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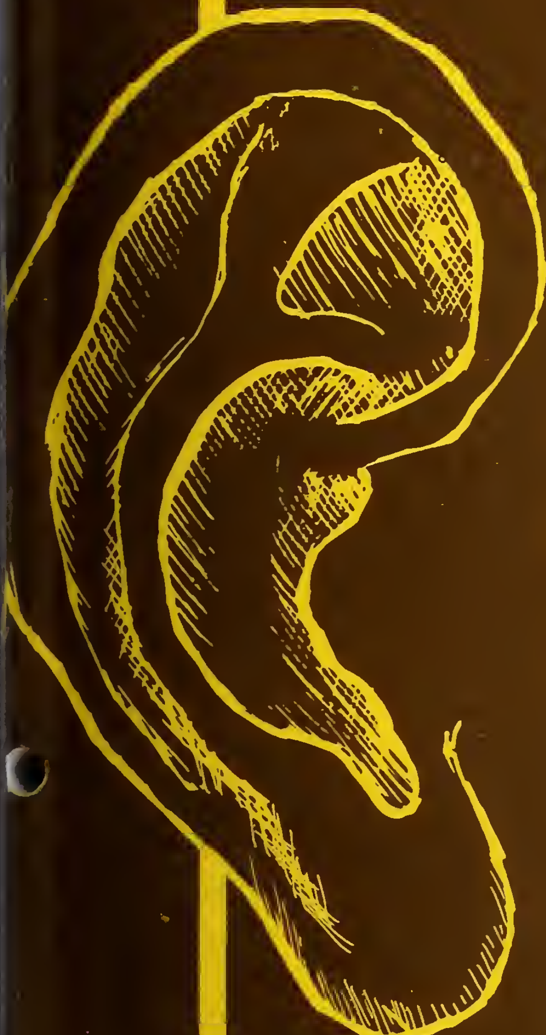

HANDBOOK OF HEARING AID MEASUREMENT 1976

VETERANS ADMINISTRATION WASHINGTON, D.C. 20420

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HANDBOOK OF HEARING AID
MEASUREMENT
1976

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I. INTRODUCTION

G. Donald Causey

The Veterans Administration's program for measuring and evaluating the performance characteristics of hearing aids was developed as a means of selecting a manageable group of instruments of high quality at a reasonable cost from among the wide variety of models available on the consumer market.

Each year, all interested manufacturers (of record) or their agents are sent a copy of the bid format and invited to participate in our program. For the 1976 Contract Year, 24 manufacturers participated. To ensure that the total number of samples would be compatible with laboratory facilities, each manufacturer was limited to the submission of a total of seven models of his choice, selected from among those that are currently available to the public. VA representatives made a random selection of three sample aids of each model entered in the program from the participating manufacturers' stock. These aids are tested for VA by the Sound Section of the Institute of Basic Standards at the National Bureau of Standards, and the Bio-communications Laboratory, University of Maryland, which subject the aids to a number of specific acoustic and electronic measurements. Except for those evaluated for meeting a special clinical need, aids are placed in one or more of four power categories: mild, moderate, strong, or extra strong. Aids with special characteristics, such as compression, directional, and high frequency emphasis were evaluated with others having those same characteristics. A total of 145 models were received for this year's program. The raw test data is turned over to VA's Auditory Research Laboratory for evaluation and conversion into a performance score or "Index of Characteristics." The Index of Characteristics is derived by applying to the test results weighting factors which have been reviewed and approved by a VA advisory group of consulting audiologists and physicists. Selection of hearing aids for contract is made from among those qualified hearing aid models which:

(a) have Index of Characteristics scores which are markedly better than the other hearing aids in their category, or

(b) may be deemed clinically necessary to provide adequate hearing rehabilitation for hearing-impaired veterans without reference to their measurement results or cost per point of quality, or

(c) have the lowest cost per point of quality as obtained by dividing the determined cost to the VA by the Index of Characteristics score, or

(d) may be deemed necessary for research purposes.

We have indicated in Section II those hearing aids which scored in the top 25% of their respective categories or which received a VA contract because they possess particular characteristics needed for special clinical problems. These aids are labeled with an asterisk.

This is not to say that the remaining instruments are not of value. It simply means that they did not score as well on our tests and that we must limit the number of aids on contract because of administrative problems in stocking and handling large quantities of instruments.

Issuance of Aids to Veterans

The selected hearing aids are purchased in quantity lots directly from the manufacturer and stocked in the VA Supply Depot, Hines, Illinois. The instruments are then distributed to the various VA and contract audiology clinics in accordance with predetermined stock level requirements.

Each hard-of-hearing veteran reporting to these clinics has an otological examination, audiological examination, and receives a trial with 3-5 hearing aids which are known to possess characteristics which might compensate for his hearing deficiency. Once it is determined that a particular hearing aid is most suitable for a veteran's hearing defect, he is issued that specific instrument.

When a veteran is issued a hearing aid, he is normally entitled to be furnished hearing aid repair services and sufficient batteries to operate the instrument. Eligible veterans are provided spare hearing aids to utilize when their regular hearing aid is sent in for repairs so that they will not be deprived of aided hearing. Ordinarily, the veteran who receives an initial hearing aid may return after six months for a second instrument. The first one issued then becomes his spare aid. Studies have shown that veterans retain their hearing aids an average of eight years before requesting a replacement. Veterans are furnished replacement hearing aids at such times as they are required.

The Measurement of Hearing Aid Performance

For the most part, the measurements in Section III made at the Sound Section, National Bureau of Standards are 2cc coupler measurements, employing techniques previously described in the literature or the standard (ANSI, 1960). With the development of the Knowles Electronics Manikin for Acoustic Research (KEMAR) and the Zwislocki coupler, one may measure the performance of hearing aids in ways not previously possible. In those NBS measurements made on KEMAR, the staff utilized the substitution method to achieve a flat input signal throughout the frequency spectrum. These curves differ somewhat from the curves obtained on the same instrument with KEMAR at the Biocommunications Laboratory, University of Maryland. The latter curves represent the orthotelephonic gain of the instrument. For this type of measurement, the gain of the instrument represents the amplitude available at the eardrum. A full description of the technique is included in the body of this report. In Section IV of this Handbook appear measurements on high pass aids with open earmolds, measurements on CROS aids with open molds, front to back ratio measurements on directional hearing aids, frequency responses of directional aids at two azimuth angles, and other measures. In the absence of standard techniques, these methods serve to describe in more complete fashion the manner in which hearing aids function.

In Section V of this Handbook we have provided data on the instruments selected for contract year 1976. These data include frequency response as a function of four volume control settings (100%, 75%, 50%, and 25%) and frequency response as a function of tone control setting for those aids with tone control adjustments. In addition, performance specification sheets are included for every contract aid.

Other Considerations

Individuals with hearing problems should take into account the following factors:

1. There is no "best" hearing aid for all individuals. Aids that perform well for one person may not perform well for someone else. Our general advice to a person with a hearing disability is to seek professional guidance in obtaining the aid best suited to his particular problem.

2. VA does not test all hearing aids--only those submitted by manufacturers who want to participate in the VA program. Of the more than 500 hearing aid models available in the United States, VA tests each year approximately 25%. The information contained in this document should not be used as an absolute buying guide, and persons not finding the aid they now wear listed among those VA buys should not automatically conclude the device they have is inferior.

3. Information contained in this document applies for Contract Year 1976 only. New and improved hearing aids are developed each year and as a result the information provided by VA varies from year to year.

4. Primarily, VA provides hearing aids only to veterans whose hearing disability is the result of military service. For further information these veterans should contact their nearest VA office or hospital. Other veterans and all non-veterans seeking added information are advised to consult specialists in their local communities.

II. SUMMARY OF HEARING AID TEST PROGRAM

CONTRACT YEAR 1976

MANUFACTURER	MODEL	TYPE†	CATEGORY	GAIN#	SSPL#	INDEX CHAR.**
ACOUSTICON SYSTEMS	A-465 SSR	IE	Very Mild	28.5	108.5	
CORPORATION	A-650 HP	OE	High Frequency Emphasis	24.6	119.2	
SHELTER ROCK LANE	A-650 R	OE	Mild	39.2	113.2	92.6
DANBURY, CONN.	A-690 ATC 2	OE	Mild	35.5	112.7	112.9
06810	A-690 D	OE	Directional	47.8	120.0	89.1
	A-770 GHP	OB	Extra Strong	67.2	139.2	38.1
AUDIOTONE	A-20	OE	Mild to Moderate	44.7	120.7	108.1
2422 W. HOLLY	A-20 P-5*	OE	High Frequency Emphasis	12.3	125.3	
PHOENIX, ARIZ.	A-23	OE	Moderate	54.9	127.5	99.0
85009	A-24	OE	Mild to Moderate	45.6	119.3	111.7
	A-24 D*	OE	Mild to Moderate	44.9	118.8	130.1
	A-25	OE	Mild to Moderate	44.4	119.7	100.1
	A-27	OE	Directional	45.1	126.5	105.5
AUDIVOX, INC.	37*	EG	Mild	41.1	113.3	117.5
55 CHAPEL STREET	101 DGD	OE	High Frequency Emphasis	25.5	117.0	
NEWTON, MASS.	111 RD	EG	Moderate	54.4	127.7	102.2
02158	115 X*	OE	Moderate to Strong	59.4	129.5	87.4
	123 RD	EG	Mild, Option for Directional	39.4	112.7	81.1
DAHLBERG	HT 1233	OE	Moderate	55.1	127.7	96.4
ELECTRONICS, INC.	HF 1250*	EG	Moderate to Strong	57.9	129.0	73.7
P. O. BOX 549	HG 1250*	EG	BICROS	55.9	128.0	
MINNEAPOLIS, MINN.	NP 2521	OE	Directional, High Frequency Emphasis	19.5	120.7	
55440	PA 2526	OE	Mild	40.2	113.7	81.1
	RL 2527	OE	Mild	37.8	112.5	108.7
	RP 2528	OE	Moderate	51.9	125.3	84.9
DANAVOX, INC.	695 PPE	OE	Moderate	54.9	126.7	97.3
1905 3RD AVENUE, SOUTH	727 PPE	OB	Strong	62.2	133.3	51.8
MINNEAPOLIS, MINN.	735 DS	OE	Directional	45.3	120.3	103.5
55404	735 S	OE	Mild to Moderate	48.4	120.5	77.1
	743 UN	OE	High Frequency Emphasis	13.7	117.2	
	745 V	OE	Mild	44.0	117.5	111.9

CONTRACT YEAR 1976

MANUFACTURER	MODEL	TYPE+	CATEGORY	GAIN#	SSPL#	INDEX CHAR.**
FIDELITY	F-37	OE	Compression	43.2	115.2	108.9
ELECTRONICS, LTD.	F-39	OE	Moderate to Strong	56.3	128.3	75.4
5245 W. DIVERSEY	F-50	OE	Moderate	48.5	121.3	27.2
AVENUE	F-58D	OE	Directional	43.1	116.0	71.6
CHICAGO, ILL.	F-227*	EG	Bone Conduction	CANNOT TEST		
60639	F-339	OB	Moderate to Strong	56.5	128.3	78.4
H-C ELECTRONICS	527 LN	OB	Compression	64.4	122.7	113.9
PHONIC EAR	527 LP	OB	Compression	70.6	128.7	82.4
250 CAMINO ALTO	527 LW*	OB	Compression	62.0	120.2	93.9
MILL VALLEY, CALIF.	527 PE	OB	Compression			
94941	527 SEN*	OB	Compression	64.3	122.2	118.7
	527 SEP	OB	Compression	70.4	128.3	77.4
	527 SEW*	OB	Compression	61.5	119.3	90.6
LEHR INSTRUMENT	Omniton 115F*	OB	Extra Strong	61.7	135.3	63.0
CORPORATION	Optica 6*	EG	Mild to Moderate	46.7	120.5	123.0
P. O. BOX 445	Optica BIFROS	Spec EG	High Frequency Emphasis	32.4	123.5	
1666 NEW YORK AVENUE	Star 6 AVCD*	OE	Directional	42.1	119.7	114.1
HUNTINGTON STATION	Star 6F*	OE	Moderate	55.0	127.0	116.1
NEW YORK	Star 6H	OE	High Frequency Emphasis	12.8	121.0	
11746	Star 44	OE	Mild	40.3	114.2	112.3
MAICO HEARING	CQ	OE	Directional	40.4	113.3	69.0
INSTRUMENTS	DE	OE	High Frequency Emphasis	23.7	118.2	
7375 BUSH LAKE ROAD						
MINNEAPOLIS, MINN.						
55435						
NORTH AMERICAN	8252*	OE	Mild	37.4	112.0	126.3
PHILIPS CO., INC.	8269*	OE	High Frequency Emphasis	30.8	120.3	
HEARING AID DIV.	8274*	OE	Compression	44.6	117.0	118.9
100 E. 42ND STREET	8275	OE	Compression	36.4	107.5	27.0
NEW YORK, NEW YORK	8276	OE	Moderate	54.6	127.5	96.8
10017	8283*	OE	Directional	47.1	119.5	129.6
	8288*	OE	Directional	43.3	115.3	110.0

CONTRACT YEAR 1976

MANUFACTURER	MODEL	TYPE+	CATEGORY	GAIN#	SSPL#	INDEX CHAR.**
OTARION	Listenette	IE	Mild	39.7	114.2	
ELECTRONICS, INC.	Tonette	OE	Mild to Moderate	43.9	118.3	56.3
P. O. BOX 711	X-101 CROS	EG	CROS	32.0	116.7	
OSSINING, NEW YORK	X-102 BICROS	EG	BICROS	49.2	120.3	
10562	RX-880 Bone CROS	EG	CROS-Bone Conduction	CANNOT	TEST	
OTICON CORPORATION	375 PPX*	OB	Moderate to Strong	58.9	130.5	120.9
999 STONE STREET	380 SI	OB	Moderate	55.2	125.3	88.8
P. O. BOX 1511	565 SZ LDC*	OE	Compression	30.4	106.0	143.3
UNION, NEW JERSEY	E-11-V*	OE	Mild to Moderate	45.1	118.0	131.6
07083	E-16-U*	OE	Mild	39.2	112.7	137.6
	E-18-P	OE	Moderate	55.7	129.7	112.7
	S-11-V*	EG	Mild to Moderate	43.8	118.2	141.5
QUALITONE, DIV. OF	CSD*	OE	Directional, Compression	30.3	105.5	131.9, 112.9
SEEBURG CORPORATION	SNEC	EG	CROS	34.1	122.8	
4931 W. 35TH STREET	TPF	OE	Moderate	52.6	126.2	107.3
MINNEAPOLIS, MINN.	TSP	OE	Moderate	54.9	128.7	103.2
54416	TSPNB*	EG	BICROS	57.9	129.5	
	TSS*	OE	Mild	38.5	121.0	125.1
	UFO*	OE	Mild	30.8	111.5	148.6
RADIOEAR CORPORATION	980	OB	Strong	62.7	134.5	96.4
375 VALLEY BROOK ROAD	1030	OE	Directional, Compression	50.0	121.3	75.0
CANONSBURG, PA.	1040	EG	Moderate	54.9	127.0	97.6
15317	1050*	OE	Moderate	54.4	127.0	120.4
REXTON	4112*	OE	Mild, Compression	35.2	113.7	119.8
STARKEY LABS, INC.	4134	OB	Moderate	49.6	124.0	101.1
P. O. BOX 16209	4136	OE	Moderate, Directional	51.9	124.0	82.9
MINNEAPOLIS, MINN.	4137*	OE	Directional	38.3	114.7	133.4
55416						

CONTRACT YEAR 1976

MANUFACTURER	MODEL	TYPE+	CATEGORY	GAIN#	SSPL#	INDEX CHAR.**
SHALAKO	1421	OE	Compression	22.5	106.7	
1341 N. SCOTTSDALE ROAD	1511	OB	Compression	17.5	112.3	
SCOTTSDALE, ARIZ.						
85257						
SIEMENS MEDICAL	22 AVC	OE	Compression	37.6	110.2	91.8
OF AMERICA, INC.	24 PP PC	OE	Moderate	55.6	127.8	77.9
186 WOOD AVENUE	26 H	OE	High Frequency Emphasis	23.7	123.3	
SOUTH ISELIN, N.J.	32 D	OE	Directional, Compression	52.4	116.3	98.5, 92.7
08830	34 D	OE	Directional	53.1	127.3	94.4
SONOTONE CORPORATION	35 AZ	EG	CROS	43.7	125.2	
SAWMILL RIVER ROAD	35 AX	EG	BICROS	50.6	123.0	
ELMSFORD, NEW YORK	40-6*	EG	Moderate	50.7	123.3	122.2
10523	50-2	EG	High Frequency Emphasis	19.3	119.2	
	77-S*	OE	Moderate	54.5	124.3	118.0
	670 BX*	OB	Extra Strong	72.3	142.2	32.6
TELEX COMMUNICATIONS	33 D	OE	Directional	51.7	125.5	45.8
DIVISION	70*	OB	Strong	60.5	133.0	113.2
9600 ALDRICH AVENUE	331 H*	OE	High Frequency Emphasis	15.4	119.3	
SOUTH	334	OE	Mild	37.2	110.0	95.9
MINNEAPOLIS, MINN.	334 RD	OE	Moderate	54.2	126.5	115.7
55420						
VICON INSTRUMENT	123	OE	Mild to Moderate	48.1	118.8	92.7
COMPANY	124	OE	Mild to Moderate	44.9	118.3	112.2
828 WOOTEN ROAD	150	OE	Moderate	54.3	126.8	102.2
P. O. BOX 1676	158	OE	Directional	51.7	126.7	85.4
COLORADO SPRINGS,	159*	OE	Directional, Compression	36.2	111.7	130.6, 119.9
COLORADO	M-8	OB	Moderate	53.7	130.8	81.2
80901						

CONTRACT YEAR 1976

MANUFACTURER	MODEL	TYPE+	CATEGORY	GAIN#	SSPL#	INDEX CHAR.**
WIDEX HEARING AID COMPANY, INC. 36-14 ELEVENTH STREET LONG ISLAND CITY, NEW YORK 11106	A2-T	OE	Moderate	53.2	127.3	115.0
	77	OE	Mild to Moderate	47.1	119.3	85.2
	85	OE	High Frequency Emphasis	23.8	122.2	
ZENITH HEARING AID SALES CORPORATION 6501 W. GRAND AVENUE CHICAGO, ILL. 60635	Biphasic	EG	Binaural phase related			
	Command 100	OE	Compression	33.0	106.0	107.6
	CROS*	EG	CROS	29.3	120.8	
	Dover C	OE	High Frequency Emphasis	16.9	120.7	
	Pace EPII*	OE	Moderate	51.5	127.0	150.0
	Royal D	OE	Directional	53.4	126.0	112.6
	Vocalizer III*	OB	Strong	62.8	134.7	96.8
	Award*	OB	Mild to Moderate			

Footnotes:

\+ Type: (OB) on-the-body; (OE) over-the-ear; (EG) eyeglass; (IE) in-the-ear.

* Hearing aid models selected for Contract Year 1976 and/or the models which have scored in the top 25% of their category.

\# Gain and Saturation Sound Pressure Levels are the mean figures for three samples of the model. The gain was computed using the values at the nine midpoints of the bands of frequencies between 500-2000 Hz. For high frequency emphasis aids, the gain was computed using the values at the six midpoints of the bands of frequencies from 1000 to 2000 Hz.

** The average weighted scores on each of the Instruments are summed to give the measure of total performance achieved by the hearing aid model (based on three samples of each model). The resulting score is referred to as the Index of Characteristics. An Index of Characteristics score was not computed for CROS, BICROS, high frequency emphasis, and in-the-ear aids. For models evaluated in more than one category, the Indices of Characteristics are presented in the same order as those used to indicate the category.

ADDITIONAL SUBMISSIONS OF CROS AND BICROS[1]

MANUFACTURER	MODEL	TYPE	CATEGORY	GAIN[2]	SSPL[2]
ACOUSTICON SYSTEMS CORPORATION SHELTER ROCK LANE DANBURY, CONN. 06810	1001	EG	CROS	46.3	117.7
	1001	EG	BICROS	37.5	117.7
AUDIOTONE 2422 W. HOLLY PHOENIX, ARIZ. 85009	A 24	OE	CROS	41.5	120.2
	A 24*	OE	BICROS	44.0	117.7
AUDIVOX, INC. 55 CHAPEL STREET NEWTON, MASS. 02158	112	EG	CROS	45.8	115.0
	112	EG	BICROS	42.3	116.0
BELTONE ELECTRONICS CORPORATION 4201 W. VICTORIA STREET CHICAGO, ILLINOIS 60646	ARIA	OE	CROS	42.3	110.3
	SONATA	OE	BICROS	46.8	116.7
DAHLBERG ELECTRONICS, INC. P. O. BOX 549 MINNEAPOLIS, MINN. 55404	JC1254*	EG	CROS	46.2	118.3

ADDITIONAL SUBMISSIONS OF CROS AND BICROS[1]

MANUFACTURER	MODEL	TYPE	CATEGORY	GAIN[2]	SSPL[2]
FIDELITY ELECTRONICS, LTD. 5245 W. DIVERSEY AVENUE CHICAGO, ILL. 60639	F52C F490BC	OE EG	CROS BICROS	45.2 34.7	113.2 119.0
OTICON CORPORATION 999 STONE STREET P. O. BOX 1511 UNION, NEW JERSEY 07083	S11V 850S	EG EG	CROS (FOCAL) BICROS	54.8 45.3	118.8 119.5
RADIOEAR CORPORATION 375 VALLEY BROOK ROAD CANNONSBURG, PA. 15317	1010 1040*	EG EG	CROS BICROS	47.3 50.8	120.0 126.5
SIEMENS MEDICAL OF AMERICA, INC. 186 WOOD AVENUE SOUTH ISELIN, N. J. 08830	H28E MP HF* 24E SL-PC	OE OE	CROS BICROS	47.0 57.5	117.3 128.8
TELEX COMMUNICATIONS DIVISION 9600 ALDRICH AVENUE SOUTH MINNEAPOLIS, MINN. 55420	334 SC 334 BC	OE OE	CROS BICROS	59.3 61.3	129.0 127.2

ADDITIONAL SUBMISSIONS OF CROS AND BICROS[1]

MANFUACTURER	MODEL	TYPE	CATEGORY	GAIN[2]	SSPL[2]
VICON INSTRUMENT COMPANY 828 WOOTEN ROAD P. O. BOX 1676 COLORADO SPRINGS, COLORADO 80901	OE-124 OE-124	OE OE	CROS BICROS	49.0 43.0	122.5 118.7
VIENNATONE OF AMERICA, INC. 5245 W. DIVERSY AVENUE CHICAGO, ILLINOIS 60639	ALPC/C ALPC/BC	EG EG	CROS BICROS	48.5 33.7	117.0 120.2

Footnotes:

1. Since only four CROS and four BICROS aids were submitted for Contract Year 1976, the Veterans Administration requested additional CROS and BICROS aids from manufacturers who had not submitted either an aid of CROS or BICROS type for Contract Year 1976.

2. Gain and Saturation Sound Pressure Levels are the mean figures for three samples of the model. The gain reported for the CROS aids is the gain at 2000 Hz. For the BICROS aids, the reported gain was measured at 1000 Hz.

* Hearing Aid Models selected for Contract Year 1976.

III. PERFORMANCE MEASUREMENT DATA FROM THE NATIONAL BUREAU OF STANDARDS

E.D. Burnett
M.A. Bassin

NBS HEARING AID TEST PROCEDURES

1. INTRODUCTION

This report discusses the current test procedures used by NBS to evaluate the electroacoustic properties of hearing aids. It includes the technical and practical reasons for performing the various tests in the manner described and in certain cases presents ideas and preliminary test methods for the evaluation of special-purpose* hearing aids. However, the specific details of the electronic equipment used to perform the tests are not described.

Some of the procedures followed at NBS agree, at least in spirit, with the procedures specified in the current national standard (1). Accordingly, the following description of the NBS hearing aid test procedures was prepared under the assumption that the reader would be familiar with ANS S3.3-1960 (R1971).

2. HEARING AID MOUNTING

The current national standard (1) requires that electroacoustical measurements on hearing aids be made with the aid located in a plane progressive sound field. The sound pressure level incident on the hearing aid microphone is determined using a separate reference microphone. The output of the hearing aid is determined using a 2 cm^3 coupler and a calibrated pressure microphone. The standard specifies two methods one can employ for these free-field measurements: substitution and comparison. The substitution method, in which the reference microphone and the hearing aid are interchanged, is time-consuming and therefore not used by NBS. The comparison method, in which the reference microphone and hearing aid are placed far enough apart so that they do not interact

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*For the purposes of this report special-purpose hearing aids refer to directional, compression, bi-cross, and open-ear mold (both near-side fitting and cross) hearing aids. The denotation hearing aid refers to in-the-ear, closed mold (with omnidirectional microphone), eye glass, over-the-ear, and on-the-body hearing aids.

acoustically is almost impossible to perform accurately in a small anechoic chamber since most loudspeakers do not have a sufficiently symmetrical directivity pattern. Therefore, NBS employs a modification of the comparison method wherein the reference microphone and hearing aid microphone are placed so that both face forward towards the loudspeaker and are as close to each other as possible. The reference and hearing aid microphone in this configuration are then most likely to be exposed to the same acoustic pressure. A variation of this placement is to face the hearing aid and reference microphones directly at each other, with a spacing of no more that 2 or 3 mm. In either case, the two microphones are exposed to the same sound pressure so that the effects of diffraction by the coupler and any mounting hardware on the test results are negligible. If a flat pressure response reference microphone is used, the pressure response of the aid is obtained directly (2). Any orientation of the aid with respect to the sound source can be used, as long as the relative orientations of the hearing aid and reference microphones are maintained. The requirements for a true free field are much reduced, as long as the hearing aid microphone is omnidirectional.

For pure-tone tests, the above procedure essentially eliminates the influence of diffraction on the test results so long as the hearing aid microphone and the reference microphone are separated by a distance which is very small compared to the wavelength of sound at the frequency of interest. Some of the tests at NBS use shaped random noise as a signal. In this case, diffraction effects can modify the spectrum shape and hence the test results. This side-by-side mounting is still used because, for this mounting, more data are available on the effects of diffraction on the spectrum shape. However, for body aids with front-facing microphones the hearing aid is placed on its back, and the reference microphone is hung as close as possible to the hearing aid microphone without touching it. An example of the frequency response curves obtained by the side-by-side measurement and hung-microphone measurement is given in Figure 1, which was obtained (3) for a body-type hearing aid.

The anechoic test chamber used at NBS for most of its hearing aid testing is cubical with lateral interior (between wedge tips) dimensions of 1.22 m. The wedges used absorb more than 99 percent of the normal incidence sound energy at all frequencies above 175 Hz. An 8 inch loudspeaker is used to produce the sound field in which the hearing aid is placed. The loudspeaker cabinet is placed against the back wall of the chamber in a section in which the wedge depth has been reduced from 0.4 m to 0.3 m in order to obtain a working distance of 1 m from the loudspeaker to the hearing aid. Such a position of the loudspeaker does not permit the hearing aid to be placed on a net, as is often done in small test boxes where the loudspeaker is below the test position. For the NBS test chamber a mounting method that is as simple as the net mounting has been developed. The reference microphone, hearing aid, and 2 cm^3 coupler are placed on a 20-cm square ledge. This ledge consists of a blanket of finely spun material about 1 cm thick. This is laid on hardware cloth, which in turn is supported by a chemistry ring attached to a small vertical rod. The whole assembly is essentially acoustically transparent, although the aid and reference microphone are placed near the front of the ledge to avoid a slight high frequency absorption by the blanket, which can modify the spectrum shape and thus introduce a small error in the random signal tests. This mounting method avoids the spurious resonances sometimes produced by clamps and introduces a minimum of extraneous diffraction of the sound. There can be a slight problem with eyeglass aids since the positional constraints usually require that the temple piece must cross over the reference microphone preamplifier. When this occurs, a thin piece of padding is placed between these two components.

3. MEASUREMENTS WITH VOLUME CONTROL AT MAXIMUM SETTING

3.1 Saturation Sound Pressure Level (SSPL). The saturation sound pressure level is that sound pressure level (SPL), due to a sound of specified spectral shape, beyond which no further increase in acoustic output can be obtained from the hearing aid.

The SSPL is determined at NBS by using a random noise signal having the power density spectrum shown in Figure 2. Below 200 Hz and above 5000 Hz, the spectrum is rolled off steeply. The exact rate of roll-off is immaterial since the roll-off is outside the frequency limit of most hearing aids and the signal does not contribute appreciably to the overall output SPL when it is down several dB.

The input SPL is normally set to 75 dB* and then continuously increased until the SSPL is determined. For those hearing aids

*All sound pressure levels are referred to 20 μPa.

for which the sound pressure level in the coupler goes through a maximum at a particular input SPL and then decreases, the SSPL is easily determined. More often, the hearing aids show a clearly-defined output level which does not increase with a further increase in the input SPL. A minority of hearing aids asymptotically approach the SSPL. For these hearing aids the SSPL is defined as that output level caused by an input SPL that, when increased 10 dB produces an output level that increases only 0.5 dB. In no case, however, is an input SPL greater than 90 dB used. Although it would be quicker to use an input SPL of 90 dB for these types of hearing aids, it is felt that it is useful to know the input SPL that produces the SSPL.

Table 1 shows the results of this SSPL measurement on 19 hearing aids. Related data are also included to support the various discussions that follow.

The SSPL tests provide a single number that indicates the maximum SPL that could impinge on a user's ear. However, it does not contain as much information as a frequency response curve of the hearing aid at an input SPL of 90 dB, which is a common method of estimating the saturation output level. On the other hand the NBS determined SSPL contains as much information as the conventional three-frequency average (4) of the output level of the hearing aid when the input SPL is 90 dB at 500, 1000, and 2000 Hz.

TABLE 1. Typical Hearing Aid Saturation Levels and Gains

(1) Hearing Aid Number and (Type)	(2) Full on Gain for an Input SPL of 60 dB re 20 μPa (dB)	(3) SSPL for a 90 dB Input SPL (dB re 20 μPa)	(4) Average SSPL for a 90 dB Input SPL (dB re 20 μPa)	(5) SSPL (dB re 20 μPa)	(6) Reduced Gain[b] (dB)	(7) SSPL (dB re 20 μPa)	(8) Reduced Gain[b] (dB)
Signal	1 kHz	1 kHz	0.5, 1 and 2 kHz	Complex[a]	1 kHz	Complex[c]	1 kHz
1 (OE)[d]	41	123.5	120	119	(45)	120	(50)
2 (OE)	46.5	120.5	117.5	113	43.5	115	(48.5)
3 (OE)	46.5	125.5	122	119.5	(51.5)	121.5	(54.5)
4 (OE)	59	131	127.5	127	(60)	128.5	(62)
5 (OE)	60	130.5	126	125.5	56.5	126.5	58.5
6 (OE)	58.5	133	128.5	128.5	(60)	129.5	(62.5)
7 (OE)	64.5	128	125.5	125.5	52.5	125.5	55
8 (OE)	44	120.5	120.5	119	44	120.5	(47)
9 (Body)	72.5	132	131	133.5	63.5	133	64.5
10 (OE)	50	118.5	119.5	118	44	118	48.5
11 (OE)	54	127	125.5	125.5	52.5	126.5	54
12 (OE)	58.5	130	127.5	127	56.5	127	57.5
13 (OE)	43.5	116.5	114.5	113.5	43.5	114	(45.5)
14 (OE)	52.5	127.5	123	122	(55.5)	122.5	(57.5)
15 (OE)	60	130.5	126	126.5	56	127.5	56
16 (EG)	62	131.5	129.5	128.5	61	129	62
17 (EG)	53	117	116.5	116	40	116	43
18 (OE)	58	122	119	118.5	52	120.5	54
19 (OE)	50.5	123.5	122	121	48	121	50

[a] Input signal has power density given in Figure 2 with a roll-off of 6 dB/octave starting at 90 Hz.

[b] See page 9 for a description of the test method and the significance of the parentheses.

[c] Input signal has power density given in Figure 2 except for a roll-off of 12 dB/octave starting at 900 Hz.

[d] OE = Over the ear. EG = Eyeglass

As can be seen in columns 4 and 5 of Table 1, both these methods agree well with each other, with the NBS SSPL yielding results about 1 dB lower than the results from the three-frequency average. This 1-dB difference has been consistently measured on several hundred hearing aids over a period of seven years. For certain hearing aids the NBS SSPL tests indicate a much lower level than those indicated by the three-frequency average test. (See columns 4 and 5 of Table 1 for hearing aid 2.) Even if a narrow band of noise that is centered at the frequency corresponding to the peak output of the hearing aid is used as the input to this hearing aid, the output level will still be lower than that level indicated by the three-frequency average. Since people are more often subjected to random-type sounds than pure tones, it is felt that the NBS SSPL test is a more realistic measure of the SSPL. In addition it gives reasonable gain figures when the volume control setting is reduced. (See Section 4.)

The SSPL varies slightly with the rate of high frequency roll-off of the spectrum. For example, compare column 5 of Table 1, which shows the SSPL for the NBS spectrum which has an approximate 6 dB/oct roll-off above 900 Hz with column 7 which shows the SSPL for a spectrum which is similar to the NBS spectrum, but which has an approximate 12 dB/oct roll-off above 900 Hz.

3.2 One-kHz Gain. The gain of the hearing aid is measured with an input SPL of 60 dB. Although the Veterans Administration (VA) discloses this data, this gain figure is not used by them in arriving at their "index of characteristics" (3). It should be useful, however, to those who fit a hearing aid.

At NBS the gain of the hearing aid is determined by two independent methods. In the first method the voltage outputs from both the reference microphone (which is in the same sound field as is the hearing aid microphone) and the coupler microphone are recorded. These voltages are converted to sound pressure levels using the sensitivity of each microphone as determined using the appropriate (free-field or pressure) procedures of American National Standard S1.10-1966 (R1971). The gain is determined by subtracting the reference SPL from the coupler SPL. In the second method, use is made of an insert-voltage technique. In effect, with the sound source off, a voltage is inserted in series with the coupler microphone and adjusted until the microphone output voltage is the same as when the sound source was energized. The insert voltage is then equal to the open-circuit voltage at the microphone when the sound source was energized. A similar procedure is followed for the reference microphone. The ratio of the two insert voltages, corrected for the relative microphone sensitivities, gives the gain of the hearing aid. By using appropriate circuitry, the gain is actually given directly by an attenuator setting. The fact that two methods are employed to determine the gain greatly minimizes the possibility of error in this measurement.

The only commonly-used alternate method for determining gain of a hearing aid employs an input SPL of 50 dB instead of 60 dB. However, recall the very simple, but often overlooked, relationship: Maximum Possible Gain = SSPL - Input SPL. The lower the input SPL, the more likely the amplifier will operate as a linear device. At a 50-dB input

SPL, the measured gain may be higher than can be obtained with ordinarily-encountered speech levels. This can give rise to an unnecessary "horsepower" competition in hearing aids; although the extra gain is useful with low input levels it may be required that the volume control be set to a low level in order to operate in the linear region for ordinary speech levels. This may or may not be an inconvenience, depending on the taper of the volume control.

4. MEASUREMENTS WITH VOLUME CONTROL AT REDUCED SETTING

4.1 One-kHz Gain.. The position of the hearing aid volume control is determined by using the NBS spectrum given in Figure 2 in the following manner. The input SPL is reduced to 60 dB. The volume control is adjusted so that the output SPL in the coupler is 12 dB below the SSPL. If the hearing aid does not have enough gain to go 12 dB below the SSPL with an input SPL of 60 dB, the volume control is turned to its "full-on" position. Columns 6 and 8 of Table 1 show the reduced gains measured with a 1-kHz tone. The corresponding columns 5 and 7 show the SSPLs that were determined using the NBS spectrum and a spectrum with a steeper roll-off above 900 Hz. These two different spectra result in different settings of the volume control. Thus the reduced gain measurement is sensitive to the spectrum. Consequently anyone wanting to perform this test must correct for the loudspeaker frequency response. At NBS, this is done by using, where needed, octave and 1/3-octave filters, each of which has an adjustable gain in its passband. For pure tones, the system frequency response is within $\pm$ 2.5 dB. The deviation measured with 1/3-octave bands of noise is within $\pm$ 1.5 dB of the desired spectrum.

The numbers in the parentheses in Table 1 indicate the gain that would have resulted in the desired test condition, although the hearing aid was unable to produce this much gain. Compare columns 2 and 6 and 2 and 8 of Table 1. These required, but unattained, gains were determined by assuming that the differences between the actual input SPL that produced an output SPL 12 dB below the SSPL and the SPL of 60 dB were linearly proportional to the gain of the hearing aid. When the spectrum with a 12 dB/octave roll-off was used, 8 of the 19 hearing aids had insufficient gain for the standard test condition (12 dB below the SSPL for a 60-dB input SPL) to be reached. When the NBS spectrum having a 6 dB/octave roll-off was used, 5 of the 19 hearing aids had insufficient gain. It should be noted that the reduced gains for the spectrum with the 12 dB/octave roll-off are all higher than those determined with the NBS spectrum having a 6 dB/octave roll-off. The fact that 26 percent of the hearing aids tested with the NBS spectrum did not reach the standard test condition may indicate that the test gains are higher than those employed by hearing aid users, who rarely use the full volume control setting. It appears, therefore, that the volume control setting can be reduced even more than 12 dB below the SSPL.

The test method just described places the volume control at a position whereby the frequency response is measured in the linear region of the hearing aid; it also indicates a suitable gain for normal speech levels. Implicit in this latter statement is the assumption that the SSPL is independent of the gain setting. Some hearing aids have a battery-saving circuit that reduces the saturation level as the gain control is reduced. This type of hearing aid can be tested with this technique, but may show a high distortion with an input SPL of 70 dB. (The distortion test is described below.) The compression on some compression hearing aids minimizes the distortion by coupling the gain to the saturation level.

4.2 Harmonic Distortion. The total harmonic distortion (THD) measurements are made at 500, 700, and 900 Hz as stipulated in the standard (1). In addition, the frequency at which the maximum THD occurs is measured. Often this maximum THD occurs in the vicinity of either 500 Hz or 1500 Hz. The maximum THD below 500 Hz is not investigated because the output SPL of most hearing aids is low in this frequency region.

