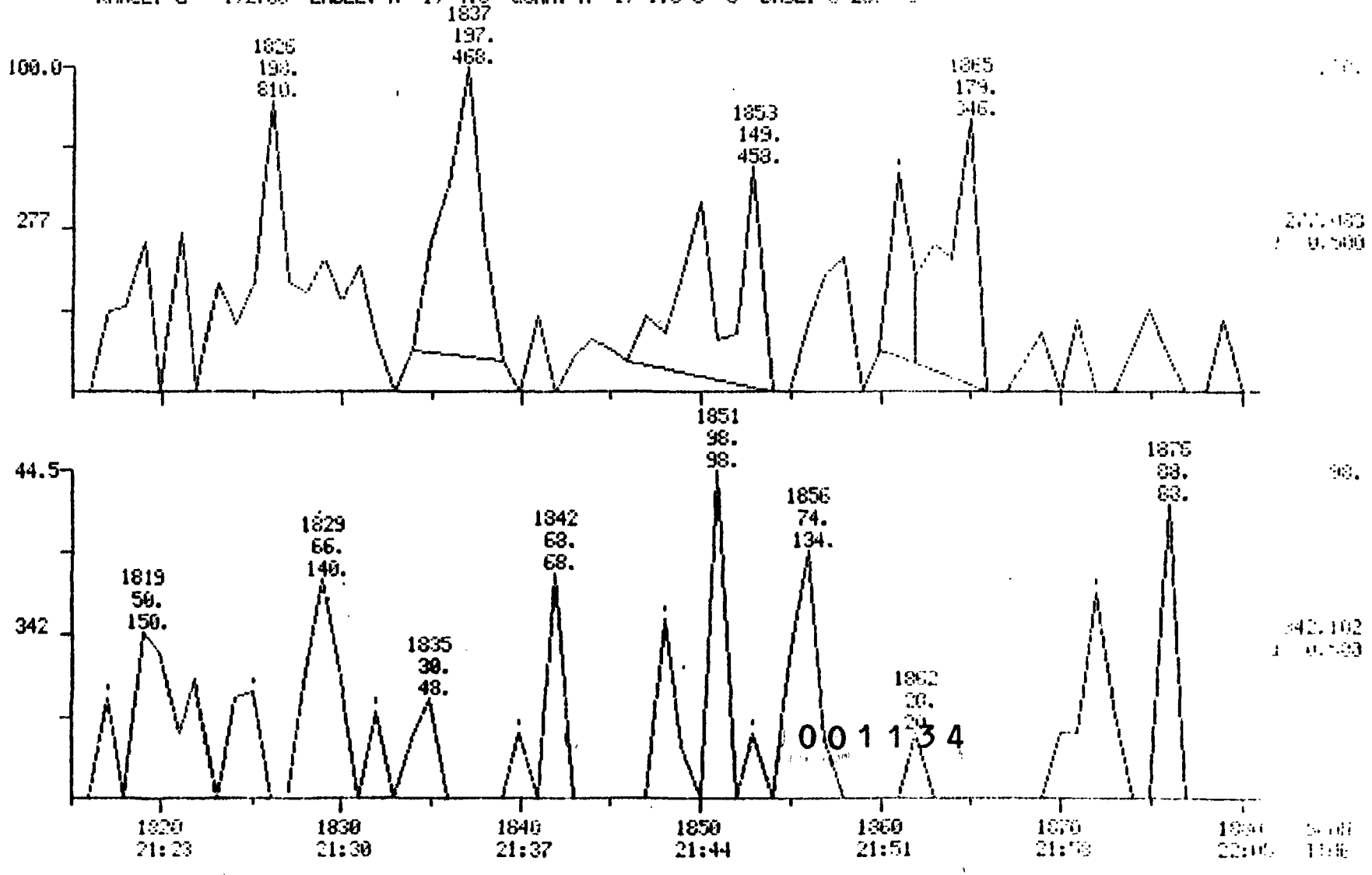
28

MASS CHROMATOGRAMS DATA: Y90B2353 #1672 SCANS 1639 TO 1705
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDD (DF#6)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



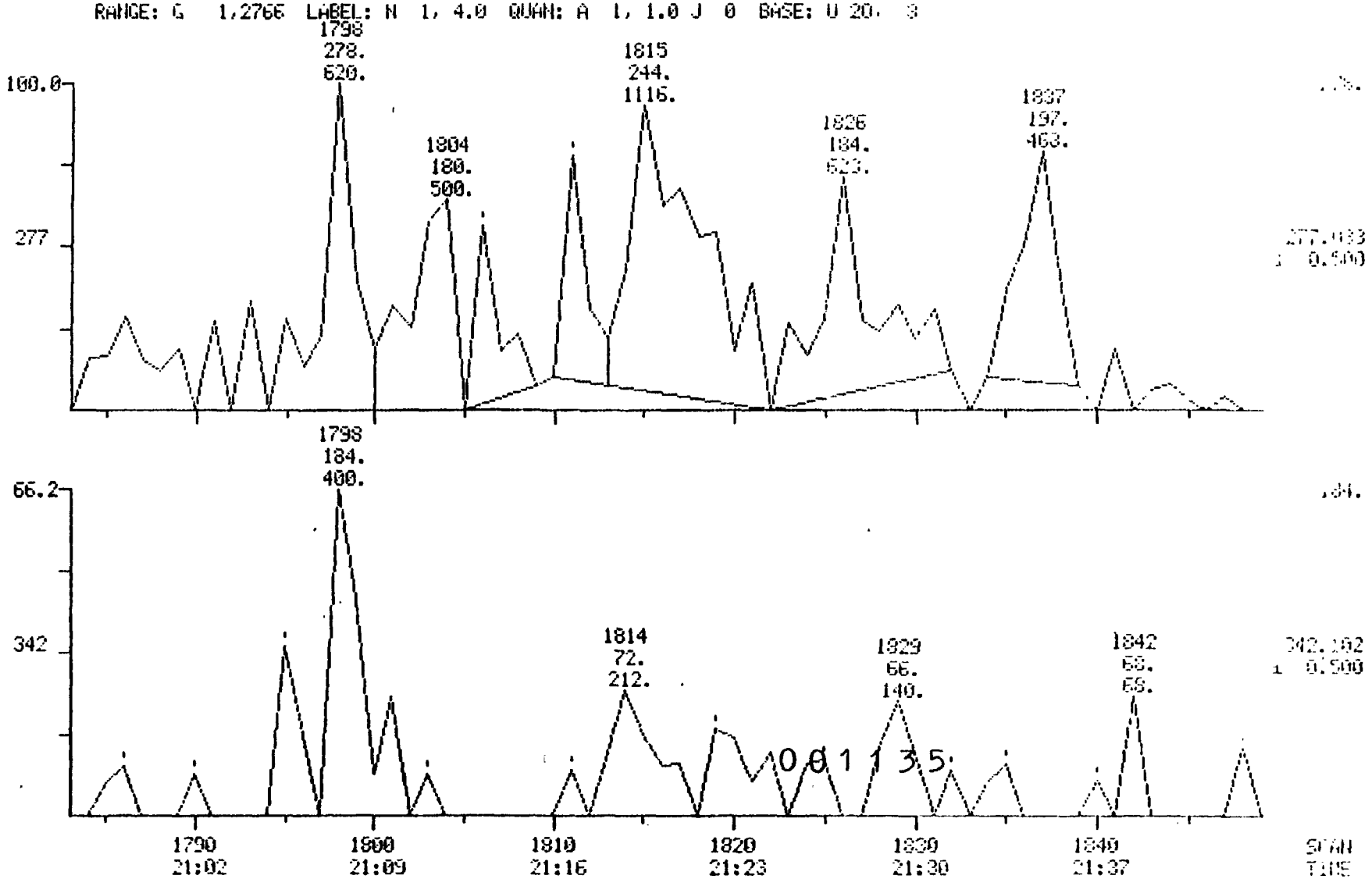
001133

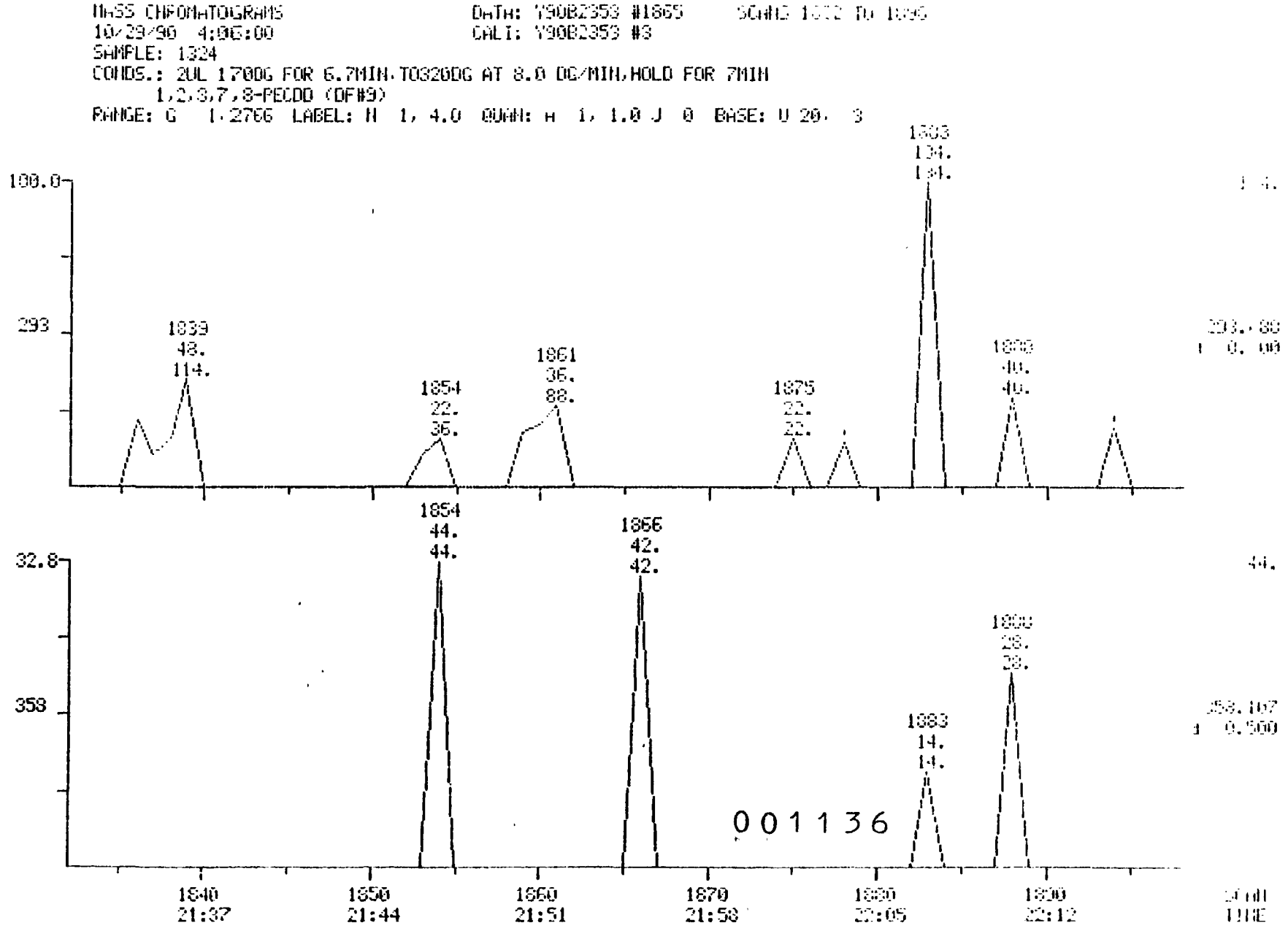
MASS CHROMATOGRAMS DATA: Y90B2353 #1840 SCANS 1:15 TO 1871
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDF (DF#7)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. S

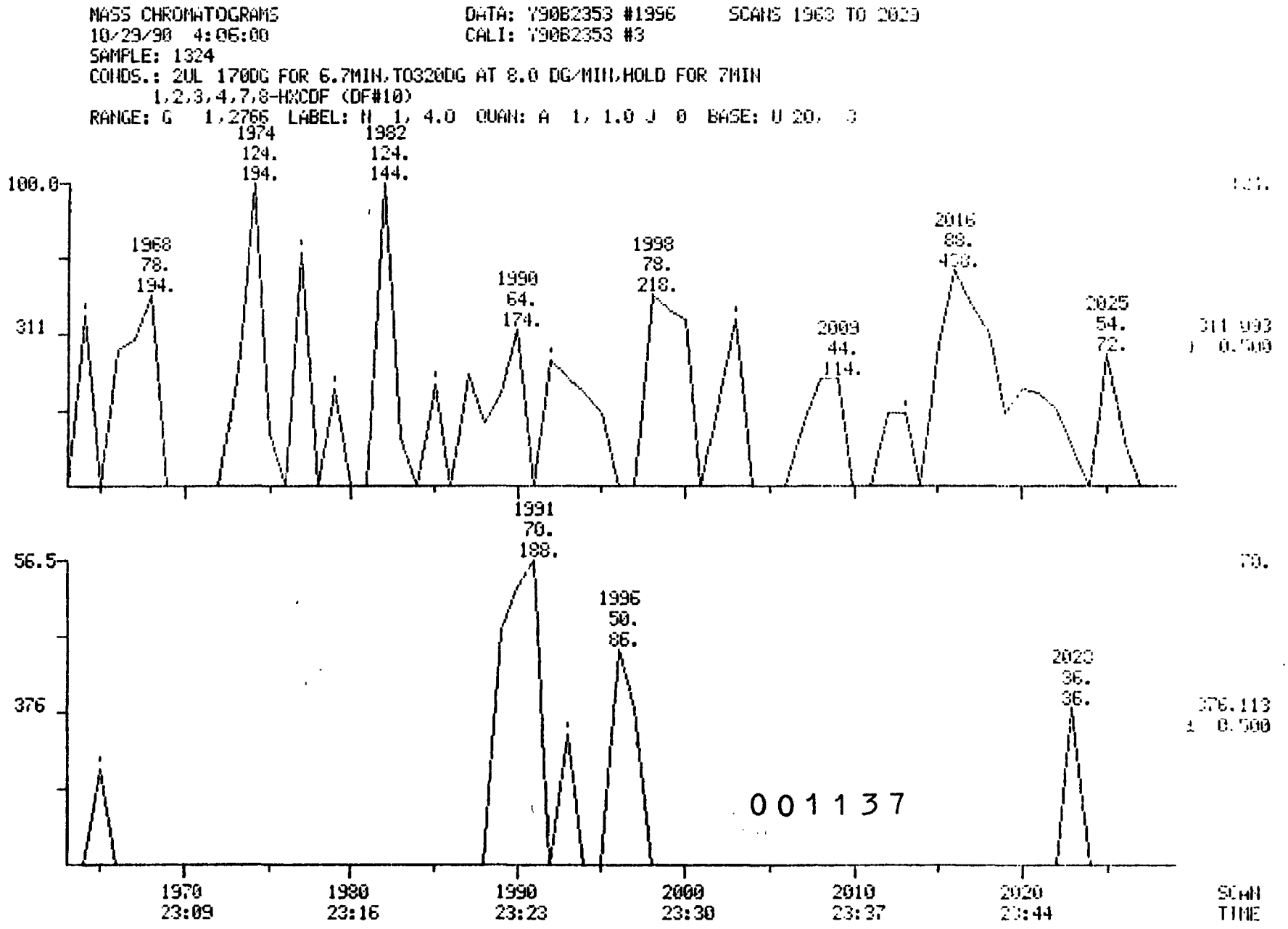


MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,7,8-PECDF (DF#8)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

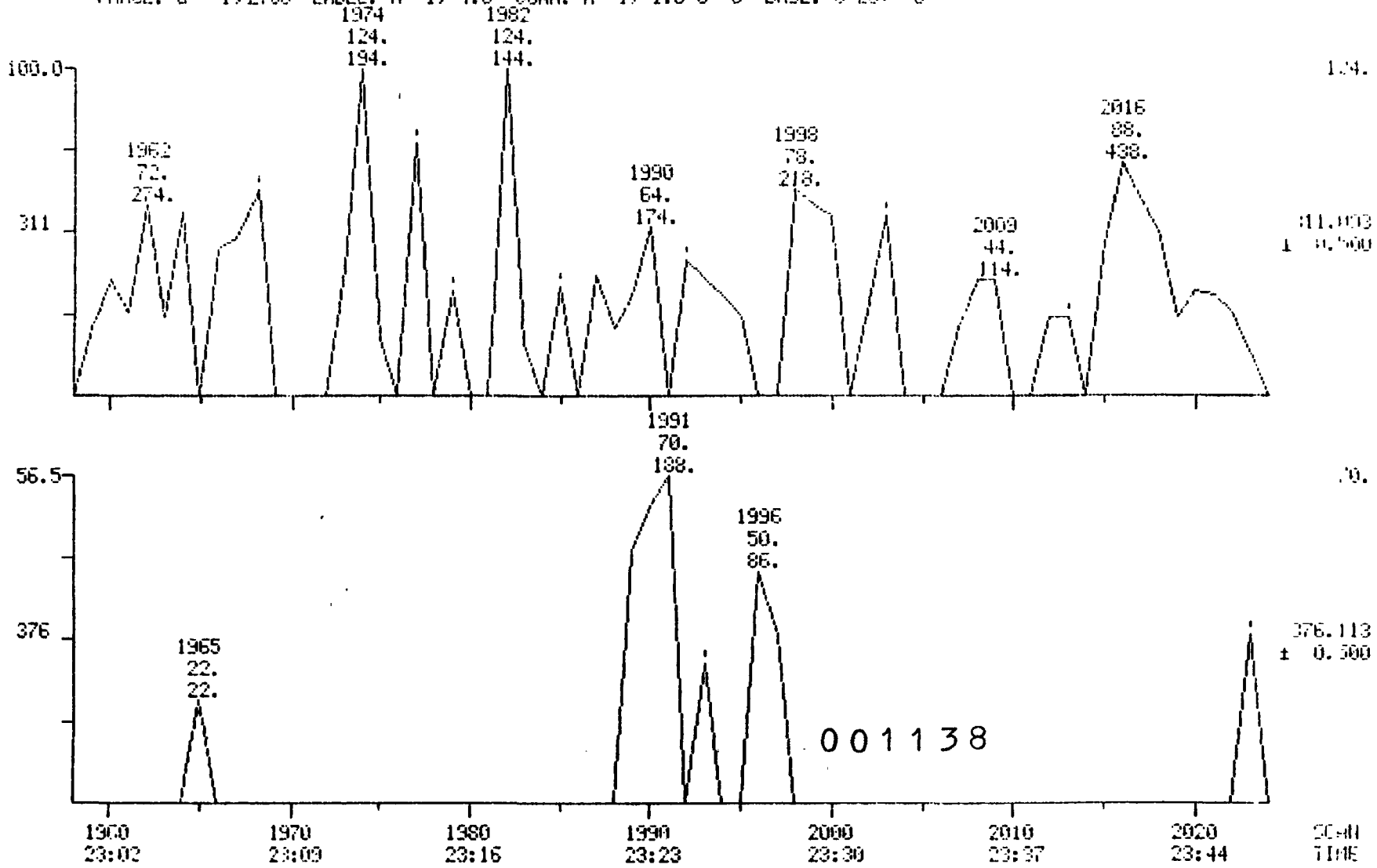
DATA: Y90B2353 #1816 SCANS 1783 TO 1843
CALI: Y90B2353 #3

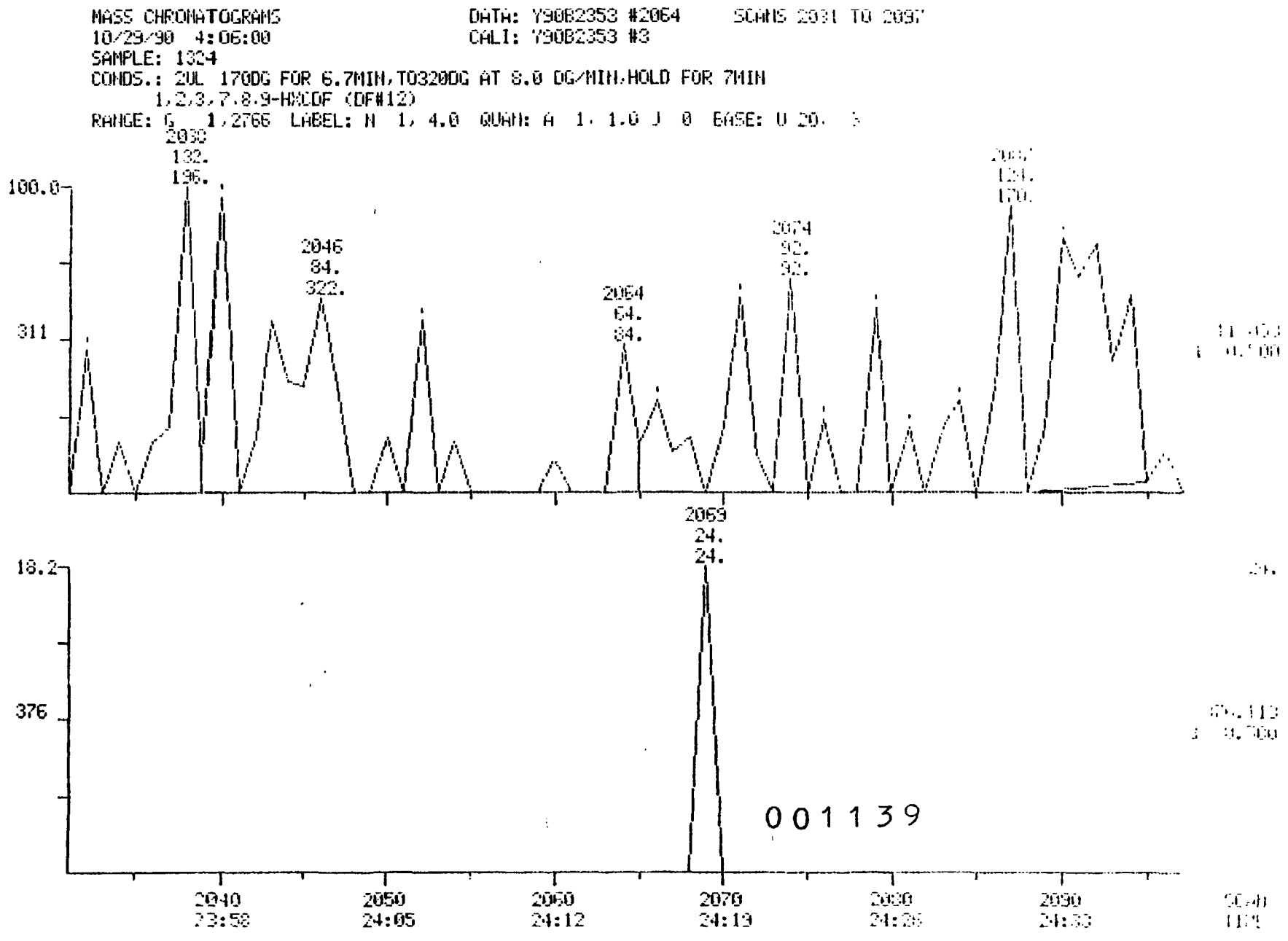


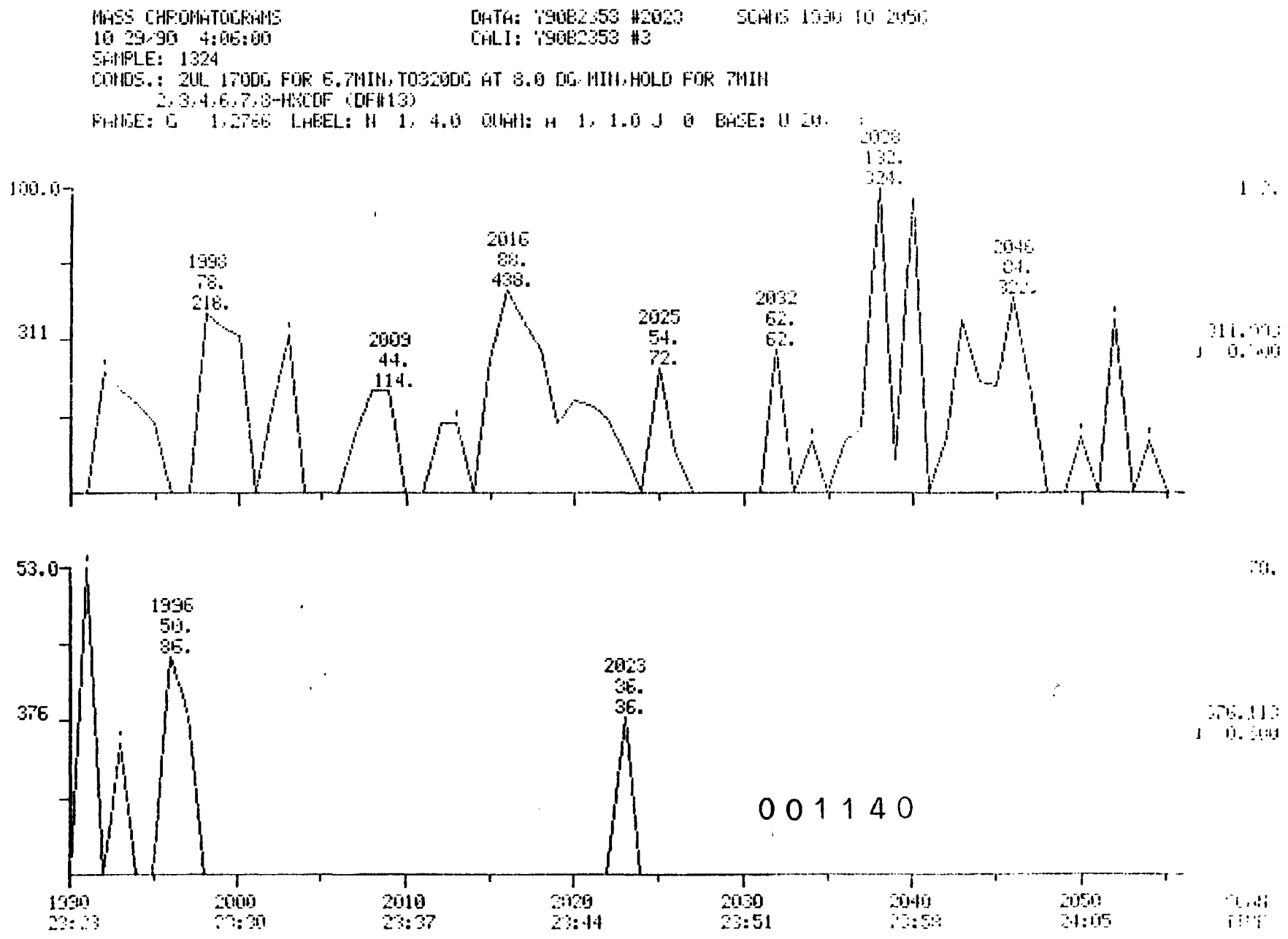

MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
1,2,3,7,8-PECDD (DF#9)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20. 3
DATA: Y90B2353 #1865
CALI: Y90B2353 #3
100.0
293
1839
48.
114.
1854
22.
36.
1861
36.
88.
1875
22.
22.
1883
134.
134.
1893
40.
40.
32.8
358
1854
44.
44.
1866
42.
42.
1883
14.
14.
1893
28.
28.
001136
1840
21:37
1850
21:44
1860
21:51
1870
21:58
1880
22:05
1890
22:12

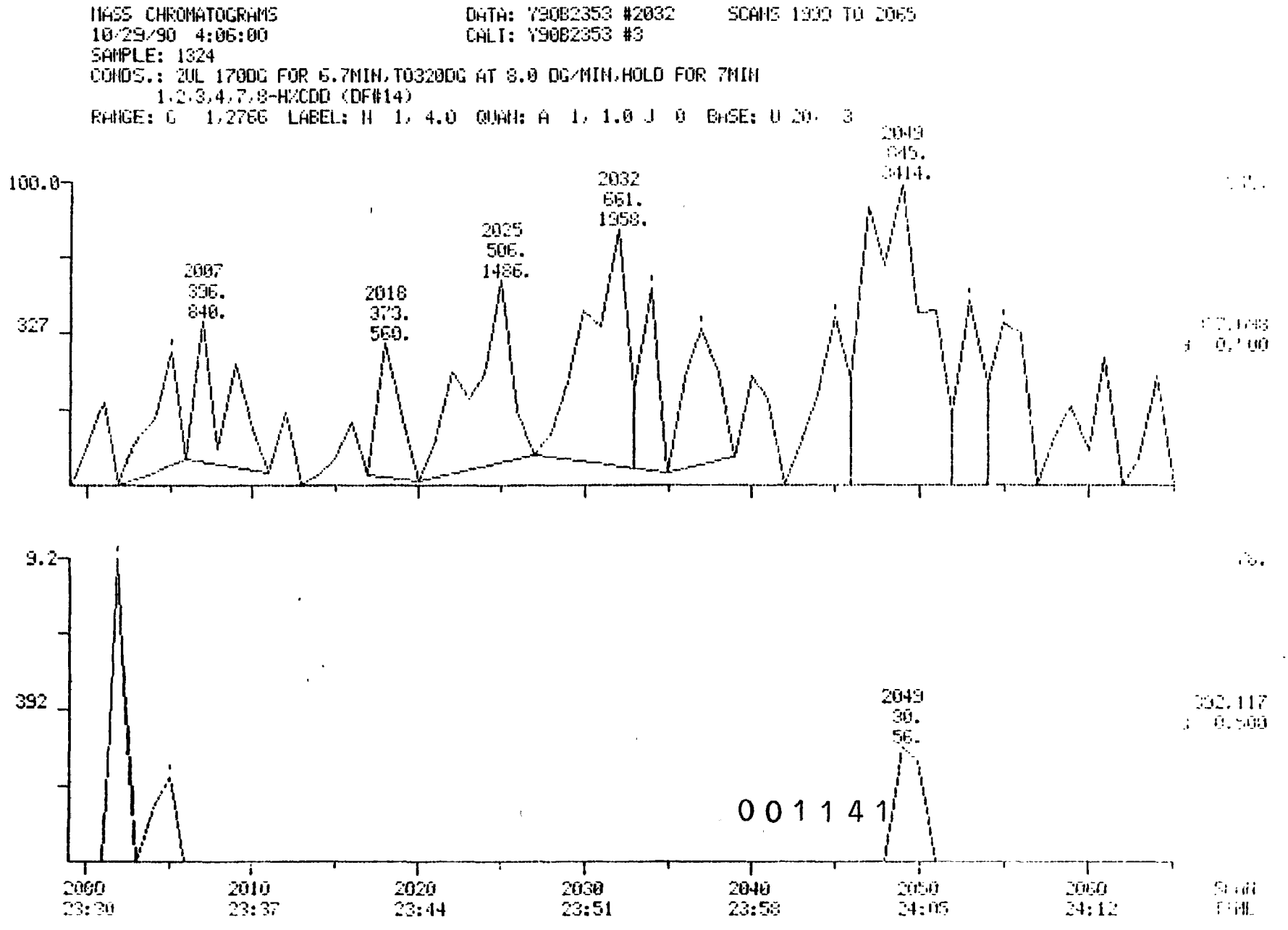

MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #1996
CALI: Y90B2353 #3
SCANS 1963 TO 2023
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDF (DF#10)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
100.0
311
1968
78.
194.
1974
124.
194.
1982
124.
144.
1990
64.
174.
1998
78.
218.
2009
44.
114.
2016
88.
428.
2025
54.
72.
311.993
0.500
56.5
376
1991
70.
188.
1996
50.
86.
2023
36.
36.
376.113
0.500
001137
1970
23:09
1980
23:16
1990
23:23
2000
23:30
2010
23:37
2020
23:44
SCAN
TIME

MASS CHROMATOGRAMS
10/29/90 4:05:00
DATA: Y90B2353 #1391 SCANS 1950 TO 2024
CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDF (DF#11)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

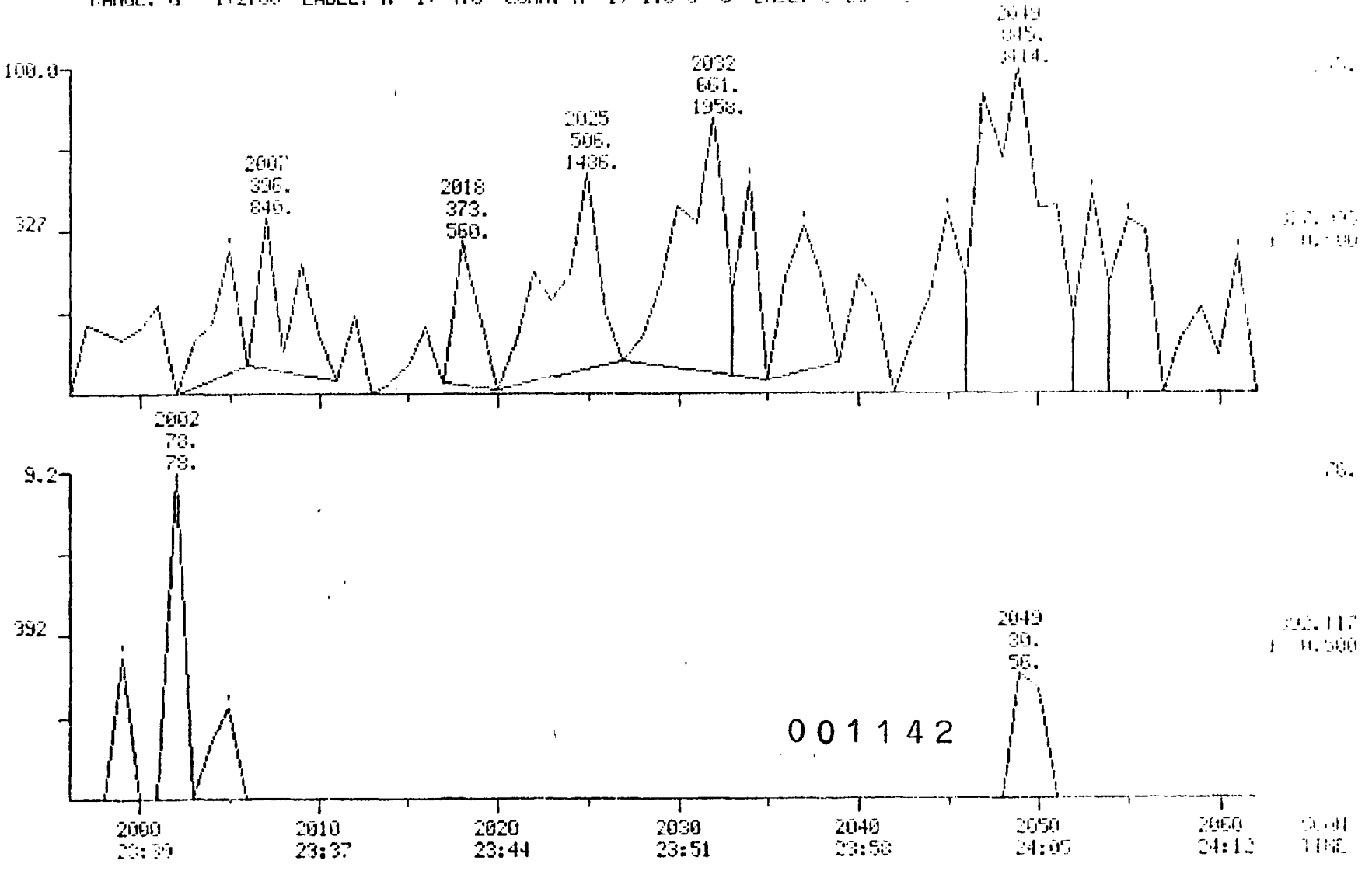



MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2064
CALI: Y90B2353 #3
SCANS 2031 TO 2097
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDF (DF#12)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20.
2030
132.
196.
2046
84.
322.
2064
64.
84.
2074
92.
92.
2097
124.
170.
2069
24.
24.
100.0
311
18.2
376
001139
2040
23:58
2050
24:05
2060
24:12
2070
24:19
2080
24:26
2090
24:33


MASS CHROMATOGRAMS
10 29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2023
CALI: Y90B2353 #3
SCANS 1990 TO 2050
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,6,7,8-HXCDF (DF#13)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20.
100.0
311
1998
78.
218.
2009
44.
114.
2016
88.
438.
2025
54.
72.
2032
62.
62.
2038
132.
324.
2046
84.
322.
53.0
376
1996
50.
86.
2023
36.
36.
001140
1990
23:23
2000
23:30
2010
23:37
2020
23:44
2030
23:51
2040
23:58
2050
24:05


MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2032
CALI: Y90B2353 #3
SCANS 1900 TO 2065
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDD (DF#14)
RANGE: G 1,2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
100.0
327
2007
396.
840.
2018
373.
560.
2025
506.
1486.
2032
661.
1958.
2049
845.
2414.
9.2
392
2049
30.
56.
001141
2000
23:30
2010
23:37
2020
23:44
2030
23:51
2040
23:58
2050
24:05
2060
24:12

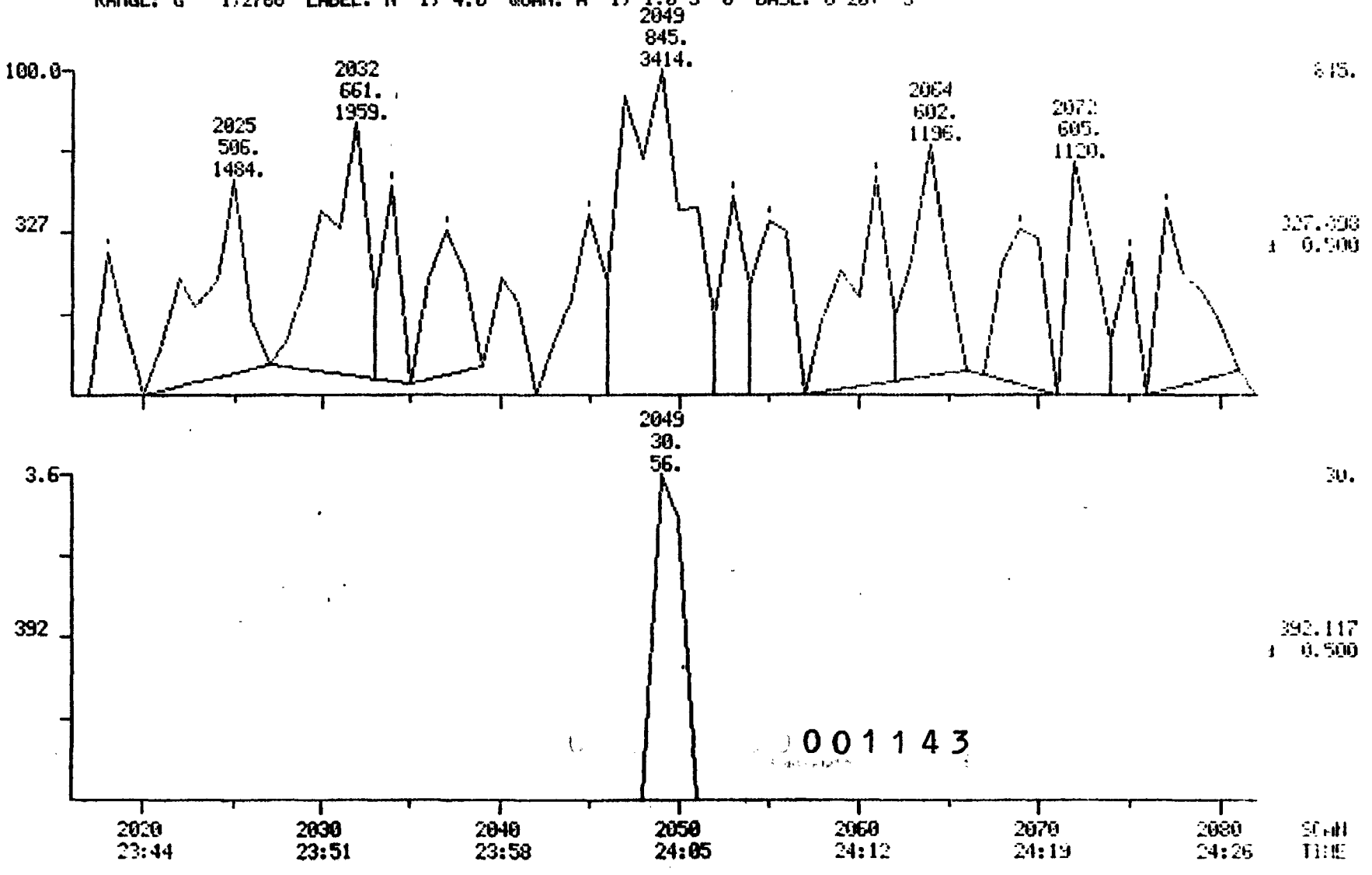
MASS CHROMATOGRAMS
10/23/90 4:06:00
SAMPLE: 1324
DATA: Y9082353 #2029 SCANS 1995 To 2062
CALI: Y9082353 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8 HXCOD (DF#15)
RANGE: G 1.276G LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3



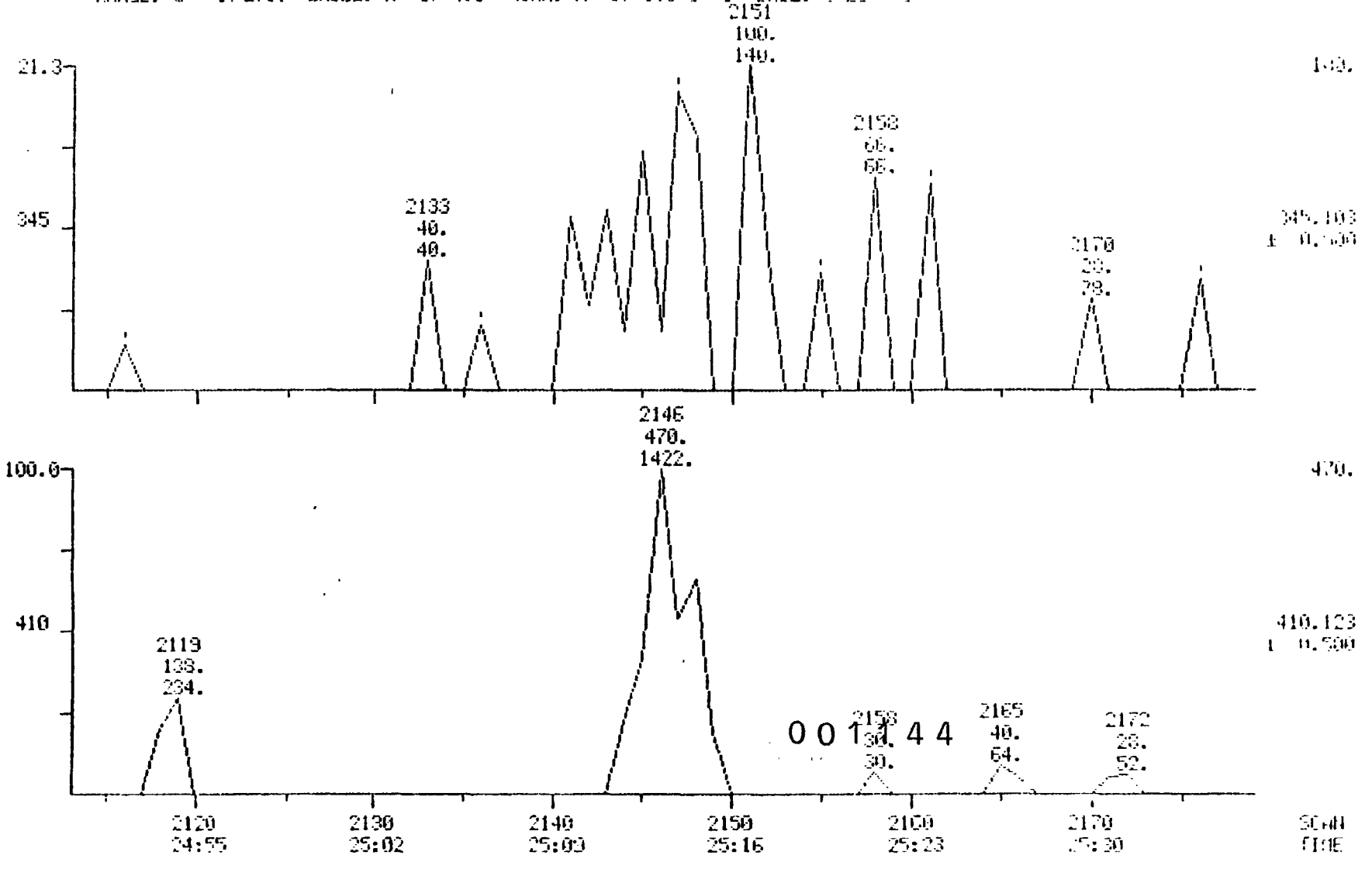
MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDD (DF#16)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

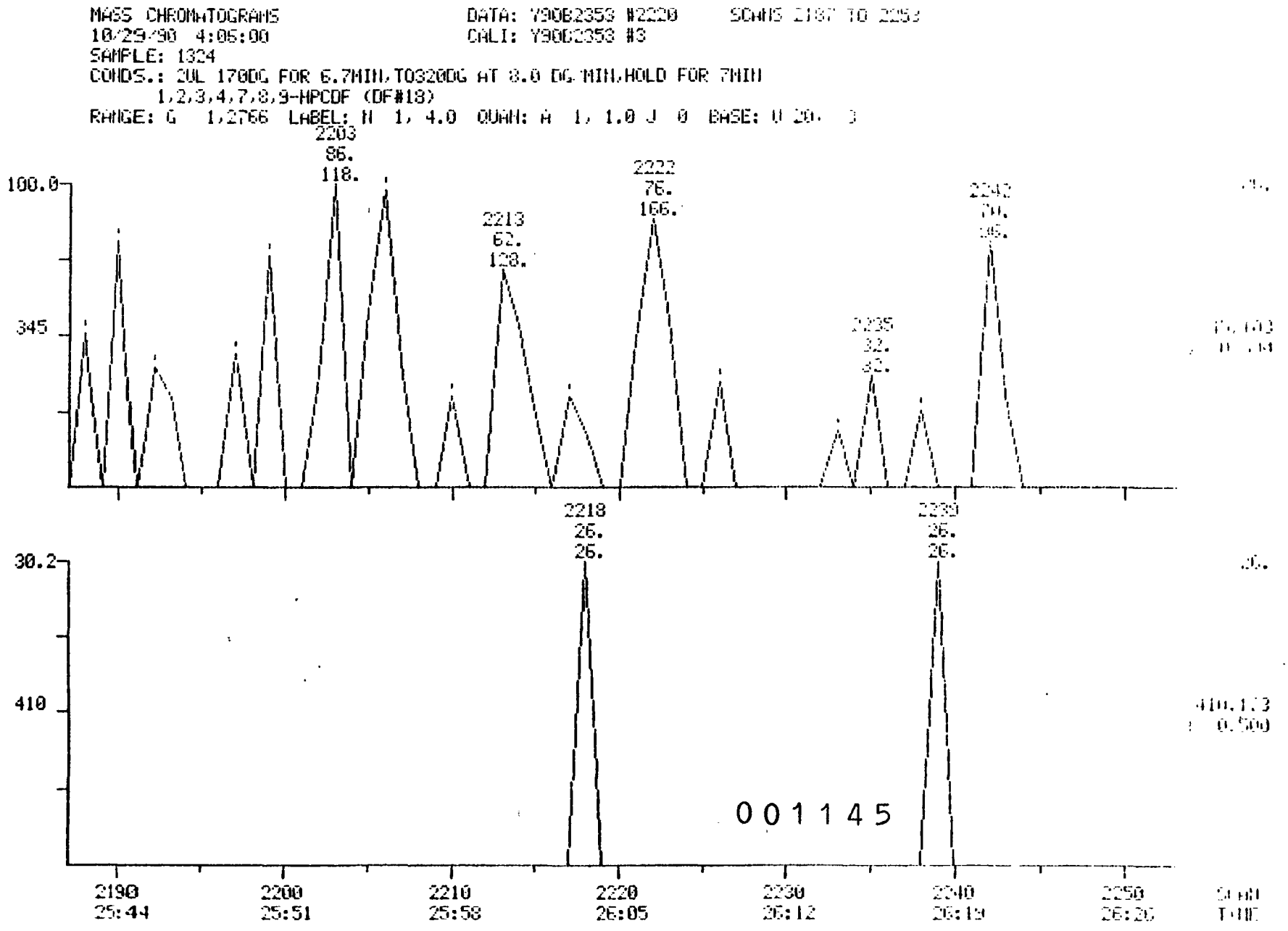
DATA: Y90B2353 #2049
CALI: Y90B2353 #3

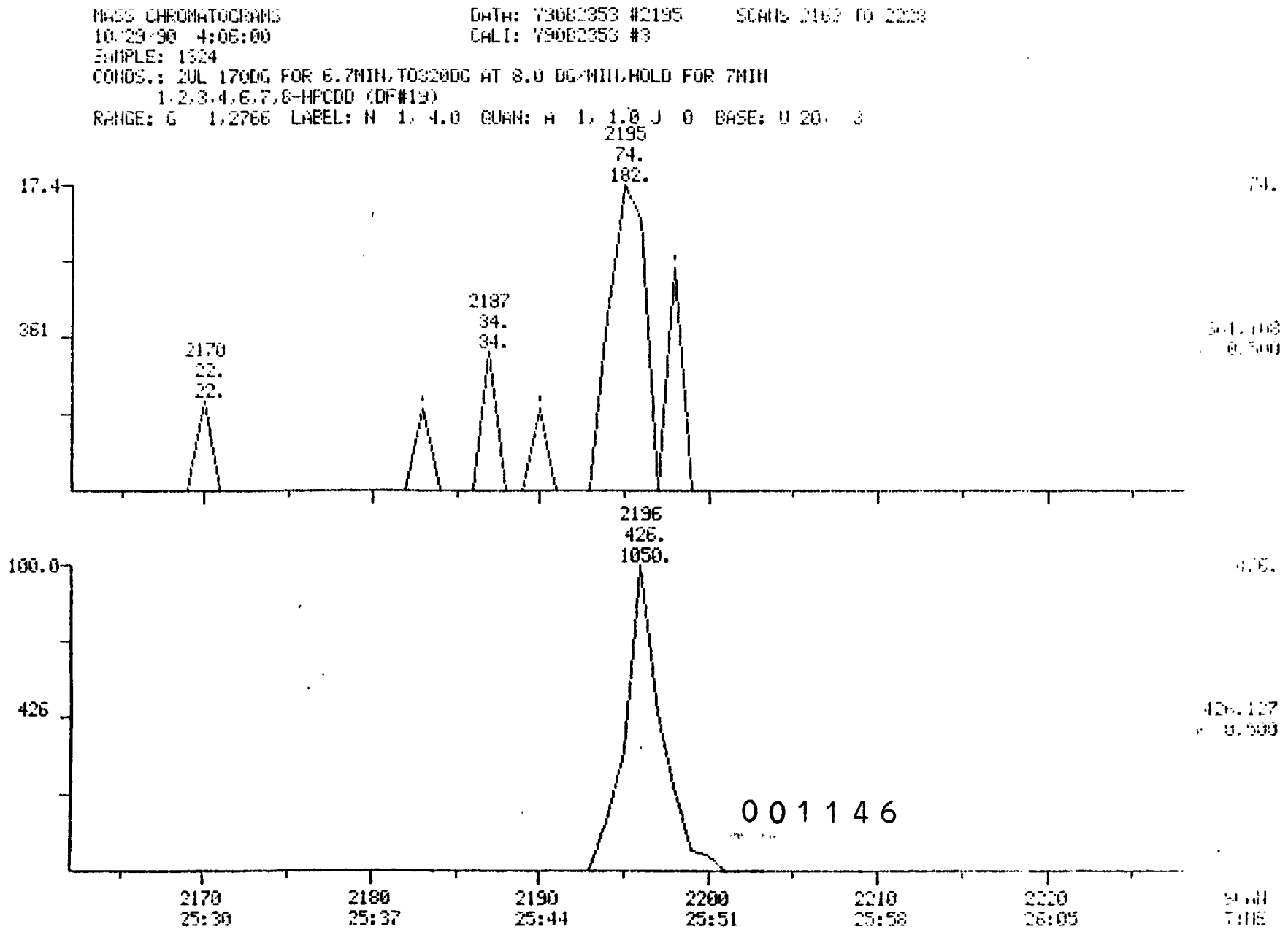
SCANS 2010 TO 2082



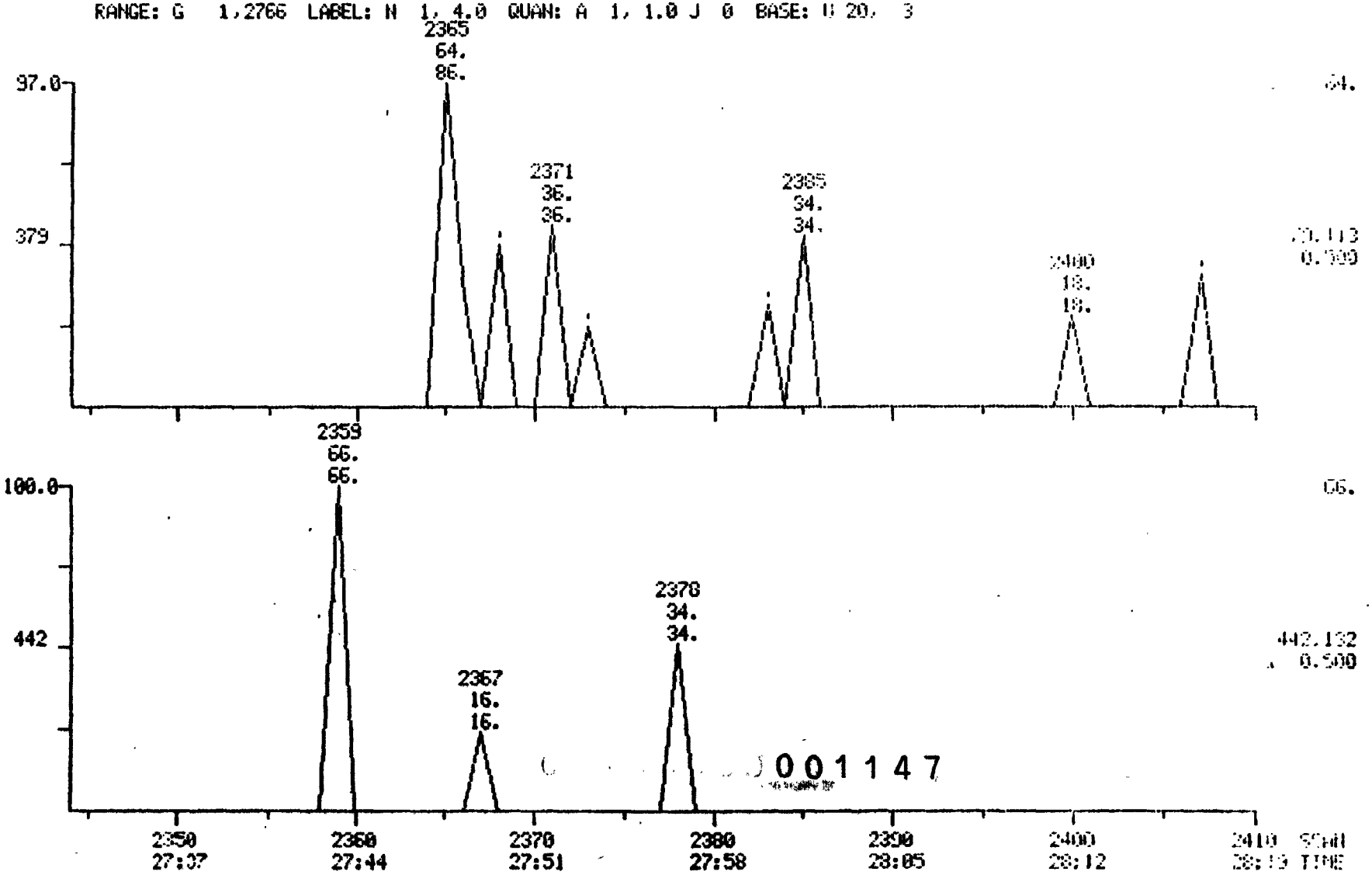
MASS CHROMATOGRAMS DATA: Y90B2353 #2146 SCANS 2113 TO 2179
10/29/90 4:05:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 1700G FOR 6.7MIN.T0320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDF (DF#17)
RANGE: 0 1.2760 LABEL: N 1, 4.0 DOWN: H 1, 1.0 J 0 BASE: U 20. >

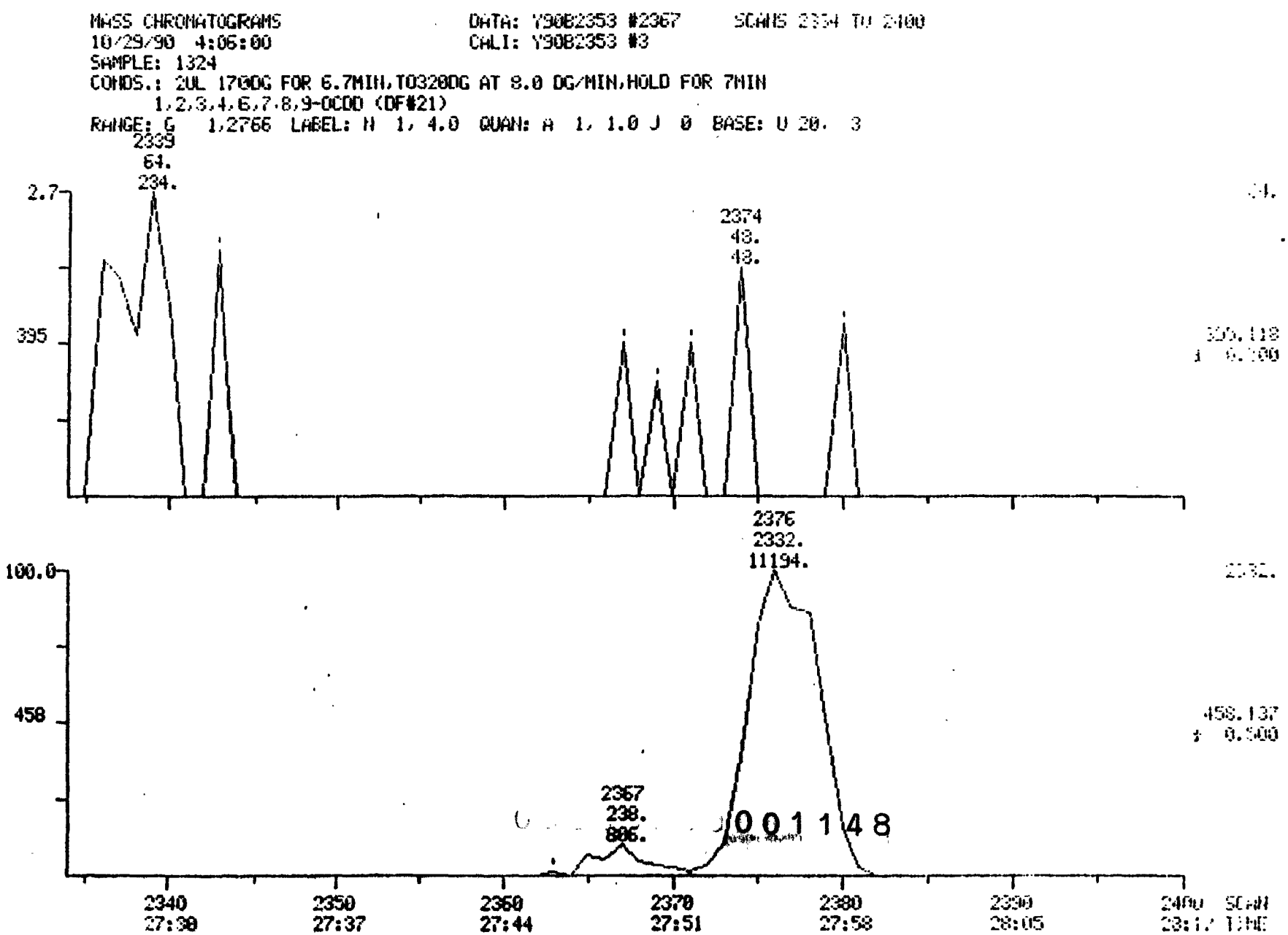



MASS CHROMATOGRAMS
10/29/90 4:05:00
SAMPLE: 1324
DATA: Y90B2359 #2220
CALI: Y90B2359 #3
SCANS 2187 TO 2253
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8,9-HPCDF (DF#18)
RANGE: G 1,2766 LABEL: M 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20.
100.0
345
2203
86.
118.
2213
62.
128.
2222
76.
166.
2235
32.
62.
2243
46.
2218
26.
26.
2239
26.
26.
30.2
410
001145
2190
25:44
2200
25:51
2210
25:58
2220
26:05
2230
26:12
2240
26:19
2250
26:26

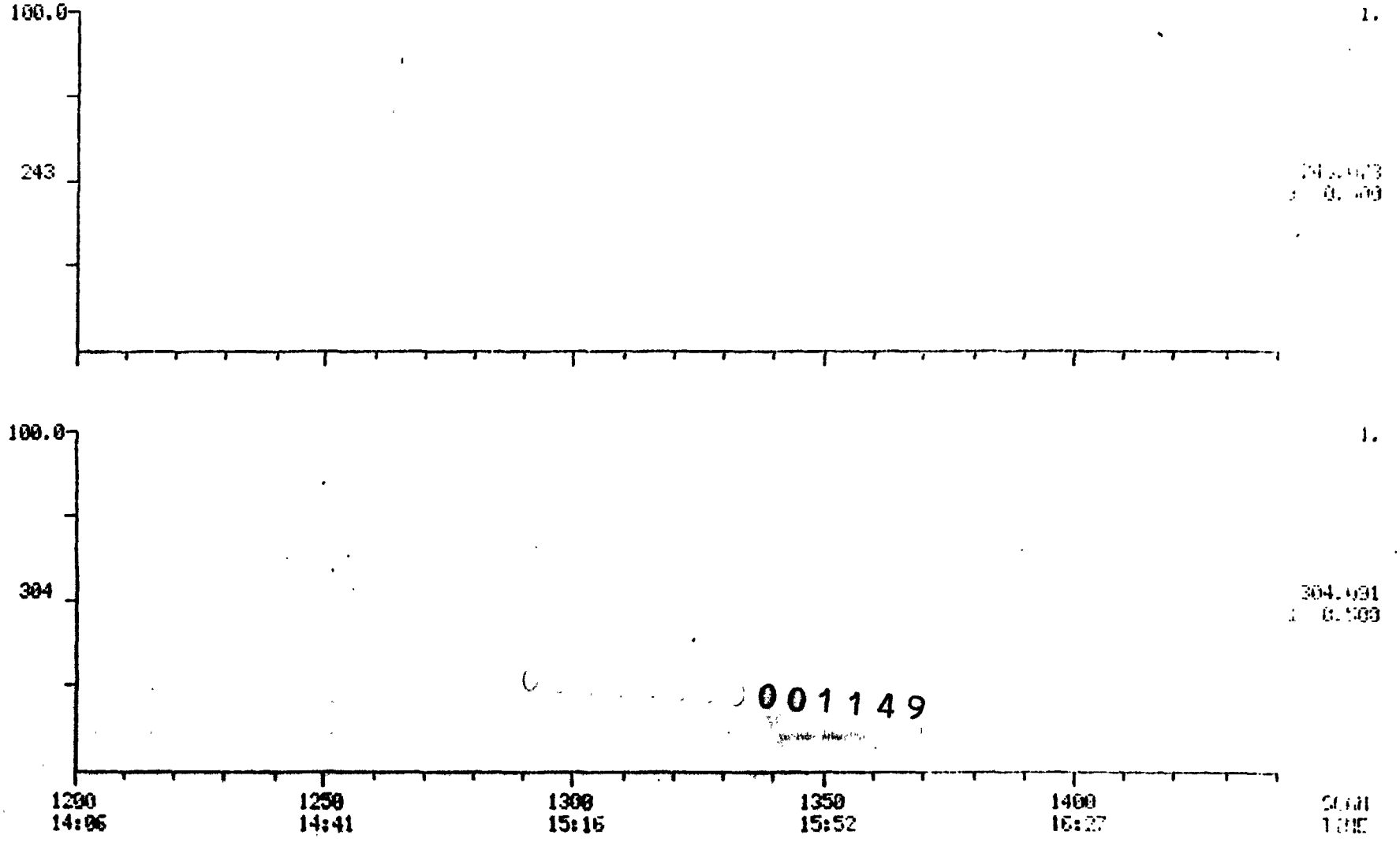

MASS CHROMATOGRAMS
10/29/90 4:05:00
SAMPLE: 1324
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDD (DF#19)
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3
DATA: Y90B2353 #2195
CALI: Y90B2353 #3
SCANS 2162 TO 2228
2195
74.
182.
2187
34.
34.
2170
22.
22.
2196
426.
1050.
17.4
361
100.0
426
001146
2170
25:30
2180
25:37
2190
25:44
2200
25:51
2210
25:58
2220
26:05

MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2377 SCANS 2344 TO 2410
CALI: Y90B2353 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDF (DF#20)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

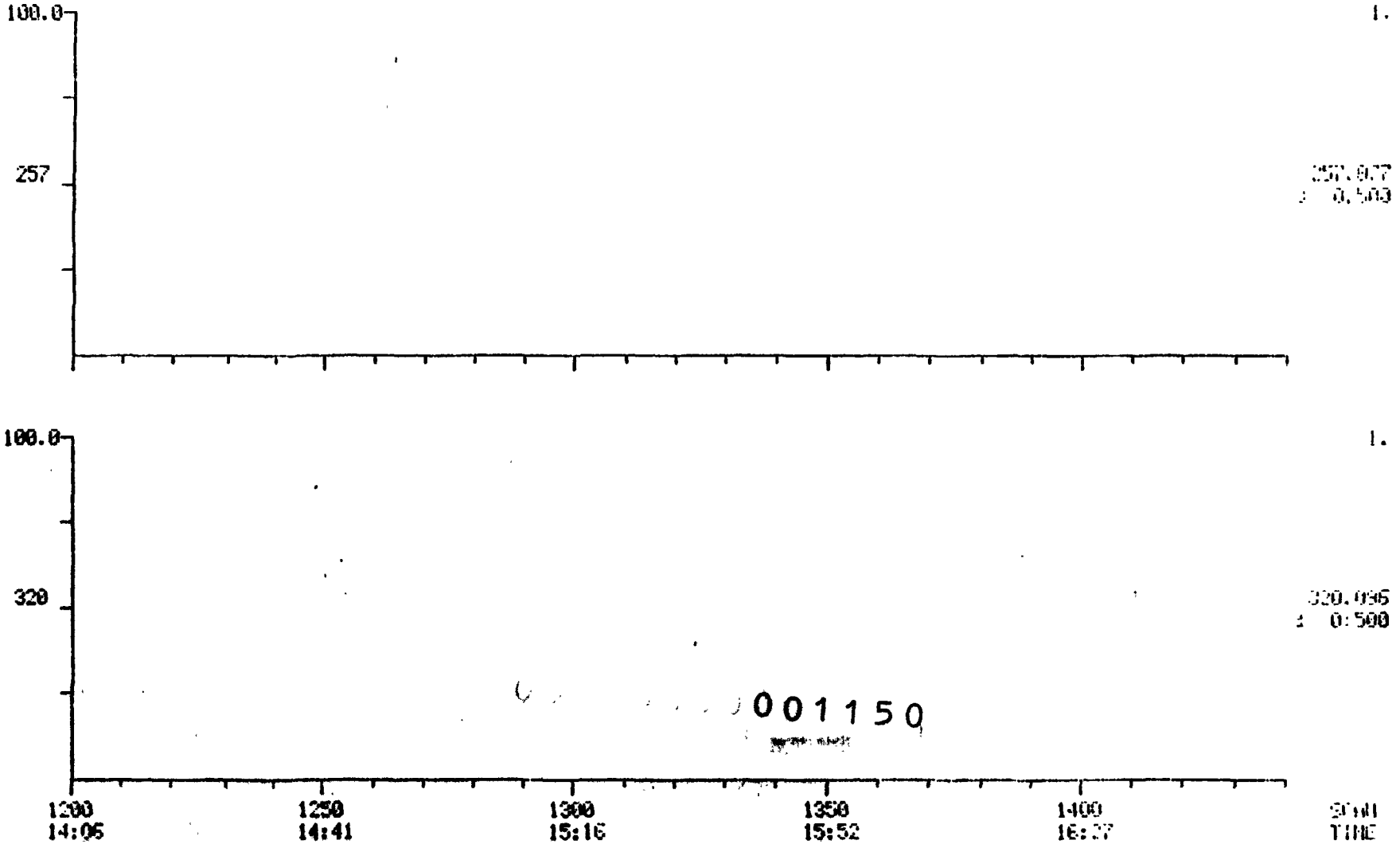



MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDD (DF#21)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3
DATA: Y90B2353 #2367
CALI: Y90B2353 #3
SCANS 2334 TO 2400
2339
64.
234.
2374
48.
48.
2.7
395
2376
2332.
11194.
100.0
458
2367
238.
806.
2340
27:30
2350
27:37
2360
27:44
2370
27:51
2380
27:58
2390
28:05
2400
SCAN
TIME

MASS CHROMATOGRAMS DATA: Y90B2353 #2367 SCANS 1200 TO 1440
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20,

