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TEST DATA

- Maximum Modulation Percentage Plot
- Emission Bandwidth Plot
- Radiated Emission Worksheet for Peak Measurement
- Radiated Emission Worksheet for Average Measurement

1. VERIFICATION OF COMPLIANCE

COMPANY NAME : AUDIOVOX CORPORATION
150 MARCUS BLVD.
HAUPPAUGE, NY 11788
USA

CONTACT PERSON : PAT LAVELLE/EXECUTE VP

TELEPHONE NO. : (516) 231-7750

EUT DESCRIPTION : 302 MHZ TRANSMITTER

MODEL NAME/NUMBER : F0B-OE2B

FCC ID : BGAE2BT

DATE TESTED : SEPTEMBER 09, 1998

REPORT NUMBER : 98E7711

TYPE OF EQUIPMENT	SECURITY EQUIPMENT (INTENTIONAL RADIATOR)
EQUIPMENT TYPE	302 MHZ TRANSMITTER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in CFR 47, PART 15. This said equipment in the configuration described in this report shows that maximum emission levels emanating from equipment are within the compliance requirements.



MIKE C.I. KUO / VICE PRESIDENT
COMPLIANCE ENGINEERING SERVICES, INC.

2 Product Description

Fundamental Frequency	302 MHz
Power Source	12V Battery
Transmitting Time	Periodic $\leq$ 5 seconds
Modulation Type	AM
Associated Receiver	AUDIOVOX CORPORATION MODEL: ACK-10 FCC ID: BGAAL10R

3. Test Facility

The 3/10/30 meter open area test site and conducted measurement facility used to collect the radiated data is located at 561F Monterey Road, Morgan Hill, California, U.S.A. A detailed description of the test facility was submitted to the Commission on May 27,1994.

4 Measurement Standards

The site is constructed and calibrated in conformance with the requirements of ANSI C63.4/1992.

5 Test Methodology

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 KHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. (CFR 47 Section 15.33)

6 Measurement Equipment Used

Manufacturer	Model Number	Description	Cal Due Date
H.P.	8568A	Spectrum Analyzer (100Hz - 1.5GHz)	02/99
H.P.	8566B	Spectrum Analyzer (100Hz - 22GHz)	09/99
EMCO	3146	Antenna (200-1000 MHz)	10/98
H.P.	8447D	Preamplifier (0.1 - 1300 MHz)	09/99
ARA	DRG-18/A	Antenna(1 - 18GHZ)	12/98
H.P.	8449B	Preamplifier (1-26.5GHZ)	03/99

7 POWERLINE RFI LIMIT

CONNECTED TO AC POWER LINE	SECTION 15.207
CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 450 KHZ TO 30 MHZ	SECTION 15.205 AND SECTION 15.209, 15.221, 15.223, 15.225 OR 15.227, AS APPROPRIATE.
BATTERY POWER	NO REQUIRED.

8 RADIATED EMISSION LIMITS

GENERAL REQUIREMENTS	SECTION 15.209.
RESTRICTED BANDS OF OPERATION	SECTION 15.205
PERIODIC OPERATION IN THE BAND 40.66 -40.70 MHz AND ABOVE 70 MHz.	SECTION 15.231

10. Test Procedure

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 ft from the EUT. The EUT antenna was mounted vertically as per normal installation.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205. The EUT was moved throughout the XY, XZ, and YZ planes to maximize emissions received by the search antenna.
3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

11 Equipment Modifications

To achieve compliance to FCC Section 15.231 technical limits, the following change(s) were made during compliance testing:

NOT APPLICABLE

12. TEST RESULT

Powerline RFI Class B	Eut	Radiated Emission Limits	Eut
SECTION 15.207		SECTION 15.209	x
SECTION 15.205, 15.209, 15.221, 15.223, x 15.225 OR 15.227		SECTION 15.205	
BATTERY POWER	X	SECTION 15.231 (b)	X
		SECTION 15.231 (e)	