Two different input sound pressure levels are used in the distortion measurement: 60 dB and 70 dB. The 60-dB level is representative of average speech levels whereas at the 70-dB level the distortion approaches that expected near the SSPL. The volume control of the hearing aid is set to the level determined in Section 4.1. If a particular hearing aid has insufficient gain to reach within 12 dB of the saturation level, using an overall input level of 60 dB for the NBS spectrum, the input SPL is raised until the hearing aid output level is 12 dB below the SSPL. This input SPL is now determined and it replaces the previously specified 60 dB input SPL. Similarly, the level that corresponds to the 70 dB is this new level plus 10 dB. It should be noted that the input SPLs encountered by these hearing aids in actual use are not any higher than the SPLs encountered by those hearing aids in which the 60 dB input SPL can be used. However, since the purpose of the distortion test is to relate the distortion at the same levels below the SSPL, it is necessary to test these hearing aids at a higher input SPL.

The THD is determined by measuring the amplitude of those harmonics that equal or exceed one percent of the amplitude of the test tone. However, only the THD is reported in the test results. The THD is computed by taking the ratio of the square root of the sum of the squares of the amplitudes of the test-tone harmonics to the amplitude of the test tone.

4.3 Signal-to-Noise Ratio. The signal-to-noise (S/N) ratio is determined at 1 kHz for an input SPL of 65 dB. The volume control setting is that obtained in Section 4.1. The S/N ratio is determined by the difference between the hearing aid's output SPL at a 65 dB input SPL and the hearing aid's output SPL with no acoustic input.

4.4 Battery Drain. One fresh battery is used for the three hearing aids of each model tested, except for hearing aids that use carbon-zinc cells. For these hearing aids a fresh carbon-zinc cell is used for each. When the current drain is measured these batteries, which are used in all the tests previously described, are placed in an external holder that has leads attached to the battery terminals of the hearing aid.

The battery voltage and current drain are measured twice, first with no incident sound and then again with an incident sound having the NBS spectrum and a SPL of 65 dB. The volume control setting is that obtained in Section 4.1.

On rare occasions the lead resistance ($\sim$0.3 ohm) or the ammeter resistance (2-11 ohms, depending on the meter range selected) will cause the hearing aid to "motorboat." This motorboating is eliminated by placing a 100-300 μF capacitor across that part of the leads that are as near as possible to the hearing aid.

4.5 Frequency Response. The frequency response of the hearing aid is obtained with an input SPL of 60 dB and with the volume control setting as determined in Section 4.1. The frequency response is recorded on paper with a full-scale range of 40 dB. The sweep rate is 50 sec/decade, which is adequately slow for both the compressor to correct any fluctuations in the loudspeaker response and for the graphic level recorder to follow its input accurately. At the same time that this analog curve is recorded, the frequency and the sound pressure level in the coupler are digitally recorded on magnetic tape using 48 data points per octave. These points are equally spaced on a logarithmic frequency scale. The digital tape is then fed to a digital computer for analysis. The amplitude response in the 20 bands used by the VA in their determination of the "index of effectiveness" is printed out. In addition, a complete frequency response plot is obtained for the purpose of cross-checking with the analog frequency response curve.

5. SPECIAL PURPOSE HEARING AIDS*

5.1 Directional Hearing Aids. In addition to obtaining the frequency response of the hearing aid mounted and oriented with respect to the loudspeaker as described in Section 1, the frequency response for the directional hearing aid is also measured for sound which is incident at 90° and perpendicular to the side of the hearing aid which would face outwards when placed on a head. From these two frequency responses it is possible to determine whether or not the hearing aid

*The methods described in this section are in a developmental stage and are expected to change as these new techniques are improved.

microphone can be classified as either cardiod or hypercardioid. A cardioid directivity pattern and a hypercardioid pattern are defined to be 6 dB and 7-8 dB down, respectively, at 90°, referenced to their level at 0°. The additional directivity of the hypercardioid is achieved at the expense of a minor back lobe at 180° where the cardioid pattern has a null. The directivity of the hearing aid when placed on the head will be different from its directivity in the free field.

5.2 Hearing Aids for Open-Mold Fittings (High-Pass Hearing Aids). There are two serious problems that are encountered when the methods described in Sections 3 and 4 are applied to open-mold hearing aids. The first problem is that the gain used before an unstable feedback situation occurs (that is, when the acoustic output of the hearing aid leaks back into the hearing aid microphone) is influenced by the geometry of the hearing aid environment. The second problem is the strong dependence of the pressure frequency response of the open-mold hearing aid on the configuration of the ear canal, thus barring the use of the 2-cm^3 coupler. For these reasons the open-mold hearing aids are measured on an anthropometric manikin (6).

Mounted in the head of the manikin is a modified Zwislocki coupler (7), which has a pressure microphone placed approximately where a human's eardrum is located. The coupler, in turn, is located at the end of the ear canal which is fitted with a phantom ear mold. A tube with an internal diameter of 2 mm connects the phantom ear mold to the hearing aid. For the over-the-ear hearing aid the tube's length is 38.5 mm, of which 25 mm is external to the phantom ear mold. For eyeglass hearing aids these lengths are 55.5 mm and 42 mm, respectively.

The input SPL to the hearing aid is determined using the substitution method. With the manikin removed, the pressure frequency response of the signal-generating system is made as uniform as possible over the frequency range of 500-5000 Hz by adjusting the gain of several 1/3-octave and octave filters inserted between the oscillator and the amplifier driving the loudspeaker. The manikin is then repositioned and all measurements made on the open-mold hearing aids are obtained from the output of the microphone in the Zwislocki coupler.

As already indicated, the maximum gain of the open-mold hearing aid will be limited by its acoustic feedback. Therefore the SSPL gain is found in the following manner: with the hearing aid excited by only the ambient acoustic noise in the anechoic test chamber and the inherent electrical noise of the hearing aid, the hearing aid's volume control is adjusted to the maximum setting at which the output SOL, that is, the acoustic pressure measured by the microphone in the Zwislocki coupler, indicates no instability. The instability is indicated by a sudden increase in the output of the microphone at a specific frequency, which varies from hearing aid to hearing aid. Using this volume control setting, the SSPL is determined in the manner described in Section 3.1.

The frequency response of the open mold hearing aid is measured with a 60-dB input SPL and with the volume control set such that the output SPL of the coupler microphone is 5 dB below L_o, where L_o is the output SPL that occurs at a frequency that is substantially different from the frequency at which the instability occurs. Prior to performing the test to determine the gain, it is necessary to ascertain that, with the hearing aid turned off, the output SOL from the coupler microphone due to the

60 dB input SPL is at least 15 dB less than L_o. If this condition is not met at 1 kHz, the frequency of the input SPL is increased to 1.5-2.0 kHz where this 15 dB requirement is normally met. Using this reduced volume control setting, the gain of the hearing aid is measured at 1 kHz.

The S/N ratio is determined with an input SPL of 65 dB at 2 kHz and in the manner described in Section 4.3.

No THD measurements are made on these types of hearing aids since most of them have a pass band that is less than one octave. High-pass hearing aids that have a pass band greater than one octave have a very irregular frequency response making a comparison of THD values with other hearing aids questionable.

Battery drain for open-mold hearing aids is determined in the manner described in Section 4.4.

6. ORTHOTELEPHONIC FREQUENCY RESPONSE

Orthotelephonic frequency response (OFR) is the difference between the SPL that exists at an eardrum with the hearing aid in place and the SPL that exists at the eardrum with no hearing aid, both measurements being made with the head located in the wave produced by a constant strength omnidirectional source (5). This type of frequency response is distinctly different from the previously described frequency response measurements, where the difference between the SPL in a 2-cm^3 coupler and the SPL at the hearing aid microphone in a free field was measured.

The concept of the OFR is valid and useful for any type of hearing aid. For hearing aids that use closed ear molds, the OFR may be approximated by adding corrections to the free-field response obtained with a 2-cm^3 coupler. These corrections vary with the position of the hearing aid microphone. The magnitude of the errors that result from using such corrections is not yet known. For hearing aids that use open molds, it does not appear that such a correction is feasible.

An approximation to the OFR is obtained by using a Zwislocki coupler in a manikin (6), which itself is placed in an acoustic free field. Without a hearing aid in place, the coupler pressure microphone is used as a feedback (compressor) microphone to control the signal level to the loudspeaker as a function of frequency so that the coupler SPL remains constant. A tape recording is made of this feedback output voltage. When this recorded signal is used to control the signal level to the loudspeaker, the same sound output from the loudspeaker will be produced as if the feedback circuit was used. Using the tape recorded signal as the input signal to the loudspeaker, a frequency response and gain of the hearing aid are obtained when it is placed at the appropriate position on the manikin. The output of the coupler microphone is the OFR.*

Certain precautions must be taken in using this method to determine the OFR. First, since the loudspeaker's electromechanical properties tend to vary with time, a new feedback signal is obtained about once a week. Second, an error can be introduced if small changes occur in the relative location between the loudspeaker and the manikin. This error is caused by the change in directivity of the loudspeaker as a function of frequency. The lack of omnidirectionality of the loudspeaker produces another error that can greatly affect the accuracy of the OFR for body-

*This method is not valid for compression and peak-clipping type hearing aids.

worn hearing aids. Recall that the first step in obtaining the OFR is to record the compressor voltage without the hearing aid. According to the definition of OFR, an omnidirectional source is required. When the source is not omnidirectional, the body-worn hearing aid is not subjected to the same incident acoustic field, as the head-worn aid would be, thereby introducing an error. This error is virtually impossible to separate from the scattering of the incident sound by the manikin and body-worn hearing aid.

Further precautions must be taken to minimize the effect on the free field pressure caused by the manikin's supporting structure and by the manikin's diffraction and reradiation of the sound back towards the loudspeaker. The former can be alleviated by wrapping fiberglass around all exposed supports, whereas the latter problem can be reduced by using a relatively small loudspeaker.

Care must also be exercised in setting the input SPL. At NBS an additional microphone, placed between the loudspeaker and the manikin, is used to set the output of the loudspeaker to a convenient SPL. One could also set this level by monitoring the input voltage to the loudspeaker for the SPL as recorded initially by the coupler's microphone in the absence of the hearing aid.

The use of the tape-recorded signal as the input signal to the amplifier is an advantage, since it makes the loudspeaker output independent of the hearing aid output. This independence is especially useful when determining the OFR of open-mold hearing aids, in which acoustic feedback is a problem. For these open-mold hearing aids, this method gives a realistic appraisal of their response in actual acoustic environment.

Another way in which the OFR can be obtained for sound incidence perpendicular to the front of the manikin is to place another coupler and microphone in the manikin's other ear. The output of this coupler's microphone is then used as the feedback voltage to control the loudspeaker. This procedure, however, requires the manikin, coupler, and loudspeaker directivity to have a high degree of symmetry, otherwise errors as large as 2.5 dB have been observed over a broad frequency range.

ACKNOWLEDGMENTS

Many of the tests described herein were developed with the advice of a Veterans Administration committee of hearing aid consultants, which later became the Panel on Hearing Aid Performance for the National Research Council. The chairman of this panel was the late Raymond Carhart. Hugh Knowles, of Knowles Electronics, and Mahlon Burkhard and co-workers at Industrial Research Products, Inc., have worked in recent years to adapt the orthotelephonic response concept to hearing aid measurements. Their data, made available to NBS and as yet unpublished, have been a great help. Some of the tests for special-purpose hearing aids have been developed in cooperation with the Biocommunications Laboratory of the University of Maryland.

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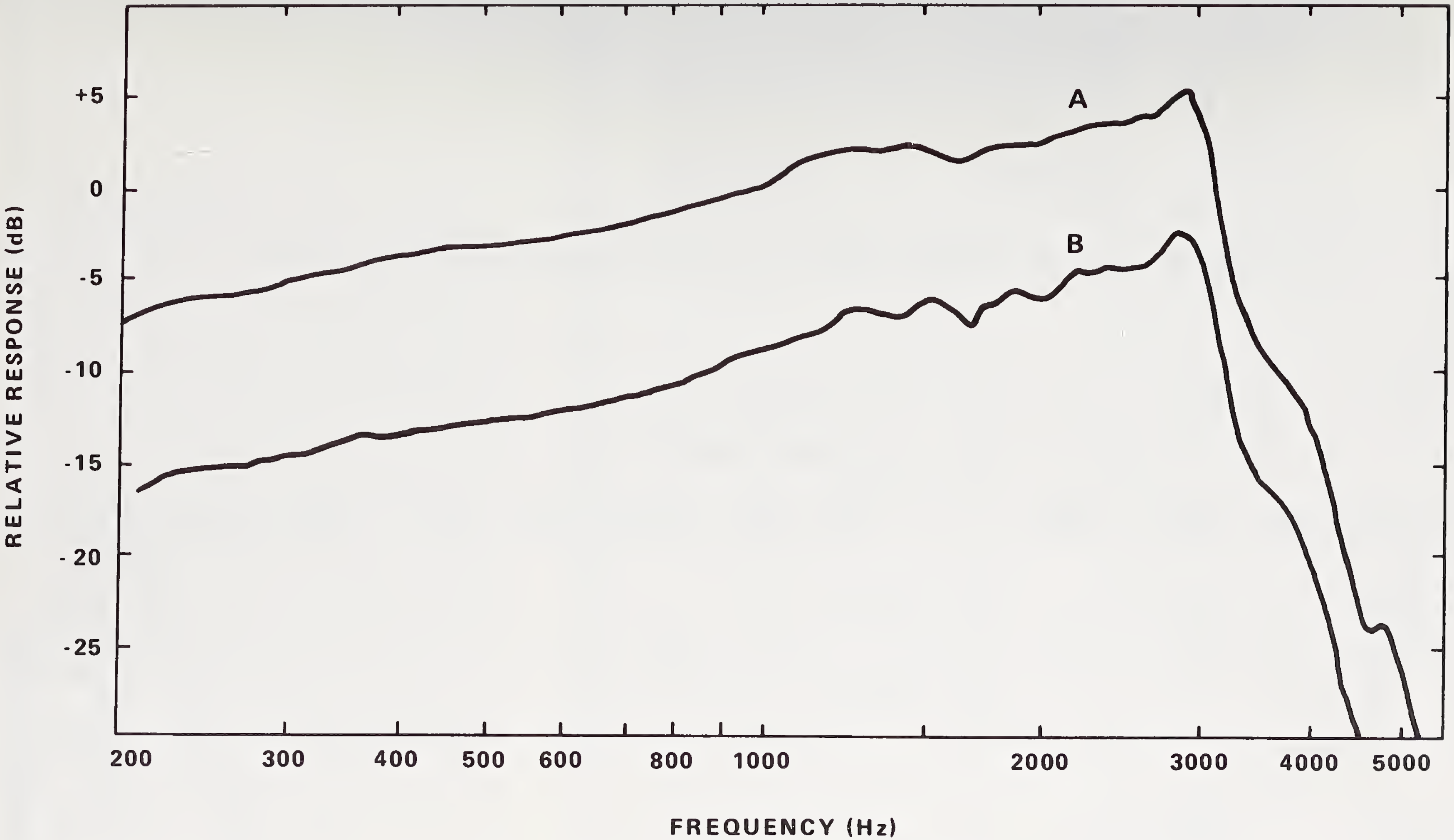


FIG. 1. Frequency response of a body-type hearing aid. (A) Reference microphone hung directly over hearing aid microphone. (B) Reference microphone adjacent to the hearing aid, both facing forward. Level is reduced 10 dB.

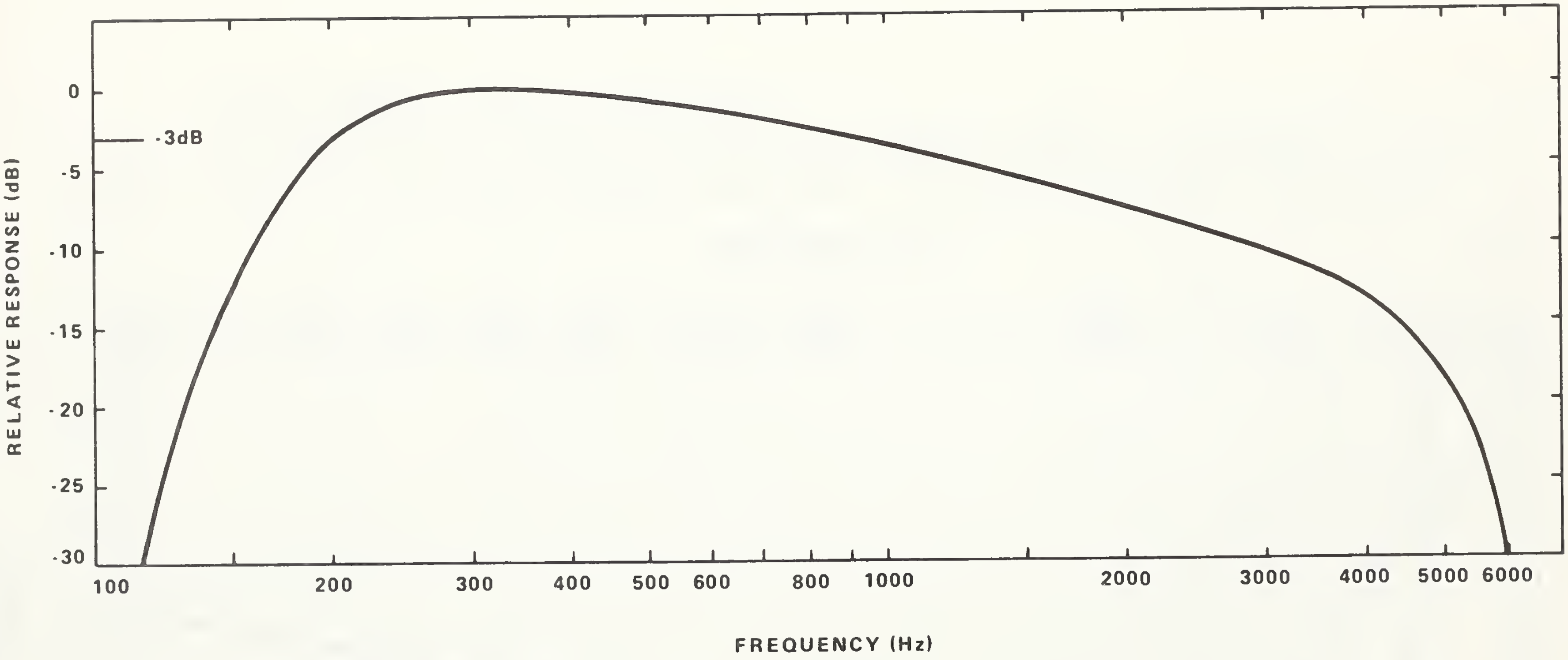
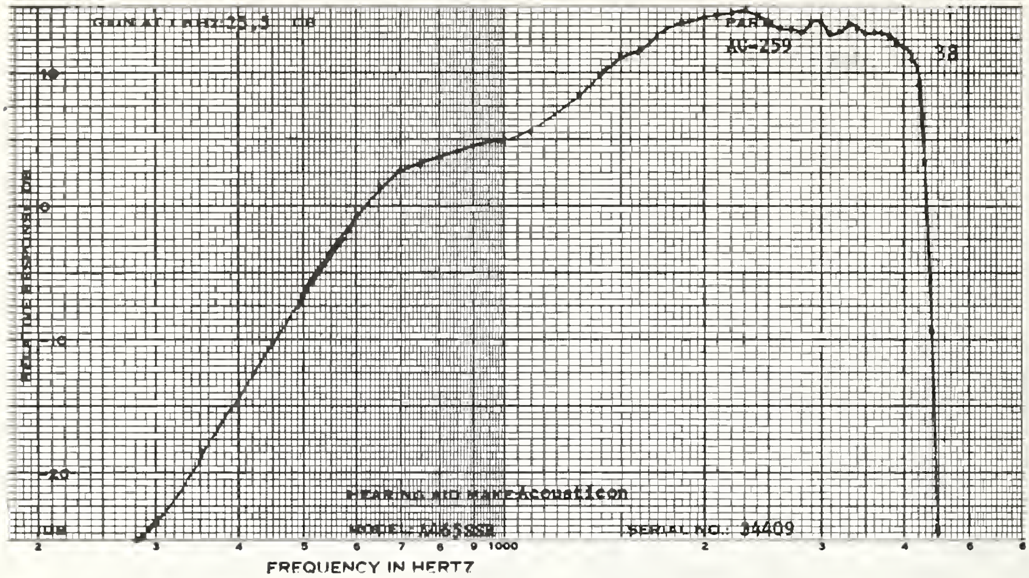
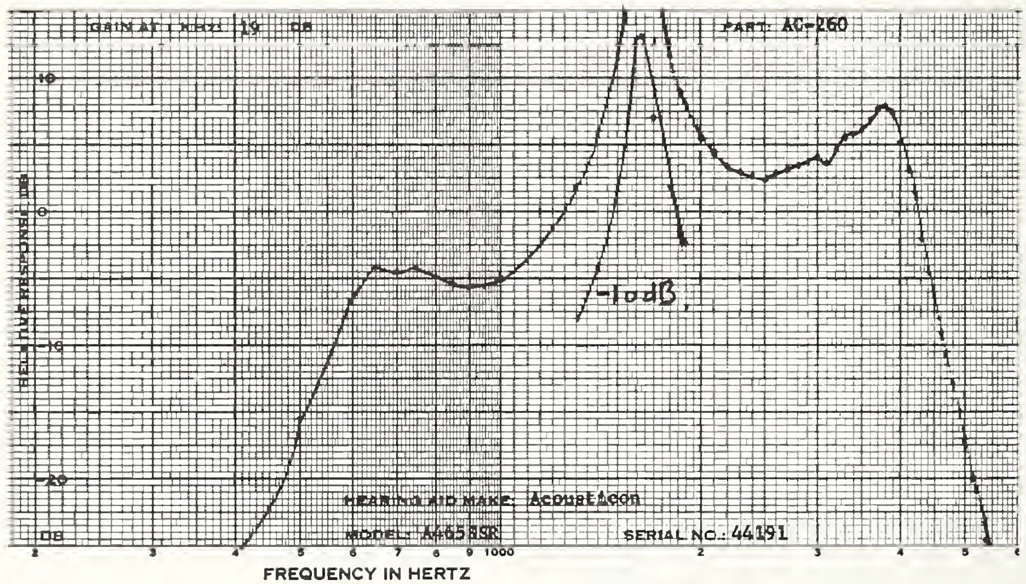


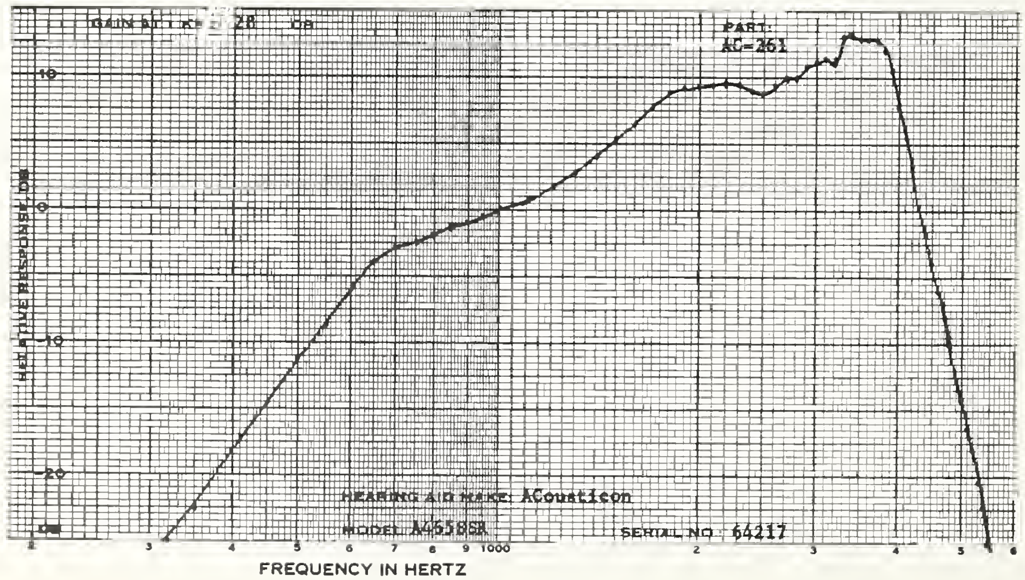
FIG. 2. The power spectral density of the NBS random noise test signal.

CODE	AC-259	AC-260	AC-261
SERIAL #	34409	44191	64217
DATE		JUN 22, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	25.5	19.0	28.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	83.0	80.0	77.5
OUTPUT LEVEL DB	108.5	109.5	107.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	25.5(FULL)	19.0	28.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	65.0 75.0	65.0 75.0	61.0 71.0
500 HZ %	2 4	2 1	0 4
700 HZ %	1 4	2 3	1 3
900 HZ %	4 8	5 6	3 6
MAX DIST %	4 13	24 30	3 6
FREQ OF MAX DIS	900 1940	810 810	900 900
S/N RATIO DB			
1KHZ SIGNAL	33.5	24.5	34.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.5	.6	.5
65 DB INPUT	.5	.6	.5
BATTERY VOLTAGE	1.52	1.52	1.52

THE VOLUME CONTROL WAS REDUCED BEFORE BEGINNING THE TEST ON AC-260 BECAUSE OF FEEDBACK.


GAIN AT 1 KHZ: 25.5 DB
PART AC-259
38
RELATIVE RESPONSE DB
10
0
-10
-20
DB
HEARING AID MAKE Acousticon
MODEL: A465SSR
SERIAL NO.: 34409
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
8
FREQUENCY IN HERTZ

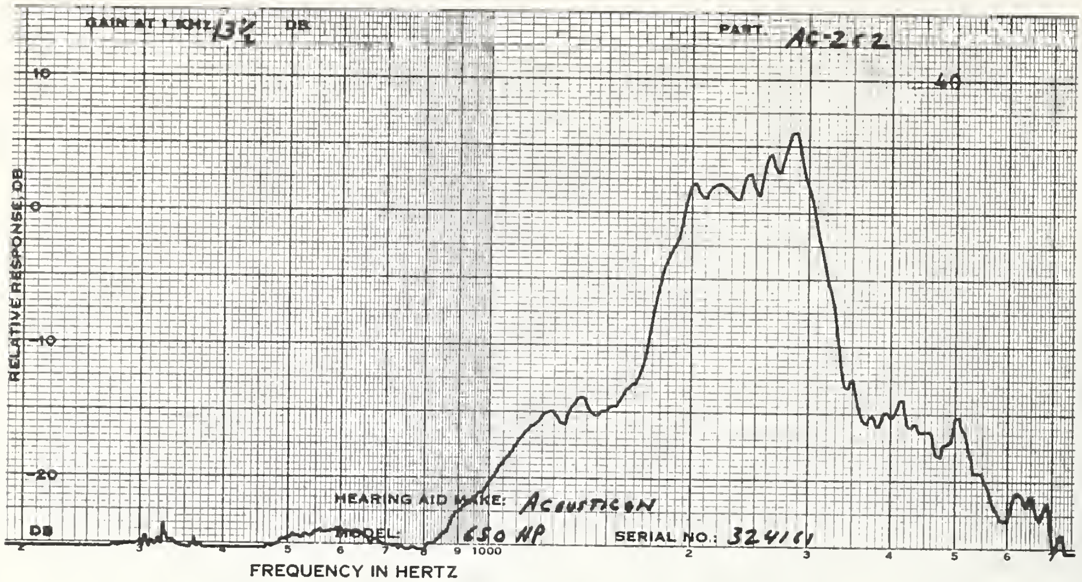

GAIN AT 1 KHZ: 19 DB
PART: AC-260
RELATIVE RESPONSE DB
10
0
-10
-20
DB
-10dB.
HEARING AID MAKE: Acousticon
MODEL: A4658SR
SERIAL NO.: 44191
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

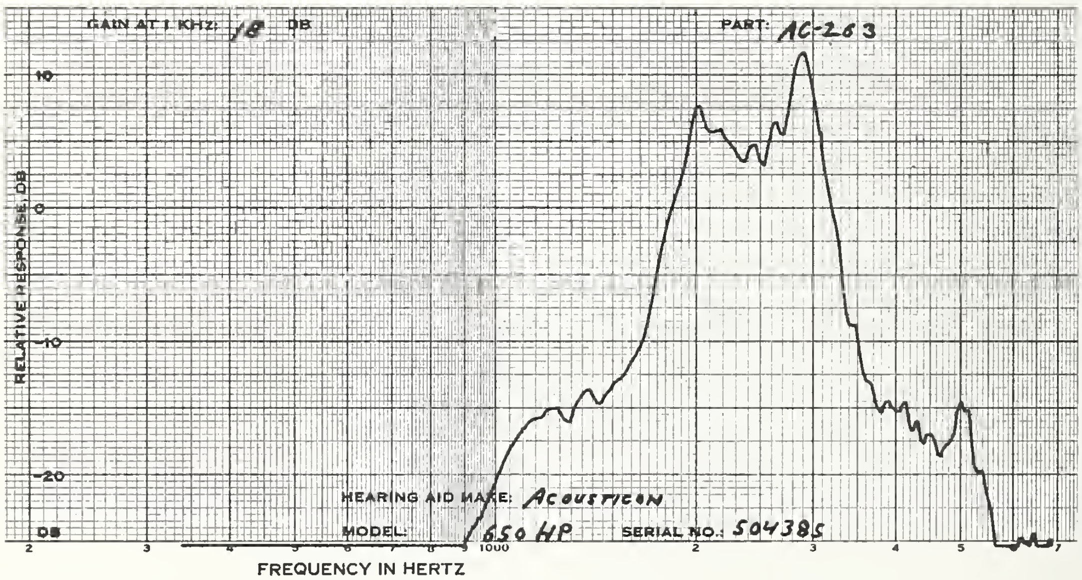

GAIN AT 1 KHZ: 28 DB
PART:
AC-261
RELATIVE RESPONSE DB
10
0
-10
-20
DB
HEARING AID MAKE: ACousticon
MODEL: A4658SR
SERIAL NO.: 64217
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

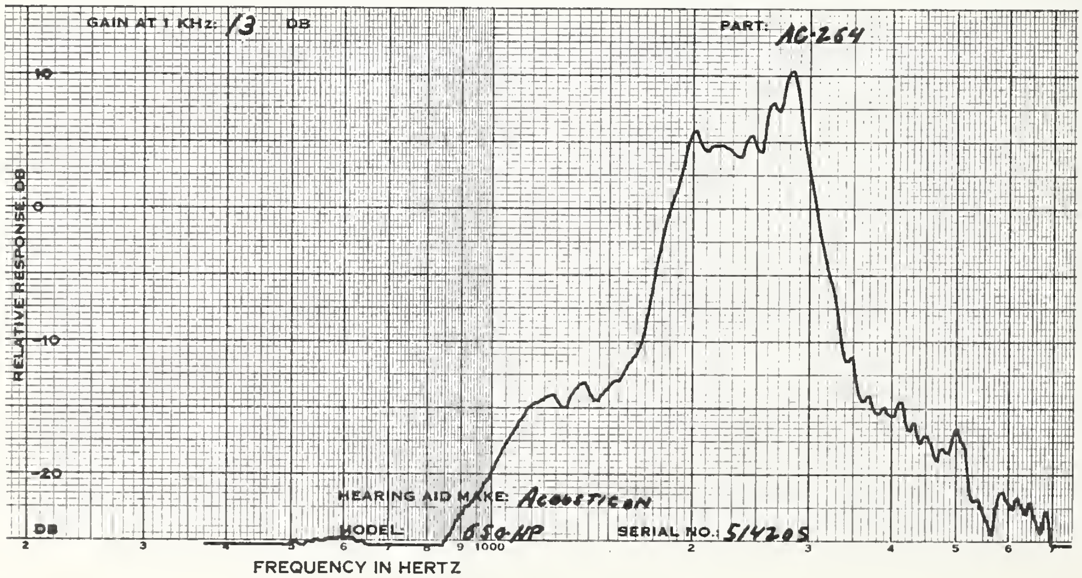
MODEL:650HP TONE:NONE TUBING:25MM BATTERY:S13

CODE	AC-262	AC-263	AC-264
SERIAL #	324161	504385	514205
DATE		MAY 22, 1975	
MEASUREMENTS WITH FULL VOL CONTROL*			
1KHZ GAIN DB	19.0	23.0	20.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	83.5	82.0	84.0
OUTPUT LEVEL DB	118.0	124.0	118.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	13.5	18.0	13.0
S/N RATIO DB			
2KHZ SIGNAL	42.0	50.0	45.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.8
65 DB INPUT	.8	.8	.8
BATTERY VOLTAGE	1.52	1.52	1.52

*Maximum setting possible without feedback.

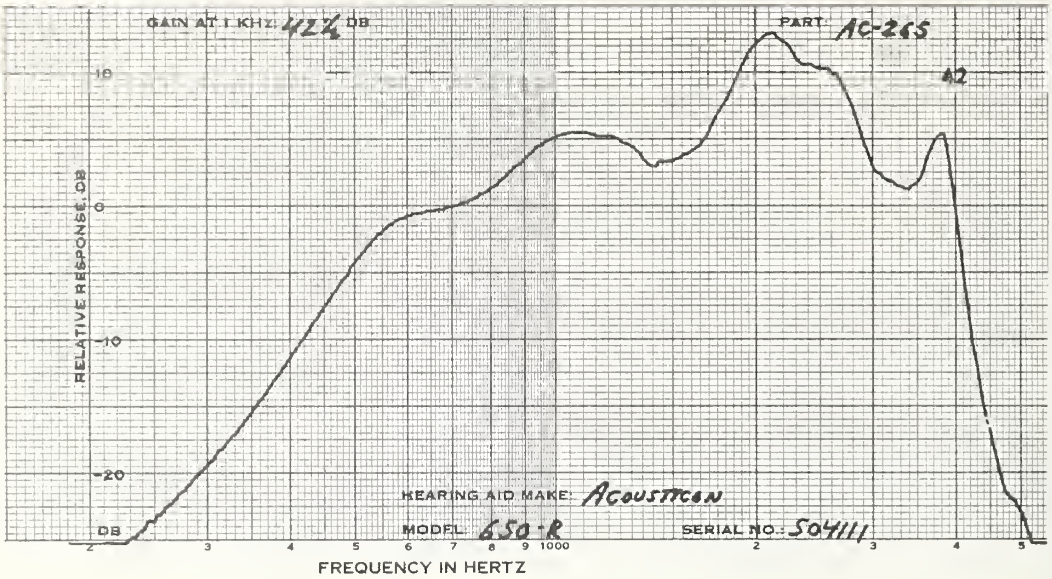

GAIN AT 1 KHz: 13½ DB
PART: AC-252
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ACOUSTICON
MODEL: 650 HP
SERIAL NO.: 324161
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

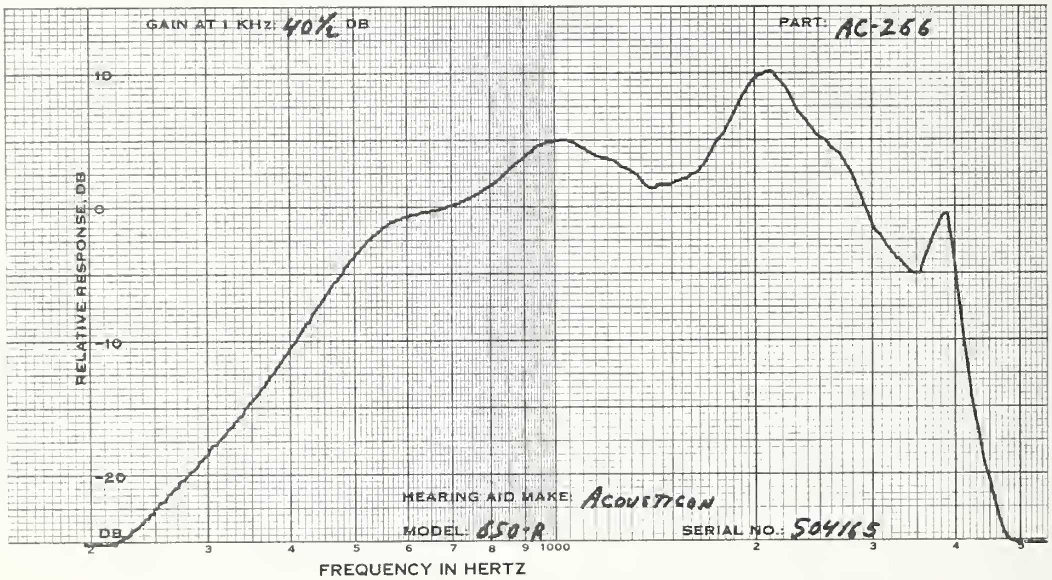

GAIN AT 1 KHz: 18 DB
PART: AC-263
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ACOUSTICON
MODEL: 650 HP
SERIAL NO.: 504385
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

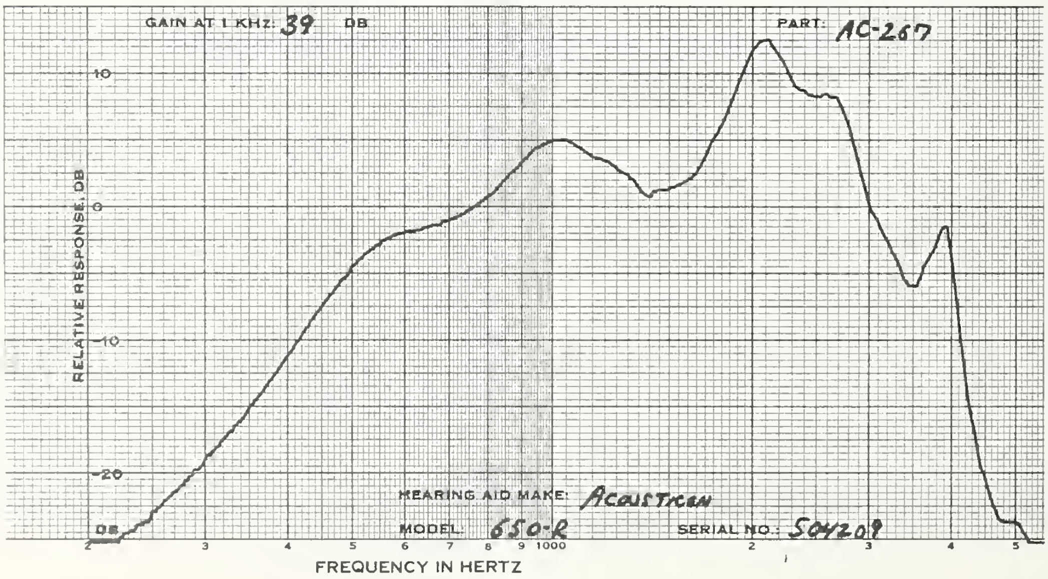

GAIN AT 1 KHz: 13 DB
PART: AC-264
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ACOUSTICON
MODEL: 650 HP
SERIAL NO.: 514205
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