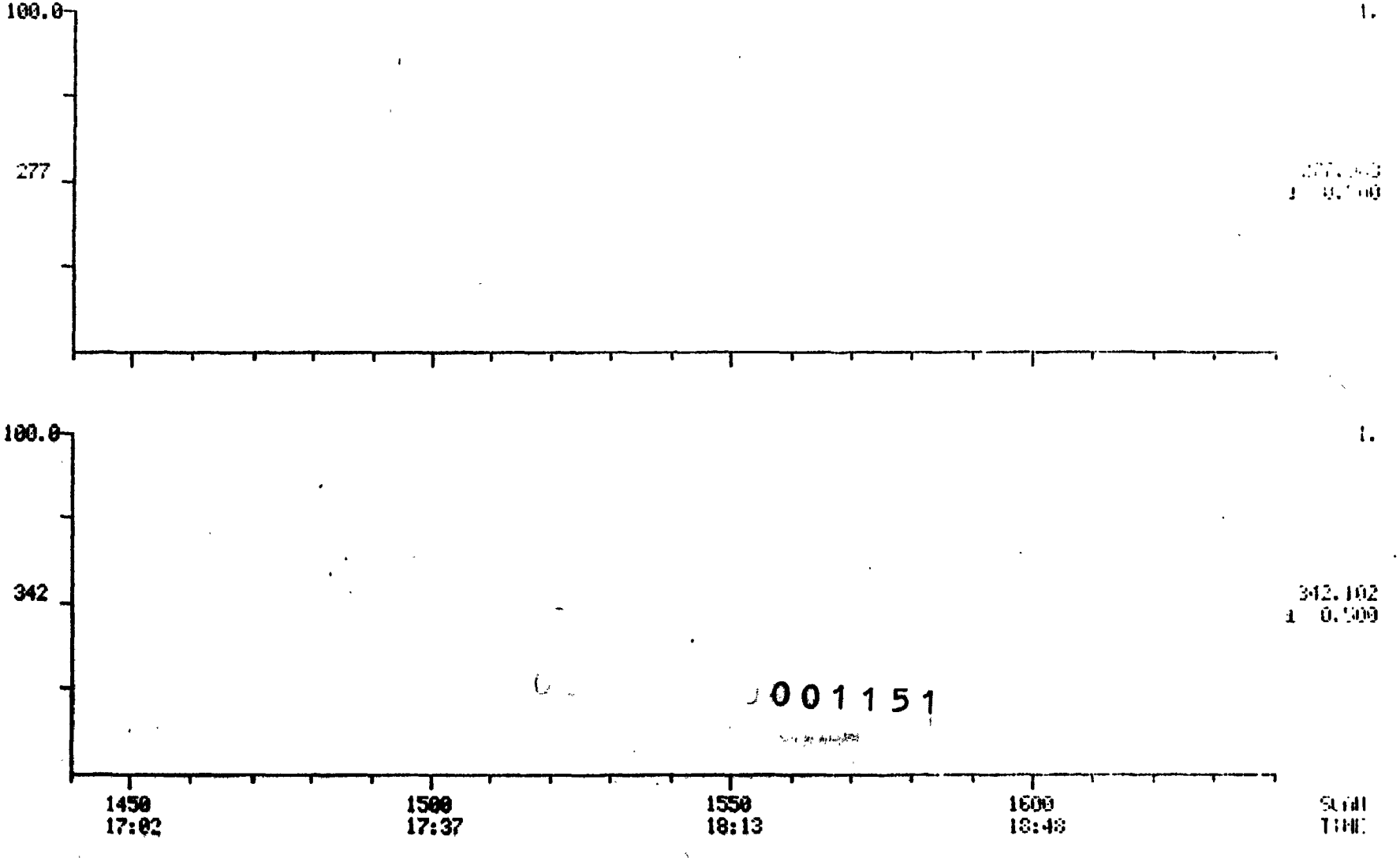


MASS CHROMATOGRAMS DATA: Y90B2353 #2367 SCANS 1200 TO 1440
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



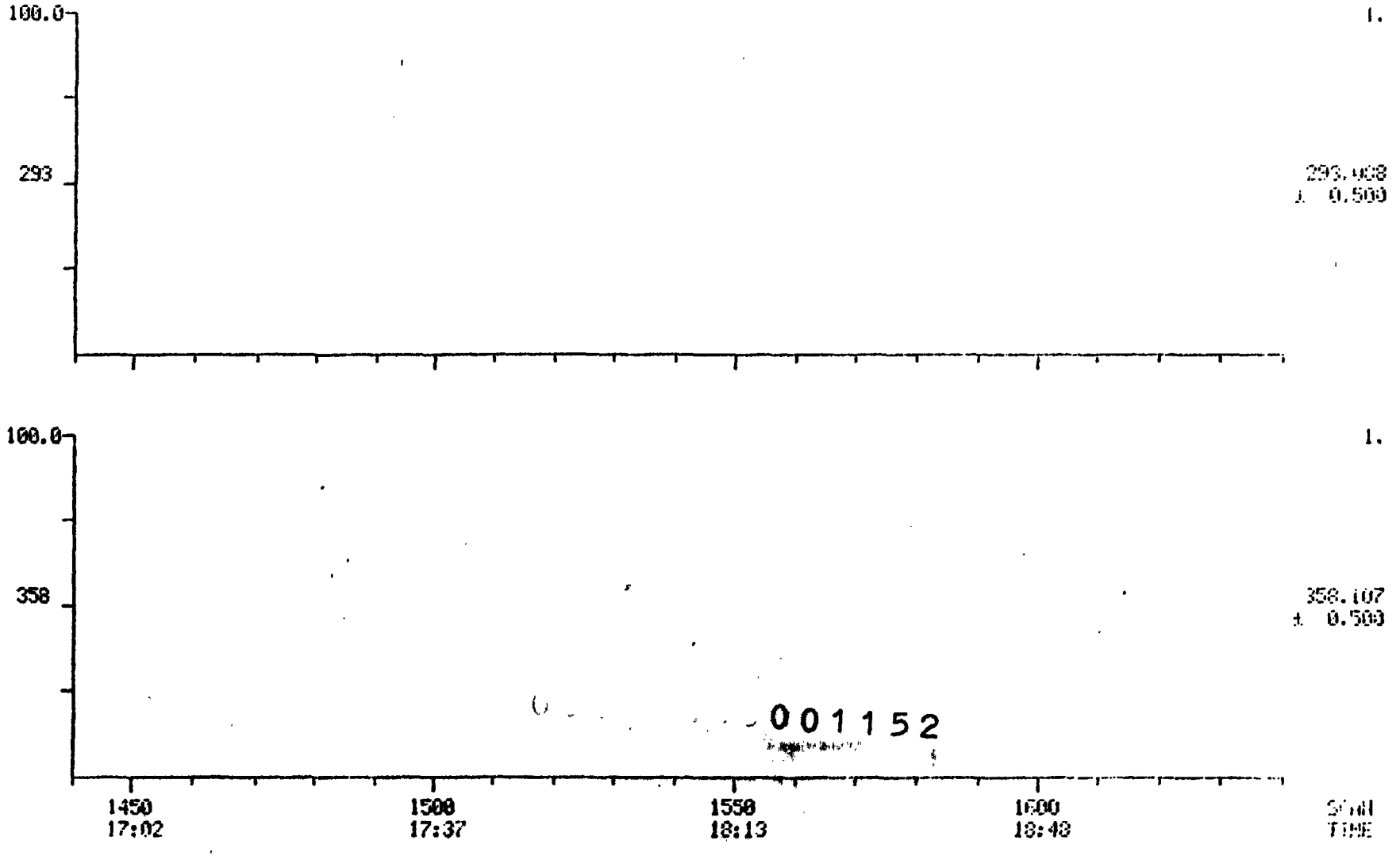
001150

MASS CHROMATOGRAMS DATA: Y90B2353 #2367 SCANS 1440 TO 1640
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



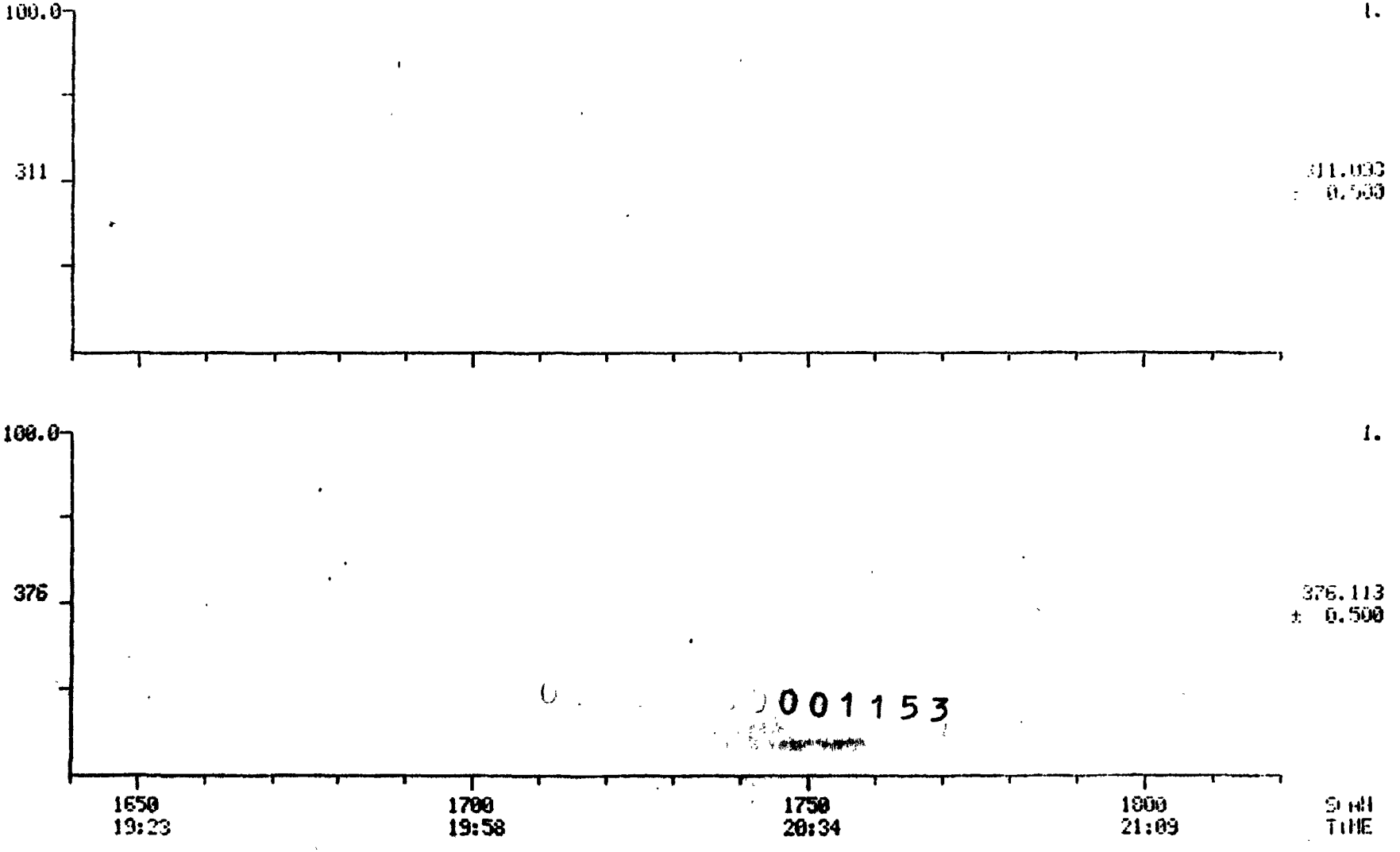
001151

MASS CHROMATOGRAMS DATA: Y90B2353 #2367 SCANS 1440 TO 1640
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



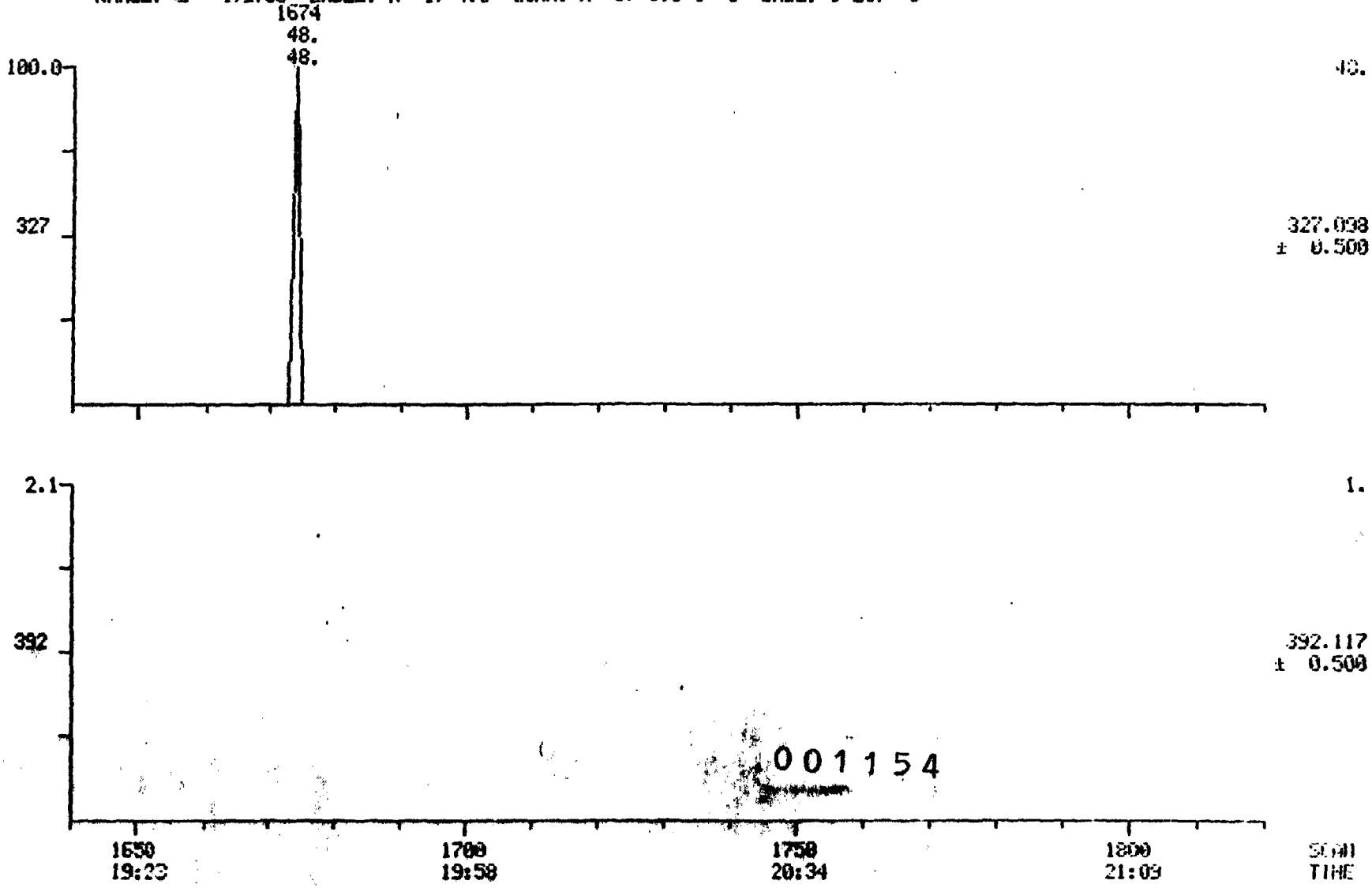
001152

MASS CHROMATOGRAMS DATA: Y90B2353 #2367 SCANS 1640 TO 1820
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



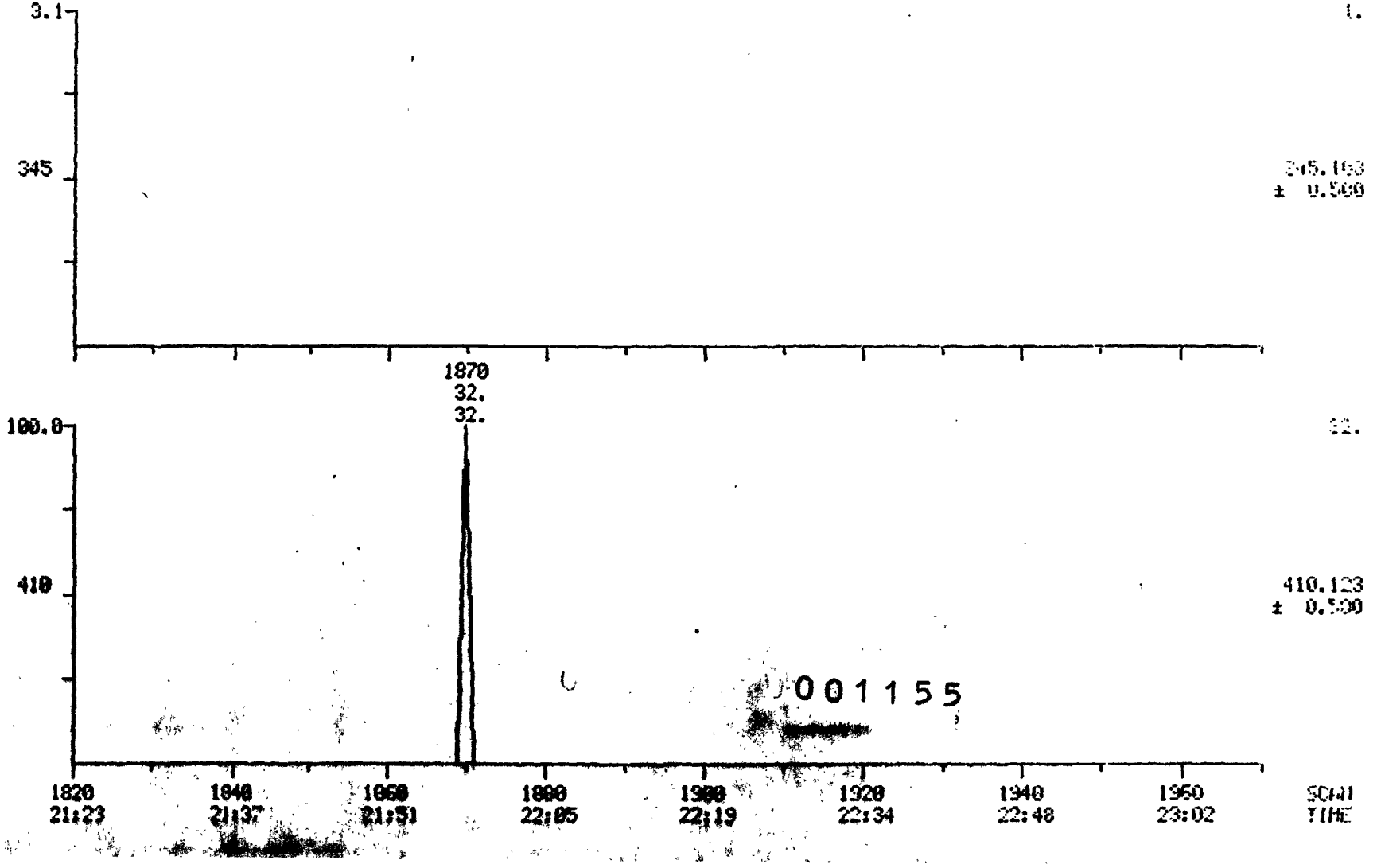
001153

MASS CHROMATOGRAMS DATA: Y90B2353 #2367 SCANS 1640 TO 1820
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

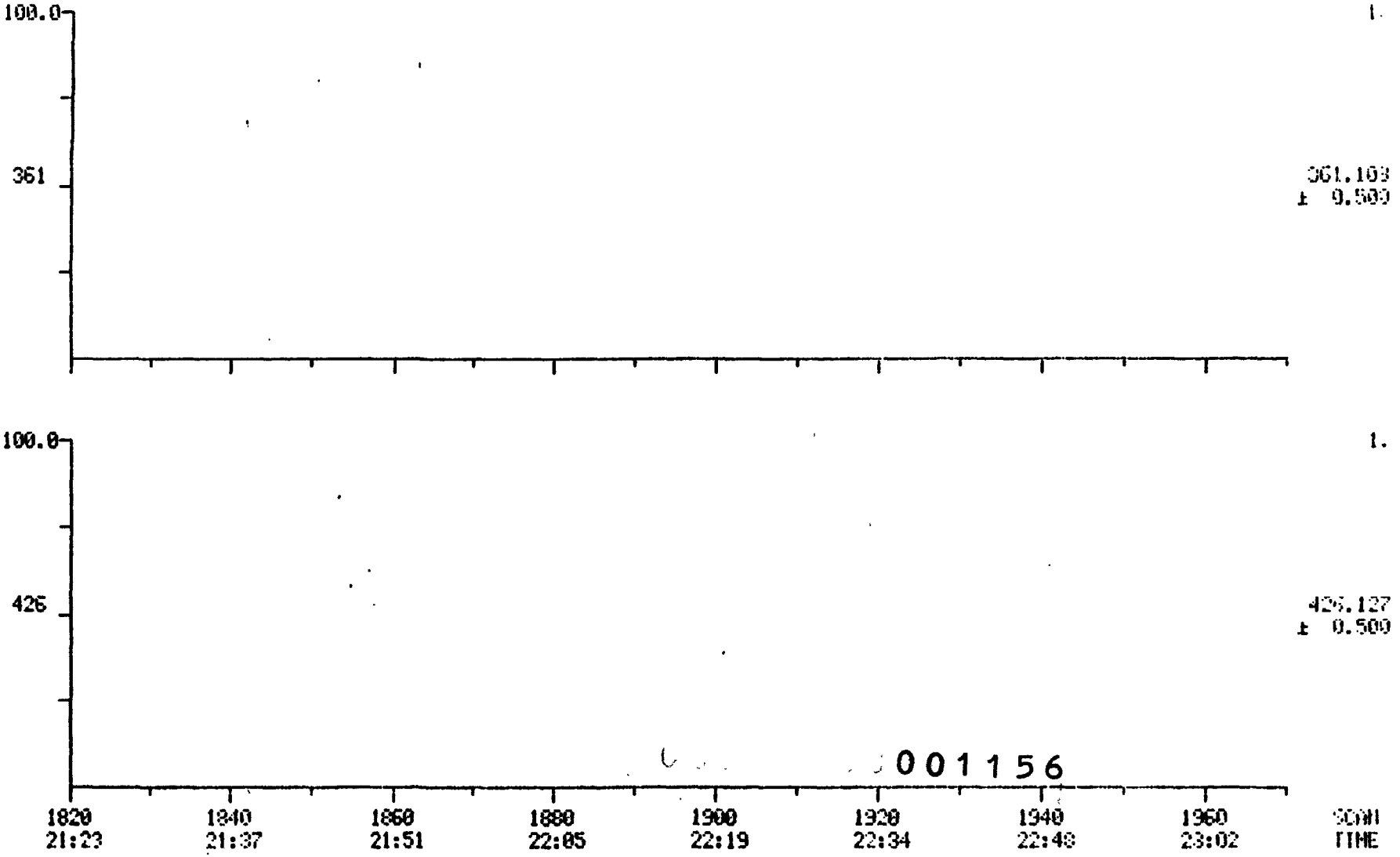


001154

MASS CHROMATOGRAMS
10/29/90 4:06:00
SAMPLE: 1324
DATA: Y90B2353 #2367 SCANS 1820 TO 1970
CALI: Y90B2353 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



MASS CHROMATOGRAMS DATA: Y90B2353 #2367 SCANS 1820 TO 1970
10/29/90 4:06:00 CALI: Y90B2353 #3
SAMPLE: 1324
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



001156

10U

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

DESCRIPTION OF TEST FACILITY

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #3
TEST DATE	:	11 OCT 1990
TEST RUN	:	1 - COMPLETED AT 19:00
PLANT	:	JACKSONVILLE ARKANSAS
UNIT	:	INCINERATOR
LOCATION	:	STACK
CONDITION	:	D WASTE BURN
OPERATORS	:	M. DILLARD / T. PREECE
FILTER ID	:	N/A
SAMPLE UNIT	:	N/A
CONTROL UNIT	:	#2

0011157

SPECIAL TEST FACTORS

METER CORR. FACTOR, Yd	1.000	
RUNZZLE DIAMETER	0.310	in."
PITOT FACTOR (Cp)	0.84	
BARO. PRESSURE (Pb)	28.90	in.Hg. (incl. ALT CORR)
STATIC PRESSURE(Pg)	-.20	in.H20
METER VOLUME	118.287	ACF uncorrected
TEST DURATION	192.0	min.
IMPINGER CONDENSATE (H20)	1726.0	ml. (EST)
STACK AREA	9.61	sq.ft.
PERCENT CO2	4.98	%
PERCENT CO	0.00	%
PERCENT O2	12.10	%
PERCENT N2	83.08	%
H20 VP PERMITTED AT IMPINGER TEMP	0.000	in.Hg. (Si-Gel)
H20 VP PERMITTED AT STACK TEMP	43.000	in.Hg. (est)
NUMBER OF TRAVERSE POINTS	24	
WT. OF PARTICULATE MATTER	0.0098	grams.
VOLUME OF NAT.GAS BURNED	0.	SCF
STD TEMPERATURE	68	deg.F.
STD PRESSURE	29.92	in.Hg.
MOLE C / MOLE NAT.GAS	1.056	

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #3
TEST DATE	:	11 OCT 1990
TEST RUN	:	1 - COMPLETED AT 19:00

STACK TRAVERSE DATA

POINT	Ts	dP	VEL	dH	T1	T2	Pm	Ti	%CO2	%O2
A-1	198	0.440	45.8	1.32	69.0	70.0	9.0	46.0	5.00	12.10
A-2	200	0.430	45.3	1.29	72.0	70.0	9.0	50.0	5.00	12.10
A-3	200	0.430	45.3	1.29	75.0	71.0	9.0	52.0	5.00	12.10
A-4	201	0.420	44.8	1.26	77.0	72.0	9.0	53.0	5.00	12.10
A-5	201	0.420	44.8	1.26	79.0	74.0	9.0	51.0	5.00	12.10
A-6	201	0.430	45.4	1.29	81.0	74.0	9.0	51.0	5.00	12.10
A-7	200	0.560	51.7	1.68	81.0	74.0	11.8	50.0	5.00	12.10
A-8	199	0.600	53.5	1.80	79.0	75.0	12.2	50.0	5.00	12.10
A-9	199	0.600	53.5	1.80	80.0	75.0	12.0	52.0	5.00	12.10
A-10	199	0.550	51.2	1.65	80.0	76.0	10.8	51.0	5.00	12.10
A-11	197	0.480	47.8	1.44	79.0	75.0	9.8	51.0	5.00	12.10
A-12	194	0.410	44.1	1.23	80.0	75.0	8.4	51.0	5.00	12.10
B-1	199	0.330	39.7	1.00	77.0	74.0	10.8	45.0	5.00	12.10
B-2	200	0.350	40.9	1.05	78.0	74.0	11.0	46.0	5.00	12.10
B-3	199	0.360	41.4	1.08	79.0	74.0	11.0	46.0	5.00	12.10
B-4	199	0.360	41.4	1.08	79.0	74.0	11.0	46.0	5.00	12.10
B-5	200	0.400	43.7	1.20	79.0	74.0	11.5	46.0	5.00	12.10
B-6	200	0.480	47.9	1.44	80.0	75.0	14.3	47.0	5.00	12.10
B-7	200	0.570	52.2	1.71	79.0	75.0	17.2	45.0	5.00	12.10
B-8	199	0.590	53.1	1.77	78.0	74.0	18.0	44.0	5.00	12.10
B-9	200	0.570	52.2	1.71	78.0	74.0	18.0	44.0	5.00	12.10
B-10	199	0.540	50.8	1.62	77.0	74.0	16.4	44.0	5.00	12.10
B-11	197	0.460	46.8	1.38	77.0	73.0	13.5	45.0	5.00	12.10
B-12	193	0.430	45.1	1.29	77.0	73.0	12.5	45.0	5.00	12.10
AVE	199	0.463	47.0	1.40	77.9	73.7	11.8	48.0	5.00	12.10

VEL = 85.48 * Cp * SQ.RT.((dP*Ts)/(Ps*Ms))

GAS METER VOLUME (uncorr.) = 118.2870

GAS METER FACTOR Yd = 1.000

NOTES

1. AVE PITOT TUBE PRESSURE (dP) IS THE SQUARE OF THE MEAN SQUARE ROOT

2. AVE % CO2 AND %O2

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #3
TEST DATE	:	11 OCT 1990
TEST RUN	:	1 - COMPLETED AT 19:00

SAMPLE GAS CALCULATIONS

A.	Vm	METER VOLUME, UNCORRECTED*METER FACTOR	=	%118.29	cu.ft.
B.	Pm	METER PRESSURE, Pb + dH/13.6	=	29.00	in.Hg.
C.	Tm	METER TEMPERATURE, 460+(T1+T2)/2	=	536	xR
D.	Ti	IMPINGER TEMPERATURE	=	48	xF
E.	Ts	STACK TEMPERATURE	=	659	xR
F.	Ps	STACK PRESSURE, Pb+Pg/13.6	=	28.89	in.Hg.
G.	VPi	MAX.H2O VP PERMITTED AT Ti	=	0.000	in.Hg.
H.	Vlc	VOLUME OF CONDENSED H2O	=	1726	ml.
I.	Vcalc	H2O VAPOR, METER COND., H*C/B*0.00267	=	85.14	cu.ft.
J.	Vwv	MOISTURE METERED AT METER COND., A*G/B	=	0.00	cu.ft.
K.	Vdry	SAMPLE VOLUME AT METER COND., DRY, A-J	=	%118.29	cu.ft.
L.	% Mc	PER CENT MOISTURE CALC. 100*(I+J)/(A+I)	=	41.85	%
M.	VPs	MAX H2O VP PERMITTED AT Ts (SEE APPENDIX)	=	43.00	in.Hg.
N.	%Ms	PERCENT MOISTURE PERMITTED, M/F*100	=	148.9	%
	Bws	ENTER LOWER OF L OR N	=	41.9	%
O.	M.C.	MOISTURE CORRECTION FACTOR (100-L OR N)/100	=	0.581	
P.	Vm(std)	SAMPLE VOL., STD COND. (DRY) K*528/29.92*B/C	=	%112.99	SCF
S.	mn	WEIGHT OF PARTICULATE MATTER COLLECTED			

r. os GRAIN LOADING (DRY), 15.43*S/P = 0.001 grains/s

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER : S1-262-01
CLIENT : VERTAC SITE CONTRACTERS DIOXIN #3
TEST DATE : 11 OCT 1990
TEST RUN : 1 - COMPLETED AT 19:00

STACK GAS CALCULATIONS

GAS ANALYSIS

COMPONENT	VOL%/100	* MOISTURE CORR.	* MOL.WT.	= WET BASIS WT./MOLE
WATER	0.4185	* 1.0000	* 18.0	= 7.533
OXYGEN	0.1210	* 0.5815	* 32.0	= 2.251
CARBON MONOXIDE	0.0000	* 0.5815	* 28.0	= 0.000
CARBON DIOXIDE	0.0500	* 0.5815	* 44.0	= 1.279
NITROGEN / INERTS	0.8290	* 0.5815	* 28.2	= 13.594

AA. Ms AVERAGE MOLECULAR WEIGHT = 24.658

DD. Cp PITOT TUBE CORRECTION FACTOR = 0.84

EE. Vs STACK VELOCITY @ STACK COND. = 47.01 ft/sec

FF. Vs(std) VELOCITY @ STD.COND.(DRY)
EE*528/29.92*F/E*0 = 21.15 ft/sec

GG. DURATION OF SAMPLING = 192 min.

HH. AVERAGE SAMPLING RATE (DRY), P/GG = 0.588 SCFM

II. SELECTED NOZZLE DIAMETER = 0.310 in.

JJ. SAMPLING VELOCITY AT STD. CONDITIONS, HH/II^2*144/60/PI = 18.71 ft/sec

KK. ISOKINETIC VARIATION, JJ/FF*100 = 88 %

LL. As AREA OF STACK = 9.610 sq.ft.

MM Qsd FLOW RATE AT STD COND (DRY), FF*LL*60 = 12194 SCFM

NN Qs FLOW RATE AT STACK COND., EE*LL*60 = 27107 ACFM

UU PARTICULATE EMISSION RATE, 0.00858*T*MM = 0.14 lb/hr

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #3
TEST DATE	:	11 OCT 1990
TEST RUN	:	1 - COMPLETED AT 19:00

COMBUSTION CALCULATIONS

T.	CS GRAIN LOADING (DRY)	= 0.001	grains/ DSCF	
UU.	PARTICULATE EMISSION RATE 0.00857*T*MM	= 0.14	lb/hr	
OO.	%CO2 (GAS ANALYSIS - STACK EXHAUST)	= 5.00	%	
PP.	C12 GRAIN LOADING (DRY) @ 12% CO2, T*12/OO	= 0.003	grains/ DSCF	
ZZ.	EXCESS AIR = $\frac{\text{(\% OXYGEN - \% CO)} * 100}{0.264*(\%\ N2)-(\%\ OX)+0.5*(\%\ CO)}$	= 123	%	
QQ.	%O2 (WEIGHTED VALUE)	= 12.1	%	
RR	O2 LOADING (DRY ATR 7% O2), T*14/(21-QQ)	= 0.002	grains/ DSCF	

$K_3 = 3.0$

Date: 10-11-90

FIELD DATA SHEET

QAF 5042
Page 1 of 1
Revision 4
Effective Date: 1/22/88

Run Number: Broken #3

CO_2 10.49 % O_2 12.1 %

TRAVERSE POINT NUMBER	SAMPLING TIME, MIN.	CLOCK TIME	GAS METER READING (VM), FT³	VELOCITY HEAD ΔP	VELOCITY HEAD $\sqrt{\Delta P}$	ORIFICE PRESSURE (ΔH)	STACK TEMP. (TS), °F	DRY GAS METER TEMPERATURE INLET (TM in)	DRY GAS METER TEMPERATURE OUTLET (TM out)	PUMP VACUUM IN HG	SAMPLE BOX TEMP. °F	IMPINGER TEMP. °F	PROBE TEMP. °F	O_2
Initial	0	1515	356.079	.44		1.32	196	72	71	7.0	211	62	258	
1	8		361.610	.44		1.32	198	69	70	9.0	249	46	261	
2	16		366.236	.43		1.29	200	72	70	9.0	270	50	270	
Port D 3	24		370.943	.43		1.29	200	75	71	9.0	276	52	264	
4	32		375.571	.42		1.26	201	77	72	9.0	274	53	285	
5	40	59.706 ft³	380.258	.42		1.26	201	79	74	9.0	272	51	273	
6	48		384.938	.43		1.29	201	81	74	9.0	276	51	287	
7	56		390.003	.56		1.68	200	81	74	11.8	277	50	266	
8	64		395.848	.60		1.80	199	79	75	12.2	274	50	272	
9	72		401.451	.60		1.80	194	80	75	12.0	275	52	281	
10	80		406.021	.55		1.65	194	80	76	10.8	275	51	280	
11	88		411.900	.48		1.44	197	79	75	9.8	273	51	277	
12	96		416.505	.41		1.23	194	80	75	8.4	275	51	296	
Initial	0		416.742	.33		1.00	196	75	74	10.8	270	61	299	
1	8		421.412	.33		1.00	199	77	74	10.8	271	45	263	
2	16		425.366	.35		1.05	200	78	74	11.0	274	46	259	
3	24		429.735	.36		1.08	199	79	74	11.0	267	46	249	
Port 1 4	32		434.093	.36		1.08	199	79	74	11.0	282	46	276	
5	40	58.59 ft³	438.548	.40		1.20	200	79	74	11.5	273	46	283	
6	48		443.537	.48		1.44	200	80	75	14.3	276	47	262	
7	56		448.994	.57		1.71	200	79	75	17.2	274	45	254	
8	64		454.534	.59		1.77	199	78	74	18.0	276	44	275	
9	72		460.09	.57		1.71	200	78	74	18.0	275	44	272	
10	80		465.515	.54		1.62	199	77	74	16.4	274	44	266	
11	88		470.538	.46		1.38	197	77	73	15.5	276	45	270	
12	96		475.333	.43		1.29	195	77	[illegible]	[illegible]	273	45	268	
			118.367											

Leak Rate
Init 0 ft³/min
Port Change .012 ft³/min
Post 0 ft³/min

Dioxin #3

QUALITY ASSURANCE FORM

PARTICULATE SAMPLING DATA

EPA REFERENCE METHOD 5/8/17

PAGE 1 OF

Q.A.F.: S-042
REVISION: FOUR
ORIGINATOR: WERDEN
APPROVED: [initials]
EFFECTIVE DATE: 3/23/82

TEST ID

PROJECT NO. 51 262 01
CLIENT Vertac
PLANT
UNIT incinerator
LOCATION Jacksonville
CONDITION Waste
DATE 10/11/90
TEST RUN ID Dioxin #3
OPERATORS Durant / Greer

EQUIPMENT ID

CONTROL UNIT #2
SAMPLE UNIT
D.T.I./M-M
NOZZLE .310
PROBE Glass Lined
PITOT TUBE
BAROMETER
PROBE SPECIFICATIONS
LINER MATERIAL Glass
EFFECTIVE LENGTH 5'
HEATER TEMP., °F 250°F
FILTER ID #10 .3060 Gms
HEATER TEMP., °F

LEAK-TEST DATA

INITIAL RATE
PITOT (-)
PITOT (+)
NOZZLE (-)
ORIFICE (+)
FINAL RATE
PITOT (-)
PITOT (+)
NOZZLE (-)
ORIFICE (+)

SAMPLE RATE DATA

CP .84
Δ HA
TM, °F
%H2O 41.9
PB, IN. HG
PSG, IN. H2O
TS, °F
DN, IN.

STACK DIMENSIONS

42" Round

STACK PRESSURE DATA

PB, IN. HG
PSG, IN. H2O

TS, °F

TM, °F

88% ISO

Particulate .3158 G
.3060 T
.0098 N

PXP ISO DATA

NO OF PTS 24
NET TIME 192
PITOT CP .84
NOZZLE ID .310
Y-FACTOR 1.000
BAROMETER
STATIC -.2" H₂O
% CO2 4.90
% O2 8.1
G H2O 1726
VM ZERO 116.287
VM END

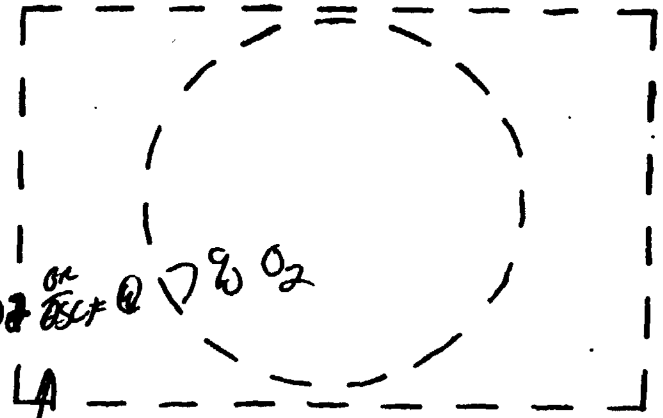
MOISTURE DATA

	GROSS	TARE	NET
1	1200ml	DRY	1700
2	107	100 m	7
3	100	100 ml	0
4	∅	DRY	0
T	504	485.8	19

w/o insert

PARTICULATE CATCH

PARTIAL, MG
TOTAL, MG .0098 Gms 163



.002 GR/DSCF @ 7% O2

LA

SAMPLE POINT LOCATION

Loading .001 GR/DSCF   Emission .14 lb/hr

Page 1

Vestec 10/11/90

QAF S-251
Revision:
Effective Date:

CHAIN OF CUSTODY RECORD
YORK RESEARCH CONSULTANTS

Project No: SL 262 01
Project/Client: Vestec
Samples taken by: JMD + Todd Preece

Sample ID	Date/Time	Type	# Cont	Sample Location/ Description	Analysis: 2378 TCDD					Remarks
67464	10/11/90	Stack	MM 23	Front/Back Halves, Nozzle, Impinger wash, Resin, Condenser						washed w/ methanol-MeCl2 then toluene
67465	10/11/90	Stack	M23	Probe wash + Filter						washed w/ methanol-MeCl2 then toluene

Relinquished by: (signature)	Date/Time:	Rec'd by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)
[signature]	10/12/90 12:00				

Relinquished by: (signature)	Date/Time:	Rec'd by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)

000134

DIOXIN/FURAN SUMMARY FORM

SAMPLE ID: 67465

MATRIX: (FEED,FILTER,ASH,SOIL,SLUDGE,WATER) SEMI-LIQUID

LAB SAMPLE ID:	1325	LAB FILE ID:	Y90B 2354
SAMPLE WT/VOL: NA	1.00	DATE COLLECTED:	10/1
INSTRUMENT ID:	FINN#1	DATE RECEIVED:	10/3
GC COLUMN:	DB5	DATE EXTRACTED:	10/10
WATER PREP: (SF/CE)	NA	EXTRACT PREP: (RV/KD)	RV
DATE ANALYZED:	10/29	TIME ANALYZED:	0.19
EXTRACT VOLUME: (uL)	100 uL	INJECTION VOLUME: (uL)	2.00
TOTAL AMOUNT UNITS:	ng	CONC. UNITS:	NA

INTERNAL STANDARD RECOVERY DATA

AREA IS1: 66.4	50	IS1 RECOVERY: (%)	39.9%
AREA IS2: 24.70	100	IS2 RECOVERY: (%)	41.1%
AREA RS: 154 QUANT IS1:	50	QUANT IS2: 100	

001165

POLYCHLORINATED DIBENZODIOXINS				POLYCHLORINATED DIBENZOFURANS			
ANALYTE	AREA	RF	VALUE	ANALYTE	AREA	RF	VALUE
INTERNAL STANDARD 1 QUANTITATED							
2378-TCDD		1.13	0.00	2378-TCDF		1.57	0.00
TOTAL OTHER TCDD		1.13	0.00	TOTAL OTHER TCDF		1.57	0.00
12378-PeCDD		0.80	0.00	12378-PeCDF		0.94	0.00
TOTAL OTHER PeCDD		0.80	0.00	23478-PeCDF		0.94	0.00
				TOTAL OTHER PeCDF		0.94	0.00
123478-HxCDD		0.53	0.00	123478-HxCDF		0.77	0.00
123678-HxCDD		0.53	0.00	123678-HxCDF		0.77	0.00
123789-HxCDD		0.53	0.00	123789-HxCDF		0.77	0.00
TOTAL OTHER HxCDD		0.53	0.00	234678-HxCDF		0.77	0.00
				TOTAL OTHER HxCDF		0.77	0.00
INTERNAL STANDARD 2 QUANTITATED							
1234678-HpCDD		1.86	0.00	1234678-HpCDF		2.77	0.00
TOTAL OTHER HpCDD		1.86	0.00	1234789-HpCDF		2.77	0.00
				TOTAL OTHER HpCDF		2.77	0.00
TOTAL OCDD		1.32	0.00	TOTAL OCDF		1.92	0.00

0.0 = NOT DETECTED AT EDL (SEE NEXT PAGE)

VALUE = AREA SAMPLE * CONC IS1(2)/AREA IS1(2) * RF

DIOXIN/FURAN SUMMARY FORM

TOXICITY EQUIVALENT QUANTITY

SAMPLE ID: 67465 LAB ID: 1325

DATA FILE ID: Y90B 2354

	RF	EDL CODE	CALCULATION AREA	CONC	VALUE	TEF
2378-TCDD	1.13	I	0.4	0.340	0	1.0
I* OTHER TCDD	1.13	I	2.9	2.468		0.01
TOTAL OTHER TCDD	1.13	N	0.4	0.340	0	0.01
12378-PeCDD	0.8	N	1	0.602	0	0.5
I* OTHER PeCDD	0.8			0.000	0	0.005
TOTAL OTHER PeCDD	0.8	N	1	0.602	0	0.005
123478-HxCDD	0.53	I	1.0	0.399	0	0.040
123678-HxCDD	0.53	N	0.1	0.040	0	0.040
123789-HxCDD	0.53	N	0.1	0.040	0	0.040
TOTAL OTHER HxCDD	0.53	N	0.1	0.040	0	0.0004
1234678-HpCDD	1.86	N	0.1	0.140	0	0.0010
TOTAL OTHER HpCDD	1.86	N	0.1	0.140	0	0.0004
2378-TCDF	1.57	N	0.1	0.118	0.0	0.1
I* OTHER TCDF	1.57			0.000		0.001
TOTAL OTHER TCDF	1.57	N	1	1.182	0.000	0.001
12378-PeCDF	0.94	N	0.1	0.071	0.0	0.1
23478-PeCDF	0.94	N	0.1	0.071	0.0	0.1
I* OTHER PeCDF	0.94		0.1	0.071		0.0004
TOTAL OTHER PeCDF	0.94	N	0.1	0.071	0.0000	0.0004
123478-HxCDF	0.77	N	0.1	0.058	0.00	0.0100
123678-HxCDF	0.77	I	0.1	0.058	0.00	0.0100
123789-HxCDF	0.77	N	0.1	0.058	0.00	0.0100
234678-HxCDF	0.77	N	0.1	0.058	0.00	0.0100
TOTAL OTHER HxCDF	0.77	N	0.1	0.058	0.00	0.0001
1234678-HpCDF	2.77	N	0.1	0.209	0.000	0.0010
1234789-HpCDF	2.77	N	0.1	0.209	0.000	0.0010
TOTAL OTHER HpCDF	2.77	N	0.1	0.209	0.000	0.0001

CONC = EDL AREA * CONC IS1(2)/IS1(2) AREA * RF

TEQ = CONC (or VALUE) * TEF

EDL COLUMN: * I = INTERFERANT; N = NOISE;

YORK RESEARCH CONSULTANTS

0001166

entitation Report File: Y90B2354

ta: Y90B2354.TI
29/90 4:40:00
[illegible]

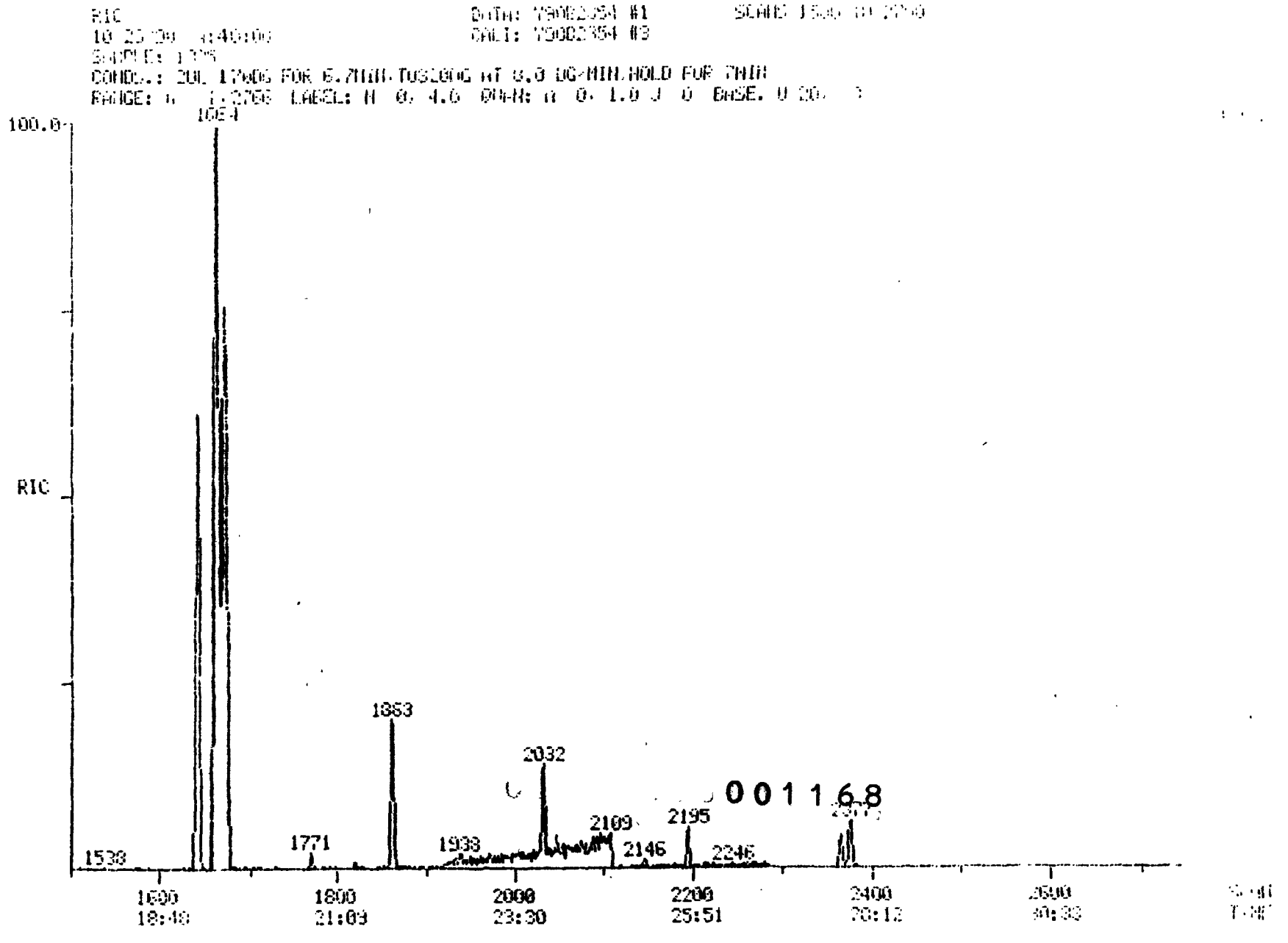
[illegible]

ep. Fac. From Library Entry

	Name
1	*RS1* 13C 1,2,3,4-TCDD (DF#1)
2	*IS1* 13C 2,3,7,8-TCDD (DF#2)
3	*IS2* 13C 1,2,3,4,6,7,8,9-OCDD (DF#3)
4	*SS1* 37Cl 2,3,7,8-TCDD (DF#4)
5	2,3,7,8-TCDF (DF#5)
6	2,3,7,8-TCDD (DF#6)
7	1,2,3,7,8-PECDF (DF#7)
8	2,3,4,7,8-PECDF (DF#8)
9	1,2,3,7,8-PECDD (DF#9)
10	1,2,3,4,7,8-HXCDF (DF#10)
11	1,2,3,6,7,8-HXCDF (DF#11)
12	1,2,3,7,8,9-HXCDF (DF#12)
13	2,3,4,6,7,8-HXCDF (DF#13)
14	1,2,3,4,7,8-HXCDD (DF#14)
15	1,2,3,6,7,8-HXCDD (DF#15)
16	1,2,3,7,8,9-HXCDD (DF#16)
17	1,2,3,4,6,7,8-HPCDF (DF#17)
18	1,2,3,4,7,8,9-HPCDF (DF#18)
19	1,2,3,4,6,7,8-HPCDD (DF#19)
20	1,2,3,4,6,7,8,9-OCDF (DF#20)
21	1,2,3,4,6,7,8,9-OCDD (DF#21)
22	13C 2,3,7,8-TCDD (DF#22)
23	13C 1,2,3,4,6,7,8,9-OCDD (DF#23)

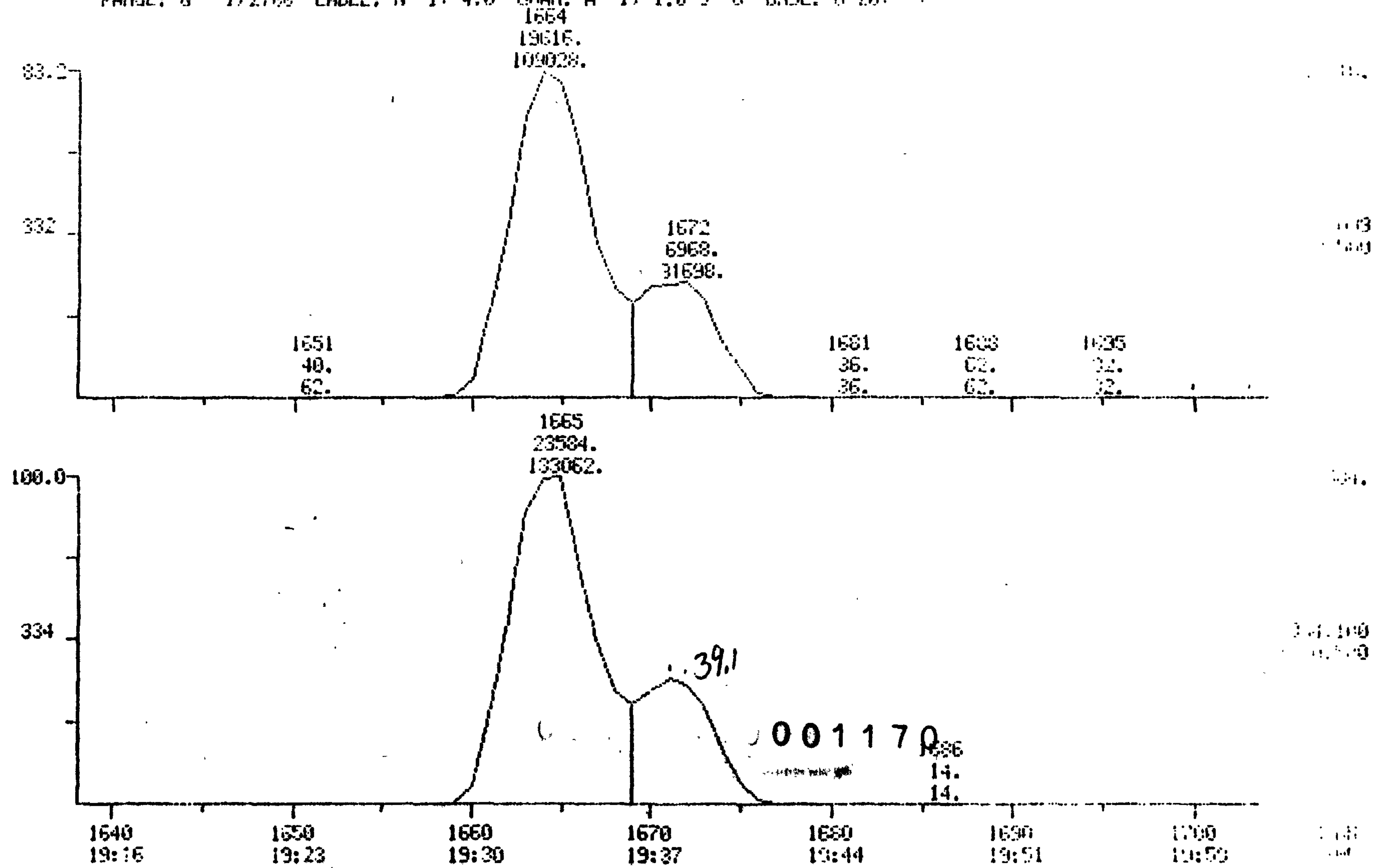
	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	334	1665	19:34	1	1.000	A BV	133062.	2000.000	PG/UL	30.29
2	334	1671	19:38	2	1.000	A VB	88664	2000.000	PG/UL	30.29
3	472	2366	27:48	3	1.000	A BB	3682.	2000.000	PG/UL	33.29
4	NOT FOUND									
5	NOT FOUND									
6	NOT FOUND									
7	NOT FOUND									
8	NOT FOUND									
9	NOT FOUND									
10	NOT FOUND									
11	NOT FOUND									
12	NOT FOUND									
13	NOT FOUND									
14	NOT FOUND									
15	NOT FOUND									
16	NOT FOUND									
17	NOT FOUND									
18	NOT FOUND									
19	NOT FOUND									
20	NOT FOUND									

0011167


RIC
100.0
RIC
1604
1538
1771
1853
1938
2032
2109
2146
2195
2246
001168
1600
18:48
1800
21:09
2000
23:30
2200
25:51
2400
28:12

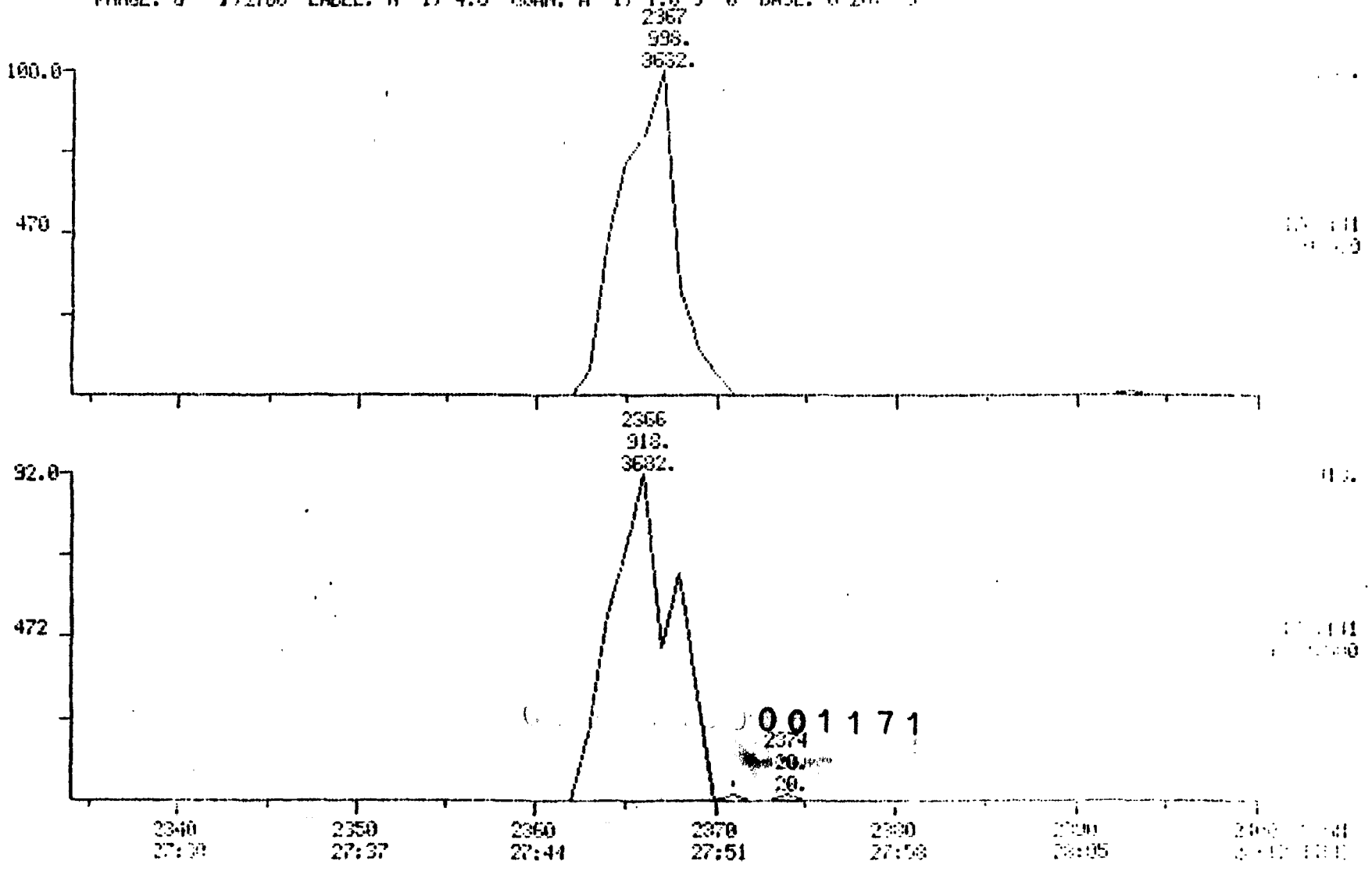
	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	NOT FOUND									
2	334	1e71	19:38	1	1.004	A VB	36664.	312.633	PG/UL	4.73
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

MASS CHROMATOGRAMS   DATA: Y9082354 #1671   SCANS 1630 TO 1704
10/29/90 4:40:00   CALI: Y9082354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
#151# 13C 2,3,7,8-TCDD (DF#2)
RANGE: G   1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 4



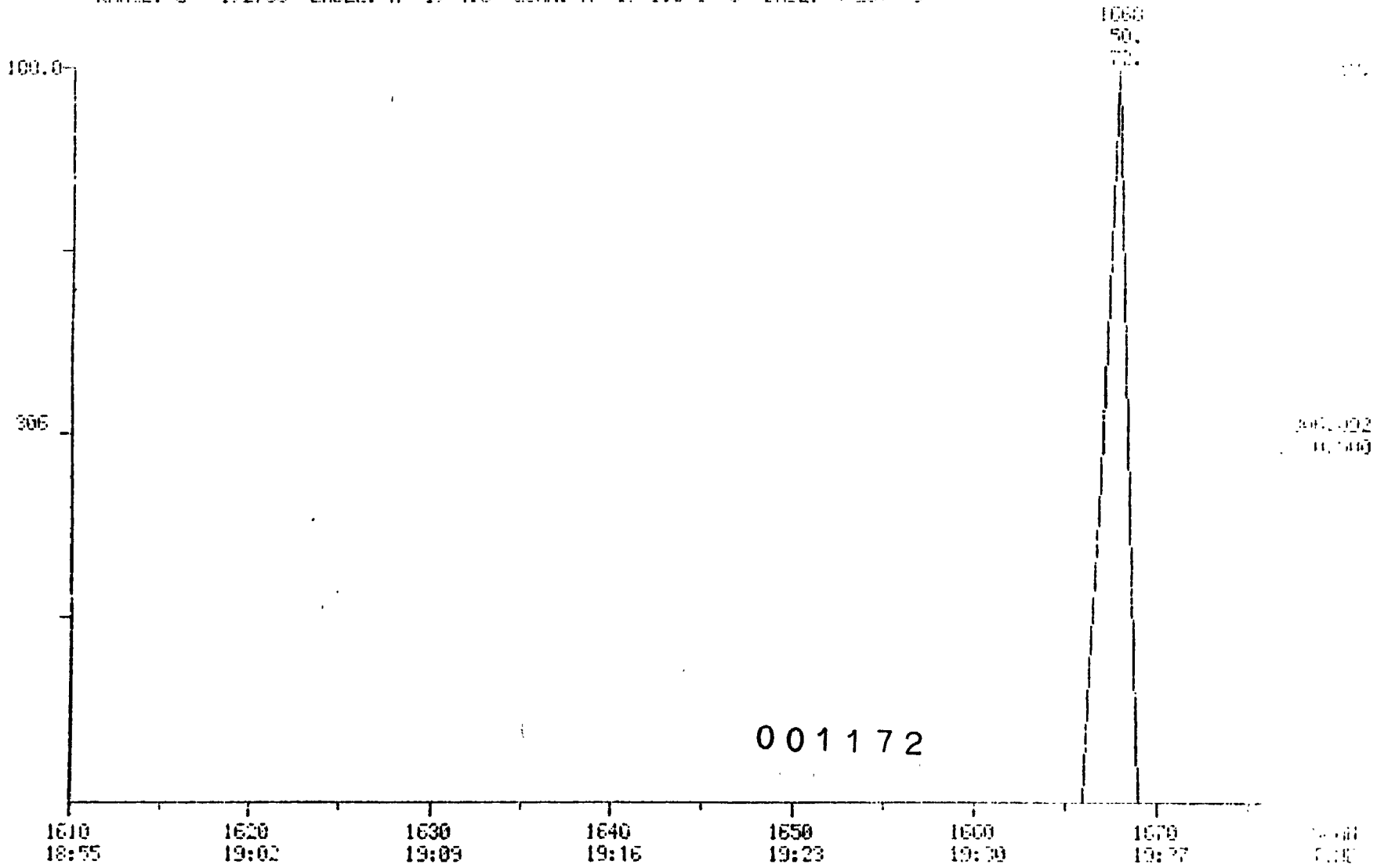
001170

MASS CHROMATOGRAMS DATA: Y9002354 #2367 SCANS 2341 TO 2400
10-20-90 4:48:00 CALI: Y9002354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG-MIN,HOLD FOR 7MIN
#1521 10C 1,2,3,4,6,7,8,9-OCDD (DF=3)
RANGE: G 1.2766 LABEL: B 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. S

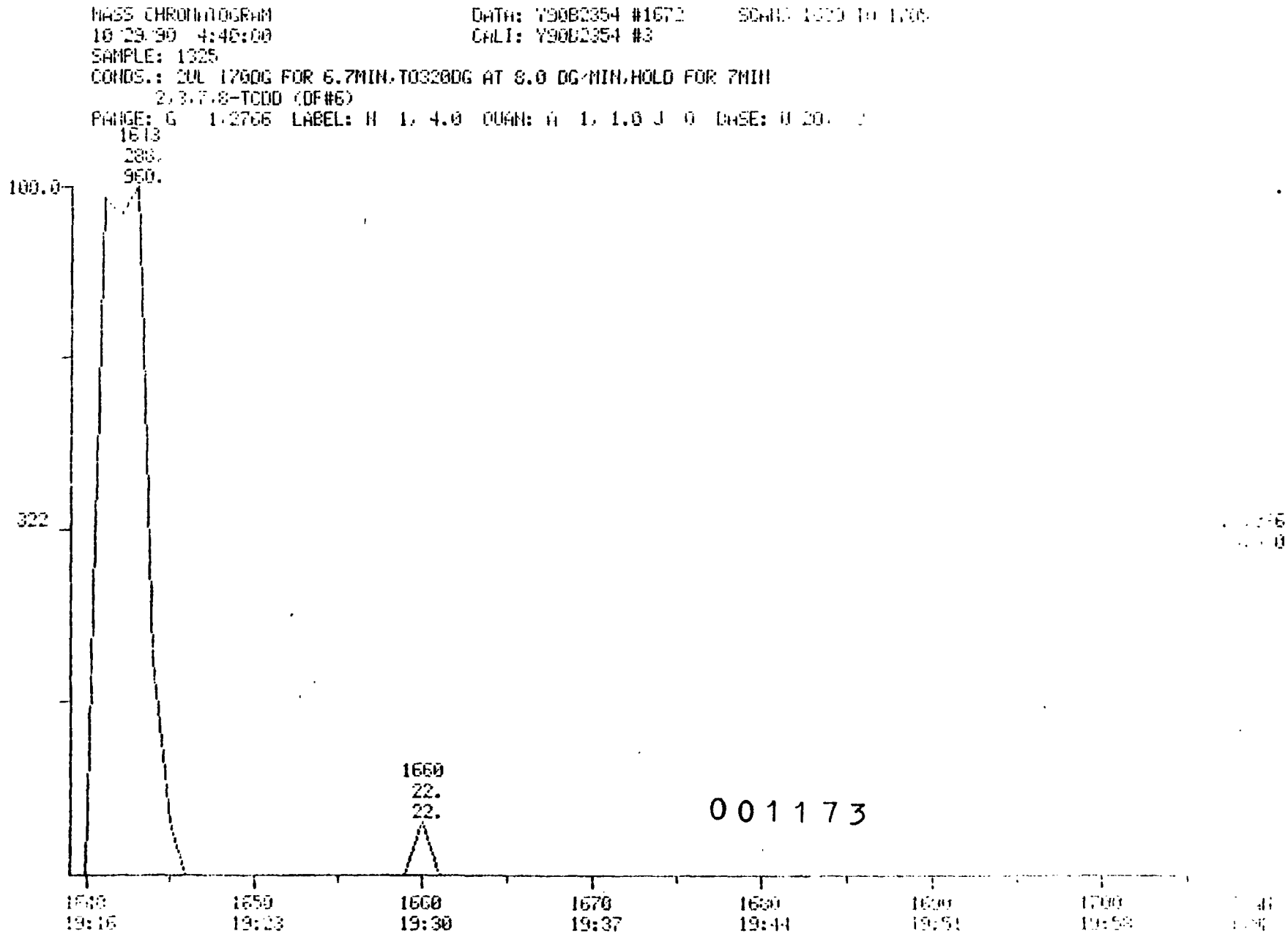


001171

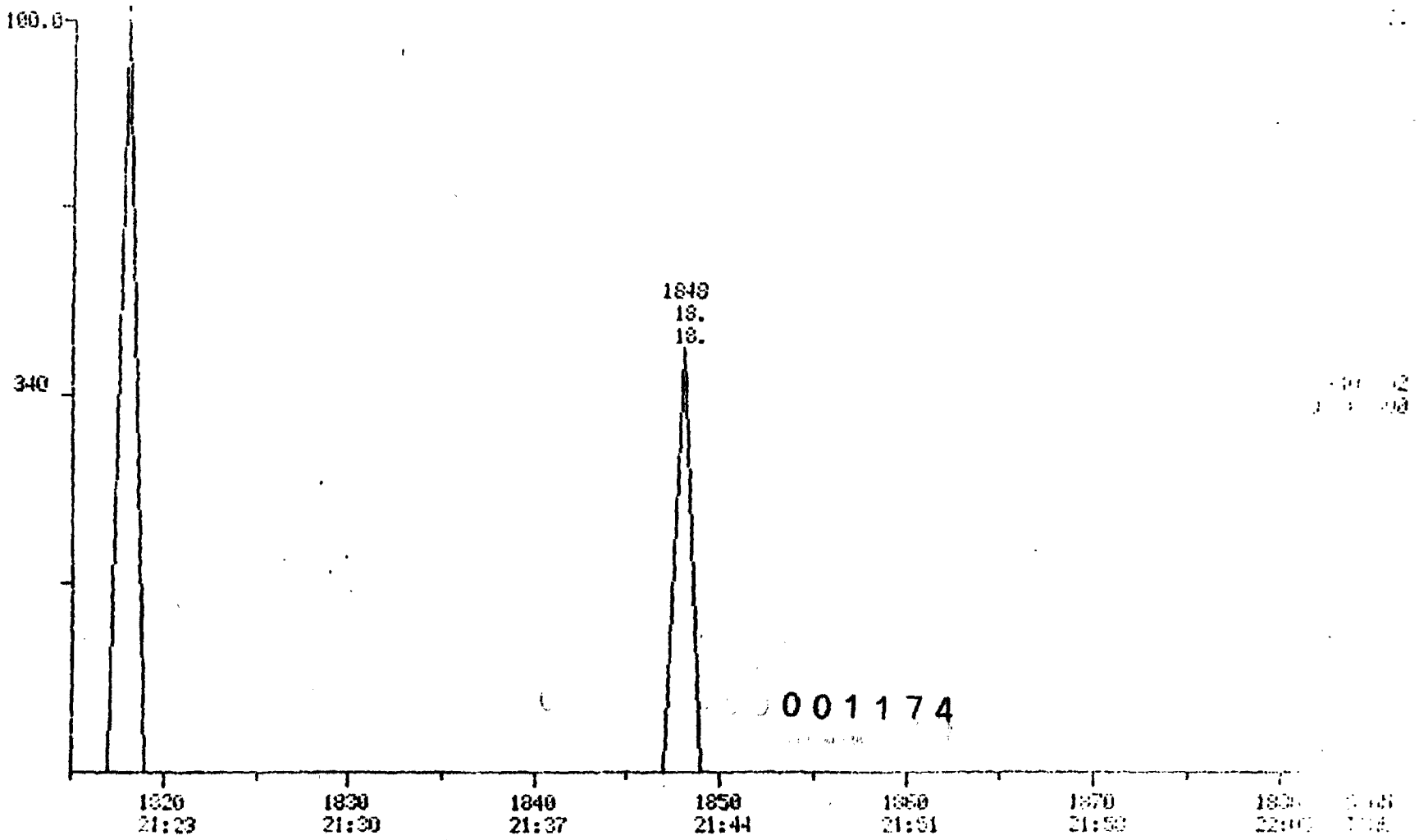
MASS CHROMATOGRAM DATA: Y90B2354 #1643 SCANS 1610 TO 1676
10/29/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 20L 170@4 FOR 6.7MIN.TO320@5 AT 8.0 DG.MIN./HOLD FOR 7MIN
2,3,7,8-TCDF (DF#5)
RANGE: 6 1.2766 LABEL: H 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: H 20. 3