12.1 Maximum Modulation Percentage (M%)

CALCULATION:

Average Reading = Peak Reading (dBuV/m) X 20log^(M%)

In order to determine possible Maximum Modulation percentage, alternations are made to the EUT. We measured:

WHERE (1 period) = 100 mS
 t1+t2+t3...+tn = 33 mS

M% = ((t1 + t2 + t3 +tn) / T) X 100%
 = 33%

Maximum Modulation Percentage	33 %
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12.2 The Emissions Bandwidth

The bandwidth of the emissions were investigated per 15.231(c)

Center Frequency	Measured	Limits
302 MHz	313KHz <	302MHz x 0.25%= 755KHz

Compliance Engineering Services Inc.

Report No. : 980909F1

Date : 09/09/1998

Time : 13:01

Test Engr : JUAN MARTINEZ

>> 3 M RADIATED EMISSION DATA <<

Company : AUDIOVOX CORPOTRATION
Equipment Under Test : 302MHz TX (MOD: F0B-0E2B)
Test Configuration : EUT ONLY
Type of Test : 15.231(B) (1) (2) (3)
Mode of Operation : TX

Freq.	dBuV-PK	dBuV-AVE	CF(dB)	dBuV-AVE	FCC-B	EUT-B	Note
Z-AXIS:							
FUNDAMENTAL:							
301.81	63.8	54.2	-11.6	42.6	73.6	-30.9	Horizontal
HARMONICS:							
603.62	33.8	24.2	-5.8	18.4	53.6	-35.2	Horizontal
905.43	32.2	22.6	0.9	23.5	53.6	-30.1	Horizontal
Y-AXIS:							
FUNDAMENTAL:							
301.84	57.6	48.0	-11.6	36.4	73.6	-37.1	Horizontal
HARMONICS:							
603.68	36.3	26.7	-5.8	20.9	53.6	-32.7	Horizontal
905.52	28.9	19.3	0.9	20.2	53.6	-33.4	Horizontal
X-AXIS:							
FUNDAMENTAL:							
301.84	58.4	48.8	-11.6	37.2	73.6	-36.3	Horizontal
HARMONICS:							
603.68	35.9	26.3	-5.8	20.5	53.6	-33.1	Horizontal
905.52	32.6	23.0	0.9	23.9	53.6	-29.7	Horizontal
Z-AXIS:							
FUNDAMENTAL:							
301.84	55.0	45.4	-11.2	34.1	73.6	-39.4	Vertical
HARMONICS:							
603.68	40.3	30.7	-6.3	24.4	53.6	-29.2	Vertical
905.52	29.3	19.7	0.4	20.1	53.6	-33.5	Vertical
Y-AXIS:							
FUNDAMENTAL:							
301.84	61.1	51.5	-11.2	40.2	73.6	-33.3	Vertical
HARMONICS:							
603.68	40.2	30.6	-6.3	24.3	53.6	-29.3	Vertical
905.52	29.5	19.9	0.4	20.3	53.6	-33.3	Vertical

X-AXIS:

FUNDAMENTAL:

301.84	60.9	51.3	-11.2	40.0	73.6	-33.5	Vertical
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HARMONICS:

603.68	45.9	36.3	-6.3	30.0	53.6	-23.6	Vertical
905.52	33.1	23.5	0.4	23.9	53.6	-29.7	Vertical

Total # of data 18

V.1.0a

Compliance Certification Services
Fcc Part 15.231(B)(1)(2)(3)

9/9/1998
Juan Martinez
(1Meter)