MODEL:650R TONE:NONE TUBING:22MM BATTERY:S13

CODE	AC-265	AC-266	AC-267
SERIAL #	504111	504165	504209
DATE		FEB 4, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	42.5	40.5	39.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.5	75.5	76.0
OUTPUT LEVEL DB	114.0	113.0	112.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	42.5(FULL)	40.5(FULL)	39.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.5 70.5	62.5 72.5	63.0 73.0
500 HZ %	3 15	3 13	1 5
700 HZ %	2 6	0 5	1 3
900 HZ %	1 6	0 5	1 3
MAX DIST %	3 15	3 13	1 5
FREQ OF MAX DIS	500 500	500 500	900 500
S/N RATIO DB			
1KHZ SIGNAL	42.5	41.5	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.7	.6
65 DB INPUT	.7	.7	.6
BATTERY VOLTAGE	1.55	1.55	1.55

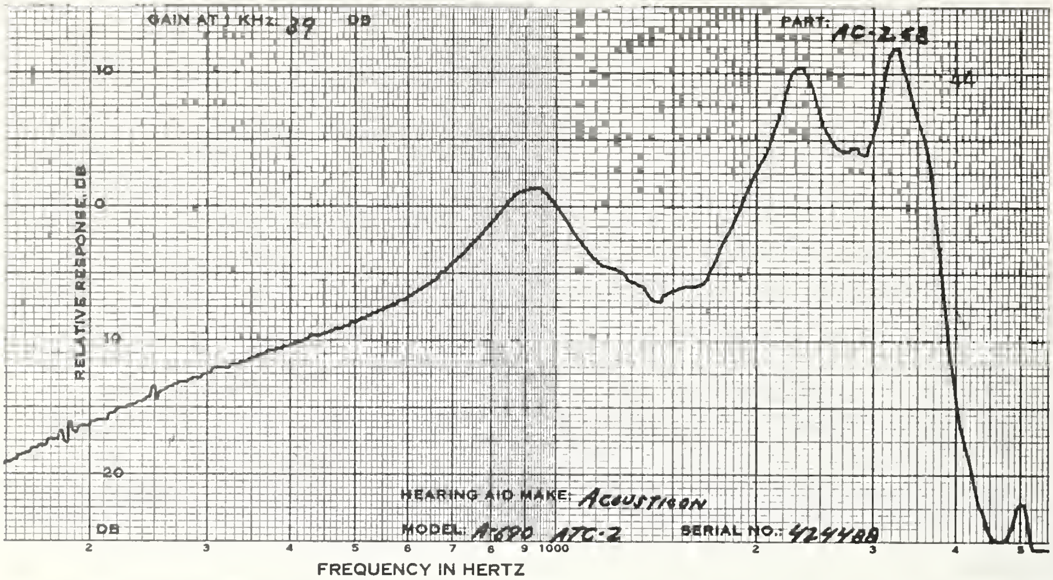

GAIN AT 1 KHZ: 42½ DB
PART: AC-265
A2
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: 650-R
SERIAL NO.: 504111
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 40½ DB
PART: AC-266
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: 650-R
SERIAL NO.: 504165
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

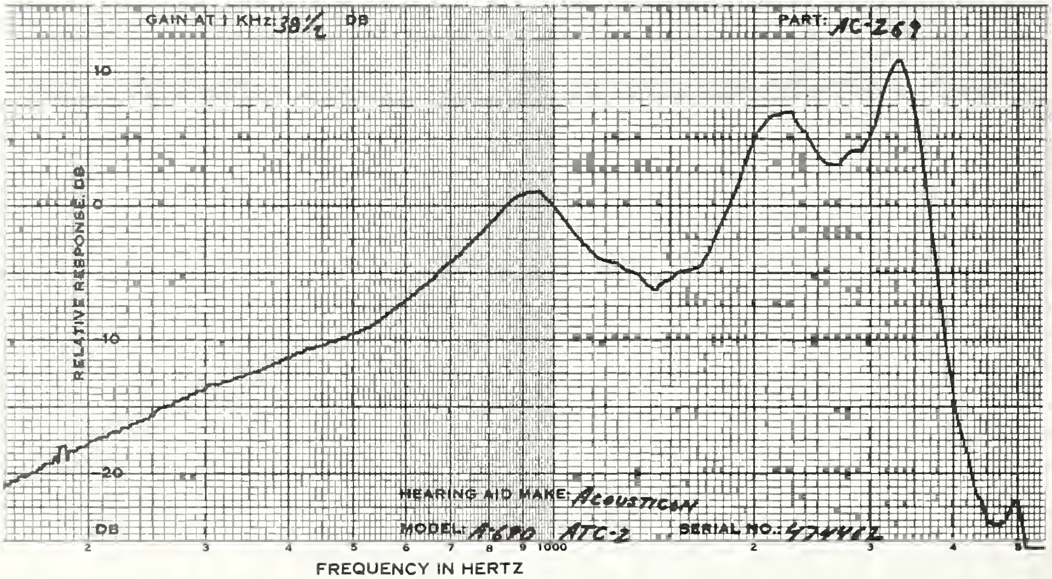

GAIN AT 1 KHZ: 39 DB
PART: AC-267
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: 650-R
SERIAL NO.: 504209
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

ACOUSTICON
MODEL:A690 ATC2 TONE:B ACOUSTIC FILTER IN OE TUBING:25MM BAT:S76

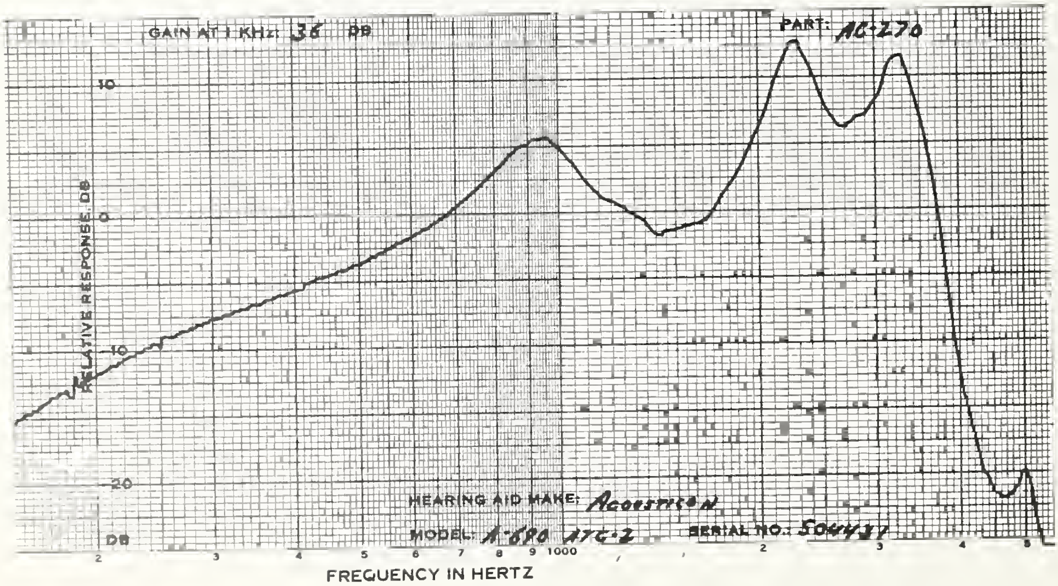
CODE	AC-268	AC-269	AC-270
SERIAL #	424488	474462	504431
DATE		MAR 10, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	39.5	38.5	36.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.5	78.0	79.0
OUTPUT LEVEL DB	113.0	113.0	112.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	39.0	38.5(FULL)	36.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	61.0 71.0	63.0 73.0
500 HZ %	1 2	1 1	1 5.
700 HZ %	1 1	1 1	0 4
900 HZ %	0 2	0 2	1 6
MAX DIST %	4 42	3 22	5 95
FREQ OF MAX DIS	1130 1750	1560 1710	1650 1610
S/N RATIO DB			
1KHZ SIGNAL	40.0	39.0	40.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.8
65 DB INPUT	.8	.8	.8
BATTERY VOLTAGE	1.57	1.57	1.57



GAIN AT 1 KHz: 39 DB
PART: AC-258
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: Acousticon
MODEL: A-690 ATC-2
SERIAL NO.: 424488
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ



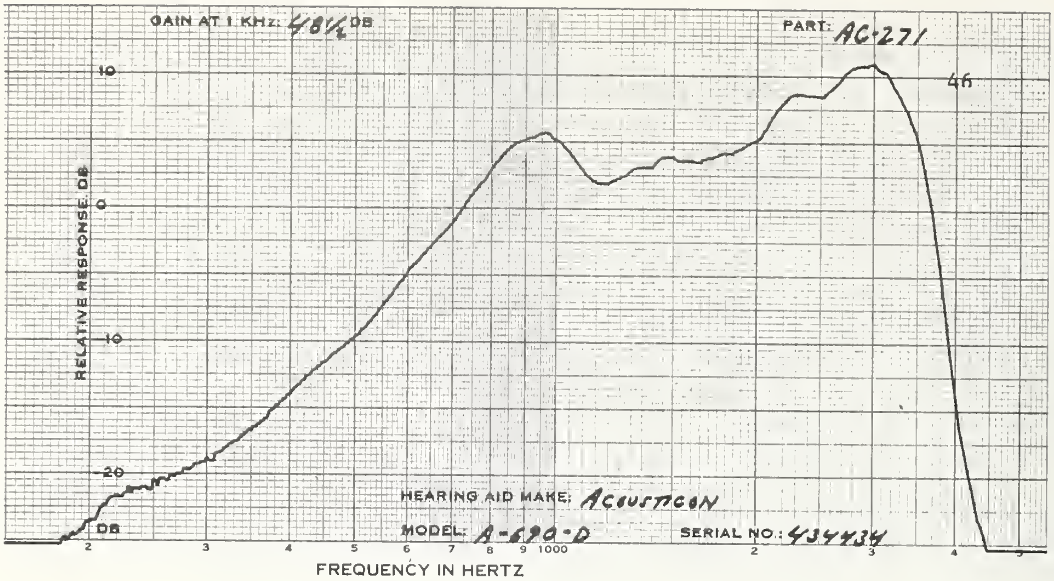
GAIN AT 1 KHz: 38 1/2 DB
PART: AC-269
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: Acousticon
MODEL: A-690 ATC-2
SERIAL NO.: 474482
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

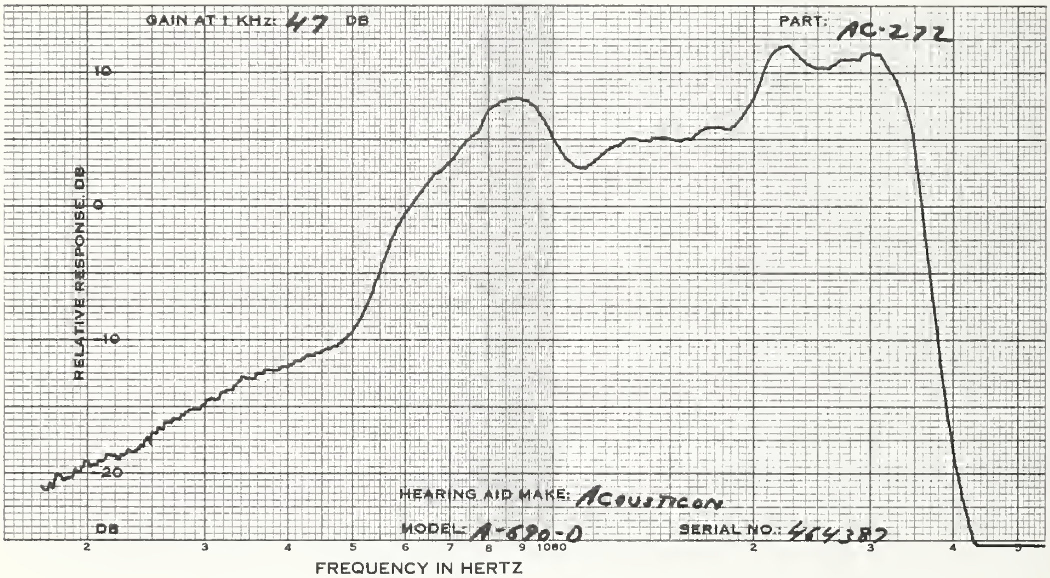


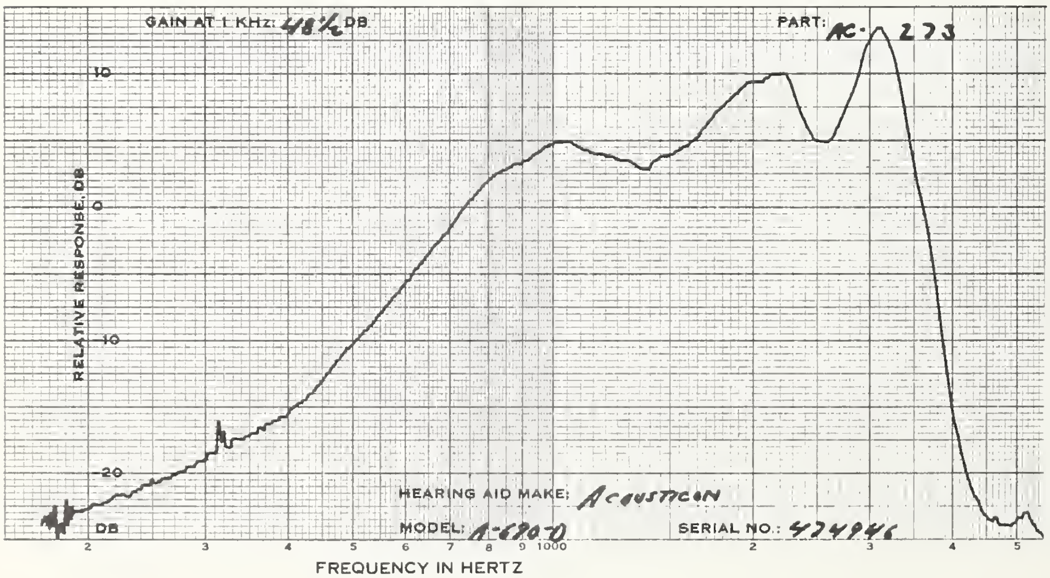
GAIN AT 1 KHz: 36 DB
PART: AC-270
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: Acousticon
MODEL: A-690 ATC-2
SERIAL NO.: 504437
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

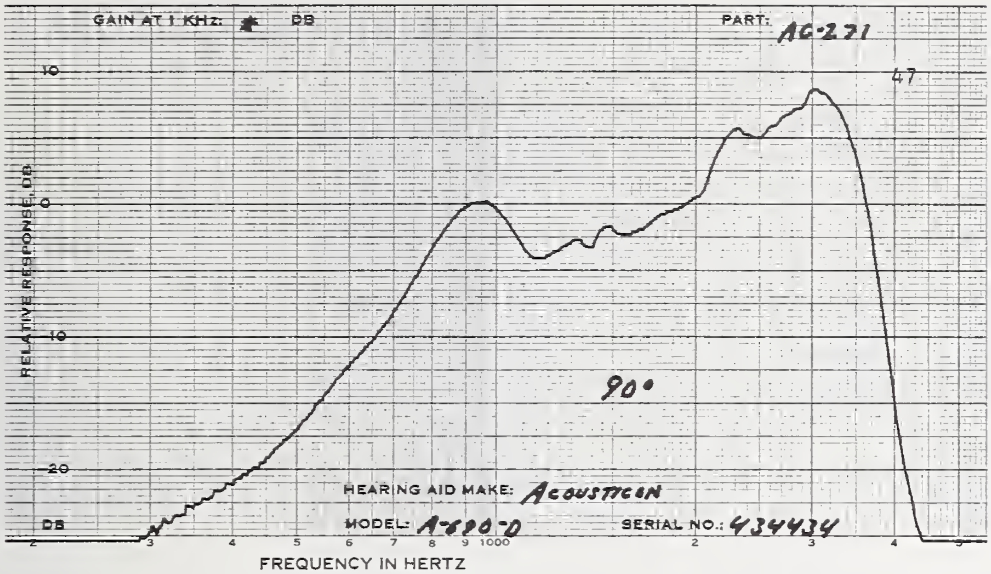
ACOUSTICON DIR EG
MODEL:A690D TONE:A ACOUSTIC FILTER TUBING:25MM BATTERY:S76

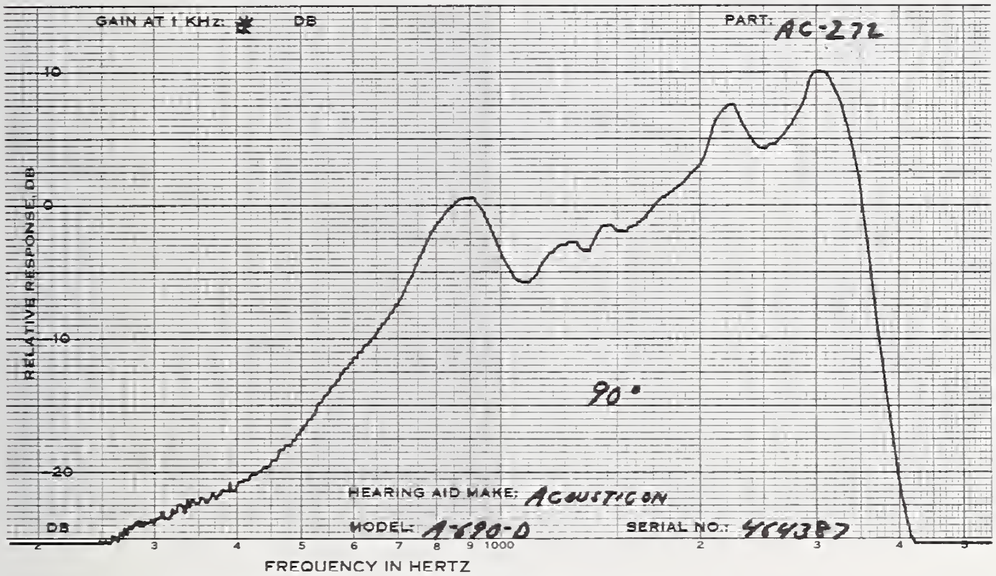
CODE	AC-271		AC-272		AC-273	
SERIAL #	434434		464387		474946	
DATE			APR 30, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	52.5		48.5		53.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	80.5		79.0		82.5	
OUTPUT LEVEL DB	120.0		120.0		120.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	48.5		47.0		48.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	4	7	3	3	4	4
700 HZ %	1	5	2	4	1	3
900 HZ %	3	7	3	8	3	6
MAX DIST %	7	15	5	12	6	11
FREQ OF MAX DIS	1550	1420	1560	1300	1015	1040
S/N RATIO DB						
1KHZ SIGNAL	43.0		37.5		43.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.1		2.1		2.1	
65 DB INPUT	2.1		2.1		2.1	
BATTERY VOLTAGE	1.56		1.56		1.56	

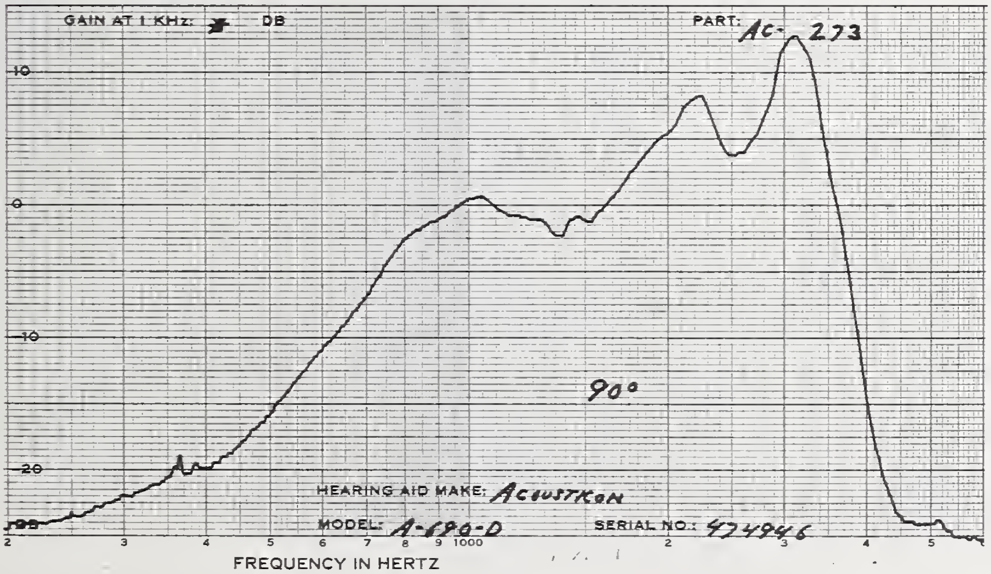

GAIN AT 1 KHz: 48½ DB
PART: AC-271
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: A-690-D
SERIAL NO.: 434434
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 47 DB
PART: AC-272
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: A-690-D
SERIAL NO.: 464387
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 48½ DB
PART: AC-273
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: A-690-D
SERIAL NO.: 474946
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

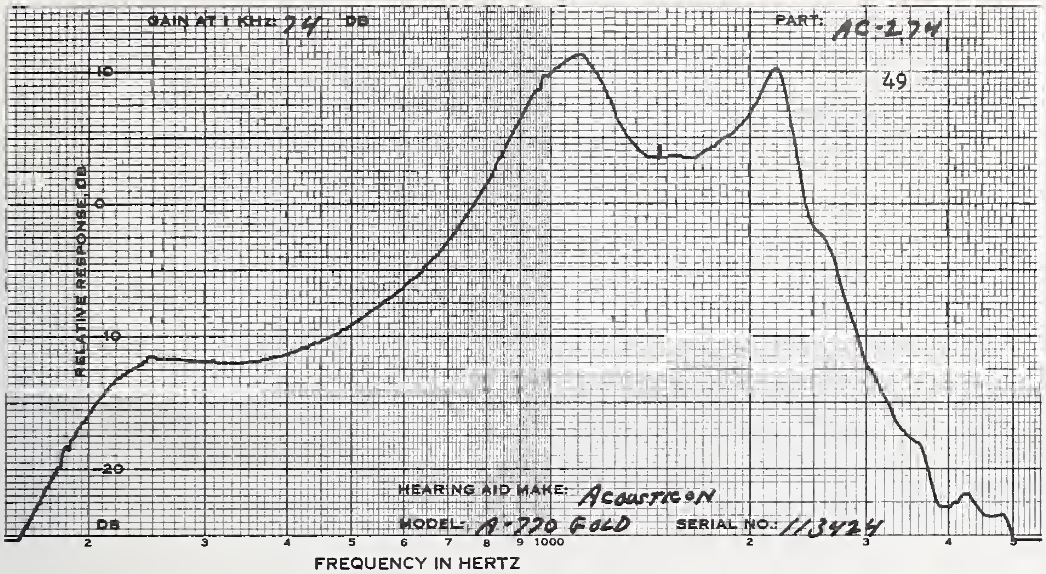

GAIN AT 1 KHz: * DB
PART: AC-271
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: Acousticon
MODEL: A-690-D
SERIAL NO.: 434434
2
3
4
5
6
7
8
9 1000
2
3
4
5
FREQUENCY IN HERTZ

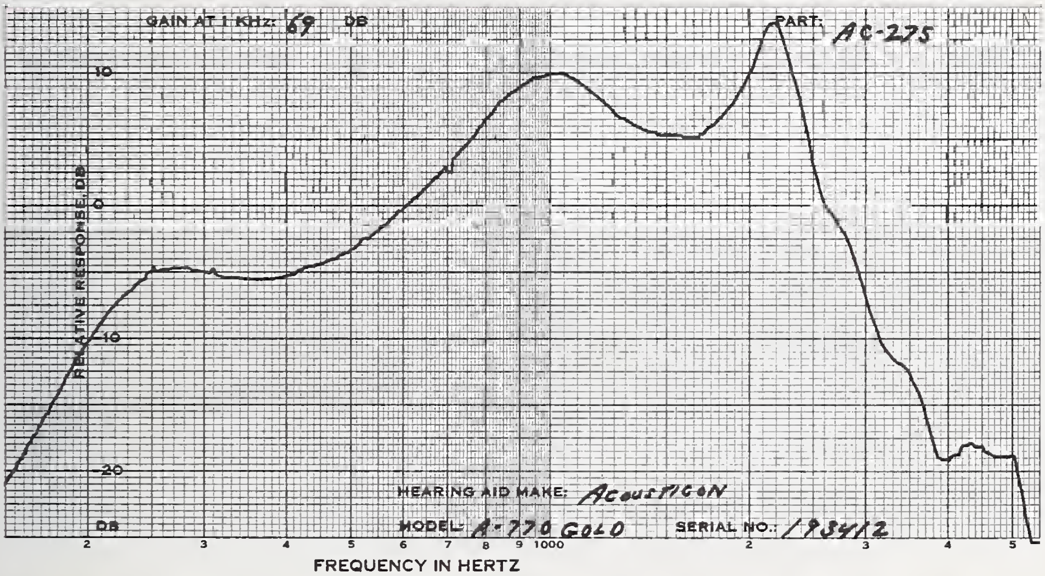

GAIN AT 1 KHz: * DB
PART: AC-272
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: Acousticon
MODEL: A-690-D
SERIAL NO.: 464387
2
3
4
5
6
7
8
9 1000
2
3
4
5
FREQUENCY IN HERTZ

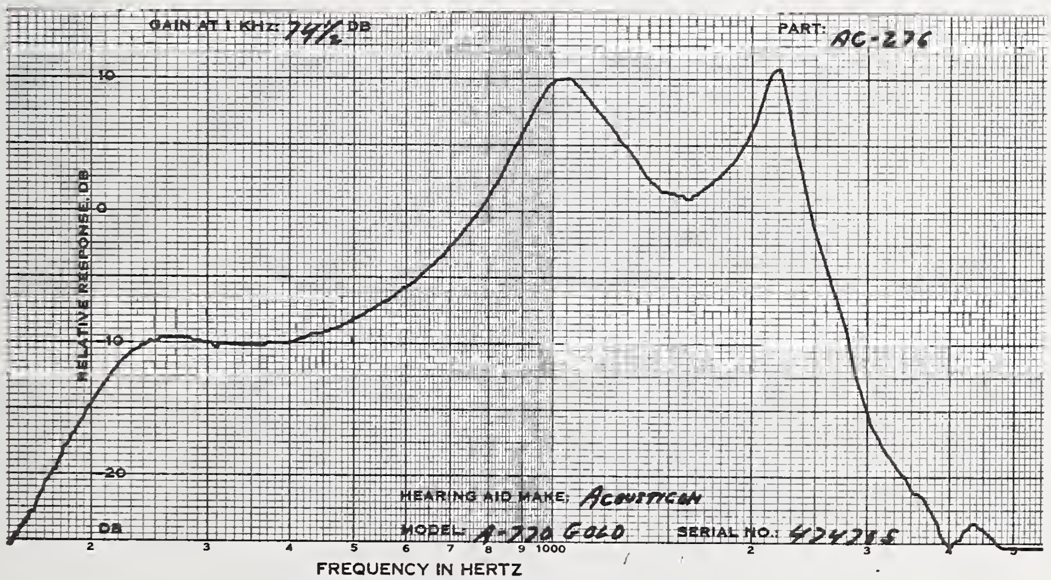

GAIN AT 1 KHz: * DB
PART: AC-273
10
0
-10
-20
DB
90°
HEARING AID MAKE: Acousticon
MODEL: A-690-D
SERIAL NO.: 474946
2
3
4
5
6
7
8
9 1000
2
3
4
5
FREQUENCY IN HERTZ

ACOUSTICON DB
MODEL:A770 GOLD PWR:MAX(CCW) TONE:CCW RECEIVER:HP BATTERIES:401(2)

CODE	AC-274		AC-275		AC-276	
SERIAL #	113424		193412		474765	
DATE			MAY 1, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	83.0		80.5		82.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	74.5		71.5		71.5	
OUTPUT LEVEL DB	139.5		138.5		139.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	74.0		69.0		74.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	8	4	7	21	11	25
700 HZ %	3	8	5	13	4	12
900 HZ %	4	9	2	8	3	11
MAX DIST %	8	12	7	21	13	28
FREQ OF MAX DIS	500	1080	500	500	520	510
S/N RATIO DB						
1KHZ SIGNAL	54.0		50.5		55.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	3.8	3.8	3.4	3.4	3.2	3.2
65 DB INPUT	10.5	10.5	9.4	9.4	10.8	11.0
BATTERY VOLTAGE	1.42	1.42	1.42	1.42	1.42	1.42

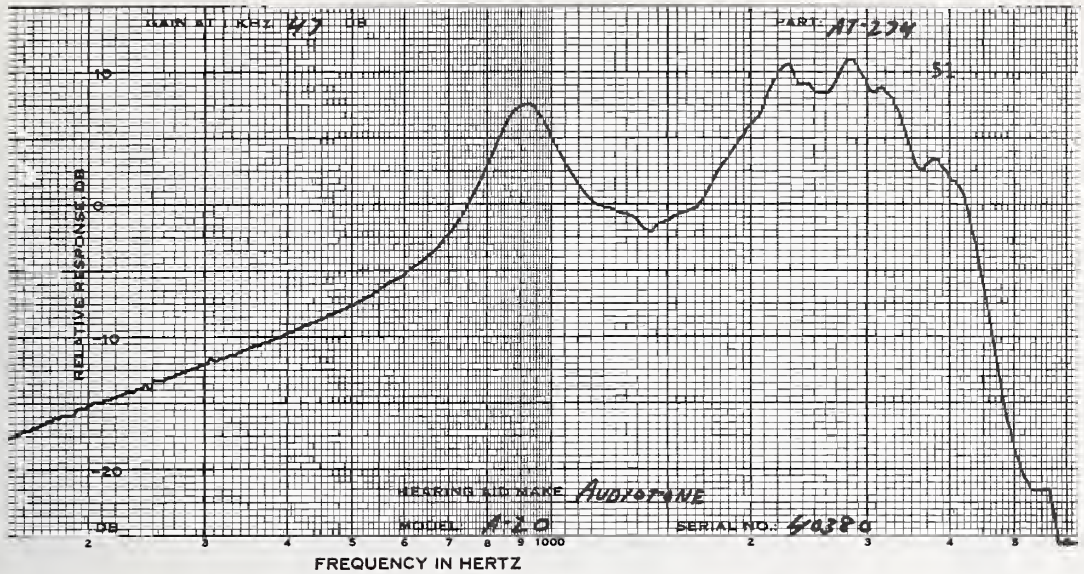

GAIN AT 1 KHz: 74 DB
PART: AC-274
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: A-770 Gold
SERIAL NO.: 113424
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

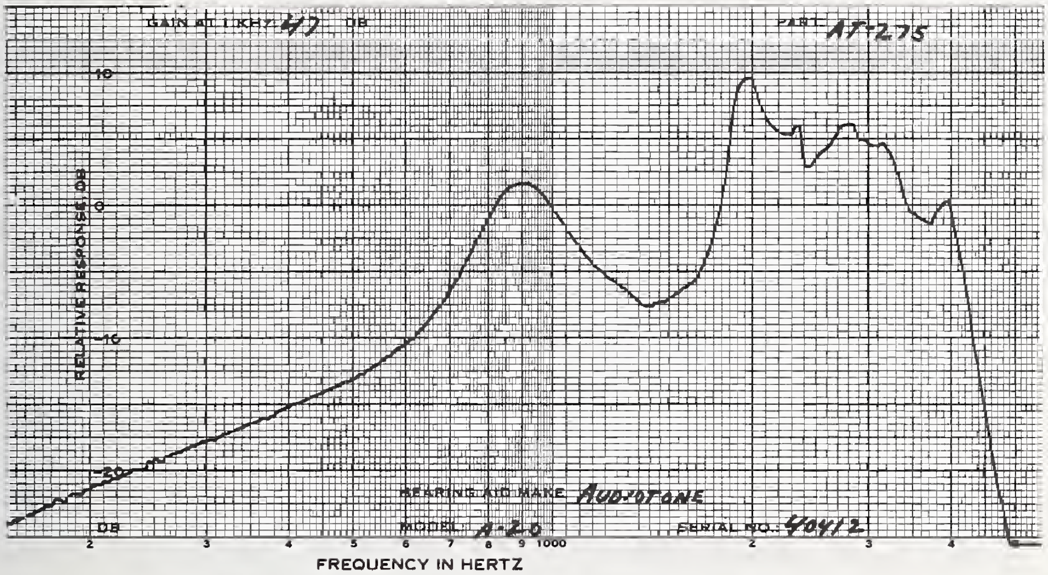

GAIN AT 1 KHz: 69 DB
PART: AC-275
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: A-770 Gold
SERIAL NO.: 193412
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

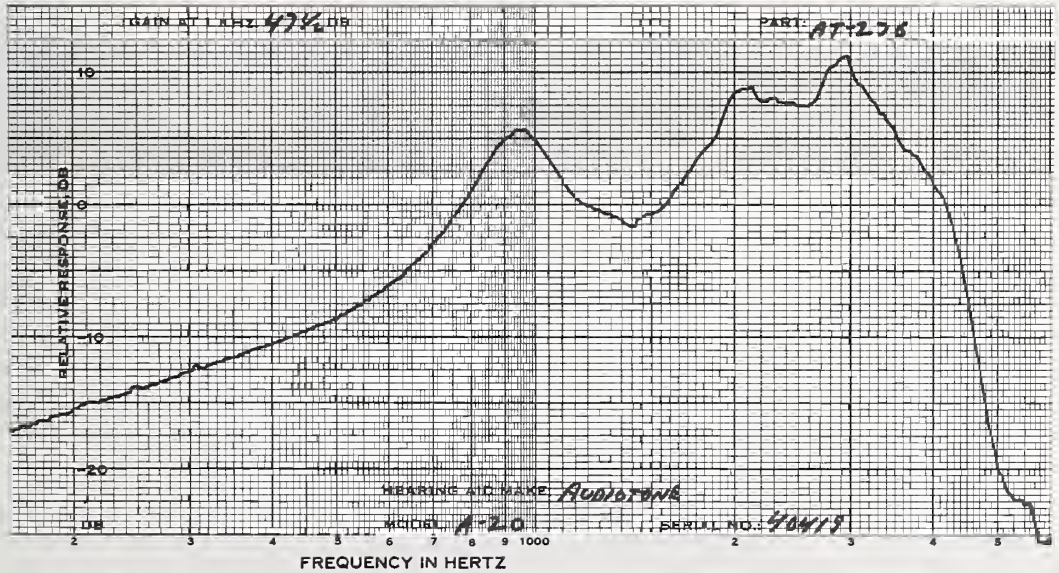

GAIN AT 1 KHz: 74½ DB
PART: AC-276
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Acousticon
MODEL: A-770 Gold
SERIAL NO.: 474785
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

AUDIOTONE OE
MODEL:A20 TONE:NONE TUBING:25MM BATTERY:S76

CODE	AT-274	AT-275	AT-276
SERIAL #	40380	40412	40419
DATE		MAR 14, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	47.0	47.0	47.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.5	77.5	77.5
OUTPUT LEVEL DB	121.0	120.5	120.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	47.0(FULL)	47.0(FULL)	47.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	62.0 72.0	60.0 70.0	60.0 70.0
500 HZ %	5 14	4 12	6 17
700 HZ %	2 6	3 6	3 8
900 HZ %	1 4	0 3	1 3
MAX DIST %	6 20	5 15	7 23
FREQ OF MAX DIS	1470 1470	1900 1780	1480 1460
S/N RATIO DB			
1KHZ SIGNAL	42.5	41.5	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.8	1.8	1.8
65 DB INPUT	1.8	1.8	1.8
BATTERY VOLTAGE	1.57	1.57	1.57


GAIN AT 1 KHZ 47 DB
PART: AT-274
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE Audiotone
MODEL A-20
SERIAL NO.: 40380
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ 47 DB
PART: AT-275
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE Audiotone
MODEL A-20
SERIAL NO.: 40412
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

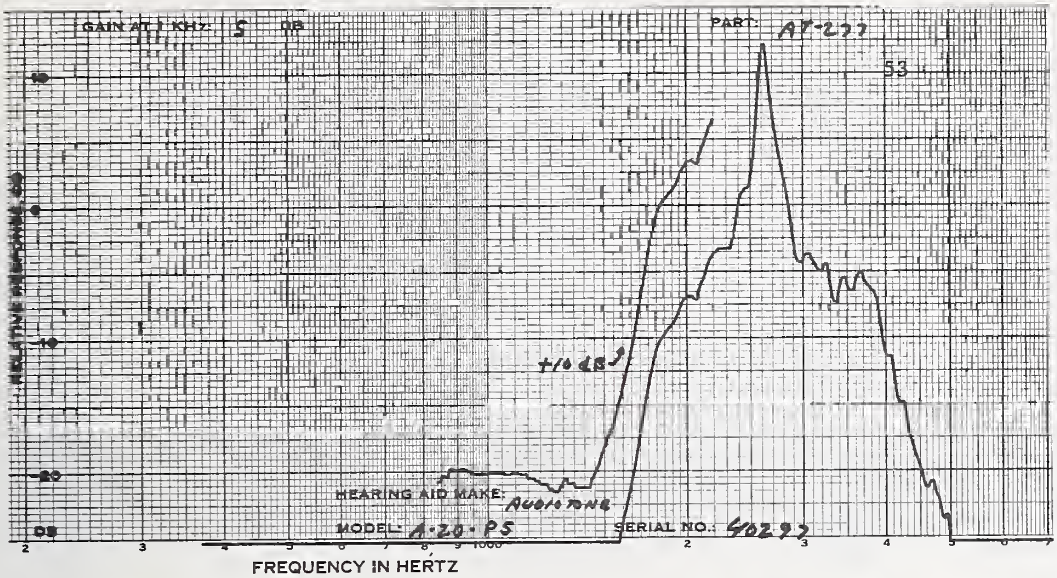

GAIN AT 1 KHZ 47½ DB
PART: AT-276
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE Audiotone
MODEL A-20
SERIAL NO.: 40419
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

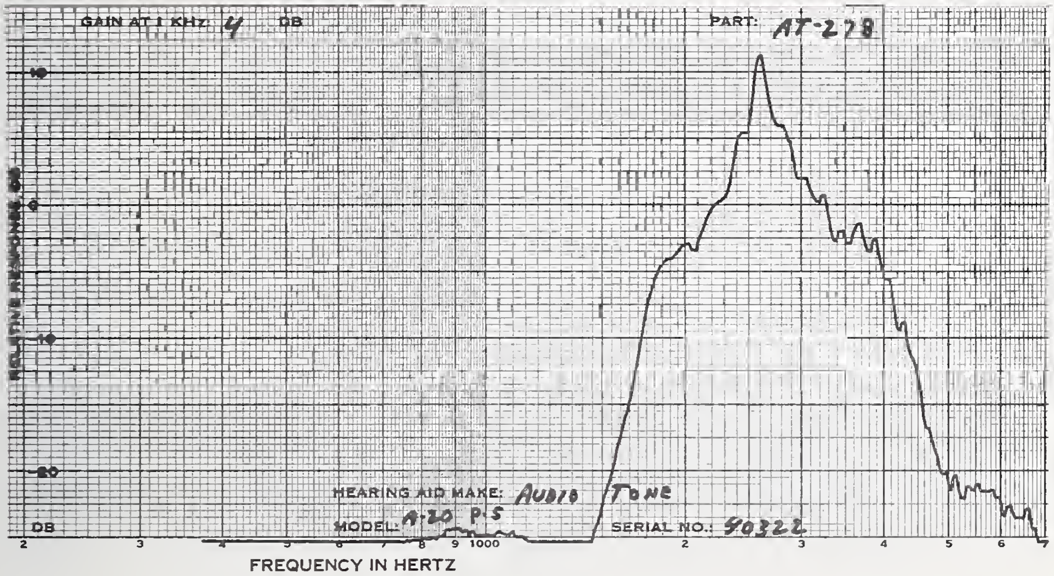
AUDIOTONE HP OE
MODEL:A20P5 TONE:NONE TUBING:25MM BATTERY:S76

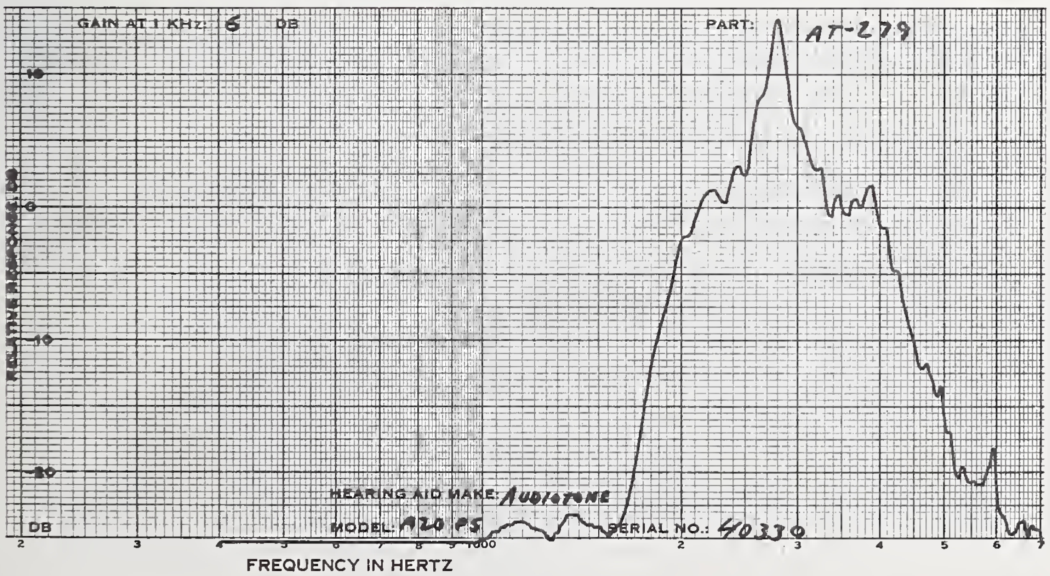
CODE	AT-277	AT-278	AT-279
SERIAL #	40297	70322	40330
DATE		JUNE 5, 1975	
MEASUREMENTS WITH FULL VOL CONTROL *			
1KHZ GAIN DB	8.0	6.0	8.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	87.0	85.0	85.0
OUTPUT LEVEL DB	125.0	126.0	125.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	5.0	4.0	6.0
S/N RATIO DB			
2KHZ SIGNAL	41.5	40.0	43.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.0	2.1	2.0
65 DB INPUT	2.0	2.1	2.0
BATTERY VOLTAGE	1.56	1.56	1.56

GAIN REDUCED 5DB AT 1.5KHZ.