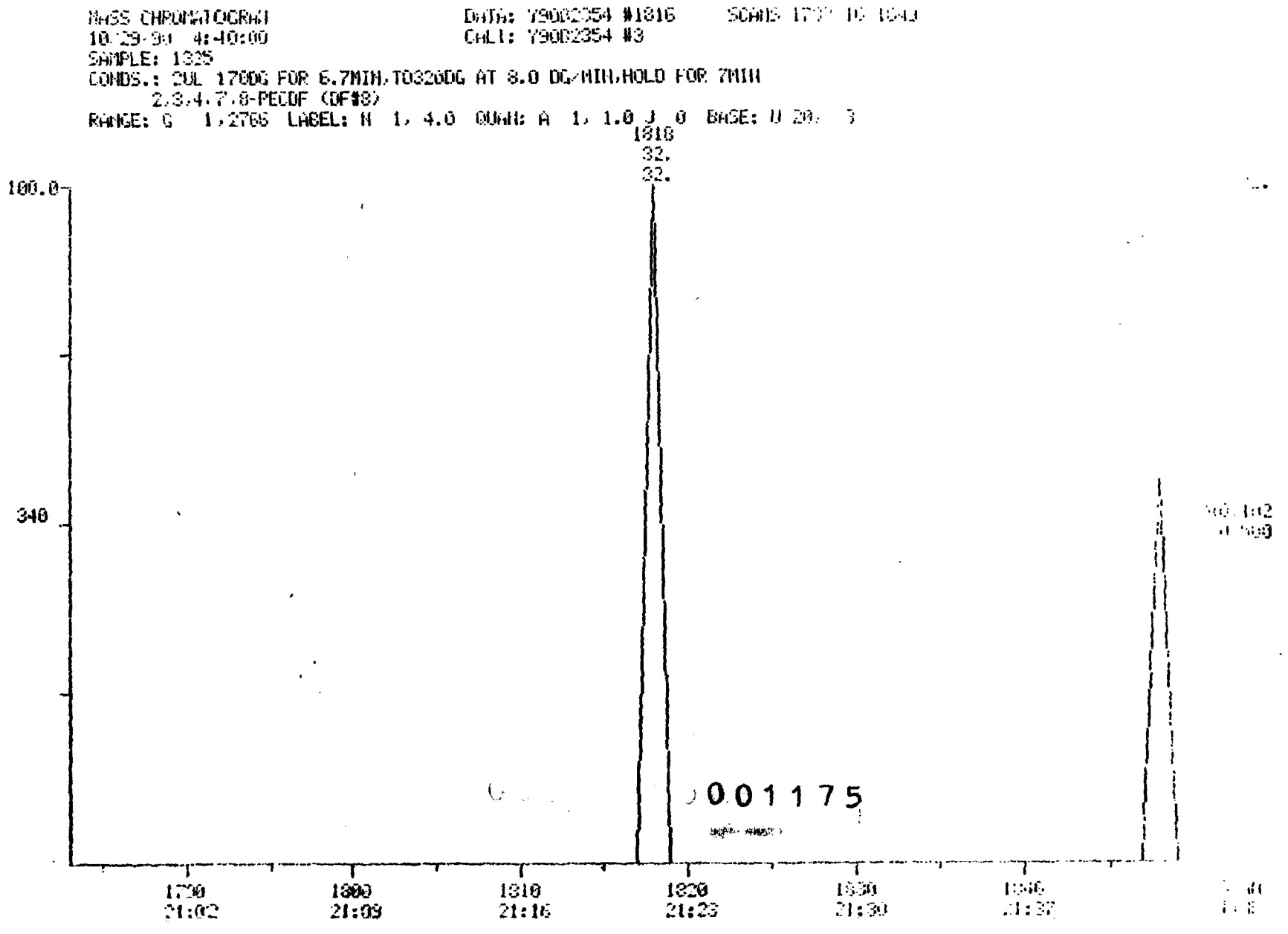
001172

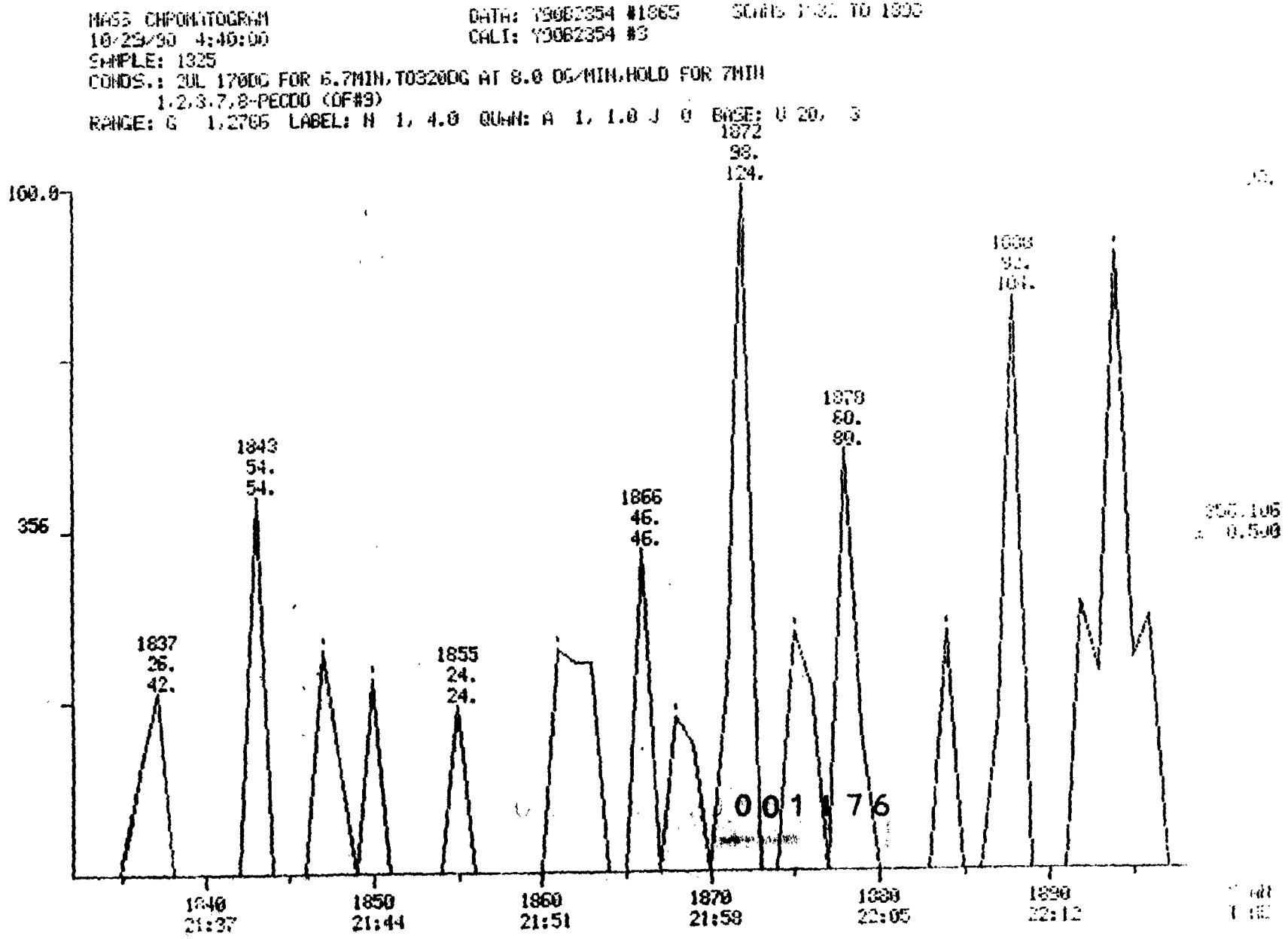

MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
DATA: Y90B2354 #1672
CALI: Y90B2354 #3
CONDS.: 20L 176DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDD (DF#6)
RANGE: G 1.2766 LABEL: M 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20.
1613
288.
960.
100.0
322
1660
22.
22.
001173
1650
19:16
1659
19:23
1660
19:30
1670
19:37
1680
19:44
1690
19:51
1700
19:58

MASS CHROMATOGRAM DATA: 930B2354 #1848 [illegible]
10/29/93 4:40:00 CALI: 930B2354 #3
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDF (DF#7)
RANGE: G 1.270E6 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: 0 20. J

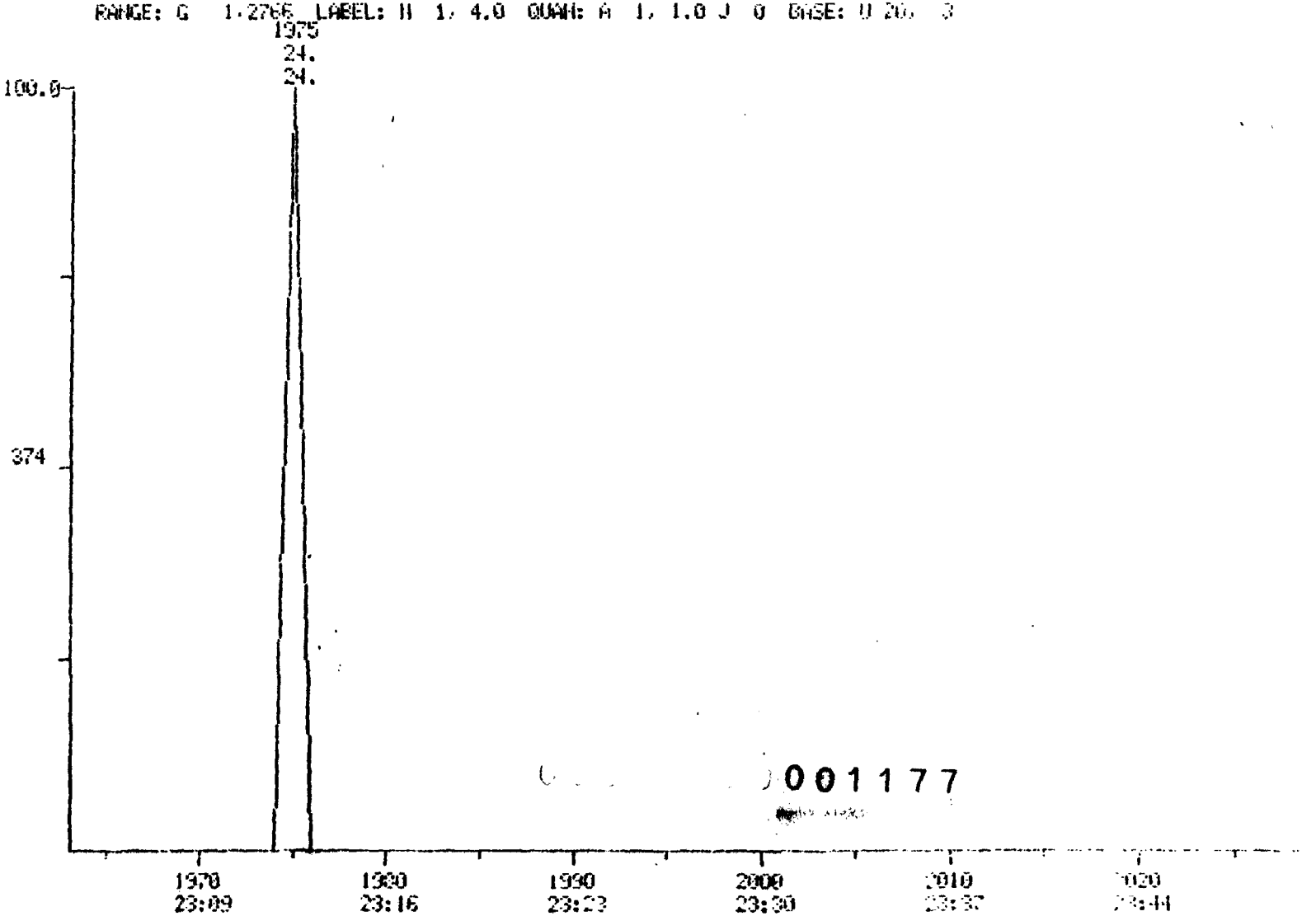


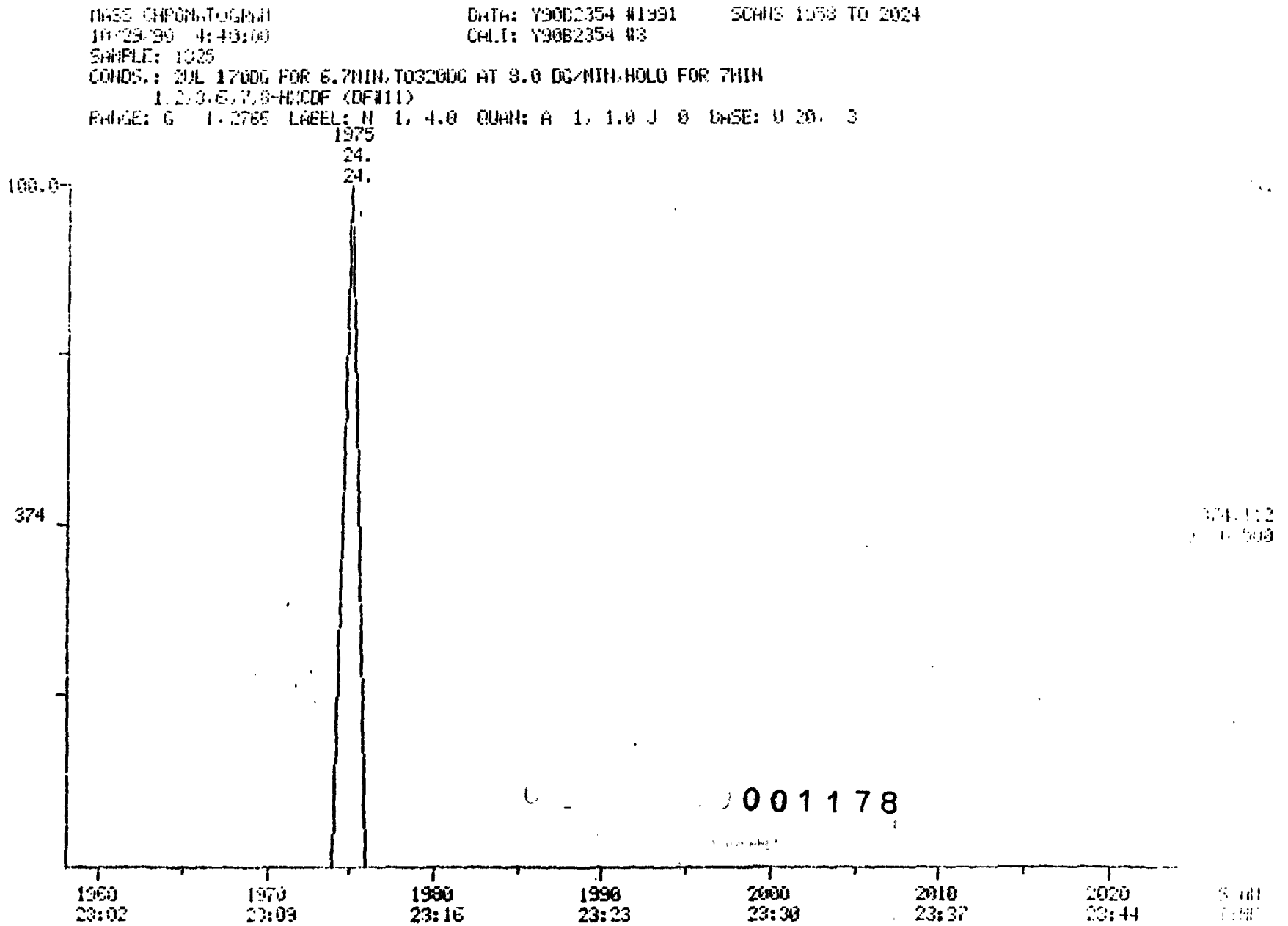
001174

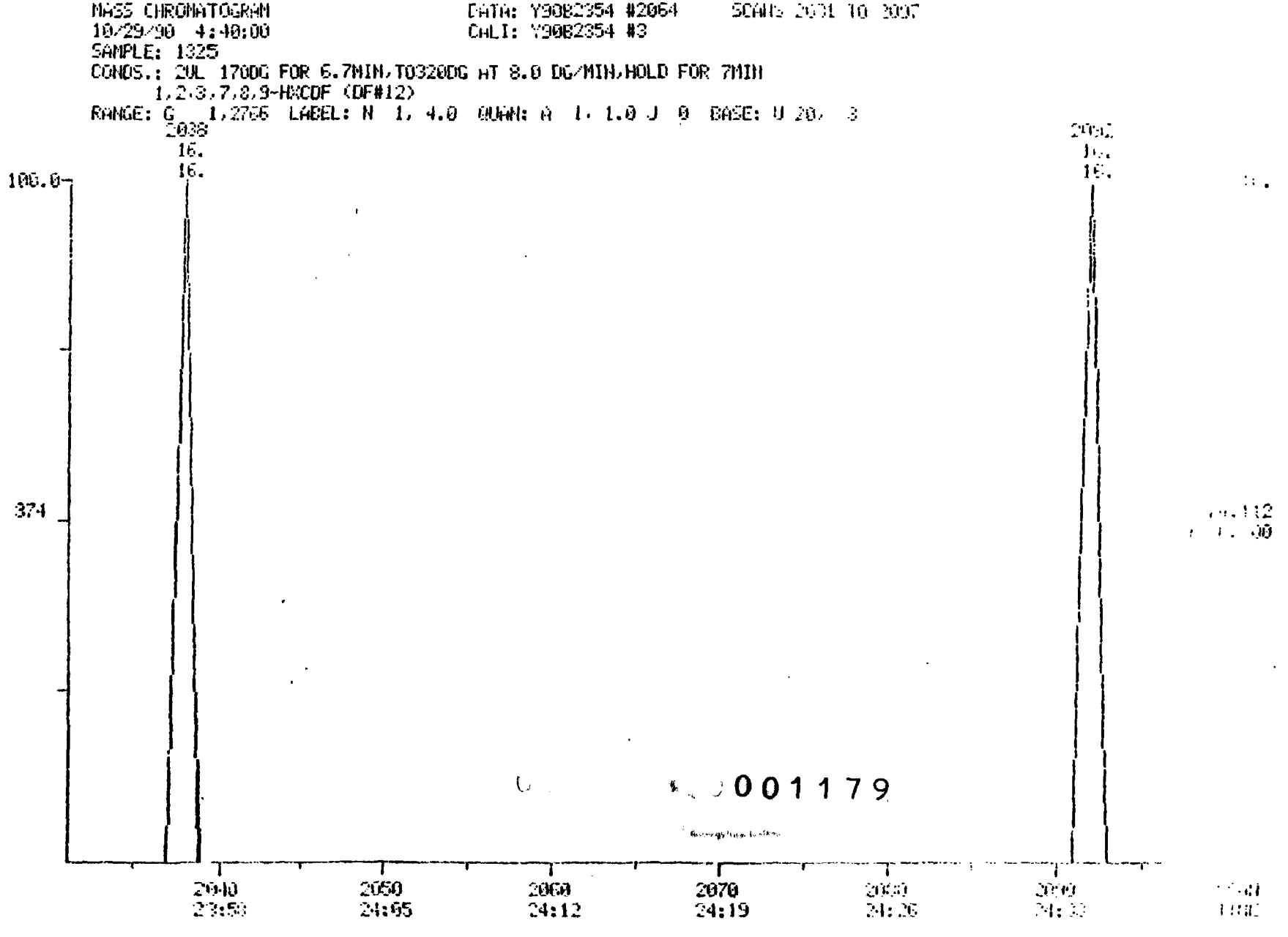

MASS CHROMATOGRAM
10/29/91 4:40:00
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,7,8-PECDF (DF#8)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
1810
32.
32.
100.0
340
001175
1730
21:02
1800
21:09
1810
21:16
1820
21:23
1830
21:30
1840
21:37


MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDD (DF#9)
RANGE: G 1.2705 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
DATA: Y9082354 #1865
CALI: Y9082354 #3
100.0
356
1837
26.
42.
1843
54.
54.
1855
24.
24.
1866
46.
46.
1872
98.
124.
1878
80.
80.
1888
92.
101.
1840
21:37
1850
21:44
1860
21:51
1870
21:58
1880
22:05
1890
22:12

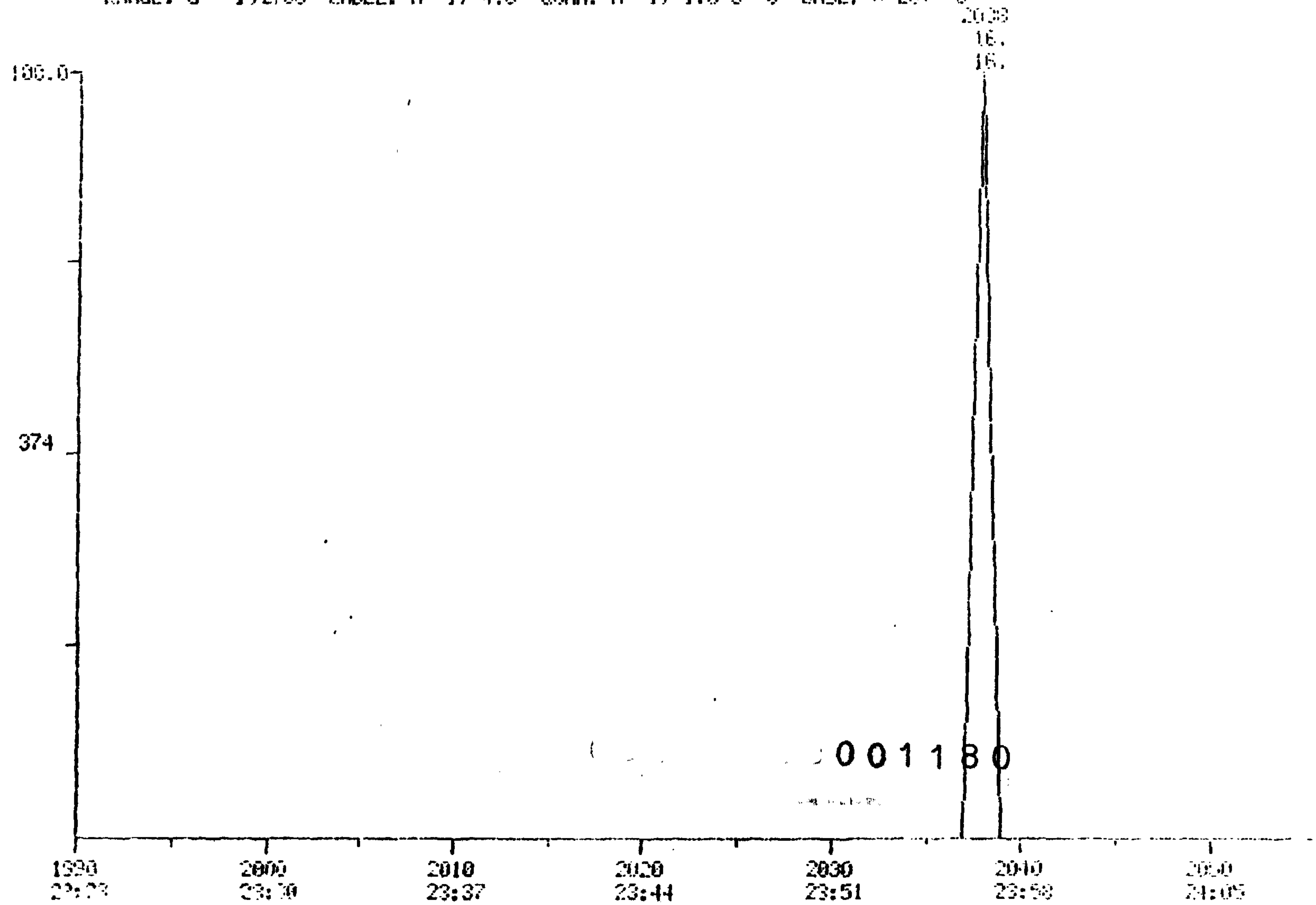
MASS CHROMATOGRAM DATA: Y3082354 #1396 SCANS ... TO 3023
10/29/90 4:40:00 CALI: Y3082354 #3
SAMPLE: 1C25
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDF (DF#10)
RANGE: G 1.2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3




MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1025
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-H2CDF (DF#11)
RANGE: G 1.2765 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3
DATA: Y90B2354 #1991
CALI: Y90B2354 #3
SCANS 1953 TO 2024
1975
24.
24.
100.0
374
001178
1960
23:02
1970
23:09
1980
23:16
1990
23:23
2000
23:30
2010
23:37
2020
23:44

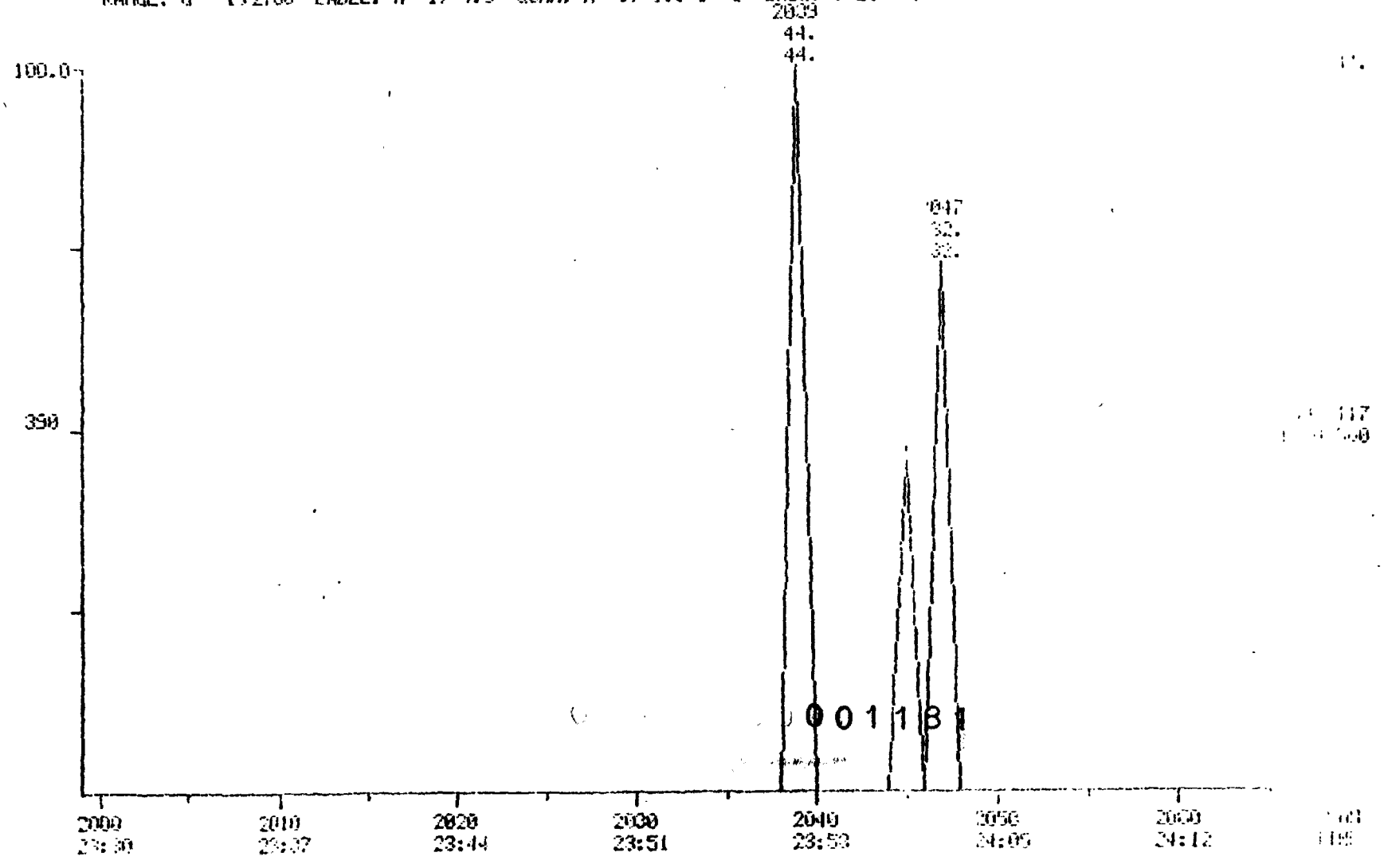

MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDF (DF#12)
DATA: Y90B2354 #2064
CHLI: Y90B2354 #3
SCANS 2031 TO 3007
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3
100.0
374
2038
16.
16.
2940
23:58
2050
24:05
2060
24:12
2070
24:19

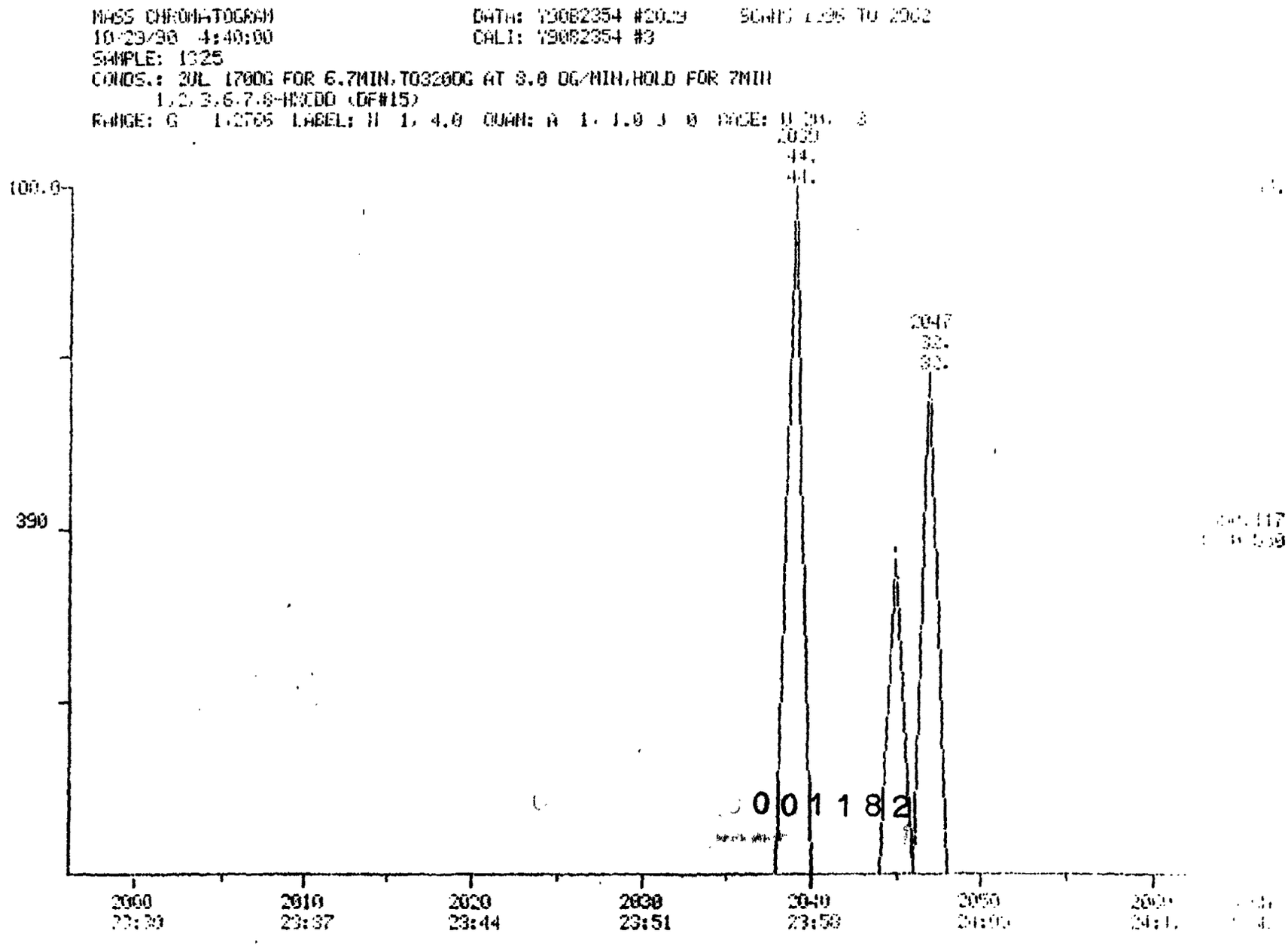
MASS CHROMATOGRAM DATA: Y90B2354 #2023 SCANS 1990 TO 2056
10/25/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,6,7,8-HxCDF (DF#13)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



001180

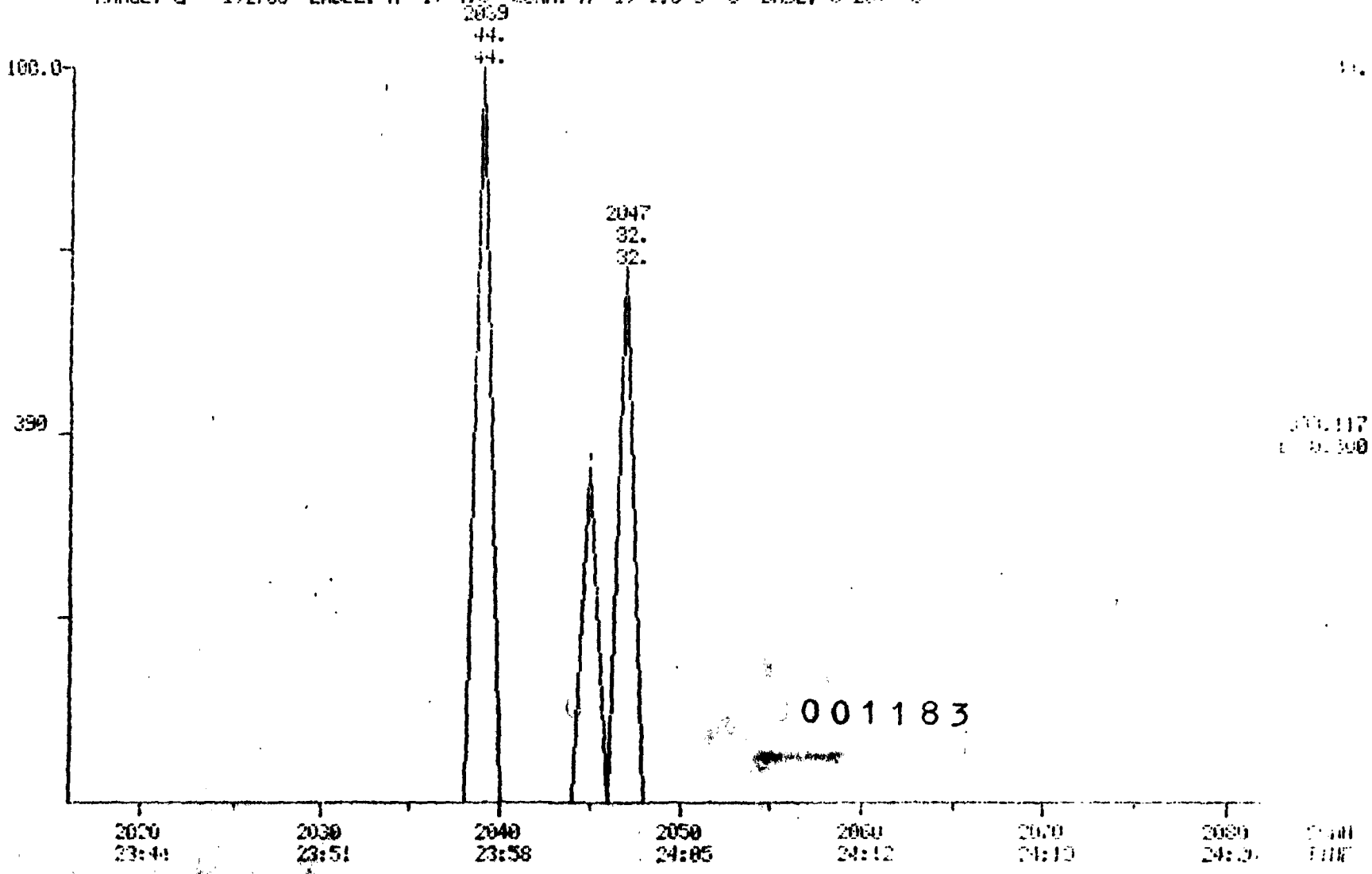
MASS CHROMATOGRAM
10/23/90 4:40:00
SAMPLE: 1325
DATA: Y9082354 #2032 SCANS 1609 TO 2065
CALI: Y9082354 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDD (DF#14)
RANGE: G 1.2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20 3




MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDD (DF#15)
RANGE: G 1.2705 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0
2039
44.
41.
2047
32.
83.
100.0
390
2000
23:30
2010
23:37
2020
23:44
2030
23:51
2040
23:59
2050

MASS CHROMATOGRAM
10/29/90 4:49:00
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDD (DF#16)
RANGE: G 1.2766 LABEL: N 1. 4.0 NORM: N 1. 1.0 J 0 BASE: 0 20. 3

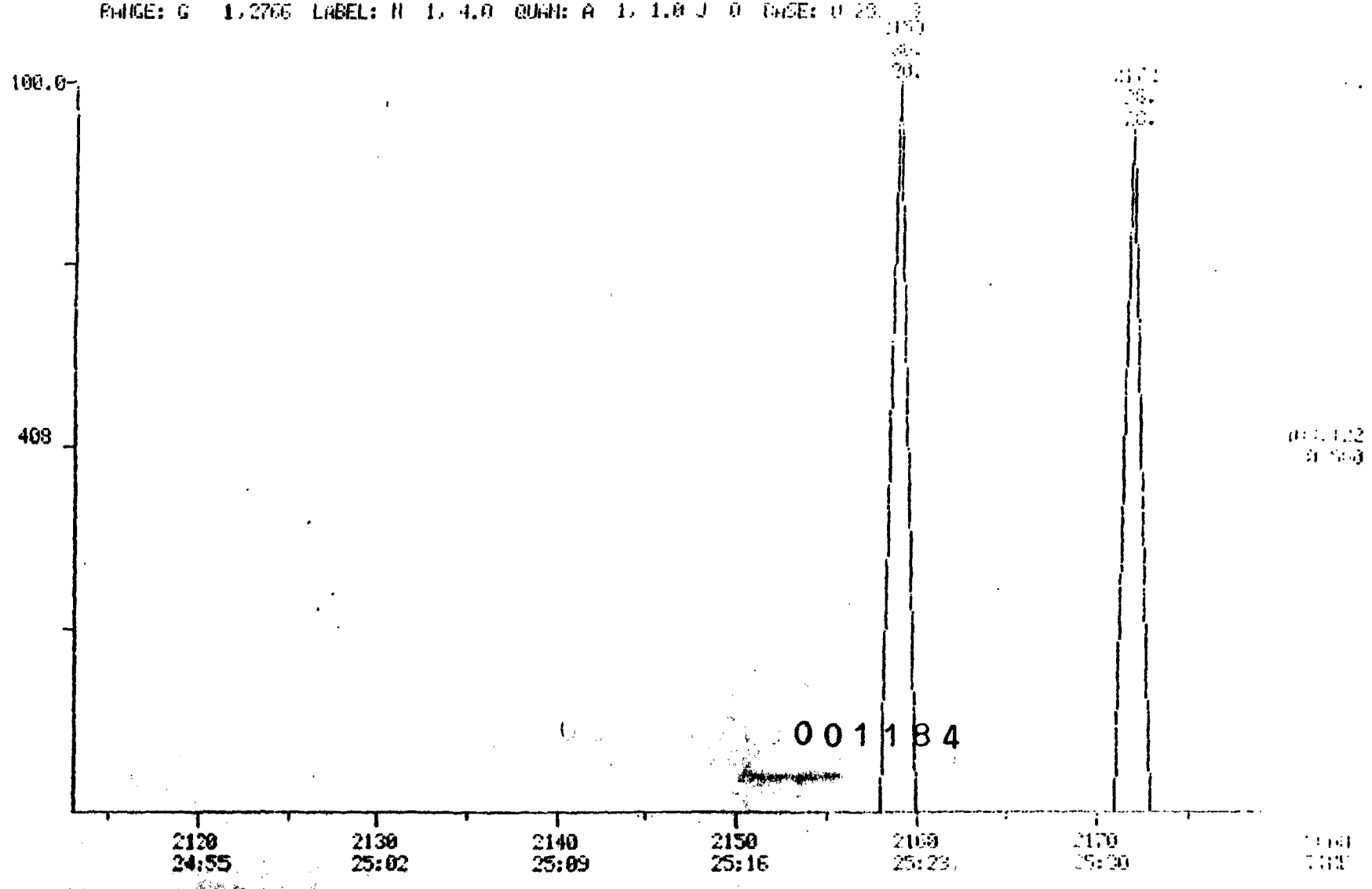
DATA: Y90B2354 #2049 SCANS 2010 TO 2082
CALI: Y90B2354 #3



001183

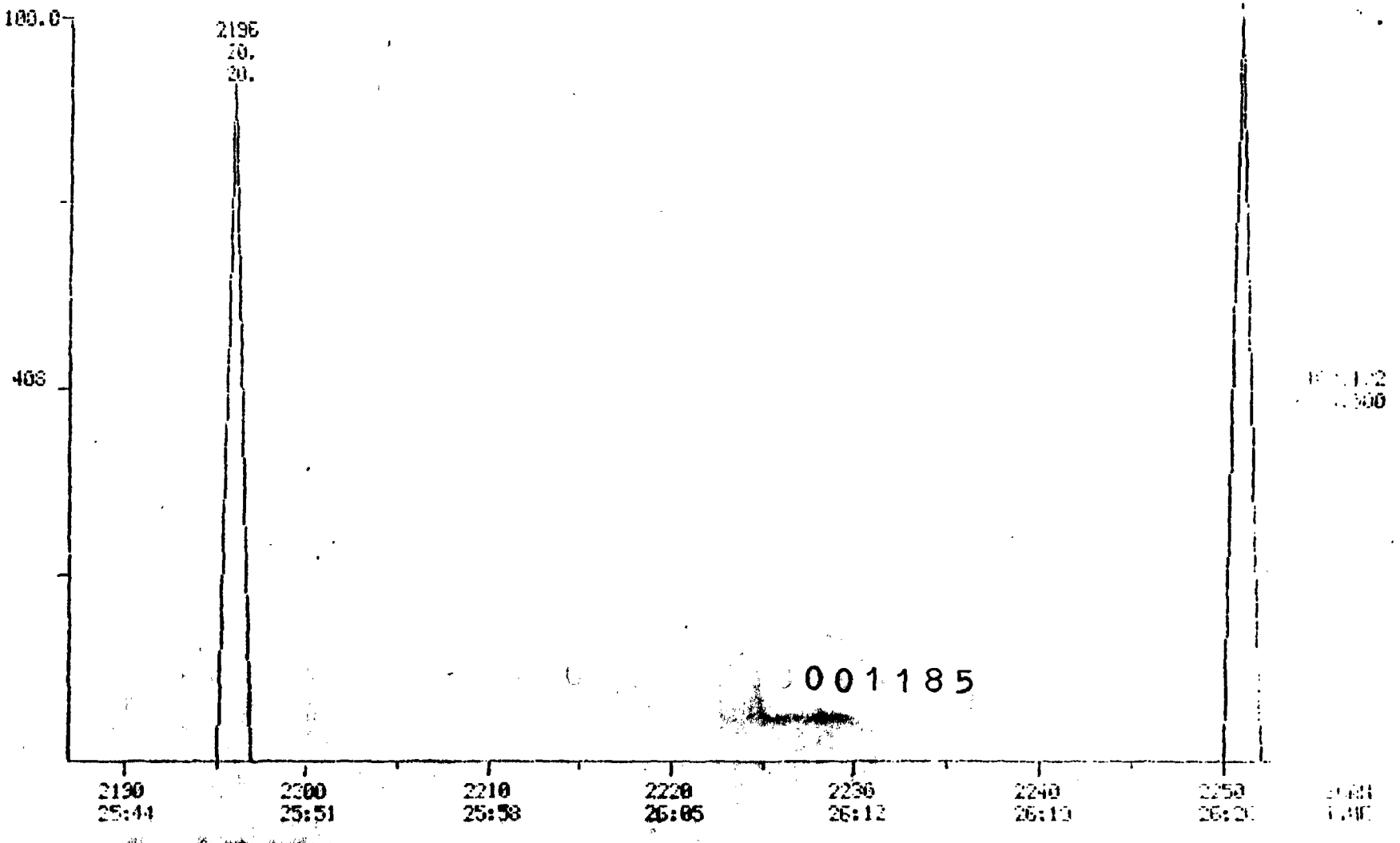
MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDF (DF#17)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 23.

DATA: Y9082354 #2146
CALI: Y9082354 #3



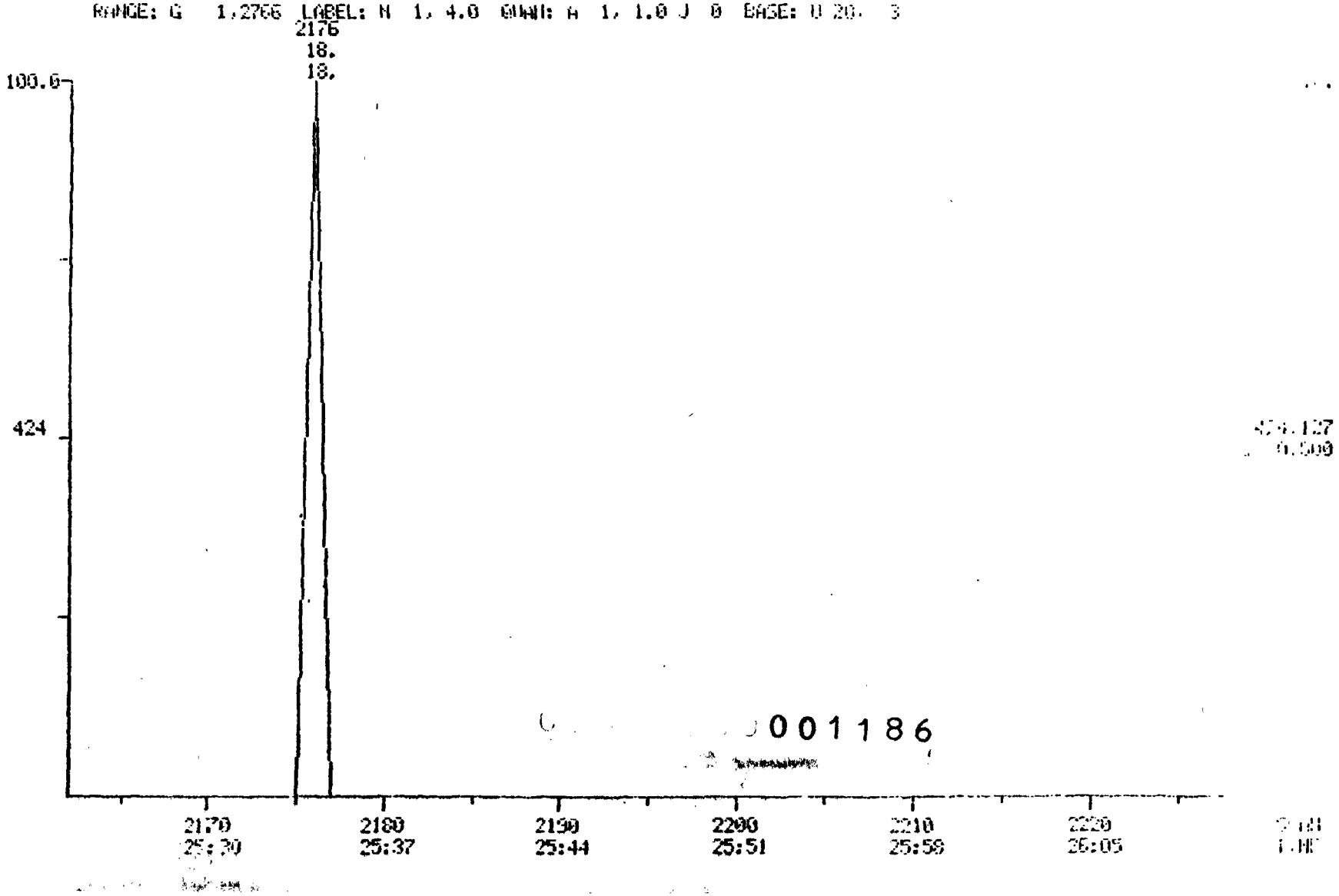
001184

MASS CHROMATOGRAM DATA: 790B2354 #2220 SCANS 2167 TO 2253
10/29/90 4:40:00 CALI: 790B2354 #3
SAMPLE: 1325
COMDS.: 20UL 1700G FOR 6.7MIN;TO3200G AT 8.0 DG/MIN;HOLD FOR 7MIN
1,2,3,4,7,8,9-HPCDF (DF#18)
RANGE: G 1.27E6 LABLL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: H 20. ,

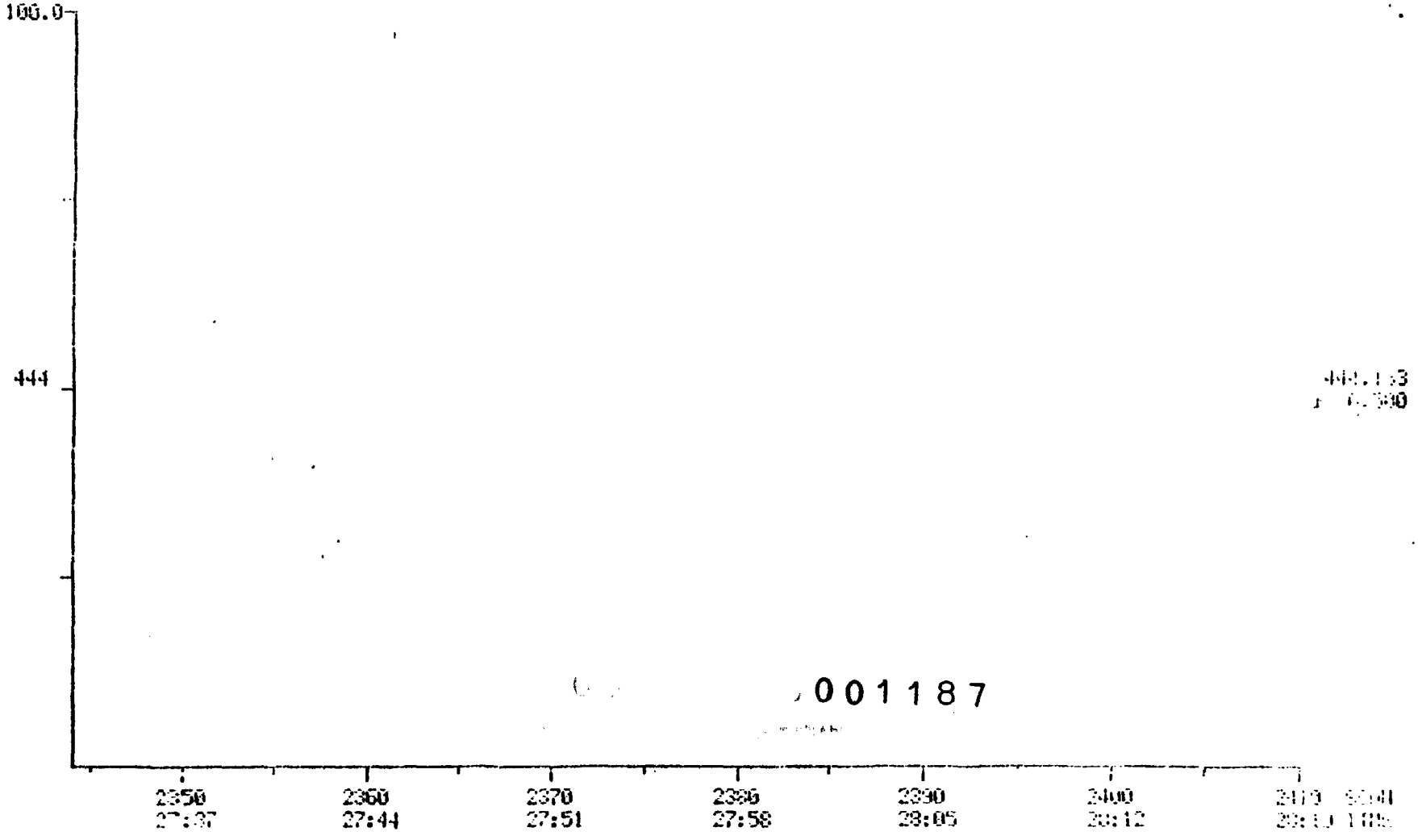


001185

MASS CHROMATOGRAM
10/23/90 4:40:00
SAMPLE: 1325
DATA: Y90B2354 #2195
CALI: Y90B2354 #3
SCANS [illegible]
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDD (DF#19)
RANGE: G 1,2766 LABEL: N 1, 4.0 GAIN: A 1, 1.0 J 0 BASE: U 20. 3

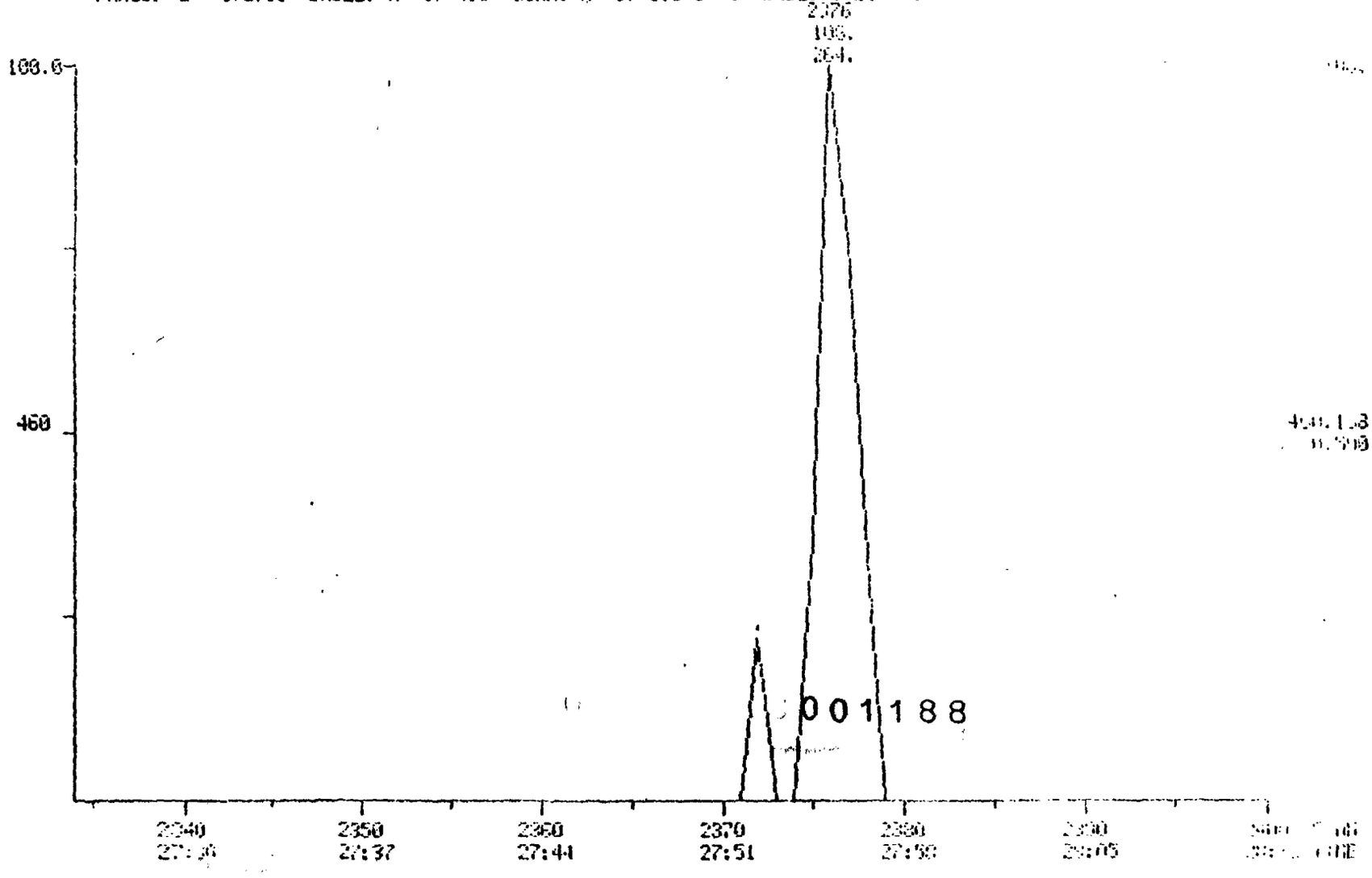


MASS CHROMATOGRAM DATA: Y90B2354 #2377 SCANS 2314 TO 2410
10/29/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDF (DF#20)
RANGE: G 1,2706 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



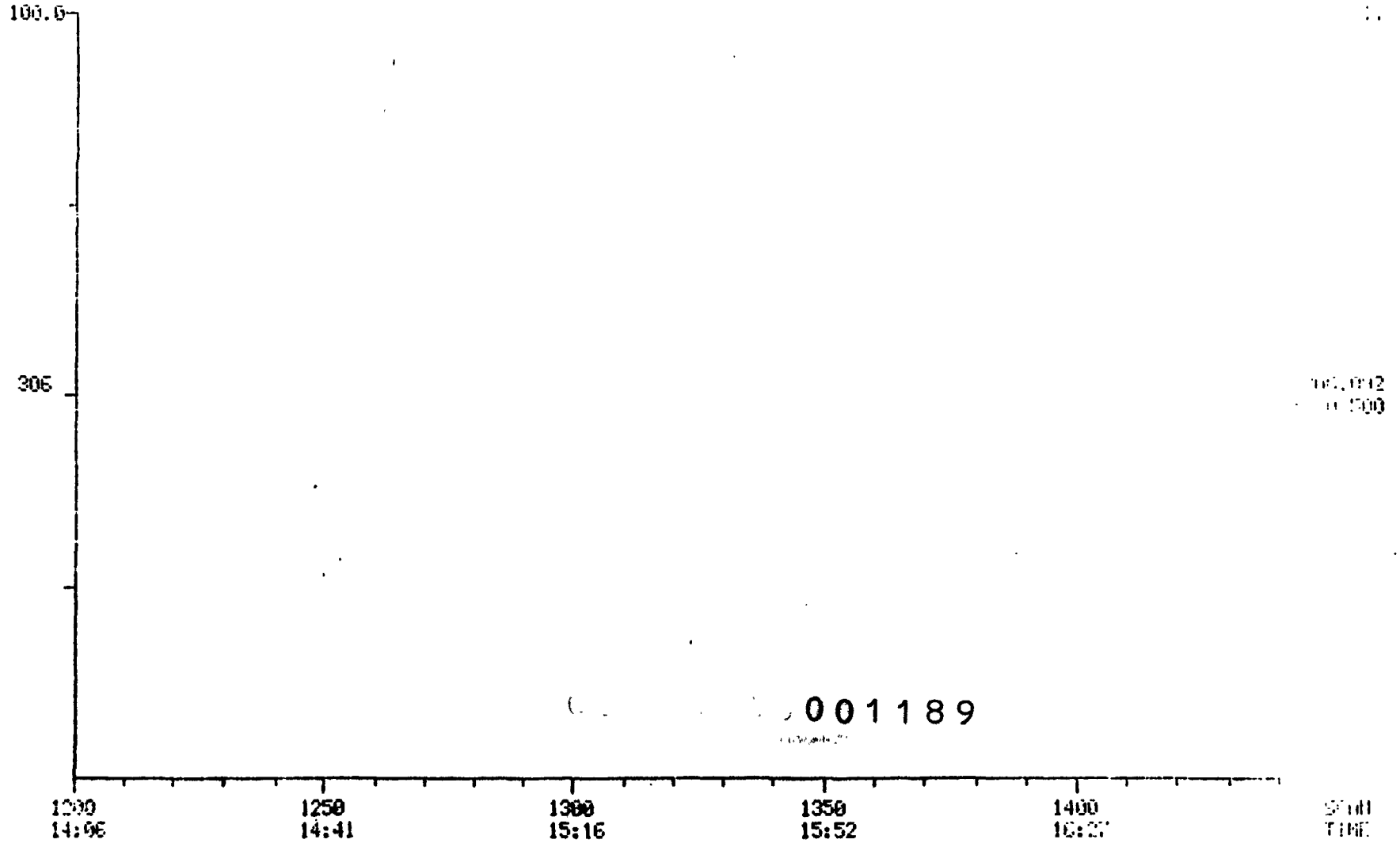
001187

MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1025
DATA: Y90B235-1 #2367
CALI: Y90B235-1 #3
CONDS.: 20L 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDD (DF#21)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: 0.20

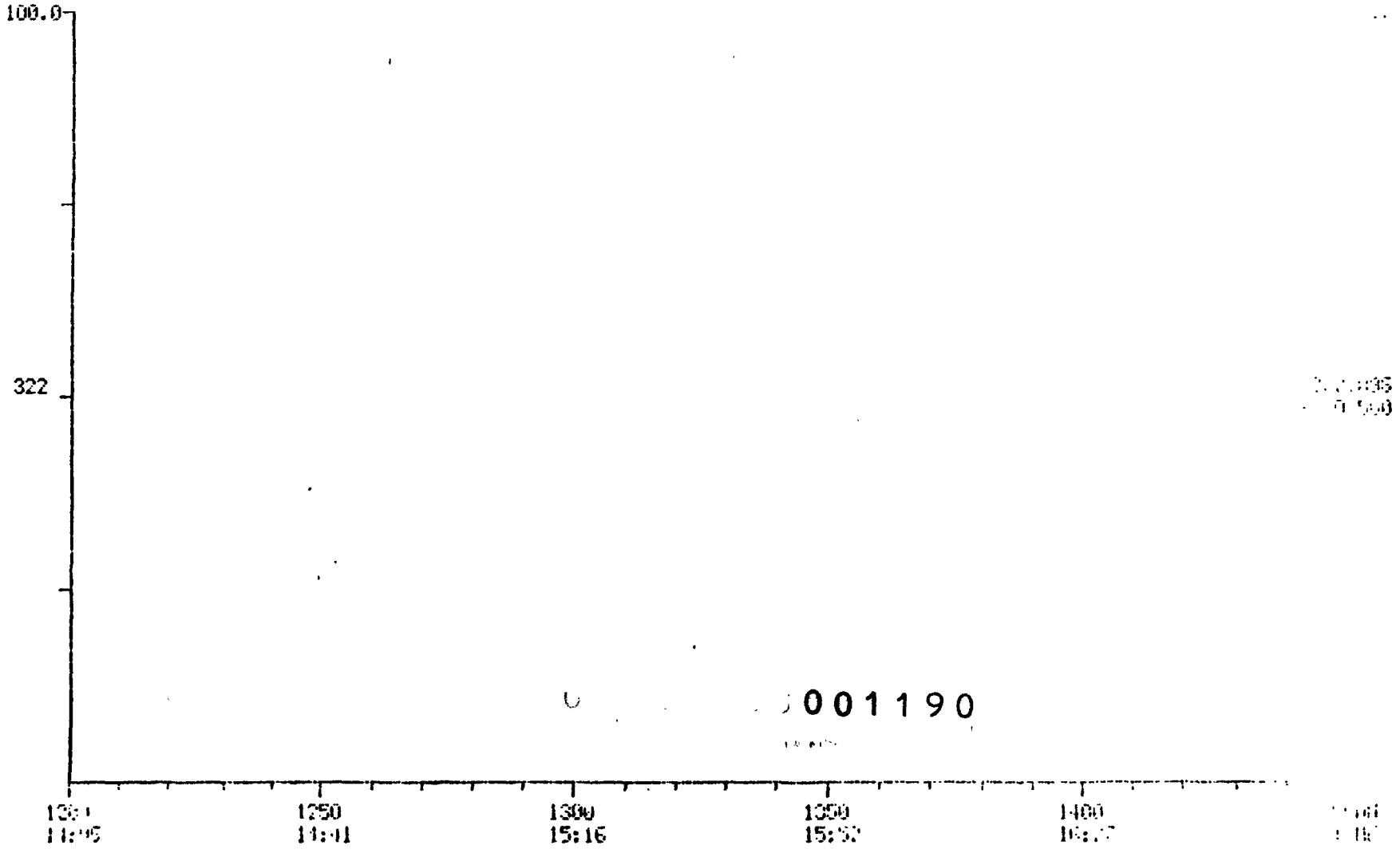


001188

MASS CHROMATOGRAM DATA: Y90B2354 #2367 SCANS 1200 TO 1440
10/29/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
COND's.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

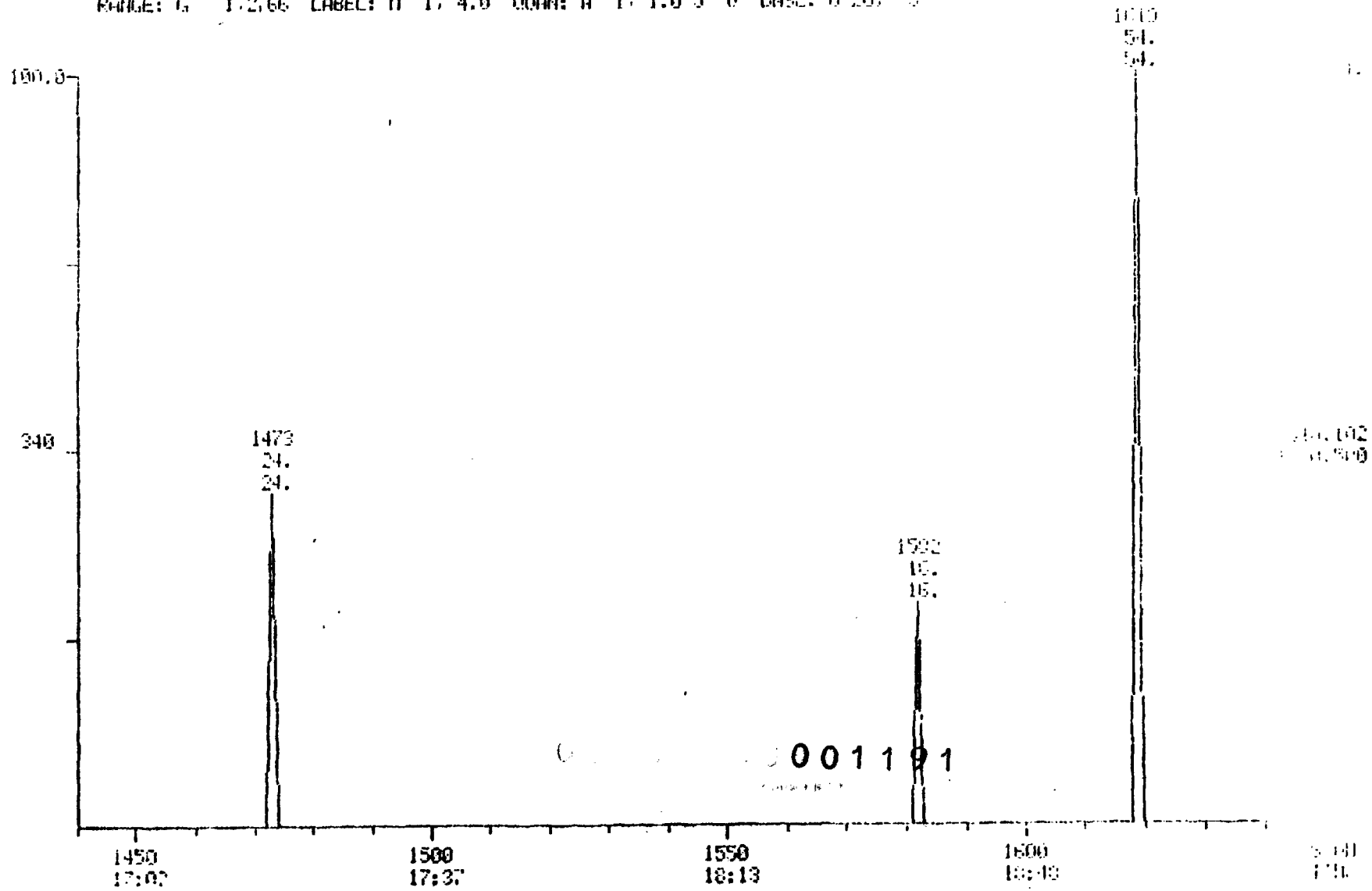


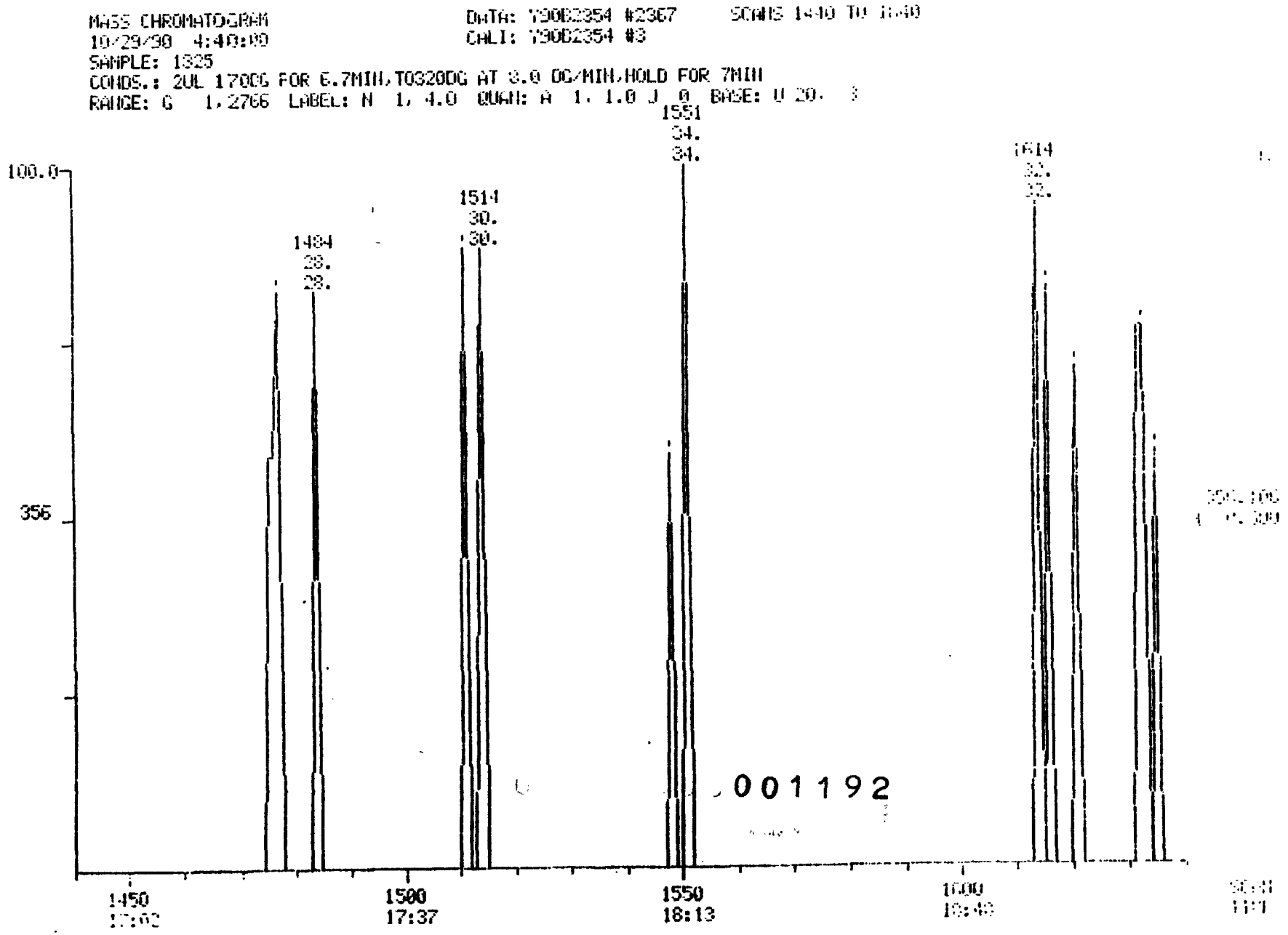
MASS CHROMATOGRAM DATA: Y9002354 #2367 SCANS 1,??? TO 1440
10/29/90 4:40:00 CALI: Y9002354 #3
SAMPLE: 1225
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,276? LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 5