AUDIOVOX CORPORATION
302MHz TX
MOD: FOB-OE2B

$f_o=301.84\text{MHz}$

F(MHz)	<u>PK</u> dBuv	<u>AV</u> dBuv	AF (dB)	CL (dB)	AMP (dB)	DIST (dB)	OTHER (dB)	<u>TOTAL</u> (dBuV/m)	<u>LIMIT</u> (dBuV/m)	<u>MARGIN</u> (dBuV/m)
<u>Y-AXIS</u>										
1207(R)	46.4	34.4	25	2.59	-35	-9.5	0	<u>PK</u> 29 <u>AV</u> 17	<u>PK</u> 74 <u>AV</u> 54	<u>PK</u> -45 <u>AV</u> -37
1509(R)	46.5	33.5	25.2	4.07	-35	-9.5	0	31 18	74 54	-43 -36
2114	45	33.1	27.2	4.63	-35	-9.5	0	32 20	74 54	-42 -34
2716(R)	45.1	32.1	30	5.18	-35	-9.5	0	36 23	74 54	-38 -31
3018	44.8	31.5	30.9	5.74	-35	-9.5	0	37 24	74 54	-37 -30
<u>X-AXIS</u>										
1207(R)	48.7	36.7	25	2.59	-35	-9.5	0	32 20	74 54	-42 -34
1509(R)	49.5	37.8	25.2	4.07	-35	-9.5	0	34 23	74 54	-40 -31
2114	44.9	38.7	27.2	4.63	-35	-9.5	0	32 26	74 54	-42 -28
2716(R)	45.7	39.7	30	5.18	-35	-9.5	0	36 30	74 54	-38 -24
3018	44.6	32.9	30.9	5.74	-35	-9.5	0	37 25	74 54	-37 -29
<u>Z-AXIS</u>										
1207(R)	47.3	39.7	25	2.59	-35	-9.5	0	30 23	74 54	-44 -31
1509(R)	44.9	34.8	25.2	4.07	-35	-9.5	0	30 20	74 54	-44 -34
2114	45.9	35.6	27.2	4.63	-35	-9.5	0	33 23	74 54	-41 -31
2716(R)	46.7	39.8	30	5.18	-35	-9.5	0	37 30	74 54	-37 -24
3018	46.8	34.9	30.9	5.74	-35	-9.5	0	39 27	74 54	-35 -27

NOTE: ALL MEASUREMENTS ARE NOISE FLOOR AND HORIZONTAL POLARIZATION.