*Maximum setting possible without feedback.

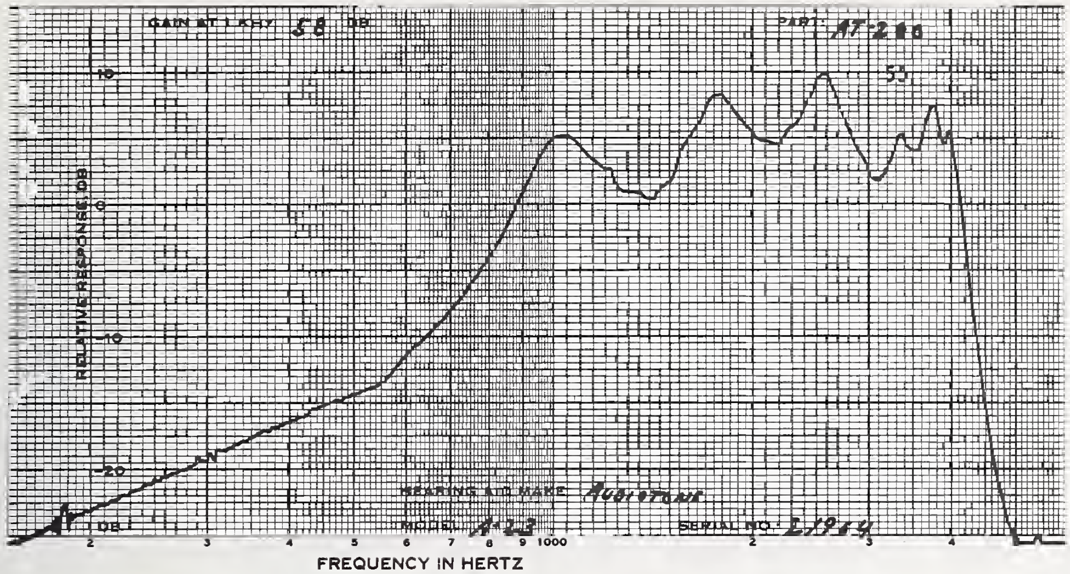

GAIN AT 1 KHz: 5 DB
PART: AT-277
RELATIVE RESPONSE DB
+10 dB
HEARING AID MAKE: Audiotone
MODEL: A-20-PS
SERIAL NO.: 40297
FREQUENCY IN HERTZ

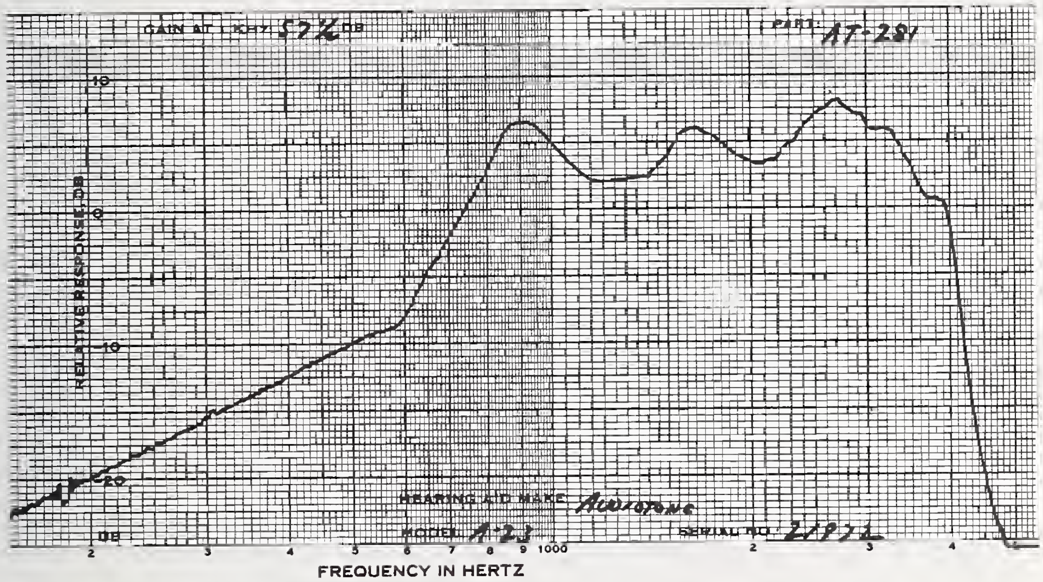

GAIN AT 1 KHz: 4 DB
PART: AT-278
RELATIVE RESPONSE DB
HEARING AID MAKE: Audio Tone
MODEL: A-20 P-S
SERIAL NO.: 40322
FREQUENCY IN HERTZ

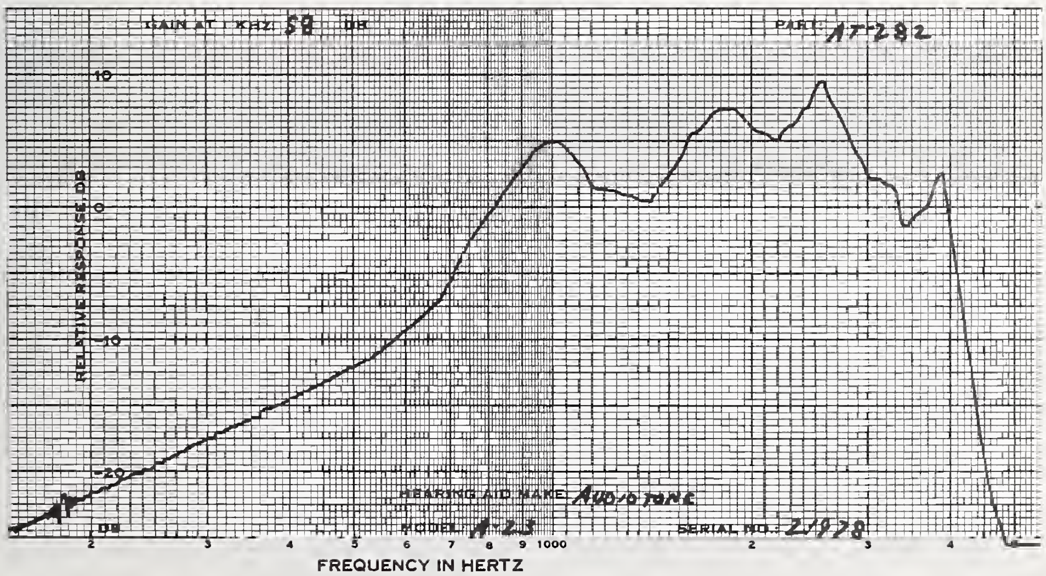

GAIN AT 1 KHz: 6 DB
PART: AT-279
RELATIVE RESPONSE DB
HEARING AID MAKE: Audiotone
MODEL: A20 PS
SERIAL NO.: 40330
FREQUENCY IN HERTZ

AUDIOTONE OE
MODEL:A23 TONE:NONE TUBING:25MM BATTERY:S76

CODE	AT-280	AT-281	AT-282
SERIAL #	21964	21972	21978
DATE		MAR 17, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	59.5	57.5	58.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	77.0	79.0
OUTPUT LEVEL DB	127.0	128.0	127.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	58.0	57.5(FULL)	58.C(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	8 14	6 11	12 21
700 HZ %	4 8	2 6	5 9
900 HZ %	1 3	1 2	2 3
MAX DIST %	8 15	6 11	12 21
FREQ OF MAX DIS	500 590	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	46.5	42.0	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	1.0	1.1
65 DB INPUT	2.0	1.9	1.9
BATTERY VOLTAGE	1.57	1.57	1.57


GAIN AT 1 KHZ 58 DB
PART: AT-280
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audiotone
MODEL: A-23
SERIAL NO.: 21964
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

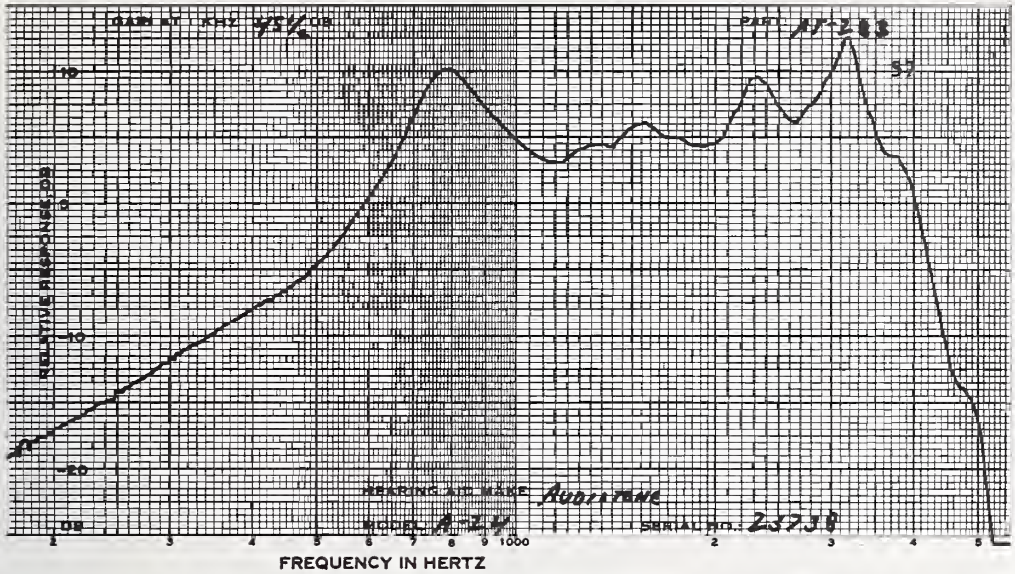

GAIN AT 1 KHZ 57½ DB
PART: AT-281
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audiotone
MODEL: A-23
SERIAL NO.: 21972
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

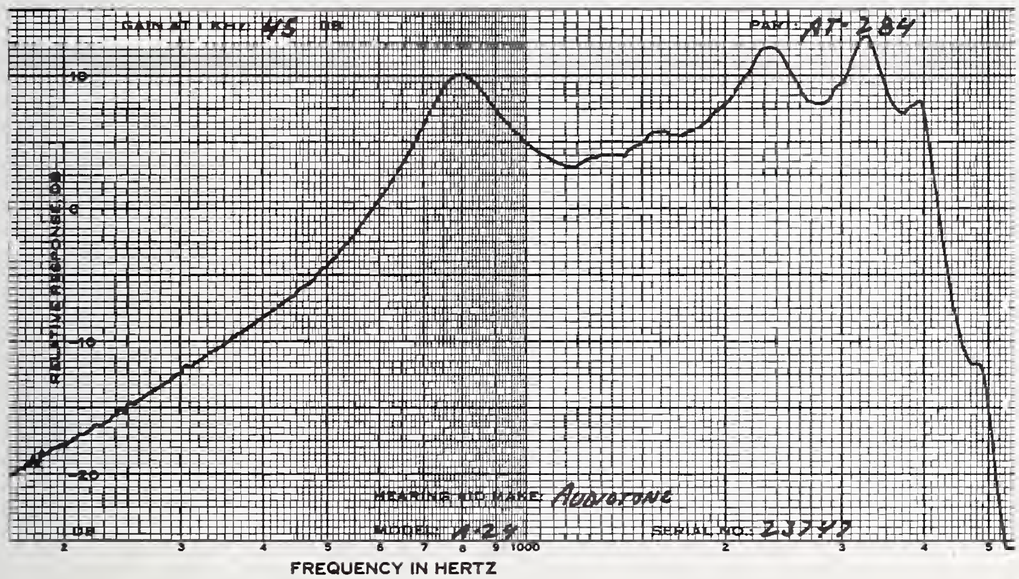

GAIN AT 1 KHZ 58 DB
PART: AT-282
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audiotone
MODEL: A-23
SERIAL NO.: 21978
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

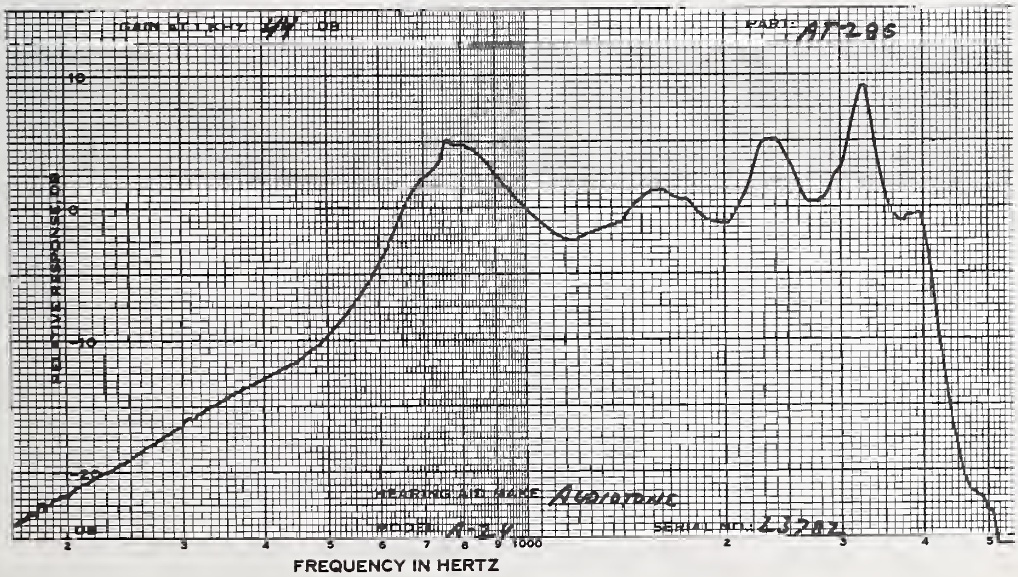
AUDIOTONE OE

MODEL:A24 TONE:NONE TUBING:25MM BATTERY:S41

CODE	AT-283	AT-284	AT-285
SERIAL #	23738	23747	23782
DATE		MAR 17, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	45.5	45.0	44.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	78.5	78.5	79.0
OUTPUT LEVEL DB	119.5	119.0	119.5
MEASUREMENTS WITH REDUCED VOLUME CCNTRCL SETTING			
1KHZ GAIN DB	45.5(FULL)	45.0(FULL)	44.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.5 71.5	60.0 70.0	62.5 72.5
500 HZ %	3 6	2 4	2 4
700 HZ %	1 4	1 2	1 4
900 HZ %	0 1	0 2	0 1
MAX DIST %	3 10	2 7	2 15
FREQ OF MAX DIS	1530 1560	500 1160	500 1580
S/N RATIO DB			
1KHZ SIGNAL	41.0	40.0	40.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.6	1.5	1.5
65 DB INPUT	1.6	1.5	1.5
BATTERY VOLTAGE	1.57	1.57	1.57


GAIN AT 1 KHZ: 45½ DB
PART: AT-283
RELATIVE RESPONSE, DB
HEARING AID MAKE: Auditone
MODEL: A-24
SERIAL NO.: 23738
FREQUENCY IN HERTZ

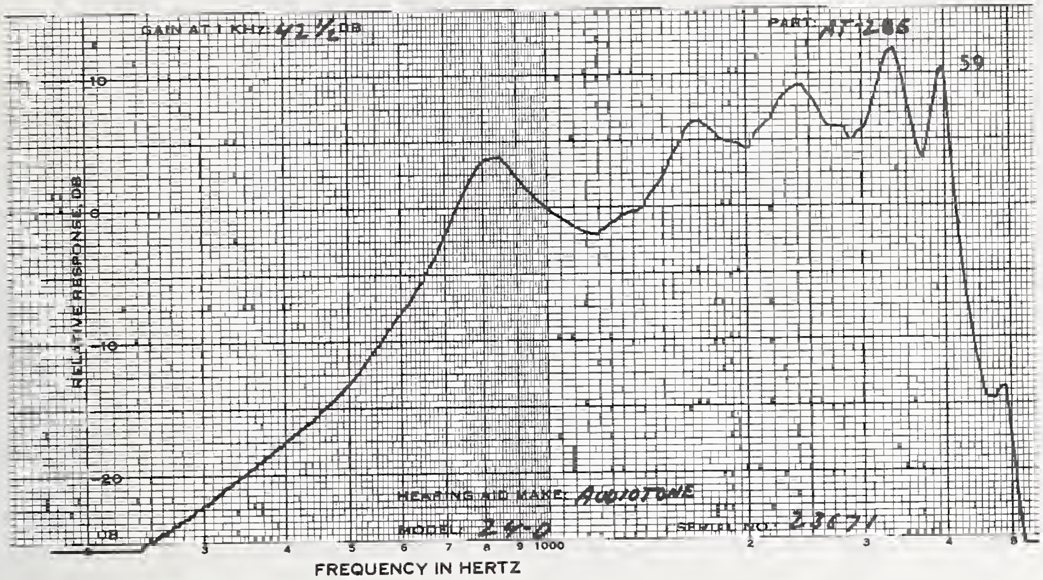

GAIN AT 1 KHZ: 45 DB
PART: AT-284
RELATIVE RESPONSE, DB
HEARING AID MAKE: Audiotone
MODEL: A-24
SERIAL NO.: 23747
FREQUENCY IN HERTZ

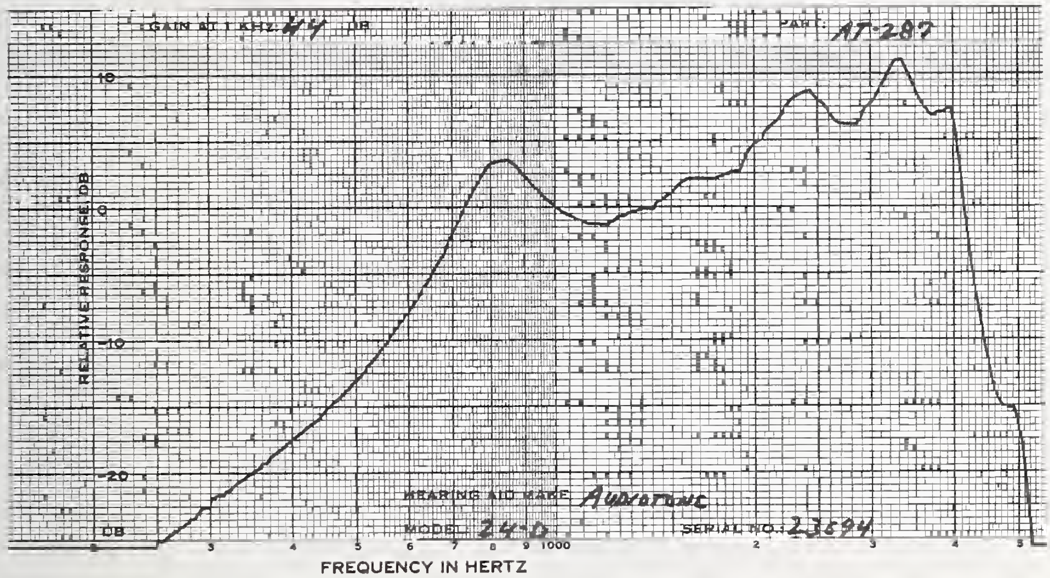

GAIN AT 1 KHZ: 44 DB
PART: AT-285
RELATIVE RESPONSE, DB
HEARING AID MAKE: Audiotone
MODEL: A-24
SERIAL NO.: 23782
FREQUENCY IN HERTZ

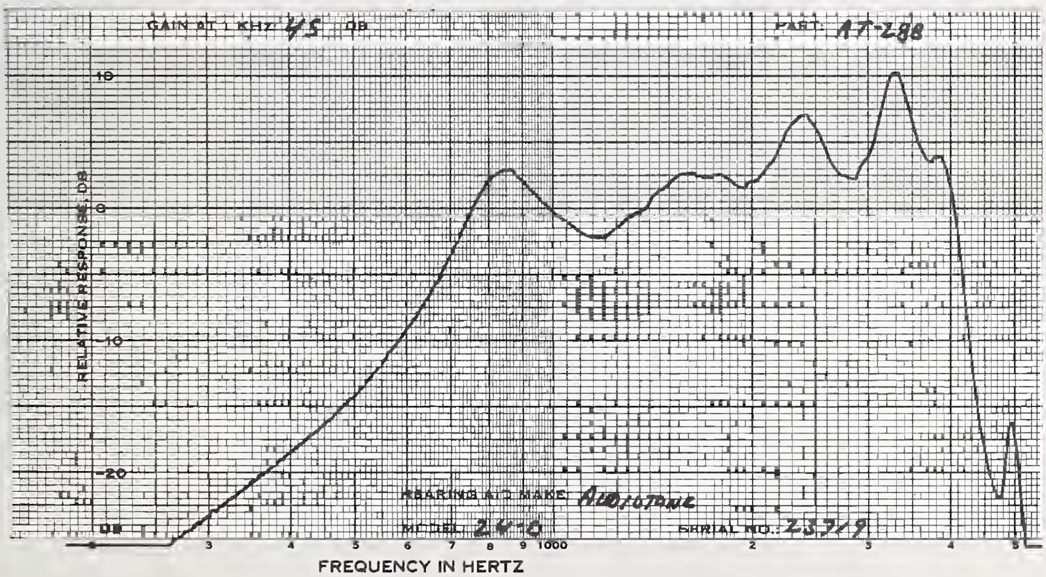
AUDIOTONE OE

MODEL:A24D TONE:R2 TUBING:25MM BATTERY:S41

CODE	AT-286	AT-287	AT-288
SERIAL #	23671	23694	23719
DATE		MAR 18, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	44.5	45.0	45.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	77.5	77.5
OUTPUT LEVEL DB	118.5	119.0	119.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	42.5	44.0	45.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	0 3	0 4	0 5
700 HZ %	1 2	1 2	1 3
900 HZ %	1 2	0 2	1 2
MAX DIST %	4 12	4 15	4 18
FREQ OF MAX DIS	1650 1660	1885 1880	1660 1660
S/N RATIO DB			
1KHZ SIGNAL	37.5	39.5	40.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.4	1.4	1.4
65 DB INPUT	1.4	1.4	1.4
BATTERY VOLTAGE	1.57	1.57	1.57

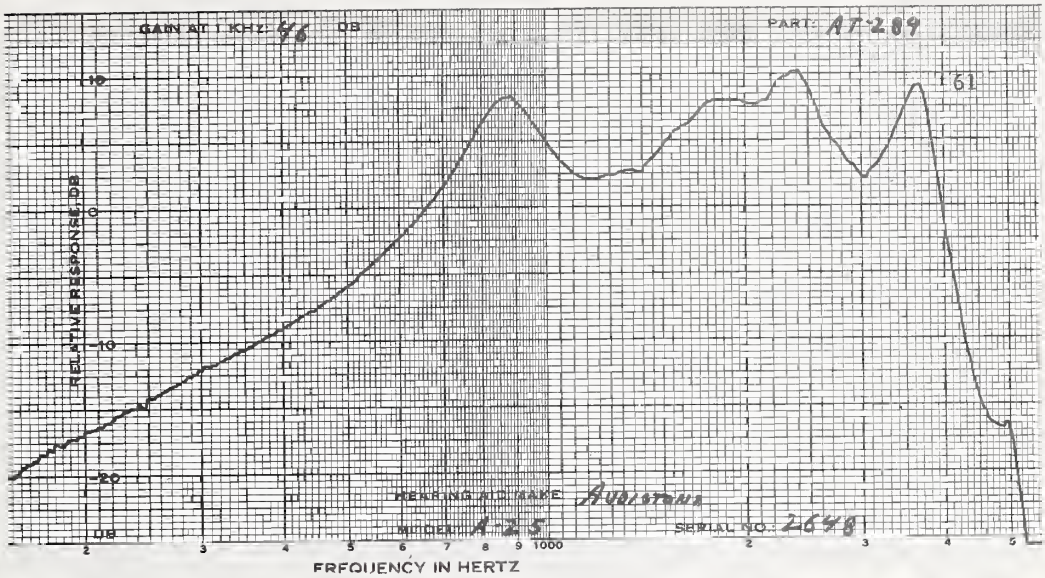

GAIN AT 1 KHZ: 42 1/2 DB
PART: AT-286
RELATIVE RESPONSE, DB
HEARING AID MAKE: AUDIOTONE
MODEL: 24-O
SERIAL NO.: 23671
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 44 DB
PART: AT-287
RELATIVE RESPONSE, DB
HEARING AID MAKE: AUDIOTONE
MODEL: 24-O
SERIAL NO.: 23694
FREQUENCY IN HERTZ

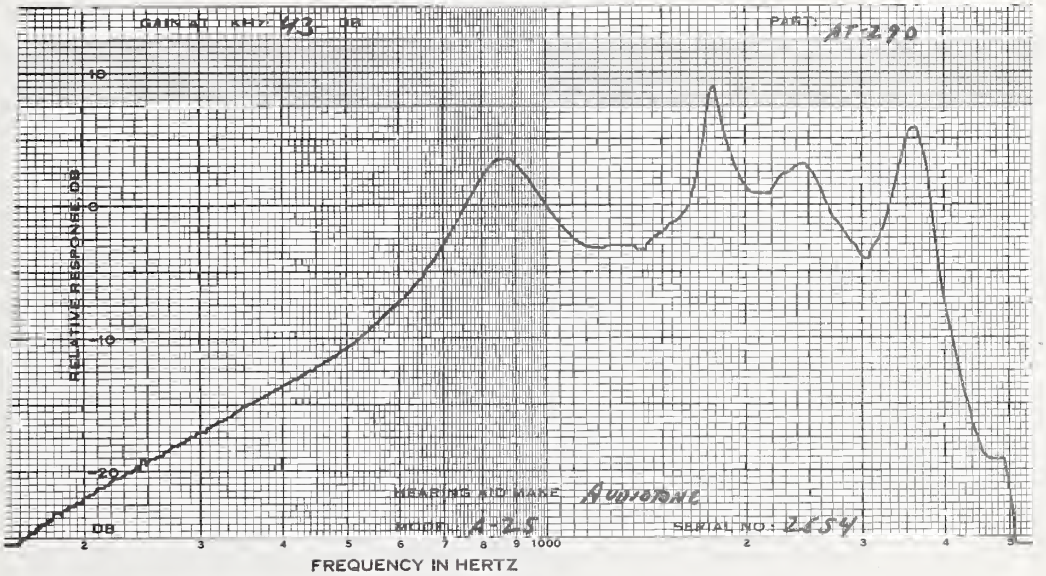

GAIN AT 1 KHZ: 45 DB
PART: AT-288
RELATIVE RESPONSE, DB
HEARING AID MAKE: AUDIOTONE
MODEL: 24-O
SERIAL NO.: 23719
FREQUENCY IN HERTZ

AUDIOTONE OE
MODEL:A25 TONE:NONE TUBING:25MM BATTERY:S76

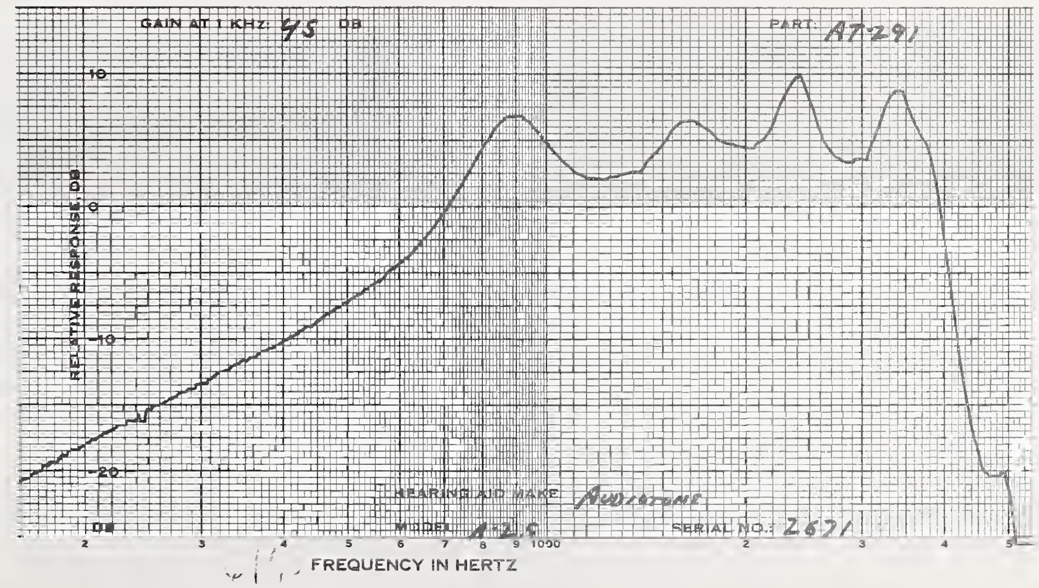
CODE	AT-289	AT-290	AT-291
SERIAL #	2648	2654	2671
DATE		MAR 18, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	46.0	43.0	45.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	78.5	79.0	79.5
OUTPUT LEVEL DB	120.0	119.0	120.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	46.0(FULL)	43.0(FULL)	45.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	62.5 72.5	60.0 70.0	63.5 73.5
500 HZ %	2 7	3 7	3 9
700 HZ %	1 4	1 3	1 5
900 HZ %	1 3	2 4	1 1
MAX DIST %	2 15	3 9	3 18
FREQ OF MAX DIS	500 1710	1750 1750	500 1634
S/N RATIO DB			
1KHZ SIGNAL	41.5	40.0	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.6	1.5	1.6
65 DB INPUT	1.6	1.5	1.6
BATTERY VOLTAGE	1.57	1.57	1.57



GAIN AT 1 KHZ: 46 DB
PART: AT-289
RELATIVE RESPONSE, DB
HEARING AID MAKE Audiotone
MODEL A-2-5
SERIAL NO.: 2648
FREQUENCY IN HERTZ



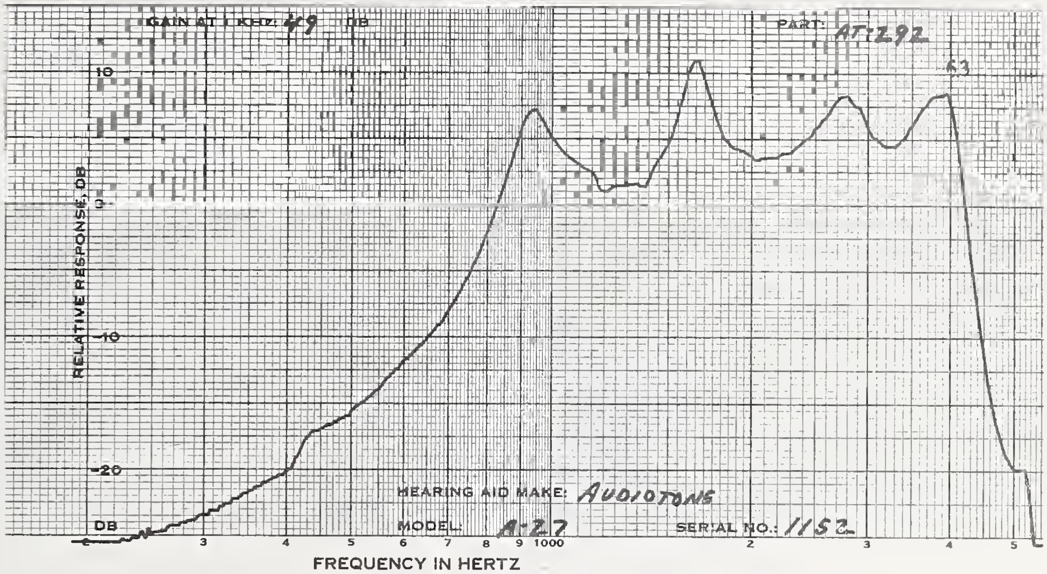
GAIN AT 1 KHZ: 43 DB
PART: AT-290
RELATIVE RESPONSE, DB
HEARING AID MAKE Audiotone
MODEL A-2-5
SERIAL NO.: 2654
FREQUENCY IN HERTZ

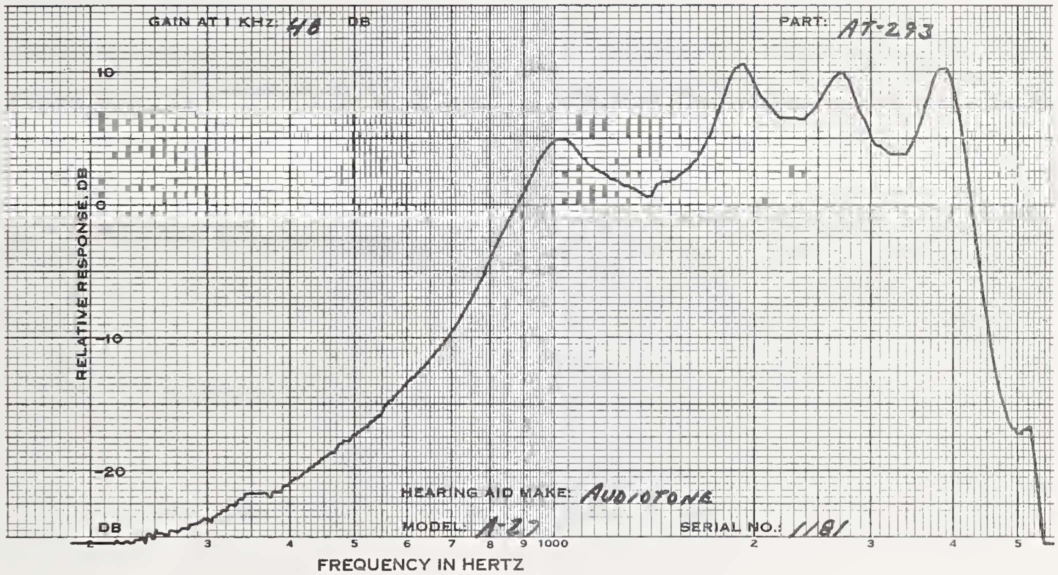


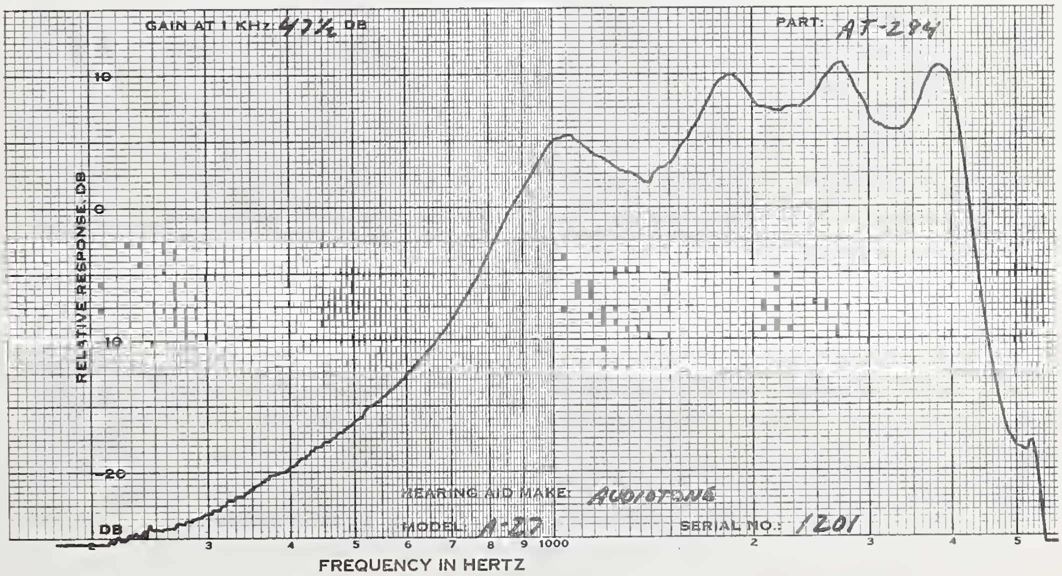
GAIN AT 1 KHZ: 45 DB
PART: AT-291
RELATIVE RESPONSE, DB
HEARING AID MAKE Audiotone
MODEL A-2-5
SERIAL NO.: 2671
FREQUENCY IN HERTZ