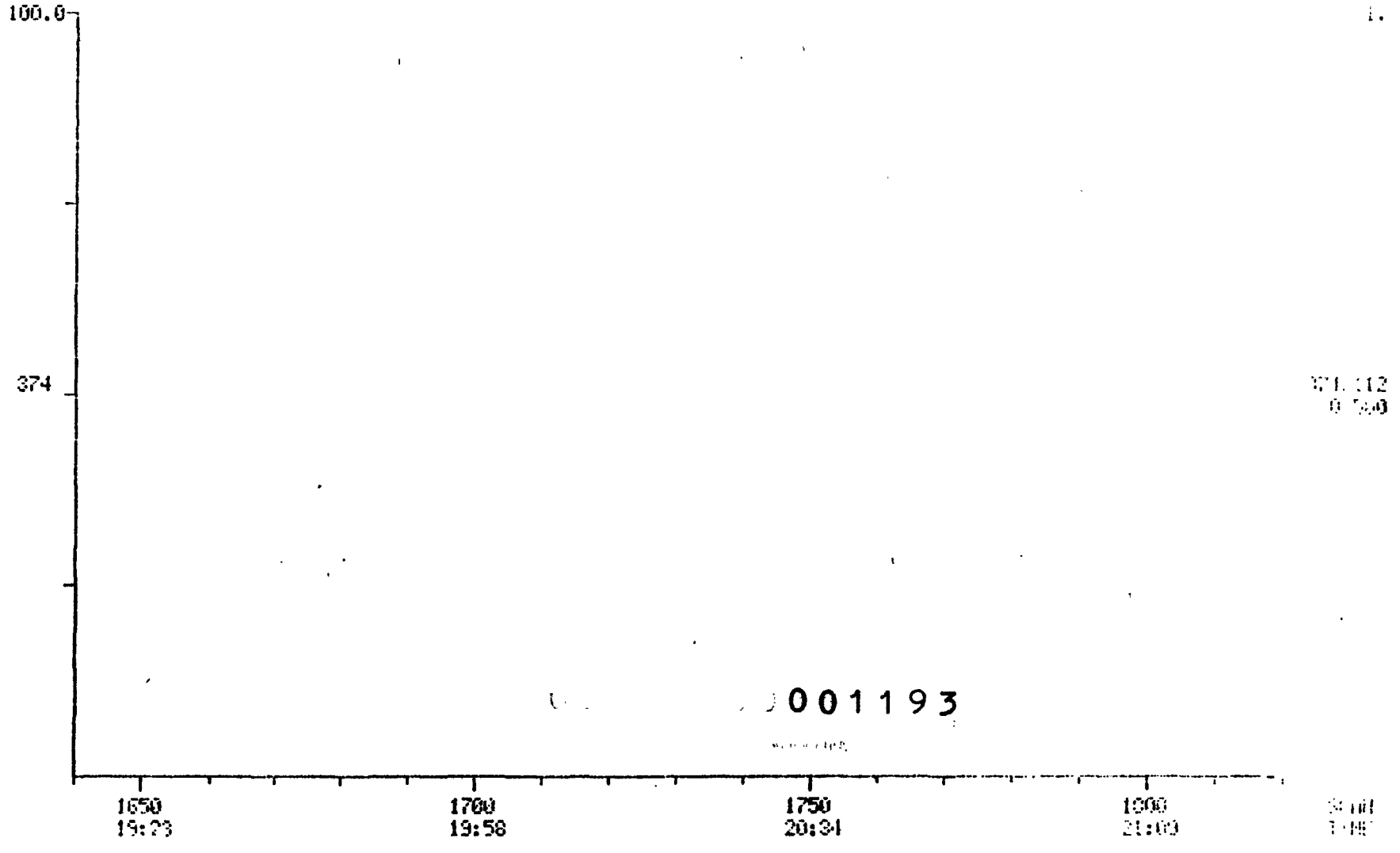
MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: H 20, 3

DATA: Y90B2354 #2367 SCANS 1440 TO 1540
CALI: Y90B2354 #3



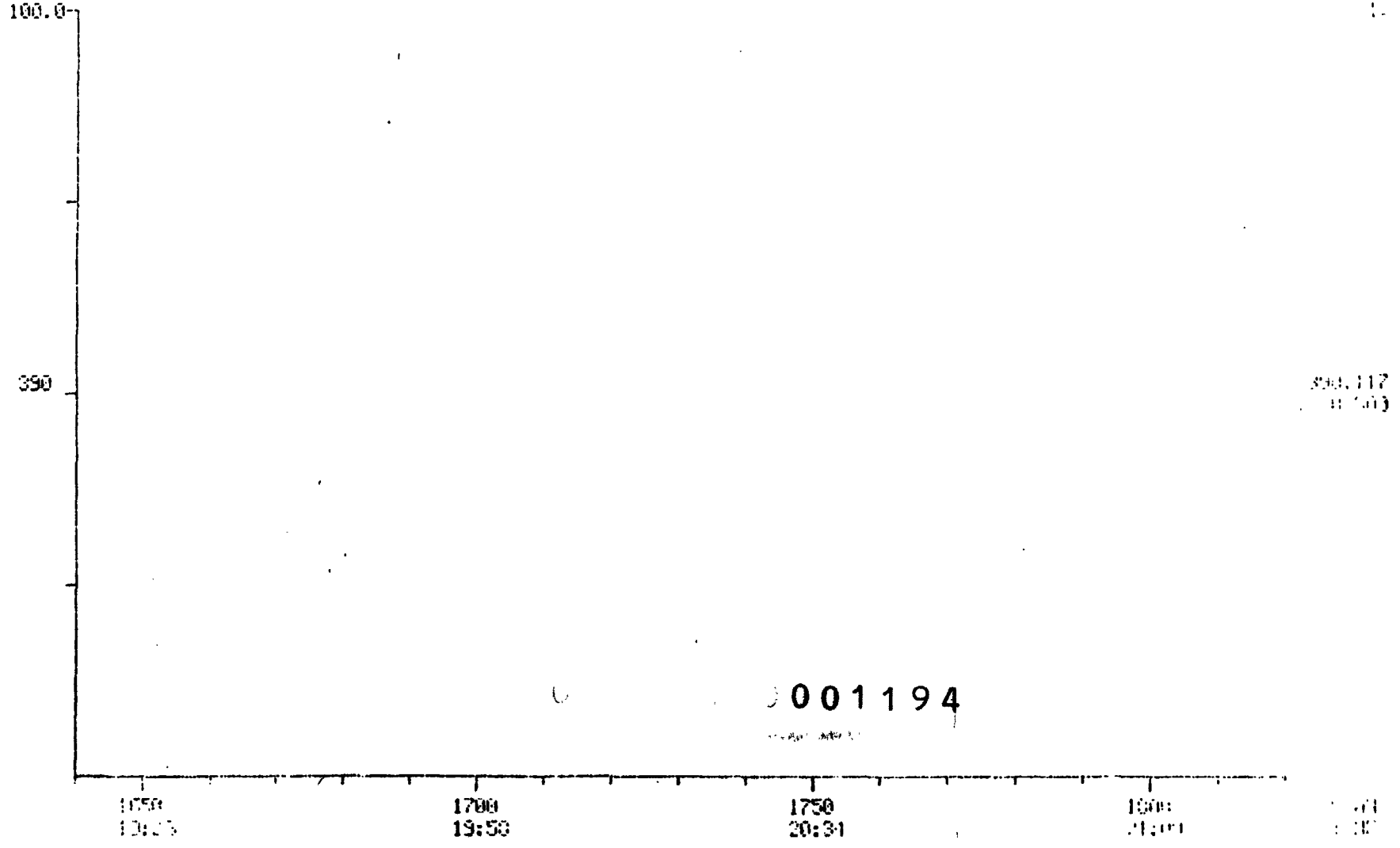

MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
DATA: Y90B2354 #2367
CALI: Y90B2354 #3
SCANS 1440 TO 1640
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3
100.0
356
1484
28.
28.
1514
30.
30.
1551
34.
34.
1614
32.
32.
001192
1450
17:02
1500
17:37
1550
18:13
1700
19:48

MASS CHROMATOGRAM DATA: Y90B2354 #2367 SCANS 1640 TO 1820
10/29/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2706 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3

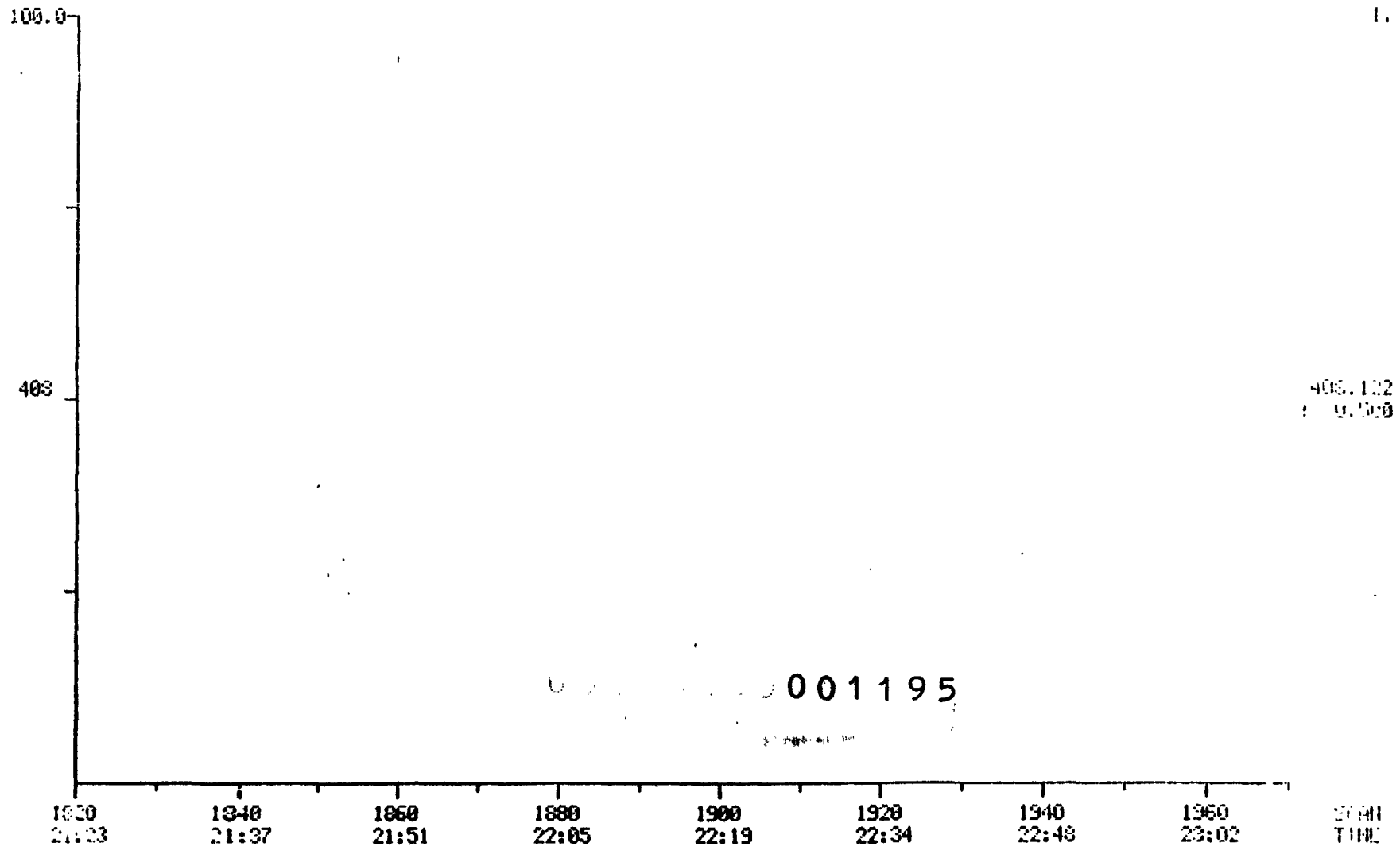


001193

MASS CHROMATOGRAM
10/29/30 4:40:00
SAMPLE: 1335
DATA: Y9082354 #2357
CALI: Y9082354 #3
SCANS 1340 TO 1530
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: H 20. 0

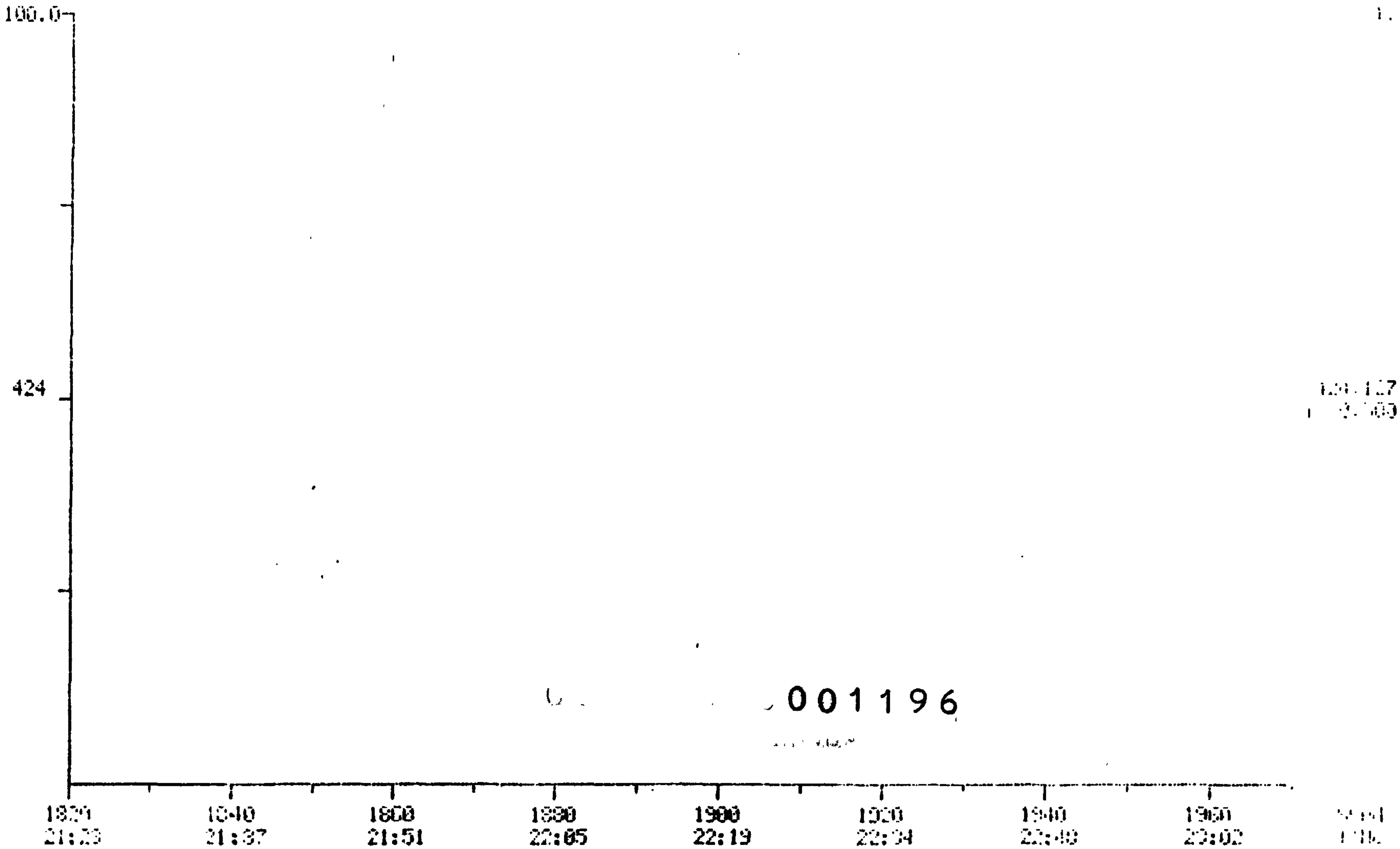


MASS CHROMATOGRAM DATA: Y90B2354 #2367 SCANS 1820 TO 1970
10/23/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

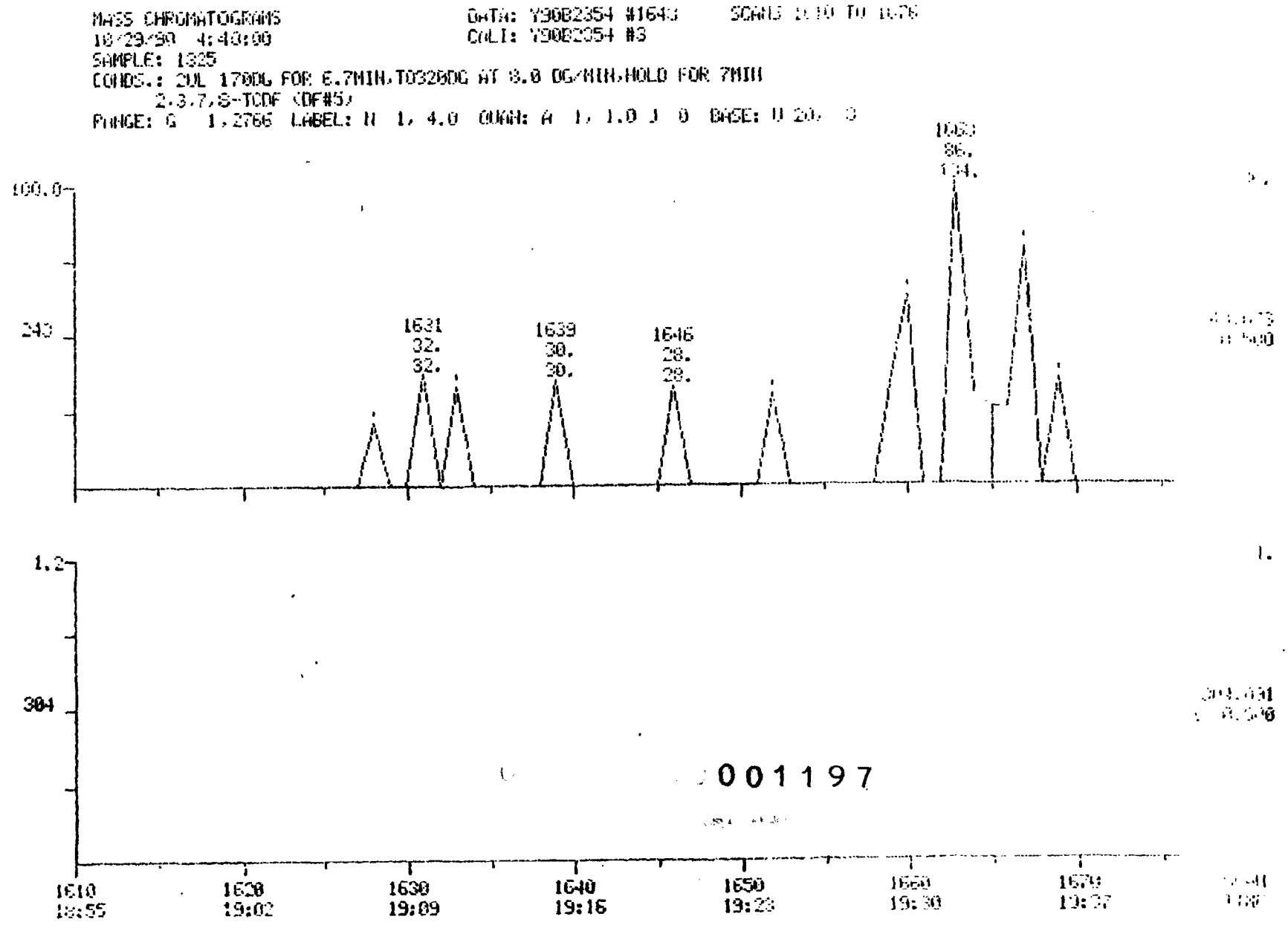


MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

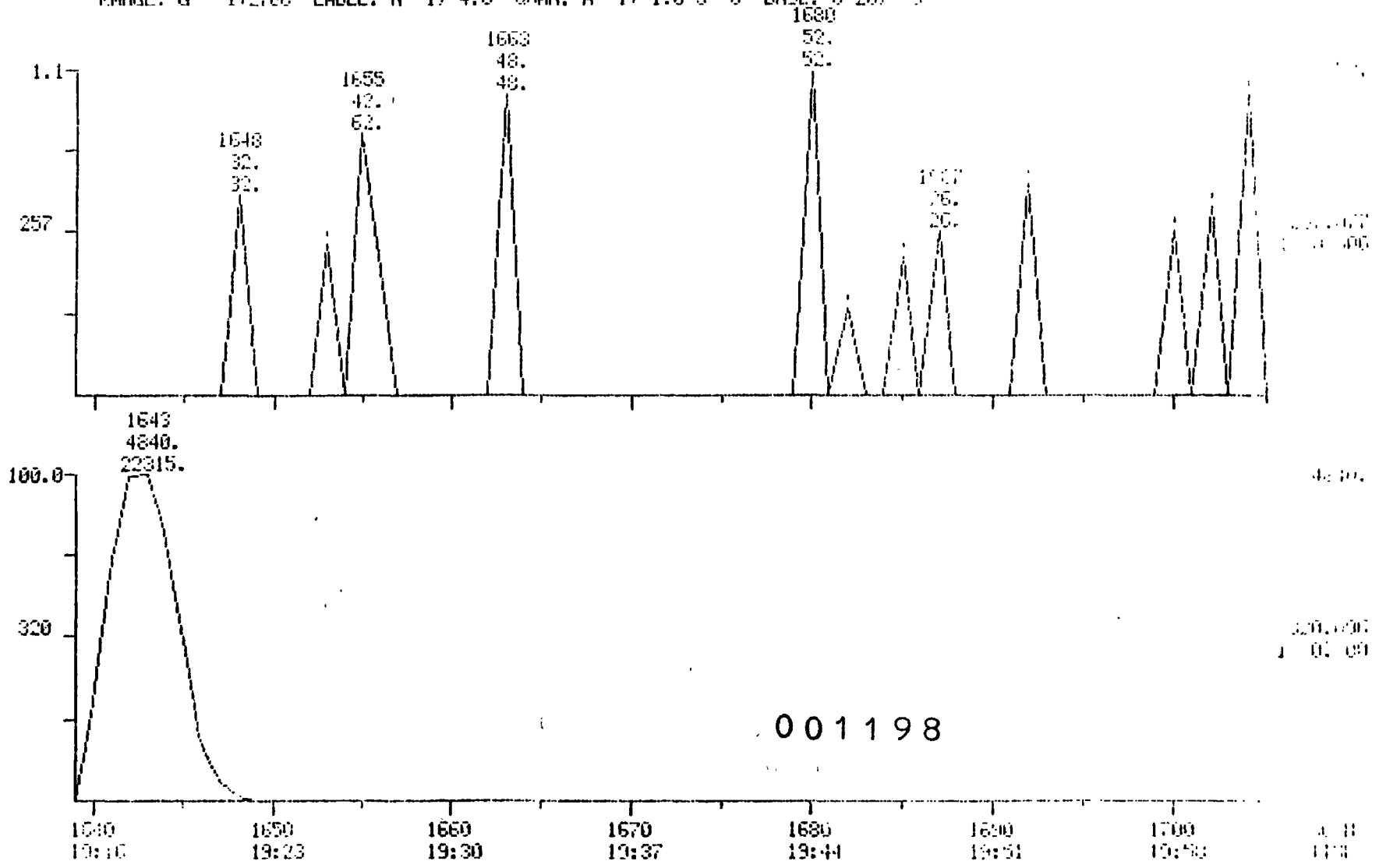
DATA: Y90B2354 #2367 SCANS 1820 TO 1970
CALI: Y90B2354 #3



001196

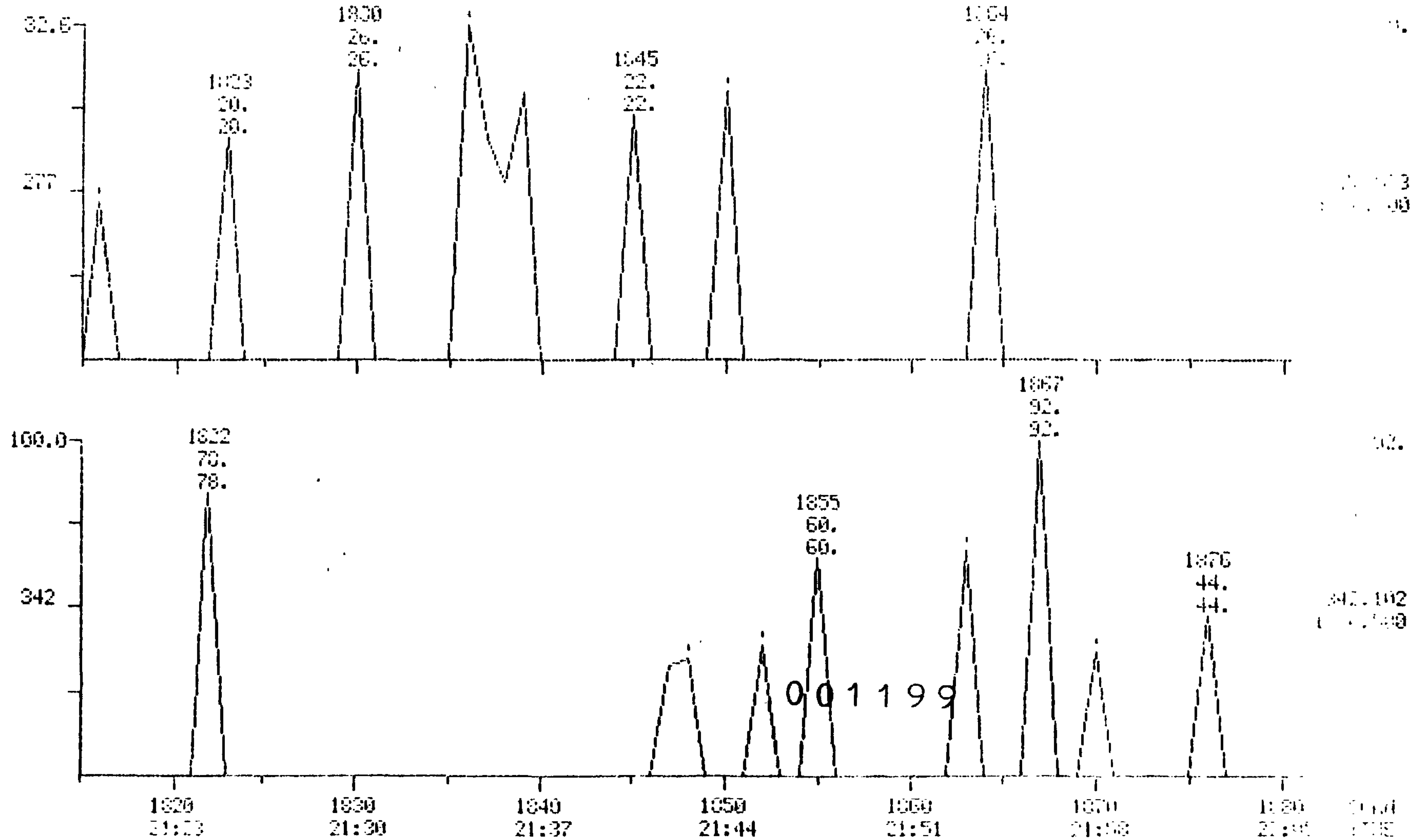

MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1325
DATA: Y90B2354 #1643
COLI: Y90B2354 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDF (DF#5)
100.0
240
1631
32.
32.
1639
30.
30.
1646
28.
28.
1663
86.
134.
1.2
304
1610
18:55
1620
19:02
1630
19:09
1640
19:16
1650
19:23
1660
19:30
1670
19:37

MASS CHROMATOGRAMS DATA: Y90E2354 #1672 SCANS 1679 TO 1705
10-25-90 4:10:00 CALI: Y90E2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDD (DF#6)
RANGE: G 1.27e6 LABEL: N 1, 4.0 DANN: A 1, 1.0 J 0 BASE: U 20, 3



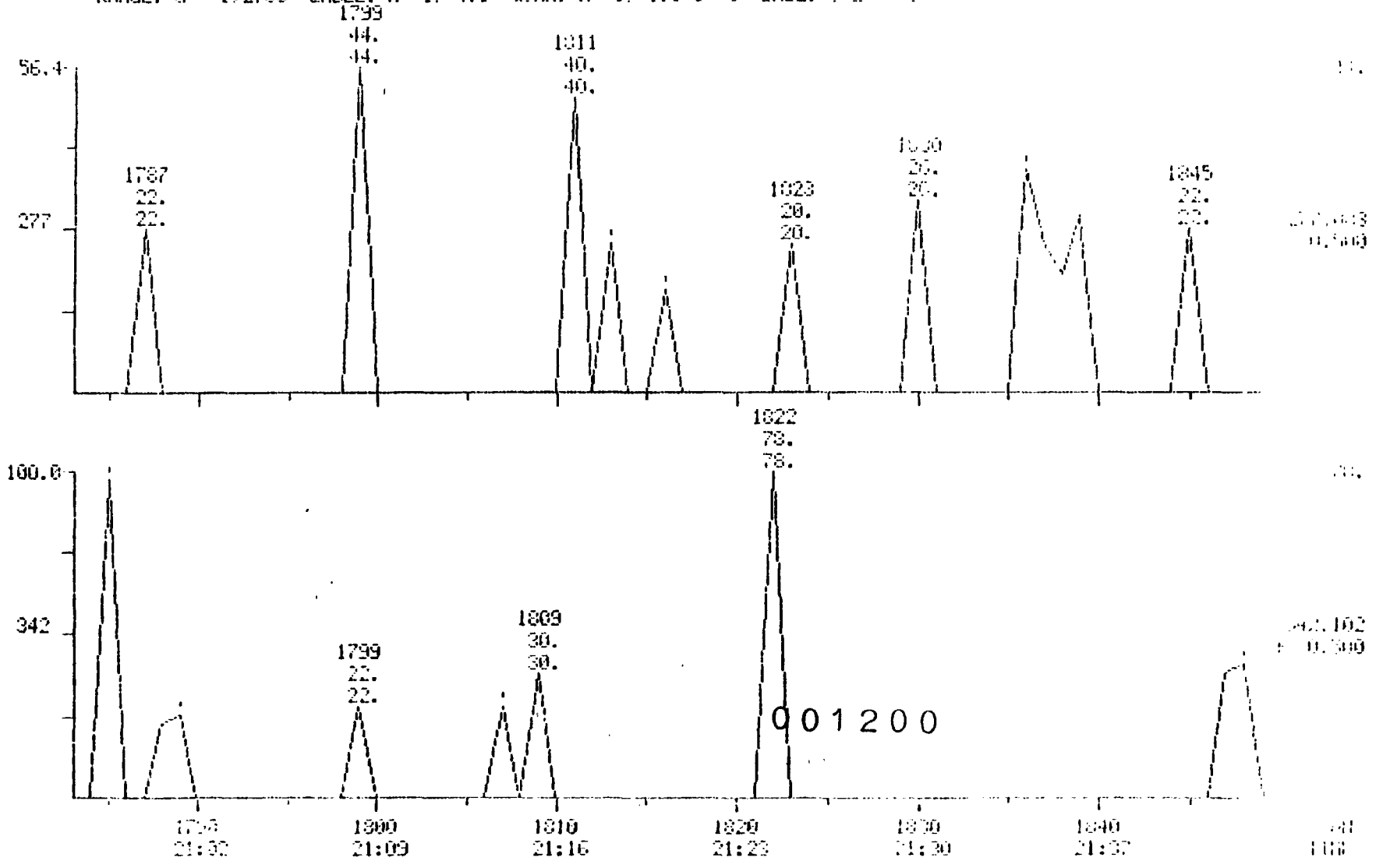
001198

MASS CHROMATOGRAMS　　DATA: 790B2354 #1848　　SCANS 1815 TO 1881
10/29/90 4:40:00　　CALI: 790B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDF (DF#7)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

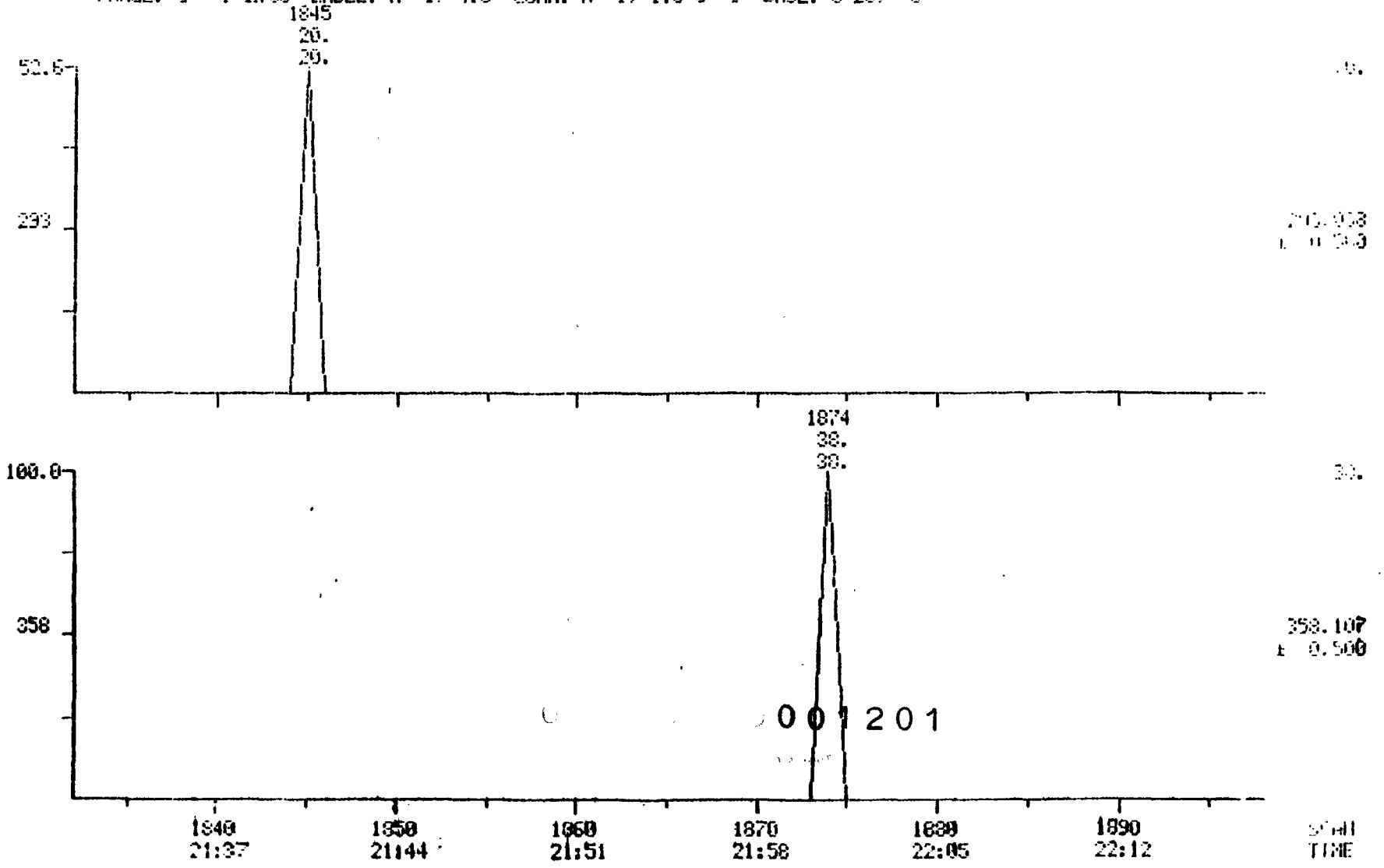


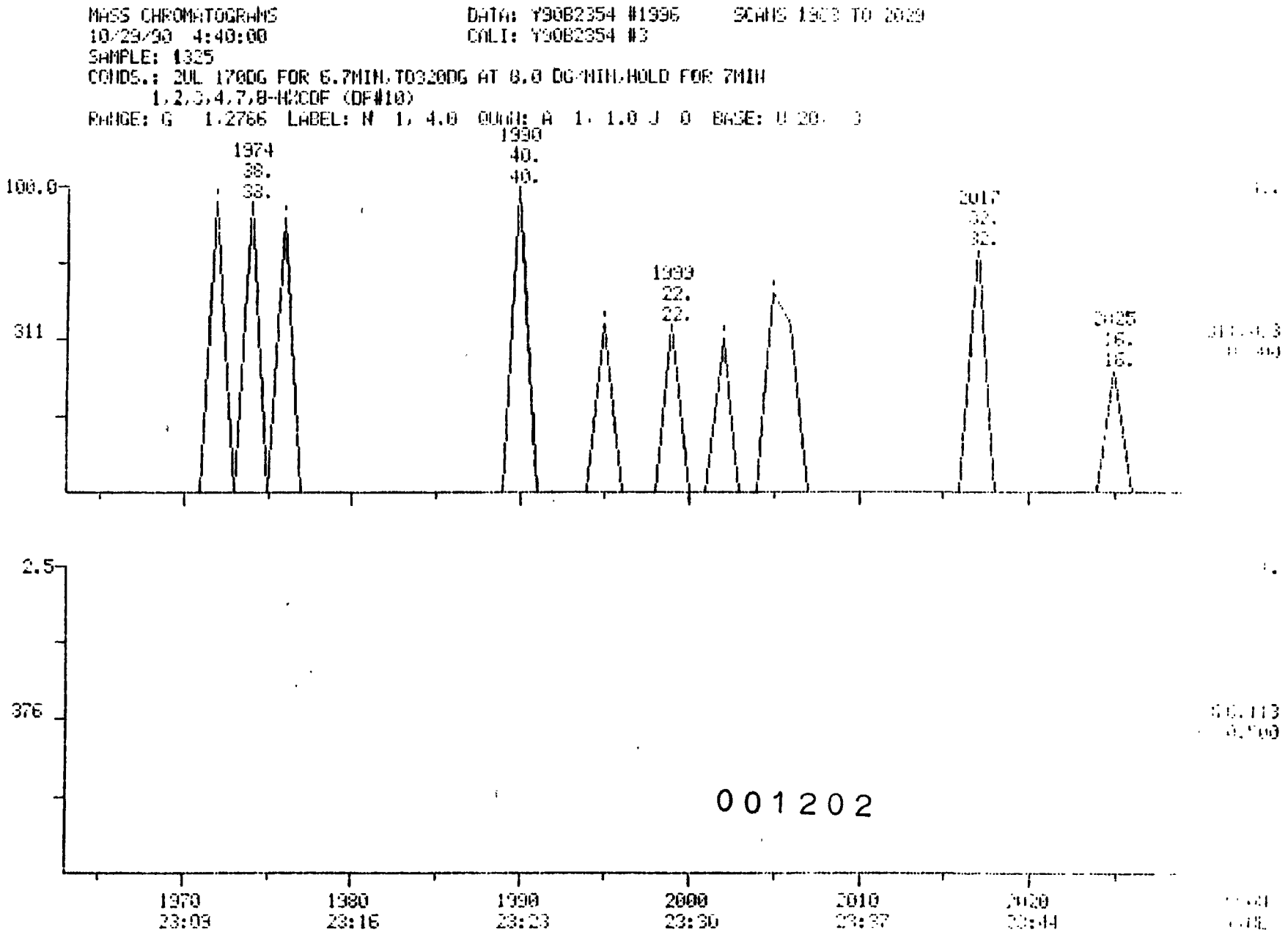
001199

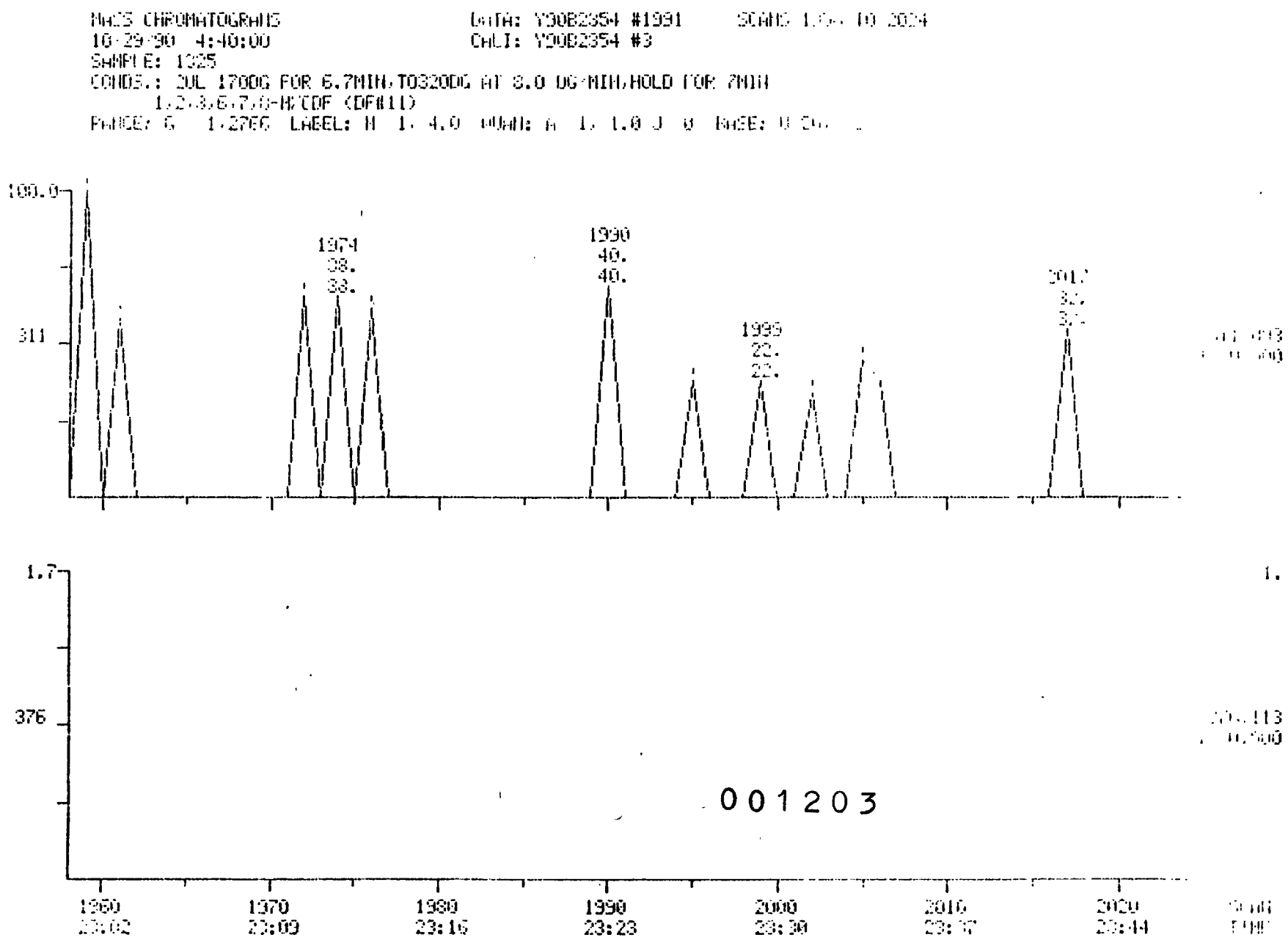
MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,7,8-TECDF (DF#3)
RANGE: G 1.2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



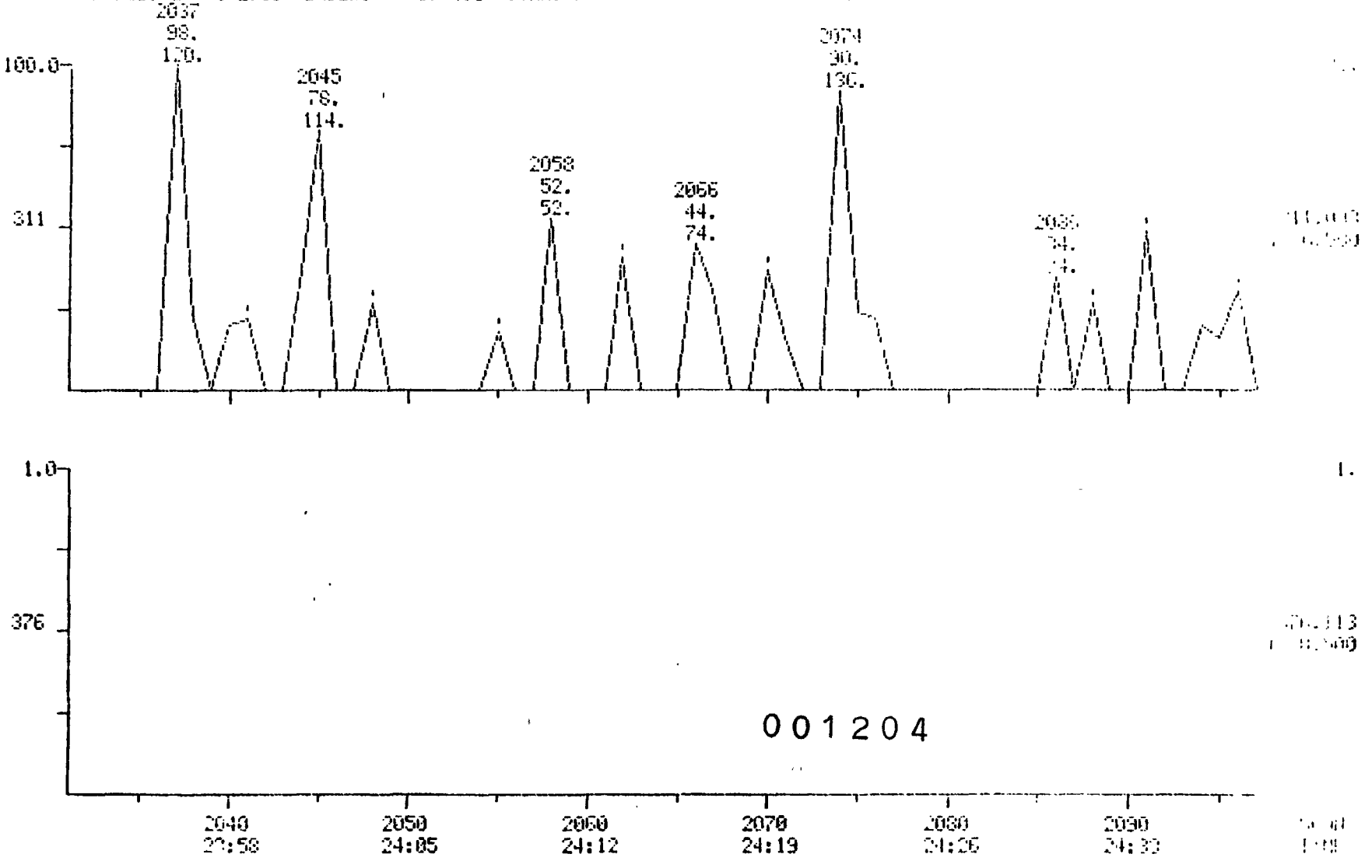
MASS CHROMATOGRAMS DATA: Y90B2354 #1865 SCANS 1382 TO 1698
10/29 90 4:40:09 CALI: Y90B2354 #3
SAMPLE: 1335
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDD (DF#9)
RANGE: G 1.2766 LABEL: M 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



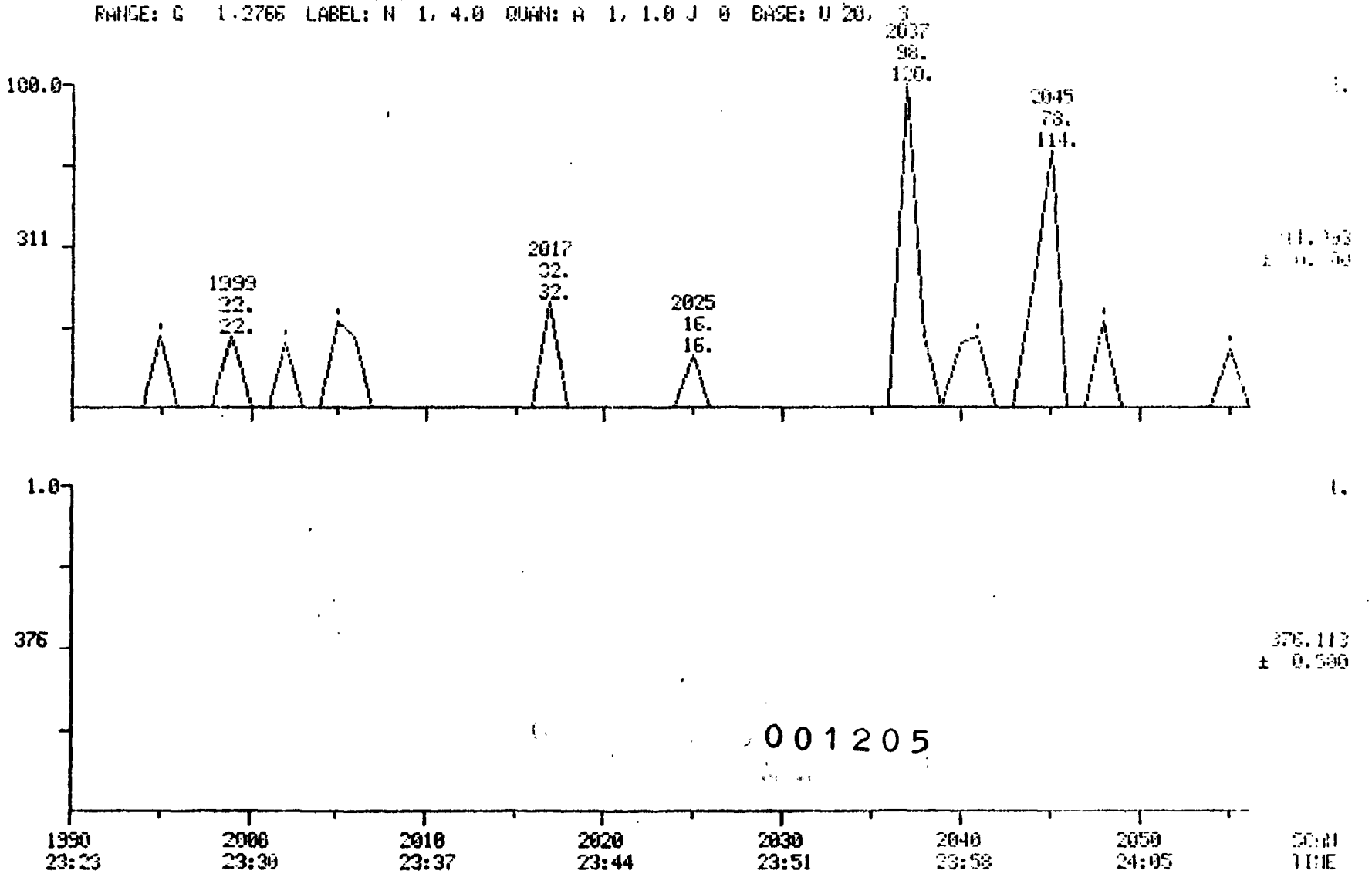

MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1325
DATA: Y90B2354 #1996
CALI: Y90B2354 #3
SCANS 1903 TO 2029
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDF (DF#10)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20
1974
38.
38.
1990
40.
40.
1999
22.
22.
2017
32.
32.
2025
16.
16.
100.0
311
2.5
376
001202
1970
23:09
1980
23:16
1990
23:23
2000
23:30
2010
23:37
2020
23:44

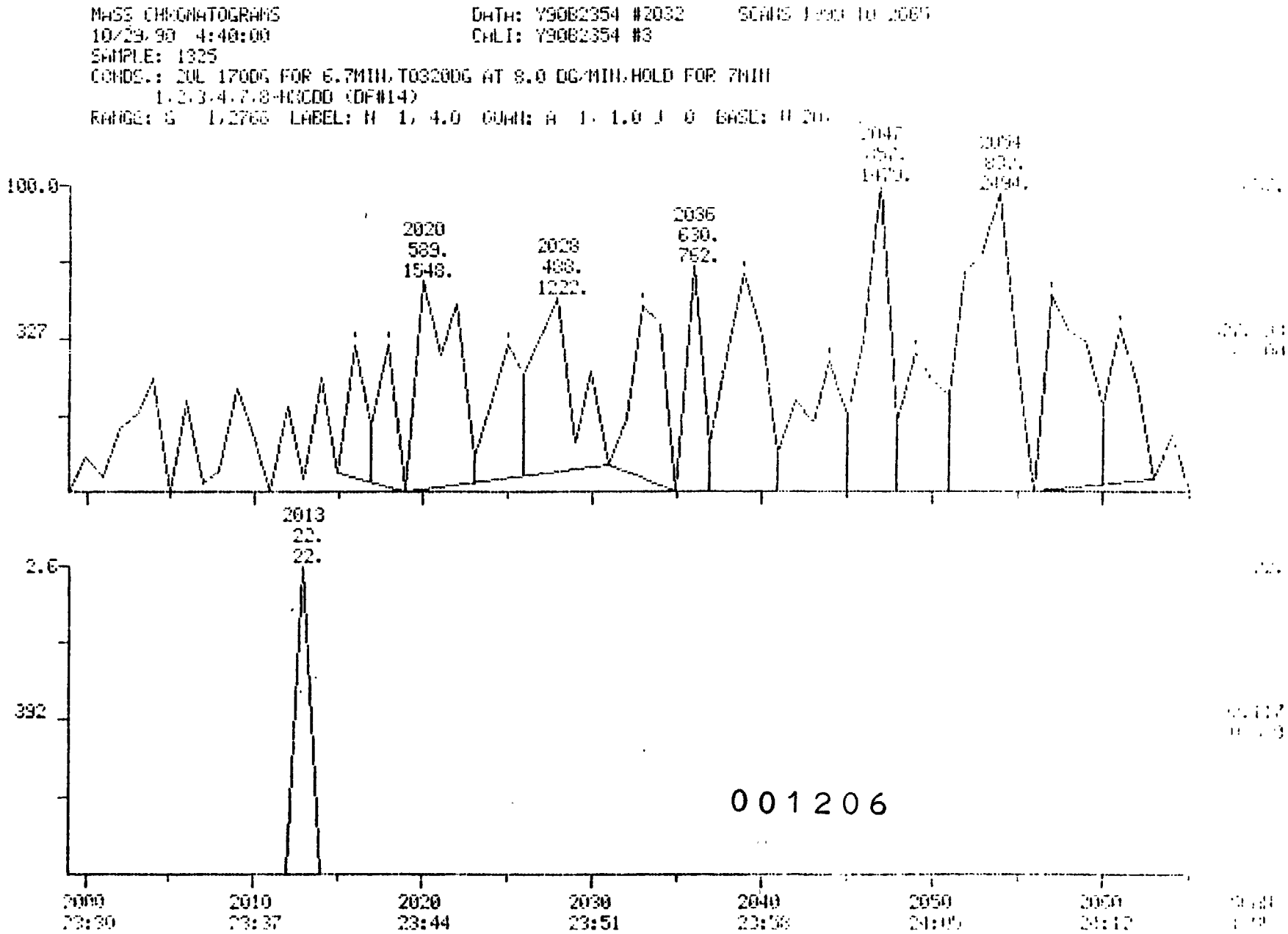

MASS CHROMATOGRAMS
10-29-90 4:40:00
SAMPLE: 1025
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDF (DF#11)
DATA: Y90B2354 #1991
CAL: Y90B2354 #3
100.0
311
1974
38.
38.
1990
40.
40.
1999
22.
22.
1.7
376
001203
1960
23:02
1970
23:09
1980
23:16
1990
23:23
2000
23:30
2010
23:37
2020
23:44

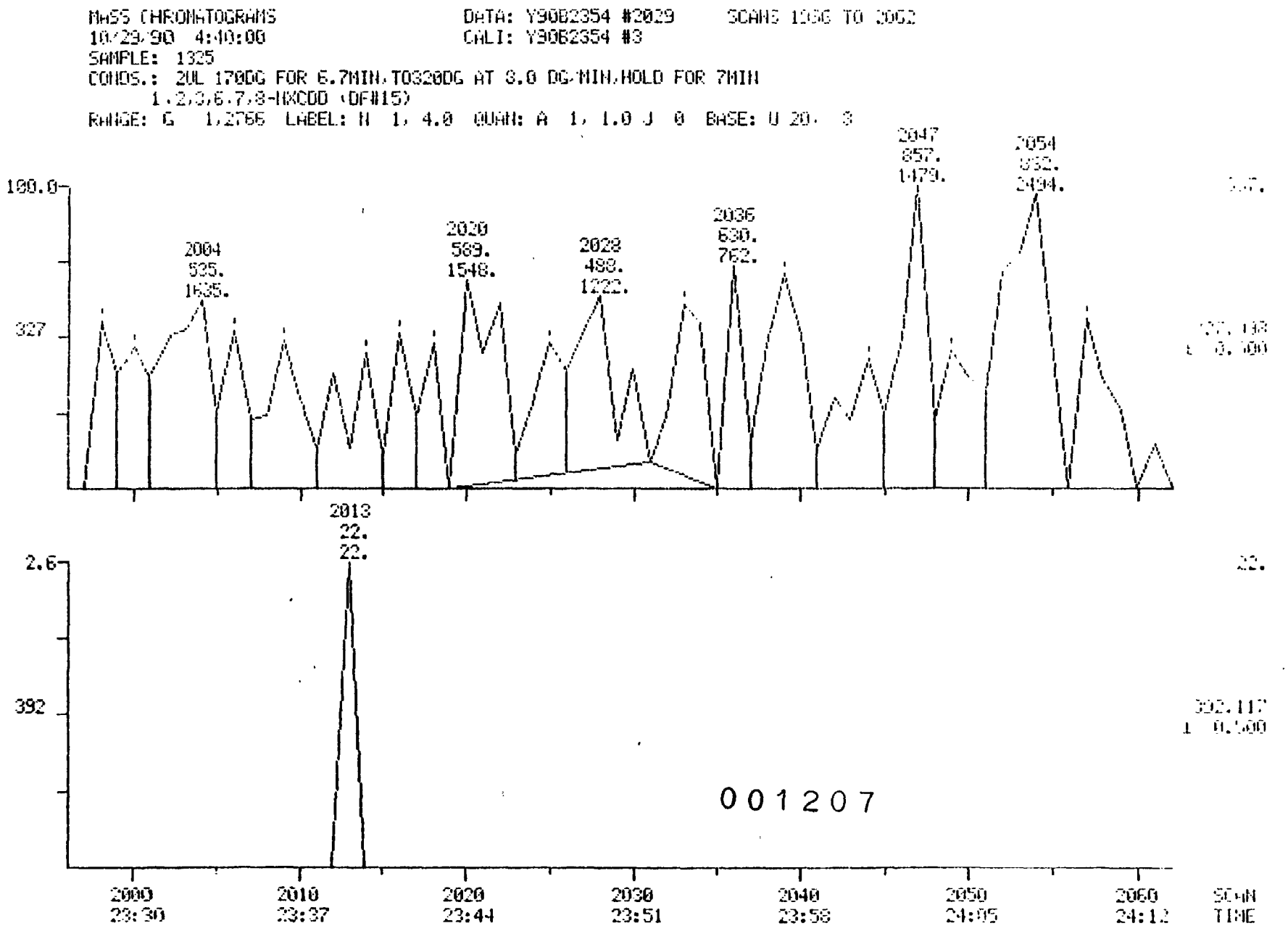
MASS CHROMATOGRAMS DATA: Y900354 #2064 SCANS 2031 TO 2087
10/29/90 4:40:00 CALI: Y900354 #3
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDF (DF#12)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



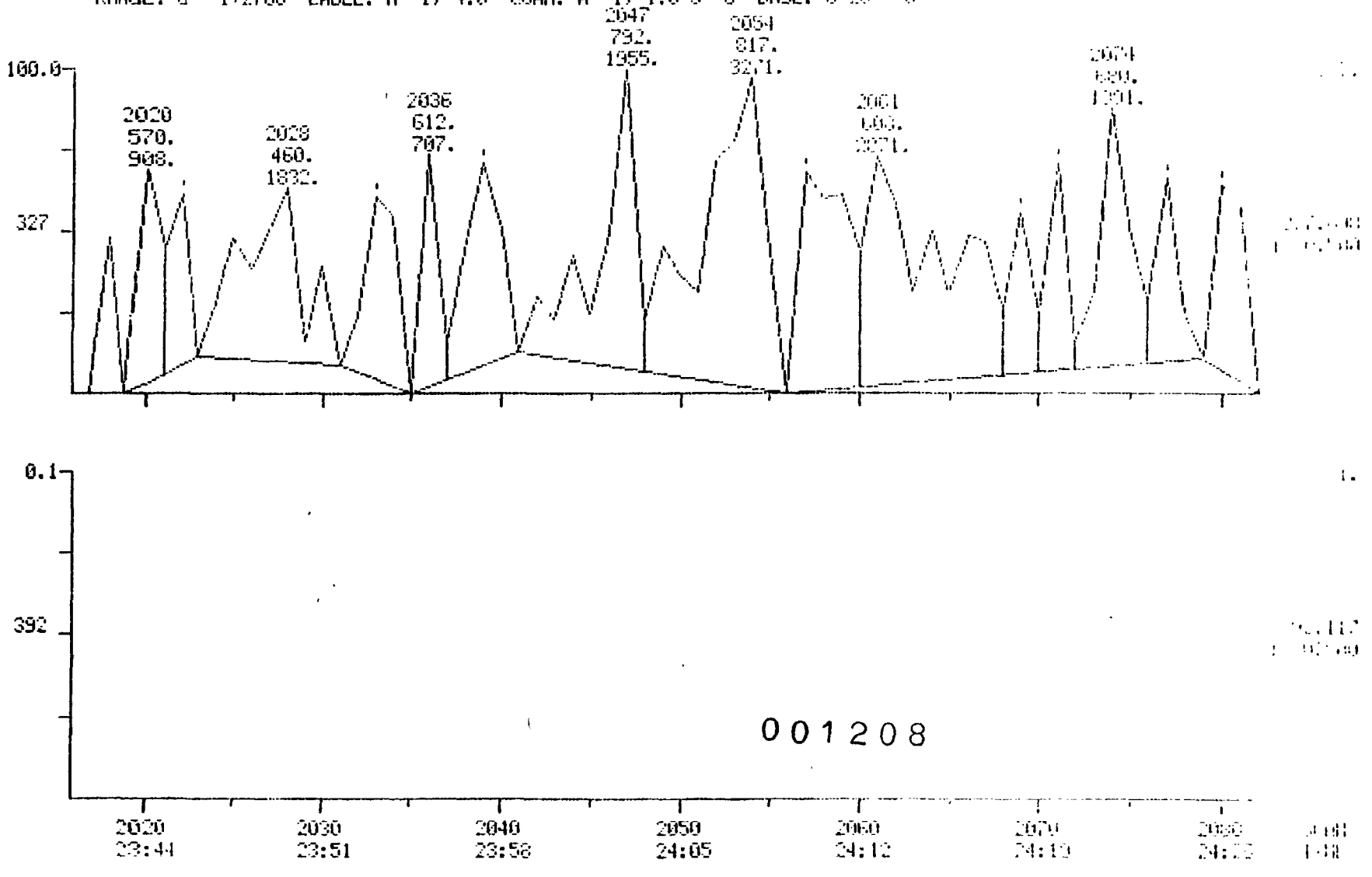
MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1305
DATA: Y90B2354 #2023 SCANS 1990 TO 2056
CALI: Y90B2354 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,6,7,8-HXCDF (DF#13)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



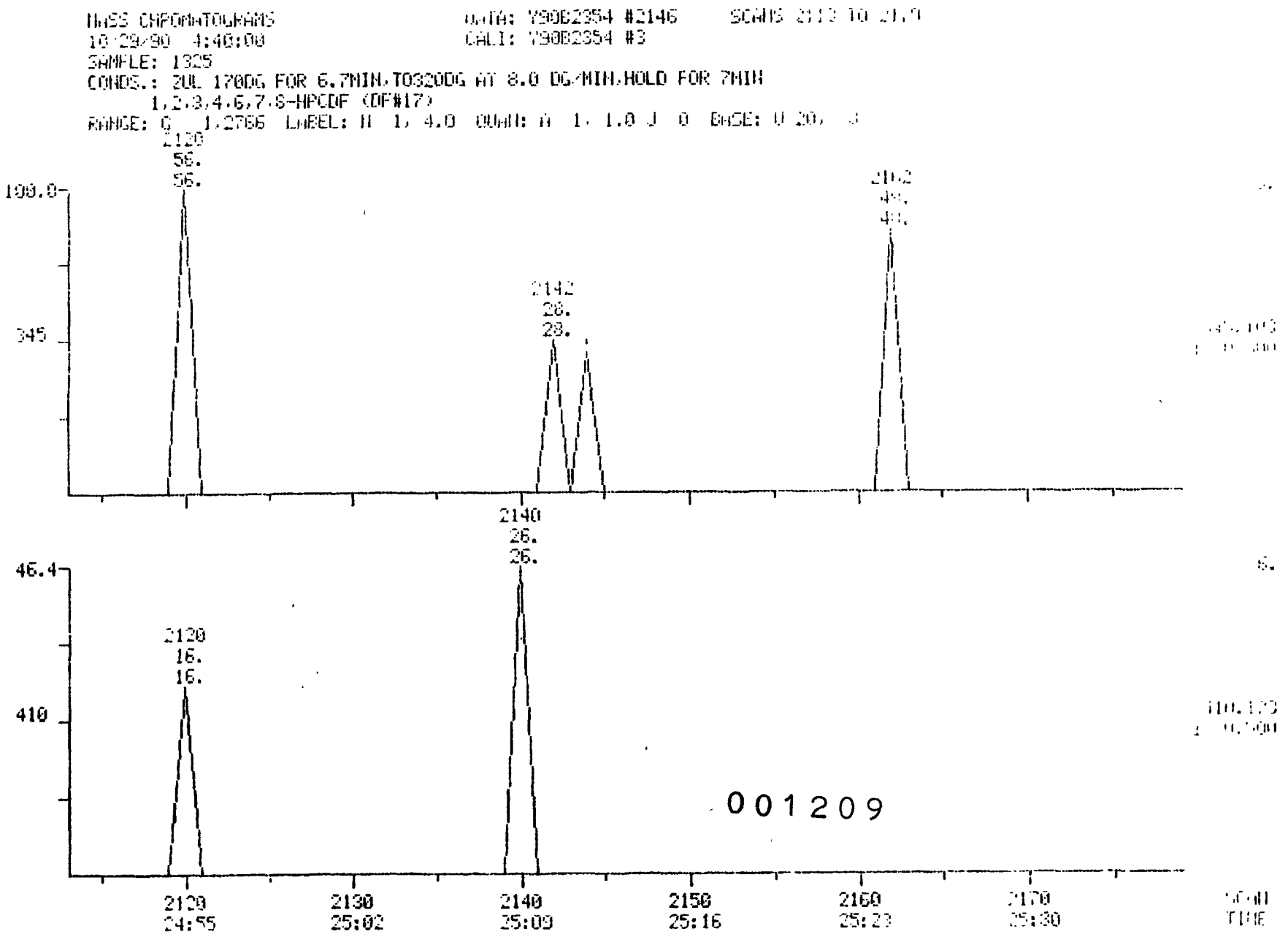

MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDD (DF#14)
DATA: Y90B2354 #2032
CALI: Y90B2354 #3
2020
589.
1548.
2028
488.
1222.
2036
630.
752.
100.0
327
2.6
392
001206
2000
23:30
2010
23:37
2020
23:44
2030
23:51
2040


MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDD (DF#15)
RANGE: G 1,2765 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
DATA: Y9082354 #2029 SCANS 1966 TO 2062
CALI: Y9082354 #3
100.0
327
2004
535.
1635.
2020
589.
1548.
2028
488.
1222.
2036
630.
762.
2047
857.
1479.
2054
852.
2494.
2.6
392
2013
22.
22.
001207
2000
23:30
2010
23:37
2020
23:44
2030
23:51
2040
23:58
2050
24:05
2060
24:12
SCAN
TIME