AF: Antenna Factor
AMP: Pre-amp gain
CL: Cable loss

DIST: Distance Correction(9.5dB, 1M)
OTHER: High pass filter insertion loss

RES	VBW	PK: Peak	AV: Average
RES	VBW	PK: 1MHz 1MHz	AV: 1MHz 10Hz

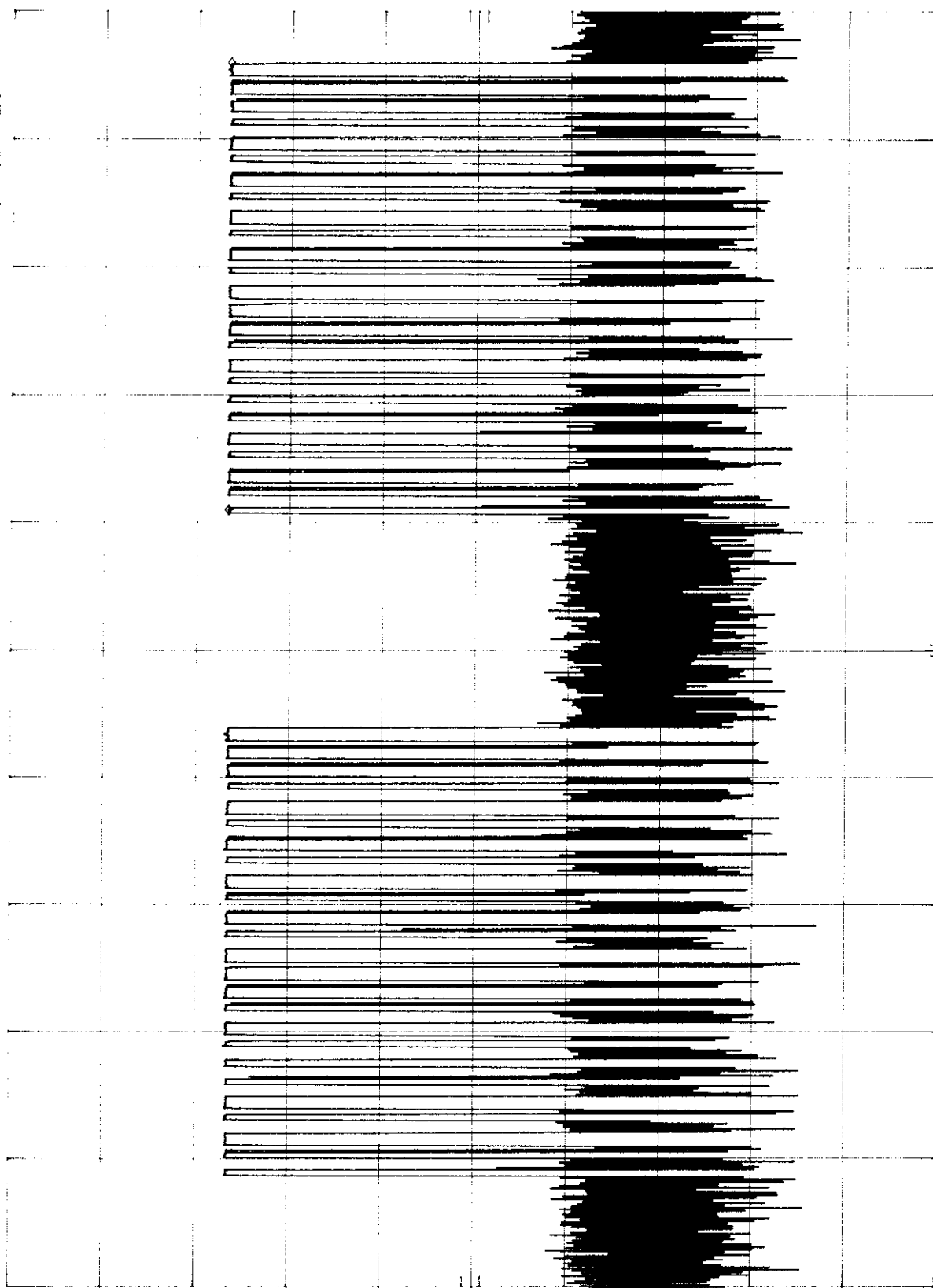
DUTY CYCLE. AUDIOVOX (FCC ID-BGAAOE2BT)