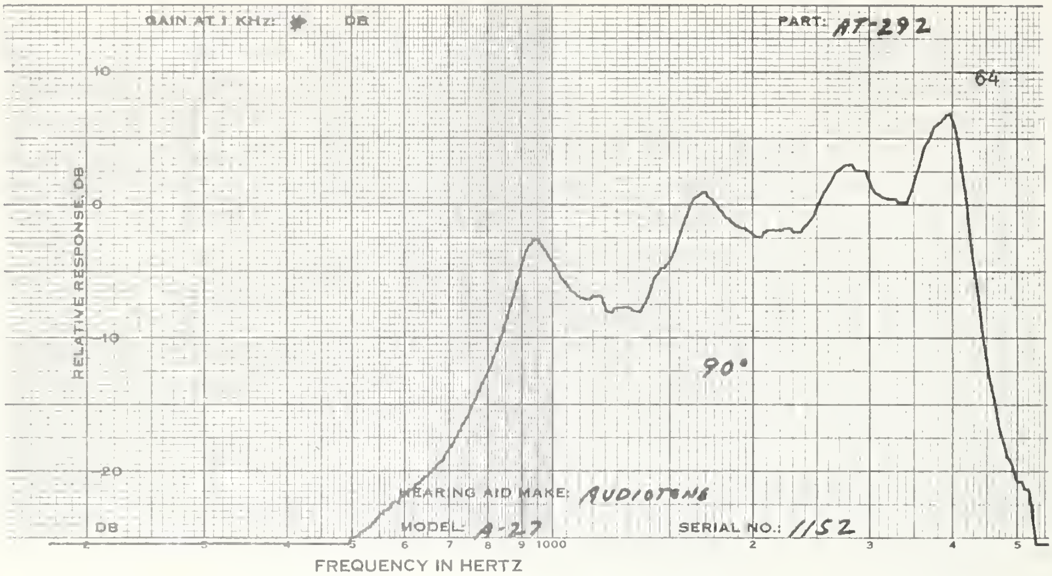
MODEL:A27 TONE:NONE TUBING:25MM BATTERY:S76

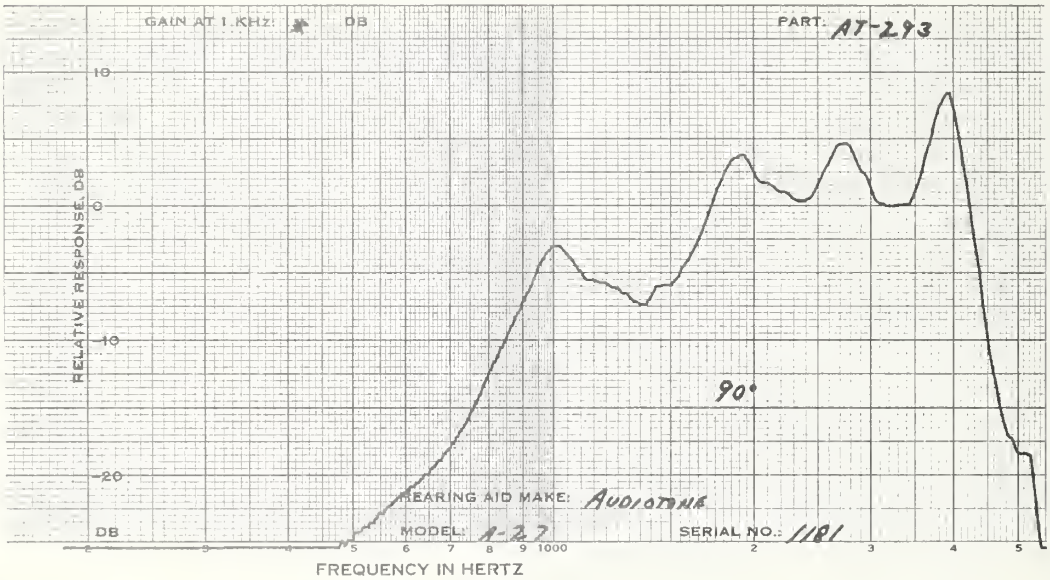
CODE	AT-292	AT-293	AT-294
SERIAL #	1152	1181	1201
DATE		APR 11, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	49.0	48.0	47.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	86.0	84.0	84.0
OUTPUT LEVEL DB	127.0	126.5	126.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	49.0(FULL)	48.0(FULL)	47.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	67.0 77.0	68.0 78.0	68.0 78.0
500 HZ %	9 15	9 9	8 11
700 HZ %	3 7	2 6	3 5
900 HZ %	1 3	1 1	2 3
MAX DIST %	9 16	9 12	8 12
FREQ OF MAX DIS	500 556	500 630	500 605
S/N RATIO DB			
1KHZ SIGNAL	40.0	39.0	41.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.4	1.0	1.3
65 DB INPUT	1.4	1.0	1.3
BATTERY VOLTAGE	1.57	1.57	1.57

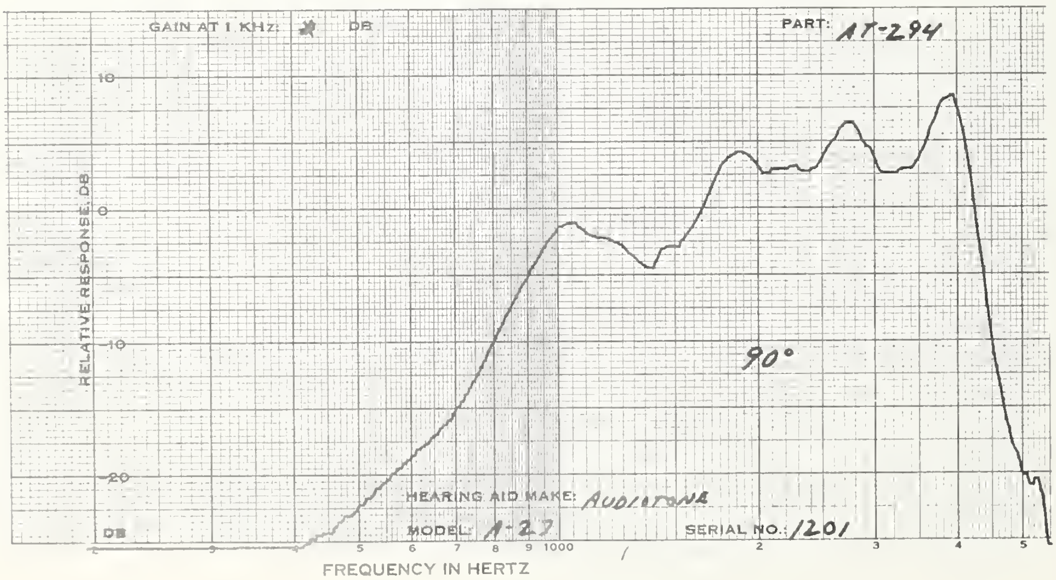

GAIN AT 1 KHz: 49 DB
PART: AT-292
63
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: AUDIOTONE
MODEL: A-27
SERIAL NO.: 1152
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 48 DB
PART: AT-293
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: AUDIOTONE
MODEL: A-27
SERIAL NO.: 1181
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 47½ DB
PART: AT-294
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: AUDIOTONE
MODEL: A-27
SERIAL NO.: 1201
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

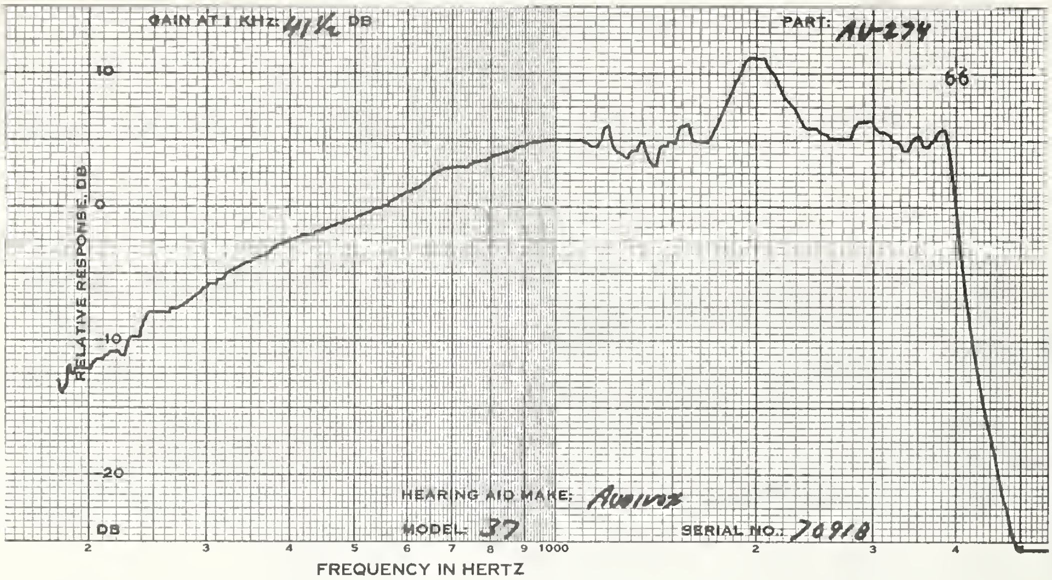

GAIN AT 1 KHz: * DB
PART: AT-292
64
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: AUDIOTONE
MODEL: A-27
SERIAL NO.: 1152
FREQUENCY IN HERTZ

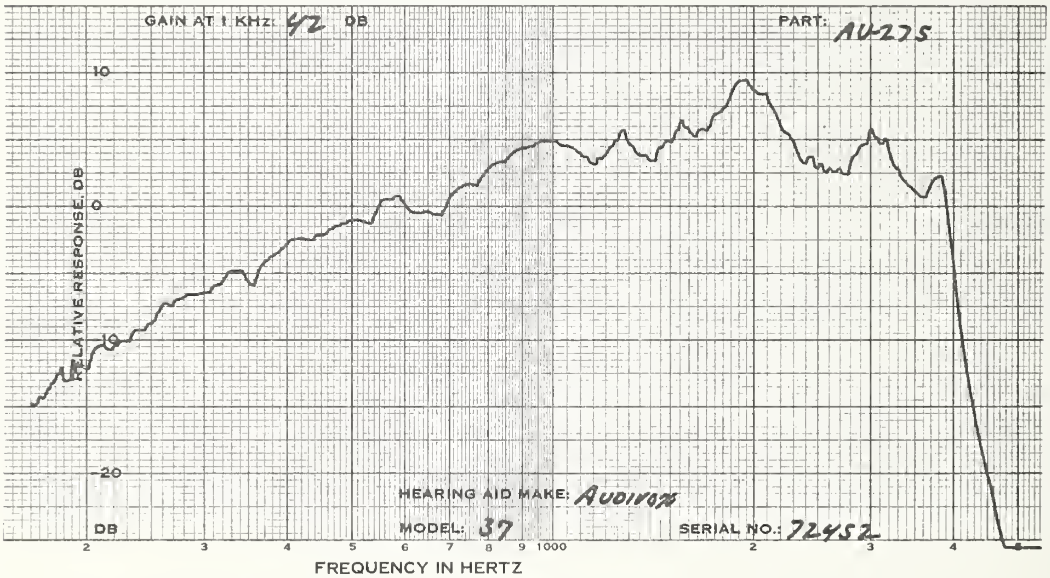

GAIN AT 1 KHz: * DB
PART: AT-293
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: AUDIOTONE
MODEL: A-27
SERIAL NO.: 1181
FREQUENCY IN HERTZ

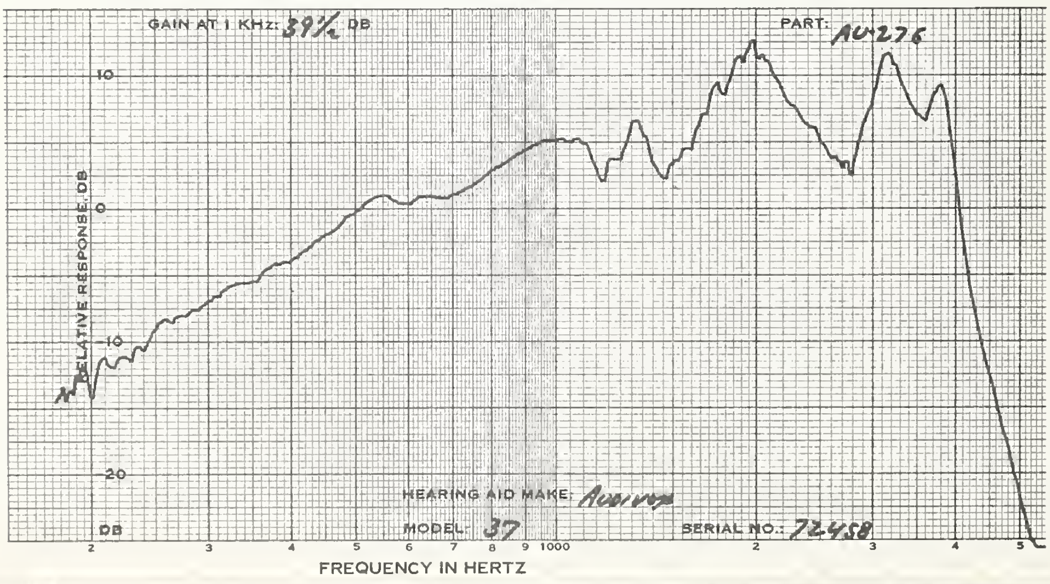

GAIN AT 1 KHz: * DB
PART: AT-294
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: AUDIOTONE
MODEL: A-27
SERIAL NO.: 1201
FREQUENCY IN HERTZ

MODEL:37 TONE:NONE TUBING:35MM BATTERY:675

CODE	AU-274	AU-275	AU-276
SERIAL #	70918	72452	72458
DATE		FEB 28, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	41.5	42.0	39.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.5	76.0	76.0
OUTPUT LEVEL DB	113.5	113.5	113.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	41.5(FULL)	42.0(FULL)	39.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	62.0 72.0
500 HZ %	2 4	1 6	1 3
700 HZ %	1 3	1 3	0 1
900 HZ %	1 3	0 3	1 2
MAX DIST %	2 5	1 7	2 5
FREQ OF MAX DIS	500 1870	700 1510	1570 1660
S/N RATIO DB			
1KHZ SIGNAL	41.5	43.0	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.2	1.2	1.0
65 DB INPUT	1.2	1.2	1.0
BATTERY VOLTAGE	1.41	1.41	1.41


GAIN AT 1 KHz: 41½ DB
PART: AU-274
66
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 37
SERIAL NO.: 70918
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

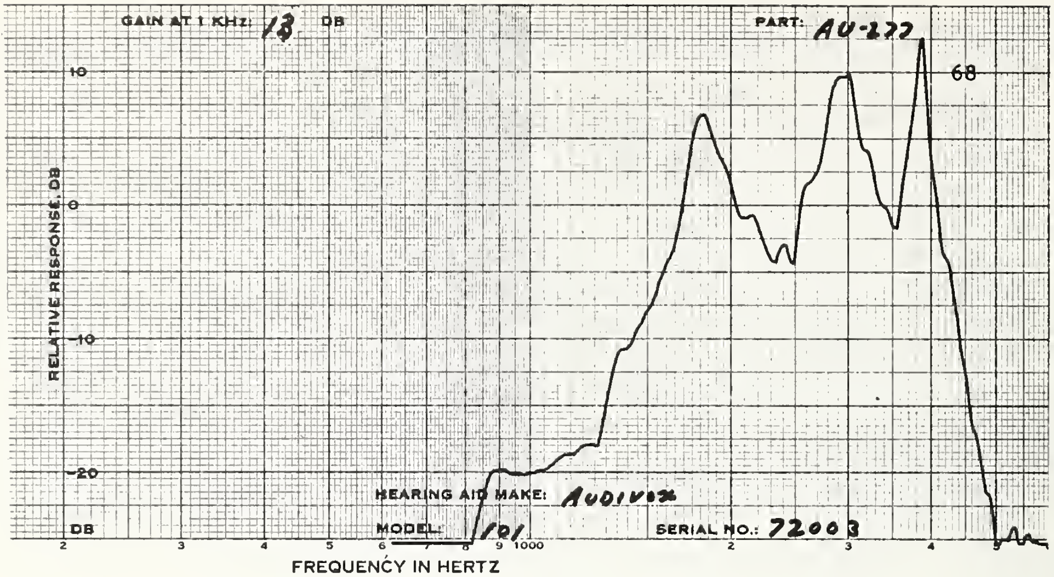

GAIN AT 1 KHz: 42 DB
PART: AU-275
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 37
SERIAL NO.: 72452
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

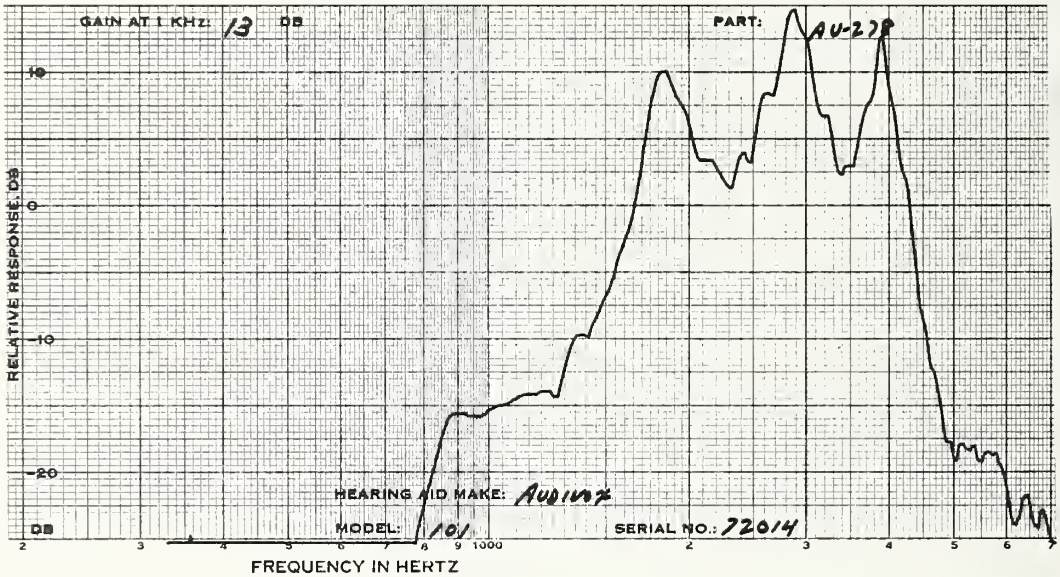

GAIN AT 1 KHz: 39½ DB
PART: AU-276
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 37
SERIAL NO.: 72458
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

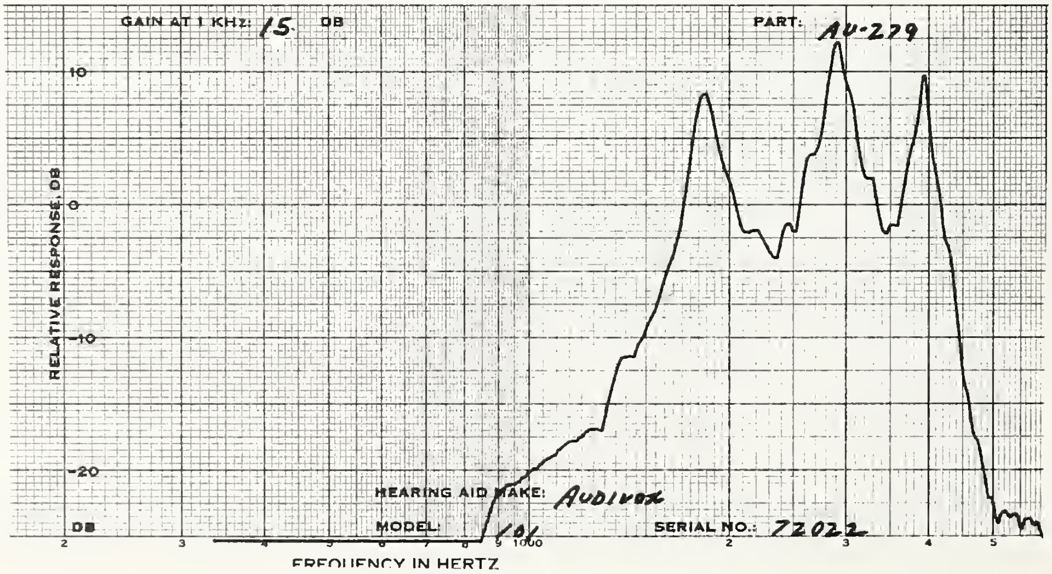
MODEL:101 TONE:NONE TUBING:25MM BATTERY:S41

CODE	AU-277	AU-278	AU-279
SERIAL #	72003	72014	72022
DATE		MAY 20, 1975	
MEASUREMENTS WITH FULL VOL CONTROL *			
1KHZ GAIN DB	18.0	18.0	20.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	89.0	83.5	82.5
OUTPUT LEVEL DB	119.0	118.0	118.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	13.0	13.0	15.0
S/N RATIO DB			
2KHZ SIGNAL	42.0	41.5	42.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.2	1.2	1.2
65 DB INPUT	1.2	1.2	1.2
BATTERY VOLTAGE	1.56	1.56	1.55

*Maximum setting possible without feedback.

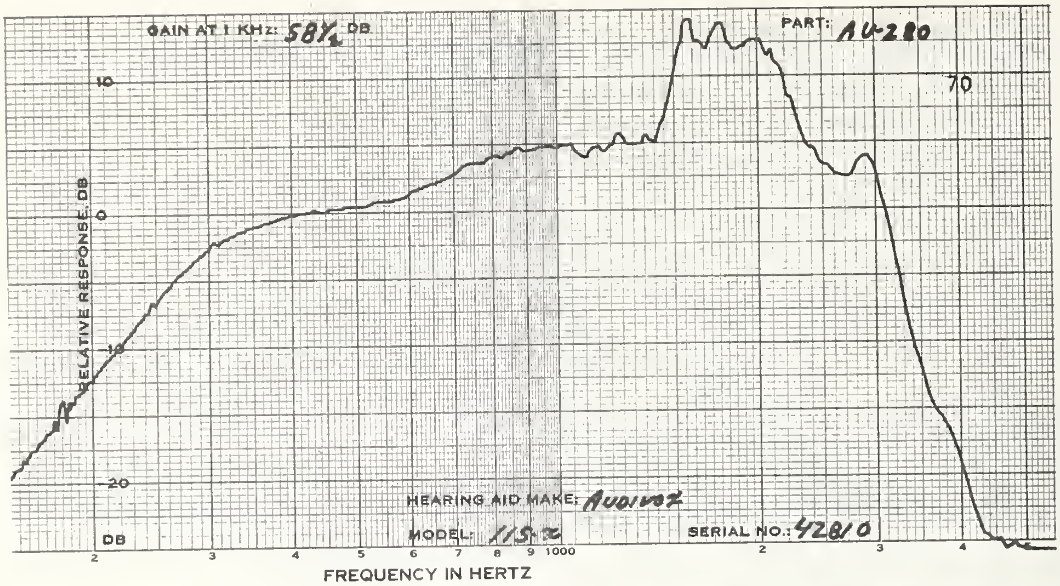

GAIN AT 1 KHz: 13 DB
PART: AU-277
68
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 101
SERIAL NO.: 72003
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

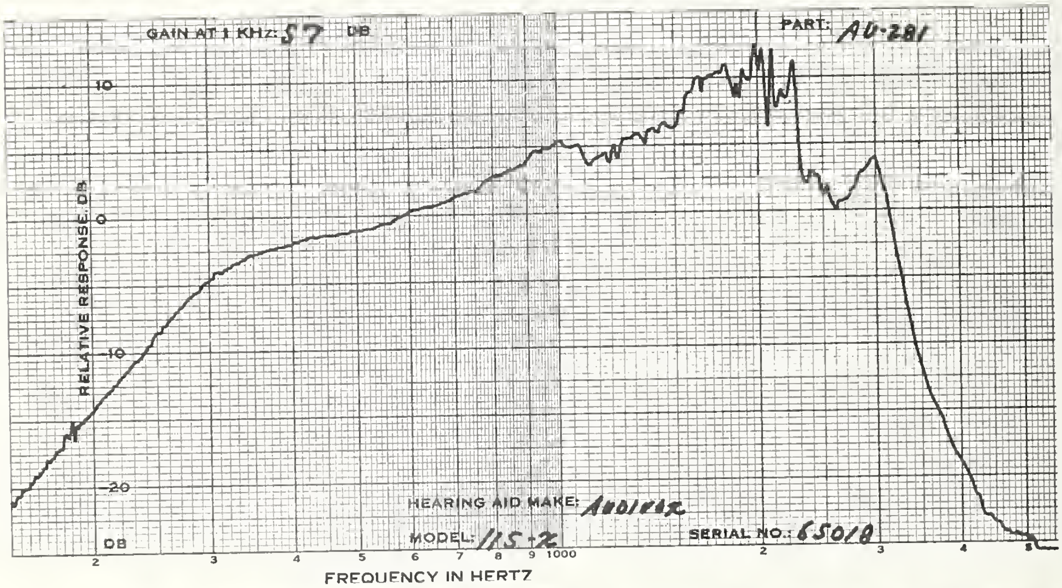

GAIN AT 1 KHz: 13 DB
PART: AU-278
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 101
SERIAL NO.: 72014
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

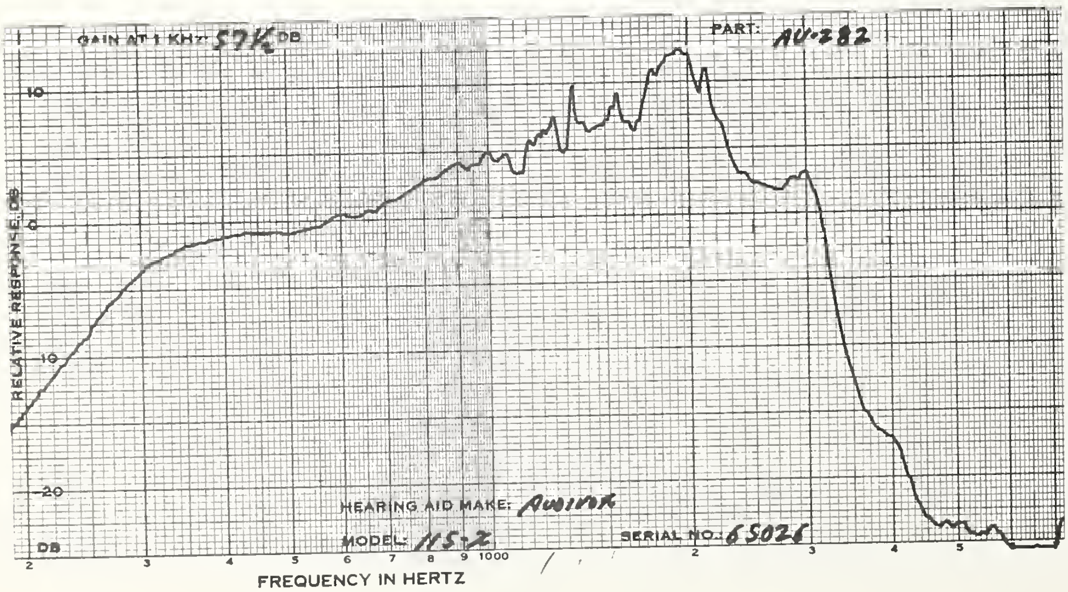

GAIN AT 1 KHz: 15 DB
PART: AU-279
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 101
SERIAL NO.: 72022
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

AUDIVOX OE
MODEL:115X TONE:NONE RECEIVER:F2 BATTERY:S76

CODE	AU-260	AU-281	AU-282
SERIAL #	42810	65018	65026
DATE		FEB 27, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	62.5	63.5	63.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	71.5	71.5
OUTPUT LEVEL DB	131.0	127.5	130.0
MEASUREMENTS WITH RECUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	58.5	57.0	57.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 5	5 5	3 7
700 HZ %	1 4	3 5	3 9
900 HZ %	3 2	3 4	4 6
MAX DIST %	3 5	10 5	6 9
FREQ OF MAX DIS	900 500	1450 1380	1310 700
S/N RATIO DB			
1KHZ SIGNAL	46.5	47.5	47.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	1.0	.8
65 DB INPUT	4.9	5.1	4.2
BATTERY VOLTAGE	1.56	1.55	1.55


GAIN AT 1 KHz: 58½ DB
PART: AU-280
70
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 115-Z
SERIAL NO.: 42810
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 57 DB
PART: AU-281
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 115-Z
SERIAL NO.: 65018
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

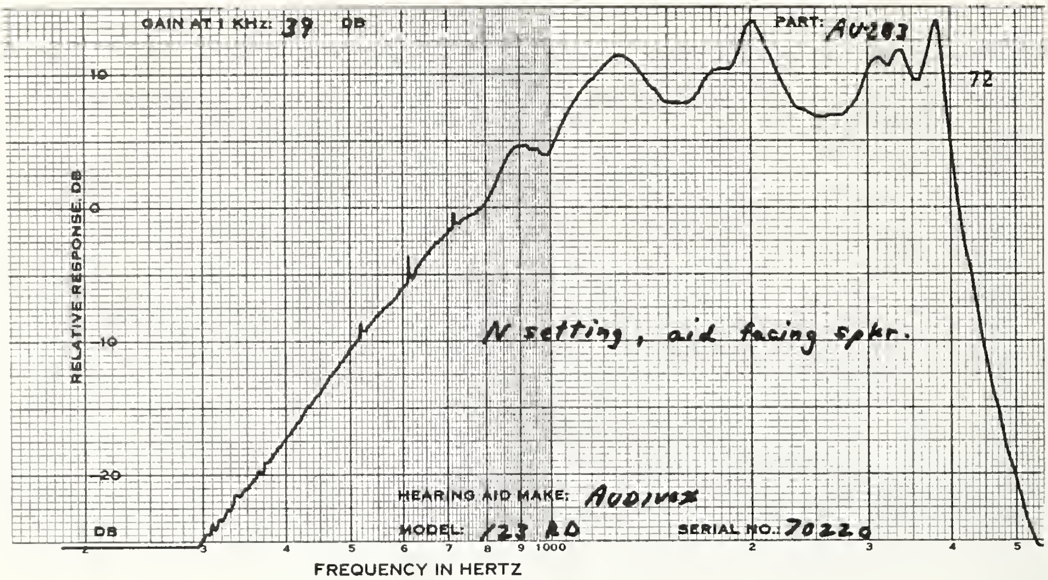

GAIN AT 1 KHz: 57½ DB
PART: AU-282
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Audivox
MODEL: 115-Z
SERIAL NO.: 65026
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

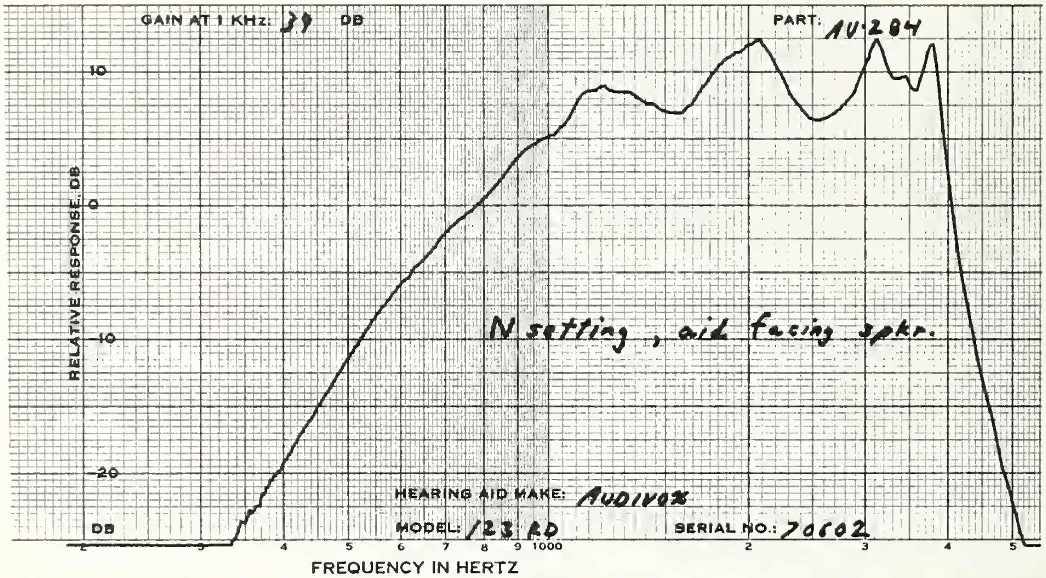
AUDIVOX DIR EG

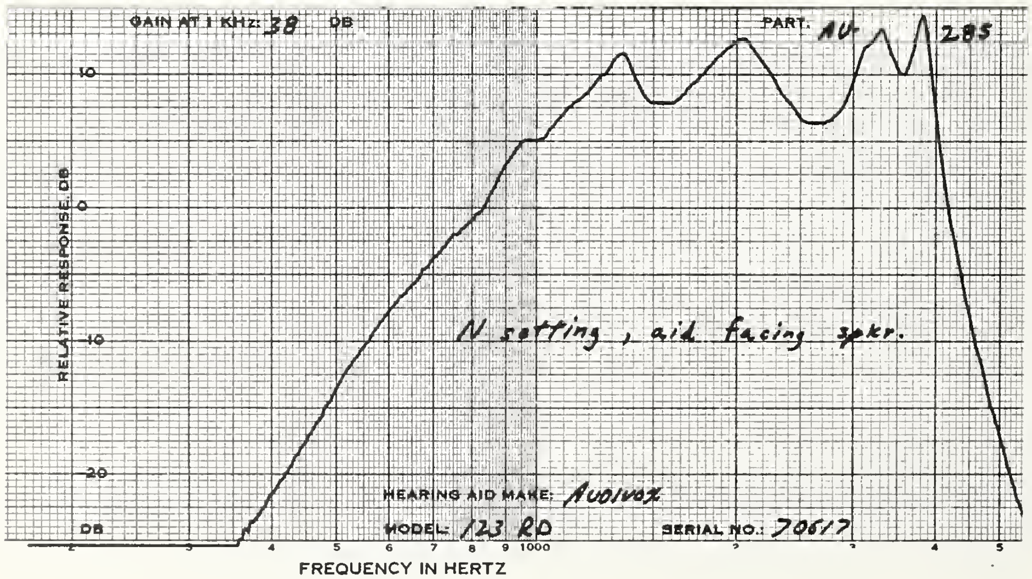
MODEL:123RD TONE:N TUBING:35MM BATTERY:S76

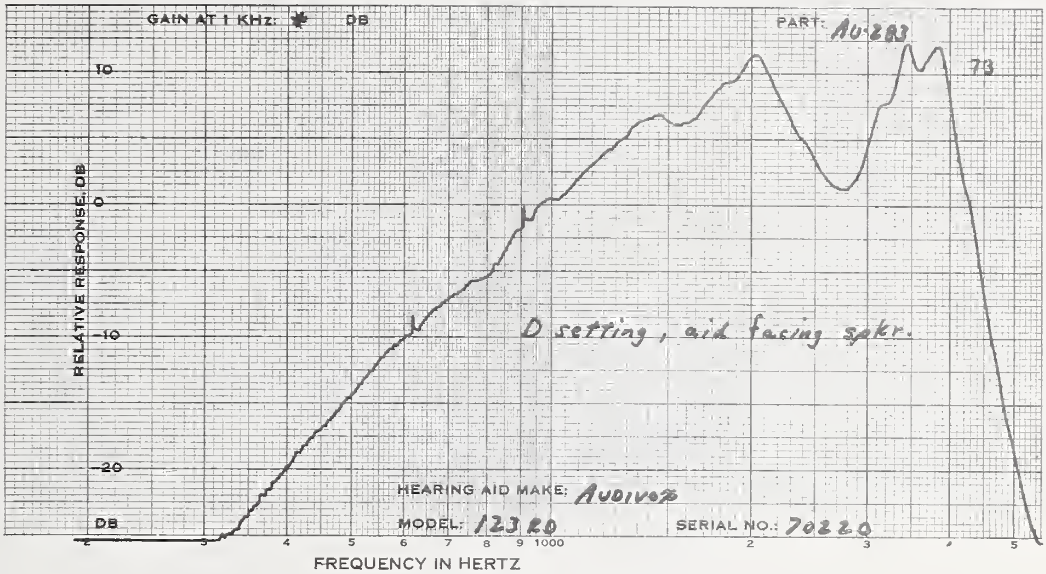
CODE	AU-283	AU-284	AU-285
SERIAL #	70220	70602	70617
DATE		APR 23, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	39.0	39.0	40.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	78.0	73.0
OUTPUT LEVEL DB	112.5	113.0	112.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	39.0(FULL)	39.0(FULL)	38.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	61.0 71.0	60.0 70.0
500 HZ %	4 4	5 5	6 6
700 HZ %	2 2	2 2	2 3
900 HZ %	2 0	2 2	2 2
MAX DIST %	4 4	5 5	6 6
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	43.5	46.0	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.1	1.0
65 DB INPUT	1.0	1.1	1.0
BATTERY VOLTAGE	1.57	1.57	1.57

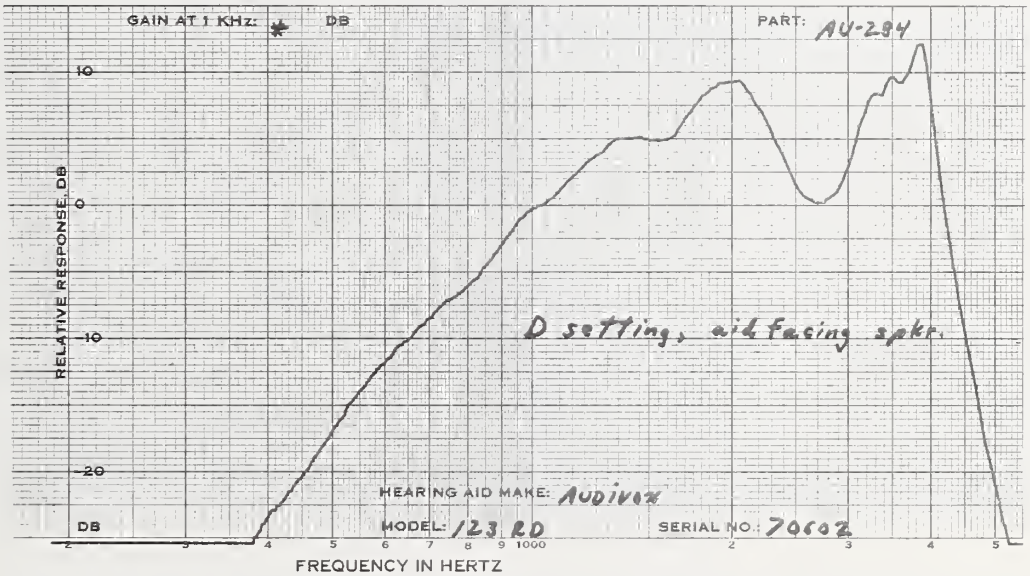
THIS HEARING AID CAN BE SWITCHED TO A DIRECTIONAL OR A NON-DIRECTIONAL PATTERN. THE BASIC DATA WERE OBTAINED FOR THE NON-DIRECTIONAL PATTERN. REPONSE CURVES WERE ALSO RUN AT 0 AND 90 DEGREES FOR THE DIRECTIONAL PATTERN.