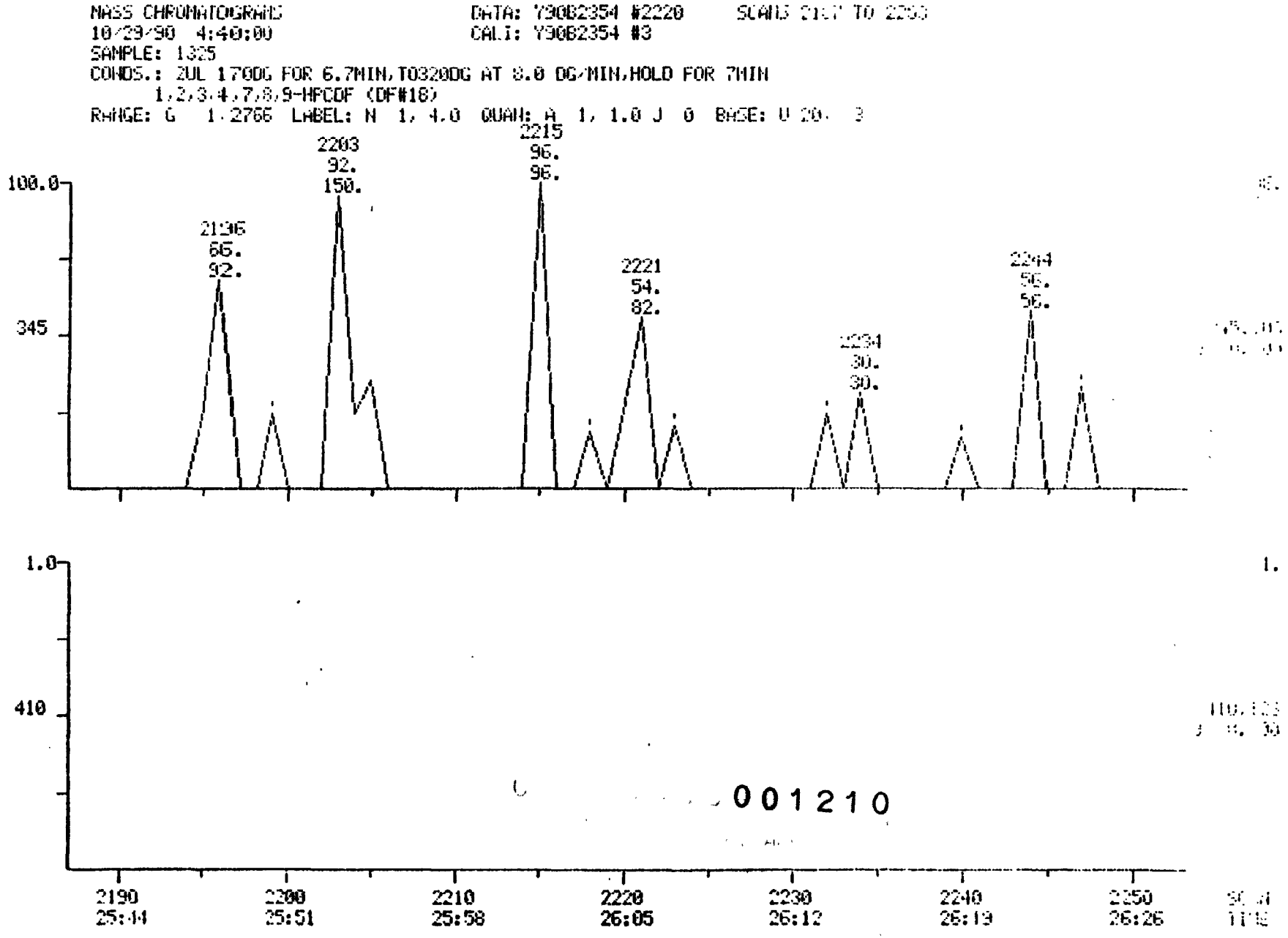
MASS CHROMATOGRAMS DATA: Y90B2354 #2049 SCANS 2010 TO 2082
10 29 90 4:40:00 CHLI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDD (DF#16)
RANGE: G 1.2766 LABEL: M 1, 4.0 QUAN: M 1, 1.0 J 0 BASE: U 20 J



001208


MASS CHROMATOGRAMS
10/29/90 4:40:08
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDF (DF#17)
DATA: Y90B2354 #2146
CALI: Y90B2354 #3
SCANS 2113 TO 21.7
RANGE: 0 1.2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
2120
56.
56.
2142
28.
28.
2140
26.
26.
2120
16.
16.
100.0
345
46.4
410
2120
24:55
2130
25:02
2140
25:09
2150
25:16
2160
25:23
2170
25:30
TIME

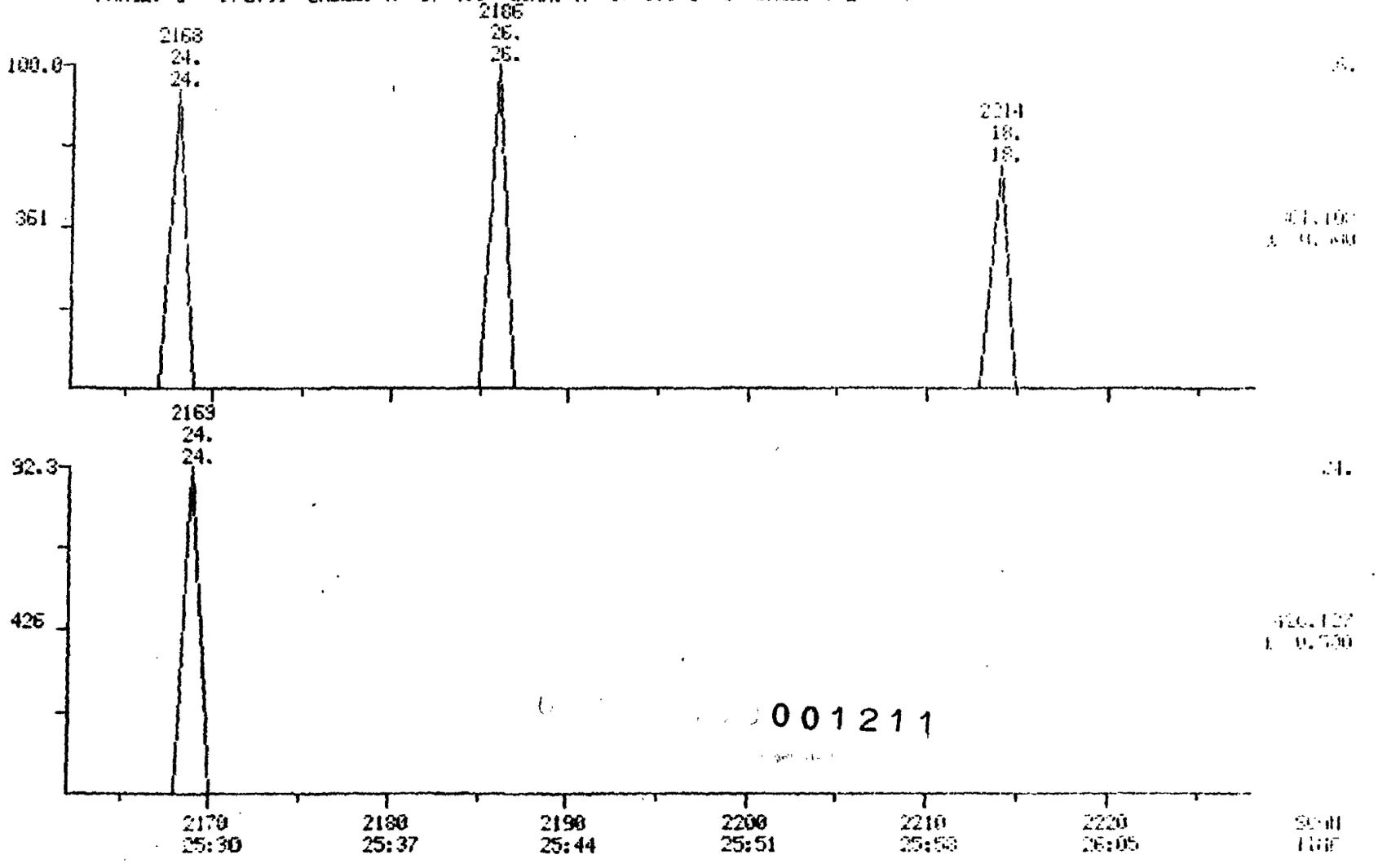
001209


MASS CHROMATOGRAM
10/29/90 4:40:00
SAMPLE: 1325
DATA: Y90B2354 #2220
CALI: Y90B2354 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8,9-HPCDF (DF#18)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20.
2136
66.
92.
2203
92.
150.
2215
96.
96.
2221
54.
82.
2234
30.
30.
2264
56.
56.
100.0
345
1.0
410
2190
25:44
2200
25:51
2210
25:58
2220
26:05
2230
26:12
2240
26:19
2250
26:26

001210

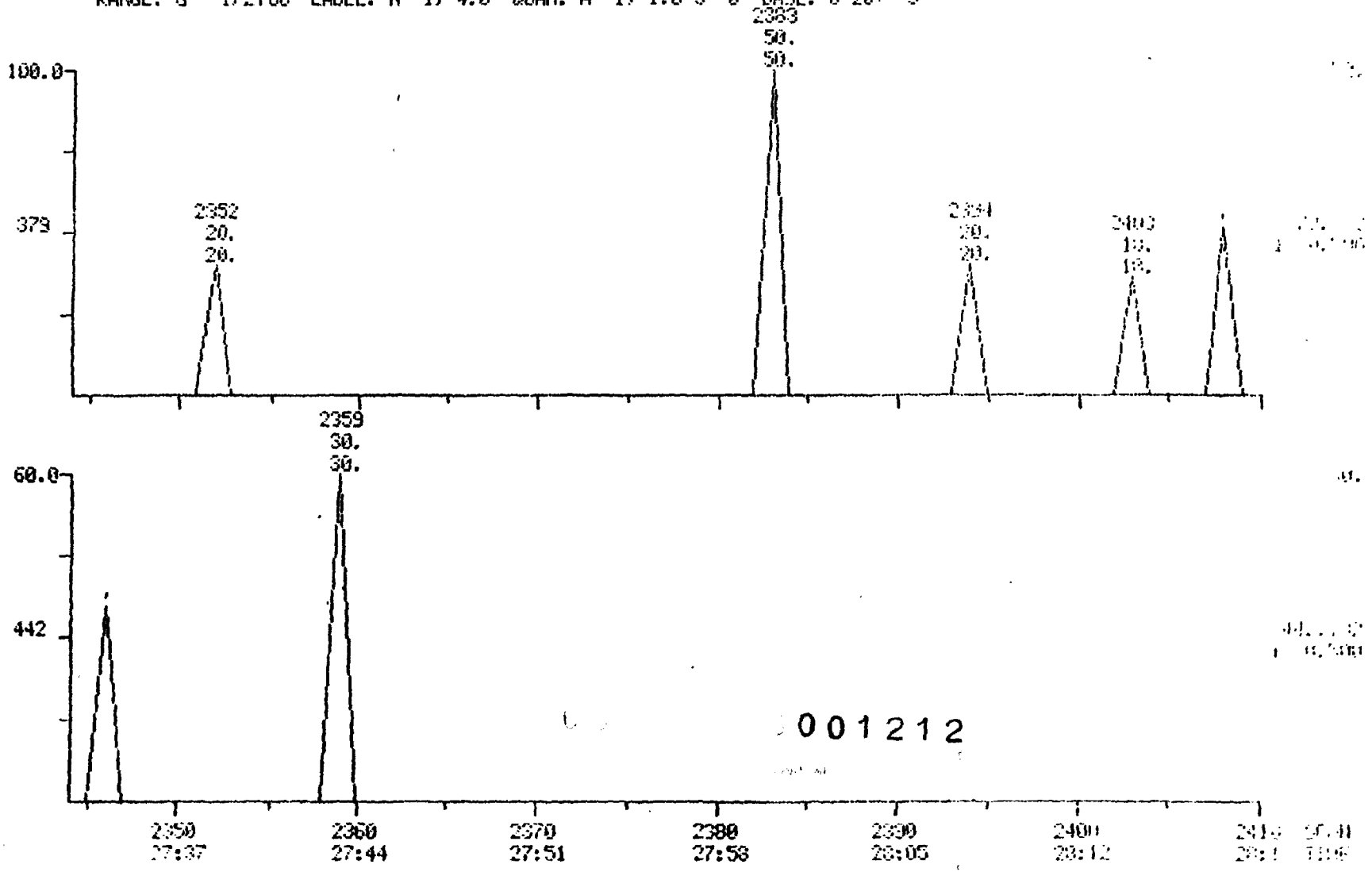
MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1335
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDD (DF#19)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

DATA: Y90B2354 #2195 SCANS 2,52 TO 2720.
CALI: Y90B2354 #3



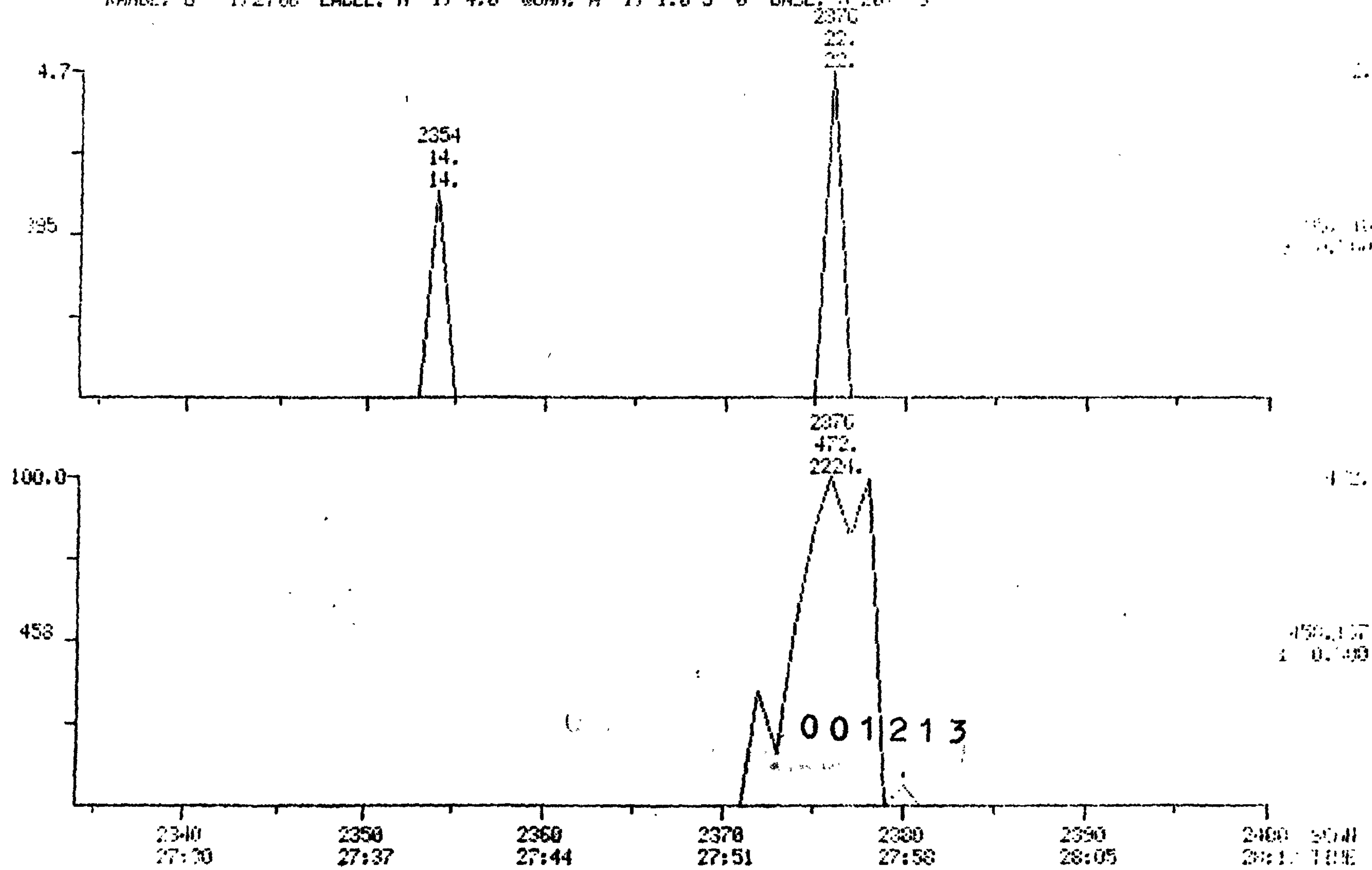
001211

MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1325
DATA: Y90B2354 #2377 SCANS 23-- TO 2410
CALI: Y90B2354 #3
CONDS.: 30L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDF (OPW20)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



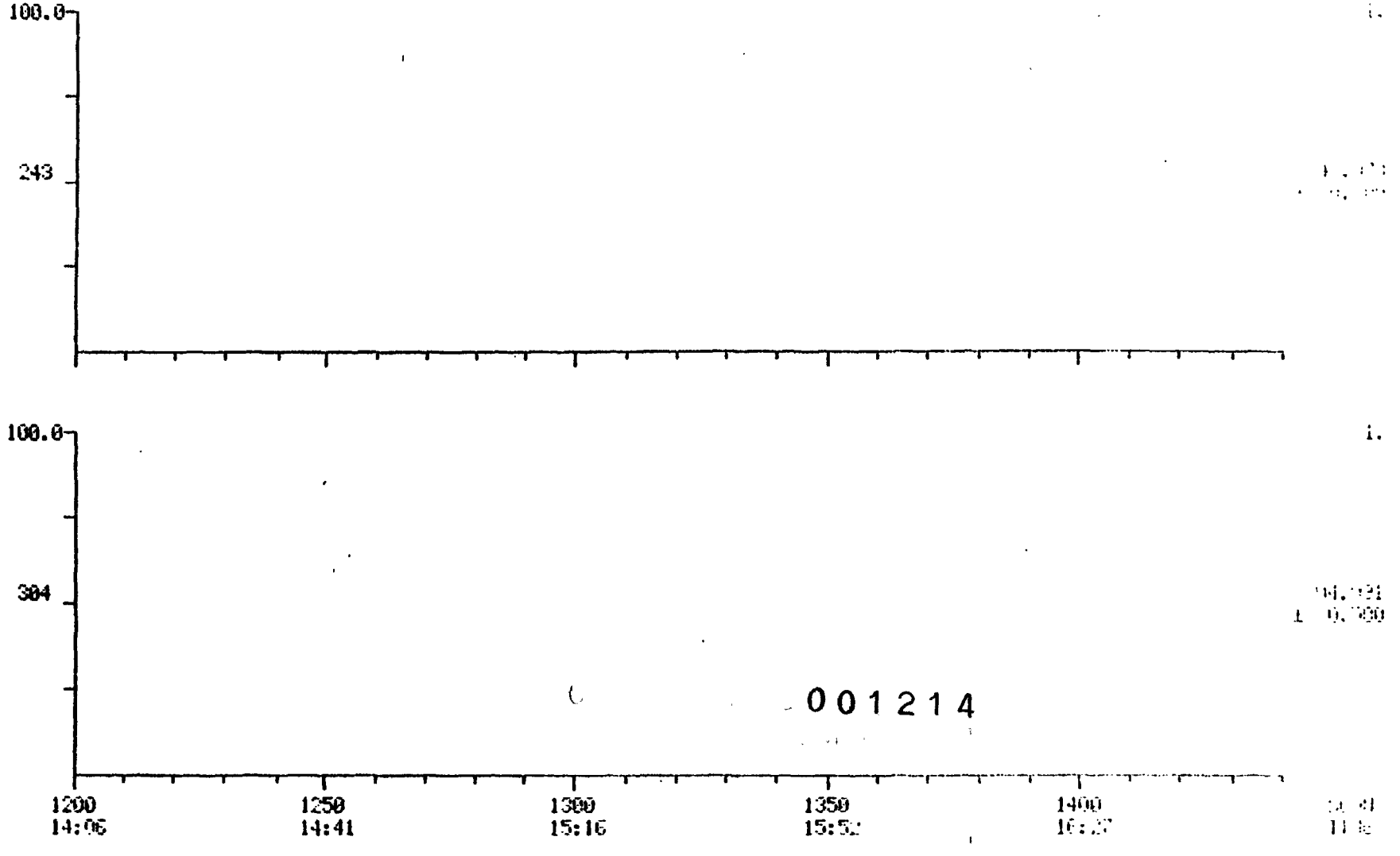
001212

MASS CHROMATOGRAMS DATA: Y9082354 #2367 SCANS 2334 TO 2400
10/29/99 4:40:00 CALI: Y9082354 #3
SAMPLE: 1825
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDD (DF#21)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

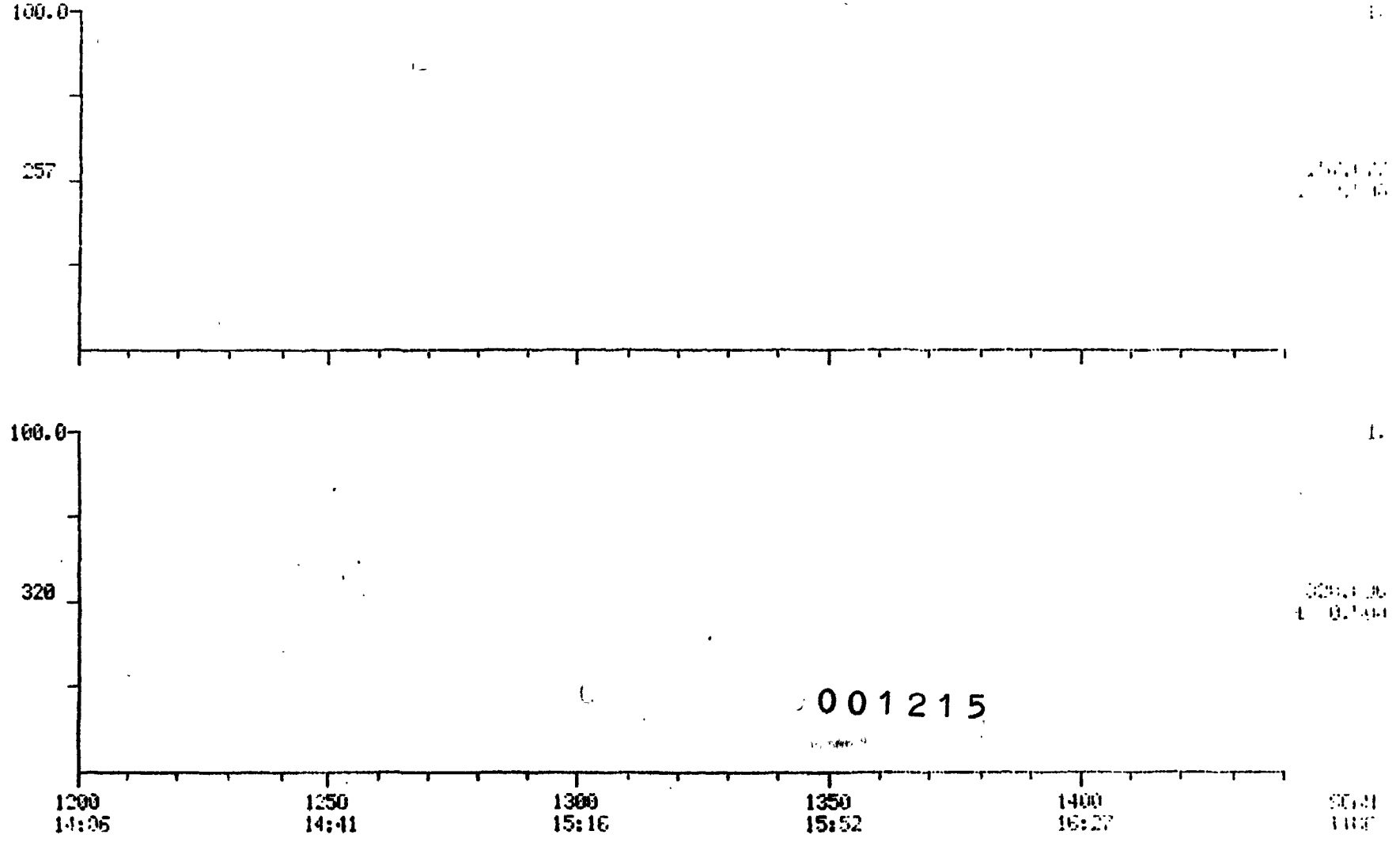


001213

MASS CHROMATOGRAMS
10/29/90 4:40:00
SAMPLE: 1325
DATA: Y90B2354 #2367 SCANS 1200 TO 1440
CALI: Y90B2354 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2765 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3



MASS CHROMATOGRAMS DATA: Y90B2054 #2367 SCANS 1200 TO 1440
10/29/90 4:40:00 CALI: Y90B2054 #3
SAMPLE: 1325
CONDS.: 2UL 170DC FOR 6.7MIN,TO320DC AT 8.0 DC/MIN,HOLD FOR 7MIN
RANGE: C 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

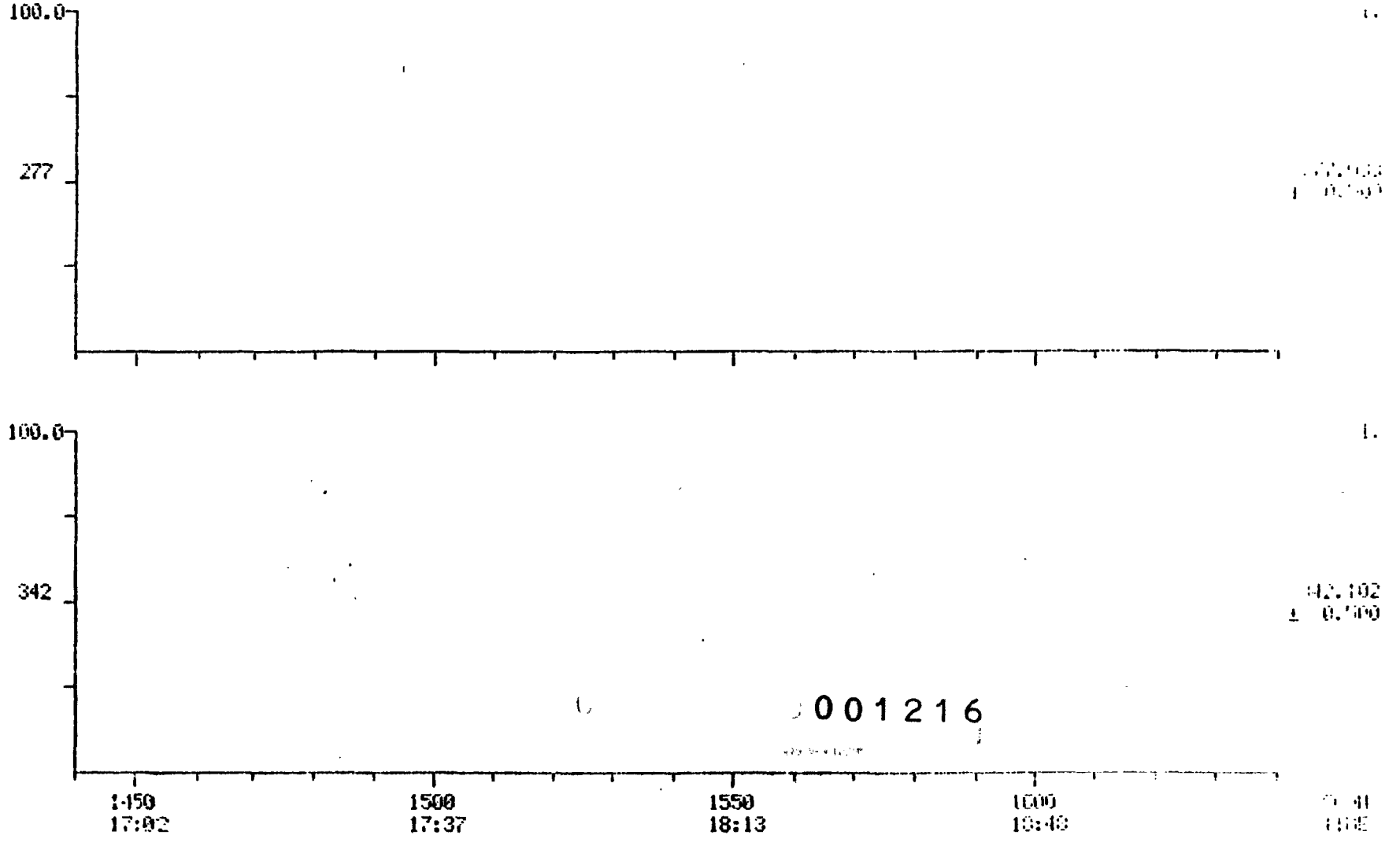


001215

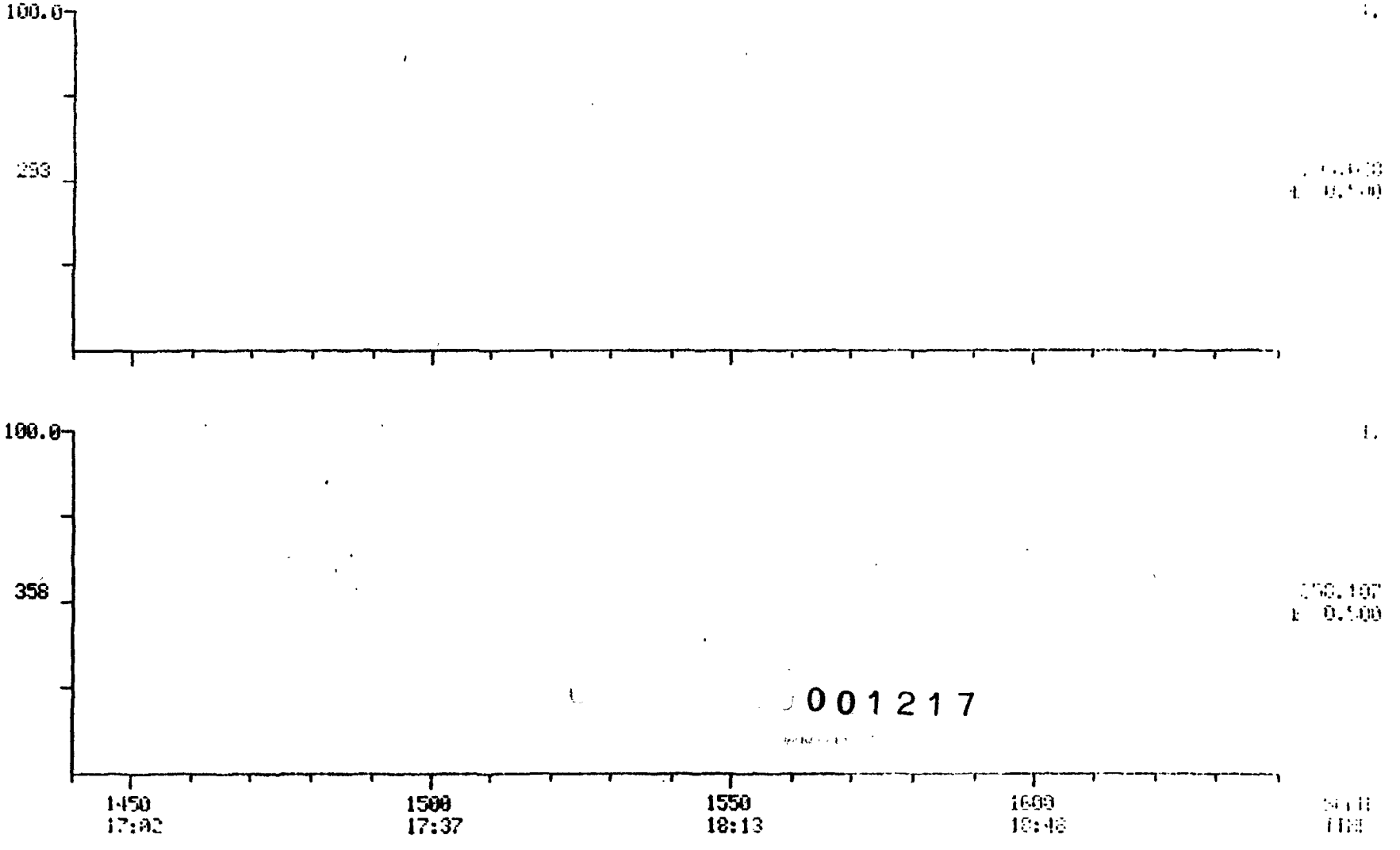
MASS CHROMATOGRAMS
10/29/90 4:40:00

DATA: Y90B2354 #2367 SCANS 1440 TO 1640
CALI: Y90B2354 #3

SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

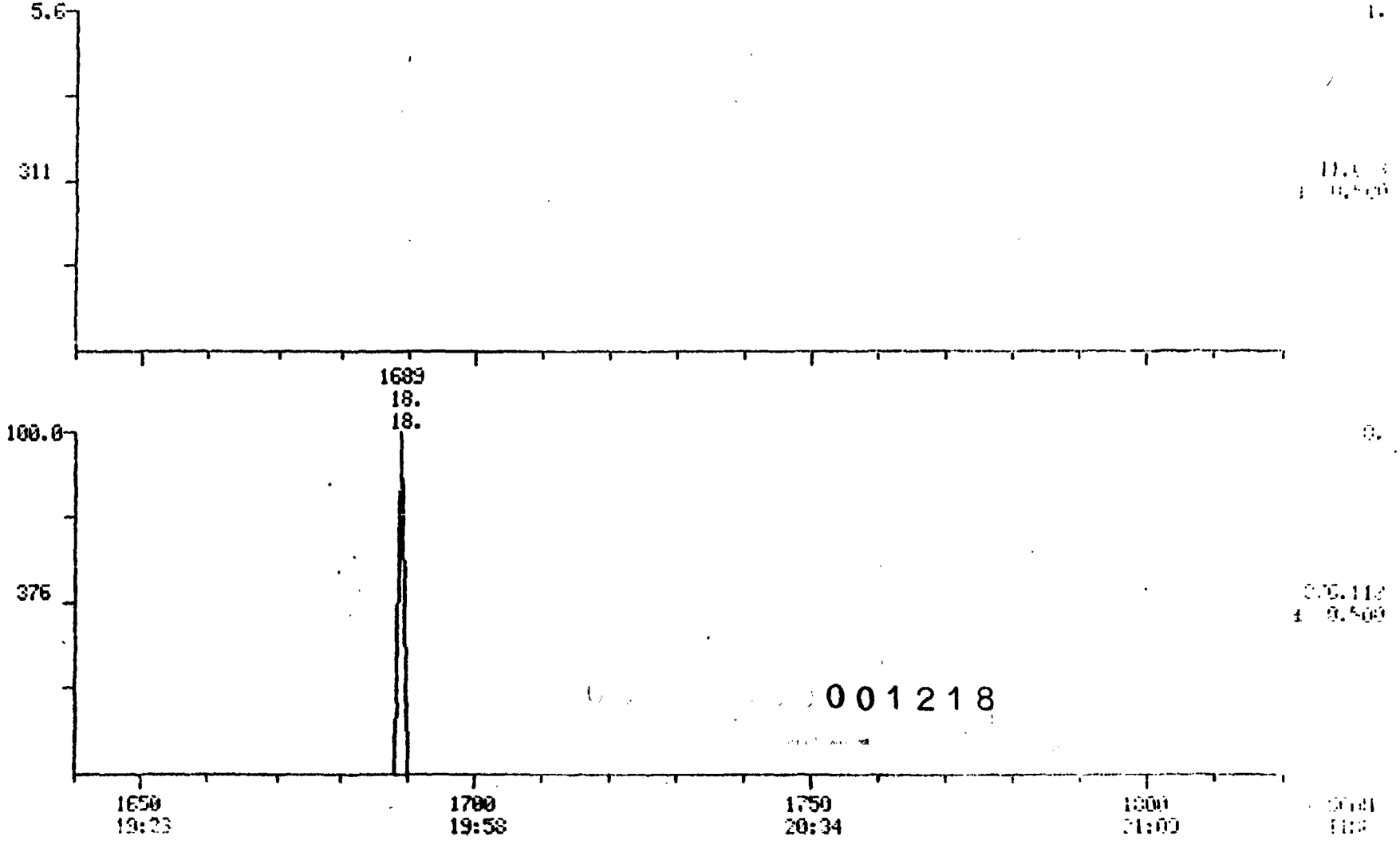


MASS CHROMATOGRAMS DATA: Y90B2354 #2367 SCANS 1470 TO 1640
10/29/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: H 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20, 3



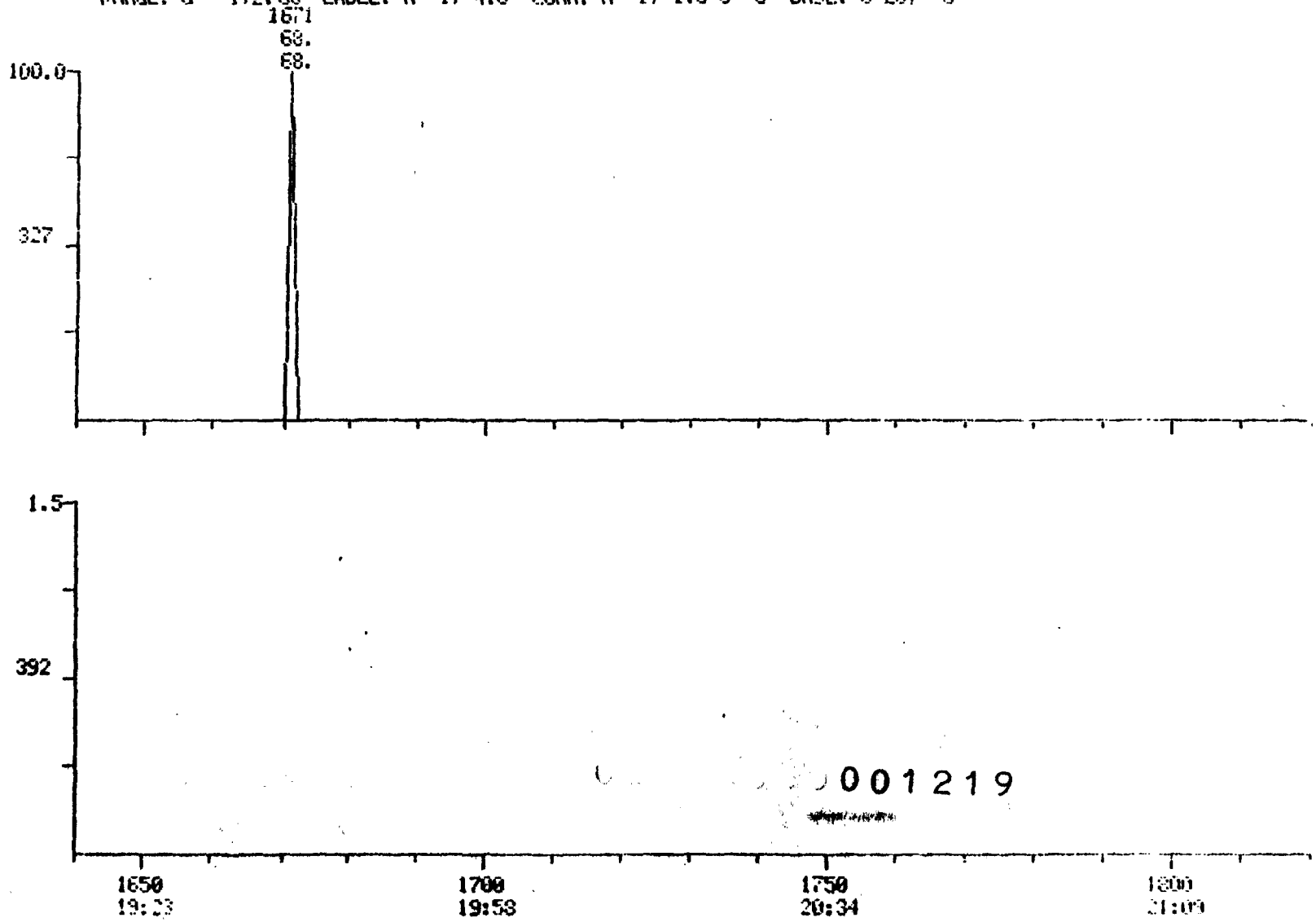
001217

MASS CHROMATOGRAMS DATA: Y90B2354 #2367 SCANS 1640 TO 1820
10/23/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 0

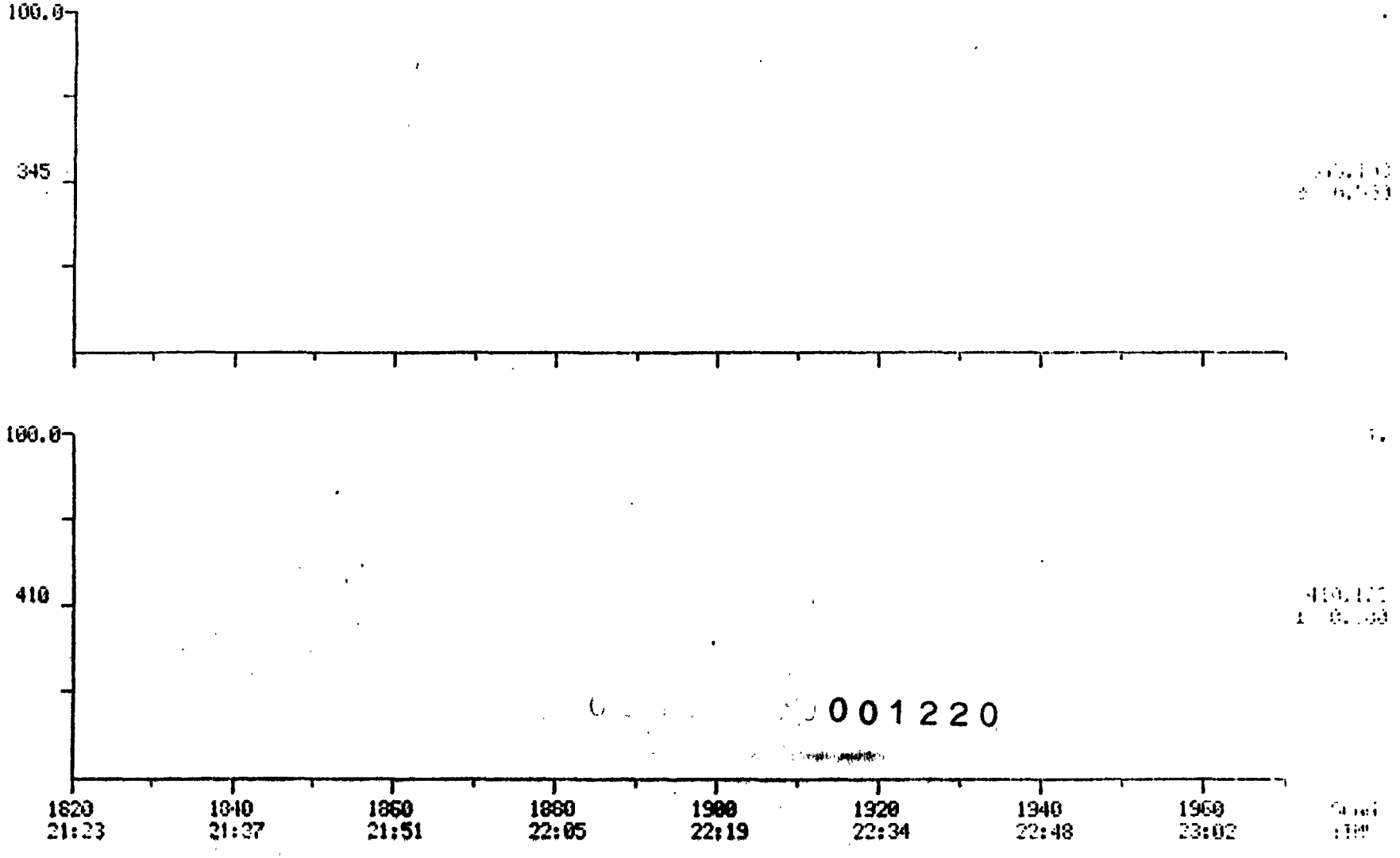


001218

MASS CHROMATOGRAMS DATA: Y9082354 #2367 SCANS 1640 TO 1800
10/29/90 4:40:00 CALI: Y9082354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: 0 20, 3

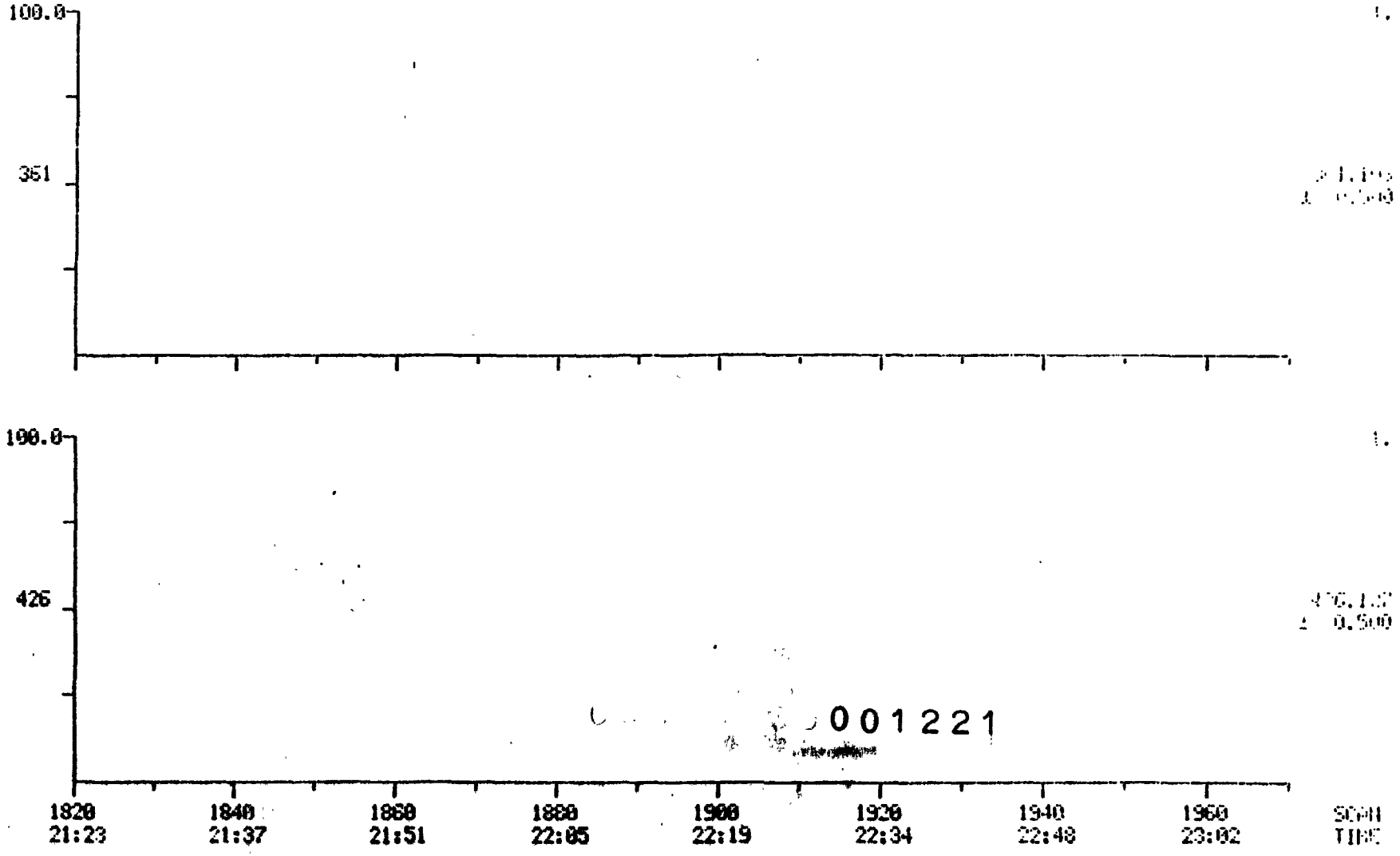


MASS CHROMATOGRAMS DATA: Y90B2354 #2367 SCANS 1820 TO 1970
10/29/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



001220

MASS CHROMATOGRAMS DATA: Y90B2354 #2367 SCANS 1820 TO 1970
10/29/90 4:40:00 CALI: Y90B2354 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: 0 20, 3



001221

10U .

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

DESCRIPTION OF TEST FACILITY

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #4
TEST DATE	:	13 OCT 1990
TEST RUN	:	4 - COMPLETED AT 15:31
PLANT	:	JACKSONVILLE ARKANSAS
UNIT	:	INCINERATOR
LOCATION	:	STACK
CONDITION	:	D WASTE BURN
OPERATORS	:	M. DILLARD / T. PREECE
FILTER ID	:	N/A
SAMPLE UNIT	:	N/A
CONTROL UNIT	:	#2

001222

SPECIAL TEST FACTORS

METER CORR. FACTOR, Yd	1.000	
RUNZZLE DIAMETER	0.310	in."
PITOT FACTOR (Cp)	0.84	
BARO. PRESSURE (Pb)	28.90	in.Hg. (incl. ALT CORR)
STATIC PRESSURE(Pg)	-.20	in.H20
METER VOLUME	122.281	ACF uncorrected
TEST DURATION	192.0	min.
IMPINGER CONDENSATE (H20)	1723.0	ml. (EST)
STACK AREA	9.61	sq.ft.
PERCENT CO2	5.20	%
PERCENT CO	0.00	%
PERCENT O2	11.40	%
PERCENT N2	83.40	%
H20 VP PERMITTED AT IMPINGER TEMP	0.000	in.Hg. (Si-Gel)
H20 VP PERMITTED AT STACK TEMP	43.000	in.Hg. (est)
NUMBER OF TRAVERSE POINTS	24	
WT. OF PARTICULATE MATTER	0.0000	grams.
VOLUME OF NAT.GAS BURNED	0.	SCF
STD TEMPERATURE	68	deg.F.
STD PRESSURE	29.92	in.Hg.
MOLE C / MOLE NAT.GAS	1.056	

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER : S1-262-01
CLIENT : VERTAC SITE CONTRACTERS DIOXIN #4
TEST DATE : 13 OCT 1990
TEST RUN : 4 - COMPLETED AT 15:31

STACK TRAVERSE DATA

POINT	Ts	dP	VEL	dH	T1	T2	Pm	Ti	%CO2	%O2
A-1	201	0.280	36.6	0.89	90.0	93.0	9.3	48.0	5.20	11.40
A-2	202	0.300	37.9	0.96	92.0	92.0	10.0	49.0	5.20	11.40
A-3	203	0.330	39.8	1.06	94.0	92.0	10.5	49.0	5.20	11.40
A-4	203	0.340	40.4	1.09	95.0	93.0	10.5	49.0	5.20	11.40
A-5	203	0.360	41.6	1.15	98.0	94.0	11.0	49.0	5.20	11.40
A-6	203	0.400	43.8	1.28	98.0	95.0	12.0	48.0	5.20	11.40
A-7	204	0.550	51.4	1.76	100.0	96.0	16.0	51.0	5.20	11.40
A-8	203	0.580	52.8	1.86	100.0	97.0	17.2	53.0	5.20	11.40
A-9	200	0.590	53.1	1.89	99.0	95.0	17.1	52.0	5.20	11.40
A-10	201	0.550	51.3	1.76	98.0	95.0	15.0	52.0	5.20	11.40
A-11	200	0.490	48.4	1.57	99.0	95.0	15.0	52.0	5.20	11.40
A-12	198	0.440	45.8	1.41	100.0	96.0	13.8	53.0	5.20	11.40
B-1	201	0.410	44.3	1.31	95.0	95.0	12.5	50.0	5.20	11.40
B-2	201	0.410	44.3	1.31	100.0	95.0	12.8	52.0	5.20	11.40
B-3	202	0.420	44.9	1.34	101.0	96.0	12.5	52.0	5.20	11.40
B-4	203	0.440	46.0	1.41	102.0	97.0	14.0	53.0	5.20	11.40
B-5	201	0.410	44.3	1.41	104.0	98.0	13.8	54.0	5.20	11.40
B-6	200	0.450	46.4	1.44	105.0	99.0	13.5	54.0	5.20	11.40
B-7	202	0.550	51.3	1.76	105.0	99.0	17.0	50.0	5.20	11.40
B-8	198	0.580	52.6	1.86	101.0	97.0	18.0	48.0	5.20	11.40
B-9	201	0.590	53.1	1.88	102.0	98.0	18.0	50.0	5.20	11.40
B-10	197	0.530	50.2	1.70	100.0	96.0	16.0	50.0	5.20	11.40
B-11	192	0.500	48.6	1.60	99.0	95.0	15.4	51.0	5.20	11.40
B-12	189	0.420	44.4	1.34	100.0	96.0	12.0	52.0	5.20	11.40
AVE	200	0.450	46.4	1.46	99.0	95.6	13.9	50.9	5.20	11.40

VEL = 85.48 * Cp * SQ.RT.((dP*Ts)/(Ps*Ms))

GAS METER VOLUME (uncorr.) = 122.2810

GAS METER FACTOR Yd = 1.000

NOTES

1. AVE PITOT TUBE PRESSURE (dP) IS THE SQUARE OF THE MEAN SQUARE ROOT

2. AVE % CO2 AND AVE % O2 ARE VELOCITY WEIGHTED

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #4
TEST DATE	:	13 OCT 1990
TEST RUN	:	4 - COMPLETED AT 15:31

SAMPLE GAS CALCULATIONS

A.	Vm	METER VOLUME, UNCORRECTED*METER FACTOR	=	%122.28	cu.ft.
B.	Pm	METER PRESSURE, Pb + dH/13.6	=	29.01	in.Hg.
C.	Tm	METER TEMPERATURE, 460+(T1+T2)/2	=	557	xR
D.	Ti	IMPINGER TEMPERATURE	=	51	xF
E.	Ts	STACK TEMPERATURE	=	660	xR
F.	Ps	STACK PRESSURE, Pb+Pg/13.6	=	28.89	in.Hg.
G.	VPi	MAX.H2O VP PERMITTED AT Ti	=	0.000	in.Hg.
H.	Vlc	VOLUME OF CONDENSED H2O	=	1723	ml.
I.	Vcalc	H2O VAPOR, METER COND., H*C/B*0.00267	=	88.39	cu.ft.
J.	Vwv	MOISTURE METERED AT METER COND., A*G/B	=	0.00	cu.ft.
K.	Vdry	SAMPLE VOLUME AT METER COND., DRY, A-J	=	%122.28	cu.ft.
L.	% Mc	PER CENT MOISTURE CALC. 100*(I+J)/(A+I)	=	41.96	%
M.	VPs	MAX H2O VP PERMITTED AT Ts (SEE APPENDIX).	=	43.00	in.Hg.
N.	%Ms	PERCENT MOISTURE PERMITTED, M/F*100	=	148.9	%
	Bws	ENTER LOWER OF L OR N	=	42.0	%
O.	M.C.	MOISTURE CORRECTION FACTOR (100-L OR N)/100	=	0.580	
P.	Vm(std)	SAMPLE VOL., STD COND. (DRY) K*528/29.92*B/C	=	%112.32	SCF
S.	mn	WEIGHT OF PARTICULATE MATTER COLLECTED	=	0.0000	gms.

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #4
TEST DATE	:	13 OCT 1990
TEST RUN	:	4 - COMPLETED AT 15:31

STACK GAS CALCULATIONS

GAS ANALYSIS						
COMPONENT	VOL%/100	* MOISTURE CORR.	* MOL.WT.	=	WT./MOLE WET BASIS	
WATER	0.4196	* 1.0000	* 18.0	=	7.552	
OXYGEN	0.1140	* 0.5804	* 32.0	=	2.117	
CARBON MONOXIDE	0.0000	* 0.5804	* 28.0	=	0.000	
CARBON DIOXIDE	0.0520	* 0.5804	* 44.0	=	1.328	
NITROGEN / INERTS	0.8340	* 0.5804	* 28.2	=	13.651	
AA. Ms AVERAGE MOLECULAR WEIGHT					24.649	

DD.	Cp PITOT TUBE CORRECTION FACTOR	=	0.84	
EE.	Vs STACK VELOCITY @ STACK COND.	=	46.39	ft/sec
FF.	Vs(std) VELOCITY @ STD.COND.(DRY) EE*528/29.92*F/E*O	=	20.79	ft/sec
GG.	DURATION OF SAMPLING	=	192	min.
HH.	AVERAGE SAMPLING RATE (DRY), P/GG	=	0.585	SCFM
II.	SELECTED NOZZLE DIAMETER	=	0.310	in.
JJ.	SAMPLING VELOCITY AT STD. CONDITIONS, HH/II^2*144/60/PI	=	18.59	ft/sec
KK.	ISOKINETIC VARIATION, JJ/FF*100	=	89	%
LL.	As AREA OF STACK	=	9.610	sq.ft.
MM	Qsd FLOW RATE AT STD COND (DRY), FF*LL*60	=	11985	SCFM
NN	Qs FLOW RATE AT STACK COND., EE*LL*60	=	26747	ACFM
UU	PARTICULATE EMISSION RATE, 0.00858*T*MM	=	0.00	lb/hr

FLINT ENVIRONMENTAL SERVICES, INC.
2440 SOUTH YUKON
TULSA, OKLAHOMA 74107

PROJECT NUMBER	:	S1-262-01
CLIENT	:	VERTAC SITE CONTRACTERS DIOXIN #4
TEST DATE	:	13 OCT 1990
TEST RUN	:	4 - COMPLETED AT 15:31

COMBUSTION CALCULATIONS

T.	CS	GRAIN LOADING (DRY)	=	0.000	grains/ DSCF
UU.		PARTICULATE EMISSION RATE 0.00857*T*MM	=	0.00	lb/hr
OO.	%CO2	(GAS ANALYSIS - STACK EXHAUST)	=	5.20	%
PP.	C12	GRAIN LOADING (DRY) @ 12% CO2, T*12/OO	=	0.000	grains/ DSCF
ZZ.	EXCESS AIR =	$\frac{(\%\ \text{OXYGEN} - \%\ \text{CO}) * 100}{0.264*(\%\ \text{N2})-(\%\ \text{OX})+0.5*(\%\ \text{CO})}$	=	107	%
QQ.	%O2	(WEIGHTED VALUE)	=	11.4	%
RR	O2	LOADING (DRY ATR 7% O2), T*14/(21-QQ)	=	0.000	grains/ DSCF

001226

start ⇒ 12:04 K_3 = 3.20 [illegible]

Date: 10/13/90

FIELD DATA SHEET

QAF S042
Page 1 of 1
Revision 4
Effective Date: 1/22/88

Run Number: Dioxin #4 CO_2 ⇒ 5.2 O_2 ⇒ 11.4

TRAVERSE POINT NUMBER	SAMPLING TIME, MIN.	CLOCK TIME	GAS METER READING (VM), FT³	VELOCITY HEAD ΔP	VELOCITY HEAD ΔP²	ORIFICE PRESSURE (ΔH)	STACK TEMP. (TS), °F	DRY GAS METER TEMPERATURE INLET (TM in)	DRY GAS METER TEMPERATURE OUTLET (TM out)	PUMP VACUUM IN HG	SAMPLE BOX TEMP. °F	IMPINGER TEMP. °F	PROBE TEMP. °F	O_2
Initial	0	12:04	475.595	.26		.896	199	94	94	—	263	69	266	
1	8	12:12	479.658	.28		.996	201	90	93	9.3	295	48	255	
2	16	12:20	483.890	.30		.960	202	92	92	10.0	295	49	258	
3	24	12:28	488.202	.33		1.056	203	94	92	10.5	274	49	265	
4	32	12:36	492.695	.34		1.088	203	95	93	10.5	276	49	265	
5	40	12:42	497.225	.36		1.152	203	98	94	11.0	278	49	272	
6	48	12:50	501.959	.40		1.28	203	99	95	12.0	275	48	265	
7	56	12:58	507.372	.55		1.76	204	100	96	16.0	280	51	269	
8	64	1:06	512.063	.58		1.86	203	100	97	17.2	280	53	271	
9	72	1:14	518.816	.59		1.886	200	99	95	17.1	278	52	261	
10	80	1:22	524.368	.55		1.76	201	98	95	15.0	277	52	259	
11	88	1:30	529.720	.49		1.57	200	99	95	15.0	266	52	260	
12	96	1:38	534.874	.44		1.41	198	100	96	13.8	275	53	246	
			59.286											
Initial	0	1:45	534.996	.41		1.31	199	95	95	12.5	273	60	272	
1	8	↑	539.798	.41		1.31	201	96	94	13.0	277	50	278	
2	16		544.666	.41		1.31	201	100	95	12.8	281	52	279	
3	24		549.492	.42		1.34	202	101	96	12.5	285	52	280	
4	32		554.538	.44		1.41	203	102	97	14.0	286	53	282	
5	40		559.635	.44		1.41	201	104	98	13.8	283	54	274	
6	48		564.745	.45		1.44	200	105	99	13.5	283	54	266	
7	56		570.361	.55		1.76	207	105	99	17.0	282	50	266	
8	64		576.110	.58		1.86	199	101	97	19.0	275	48	265	
9	72		581.860	.59		1.88	201	107	98	18.0	279	50	268	
10	80	↓	587.405	.53		1.70	197	100	96	16.0	272	50	265	
11	88		592.905	.50		1.60	192	99	95	15.4	272	51	266	
12	96	3:31	597.991	.42		1.34	189	100	[illegible]	[illegible]	270	52	269	
			62.995											

Leak checks
initial .008 ft³/min
Port change 0 ft³/min
Post 0 ft³/min

FORM

PARTICULATE SAMPLING DATA

DIOXIN (4)

EPA REFERENCE METHOD 5/8/17

PAGE 1 OF

REVISION: F
ORIGINATOR: K. IDEN
APPROVED:
EFFECTIVE DATE: 3/23/82

TEST ID

PROJECT NO. 51 262 01
CLIENT VSC
PLANT Vertac
UNIT Incinerator
LOCATION Jacksonville Ark.
CONDITION
DATE
TEST RUN ID Dioxin #4
OPERATORS

STACK DIMENSIONS

48" Round

EQUIPMENT ID

CONTROL UNIT #2
SAMPLE UNIT
D.T.I./M-M
NOZZLE .310"
PROBE
PITOT TUBE
BAROMETER
PROBE SPECIFICATIONS
LINER MATERIAL Glass
EFFECTIVE LENGTH 5'
HEATER TEMP., °F
FILTER ID
HEATER TEMP., °F

LEAK-TEST DATA

INITIAL RATE
PITOT (-)
PITOT (+)
NOZZLE (-)
ORIFICE (+)
FINAL RATE
PITOT (-)
PITOT (+)
NOZZLE (-)
ORIFICE (+)

STACK PRESSURE DATA

PB, IN. HG
PSG, IN. H2O

SAMPLE RATE DATA

CP .84
Δ HA
TM, °F
%H2O
PB, IN. HG
PSG, IN. H2O
TS, °F
DN, IN.