REF 87.0 dBμV ATTN 10 dB

MKR Δ 35.00 msec
0.00 dB

hp

10 dB/



CENTER 301.815 000 MHz

RES BW 100 KHz

VBW 100 KHz

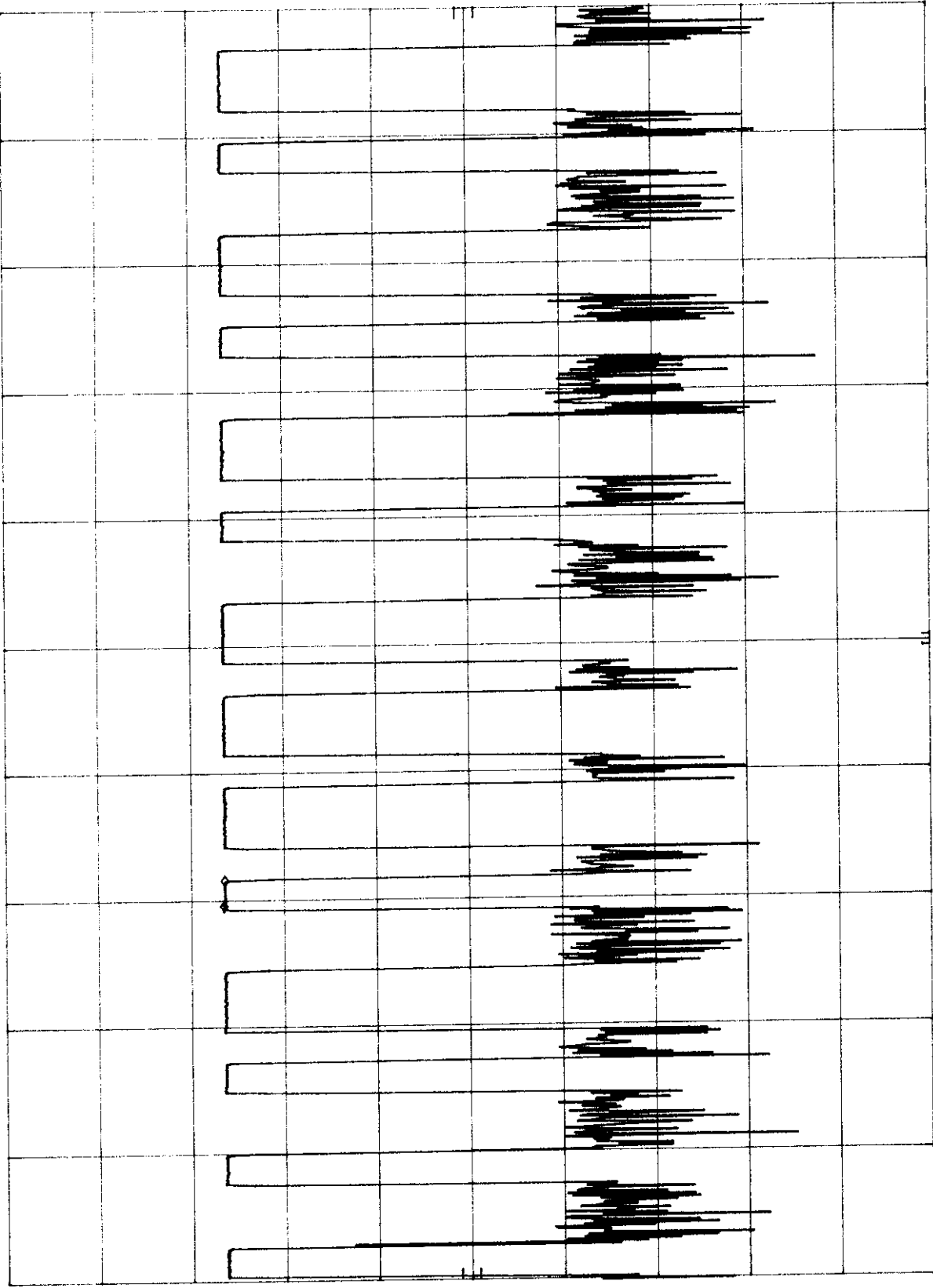
SPAN 0 Hz

SWP 100 msec

DUTY CYCLE. AUDIOVOX (FCC ID--BGAAOE2BT) MKR Δ 400.0 μ sec
REF 87.0 dB μ V ATTN 10 dB --0.10 dB