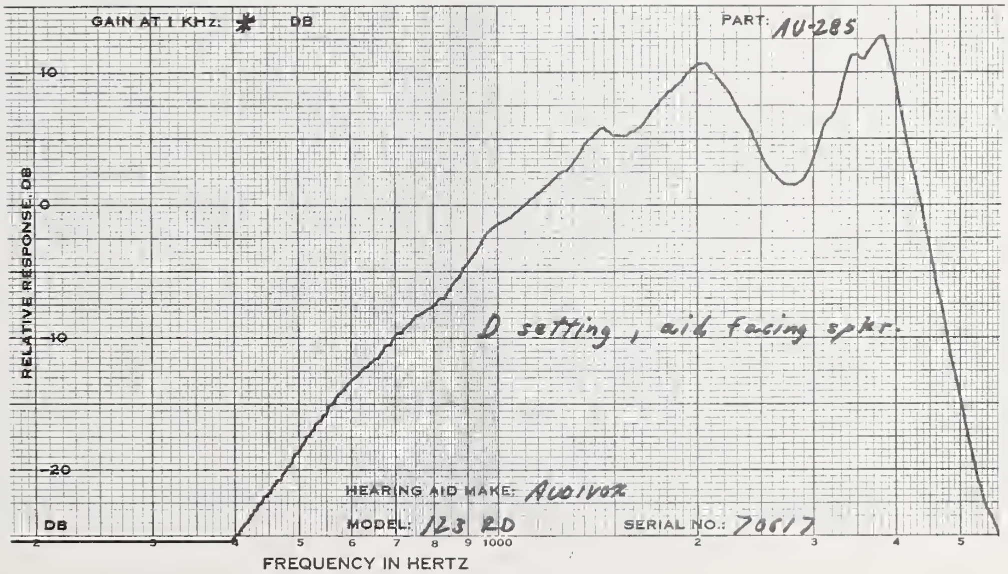

GAIN AT 1 KHz: 39 DB
PART: AV283
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
N setting, aid facing spkr.
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70220
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

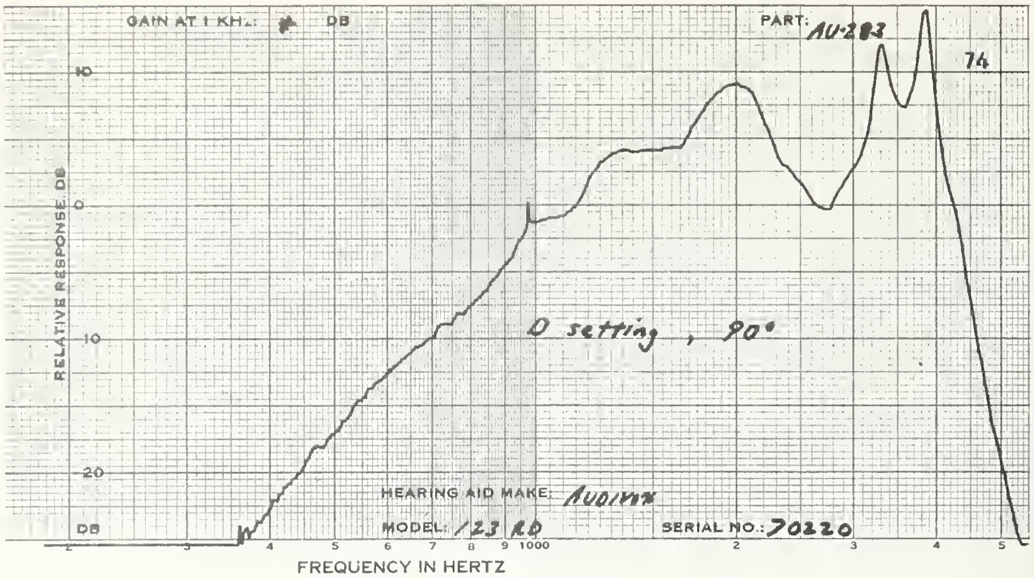

GAIN AT 1 KHz: 39 DB
PART: AV284
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
N setting, aid facing spkr.
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70602
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

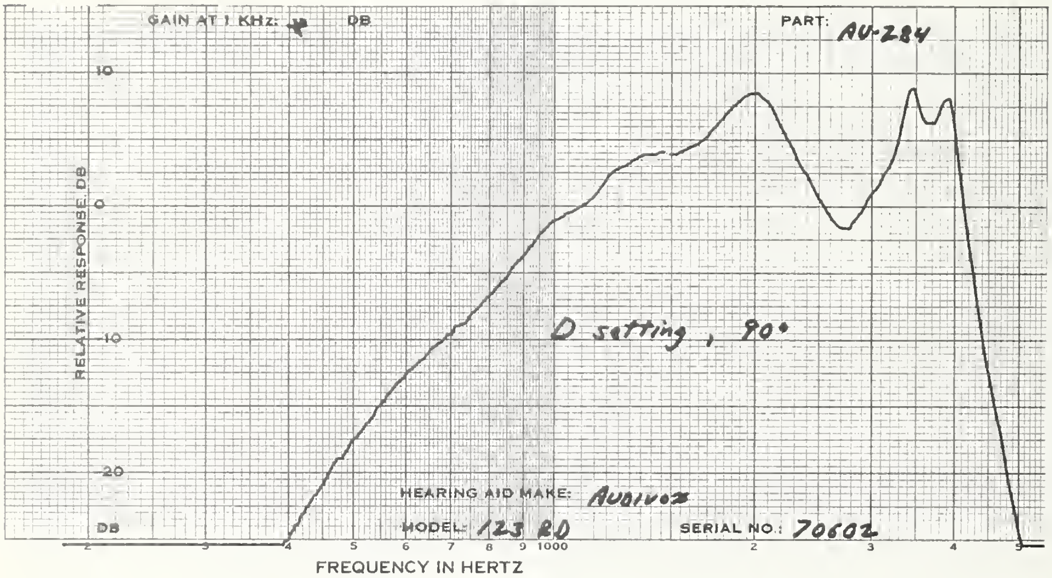

GAIN AT 1 KHz: 38 DB
PART: AV 285
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
N setting, aid facing spkr.
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70617
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

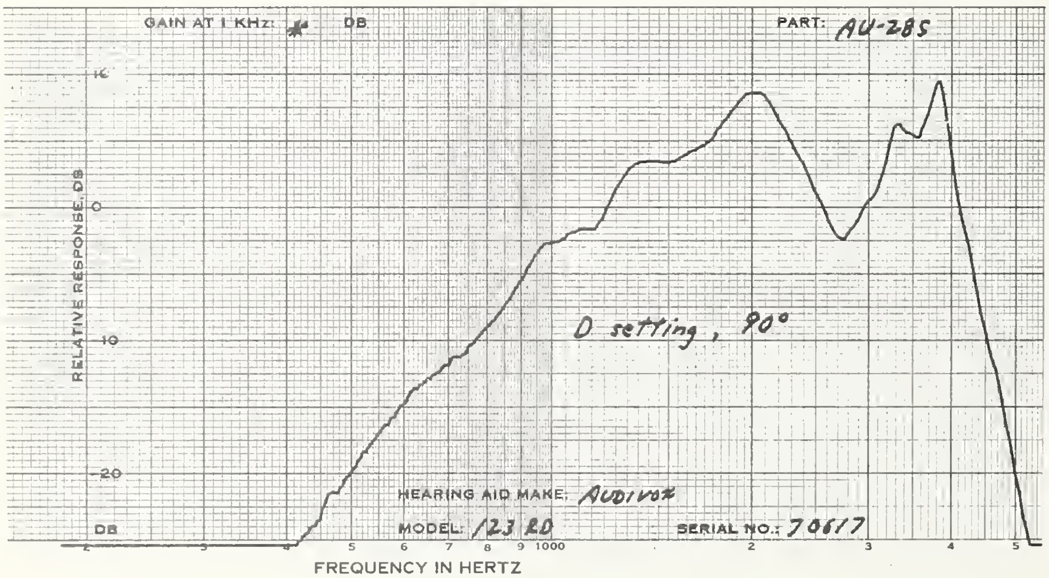

GAIN AT 1 KHz: * DB
PART: AU-283
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
D setting, aid facing spkr.
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70220
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: AU-284
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
D setting, aid facing spkr.
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70602
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: AU-285
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
D setting, aid facing spkr.
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70617
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

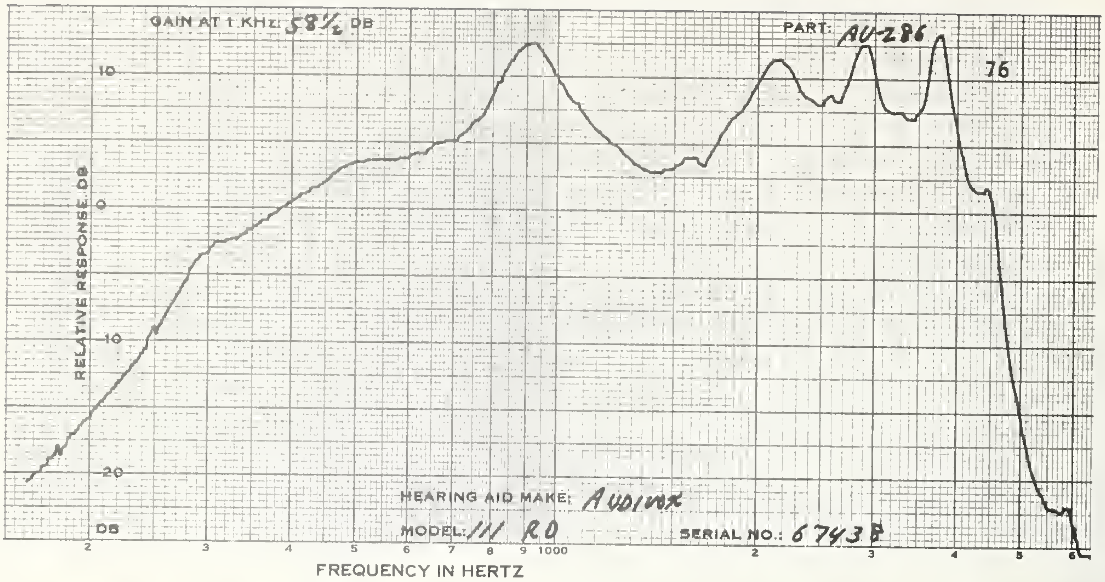

GAIN AT 1 KHz: * DB
PART: AU-283
74
RELATIVE RESPONSE DB
10
0
-10
-20
DB
D setting, 90°
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70220
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: AU-284
RELATIVE RESPONSE DB
10
0
-10
-20
DB
D setting, 90°
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70602
FREQUENCY IN HERTZ

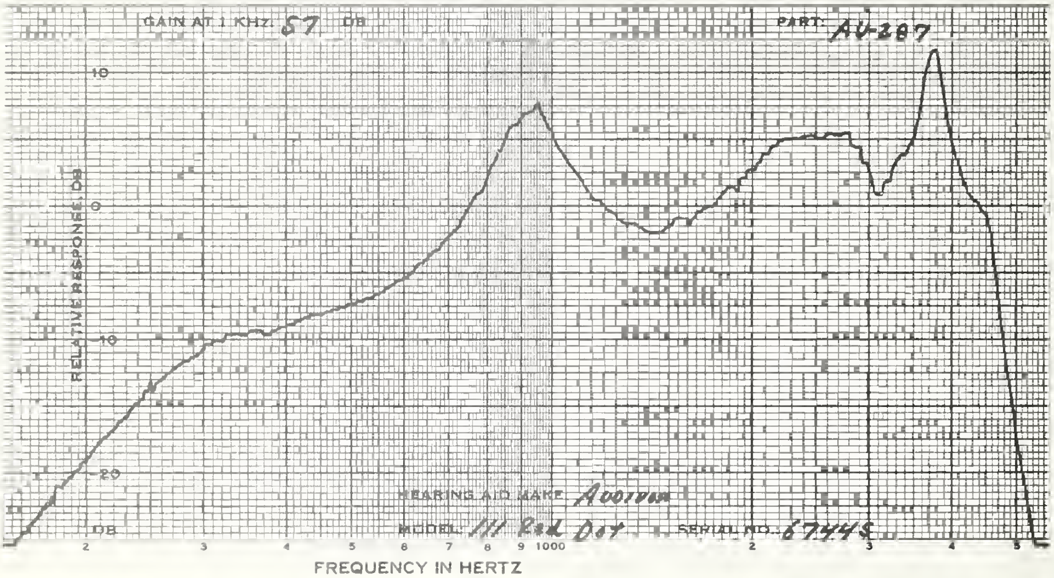

GAIN AT 1 KHz: * DB
PART: AU-285
RELATIVE RESPONSE DB
10
0
-10
-20
DB
D setting, 90°
HEARING AID MAKE: Audivox
MODEL: 123 RD
SERIAL NO.: 70617
FREQUENCY IN HERTZ

AUDIVOX EG
MODEL:111 RD TONE:NONE TUBING:35MM BATTERY:S76

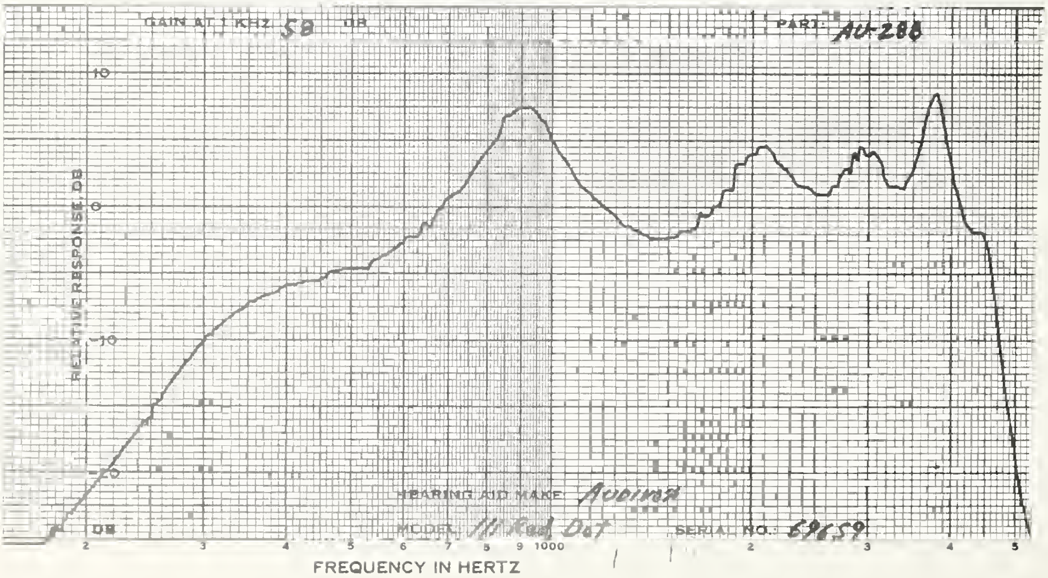
CODE	AU-286		AU-287		AU-288	
SERIAL #	67438		67445		69659	
DATE			MAR 13, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	60.0		63.0		61.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	86.0		75.0		76.0	
OUTPUT LEVEL DB	128.0		127.0		128.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	58.5		57.0		58.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	6	5	5	5	7	5
700 HZ %	4	4	1	3	1	1
900 HZ %	2	2	1	1	1	2
MAX DIST %	6	6	5	5	7	5
FREQ OF MAX DIS	500	1215	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	43.0		45.5		43.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	.9		.8		.9	
65 DB INPUT	3.0		2.0		2.2	
BATTERY VOLTAGE	1.57		1.57		1.57	



GAIN AT 1 KHz: 58½ DB
PART: AU-286
76
RELATIVE RESPONSE, DB
HEARING AID MAKE: Audivox
MODEL: 111 RD
SERIAL NO.: 67438
FREQUENCY IN HERTZ



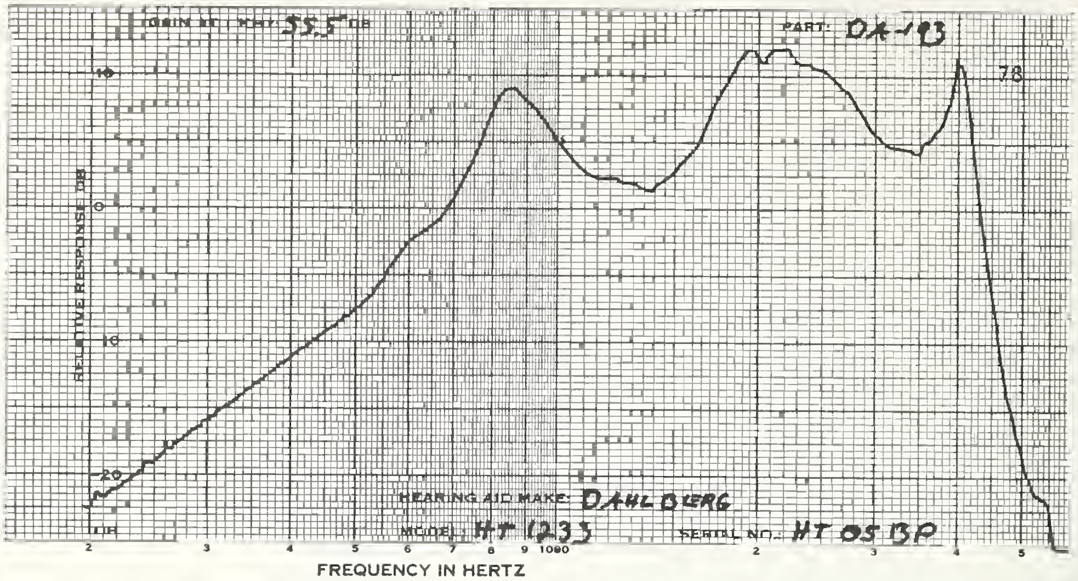
GAIN AT 1 KHz: 57 DB
PART: AU-287
RELATIVE RESPONSE, DB
HEARING AID MAKE: Audivox
MODEL: 111 Red Dot
SERIAL NO.: 67445
FREQUENCY IN HERTZ

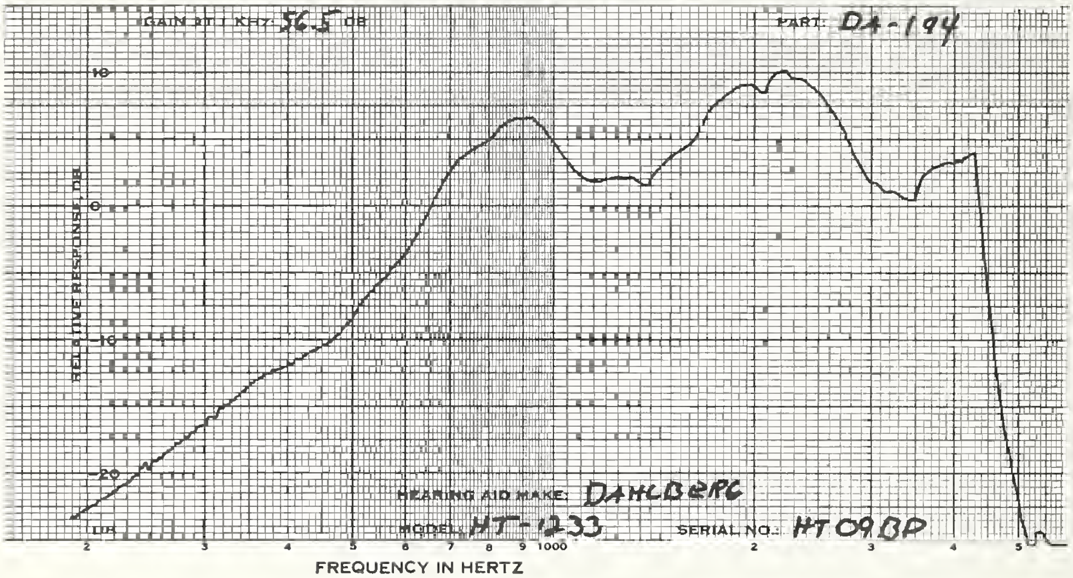


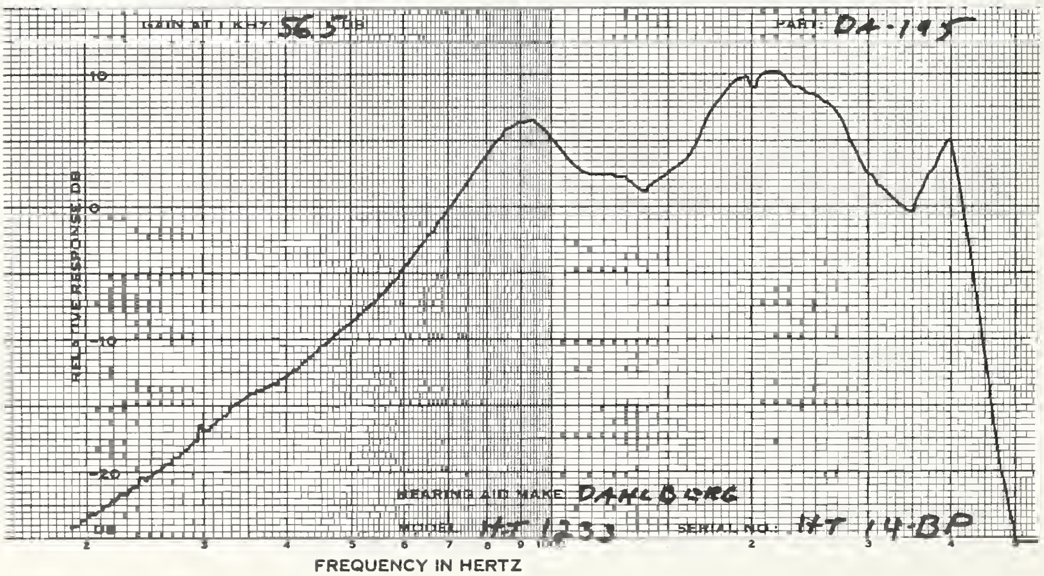
GAIN AT 1 KHz: 58 DB
PART: AU-288
RELATIVE RESPONSE, DB
HEARING AID MAKE: Audivox
MODEL: 111 Red Dot
SERIAL NO.: 69659
FREQUENCY IN HERTZ

DAHLBERG OE
MODEL:HT1233 L:FULL COMP:OFF TUBING:25MM BATTERY:S76

CODE	DA-193	DA-194	DA-195
SERIAL #	HT05BP	HT09BP	HT14BP
DATE		MAR 19, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	66.0	63.0	64.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	72.5	75.0	73.0
OUTPUT LEVEL DB	128.0	128.0	127.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	55.5	56.5	56.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 7	4 6	4 5
700 HZ %	4 4	5 5	4 4
900 HZ %	2 6	2 6	1 5
MAX DIST %	4 9	5 7	4 7
FREQ OF MAX DIS	700 960	700 830	700 970
S/N RATIO DB			
1KHZ SIGNAL	43.0	41.5	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.4	3.3	3.3
65 DB INPUT	4.2	3.3	3.6
BATTERY VOLTAGE	1.54	1.54	1.54


GAIN AT 1 KHZ: 55.5 DB
PART: DA-193
78
10
0
10
20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: HT 1233
SERIAL NO.: HT 05 BP
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

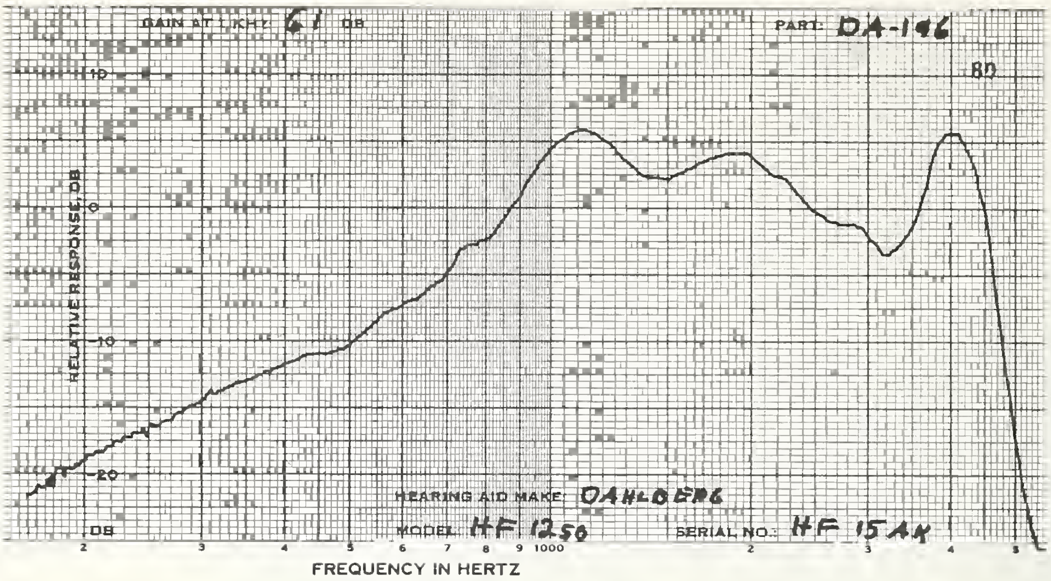

GAIN AT 1 KHZ: 56.5 DB
PART: DA-194
10
0
10
20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: HT-1233
SERIAL NO.: HT 09 BP
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

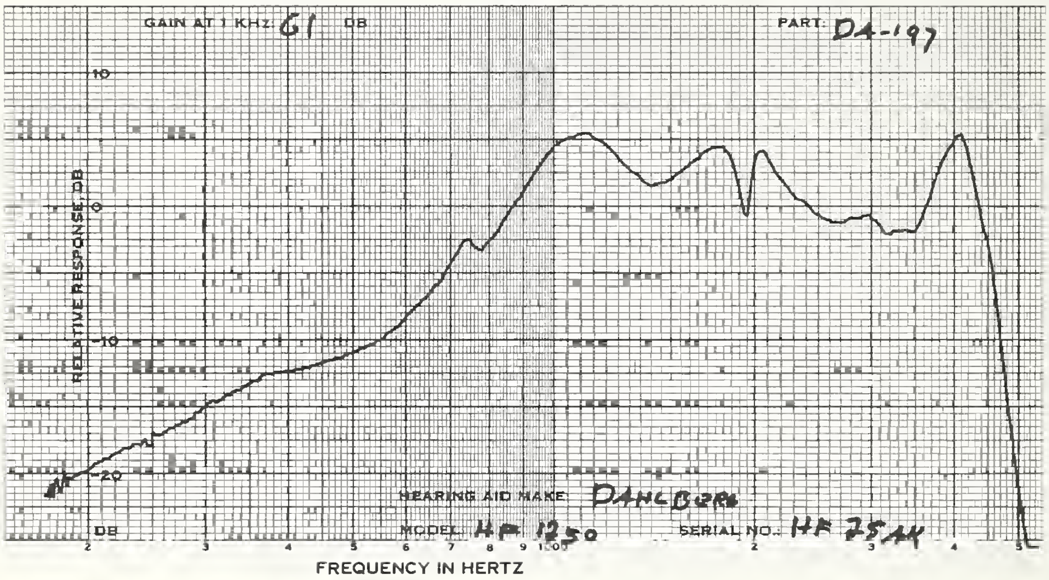

GAIN AT 1 KHZ: 56.5 DB
PART: DA-195
10
0
10
20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: HT 1233
SERIAL NO.: HT 14 BP
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

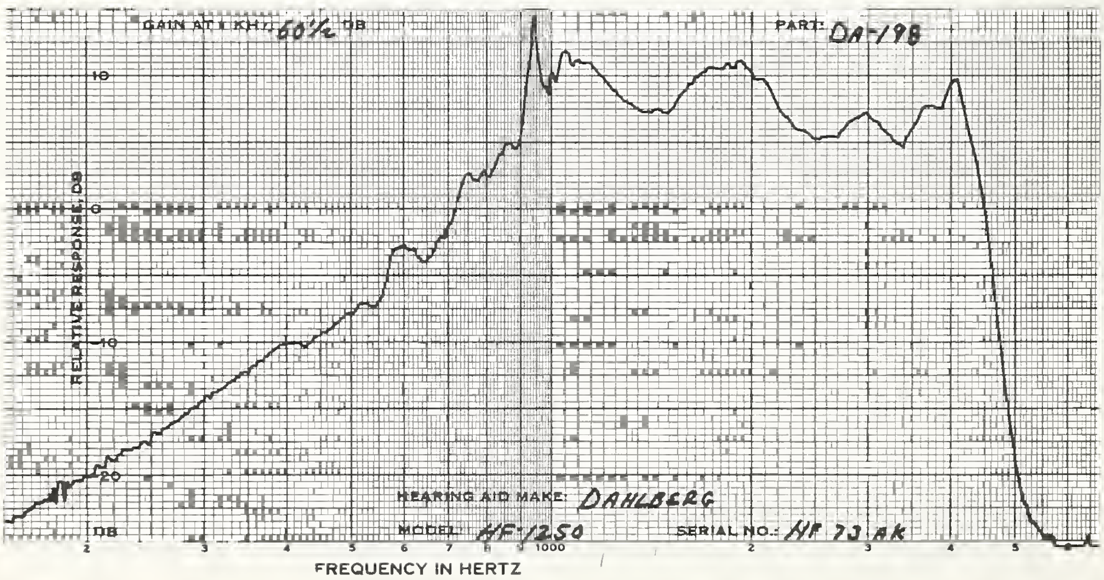
DAHLBERG EG

MODEL:HF1250 L:FULL C:OFF TUBING:35MM BATTERY:S76

CODE	DA-196	DA-197	DA-198
SERIAL #	HF15AK	HF25AK	HF73AK
DATE		MAR 21, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	67.0	66.0	71.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	75.0	75.0
OUTPUT LEVEL DB	129.0	129.0	129.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	61.0	61.0	60.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	10 15	9 20	6 12
700 HZ %	7 9	6 11	5 8
900 HZ %	4 7	4 9	4 5
MAX DIST %	10 15	13 30	7 13
FREQ OF MAX DIS	500 500	1930 1890	570 570
S/N RATIO DB			
1KHZ SIGNAL	44.0	45.0	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.2	3.1	3.3
65 DB INPUT	4.3	4.1	4.5
BATTERY VOLTAGE	1.55	1.55	1.54

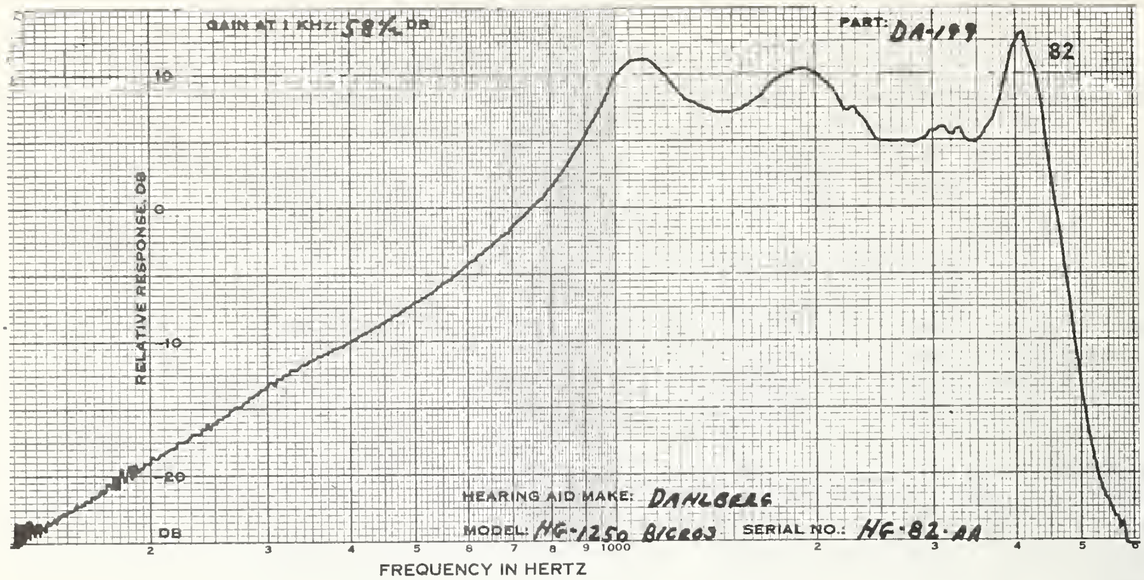

GAIN AT 1 KHZ: 61 DB
PART: DA-196
80
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: HF 1250
SERIAL NO.: HF 15 AK
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

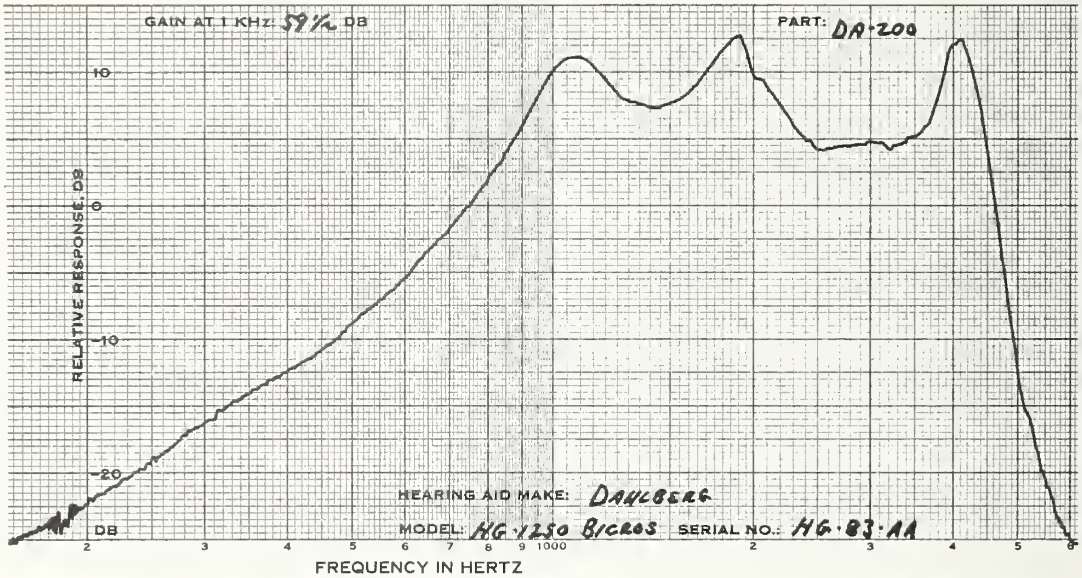

GAIN AT 1 KHZ: 61 DB
PART: DA-197
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: HF 1250
SERIAL NO.: HF 75 AK
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

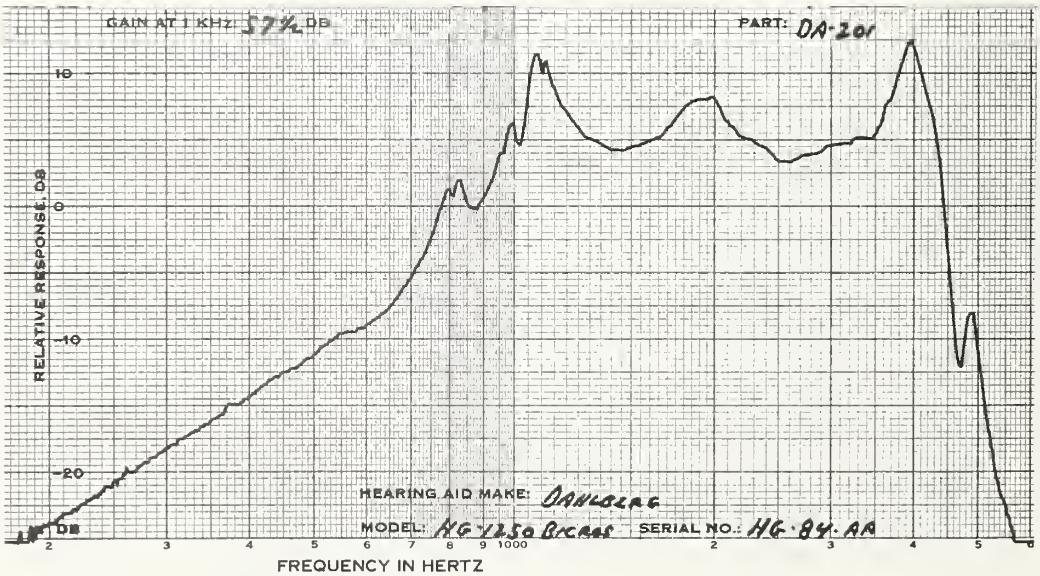

GAIN AT 1 KHZ: 60½ DB
PART: DA-198
RELATIVE RESPONSE, DB
10
0
-10
20
DB
HEARING AID MAKE: DAHLBERG
MODEL: HF-1250
SERIAL NO.: HF 73 AK
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

DAHLBERG BI EG
MODEL:HG1250 BICROS L:CCW C:CCW TUBING:35MM BATTERY:S76

CODE	DA-199	DA-200	DA-201
SERIAL #	HG82AA	HG83AA	HG84AA
DATE		JUN 12, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	70.5	71.5	67.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	70.0	72.0
OUTPUT LEVEL DB	128.0	127.5	128.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	58.5	59.5	57.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	8 12	11 15	7 9
700 HZ %	4 4	6 6	4 4
900 HZ %	1 3	3 6	1 4
MAX DIST %	8 12	11 15	7 9
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	46.0	47.0	45.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.4	3.4	3.2
65 DB INPUT	3.8	4.1	3.9
BATTERY VOLTAGE	1.55	1.54	1.54