TS, °F

TM, °F				

PXP ISO DATA

NO OF PTS 24
NET TIME 192
PITOT CP .84
NOZZLE ID .310"
Y-FACTOR 1.00
BAROMETER
STATIC -.2"
% CO2
% O2
G H2O
VM ZERO
VM END

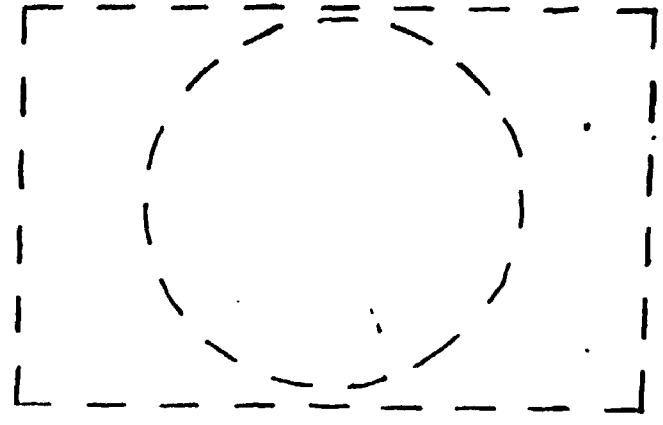
MOISTURE DATA

	GROSS	TARE	NET
1	1690	ORG	1690
2	115	100 ml	15
3	100	100 ml	0
4		ORG	0
T	660	642	18

1723

PARTICULATE CATCH

PARTIAL, MG
TOTAL, MG



SAMPLE POINT LOCATION

Page ____

QAF S-251
Revision:
Effective Date:

CHAIN OF CUSTODY RECORD
YORK RESEARCH CONSULTANTS

Project No: 51-262-01
Project/Client: VERTAC
Samples taken by: JMD / TWP

Sample ID	Date/Time	Type	# Cont	Sample Location/ Description	Analysis: 23 TCDD				Remarks
Dioxin #4	10-13-90/15:31	AIR	1	VERTAC STACK LIQUID/RESIN/FILTER RECOVERY	X				

Relinquished by: (signature)	Date/Time:	Rec'd by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)
Todd Parker	10-16-90/3:00				

Relinquished by: (signature)	Date/Time:	Rec'd by: (signature)	Relinquished by: (signature)	Date/Time	Rec'd by: (signature)

0012229

DIOXIN/FURAN SUMMARY FORM

SAMPLE ID:DIOXIN 4

MATRIX: (FEED,FILTER,ASH,SOIL,SLUDGE,WATER) LIQUID/RESI

LAB SAMPLE ID:	1326	LAB FILE ID:	Y90B 2355
SAMPLE WT/VOL: NA	1.00	DATE COLLECTED:	10/13
INSTRUMENT ID:	FINN#1	DATE RECEIVED:	10/18
GC COLUMN:	DB5	DATE EXTRACTED:	10/18
WATER PREP:(SF/CE)	NA	EXTRACT PREP:(RV/KD)	RV
DATE ANALYZED:	10/29	TIME ANALYZED:	4:40
EXTRACT VOLUME:(uL)	100 uL	INJECTION VOLUME:(uL)	2.00
TOTAL AMOUNT UNITS:	ng	CONC. UNITS:	NA

INTERNAL STANDARD RECOVERY DATA

AREA IS1: 106	100	IS1 RECOVERY:(%)	42.7%
AREA IS2: 46.80	200	IS2 RECOVERY:(%)	52.2%
AREA RS: 230 QUANT IS1:	100	QUANT IS2: 200	

001230

POLYCHLORINATED DIBENZODIOXINS				POLYCHLORINATED DIBENZOFURANS			
ANALYTE	AREA	RF	VALUE	ANALYTE	AREA	RF	VALUE
INTERNAL STANDARD 1 QUANTITATED							
2378-TCDD		1.13	0.00	2378-TCDF	2.7	1.57	1.62
TOTAL OTHER TCDD		1.13	0.00	TOTAL OTHER TCDF		1.57	0.00
12378-PeCDD		0.80	0.00	12378-PeCDF	1.5	0.94	1.51
TOTAL OTHER PeCDD		0.80	0.00	23478-PeCDF		0.94	0.00
				TOTAL OTHER PeCDF		0.94	0.00
123478-HxCDD		0.53	0.00	123478-HxCDF		0.77	0.00
123678-HxCDD		0.53	0.00	123678-HxCDF		0.77	0.00
123789-HxCDD		0.53	0.00	123789-HxCDF		0.77	0.00
TOTAL OTHER HxCDD		0.53	0.00	234678-HxCDF		0.77	0.00
				TOTAL OTHER HxCDF		0.77	0.00
INTERNAL STANDARD 2 QUANTITATED							
1234678-HpCDD		1.86	0.00	1234678-HpCDF		2.77	0.00
TOTAL OTHER HpCDD		1.86	0.00	1234789-HpCDF		2.77	0.00
				TOTAL OTHER HpCDF		2.77	0.00
TOTAL OCDD		1.32	0.00	TOTAL OCDF		1.92	0.00

0.0 = NOT DETECTED AT EDL (SEE NEXT PAGE)

VALUE = AREA SAMPLE * CONC IS1(2)/AREA IS1(2) * RF

DIOXIN/FURAN SUMMARY FORM

TOXICITY EQUIVALENT QUANTITY

SAMPLE ID:DIOXIN 4 LAB ID: 1326

DATA FILE ID: Y90B 2355

	RF	EDL CODE	CALCULATION AREA	CONC	VALUE	TEF
2378-TCDD	1.13	N	1.0	1.066	0	1.0
I* OTHER TCDD	1.13	I	8.6	9.168		0.01
TOTAL OTHER TCDD	1.13	N	1	1.066	0	0.01
12378-PeCDD	0.8	N	1	0.755	0	0.5
I* OTHER PeCDD	0.8			0.000	0	0.005
TOTAL OTHER PeCDD	0.8	N	1	0.755	0	0.005
123478-HxCDD	0.53	N	1.0	0.500	0	0.040
123678-HxCDD	0.53	N	1	0.500	0	0.040
123789-HxCDD	0.53	N	1	0.500	0	0.040
TOTAL OTHER HxCDD	0.53	N	8.7	4.350	0	0.0004
1234678-HpCDD	1.86	N	1	1.755	0	0.0010
TOTAL OTHER HpCDD	1.86	N	1	1.755	0	0.0004
2378-TCDF	1.57	I	1	1.481	1.6	0.1
I* OTHER TCDF	1.57			0.000		0.001
TOTAL OTHER TCDF	1.57	N	1	1.481	0.000	0.001
12378-PeCDF	0.94	N	1	0.887	1.5	0.1
23478-PeCDF	0.94	N	1	0.887	0.0	0.1
I* OTHER PeCDF	0.94			0.000		0.0004
TOTAL OTHER PeCDF	0.94	N	1	0.887	0.0000	0.0004
123478-HxCDF	0.77	N	1	0.726	0.00	0.0100
123678-HxCDF	0.77	I	1	0.726	0.00	0.0100
123789-HxCDF	0.77	N	1	0.726	0.00	0.0100
234678-HxCDF	0.77	N	1	0.726	0.00	0.0100
TOTAL OTHER HxCDF	0.77	N	1	0.726	0.00	0.0001
1234678-HpCDF	2.77	N	1	2.613	0.000	0.0010
1234789-HpCDF	2.77	N	1	2.613	0.000	0.0010
TOTAL OTHER HpCDF	2.77	N	1.0	2.613	0.000	0.0001

CONC = EDL AREA * CONC IS1(2)/IS1(2) AREA * RF

TEQ = CONC (or VALUE) * TEF

* I = INTERFERANT; N = NOISE;

YORK RESEARCH CONSULTANTS

001231

Quantitation Report   File: Y90B2355

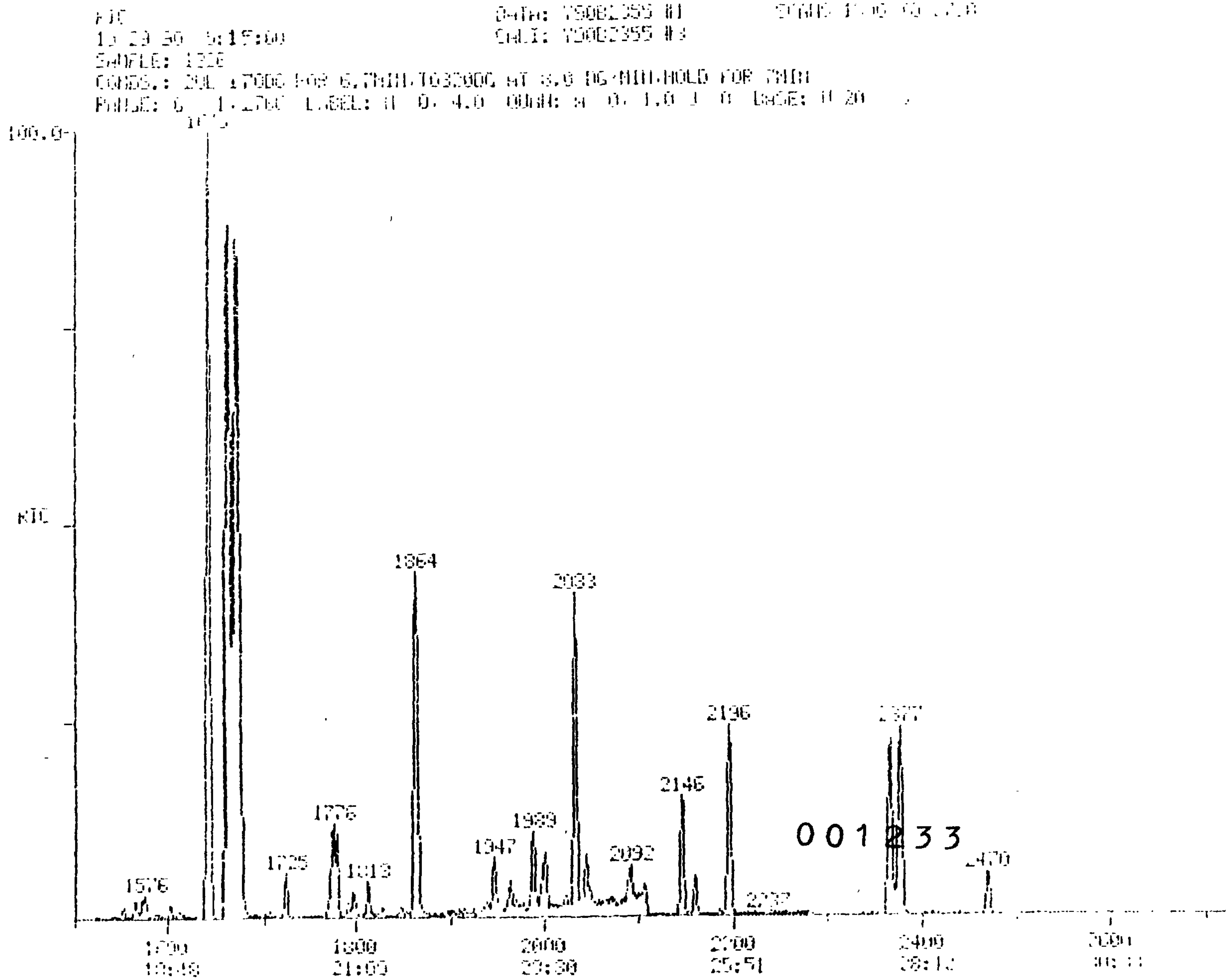
Data: Y90B2355.TI
5/29/90 5:15:00
Sample: 1326
[illegible]

AMNT=AREA * REF AMNT / (REF AREA * RESP FACT)
Resp Fac. from Library Entry

No	Name
1	*RS1* 13C 1,2,3,4-TCDD (DF#1)
2	*IS1* 13C 2,3,7,8-TCDD (DF#2)
3	*IS2* 13C 1,2,3,4,6,7,8,9-OCDD (DF#3)
4	*IS1* 37CL 2,3,7,8-TCDD (DF#4)
5	2,3,7,8-TCDF (DF#5)
6	2,3,7,8-TCDD (DF#6)
7	1,2,3,7,8-PECDF (DF#7)
8	2,3,4,7,8-PECDF (DF#8)
9	1,2,3,7,8-PECDD (DF#9)
10	1,2,3,4,7,8-HXCDF (DF#10)
11	1,2,3,6,7,8-HXCDF (DF#11)
12	1,2,3,7,8,9-HXCDF (DF#12)
13	2,3,4,6,7,8-HXCDF (DF#13)
14	1,2,3,4,7,8-HXCDD (DF#14)
15	1,2,3,6,7,8-HXCDD (DF#15)
16	1,2,3,7,8,9-HXCDD (DF#16)
17	1,2,3,4,6,7,8-HPCDF (DF#17)
18	1,2,3,4,7,8,9-HPCDF (DF#18)
19	1,2,3,4,6,7,8-HPCDD (DF#19)
20	1,2,3,4,6,7,8,9-OCDF (DF#20)
21	1,2,3,4,6,7,8,9-OCDD (DF#21)
22	13C 2,3,7,8-TCDD (DF#22)
23	13C 1,2,3,4,6,7,8,9-OCDD (DF#23)

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	334	1665	19:34	1	1.000	A BV	220521	2000.000	PG/UL	21.97
2	334	1671	19:38	2	1.000	A VB	106017	2000.000	PG/UL	21.77
3	472	2368	27.47	3	1.000	A BB	49836	2000.000	PG/UL	21.97
4	NOT FOUND									
5	306	1628	19:08	2	0.974	A BB	274	3.146	PG/UL	0.03
6	322	1690	19:51	2	1.011	A VB	53	0.953	PG/UL	0.01
7	NOT FOUND									
8	340	1928	21:29	2	1.094	A BB	102	2.037	PG/UL	0.02
9	356	1879	22:04	2	1.124	A*BV	199	5.026	PG/UL	0.06
10	374	1996	23:27	2	1.194	A VB	1040	33.696	PG/UL	0.37
11	374	1992	23:24	2	1.192	A BV	1373	42.125	PG/UL	0.46
12	NOT FOUND									
13	374	2022	23:46	2	1.210	A BB	1170	38.312	PG/UL	0.43
14	390	2033	23:53	2	1.217	A BB	252	12.756	PG/UL	0.14
15	NOT FOUND									
16	390	2049	24:05	2	1.226	A BB	150	8.076	PG/UL	0.09
17	408	2147	25:14	3	0.907	A BB	3216	77.673	PG/UL	0.85
18	408	2236	26:16	3	0.944	A BB	412	13.725	PG/UL	0.15
19	424	2196	25:43	3	0.927	A BB	2860	111.143	PG/UL	1.22
20	NOT FOUND									

001232



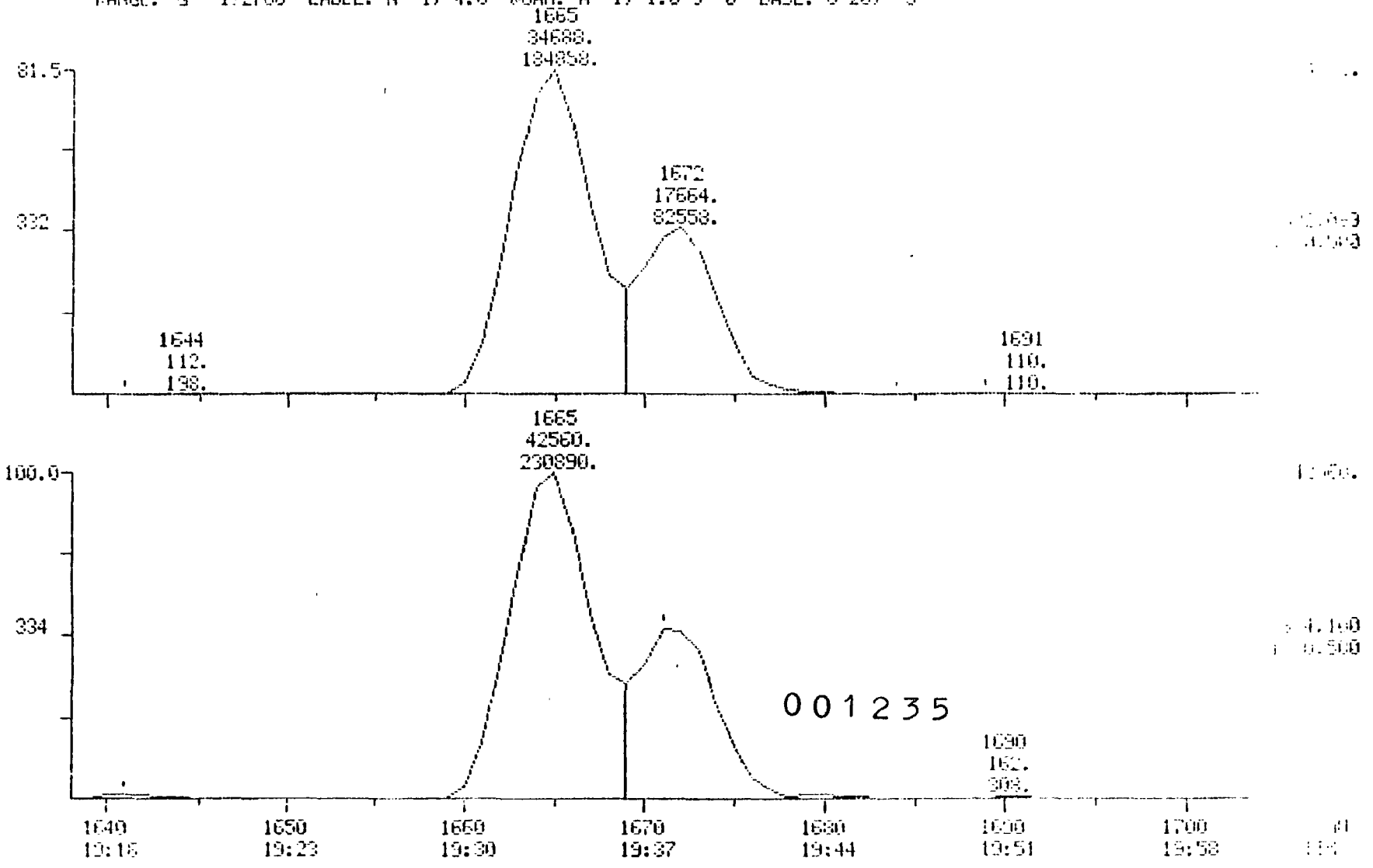
RIC
CONDS.: 20L 170DC FOR 6.7MIN TO 320DC AT 8.0 DG/MIN HOLD FOR 7MIN
100.0
RIC
1576
1725
1776
1813
1864
1947
1989
2033
2092
2146
2196
2237
2470
1700
18:48
1800
21:09
2000
23:30
2200
25:51
2400
28:12

001233

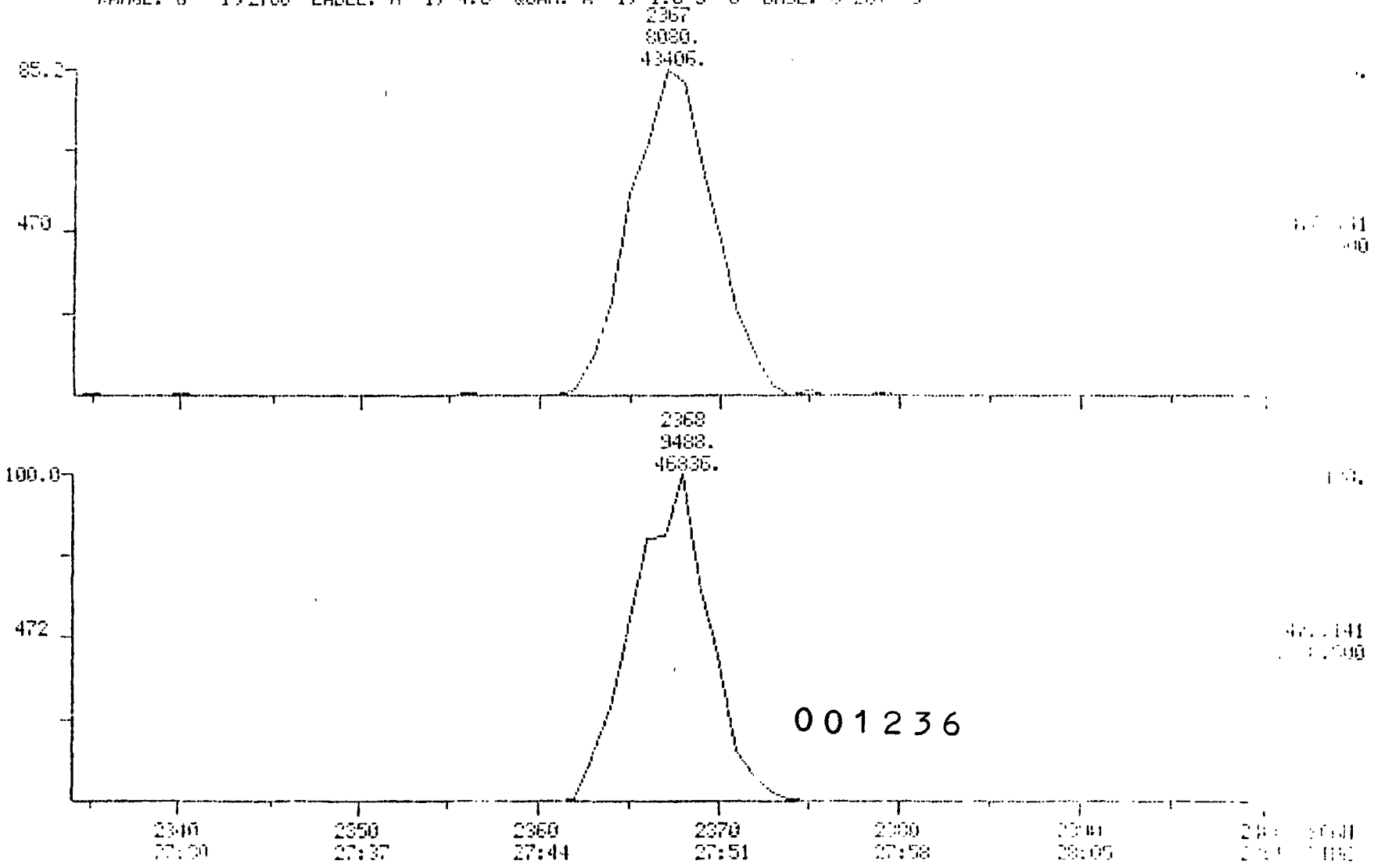
Pk	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount		%Tot
1	460	2367	27.49	3	1.000	A BB	10[illegible]2.	75.627	PG/UL	0.83
2	334	1671	19.33	1	1.004	A VB	106[illegible]17.	494.[illegible]01	PG/UL	5.44
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	A [illegible]	[illegible]	[illegible]	[illegible]	[illegible]

001234

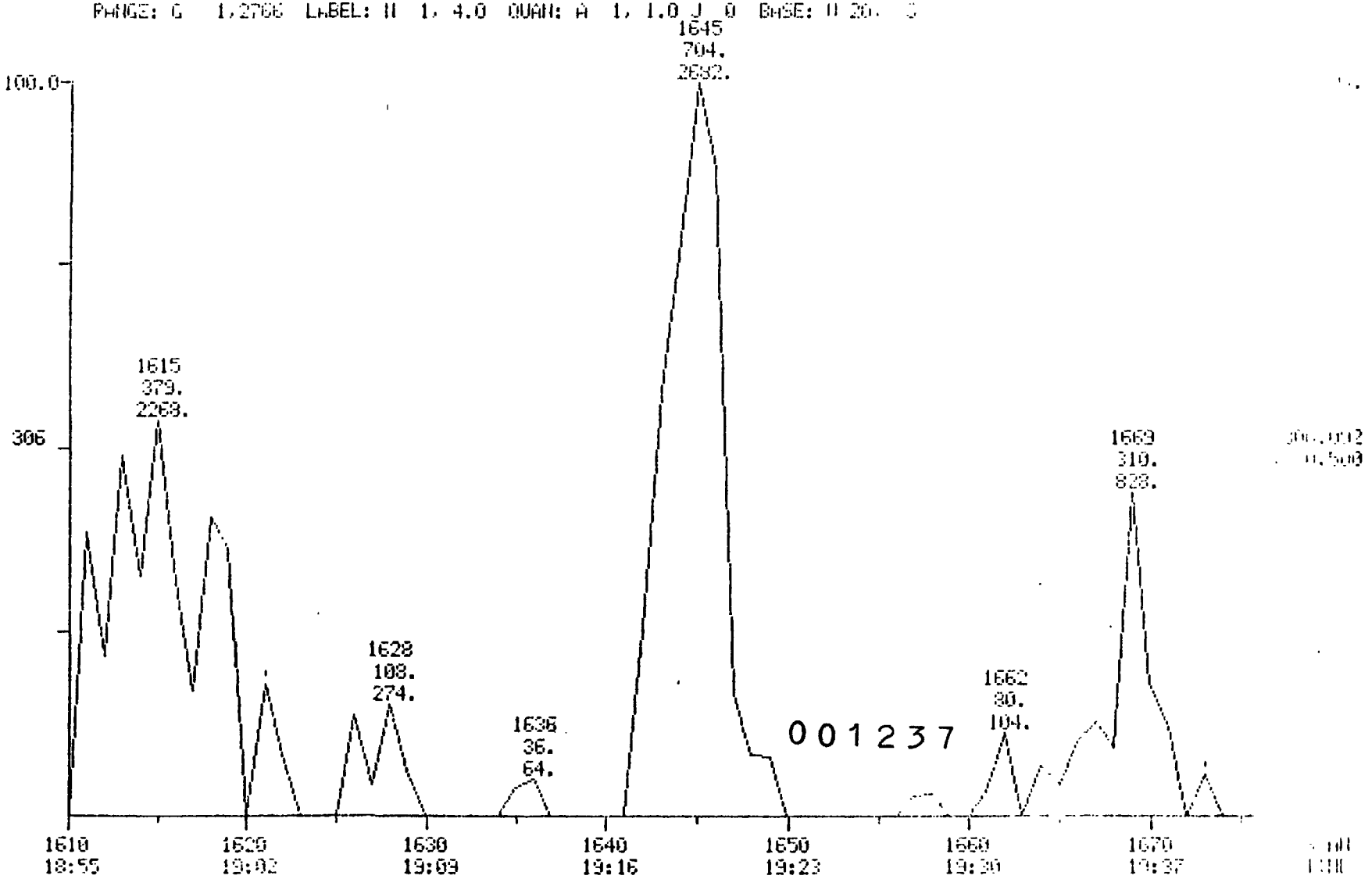
MASS CHROMATOGRAMS
10/29/90 5:15:00
SAMPLE: 1326
DATA: Y90B2355 #1671
CALI: Y90B2355 #3
SCANS 1638 TO 1704
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG-MIN,HOLD FOR 7MIN
ITS1# 130 2,3,7,8-TCDD (DF#2)
RANGE: 5 1:2766 LABEL: N 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20, 3

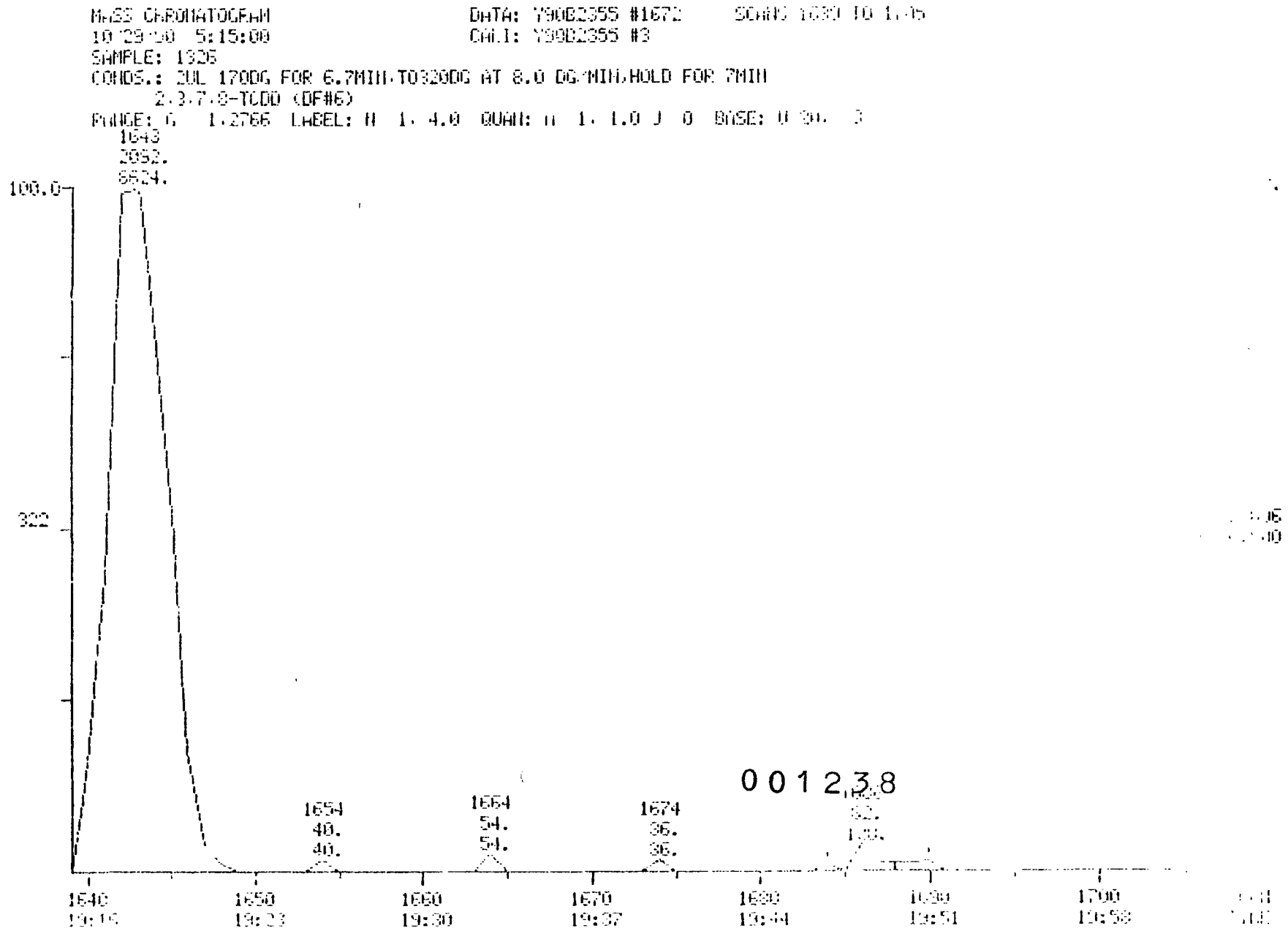


MASS CHROMATOGRAMS DATA: Y30B2355 #2367 SCANS
10/29/90 5:15:00 CALI: Y30B2355 #3
SAMPLE: 1326
CONDS.: 20L 170DG FOR 6.7MIN,TO 300DG AT 8.0 DG/MIN,HOLD FOR 7MIN
HISH 13C 1,2,3,4,6,7,8,9-OCDD (DF=3)
RANGE: G 1.2766 LABEL: H 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: H 2...

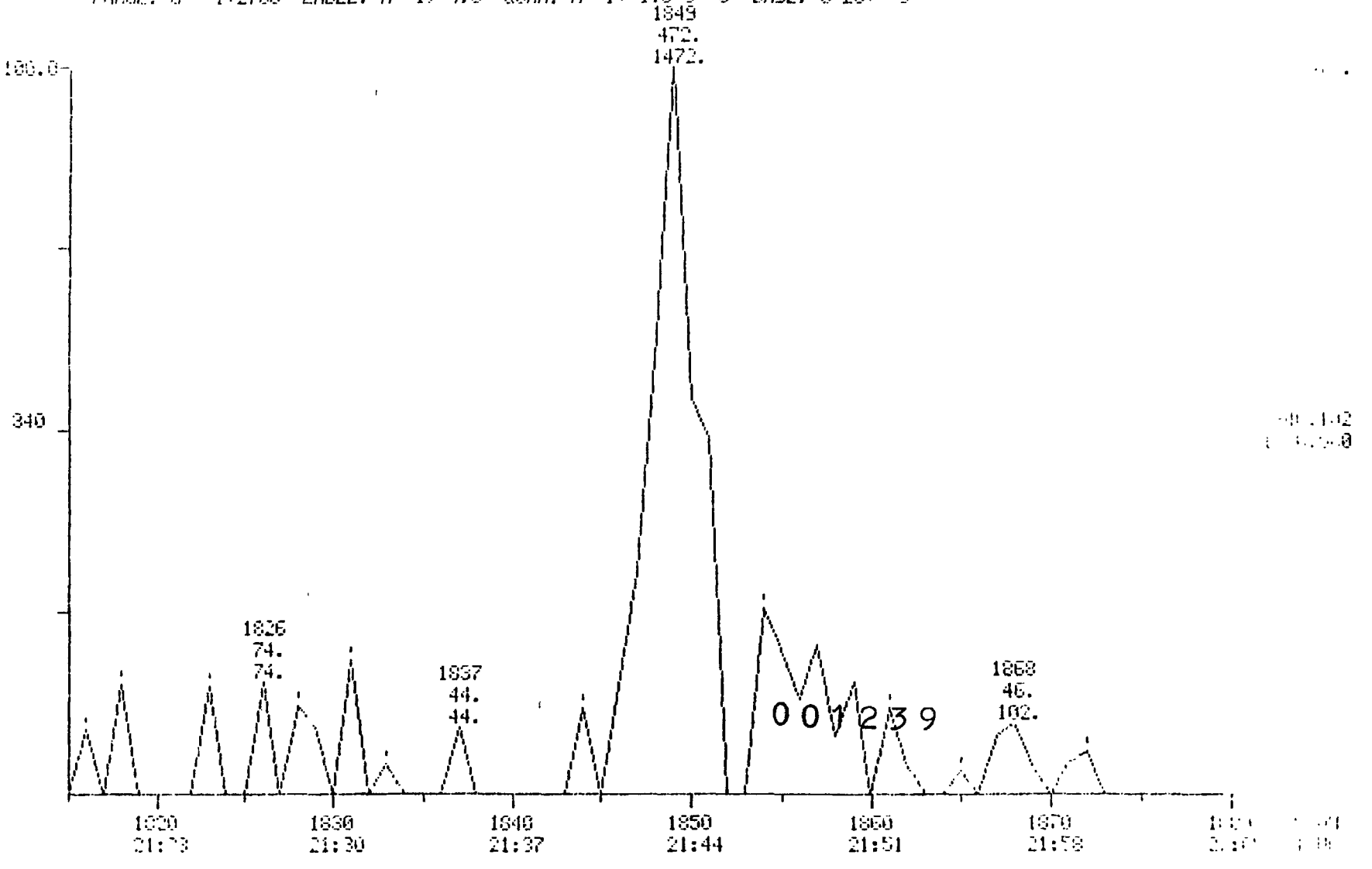


MASS CHROMATOGRAM DATA: V90B2355 #1643 SCANS 1610 TO 1676
10/29/90 5:15:00 CALI: V30B2355 #3
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDF (DF#5)
RANGE: G 1,2766 LABEL: H 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: H 20. 3



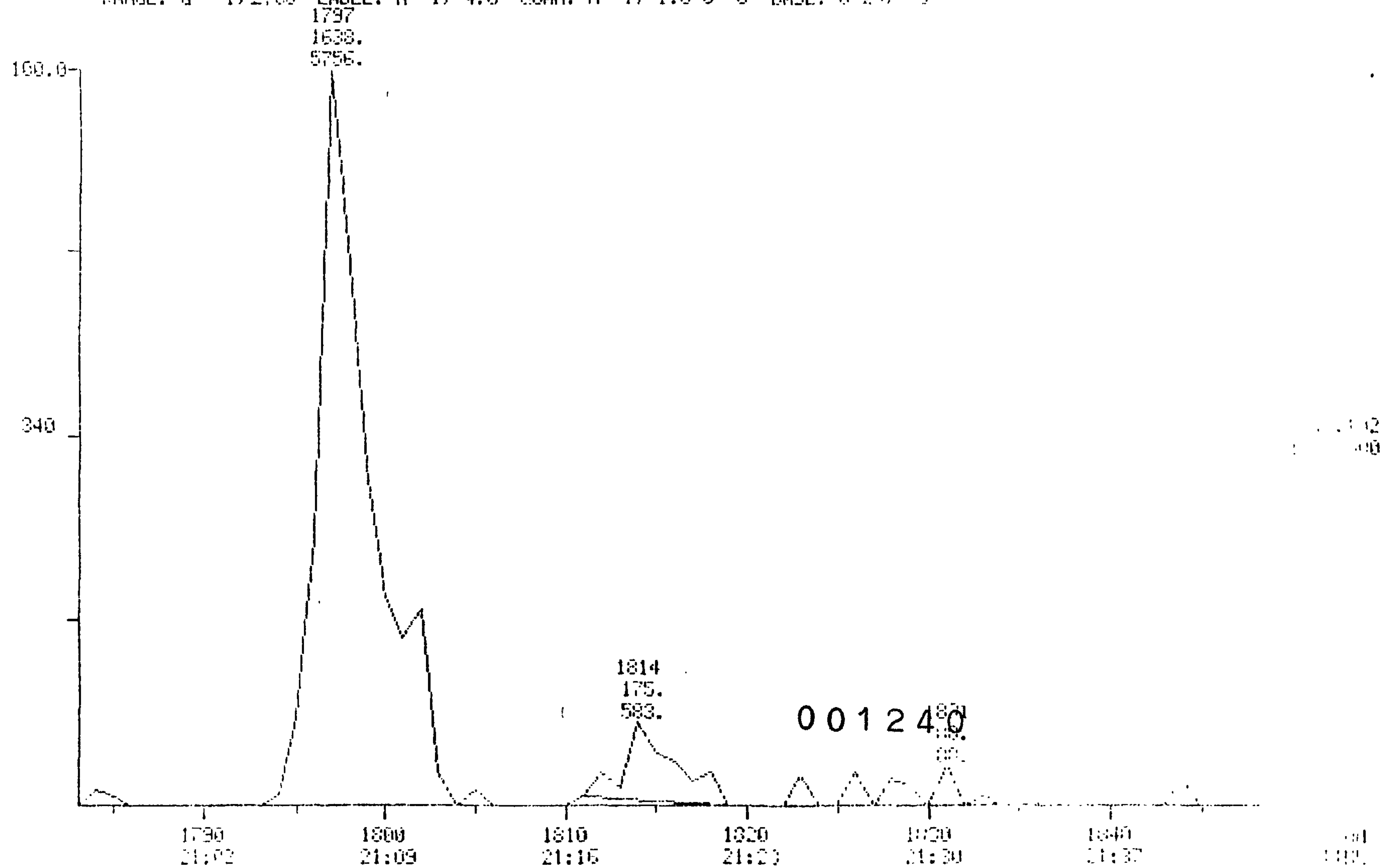

MASS CHROMATOGRAM
10'29'90 5:15:00
DATA: Y90B2355 #1672
CAL: Y90B2355 #3
SCANS 1630 TO 1705
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN·TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDD (DF#6)
RANGE: 6 1.2786 LABEL: H 1. 4.0 QUAN: H 1. 1.0 J 0 BASE: 0 94. 3
1643
2052.
6624.
100.0
322
1654
40.
40.
1664
54.
54.
1674
36.
36.
001238
1640
19:16
1650
19:23
1660
19:30
1670
19:37
1680
19:44
1690
19:51
1700
19:58

MASS CHROMATOGRAM DATA: Y9082355 #1848 SCANS 1815 TO 1881
10 25 90 5:15:00 CALI: Y9082355 #3
SAMPLE: 1226
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDF (DF#7)
RANGE: G 1.2766 LABEL: H 1. 4.0 QUAN: H 1. 1.0 J 0 BASE: U 20. 3

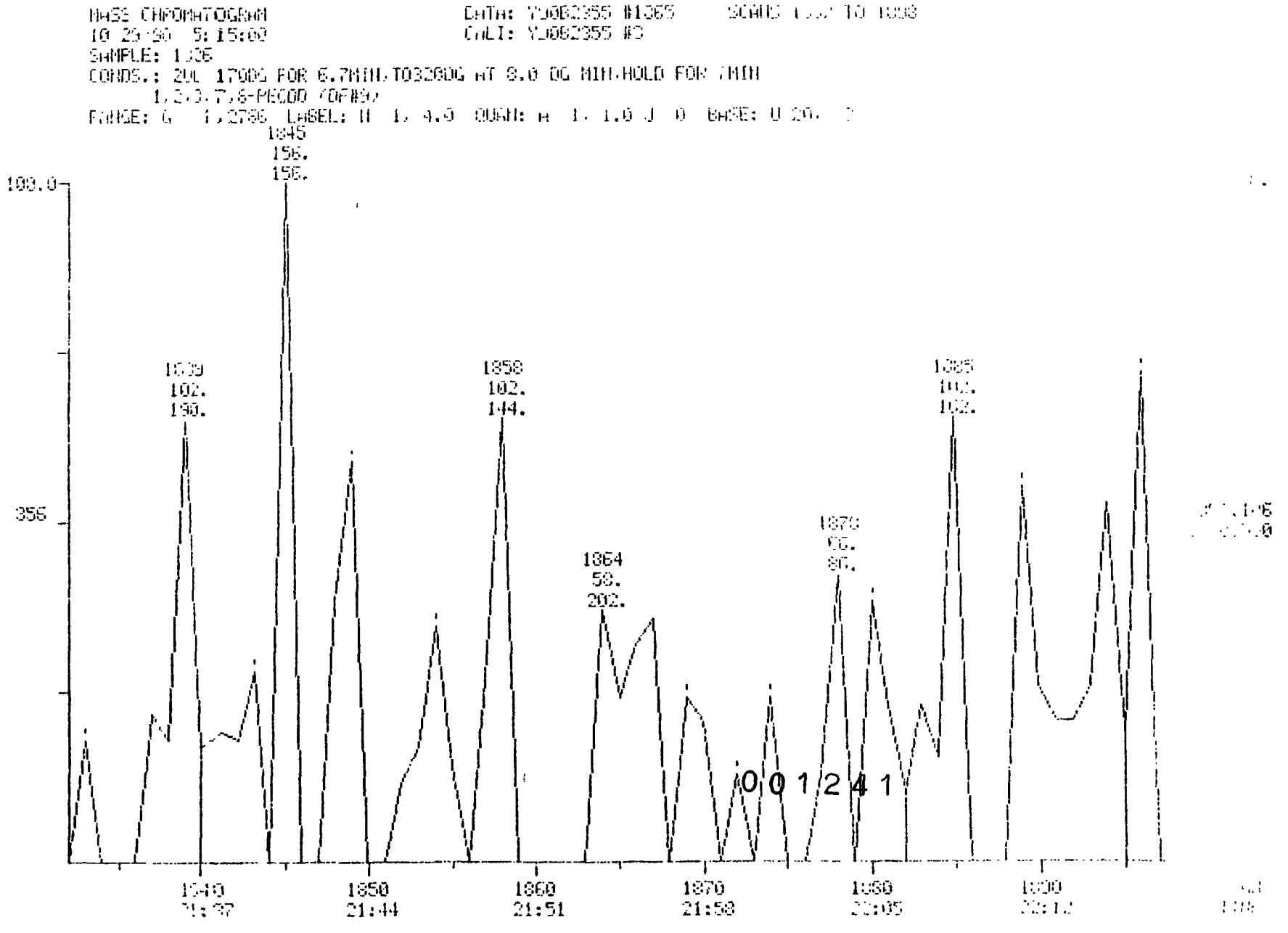


MASS CHROMATOGRAM
10/29/90 5:15:00
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,7,8-PECDF (DF#8)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

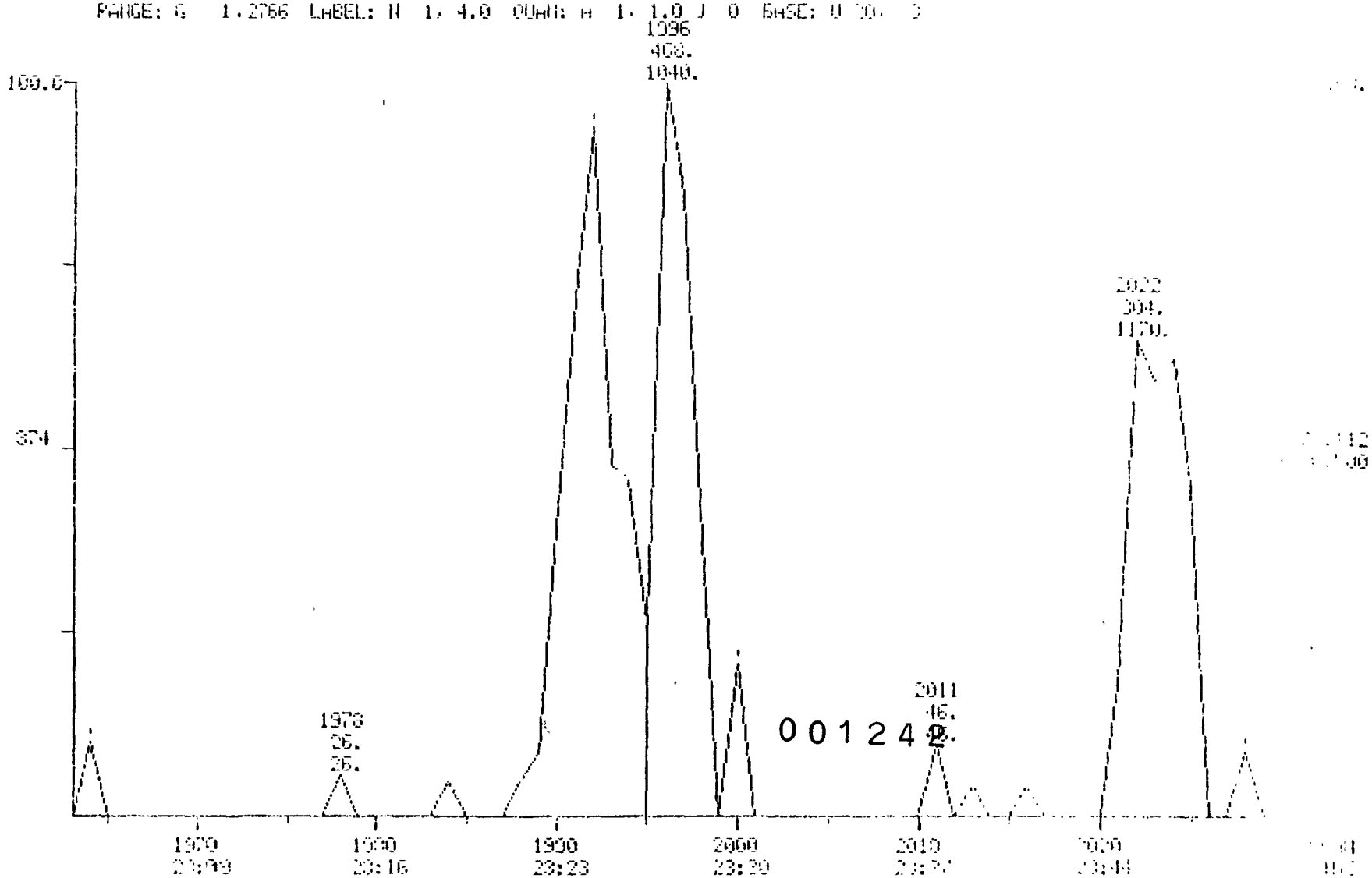
DATA: Y90B2355 #1816
CALI: Y90B2355 #3



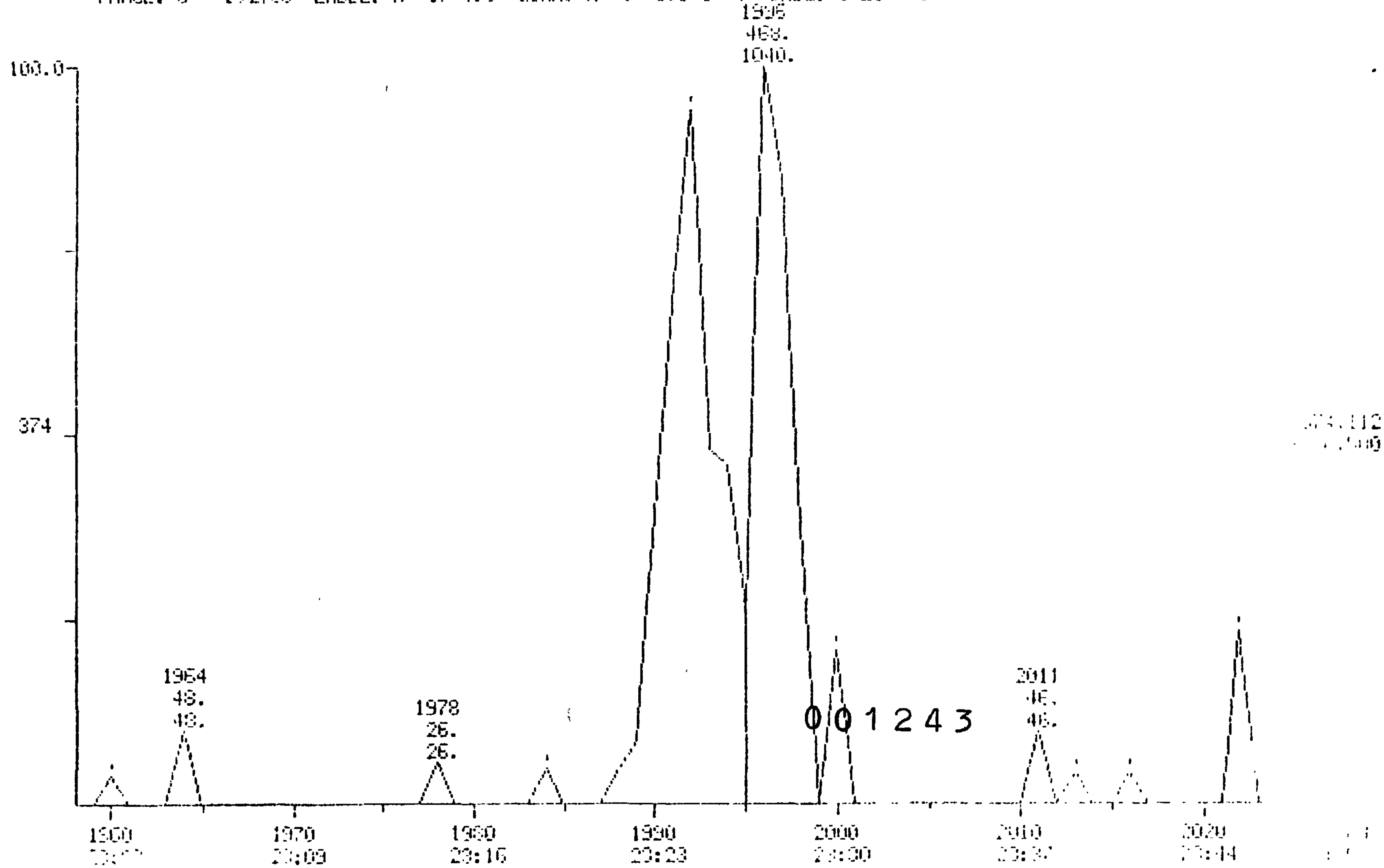
001240


MASS CHROMATOGRAM
10 29 90 5:15:00
SAMPLE: 1335
CONDS.: 20L 1700G FOR 6.7MIN.TO3200G AT 8.0 OG MIN-HOLD FOR 7MIN
1,2,3,7,8-PECDD (DF#5)
RANGE: G 1.2786 LABEL: H 1. 4.0 QUAN: H 1. 1.0 J 0 BASE: U 20.
DATA: YJ082355 #1365
CALI: YJ082355 #3
100.0
355
1845
156.
156.
1839
102.
190.
1858
102.
144.
1864
50.
202.
1878
96.
86.
1885
102.
102.
1840
21:37
1850
21:44
1860
21:51
1870
21:58
1880
22:05
1890
22:12
0012411

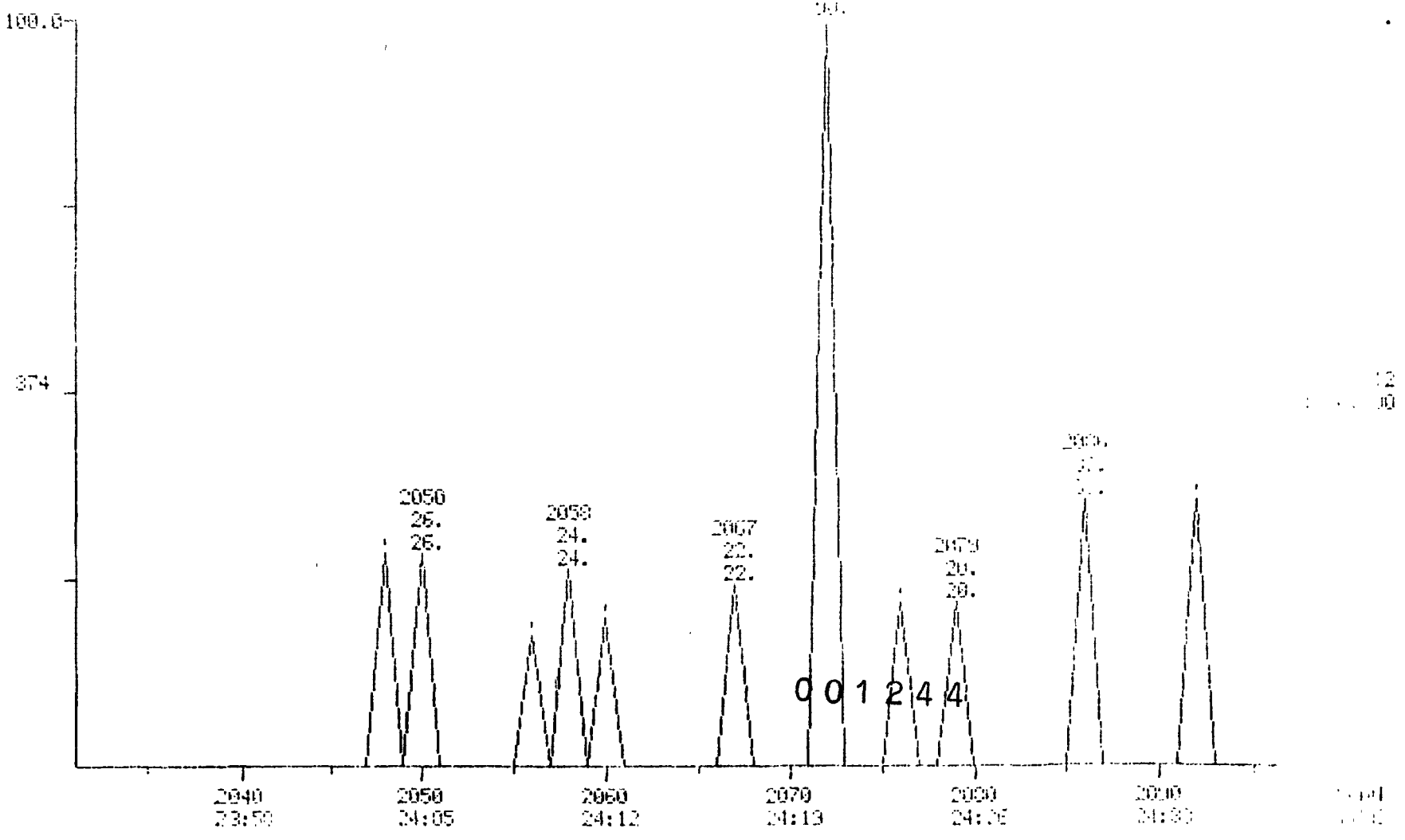
MASS CHROMATOGRAM DATA: Y90B2355 #1996 SCAN 1963 TO 2020
10/29/90 5:15:00 CALI: Y90B2355 #3
SAMPLE: 1325
CONDS.: 20L 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
1,2,3,4,7,8-HXCDF (DF#10)
RANGE: 6 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

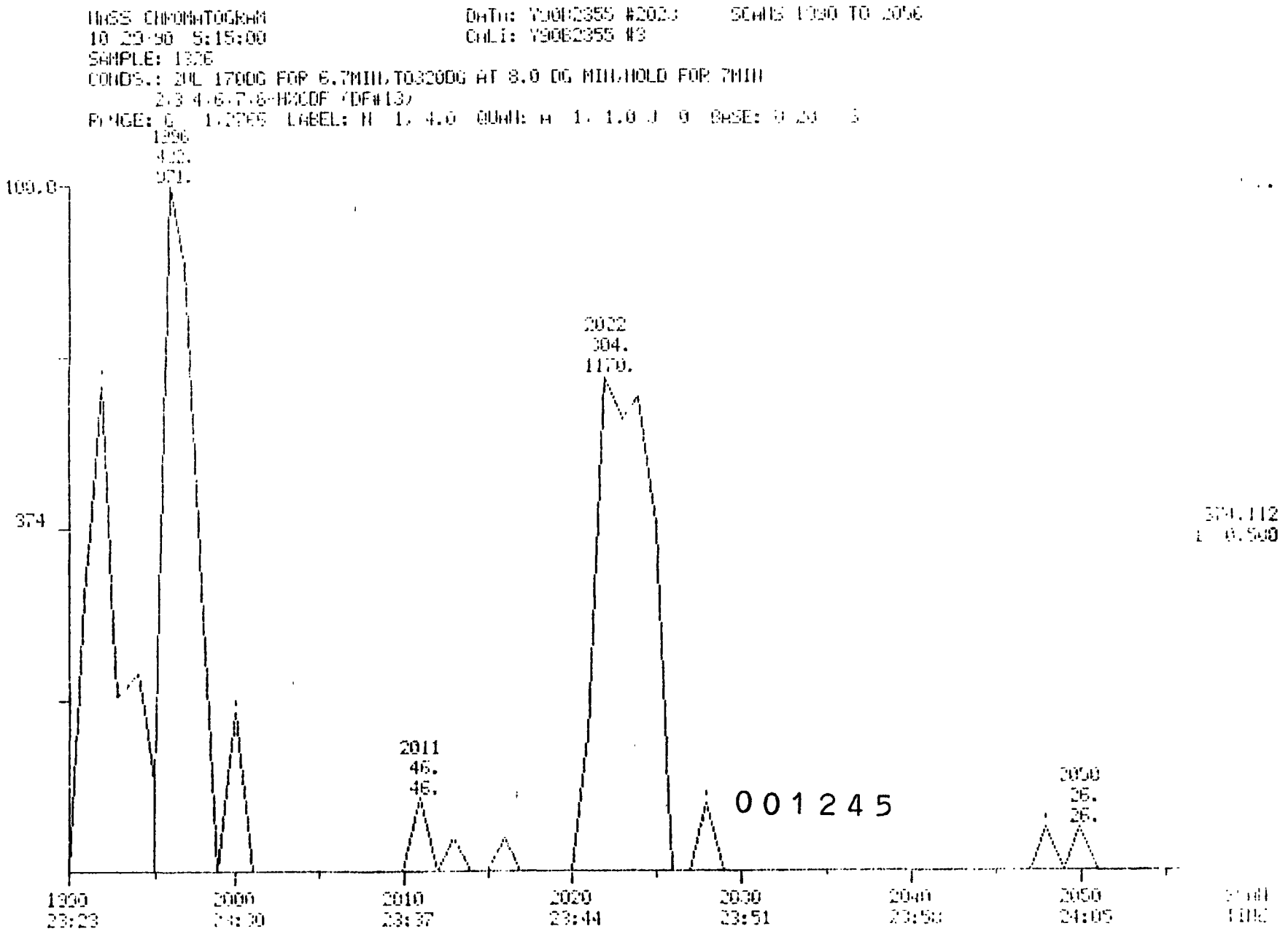


MASS CHROMATOGRAM   DATA: Y0B2355 #1991   SCANS 1 ?? TO 2??4
10/23/95 5:15:00   CALI: Y0B2355 #3
SAMPLE: 1?26
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDF (DF#11)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20 3

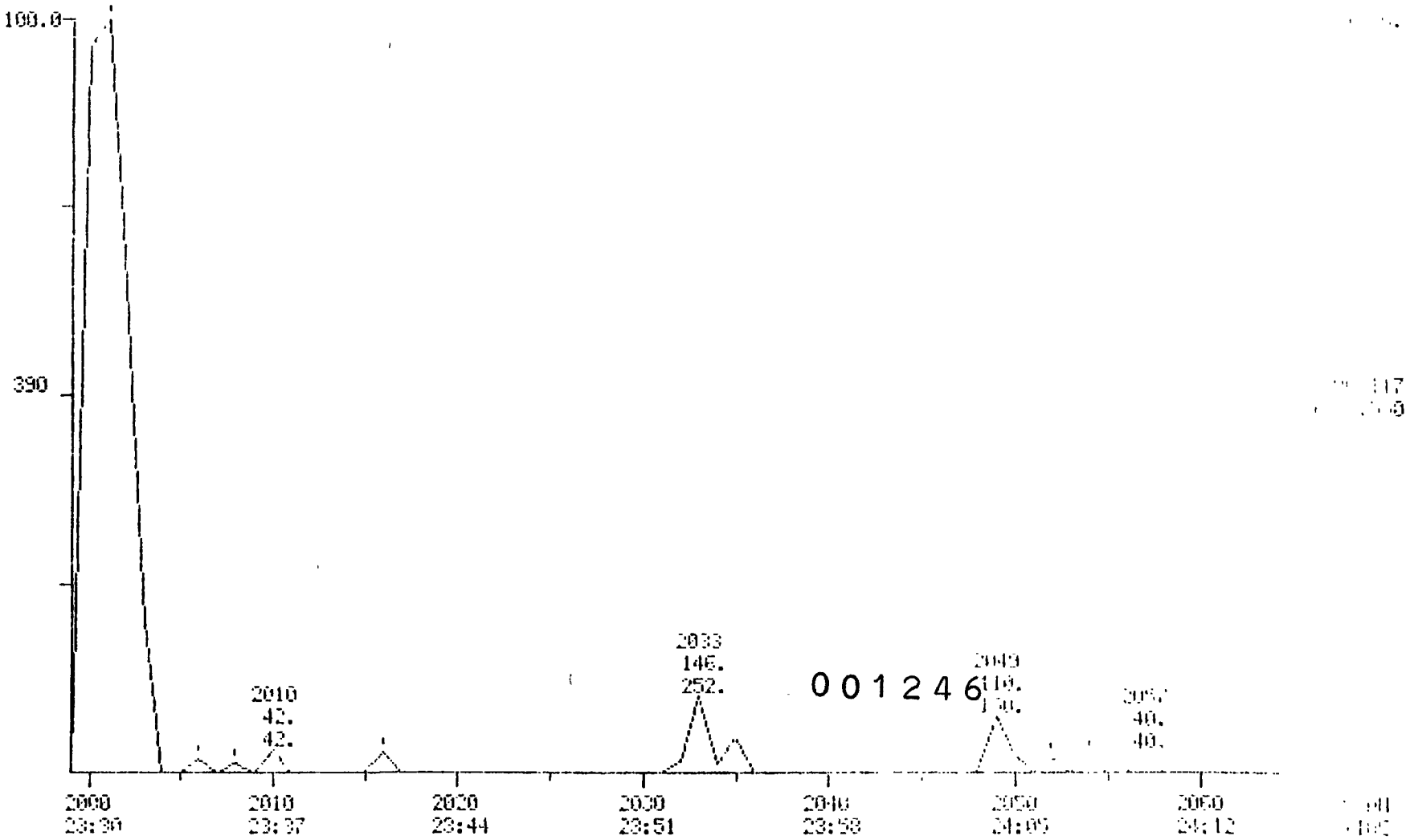


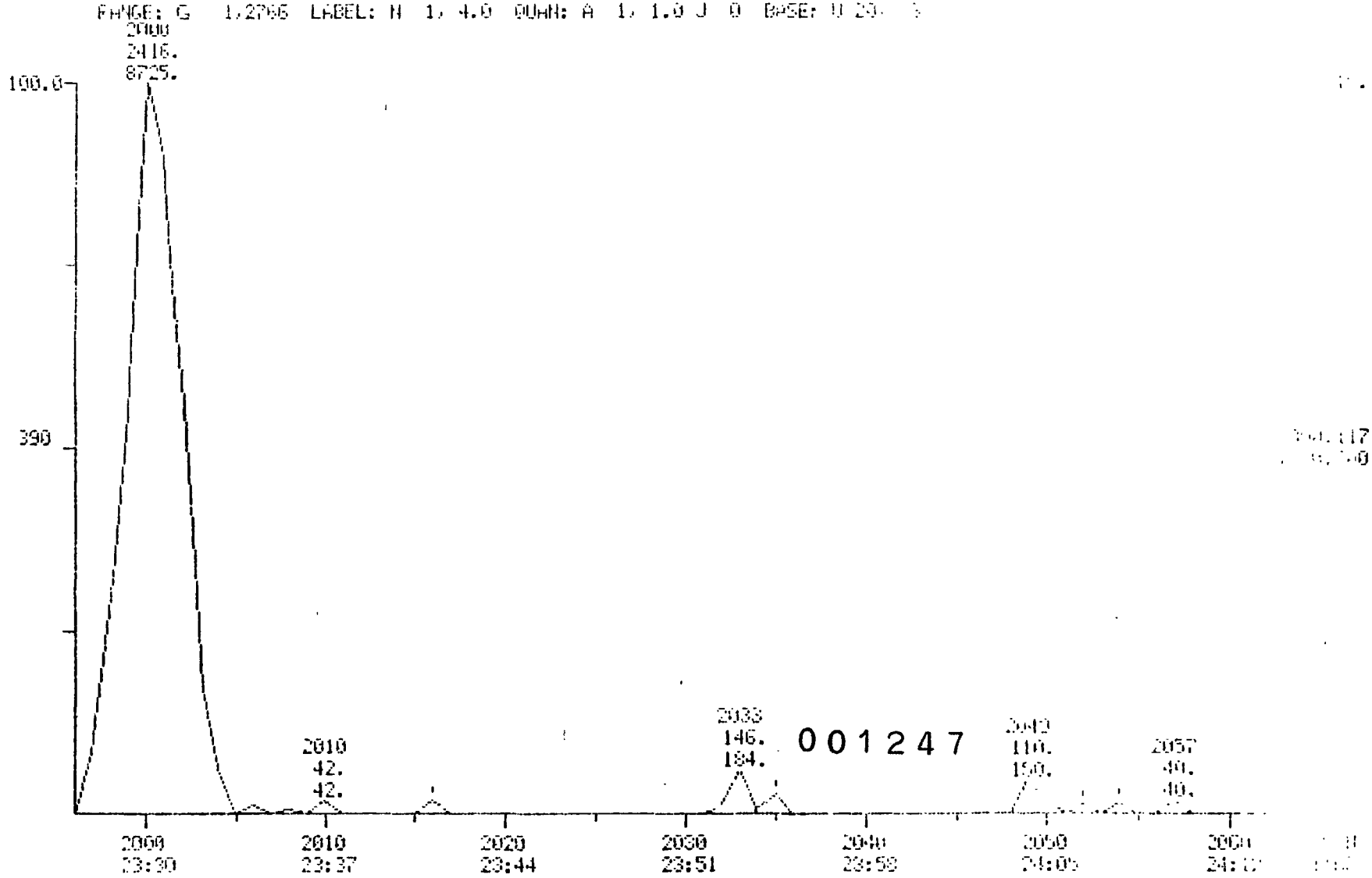
001243


MASS CHROMATOGRAM
10/29/90 5:15:00
SAMPLE: 1226
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDF (DF#12)
DATA: V90B2355 #2064
CHLI: V90B2355 #3
SCANS 2031 TO 2097
100.0
374
2050
26.
26.
2058
24.
24.
2067
22.
22.
2079
20.
20.
2040
23:50
2050
24:05
2060
24:12
2070
24:19
2080
24:26
2090
24:33
001244

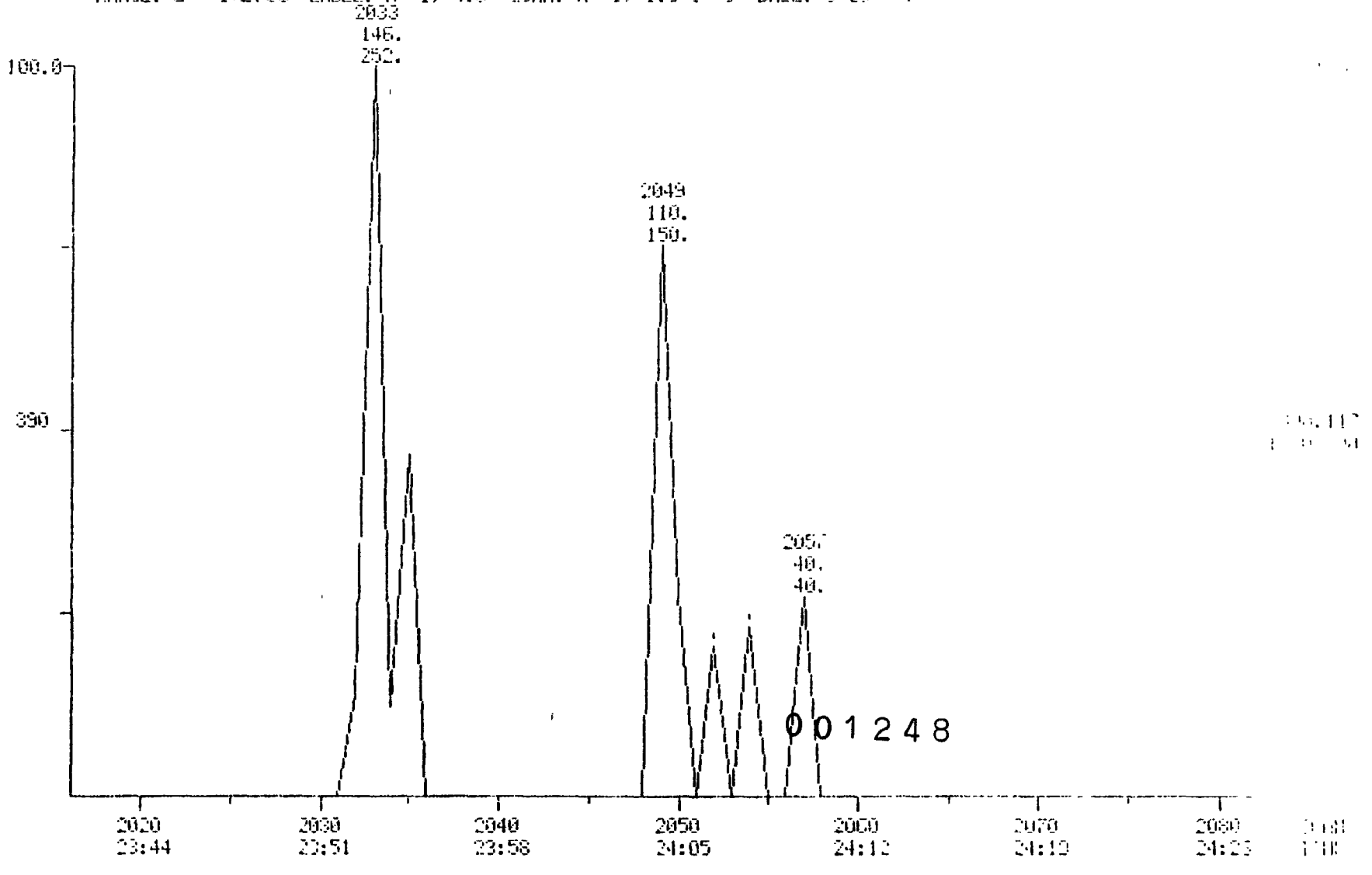

MASS CHROMATOGRAM
10 23:90 5:15:00
SAMPLE: 1376
CONDS.: 20L 1700G FOR 6.7MIN,TO3200G AT 8.0 DG MIN/HOLD FOR 7MIN
2:3 4:6:7:8-HXCDF (DF#13)
RANGE: G 1.2995 LABEL: N 1. 4.0 DOWN: H 1. 1.0 J 0 BASE: 0 20 5
1996
412.
971.
2022
304.
1170.
2011
46.
46.
2050
26.
26.
001245
100.0
374
374.112
0.500
1900
23:23
2000
23:30
2010
23:37
2020
23:44
2030
23:51
2040
23:58
2050
24:05

MASS CHROMATOGRAM DATA: 790B2355 #2033 SCANS 1991 TO 2065
10-29-90 5:15:00 CHLI: 790B2355 #3
SAMPLE: 1326
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8-HXCDD (DF#14)
RANGE: G 1.276G LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20 J




MASS CHROMATOGRAM
10/29/90 5:15:00
SAMPLE: 1326
COND'S.: 20L 170DG FOR 6.7MIN.TO220DG AT 8.0 DG/MIN,HOLD FOR /MIN
1,2,3,6,7,8-HXCDD (DF#15)
RANGE: G 1.2756 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20
100.0
390
2000
2416.
8725.
2010
42.
42.
2033
146.
184.
2040
110.
150.
2057
40.
40.
001247
2000
23:30
2010
23:37
2020
23:44
2030
23:51
2040
23:59
2050
24:05

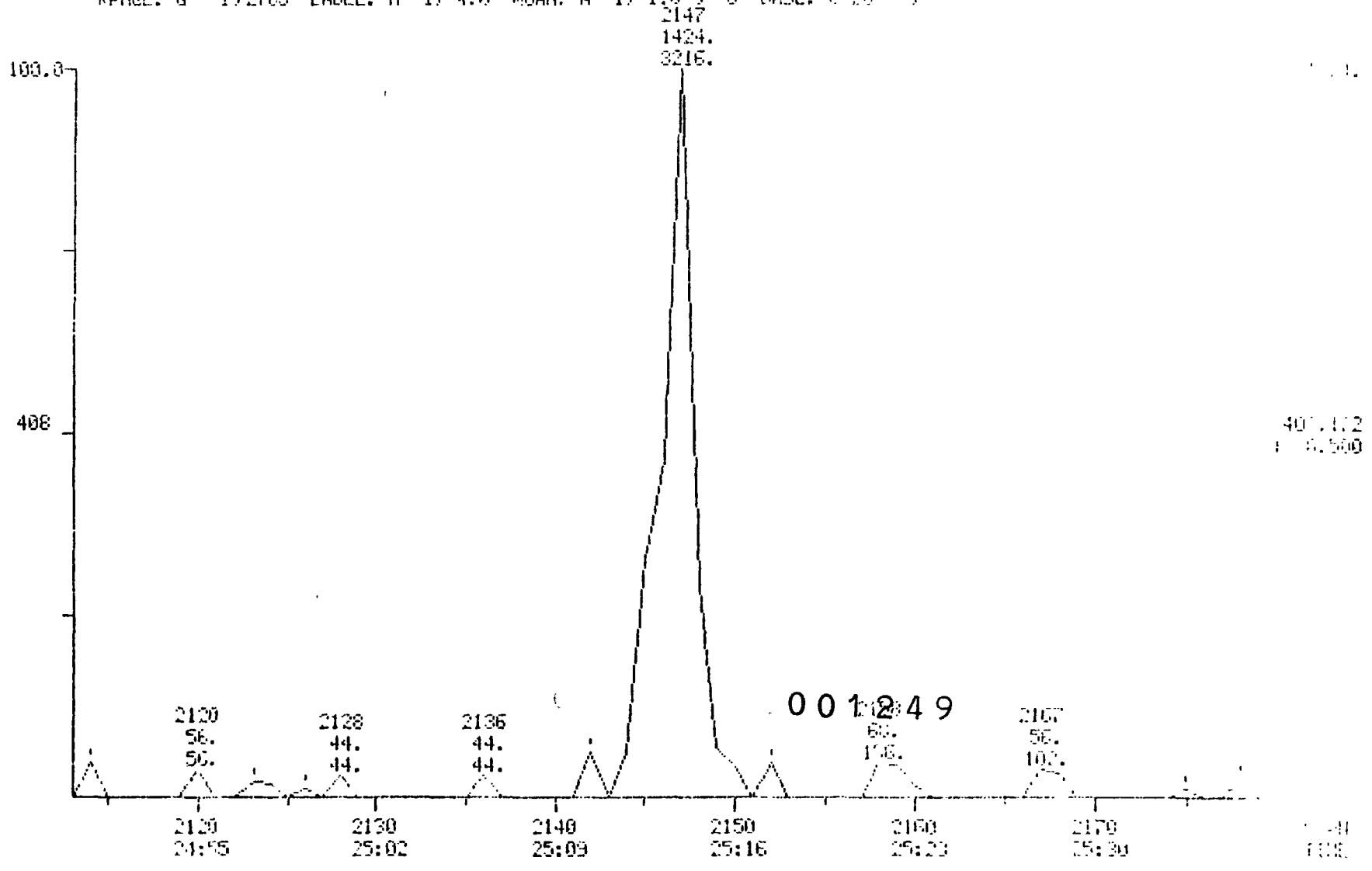
MASS CHROMATOGRAM DATA: V90B2355 #2049 SCANS 2016 TO 2082
10/29/90 5:15:00 CALI: V90B2355 #3
SAMPLE: 1226
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDD (DF#16)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 30. 3