hp

10 dB/

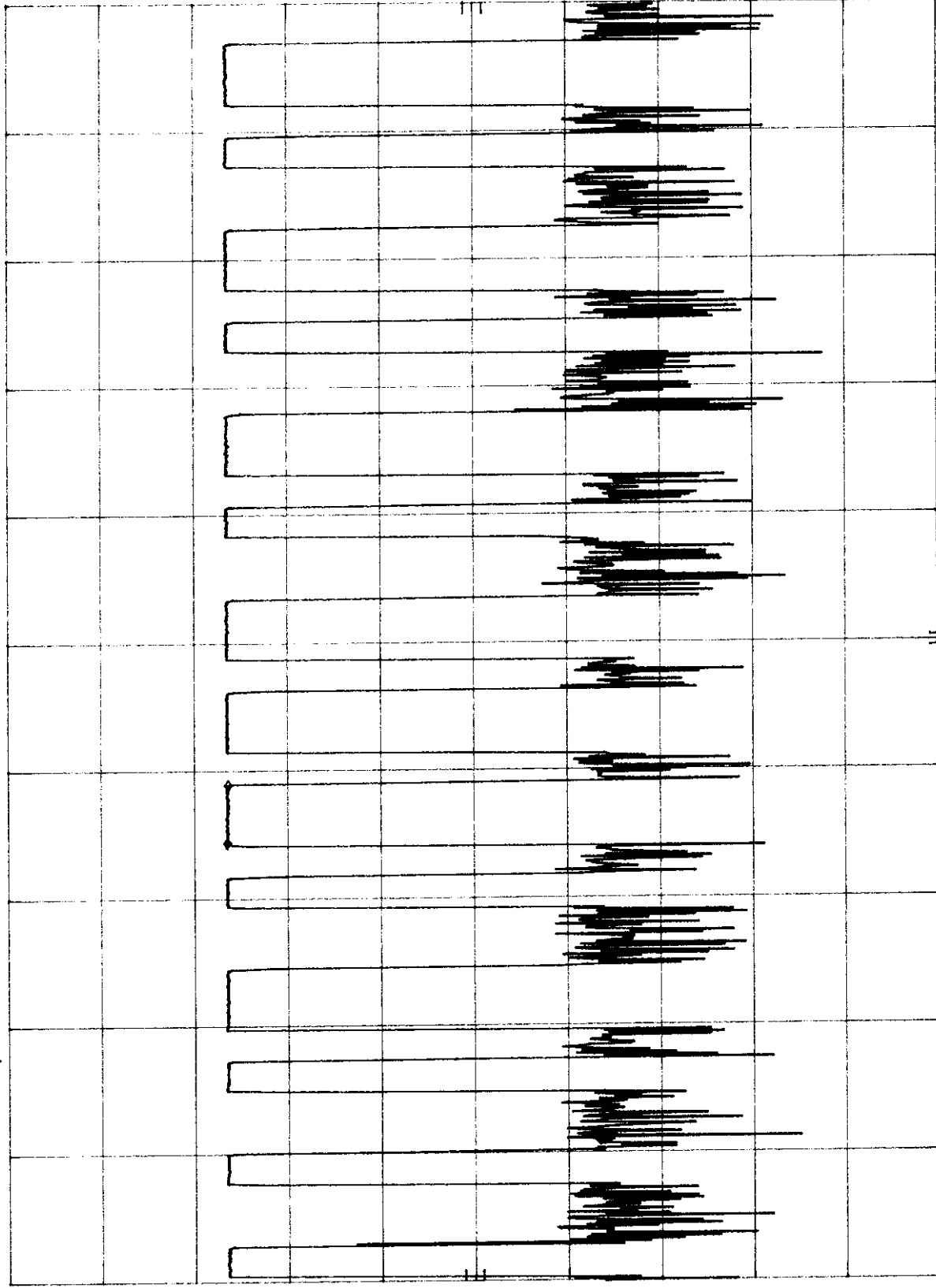


CENTER 301.815 000 MHZ
RES BW 100 KHZ
SPAN 0 HZ
SWP 20.0 msec
VBW 100 KHZ

DUTY CYCLE. AUDIOVOX (FCC ID-BGAAOE2BT) MKR Δ 900.0 μ sec
REF 87.0 dB μ V ATTN 10 dB -0.10 dB

hp

10 dB/



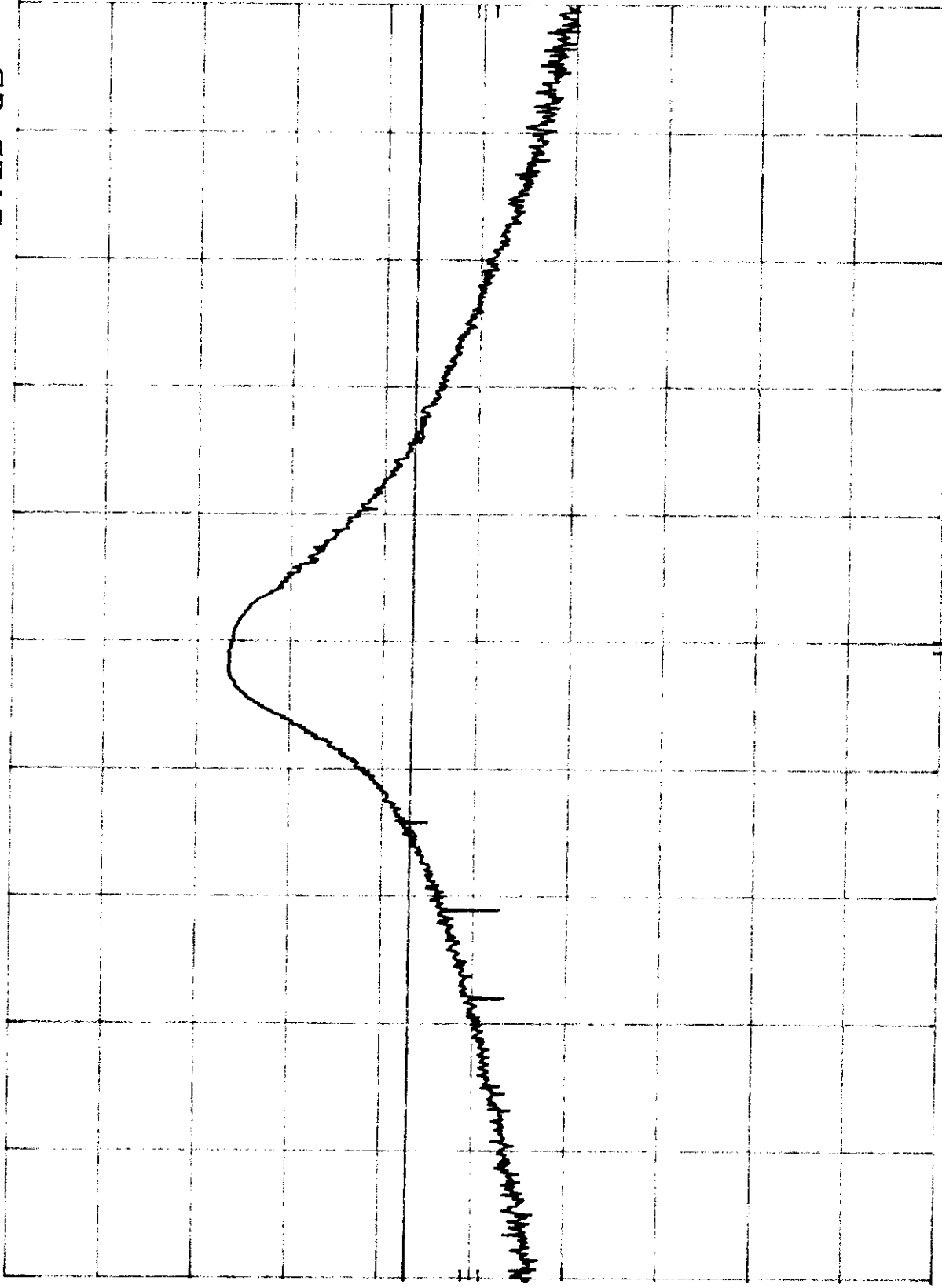
CENTER 301.815 000 MHZ SPAN 0 Hz
RES BW 100 KHZ SWP 20.0 msec
VBW 100 KHZ

HP
AUDIOVOX CORP FCC ID BGAAOE2BT
REF 97.0 dBμV ATTN 10 dB
MKR Δ 313 KHZ
-0.20 dB

10 dB/

POS PK

DL
54.2
dBμV



CENTER 301.83 MHz
RES BW 100 KHZ
SPAN 1.00 MHz
SWP 20.0 msec
VBW 100 KHZ