GAIN AT 1 KHz: 58½ DB
PART: DA-199
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: HG-1250 BICROS
SERIAL NO.: HG-82-AA
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

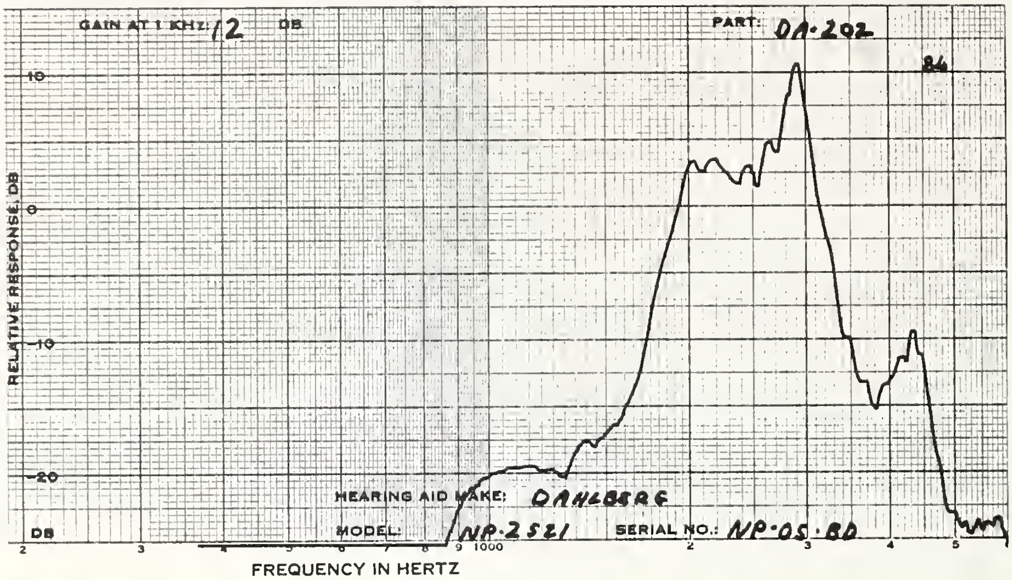

GAIN AT 1 KHz: 59½ DB
PART: DA-200
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: HG-1250 BICROS
SERIAL NO.: HG-83-AA
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

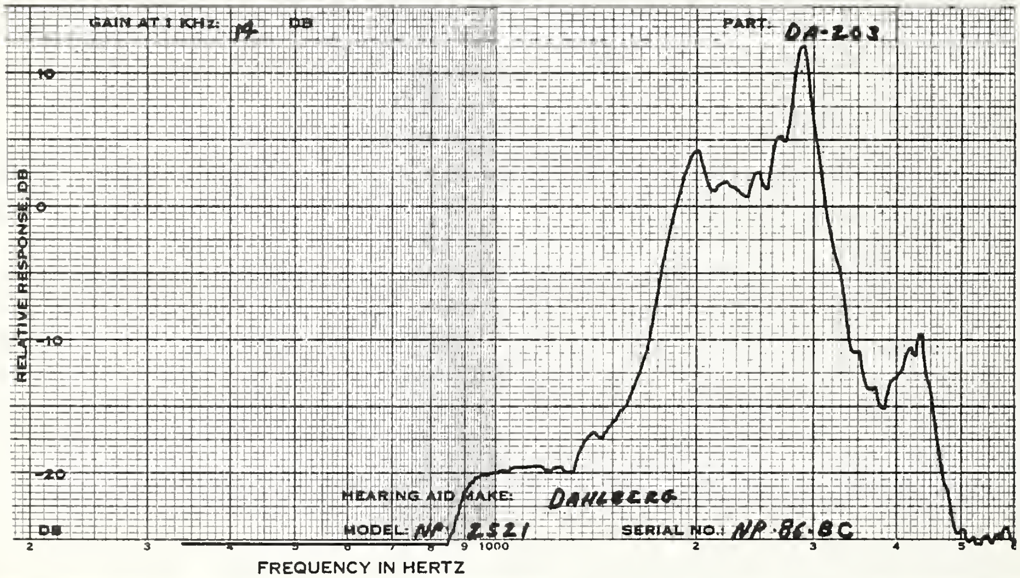

GAIN AT 1 KHz: 57½ DB
PART: DA-201
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: HG-1250 BICROS
SERIAL NO.: HG-84-AA
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

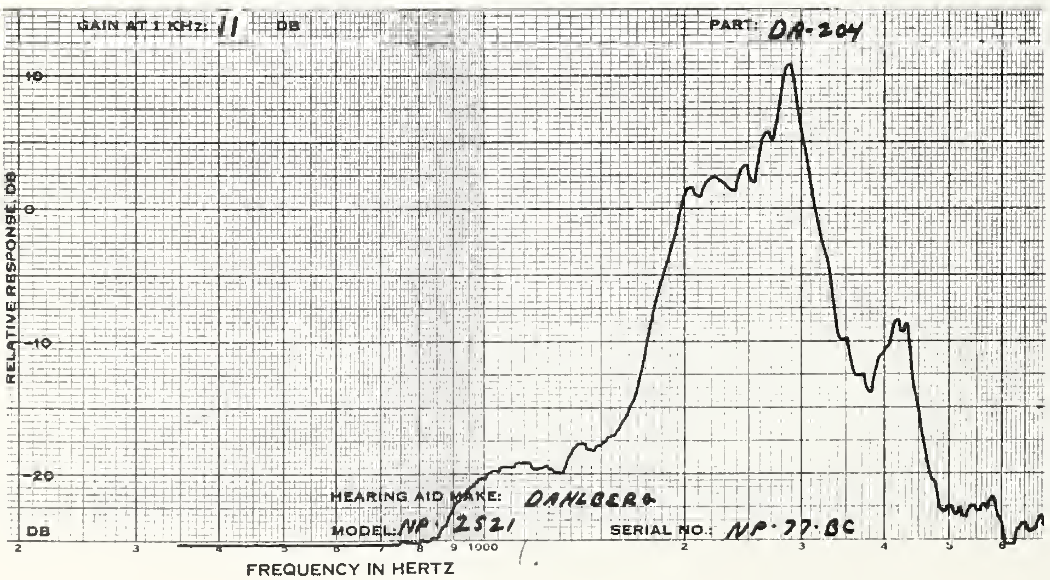
DAHLBERG HP OE
MODEL:NP-2521 TONE:NONE TUBING:25MM BATTERY:S13

CODE	DA-202	DA-203	DA-204
SERIAL #	NP05BD	NP68BC	NP77BC
DATE		MAY 27, 1975	
MEASUREMENTS WITH FULL VCL CONTROL*			
1KHZ GAIN DB	17.0	19.0	16.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	85.0	84.0	84.5
OUTPUT LEVEL DB	120.5	121.0	120.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	12.0	14.0	11.0
S/N RATIO DB			
2KHZ SIGNAL	45.0	44.0	41.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.6	.6	.6
65 DB INPUT	.6	.5	.6
BATTERY VOLTAGE	1.56	1.56	1.56

*Maximum setting possible without feedback.

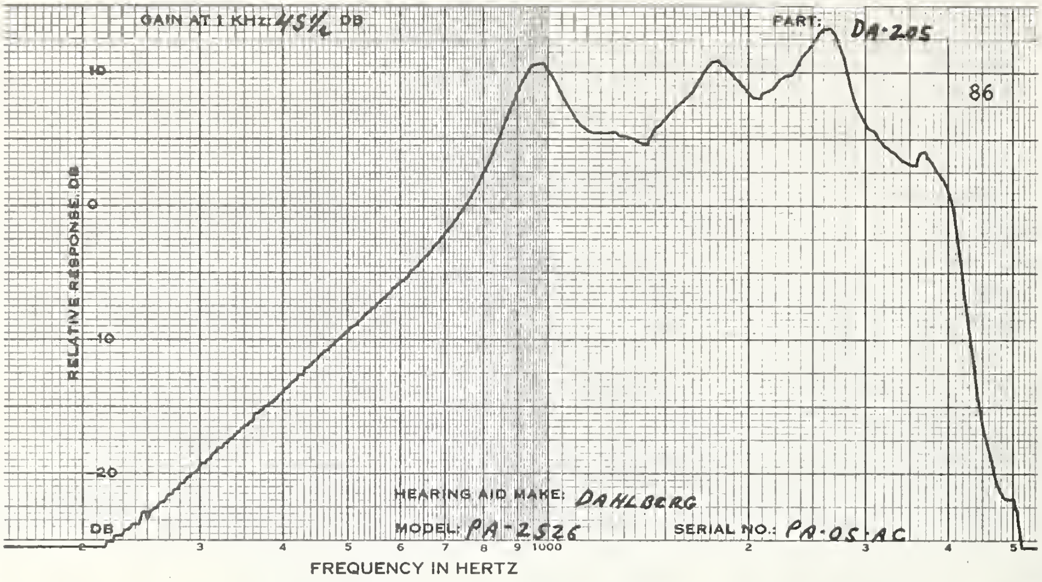

GAIN AT 1 KHZ: 12 DB
PART: DA-202
84
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: NP-2521
SERIAL NO.: NP-05-BD
2
3
4
5
6
7
8
9 1000
2
3
4
5
FREQUENCY IN HERTZ

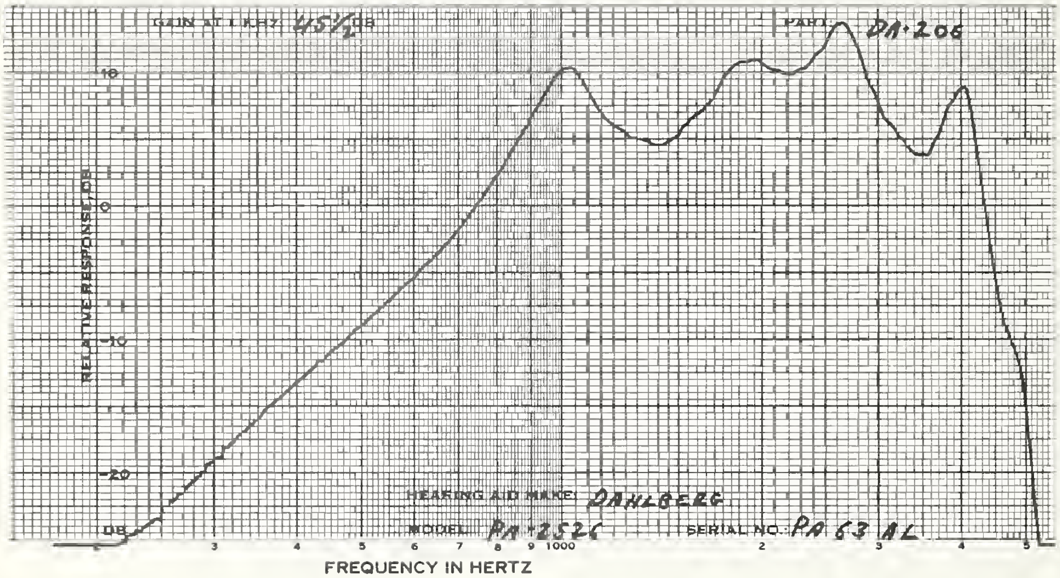

GAIN AT 1 KHZ: 14 DB
PART: DA-203
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: NP 2521
SERIAL NO.: NP-86-BC
2
3
4
5
6
7
8
9 1000
2
3
4
5
6
FREQUENCY IN HERTZ

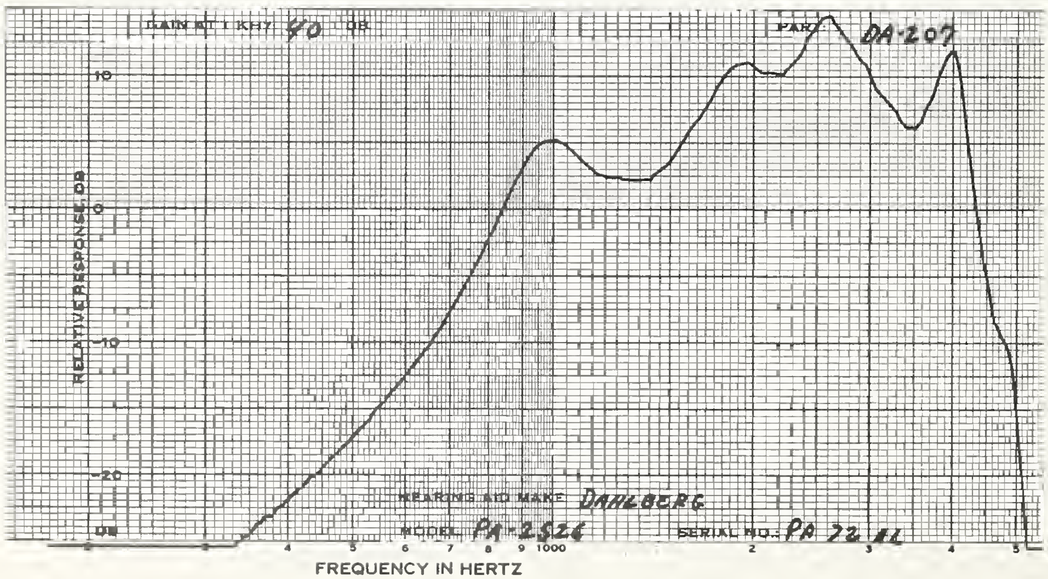

GAIN AT 1 KHZ: 11 DB
PART: DA-204
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: NP 2521
SERIAL NO.: NP-77-BC
2
3
4
5
6
7
8
9 1000
2
3
4
5
6
FREQUENCY IN HERTZ

DAHLBERG OE
MODEL:PA2526 TONE:L TUBING:25MM BATTERY:675

CODE	DA-205	DA-206	DA-207
SERIAL #	LA05AL	PA63AL	PA72AL
DATE		MAR 16, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	47.5	48.5	41.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	82.0	77.0	77.0
OUTPUT LEVEL DB	114.0	113.5	113.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	45.5	45.5	40.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	11 20	11 21	8 7
700 HZ %	4 10	3 9	2 3
900 HZ %	2 4	2 5	2 3
MAX DIST %	11 20	11 21	8 8
FREQ OF MAX DIS	500 500	500 500	500 1240
S/N RATIO DB			
1KHZ SIGNAL	45.5	46.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	44.5
BATTERY DRAIN, MA			
NO INPUT	.2	.2	.2
65 DB INPUT	.2	.2	.2
BATTERY VOLTAGE	1.34	1.37	1.37

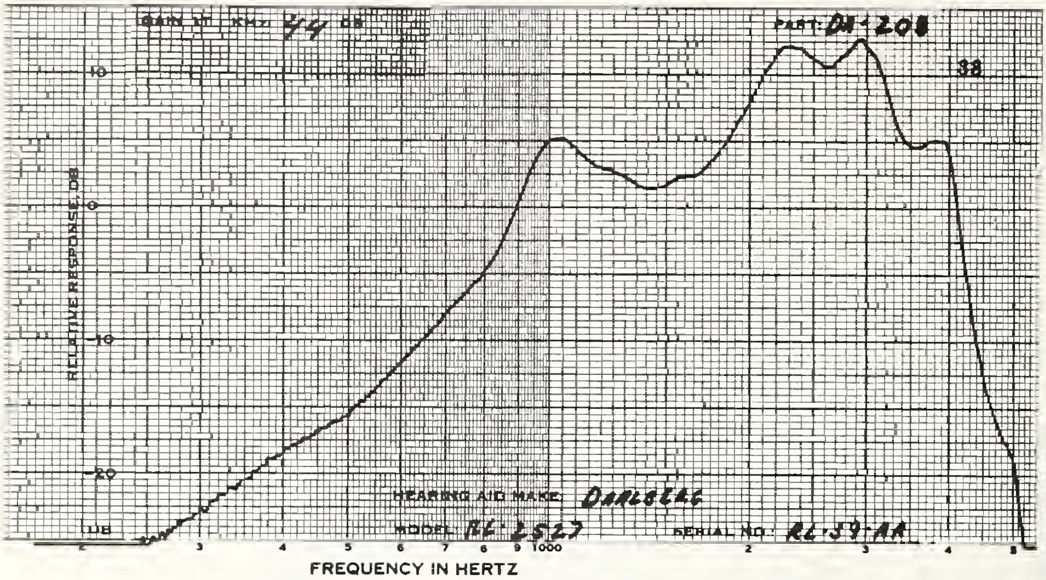

GAIN AT 1 KHz: 45½ DB
PART: DA-205
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: PA-2526
SERIAL NO.: PA-05-AC
FREQUENCY IN HERTZ

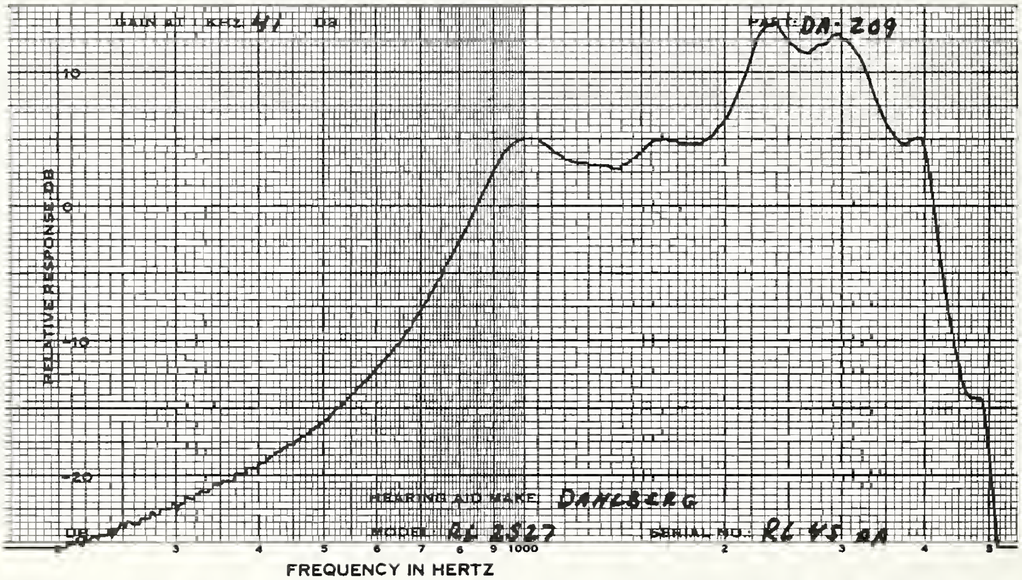

GAIN AT 1 KHz: 45½ DB
PART: DA-206
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: PA-2526
SERIAL NO.: PA 63 AL
FREQUENCY IN HERTZ

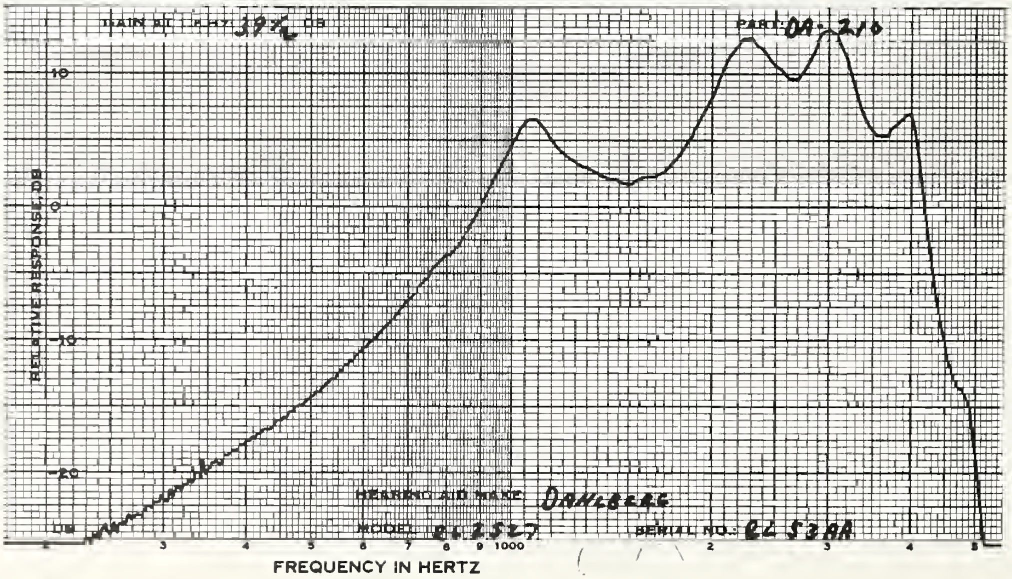

GAIN AT 1 KHz: 40 DB
PART: DA-207
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: PA-2526
SERIAL NO.: PA 72 AL
FREQUENCY IN HERTZ

DAHLBERG OE
MODEL:RL2527 L:CCW C:CW TUBING:25MM BATTERY:675

CODE	DA-208		DA-209		DA-210	
SERIAL #	RL39AA		RL45AA		RL53AA	
DATE			MAR 20, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	44.0		41.0		39.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	76.0		76.0		76.0	
OUTPUT LEVEL DB	112.5		113.0		112.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	44.0(FULL)		41.0(FULL)		39.5(FULL)	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	5	4	5	4	5	4
700 HZ %	2	1	1	1	0	1
900 HZ %	1	1	1	1	1	1
MAX DIST %	5	4	5	4	5	4
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	42.0		41.5		39.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.3		1.3		1.3	
65 DB INPUT	1.3		1.3		1.2	
BATTERY VOLTAGE	1.40		1.40		1.38	


GAIN AT 1 KHZ 44 DB
PART: DA-208
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: RL 2527
SERIAL NO.: RL-39-AA
FREQUENCY IN HERTZ

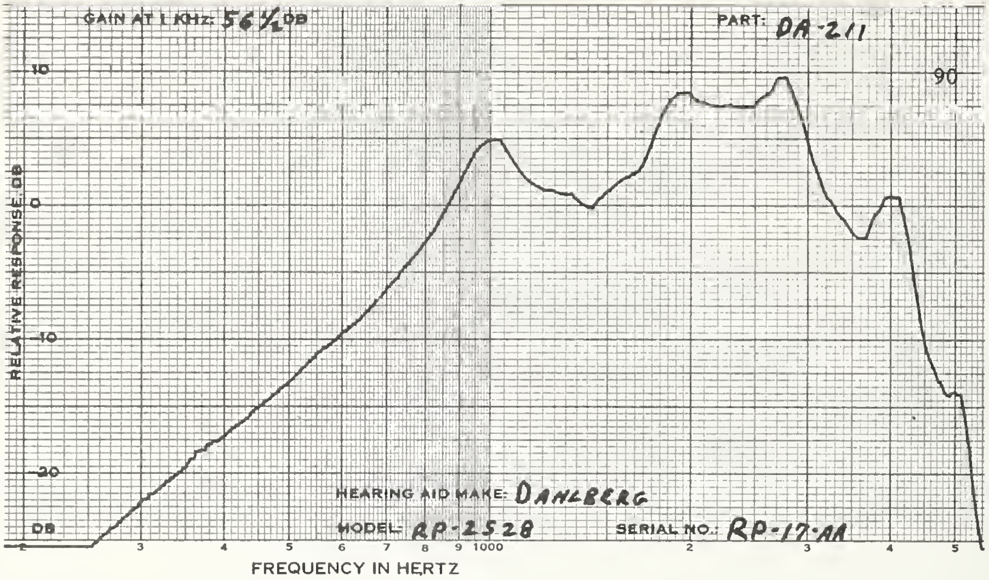

GAIN AT 1 KHZ 41 DB
PART: DA-209
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: RL 2527
SERIAL NO.: RL 45 AA
FREQUENCY IN HERTZ

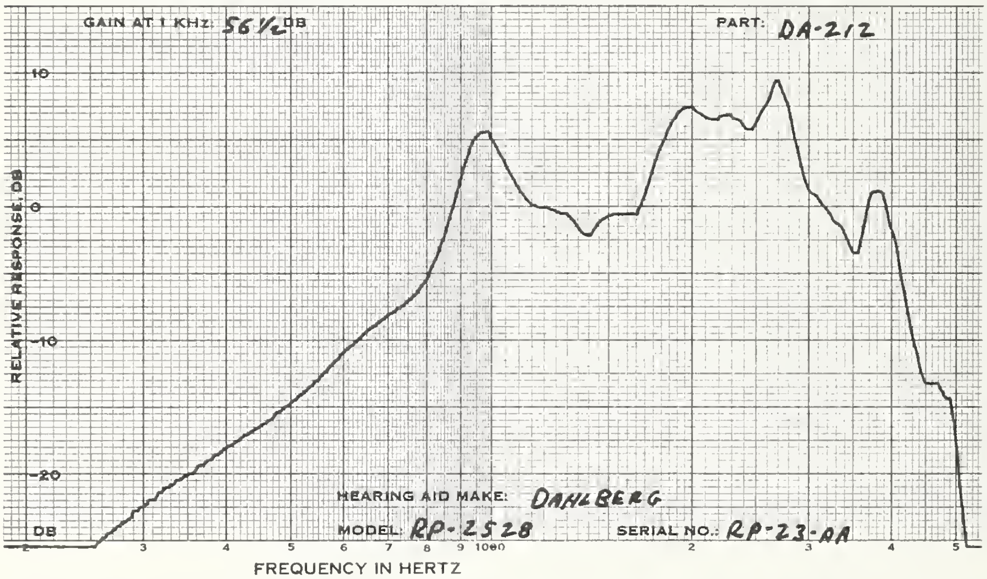

GAIN AT 1 KHZ 39½ DB
PART: DA-210
RELATIVE RESPONSE, DB
HEARING AID MAKE: DAHLBERG
MODEL: RL 2527
SERIAL NO.: RL 53 AA
FREQUENCY IN HERTZ

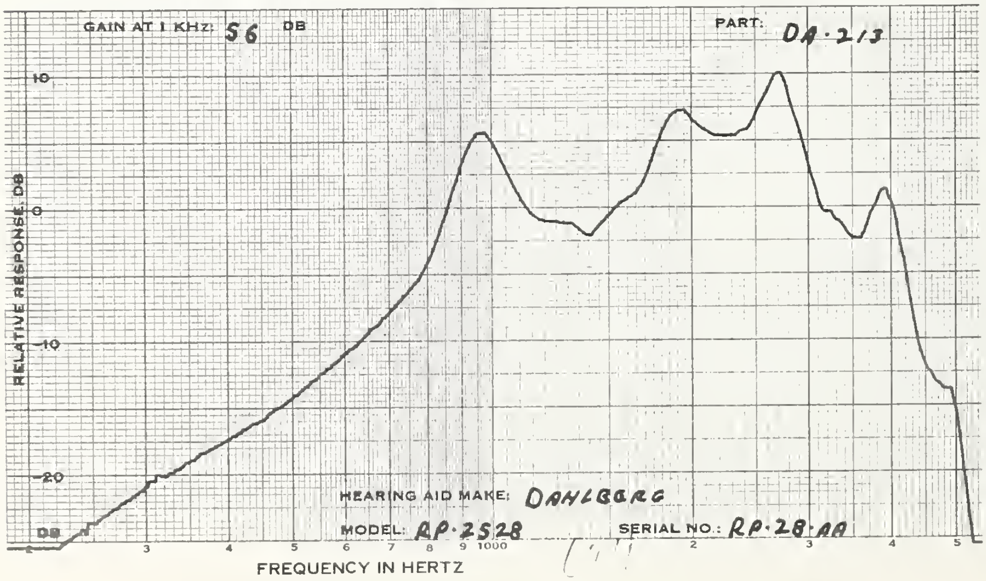
DAHLBERG OE

MODEL:RP2528 L:FULL(CCW) P:FULL(CW) TUBING:25MM BATTERY:675

CODE	DA-211	DA-212	DA-213
SERIAL #	RP17AA	RP23AA	RP28AA
DATE		MAY 15, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	61.0	60.0	60.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	81.0	79.5
OUTPUT LEVEL DB	125.5	125.0	125.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	56.5	56.5	56.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 21	8 32	6 14
700 HZ %	3 7	3 10	3 7
900 HZ %	3 5	4 9	1 4
MAX DIST %	7 21	10 32	6 14
FREQ OF MAX DIS	500 500	1310 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	48.0	45.5	45.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.4	2.4
65 DB INPUT	2.7	2.9	2.7
BATTERY VOLTAGE	1.33	1.33	1.33


GAIN AT 1 KHz: 56 1/2 DB
PART: DA-211
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: RP-2528
SERIAL NO.: RP-17-AA
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

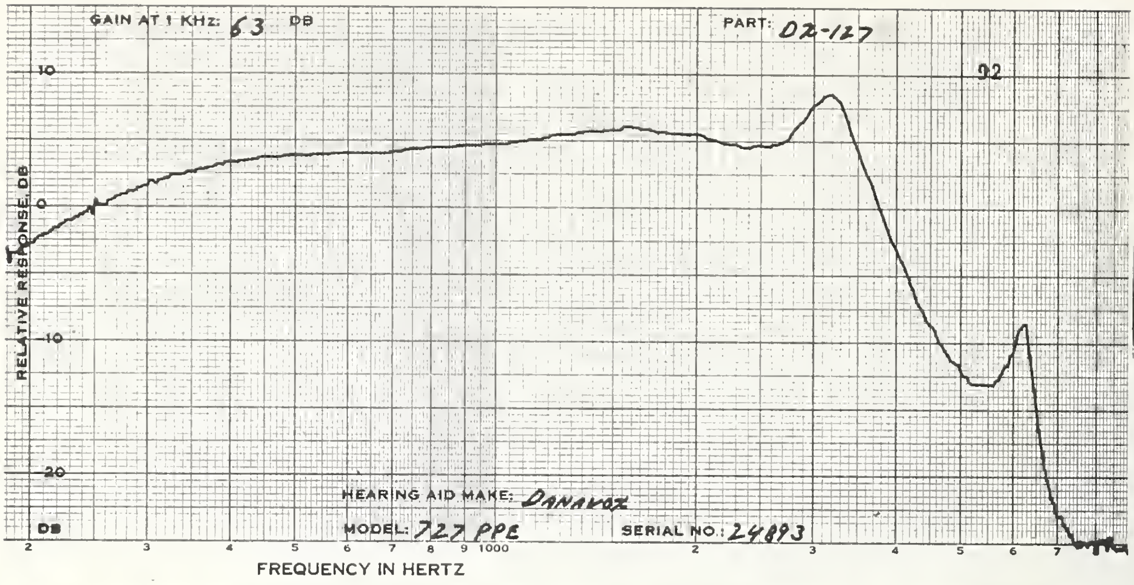

GAIN AT 1 KHz: 56 1/2 DB
PART: DA-212
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: RP-2528
SERIAL NO.: RP-23-AA
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

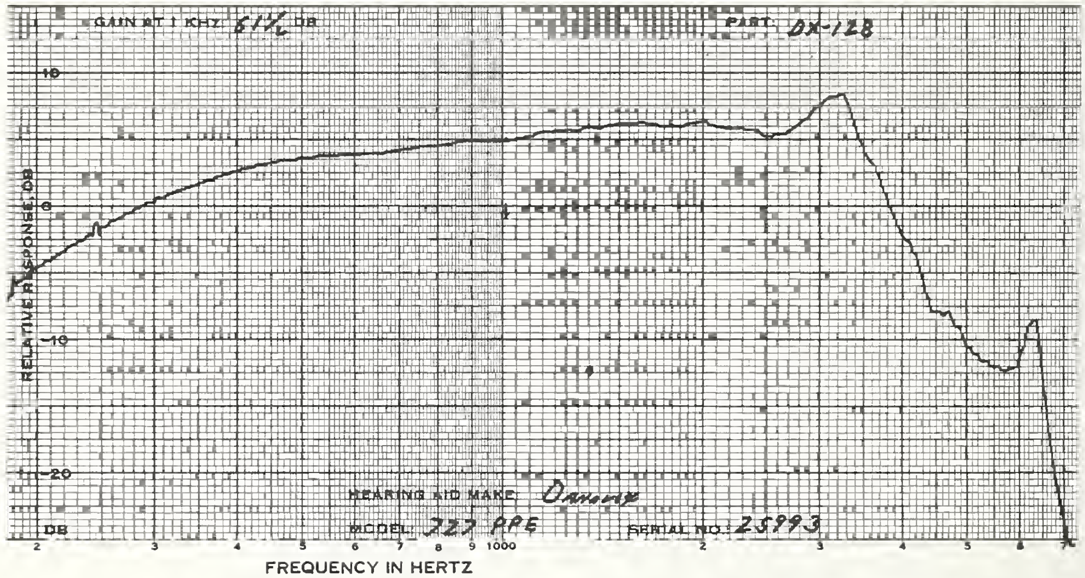

GAIN AT 1 KHz: 56 DB
PART: DA-213
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DAHLBERG
MODEL: RP-2528
SERIAL NO.: RP-28-AA
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

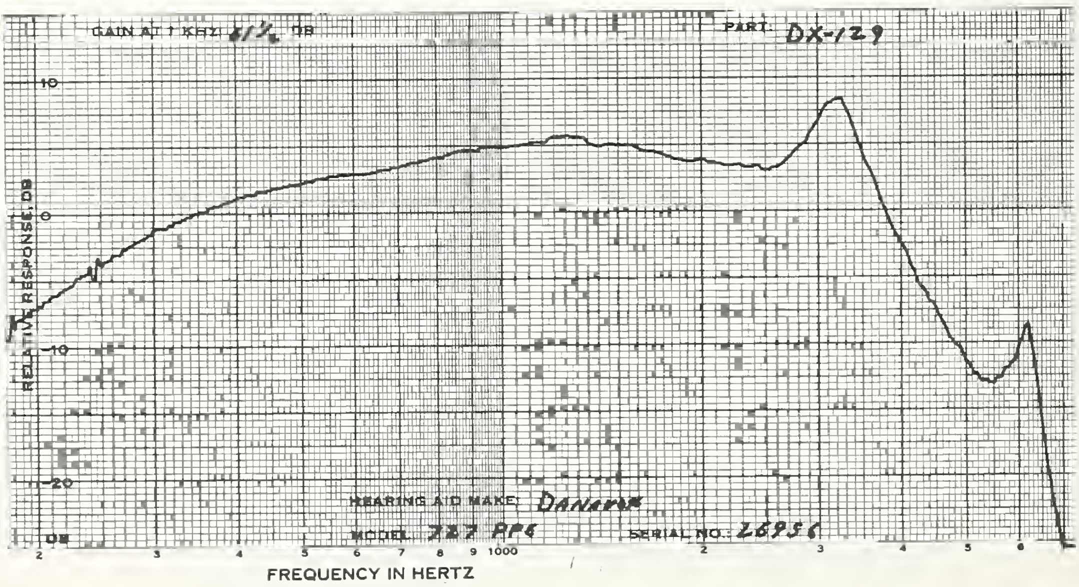
DANAVOX OB
MODEL:727PPE TONE:SEE BELOW RECEIVER:4145-52 BATTERY:MN1500

CODE	DX-127		DX-128		DX-129	
SERIAL #	24893		25993		26956	
DATE			MAR 14, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	71.5		72.5		73.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	77.0		73.5		68.0	
OUTPUT LEVEL DB	134.0		133.5		132.5	
MEASUREMENTS WITH REDUCED VCLUME CONTROL SETTING						
1KHZ GAIN DB	63.0		61.5		61.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	9	24	9	15	10	21
700 HZ %	9	23	9	19	9	18
900 HZ %	6	16	8	13	6	14
MAX DIST %	9	24	9	19	10	21
FREQ OF MAX DIS	700	500	700	700	640	500
S/N RATIO DB						
1KHZ SIGNAL	35.0		39.0		41.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	7.4		8.4		8.0	
65 DB INPUT	55.0		55.0		55.0	
BATTERY VOLTAGE	1.49		1.49		1.49	

TONE:N PRE-GAIN:MAX ON-OFF:I

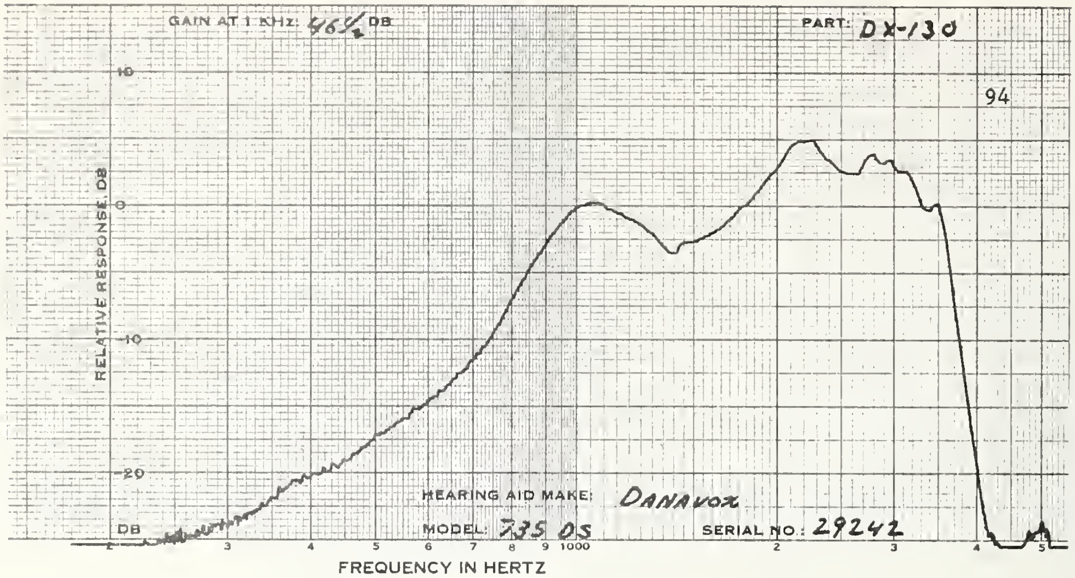

GAIN AT 1 KHz: 63 DB
PART: DZ-127
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: DANAVOX
MODEL: 727 PPE
SERIAL NO.: 24893
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