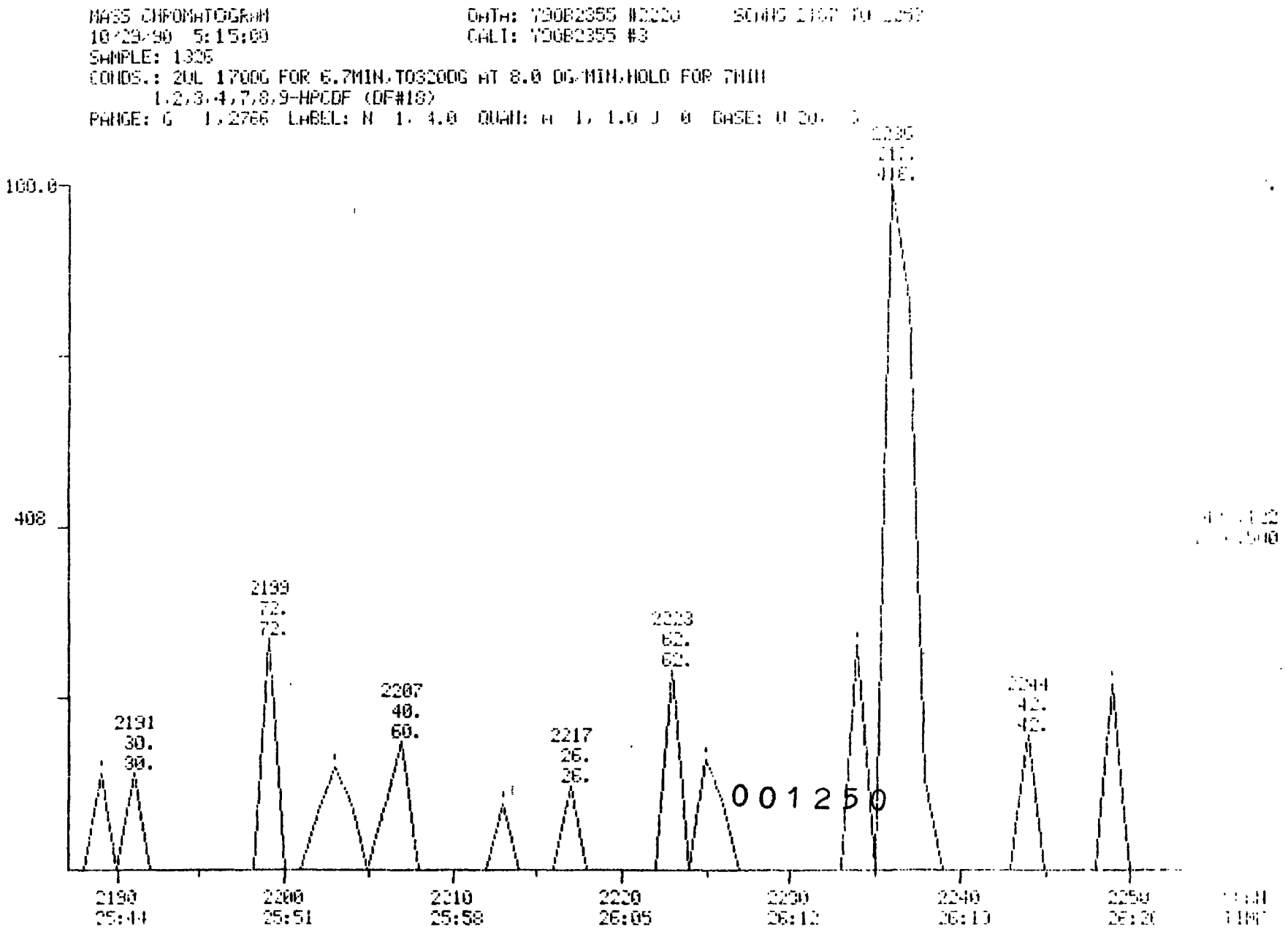
001248

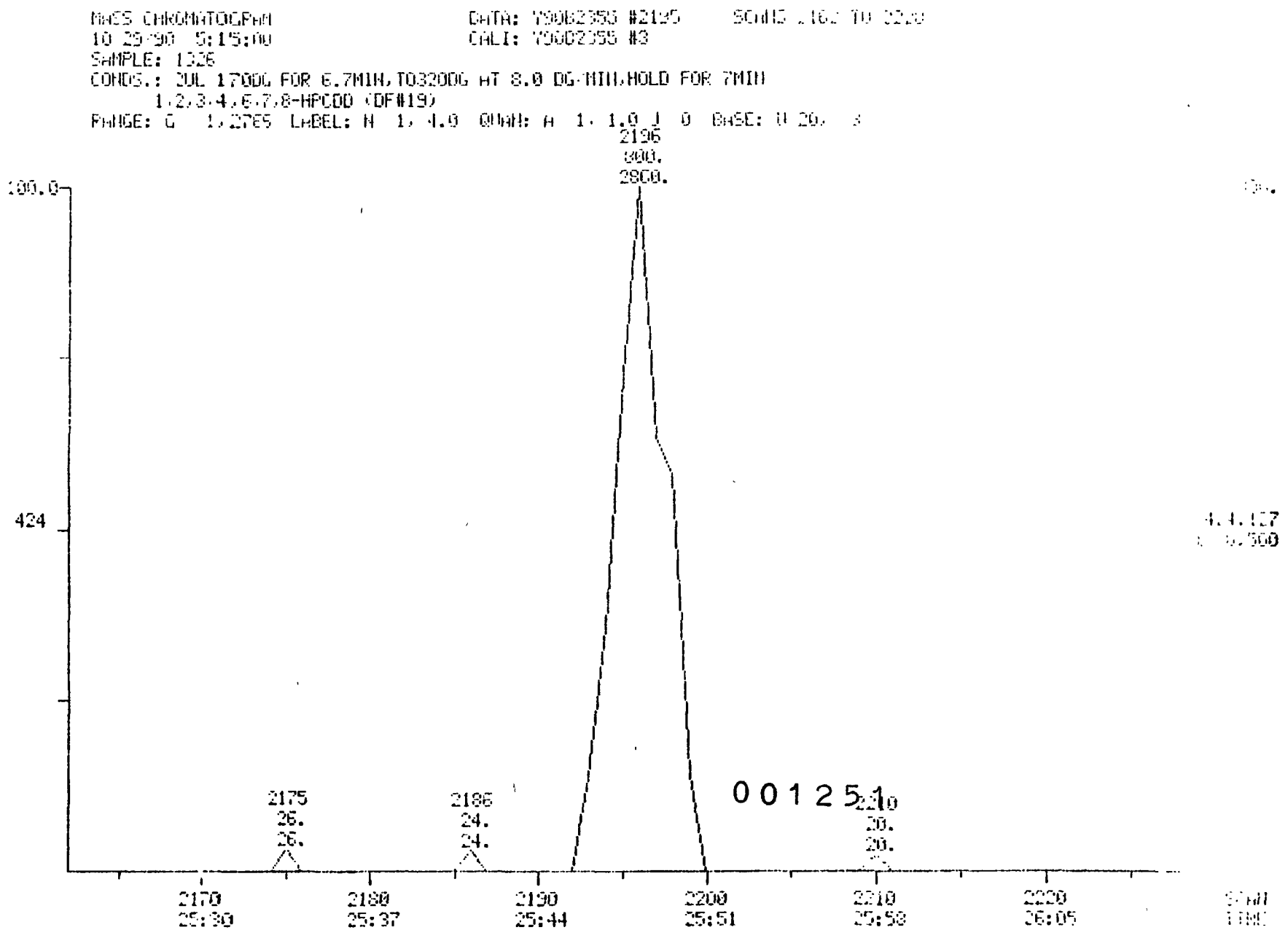
GAS CHROMATOGRAM
10 29 90 5:15:00
SAMPLE: 1320
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4-E,7,8-HPCDF (DF#17)
RANGE: G 1.2768 LABEL: N 1, 4.0 QUAN: A 1, 1.0 I 0 BASE: 0 20 %

DATA: 90082355 #2146
CHLI: 90082355 #3

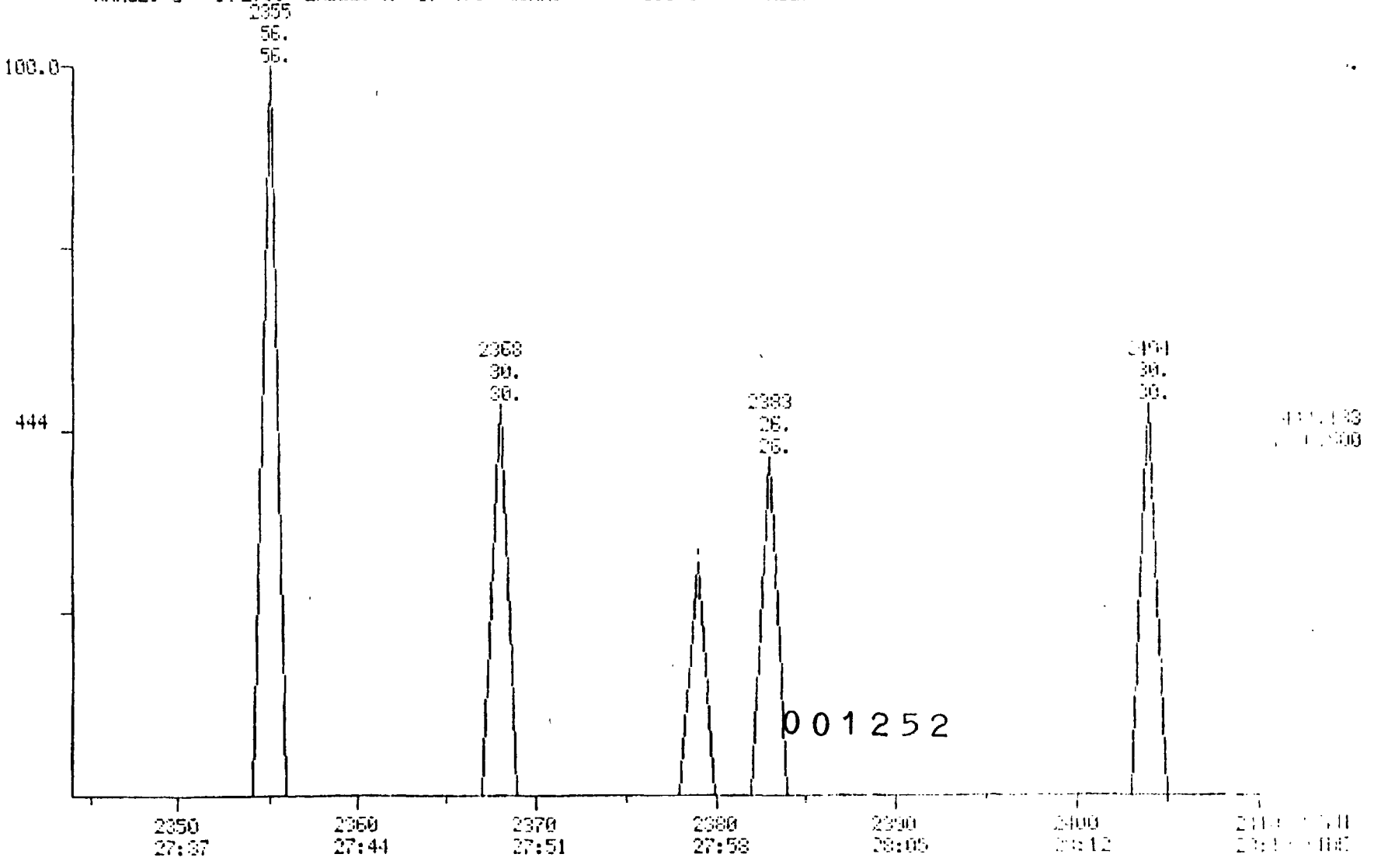


001249

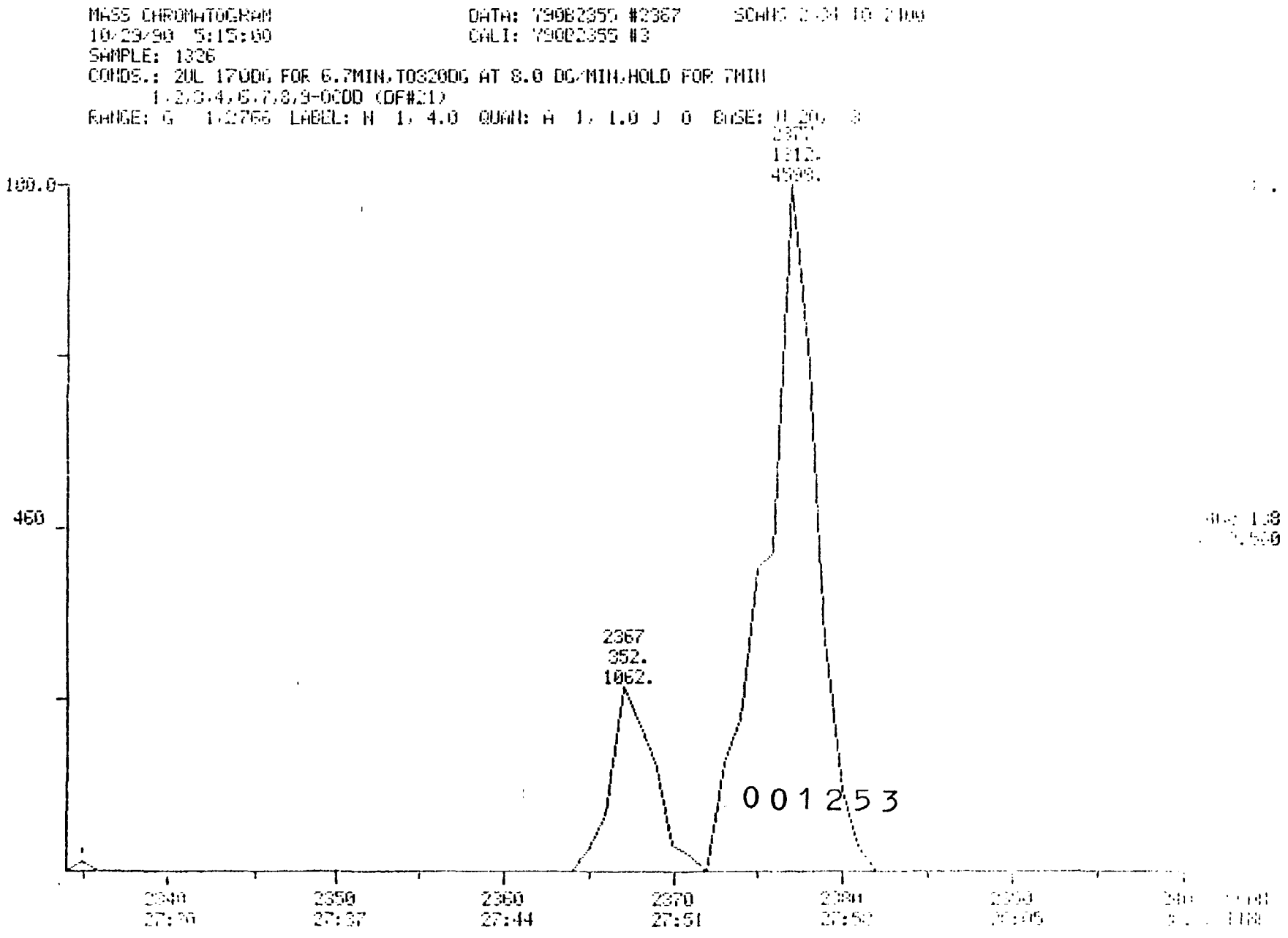

MASS CHROMATOGRAM
10/29/90 5:15:00
SAMPLE: 1326
CONDS.: 20L 1700G FOR 6.7MIN.TO3200G AT 8.0 DG/MIN.HOLD FOR 7MIN
1,2,3,4,7,8,9-HPCDF (DF#18)
100.0
408
2191
30.
30.
2199
72.
72.
2207
40.
60.
2217
26.
26.
2223
62.
62.
2244
42.
42.
001250
2190
25:44
2200
25:51
2210
25:58
2220
26:05
2230
26:12
2240
26:19
2250
26:26


MASS CHROMATOGRAM
10 29-90 5:15:00
SAMPLE: 1326
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG-MIN,HOLD FOR 7MIN
1,2,3-4,6-7,8-HPCDD (DF#19)
DATA: Y9062355 #2195
CALI: Y9062355 #3
RANGE: G 1.2765 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20.
2196
800.
2800.
100.0
424
2175
26.
26.
2186
24.
24.
2210
20.
20.
00125
2170
25:30
2180
25:37
2190
25:44
2200
25:51
2210
25:58
2220
26:05

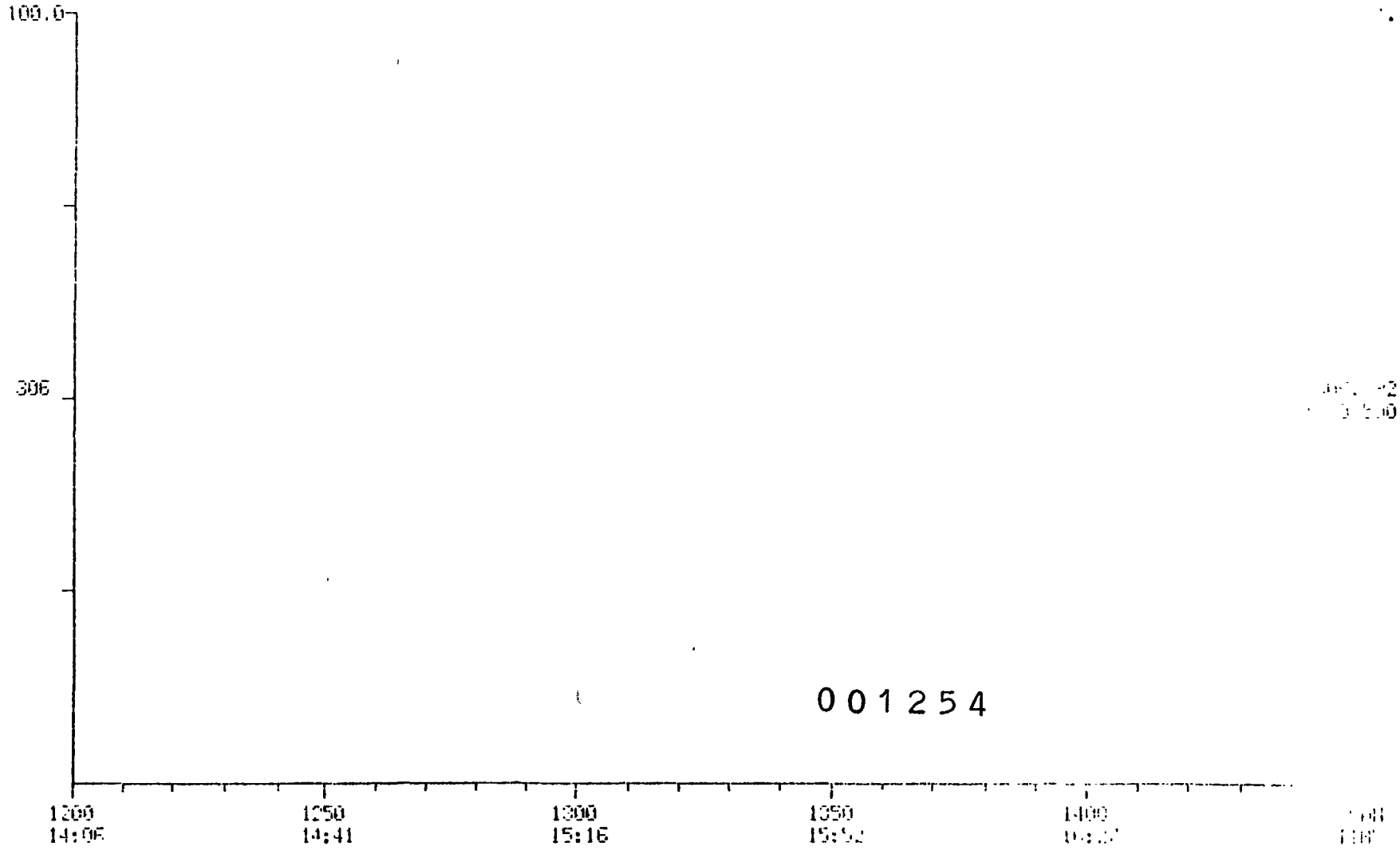
MASS CHROMATOGRAM
10/29/90 5:15:00
SAMPLE: 1326
DATA: Y90B2355 #2377 SCANS 2344 TO 2410
CALI: Y90B2355 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDF (DF#20)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20, 3



001252

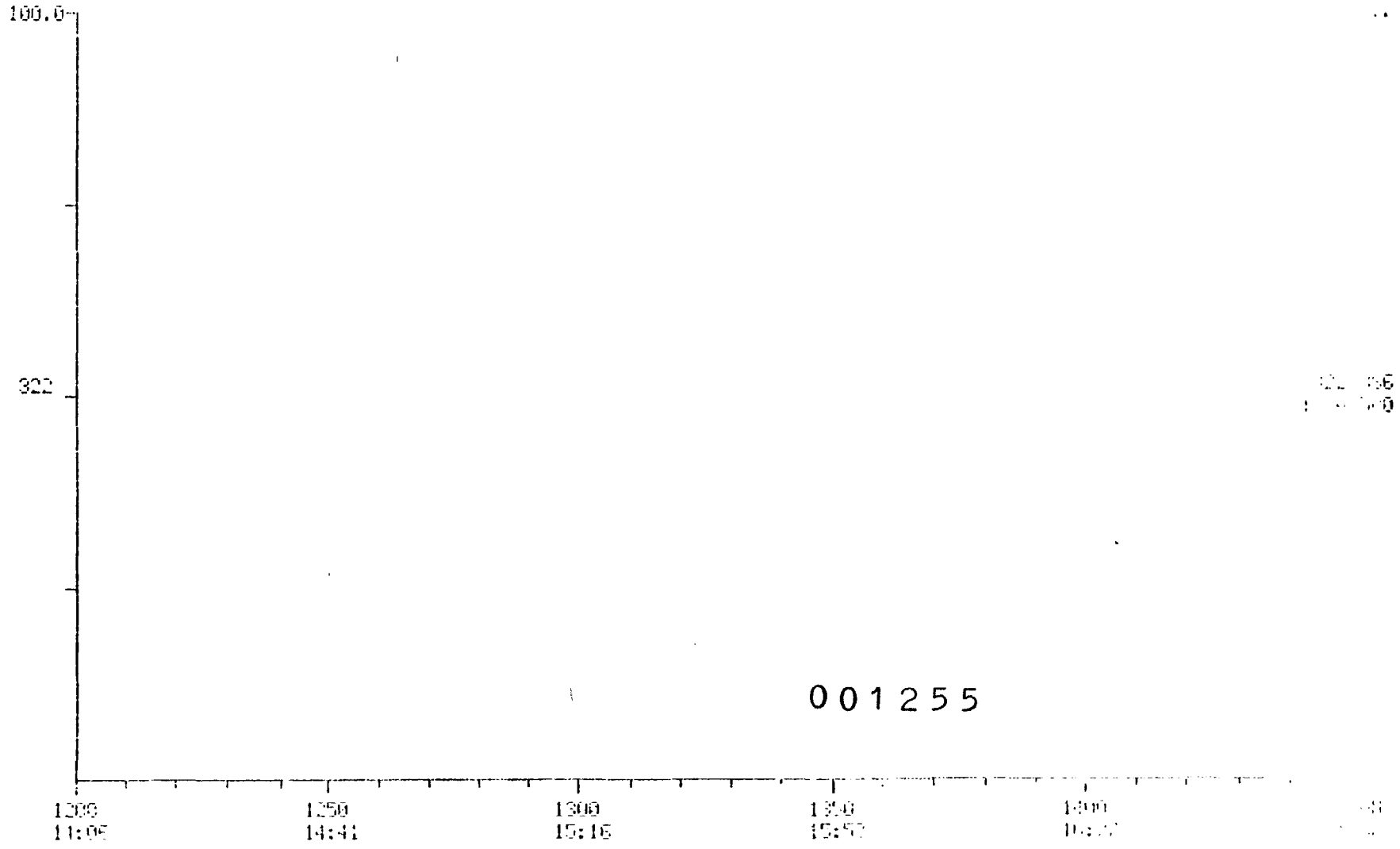

MASS CHROMATOGRAM
10/29/90 5:15:60
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,5,7,8,9-OCDD (DF#21)
DATA: 790B2355 #2367
CALI: 790B2355 #3
100.0
460
2367
352.
1062.
2340
27:30
2350
27:37
2360
27:44
2370
27:51

MASS CHROMATOGRAM
10/29/90 5:15:00
SAMPLE: 1326
PATH: Y30B2355 #2367
CALI: Y30B2355 #3
SCANS 1200 TO 1440
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20.

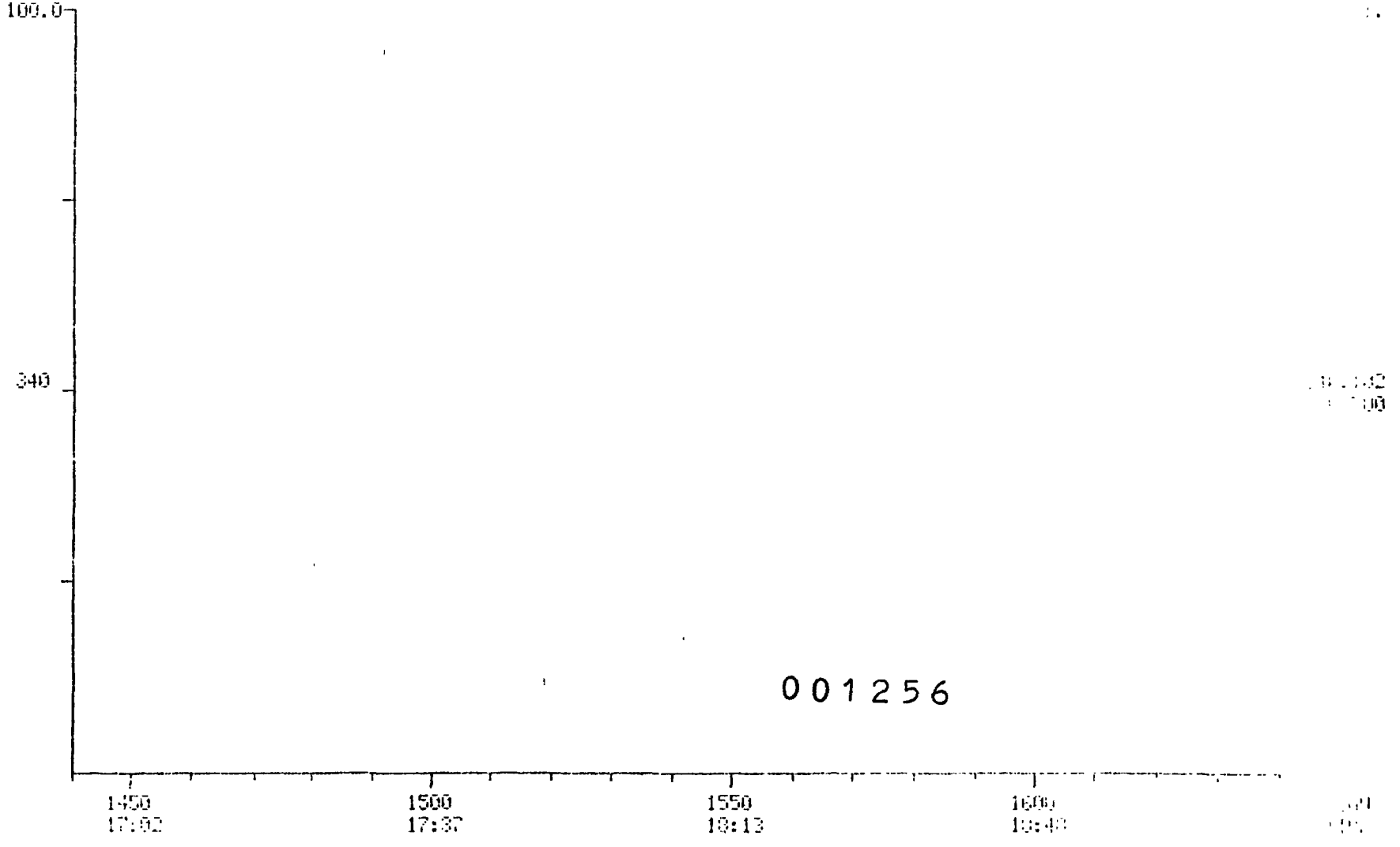


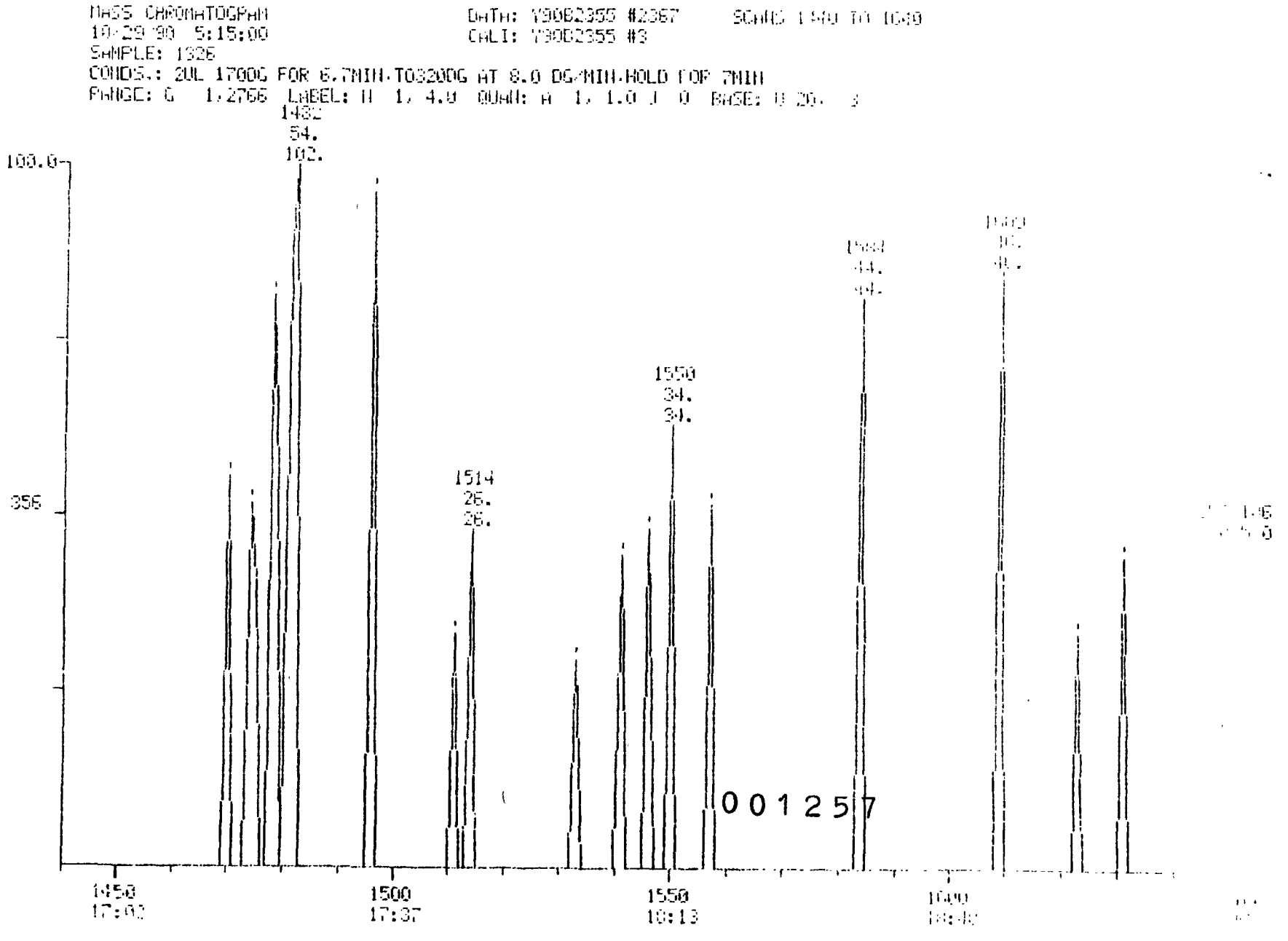
001254

MASS CHROMATOGRAM
10-29-90 5:15:00
SAMPLE: 1326
DATA: Y9UB2355 #2367 SCANS 1200 TO 1440
CALI: Y9UB2355 #3
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG-MIN,HOLD FOR 7MIN
RANGE: G 1,2700 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3

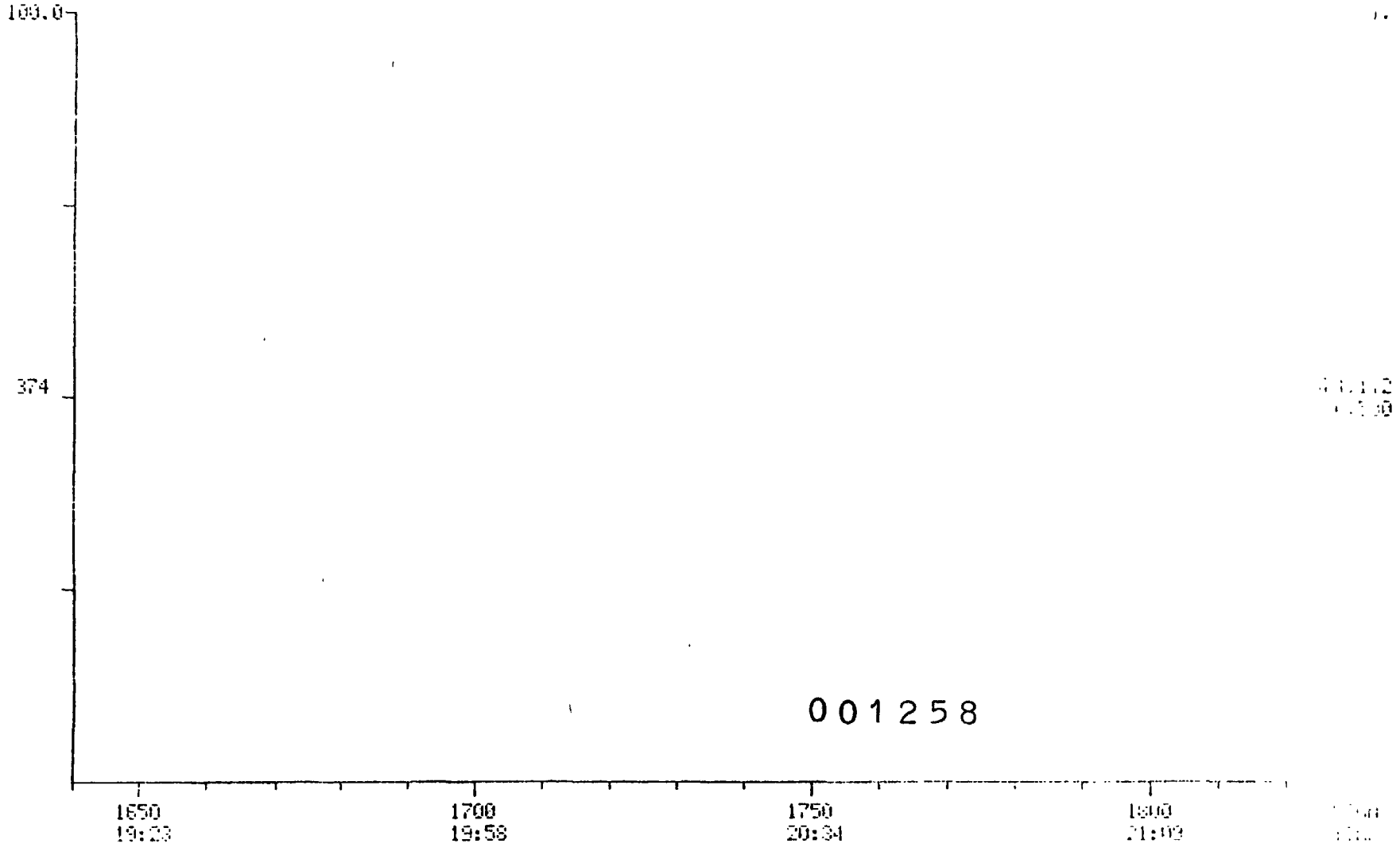


MASS CHROMATOGRAM
10 29 90 5:15:00
SAMPLE: 1226
DATA: Y90B2355 #2307 SCANS 1400 TO 1640
CALI: Y90C2355 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
PANEL: G 1.2766 LABEL: N 1. 1.0 QUAN: N 1. 1.0 J 0 BASE: U 20.




MASS CHROMATOGRAM
10-29-90 5:15:00
SAMPLE: 1326
DATA: V90B2355 #2367
CALI: V90B2355 #3
SCANS 1440 TO 1640
CONDS.: 20L 170DG FOR 6.7MIN-TO320DG AT 8.0 DG/MIN-HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: H 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: 0 20.
1482
54.
102.
1514
26.
26.
1550
34.
34.
100.0
356
1450
17:02
1500
17:37
1550
18:13
001257

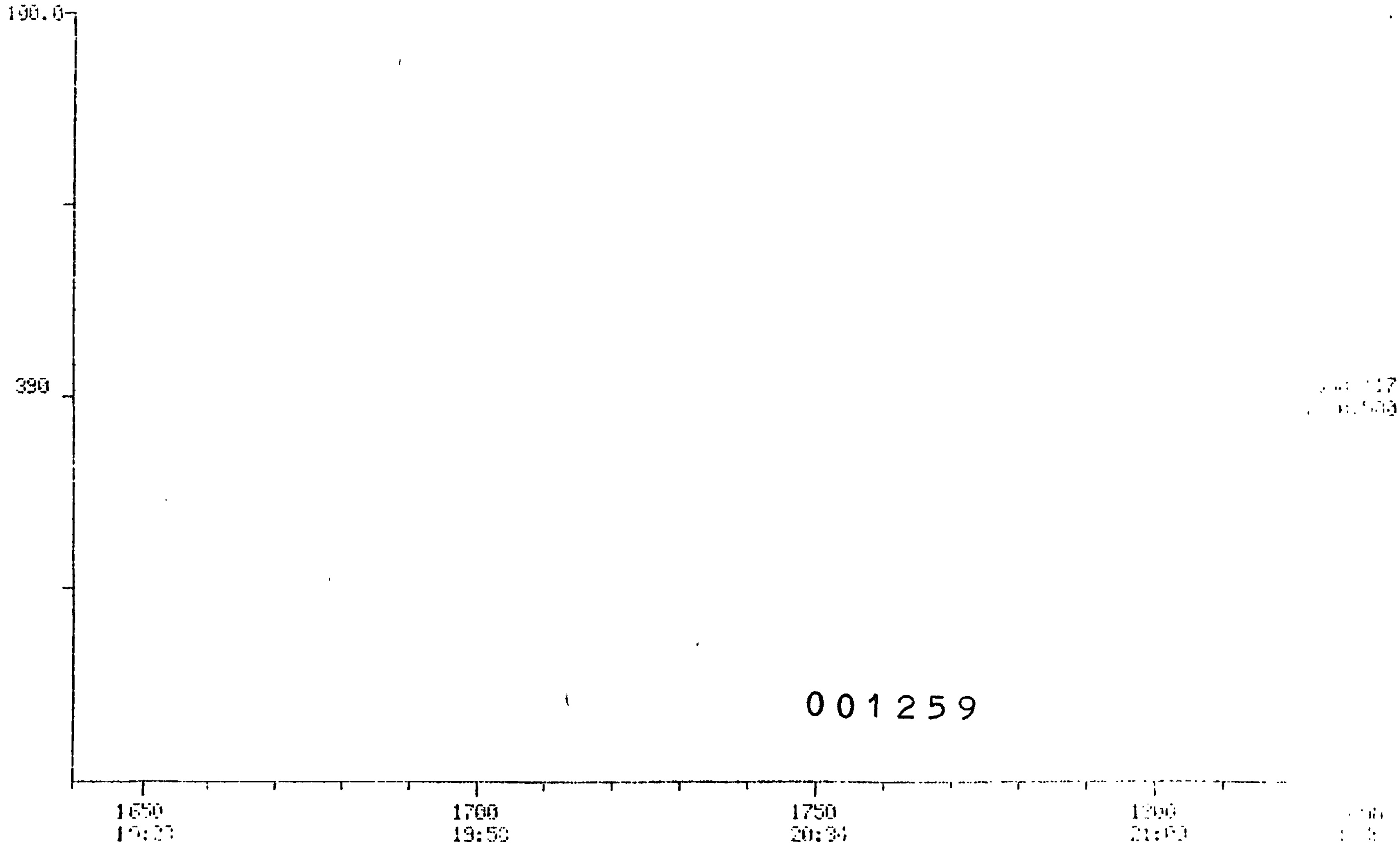
MASS CHROMATOGRAM DATA: Y90B2355 #2367 SCANS 1440 TO 1820
10-29-90 5:15:00 CALI: Y90B2355 #3
SAMPLE: 1326
CONDS.: 30L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG-MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: 0 20. 3



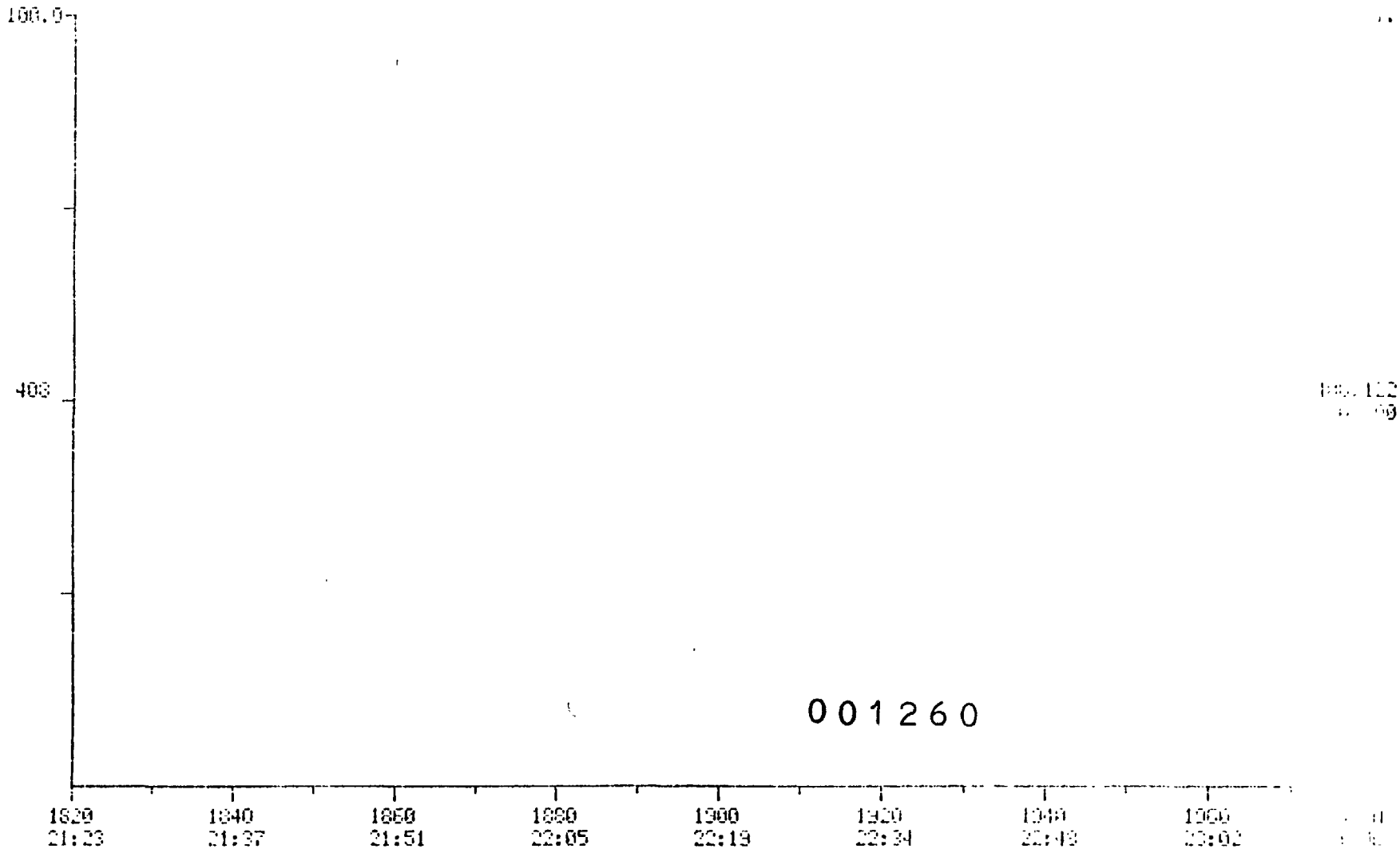
MASS CHROMATOGRAM
10/29/90 5:15:00
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

DATA: Y90B2355 #2067
CALI: Y90B2355 #3

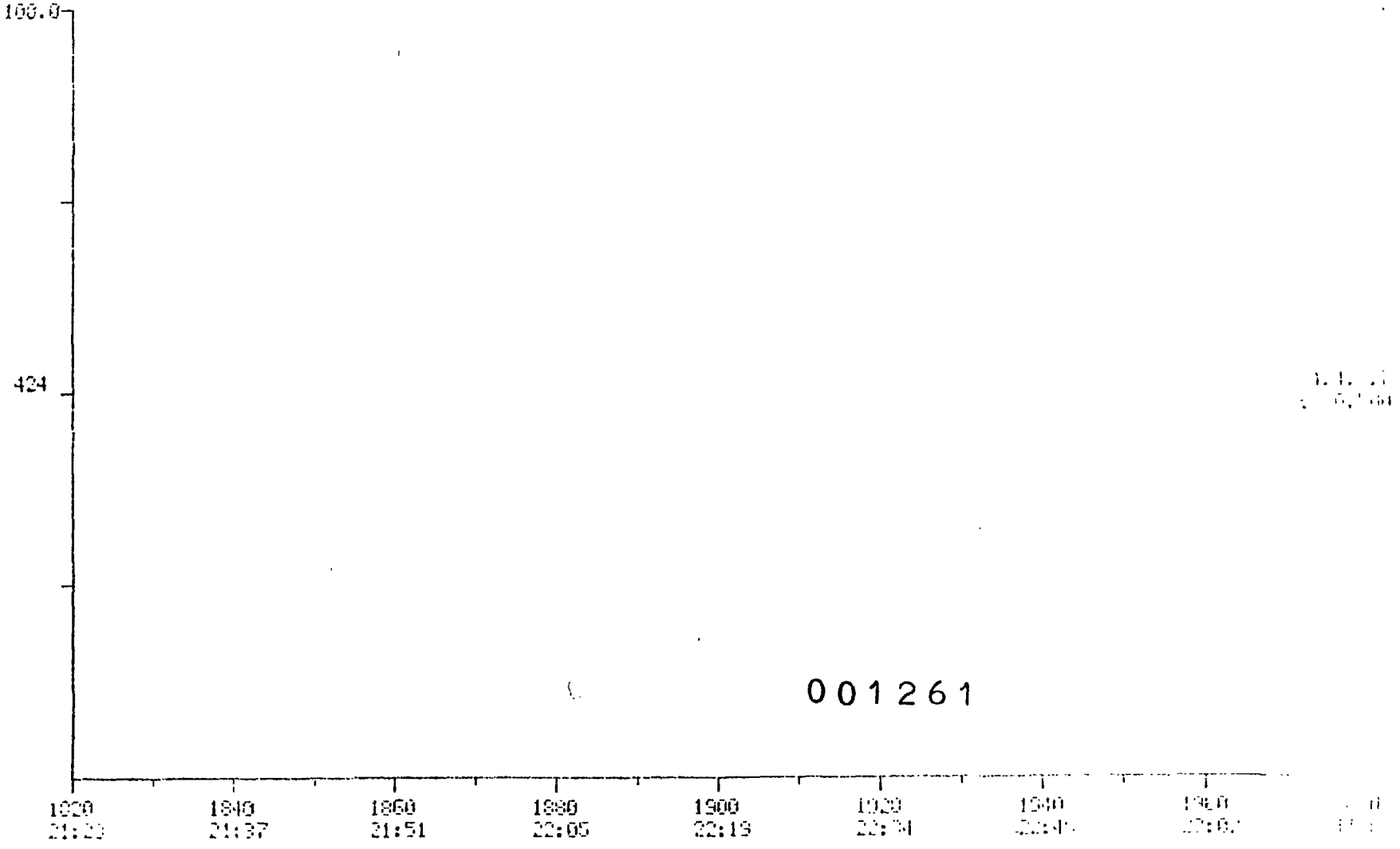
SCANS 1640 TO 1840



001259

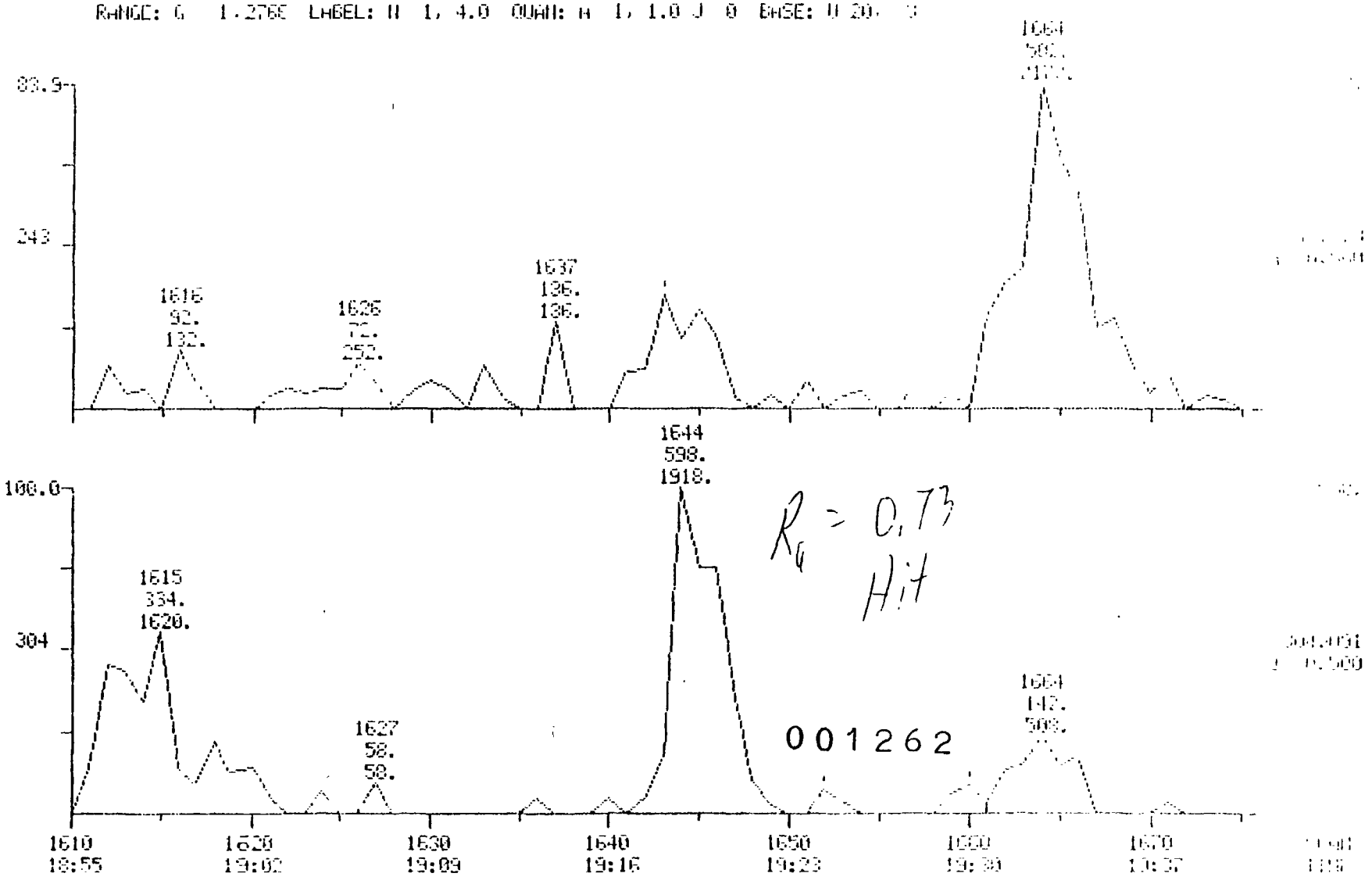

MASS CHROMATOGRAM
10/29/90 5:15:00
SAMPLE: 1326
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: H 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20.
DATA: 790B2355 #2367
CALI: 790B2355 #3
100.0
400
001260
1820
21:23
1840
21:37
1860
21:51
1880
22:05
1900
22:19
1920
22:34
1940
22:48
1960
23:02

MASS CHROMATOGRAM
10 29 90 5:15:00
SAMPLE: 1326
DATA: Y90B2355 #2367 SCANS 1820 TO 1878
CALI: Y90B2355 #3
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: 0 20.



MASS CHROMATOGRAMS
10/29/90 5:15:00
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
2,3,7,8-TCDF (DF#5)
RANGE: G 1.276E LABEL: H 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: H 20.

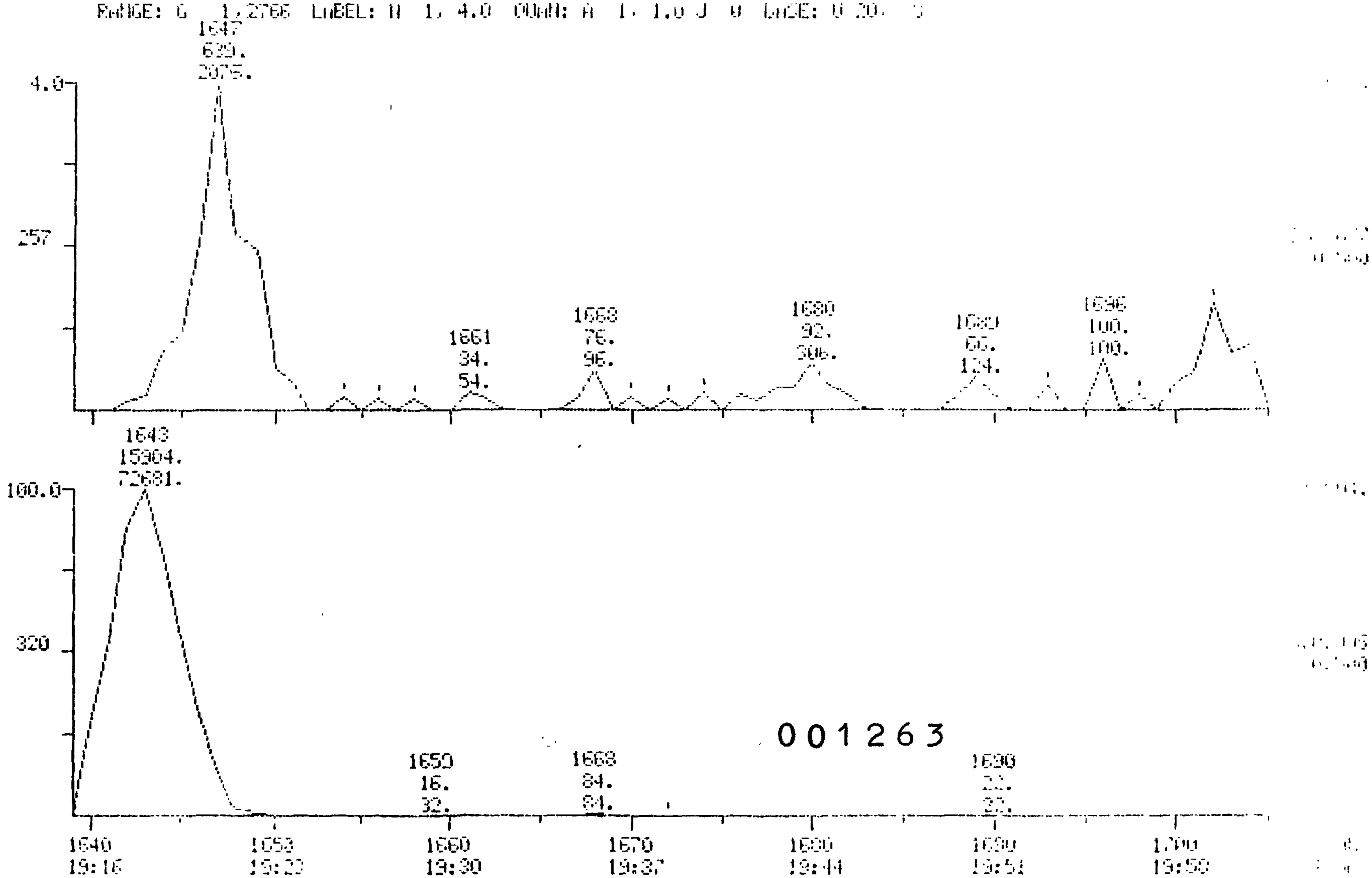
DATA: Y90D2355 #1643 SCANS 1:10 TO 1:70
CALI: Y90D2355 #3



$R_6 = 0.73$
Hit

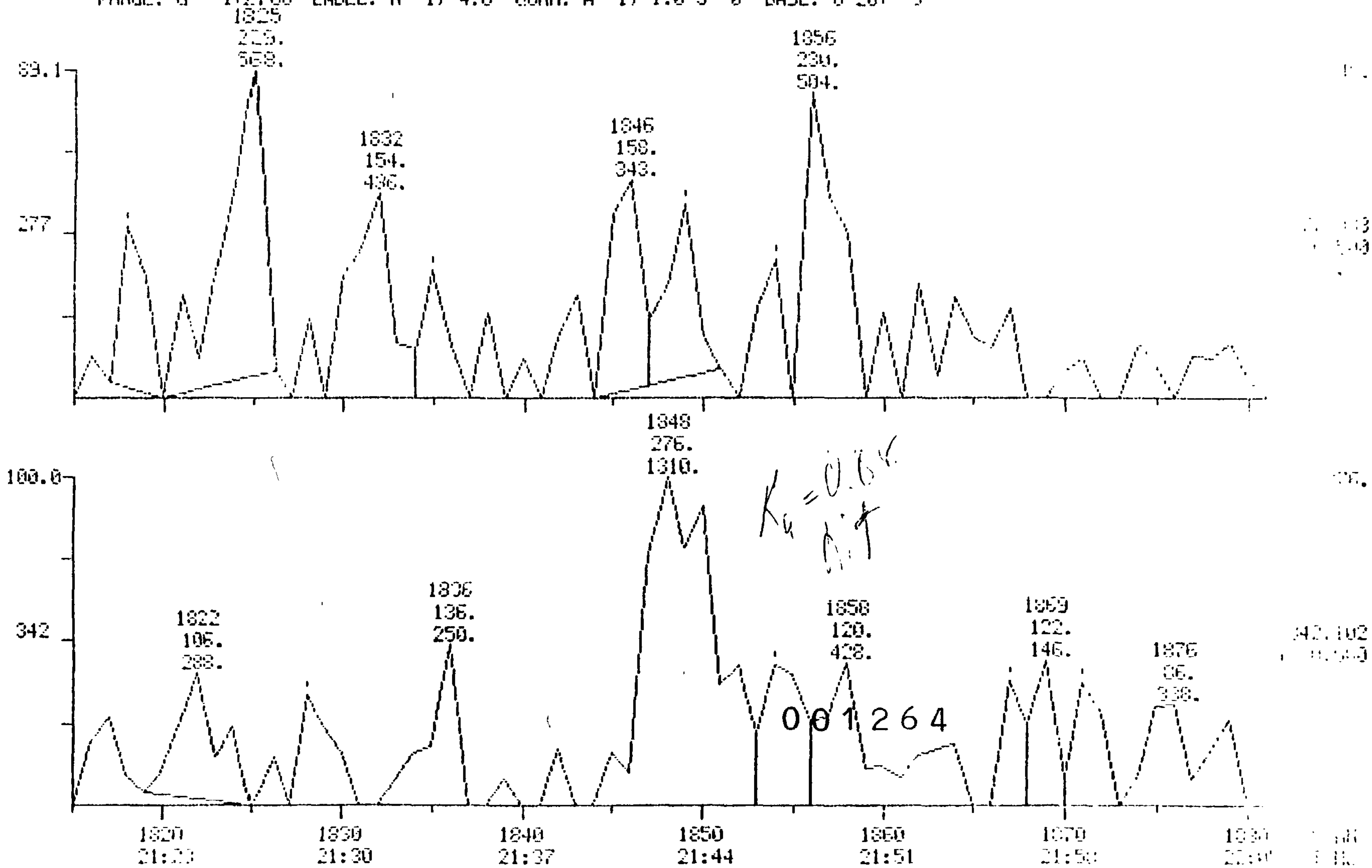
001262

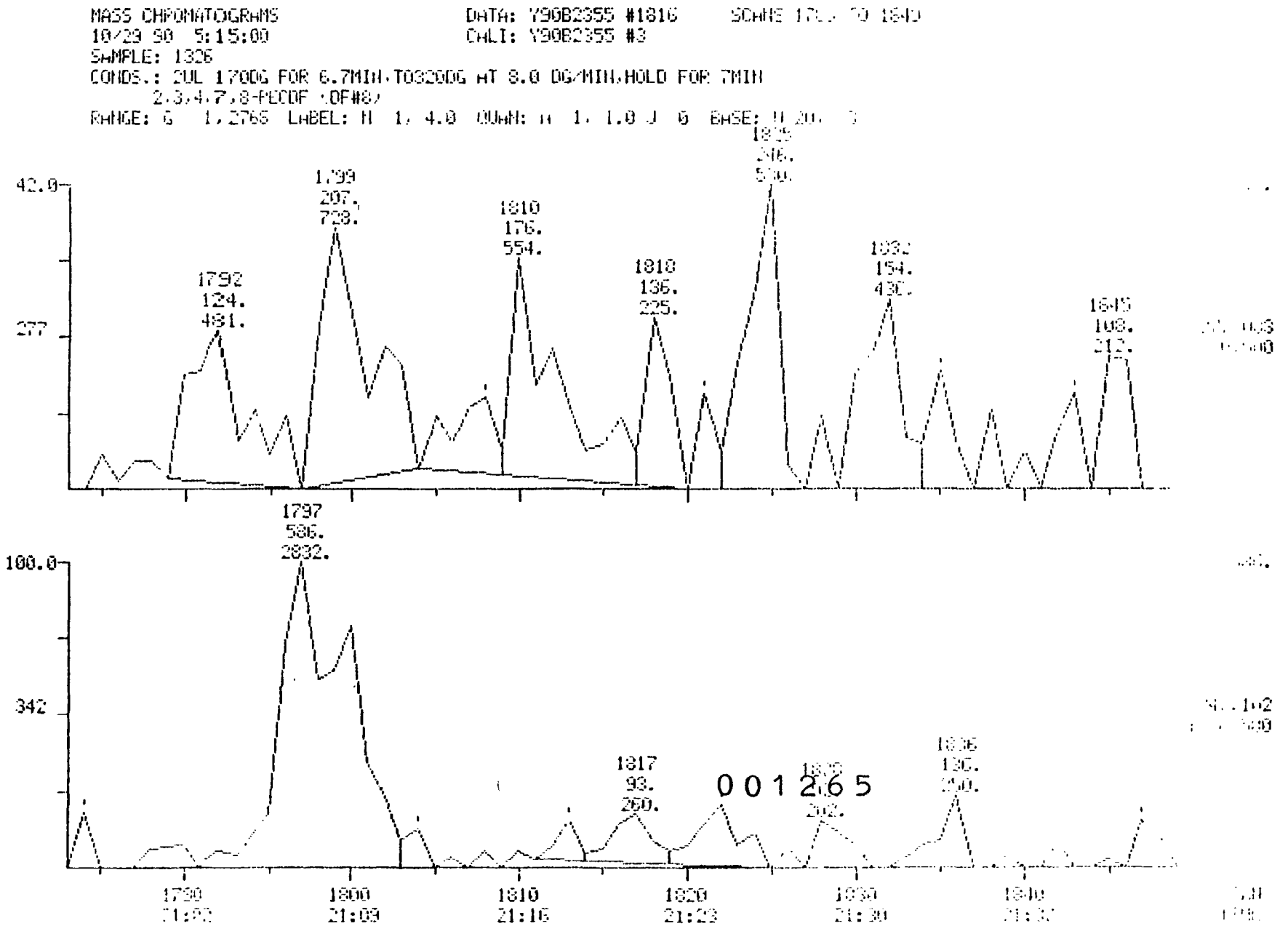
MASS CHROMATOGRAMS DATA: 79082355 #1072 SCANS 1675 TO 1765
10/29/90 5:15:00 CALI: 79082355 #3
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,7,8-TCDD (DF#6)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

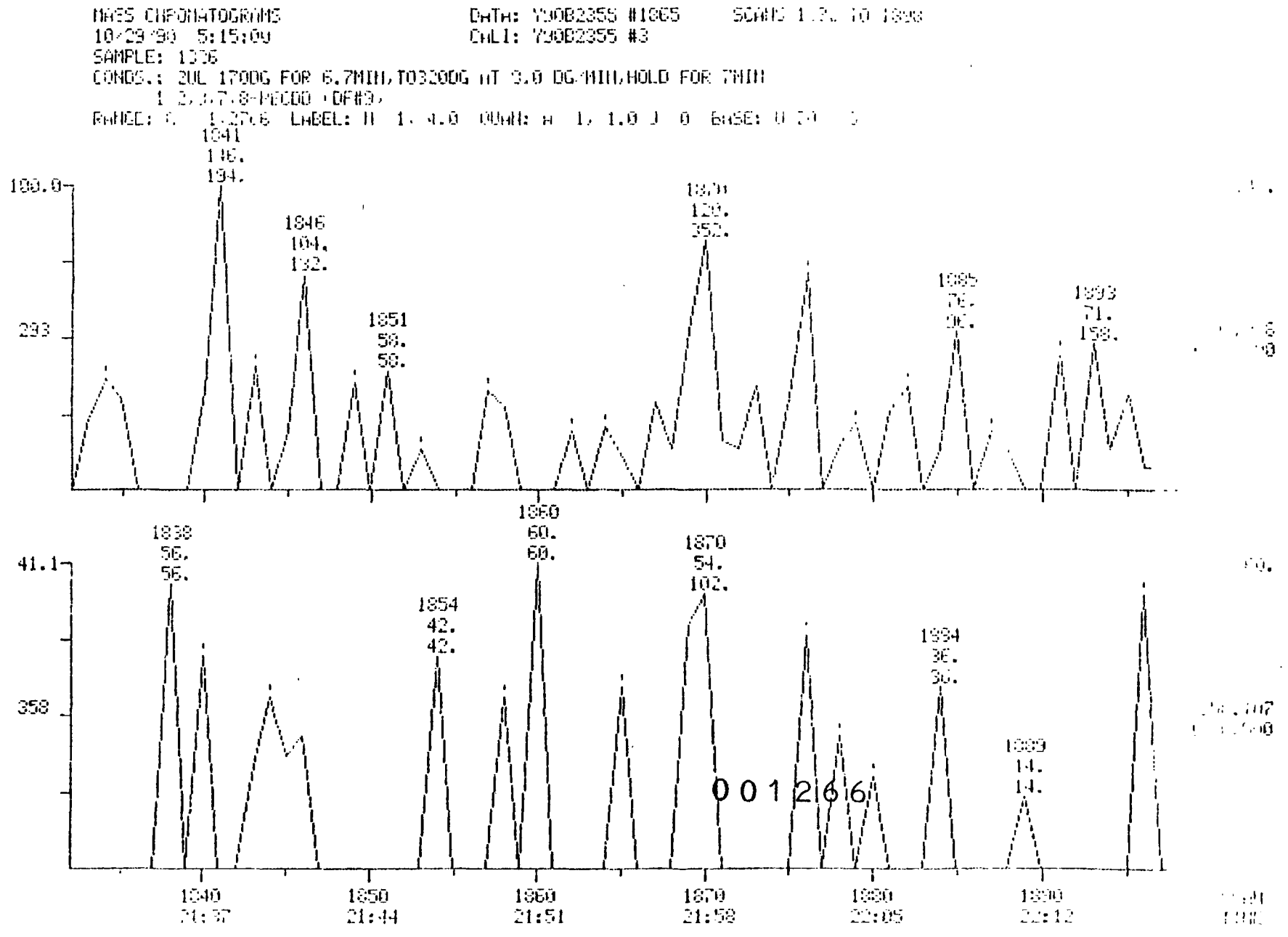


001263

MASS CHROMATOGRAMS DATA: Y90B2355 #1848 SCANS 1815 TO 1881
10/29/90 5:15:00 CALI: Y90B2355 #3
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8-PECDF (DF#7)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

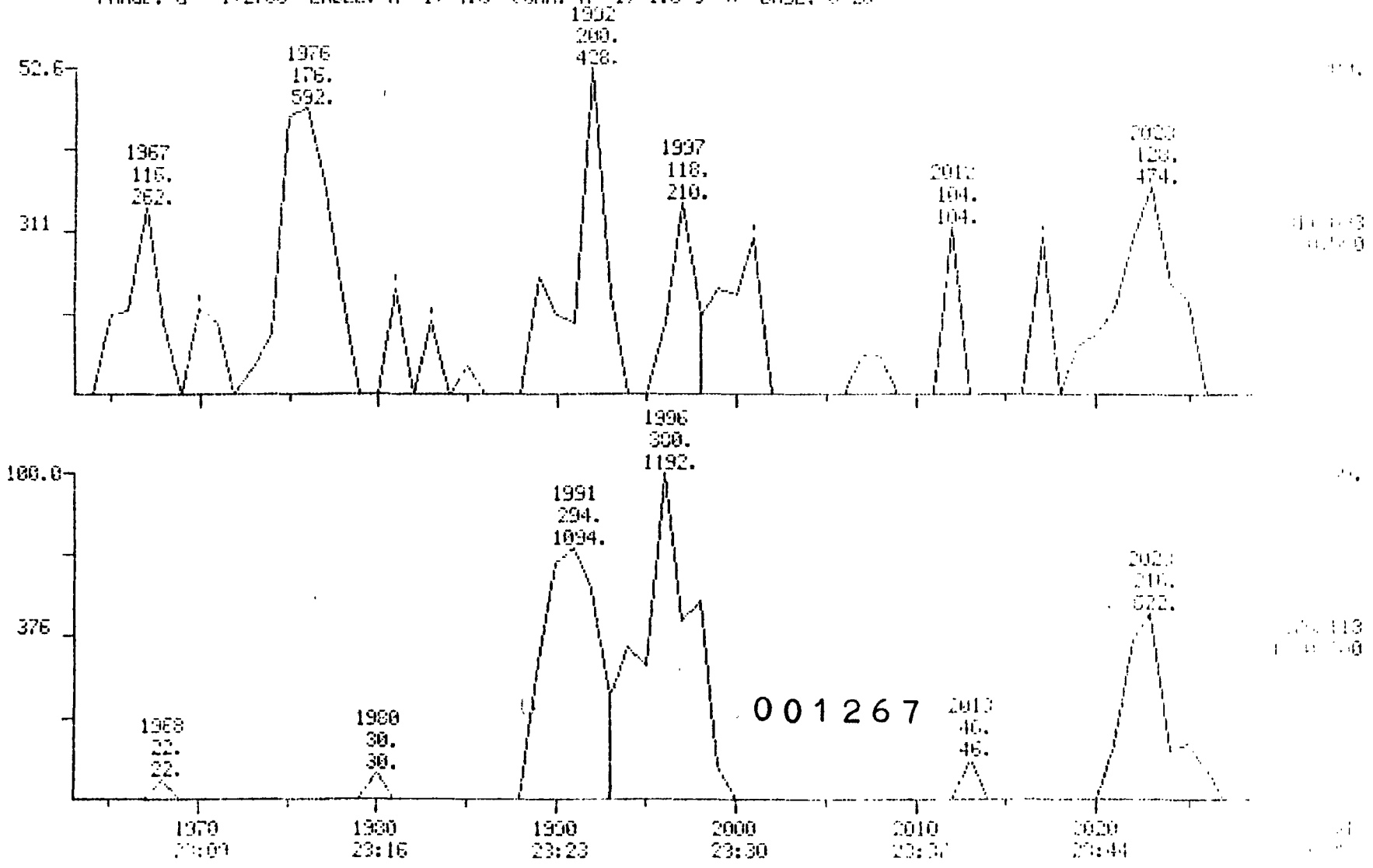



MASS CHROMATOGRAMS
10/29 90 5:15:00
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,7,8-PECDF (DF#8)
DATA: Y90B2355 #1816
CALI: Y90B2355 #3
42.0
277
1792
124.
481.
1799
207.
728.
1810
176.
554.
1818
136.
225.
1832
154.
430.
1845
108.
212.
100.0
342
1797
506.
2832.
1817
93.
260.
001265
1790
21:03
1800
21:09
1810
21:16
1820
21:23
1830
21:30


MASS CHROMATOGRAMS
10/29/90 5:15:09
SAMPLE: 1306
CONDS.: 20L 1700G FOR 6.7MIN,TO3200G AT 3.0 DG/MIN,HOLD FOR 7MIN
1 2,4,7,8-TCDD (DF#9)
1841
146.
194.
1846
104.
132.
1851
58.
58.
1870
120.
352.
1885
76.
96.
1899
71.
158.
1838
56.
56.
1854
42.
42.
1860
60.
60.
1870
54.
102.
1894
36.
36.
1909
14.
14.
001266
1840
21:37
1850
21:44
1860
21:51
1870
21:58
1880
22:05
1890
22:12

MASS CHROMATOGRAMS
10/29/90 5:15:00
SAMPLE: 1328
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG MIN/HOLD FOR 7MIN
1,2,3,4,7,8-HXCDF (DF#10)
RANGE: G 1.2766 LABEL: H 1. 4.0 QUAN: H 1. 1.0 J 0 BASE: H 20

DATA: Y90B2355 #1996 SCANS 1963 TO 2029
CALI: Y90B2355 #3

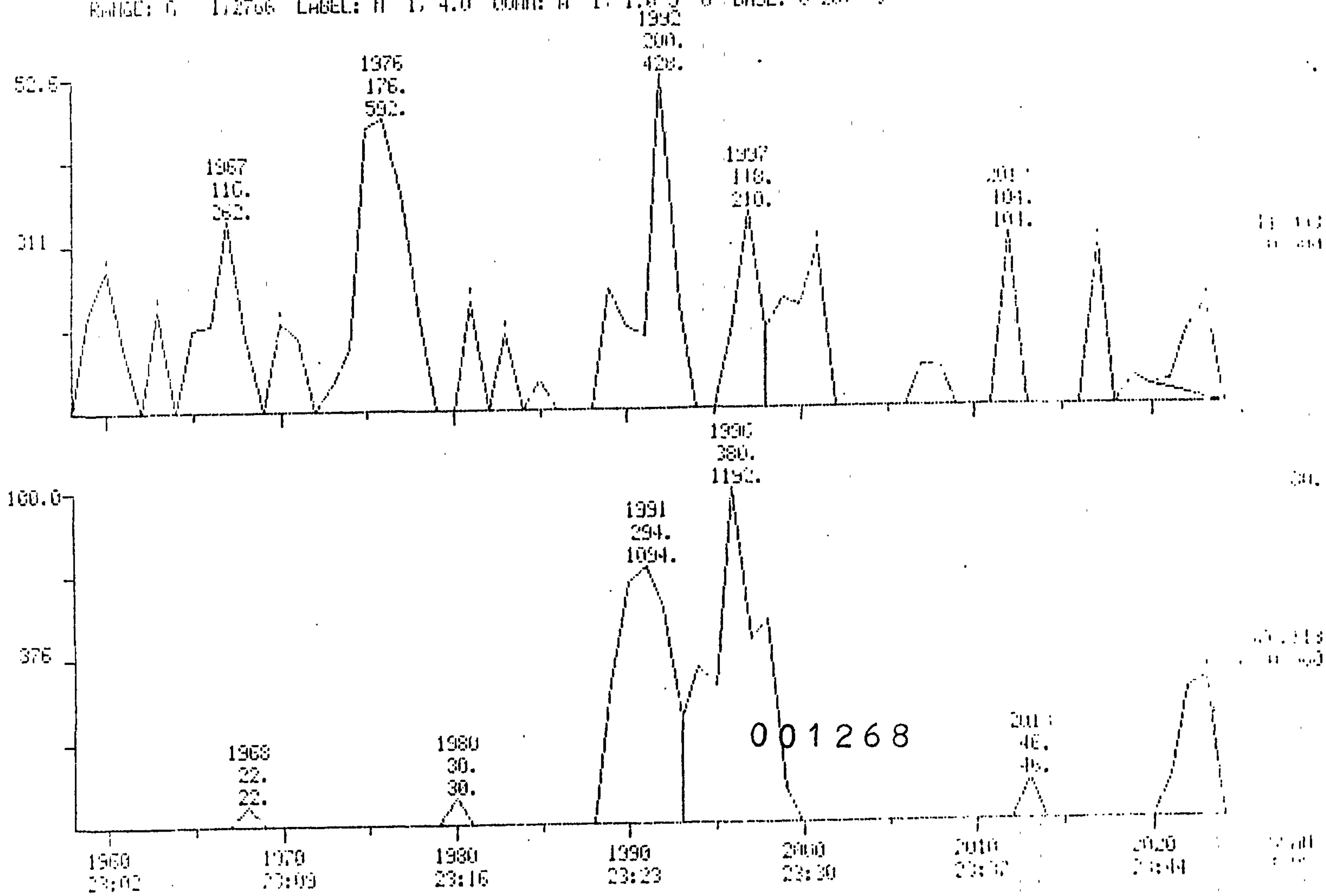


001267

MASS CHROMATOGRAMS
10/23/96 5:15:00
SAMPLE: 1326
CONDS.: 30L 170DG FOR 6.7MIN,TO3200G AT 0.0 DG/MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDF (DF#11)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

DATA: 73OB2355 #1991
CALI: 73OB2355 #3

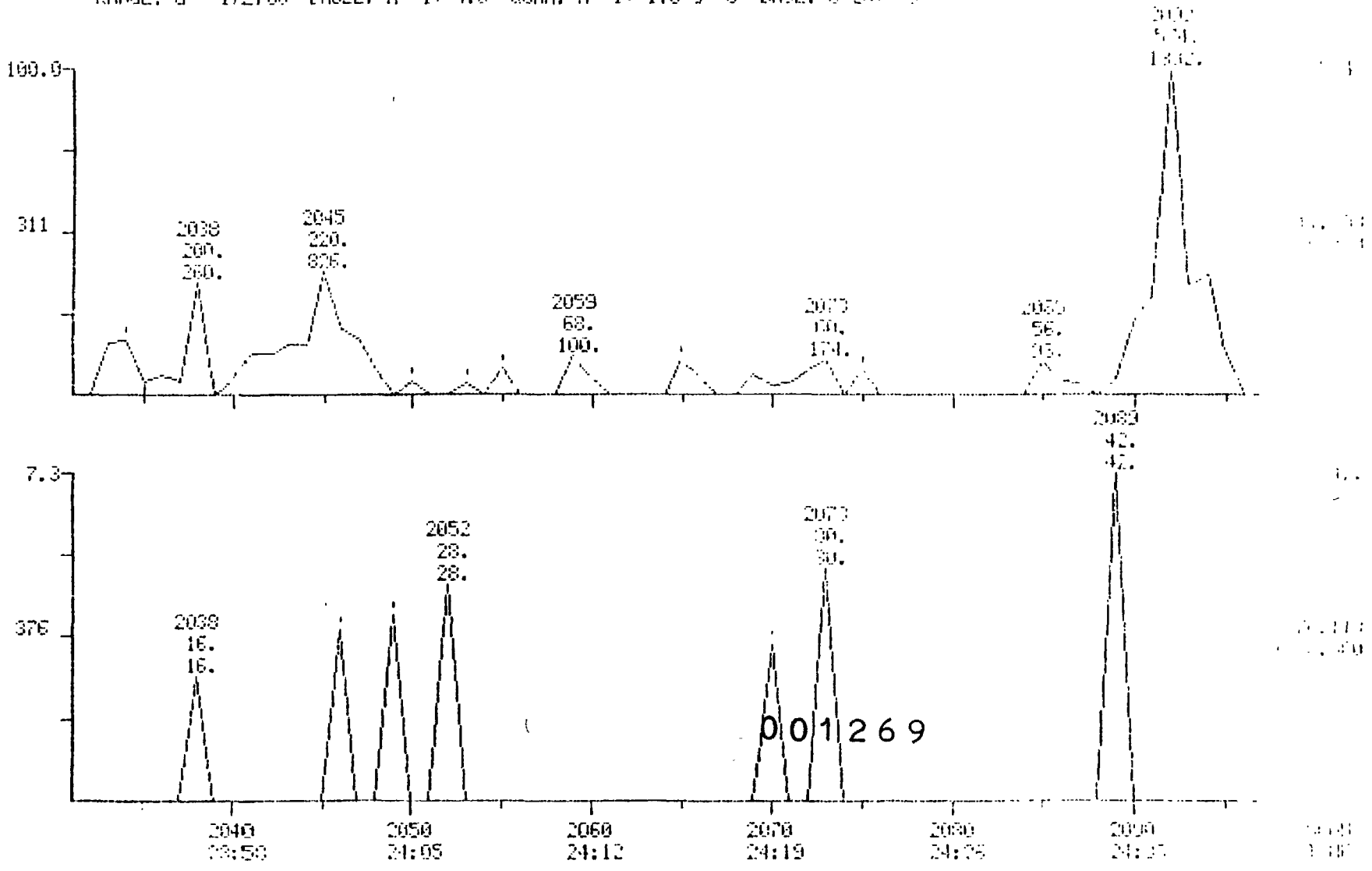
SCANS 1930 TO 2034



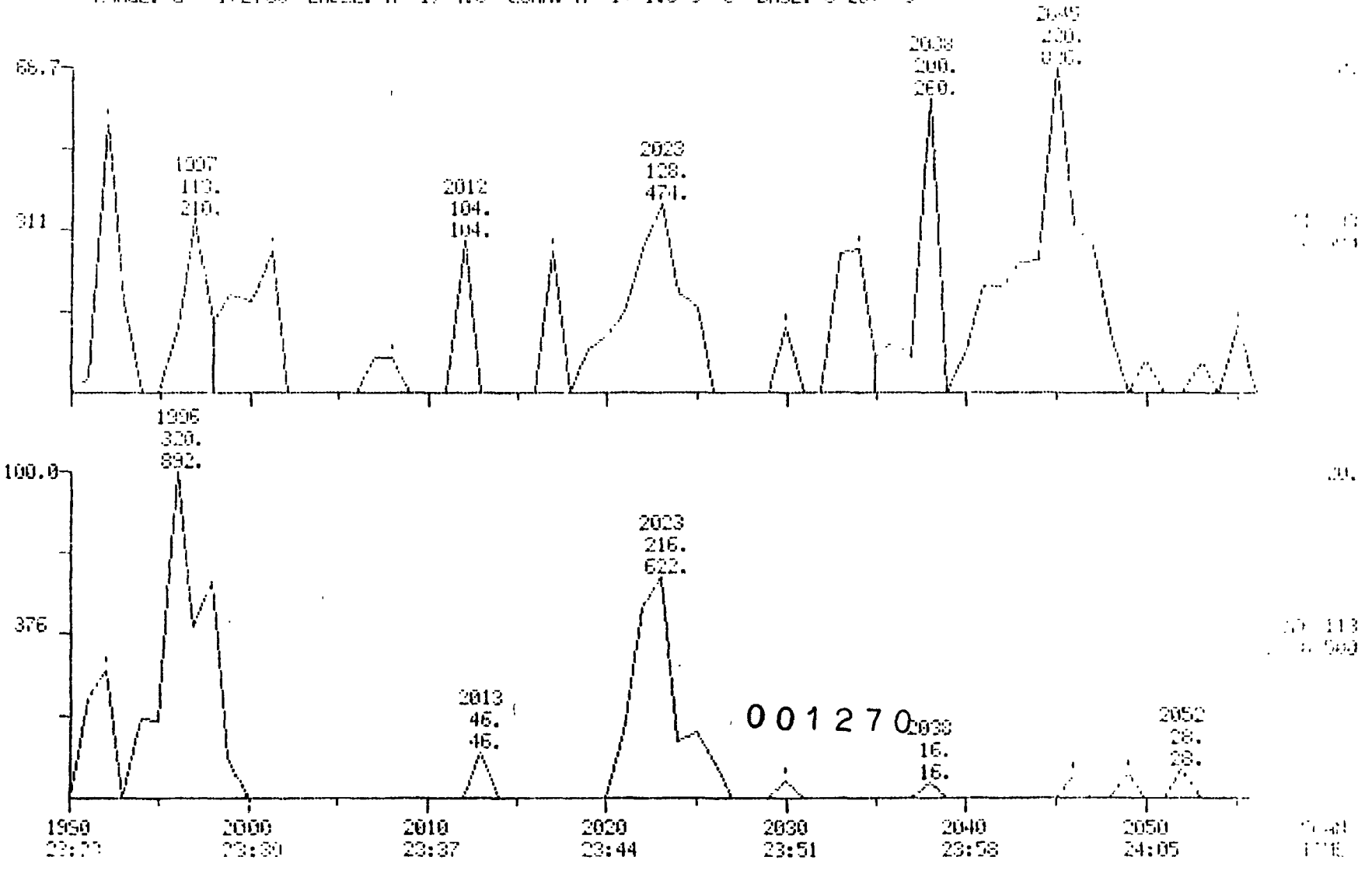
001268

MASS CHROMATOGRAMS
10-29-90 5:15:09
SAMPLE: 1326
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN.HOLD FOR 7MIN
1,2,3,7,8,9-HXCDF (DF#12)
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: N 1. 1.0 J 0 BASE: U 24. 3

DATA: Y90B2355 #2064 SCANS 2031 TO 2067
CALI: Y90B2355 #3



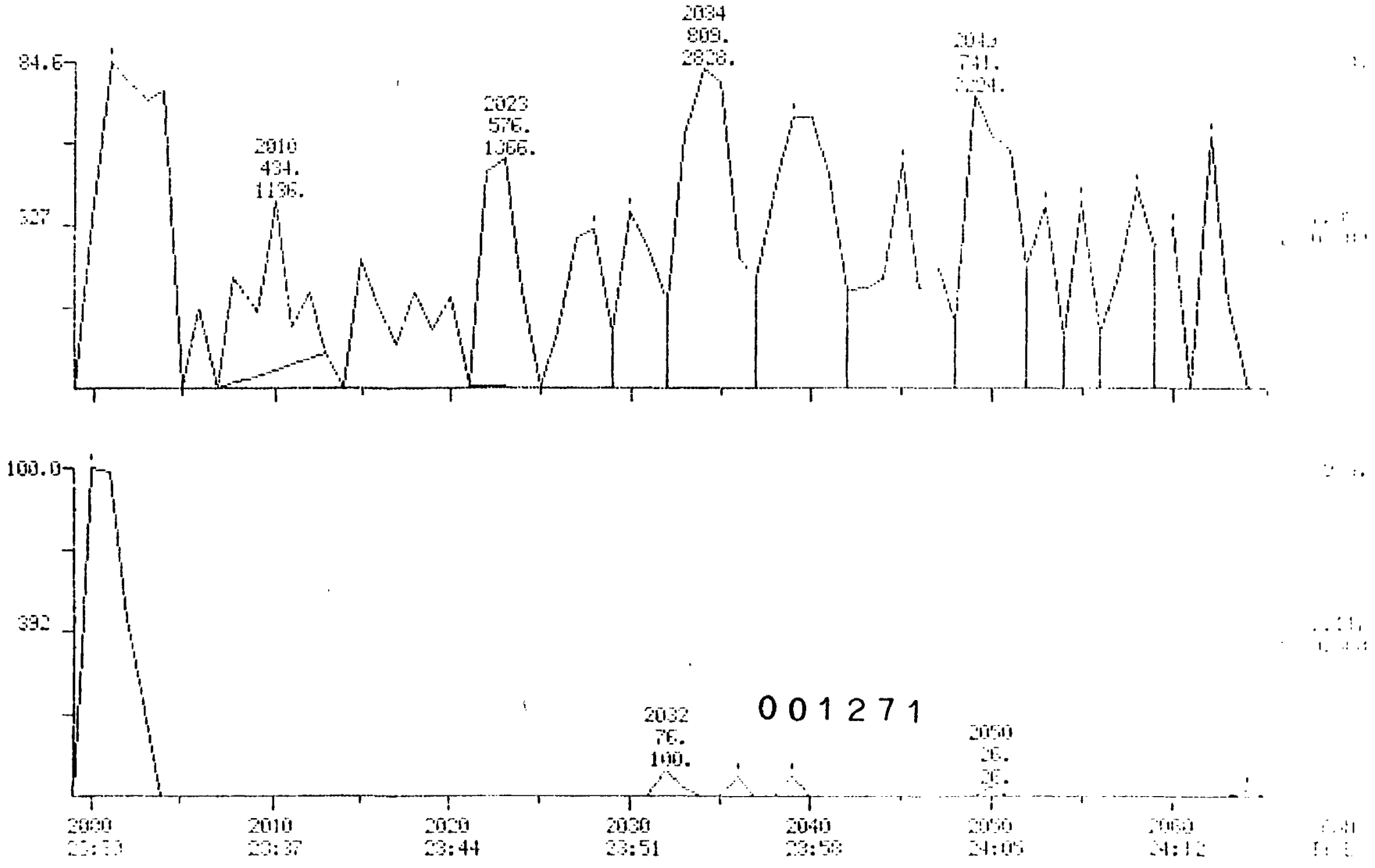
MASS CHROMATOGRAMS DATA: Y9082355 #2023 SCANS 1330 TO 2050
10 23 90 5:15:00 CALI: Y9082355 #3
SAMPLE: 1026
CONDS.: 20L 170DG FOR 5.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
2,3,4,6,7,8=HCCDF (DF#13)
RANGE: G 1.2706 LABEL: H 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20, 3



001270

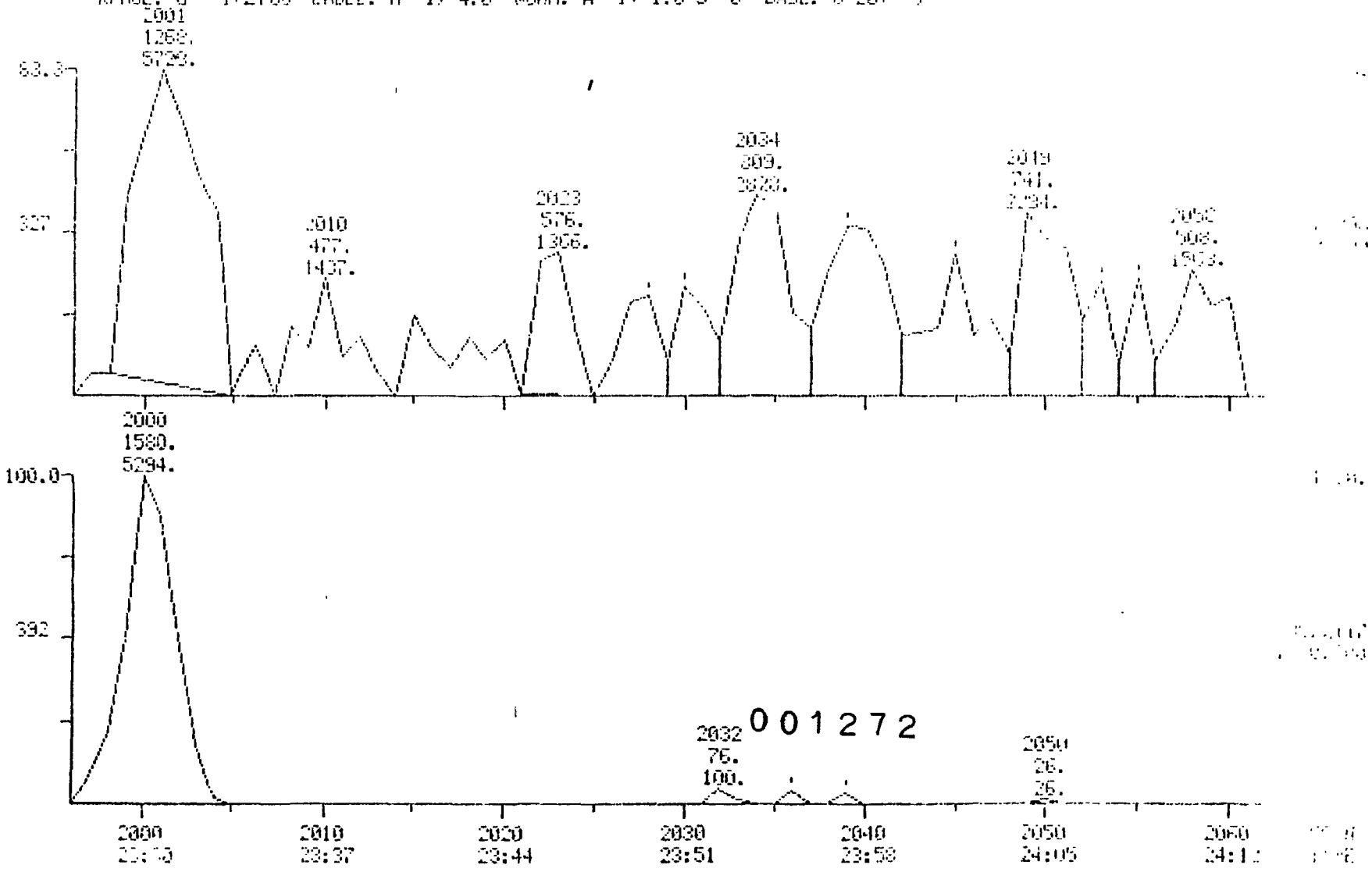
MASS CHROMATOGRAMS
10 23:90 5:15:00
SAMPLE: 1326
CONDS.: 30L 170DG FOR 6.7MIN.TO320DG AT 8.0 DG MIN.HOLD FOR 7MIN
1.2.3.4.7.8-HXLDD (DF#14)
RANGE: G 1.2766 LABEL: H 1. 4.0 QUAN: H 1. 1.0 J 0 BASE: U 20. 3

DATA: Y90B2355 #2032
CHLI: Y9002355 #3



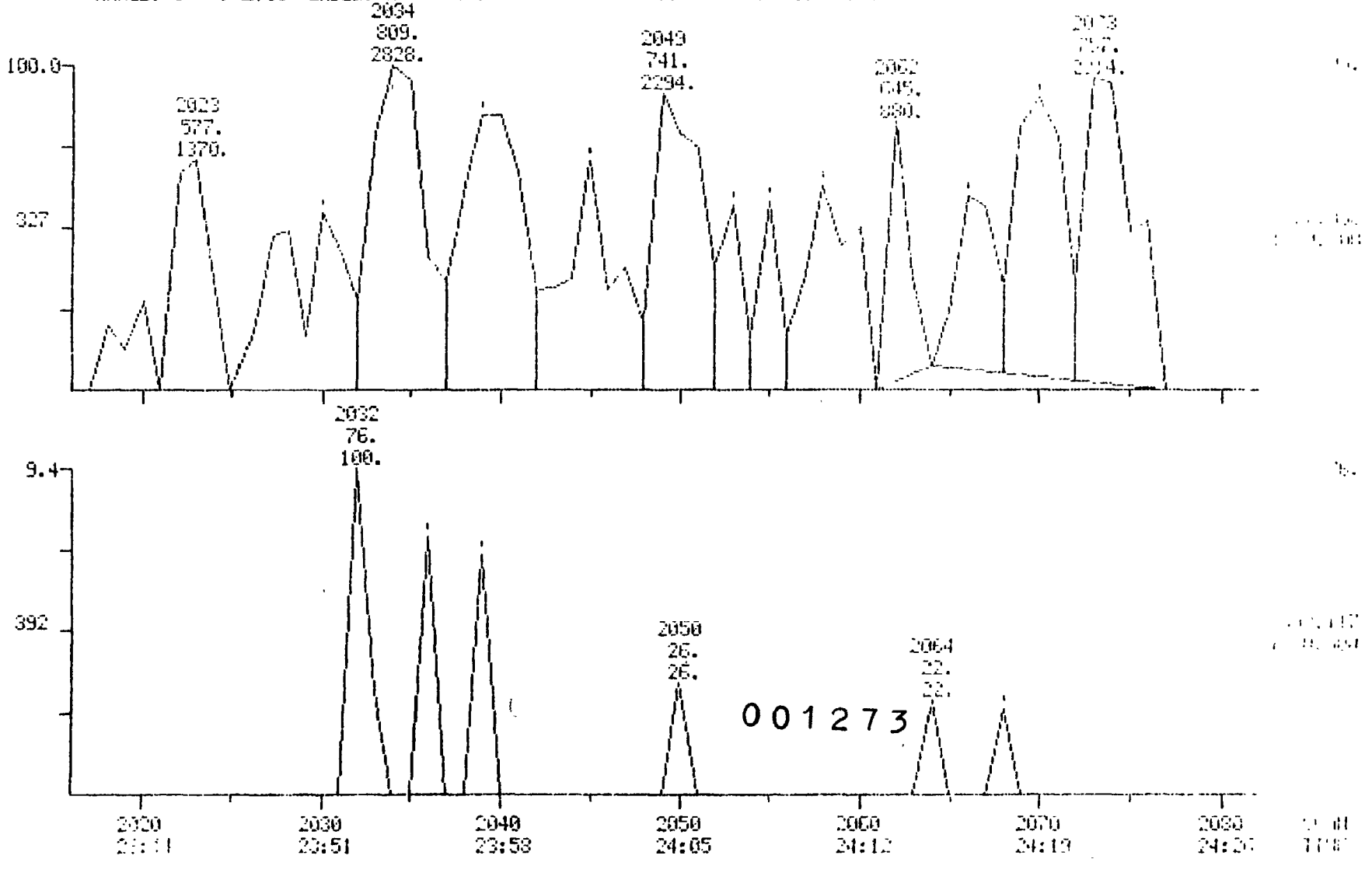
001271

MASS CHROMATOGRAM DATA: Y90B2355 #2020 SCANS 1501 TO 2462
10/29 90 5:15:00 CALI: Y90B2355 #3
SAMPLE: 1326
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG-MIN,HOLD FOR 7MIN
1,2,3,6,7,8-HXCDD (DF#15)
RANGE: G 1.2756 LABEL: A 1. 4.0 MODE: A 1. 1.0 J 0 BASE: U 20.)

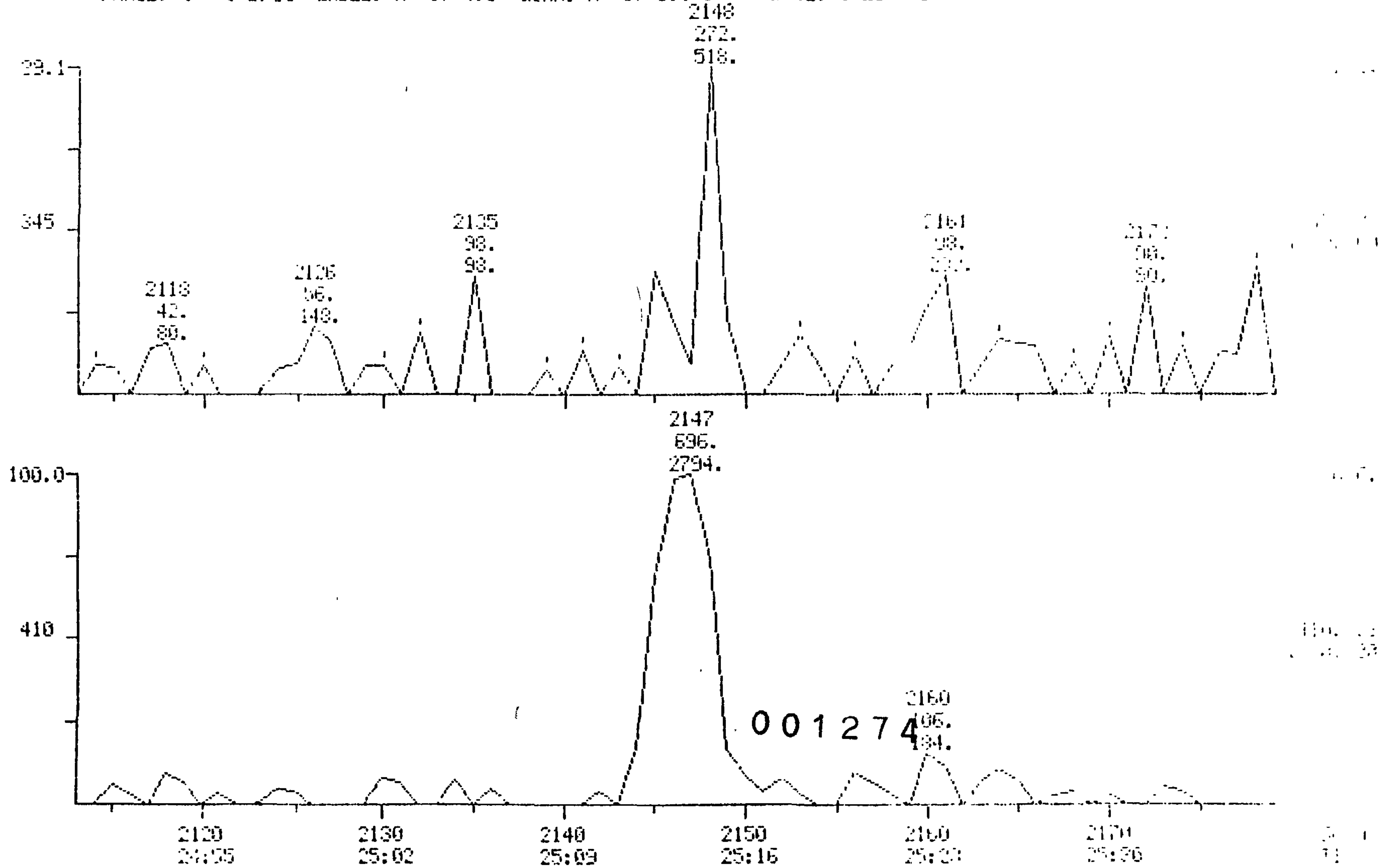


001272

MASS CHROMATOGRAMS
10-23-90 5:15:00
SAMPLE: 1326
CONDS.: 30L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,7,8,9-HXCDD (DF#16)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: U 20,

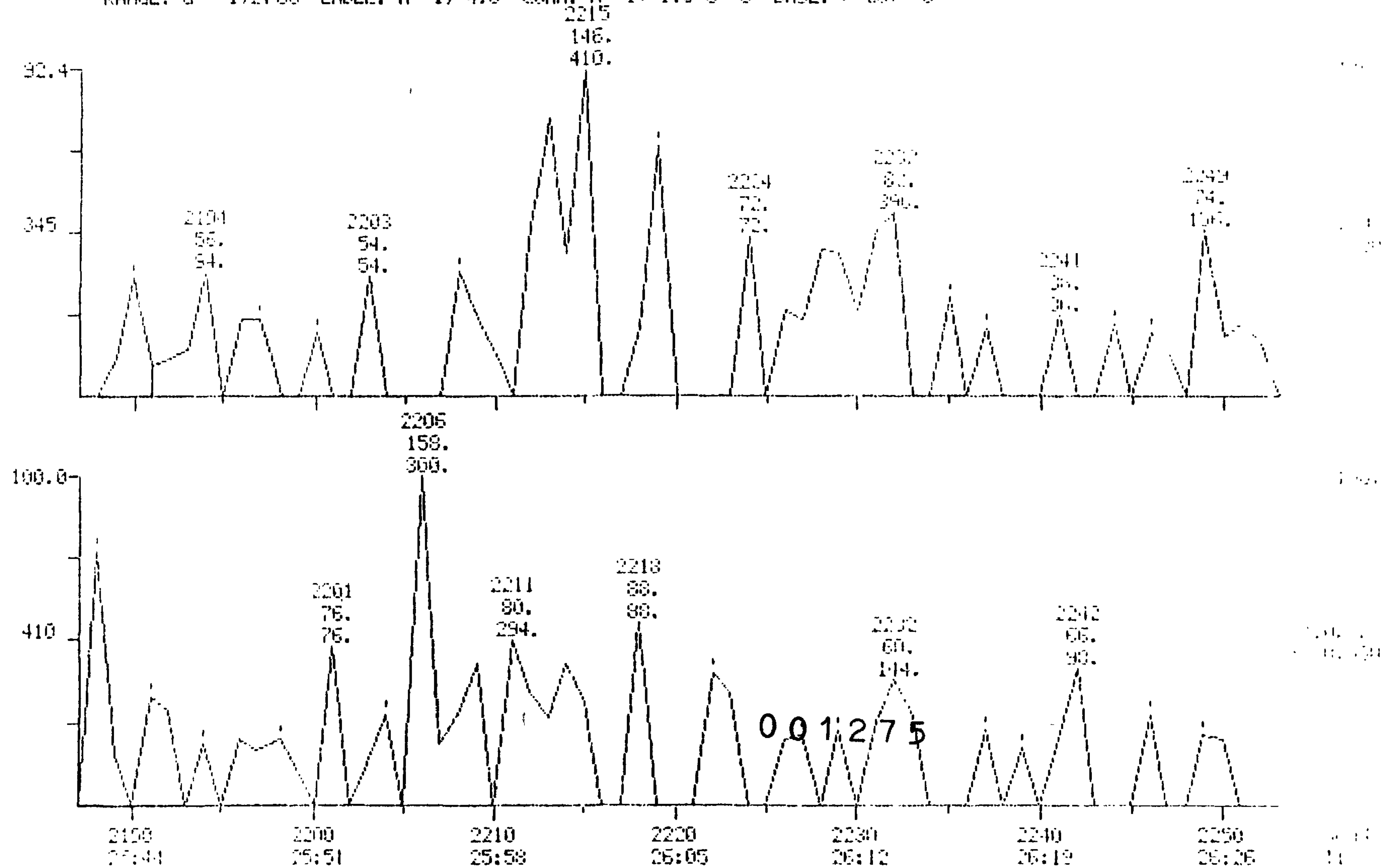


MASS CHROMATOGRAMS DATA: Y90B2355 #2146 SCANS 2113 TO 2179
10/29/90 5:15:00 CALI: Y90B2355 #3
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8-HPCDF (DF#17)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

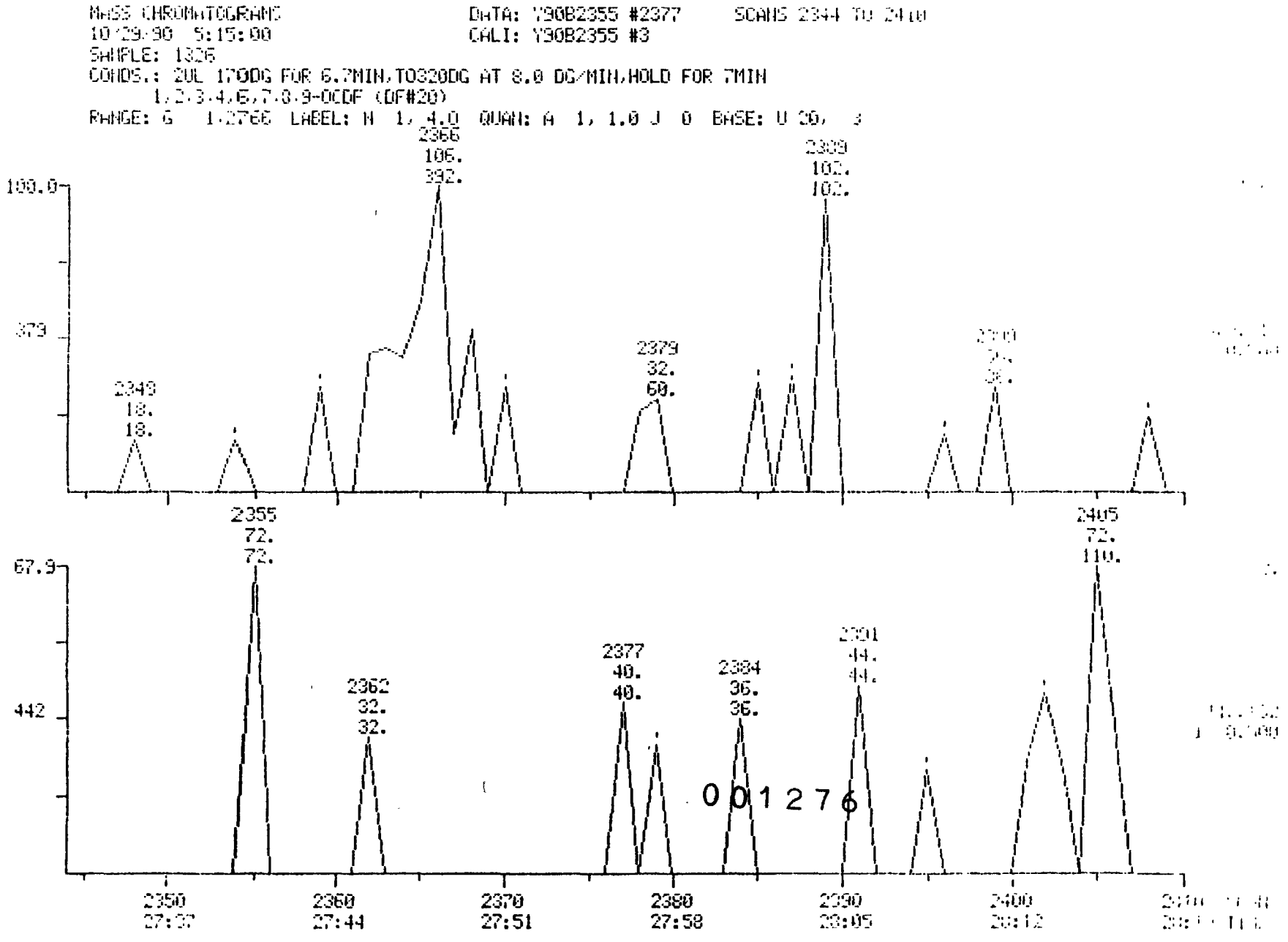


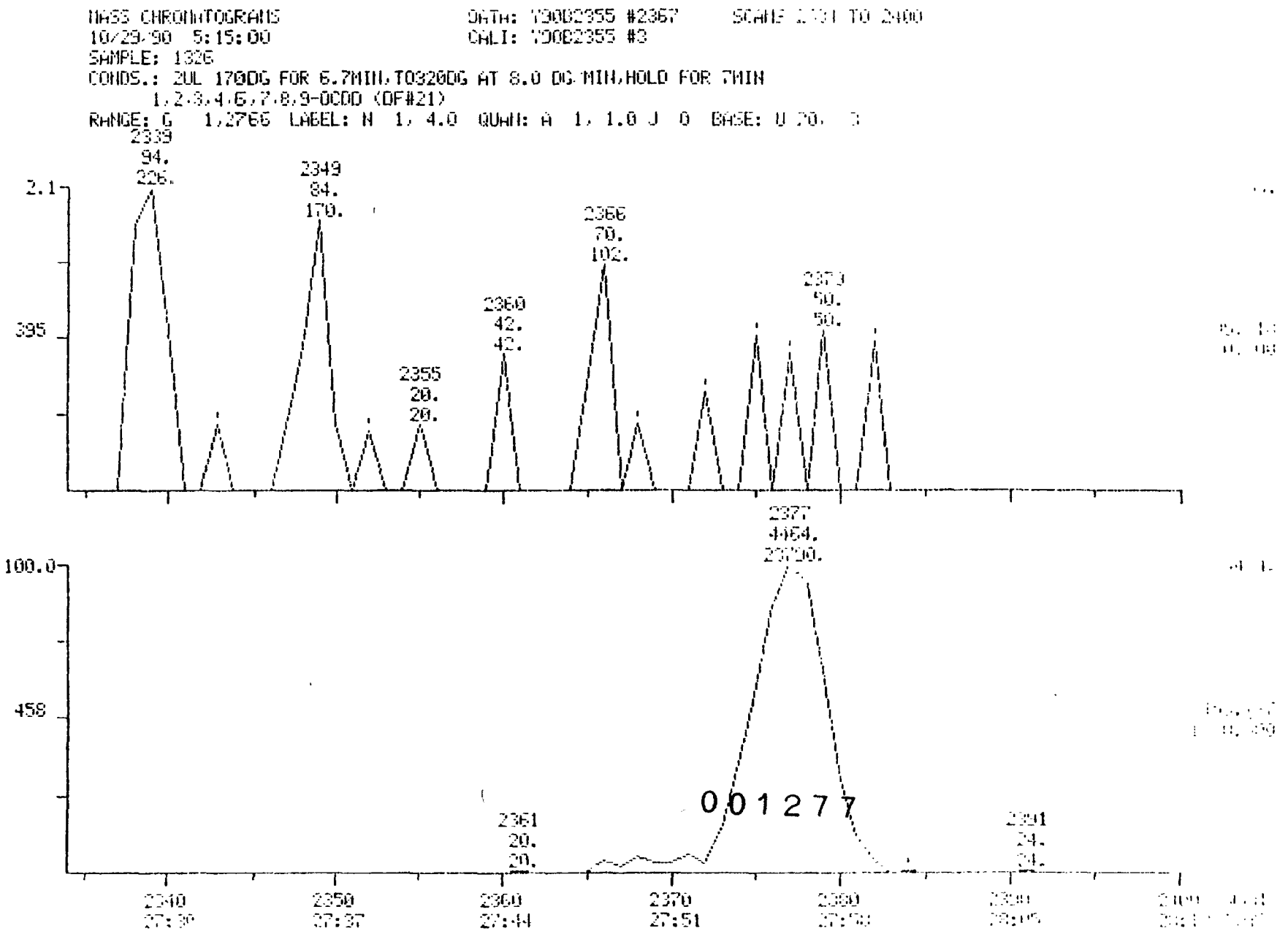
001274

MASS CHROMATOGRAM   DATA: Y30B2355 #2220   SCAN [illegible] TO 2253
10/29/90 5:15:00   CALI: Y30B2355 #3
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,7,8,9-HPCDF (DF#18)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3

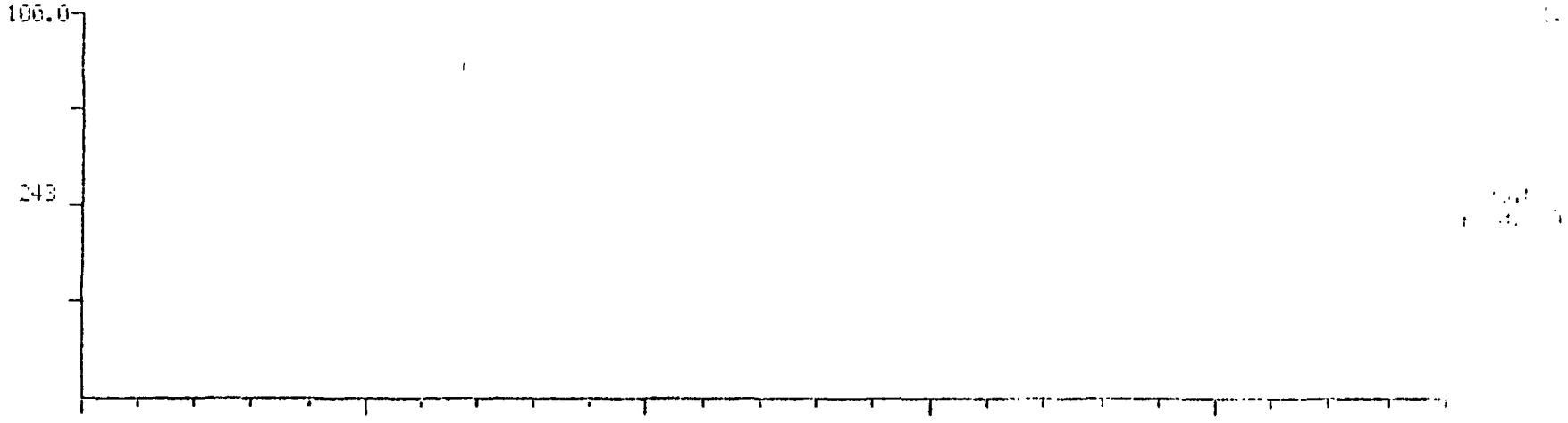


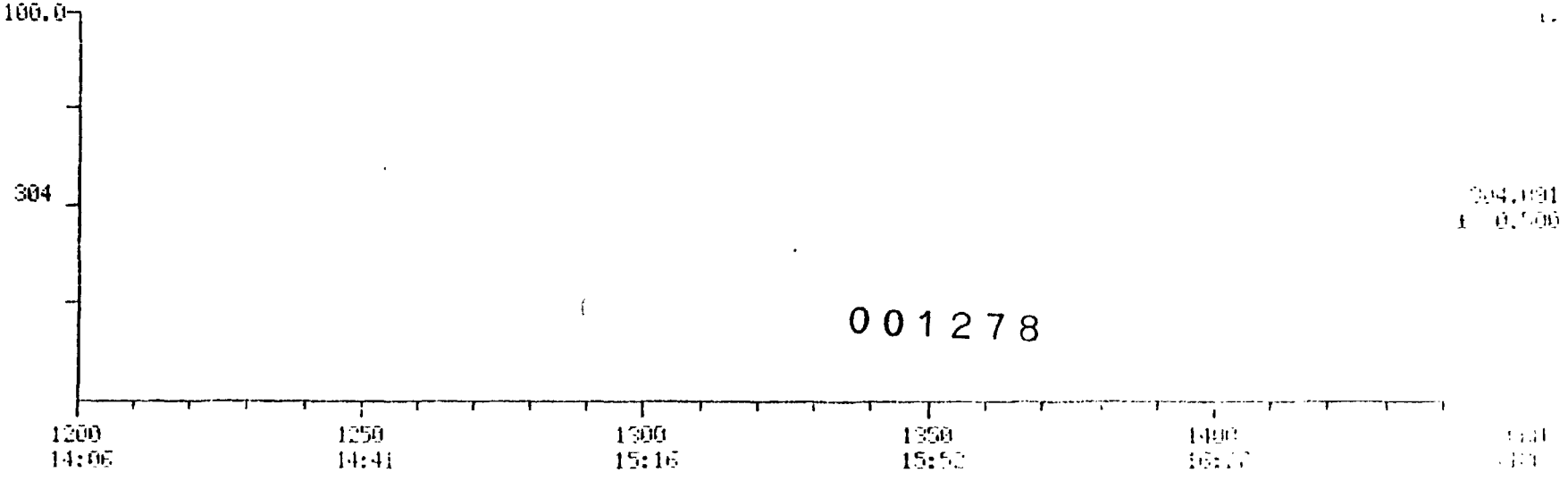
001275


MASS CHROMATOGRAMS
10/29/90 5:15:00
SAMPLE: 1326
DATA: Y90B2355 #2377
CALI: Y90B2355 #3
SCANS 2344 TO 2410
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDF (DF#20)
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 30,
100.0
379
2366
106.
392.
2379
32.
60.
2389
102.
102.
2343
18.
18.
67.9
442
2355
72.
72.
2362
32.
32.
2377
40.
40.
2384
36.
36.
2391
44.
44.
2405
72.
110.
001276
2350
27:37
2360
27:44
2370
27:51
2380
27:58
2390
28:05
2400
28:12


MASS CHROMATOGRAMS
10/29/90 5:15:00
SAMPLE: 1326
PATH: V30B2355 #2367
CALI: V30B2355 #3
SCANS 1,101 TO 2400
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
1,2,3,4,6,7,8,9-OCDD (DF#21)
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3
2339
94.
226.
2349
84.
170.
2355
20.
20.
2360
42.
42.
2366
70.
102.
2373
50.
50.
2377
4464.
23720.
2361
20.
20.
2391
24.
24.
2.1
385
100.0
458
2340
27:30
2350
27:37
2360
27:44
2370
27:51
2380
27:58
001277

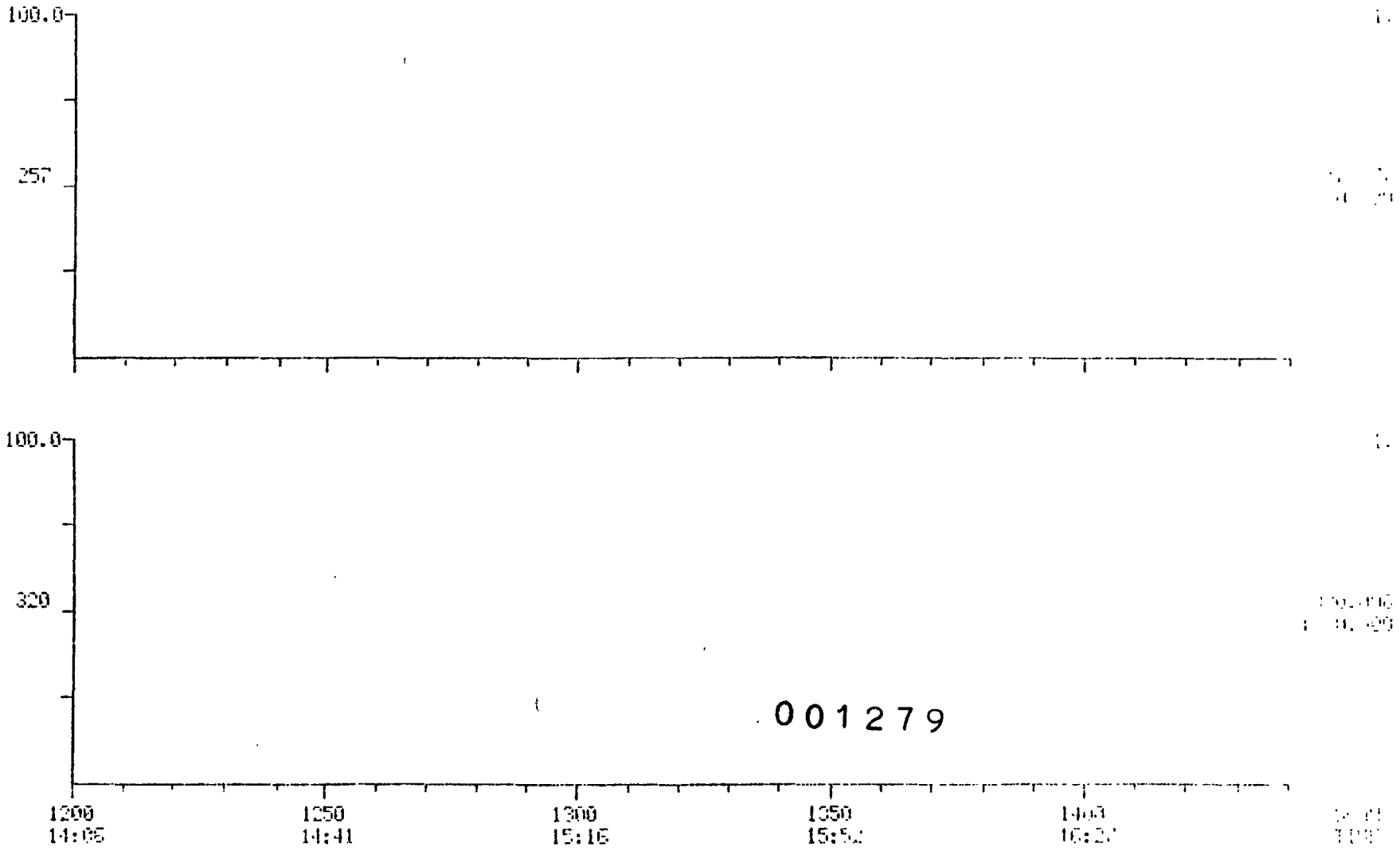
MASS CHROMATOGRAMS DATA: Y90B2355 #2367 SCANS 1200 TO 1440
10/29/90 5:15:00 CALI: Y90B2355 #3
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3



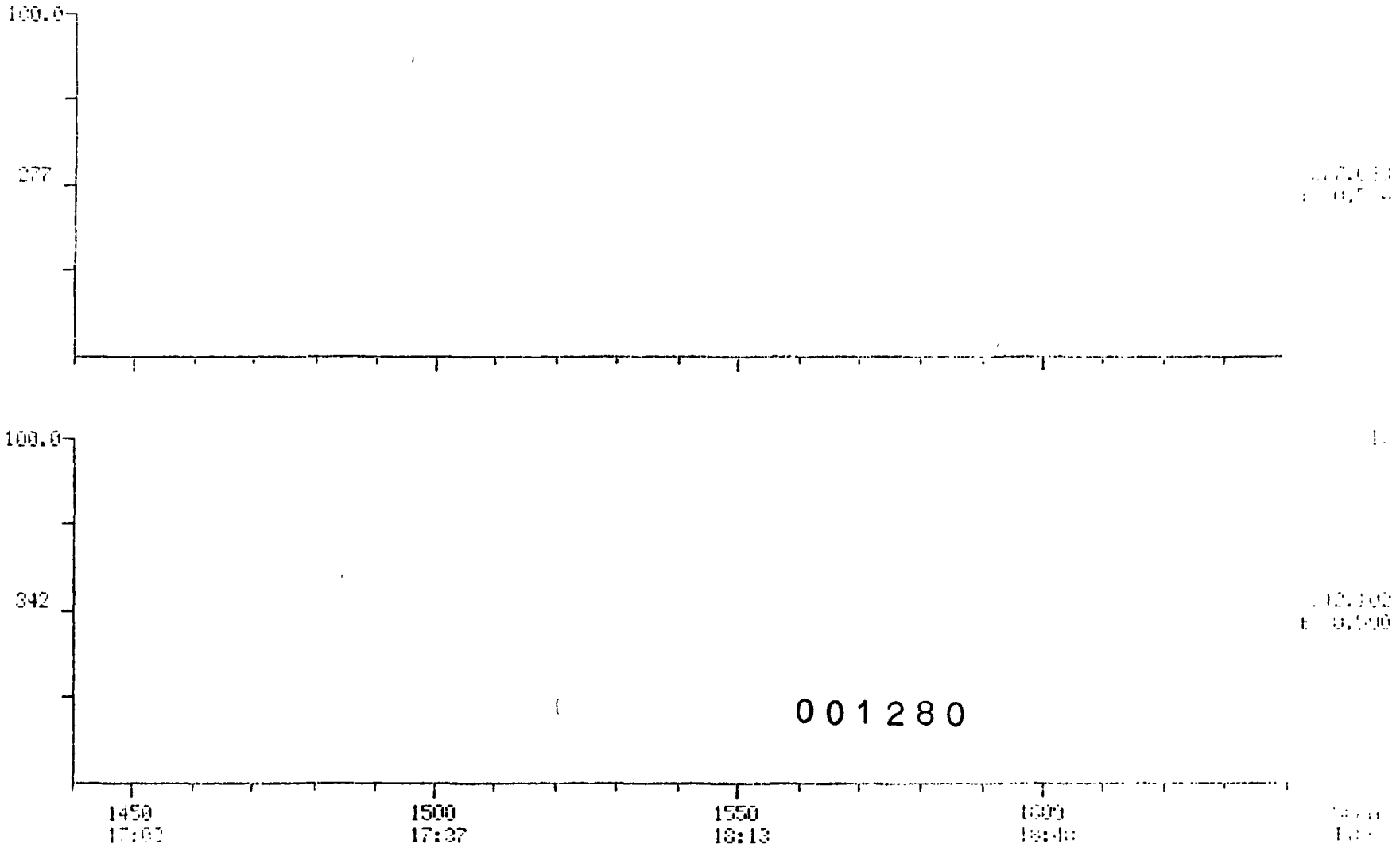


001278

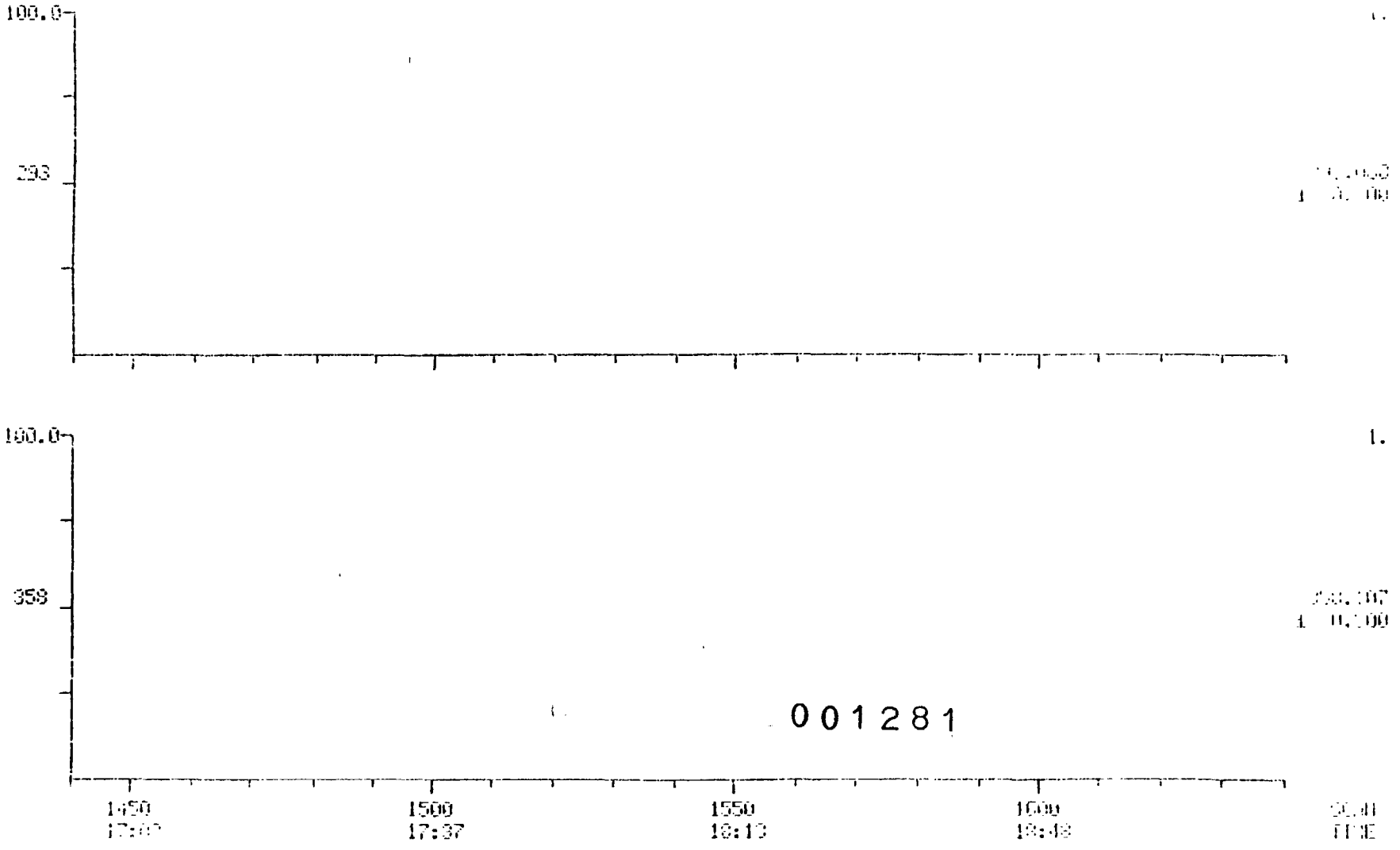
MASS CHROMATOGRAMS DATA: V90B2355 #2367 SCANS 1200 TO 1440
10/29/90 5:15:00 CALI: V90B2355 #3
SAMPLE: 1326
CONDS.: 20L 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



MASS CHROMATOGRAMS DATA: Y30B2355 #2367 SCANS 14.0 TO 16.0
10/29/90 5:15:00 CALI: Y30B2355 #3
SAMPLE: 1326
CONDS.: 20L 170DG FOR 6.7MIN.TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: M 1, 1.0 J 0 BASE: U 20, 3

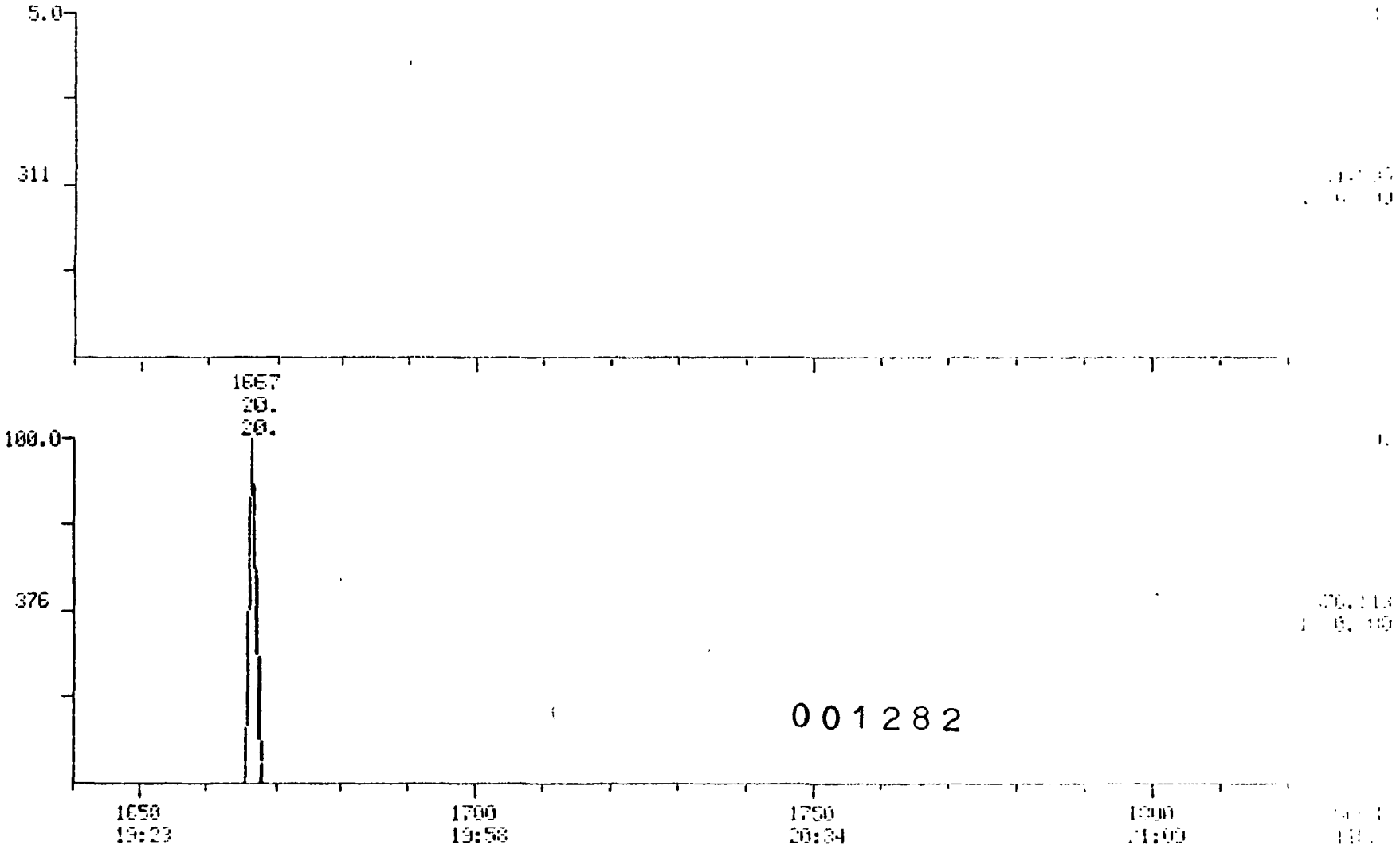


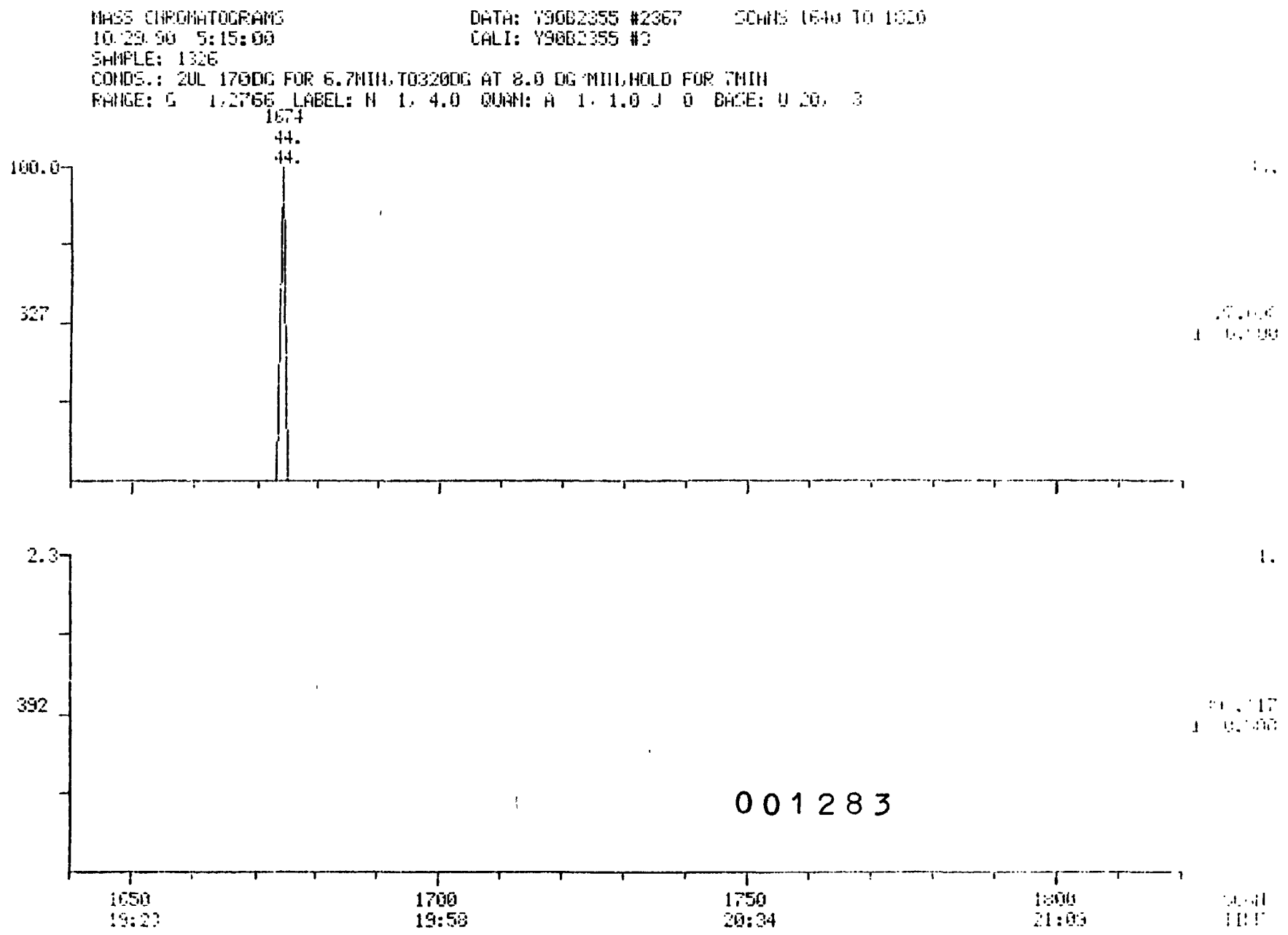
MASS CHROMATOGRAMS DATA: Y90B2355 #2367 SCANS 1440 TO 1640
10/29/90 5:15:00 CALI: Y90B2355 #3
SAMPLE: 1325
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: H 1, 1.0 J 0 BASE: 0 20, 3



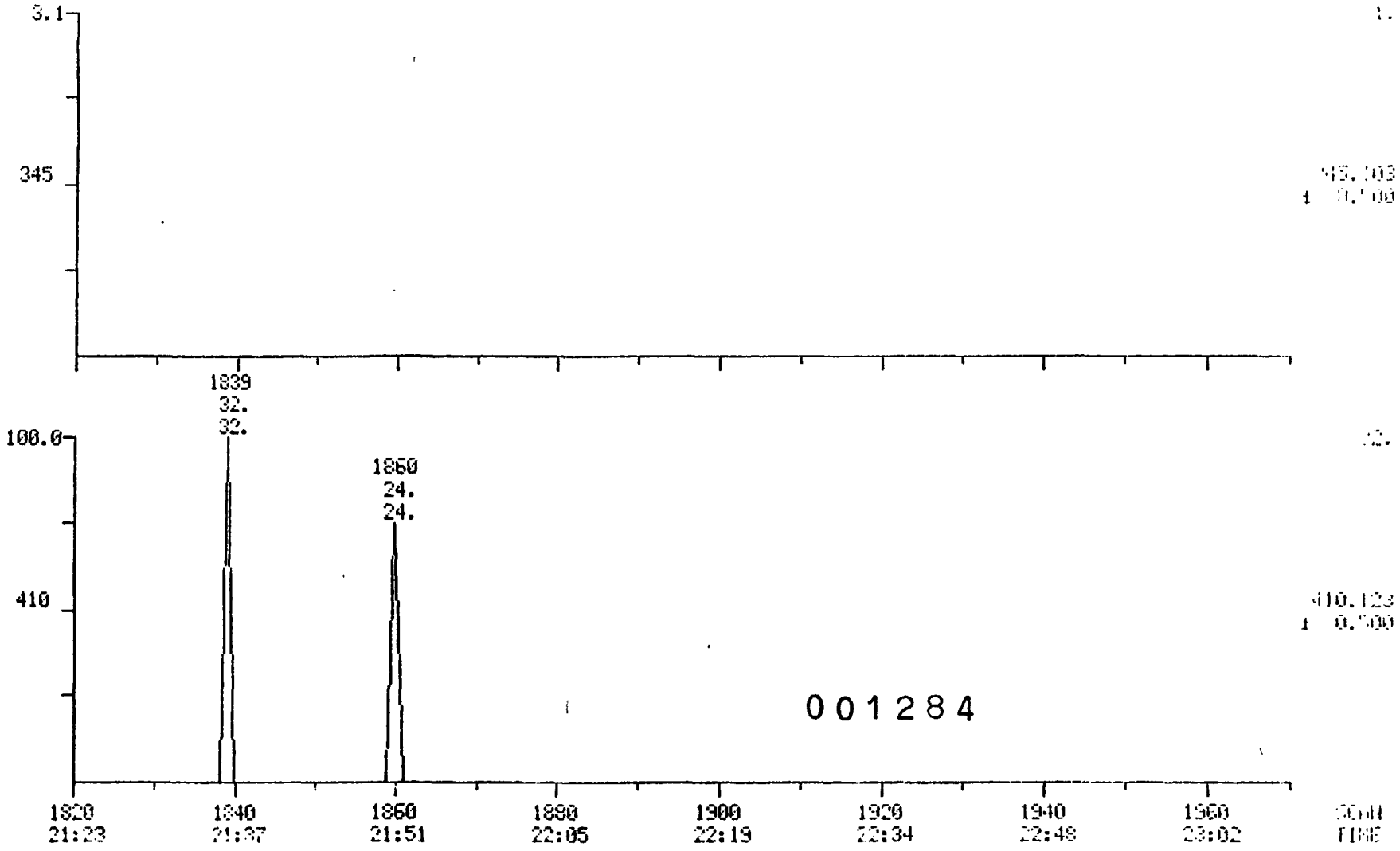
001281

MASS CHROMATOGRAM DATA: Y0082355 #2367 SCANS 1641 TO 1820
10/29/90 5:15:00 CALI: Y0082355 #3
SAMPLE: 1026
CONDS.: 20L 170DG FOR 6.7MIN,T0320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2765 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: 0 20. 3




MASS CHROMATOGRAMS
10/29/90 5:15:00
SAMPLE: 1326
DATA: Y90B2355 #2367
CALI: Y90B2355 #3
SCANS 1640 TO 1820
CONDS.: 2UL 170DG FOR 6.7MIN,T0320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1. 4.0 QUAN: A 1. 1.0 J 0 BASE: U 20. 3
1674
44.
44.
100.0
327
2.3
392
001283
1650
19:23
1700
19:58
1750
20:34
1800
21:09

MASS CHROMATOGRAMS DATA: Y90B2355 #2367 SCANS 1820 TO 1970
10/29/90 5:15:00 CALI: Y90B2355 #3
SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1.2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20, 3



MASS CHROMATOGRAMS
10/29/90 5:15:00

DATA: Y90B2355 #2367 SCANS 1820 TO 1970
CALI: Y90B2355 #3

SAMPLE: 1326
CONDS.: 2UL 170DG FOR 6.7MIN,TO320DG AT 8.0 DG/MIN,HOLD FOR 7MIN
RANGE: G 1,2766 LABEL: N 1, 4.0 QUAN: A 1, 1.0 J 0 BASE: U 20. 3