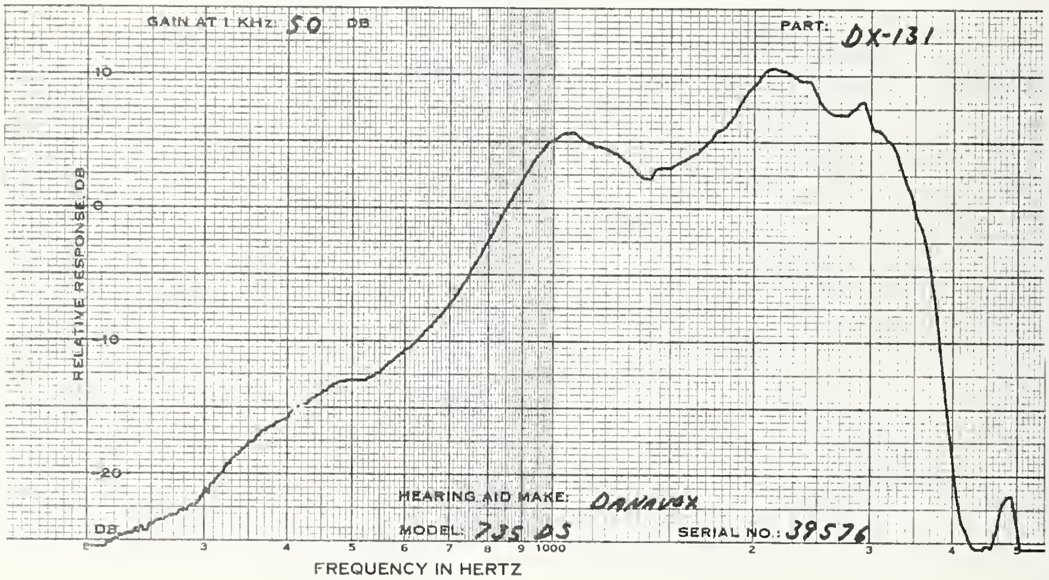

GAIN AT 1 KHz: 61½ DB
PART: DX-128
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: Danavox
MODEL: 727 PPE
SERIAL NO.: 25993
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

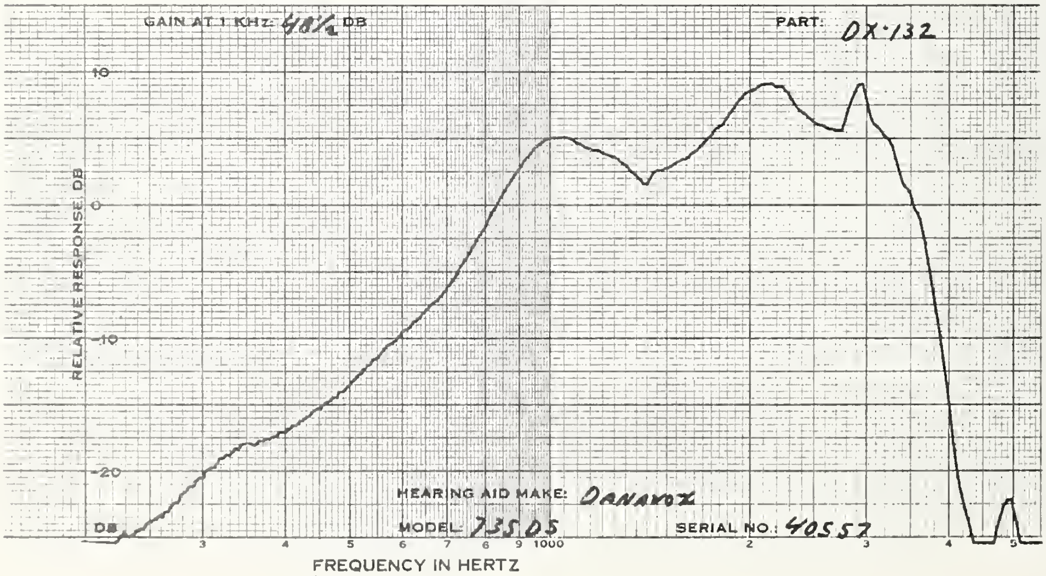

GAIN AT 1 KHz: 61½ DB
PART: DX-129
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: DANAVOX
MODEL: 727 PPE
SERIAL NO.: 26956
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

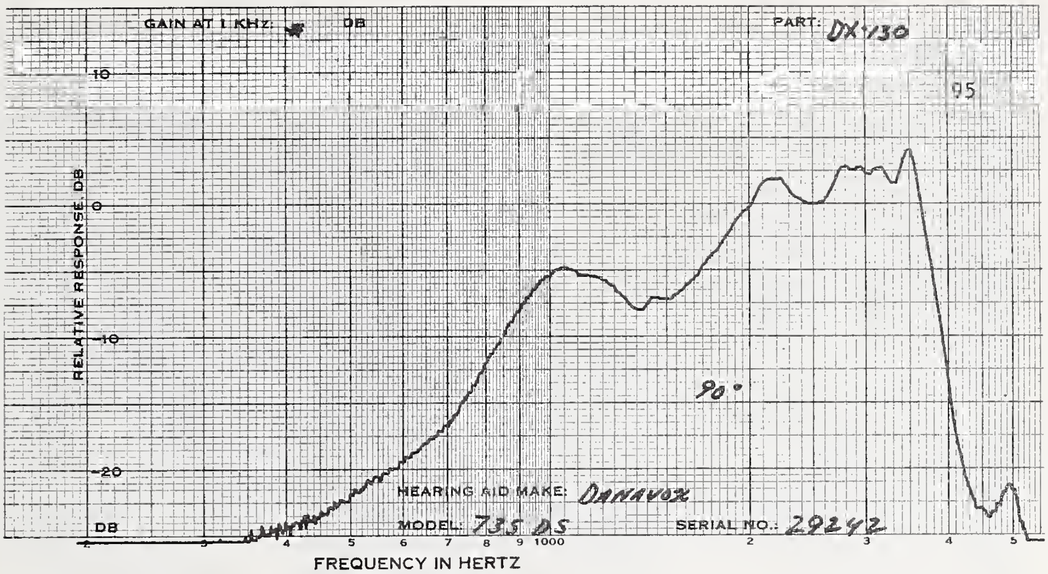
MODEL:735DS TONE:N TUBING:25MM BATTERY:675

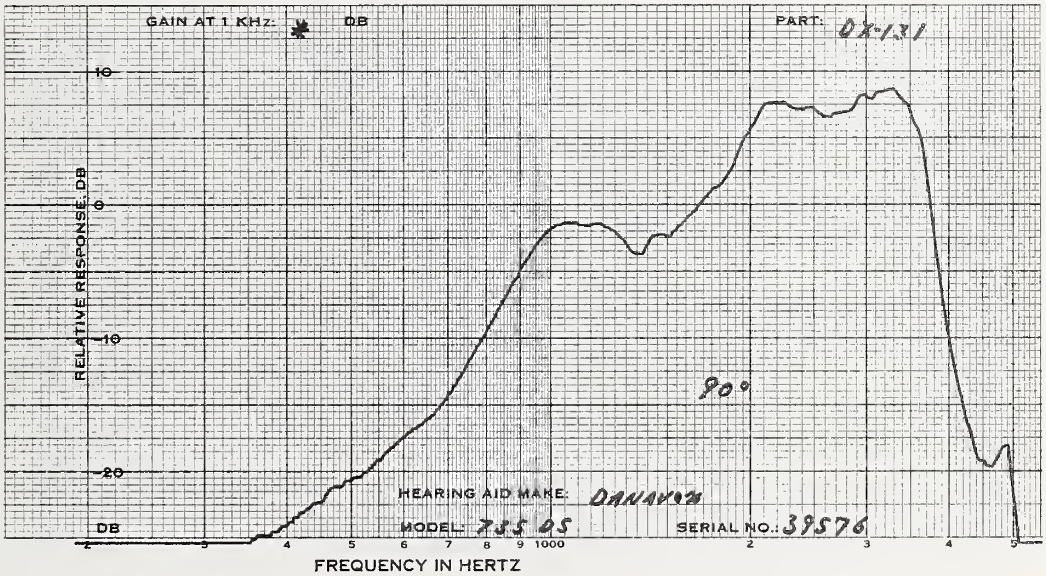
CODE	DX-130	DX-131	DX-132
SERIAL #	29242	39576	40557
DATE		APR 14, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	46.5	50.0	48.5
MPO, RANDCM NOISE			
INPUT LEVEL, DB	83.0	82.0	84.0
OUTPUT LEVEL DB	120.0	120.5	120.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	46.5(FULL)	50.0(FULL)	48.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	63.0 73.0	60.0 70.0	62.0 72.0
500 HZ %	0 11	9 14	6 10
700 HZ %	3 5	2 5	2 5
900 HZ %	2 3	2 3	2 3
MAX DIST %	4 12	9 14	6 11
FREQ OF MAX DIS	1710 1710	500 500	500 1430
S/N RATIO DB			
1KHZ SIGNAL	33.0	44.5	43.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	1.5	1.5
65 DB INPUT	1.7	1.5	1.5
BATTERY VOLTAGE	1.33	1.33	1.33

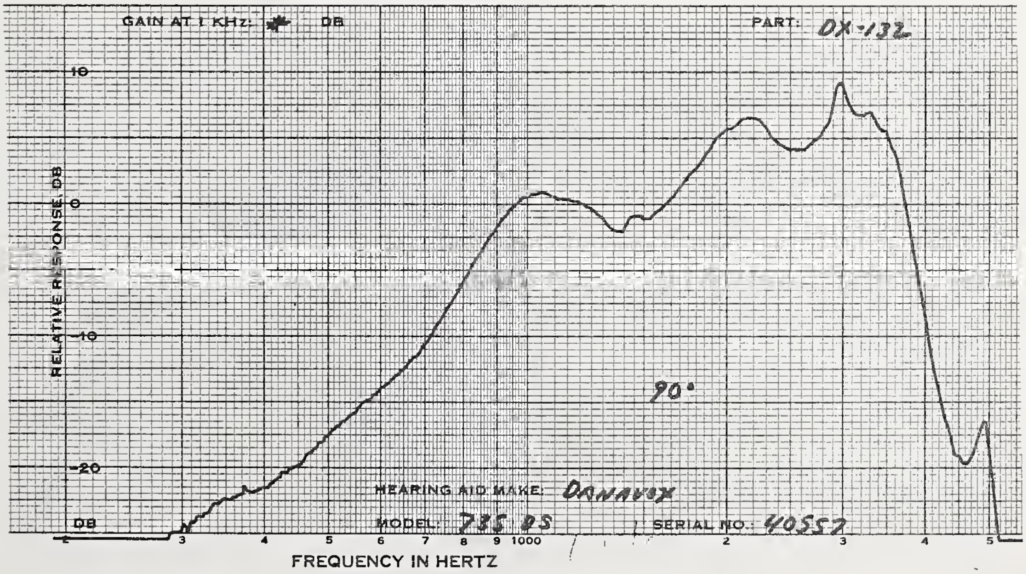

GAIN AT 1 KHz: 46½ DB
PART: DX-130
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 735 DS
SERIAL NO.: 29242
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 50 DB
PART: DX-131
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 735 DS
SERIAL NO.: 39576
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 48½ DB
PART: DX-132
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 735 DS
SERIAL NO.: 40557
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

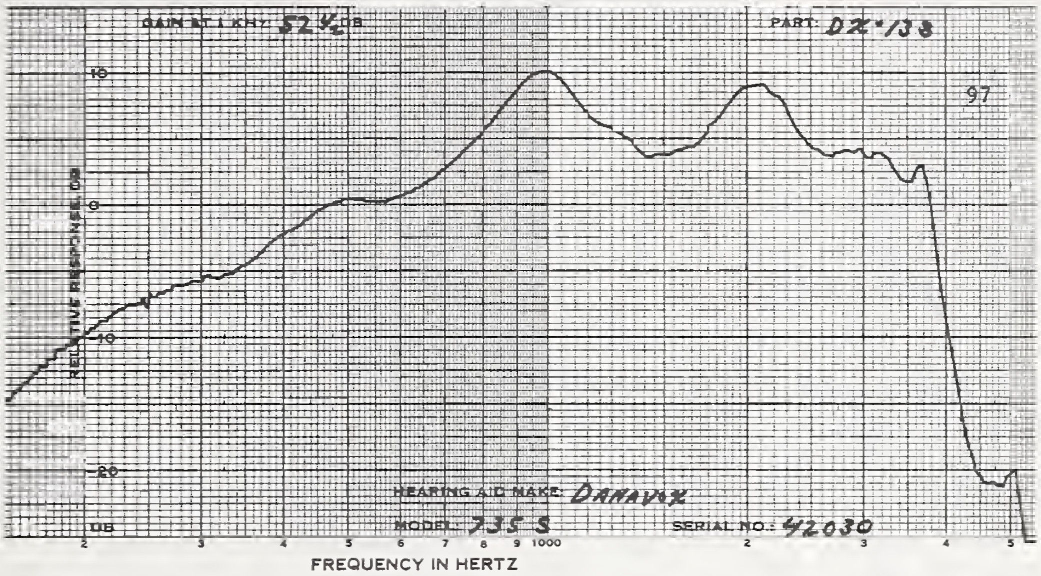

GAIN AT 1 KHz: * DB
PART: DX-130
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: DANAVOX
MODEL: 735 DS
SERIAL NO.: 29242
FREQUENCY IN HERTZ

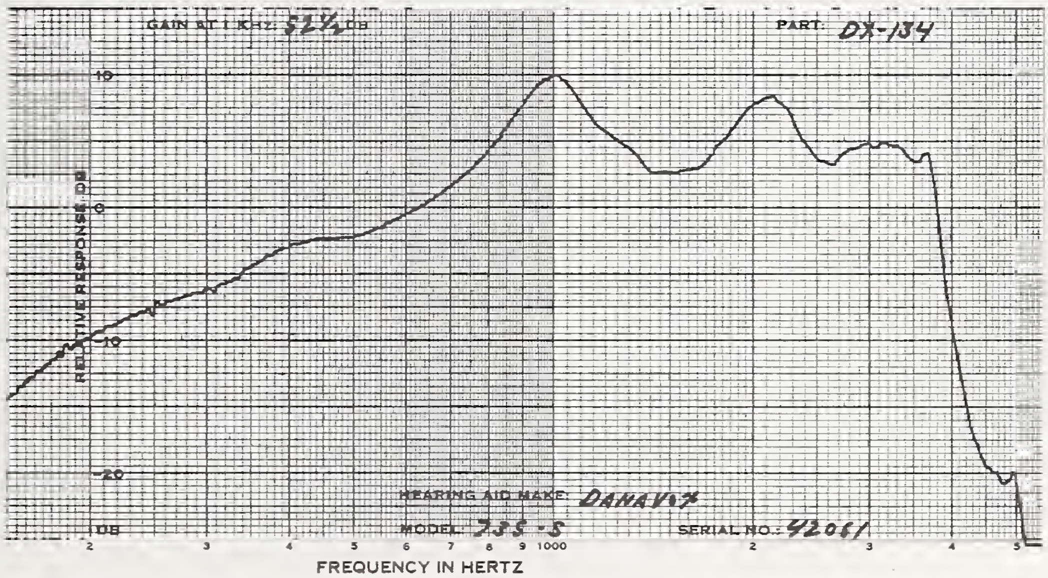

GAIN AT 1 KHz: * DB
PART: DX-131
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: DANAVOX
MODEL: 735 DS
SERIAL NO.: 39576
FREQUENCY IN HERTZ

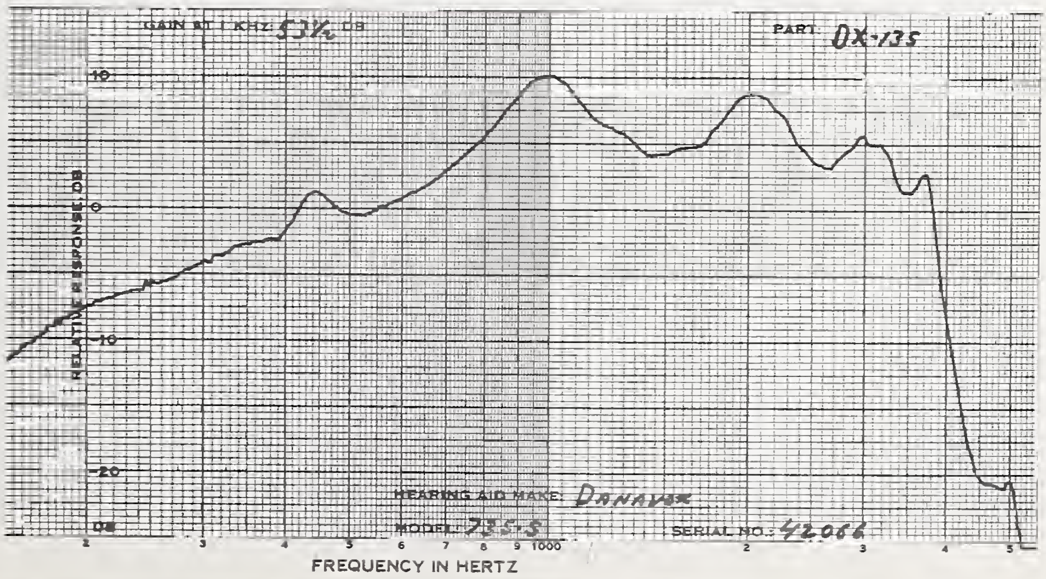

GAIN AT 1 KHz: * DB
PART: DX-132
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: DANAVOX
MODEL: 735 DS
SERIAL NO.: 40557
FREQUENCY IN HERTZ

MODEL:735S TONE:N TUBING:25MM BATTERY:675

CODE	DX-133		DX-134		DX-135	
SERIAL #	42030		42061		42066	
DATE			MAR 21, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	55.0		56.5		57.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	77.0		76.0		75.5	
OUTPUT LEVEL DB	120.5		120.0		121.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	52.5		52.5		53.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	11	43	12	41	10	38
700 HZ %	3	12	3	13	3	12
900 HZ %	1	4	1	4	1	4
MAX DIST %	11	43	12	41	10	38
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	45.0		42.5		43.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.7		1.7		1.7	
65 DB INPUT	1.7		1.7		1.7	
BATTERY VOLTAGE	1.34		1.34		1.34	


GAIN AT 1 KHZ: 52½ DB
PART: DX-133
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 735 S
SERIAL NO.: 42030
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

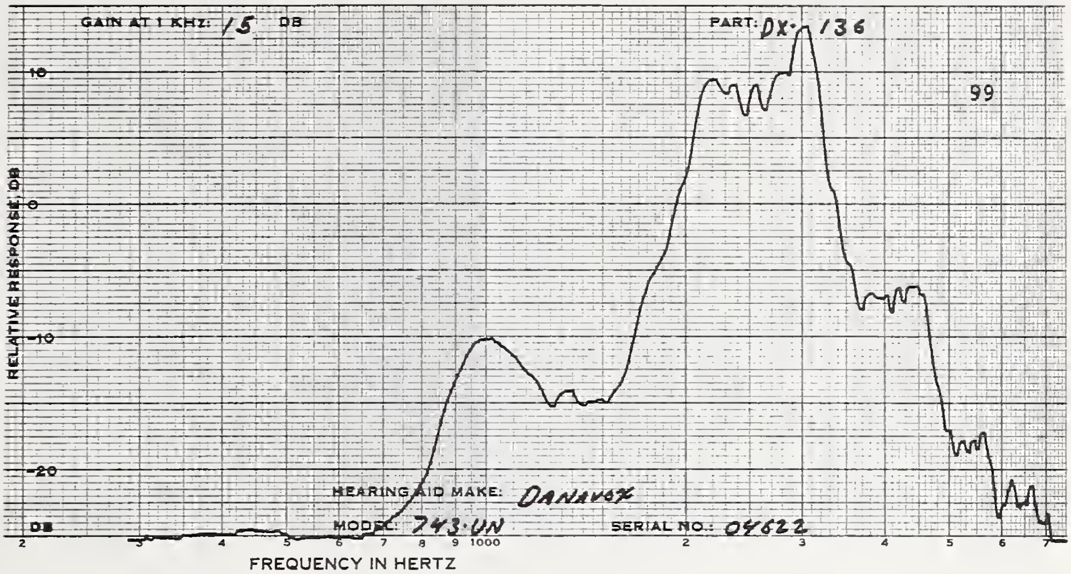

GAIN AT 1 KHZ: 52½ DB
PART: DX-134
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 735-S
SERIAL NO.: 42061
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

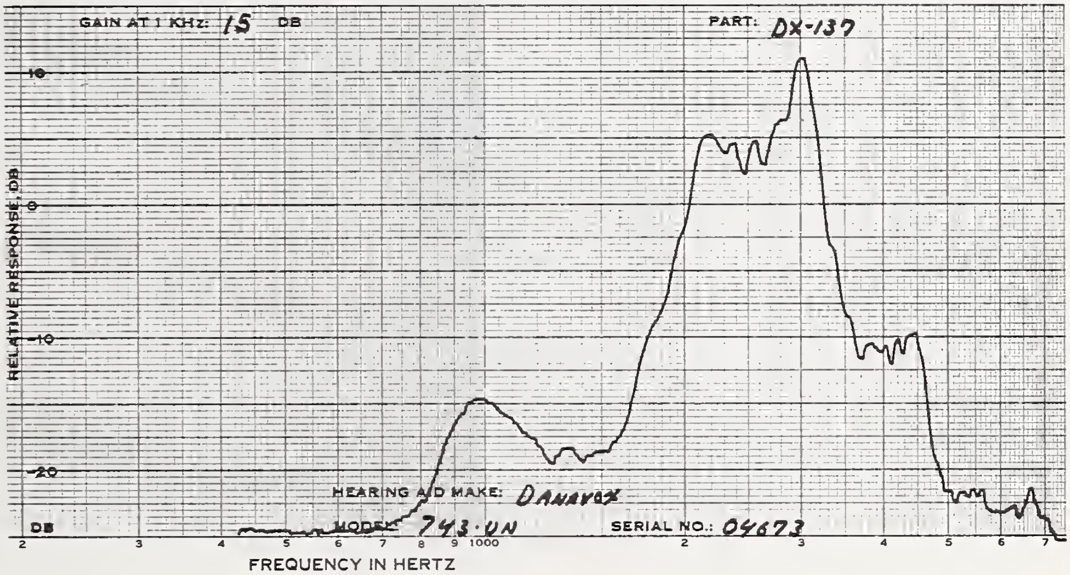

GAIN AT 1 KHZ: 53½ DB
PART: DX-135
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 735-S
SERIAL NO.: 42066
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

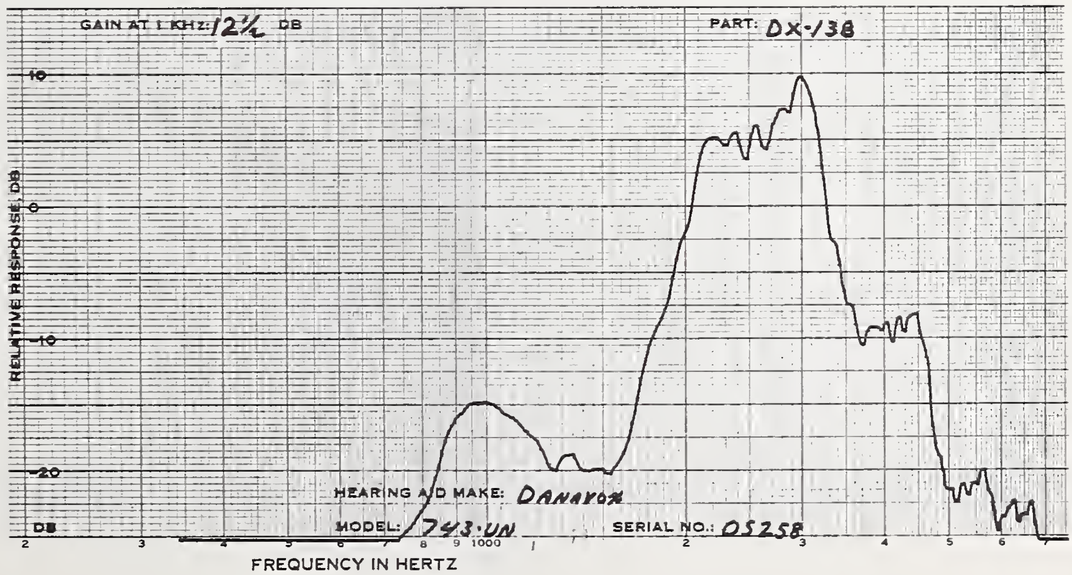
DANAVOX HP OE
MODEL:743UN TONE:A TUBING:25MM BATTERY:RM13

CODE	DX-136	DX-137	DX-138
SERIAL #	04622	04673	C5258
DATE		MAY 27, 1975	
MEASUREMENTS WITH FULL VCL CONTROL *			
1KHZ GAIN DB	20.0	20.0	17.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	88.0	85.0	86.5
OUTPUT LEVEL DB	117.5	117.5	116.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	15.0	15.0	12.5
S/N RATIO DB			
2KHZ SIGNAL	>38.0	>39.0	>36.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.5	.5	.5
65 DB INPUT	.5	.5	.5
BATTERY VOLTAGE	1.42	1.42	1.42

*Maximum setting possible without feedback.

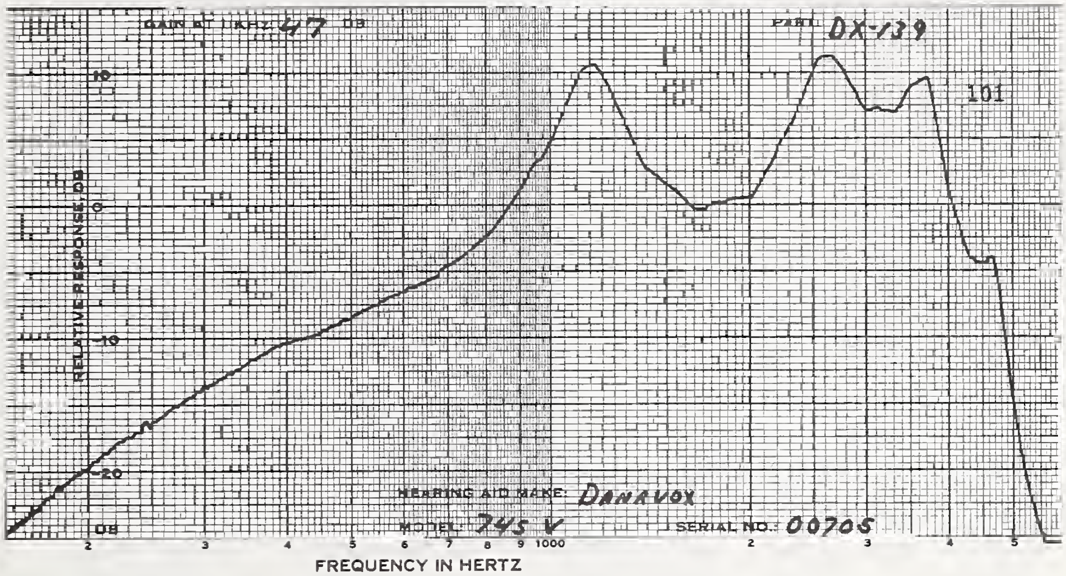

GAIN AT 1 KHz: 15 DB
PART: DX-136
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 743-UN
SERIAL NO.: 04622
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

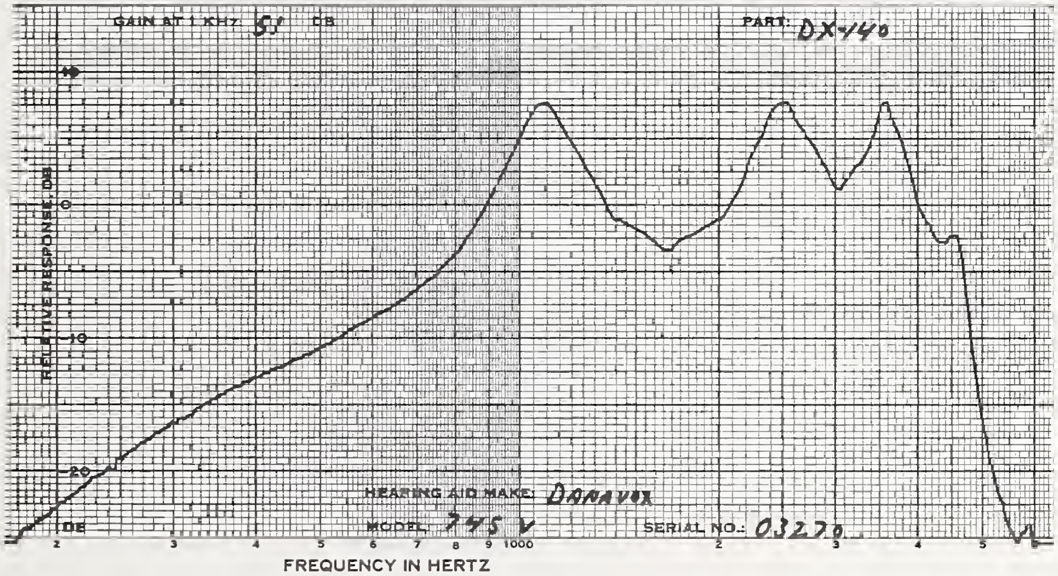

GAIN AT 1 KHz: 15 DB
PART: DX-137
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 743-UN
SERIAL NO.: 04673
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

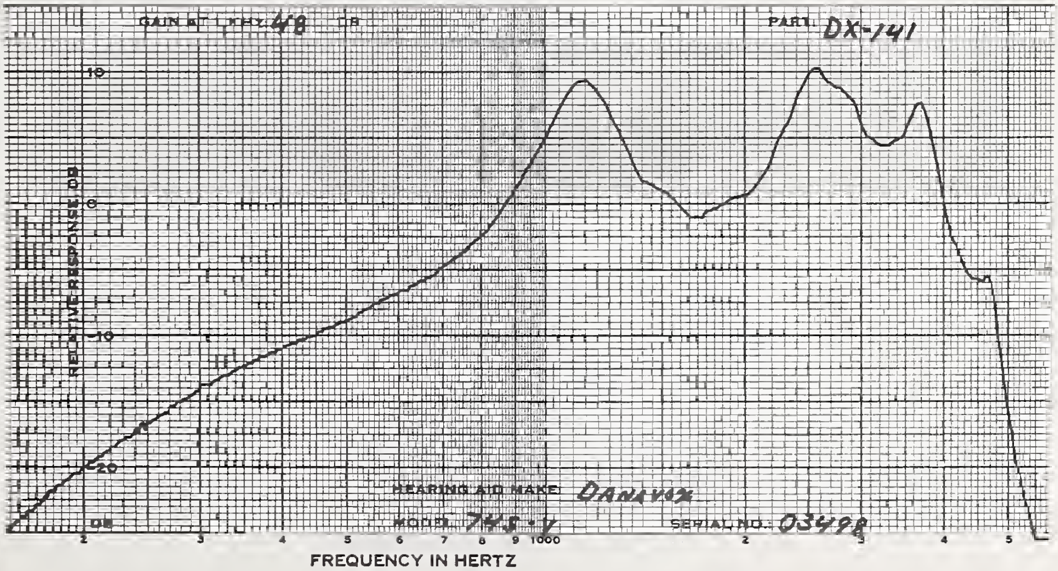

GAIN AT 1 KHz: 12½ DB
PART: DX-138
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: DANAVOX
MODEL: 743-UN
SERIAL NO.: 05258
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

DANAVOX OE
MODEL:745V TONE:N OUTPUT:V3 TUBING:25MM BATTERY:675

CODE	DX-139	DX-140	DX-141
SERIAL #	00705	03270	03498
DATE		MAR 20, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	52.5	54.5	53.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	75.0	74.5
OUTPUT LEVEL DB	117.0	118.0	117.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	47.0	51.0	48.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 9	5 8	5 8
700 HZ %	3 7	2 6	3 7
900 HZ %	1 6	1 3	1 5
MAX DIST %	10 45	9 46	9 42
FREQ OF MAX DIS	1790 1830	1780 1810	1830 1830
S/N RATIO DB			
1KHZ SIGNAL	43.0	45.0	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.5	1.5	1.5
65 DB INPUT	1.5	1.5	1.5
BATTERY VOLTAGE	1.34	1.33	1.33

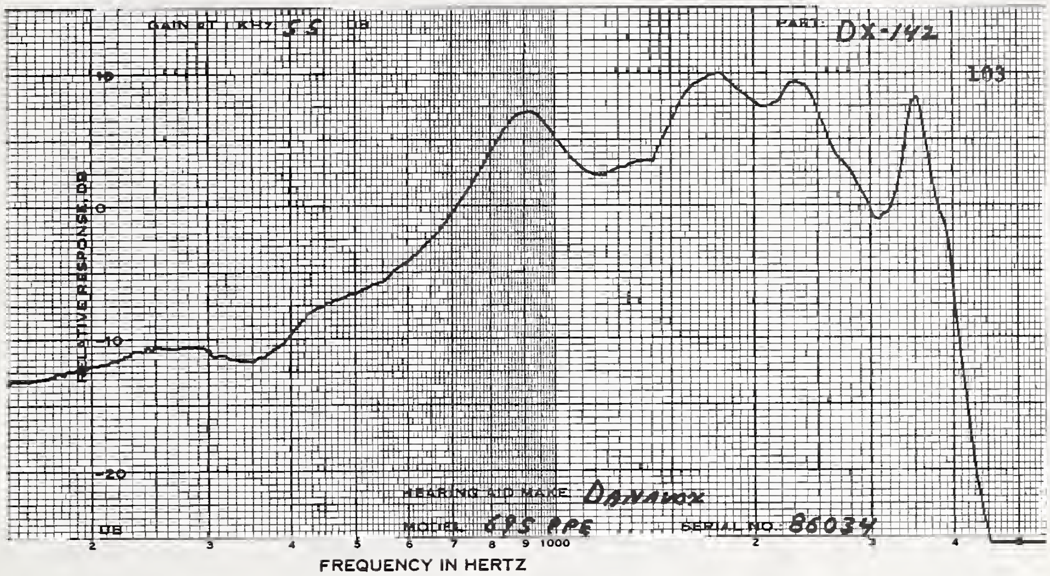

GAIN AT 1 KHZ 47 DB
PART: DX-139
RELATIVE RESPONSE, DB
HEARING AID MAKE: DANAVOX
MODEL: 745 V
SERIAL NO.: 00705
FREQUENCY IN HERTZ

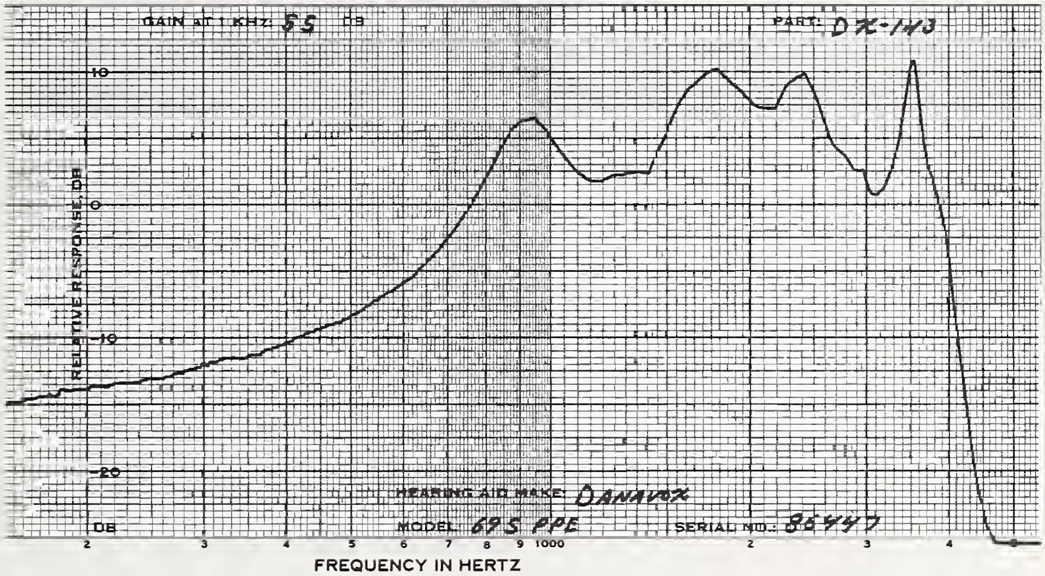

GAIN AT 1 KHZ 51 DB
PART: DX-140
RELATIVE RESPONSE, DB
HEARING AID MAKE: DANAVOX
MODEL: 745 V
SERIAL NO.: 03270
FREQUENCY IN HERTZ

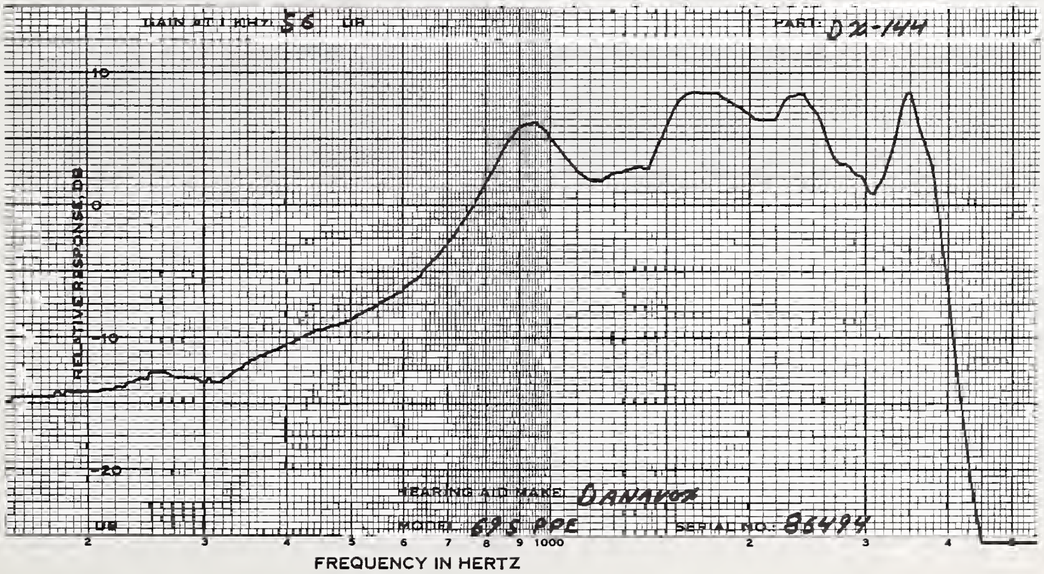

GAIN AT 1 KHZ 48 DB
PART: DX-141
RELATIVE RESPONSE, DB
HEARING AID MAKE: DANAVOX
MODEL: 745-V
SERIAL NO.: 03498
FREQUENCY IN HERTZ

DANAVOX OE
MODEL:695PPE POWER:3 TUBING:25MM BATTERY:S76

CODE	DX-142	DX-143	DX-144
SERIAL #	86034	86447	86494
DATE		APR 8, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	63.0	64.0	61.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.5	75.0	74.5
OUTPUT LEVEL DB	127.0	126.5	126.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	55.0	55.0	56.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	8 15	9 13	11 20
700 HZ %	3 7	4 7	4 8
900 HZ %	2 2	1 3	2 2
MAX DIST %	8 17	10 13	11 20
FREQ OF MAX DIS	560 530	570 551	500 500
S/N RATIO DB			
1KHZ SIGNAL	45.5	46.5	46.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.2	1.2
65 DB INPUT	2.1	2.0	2.1
BATTERY VOLTAGE	1.56	1.56	1.56

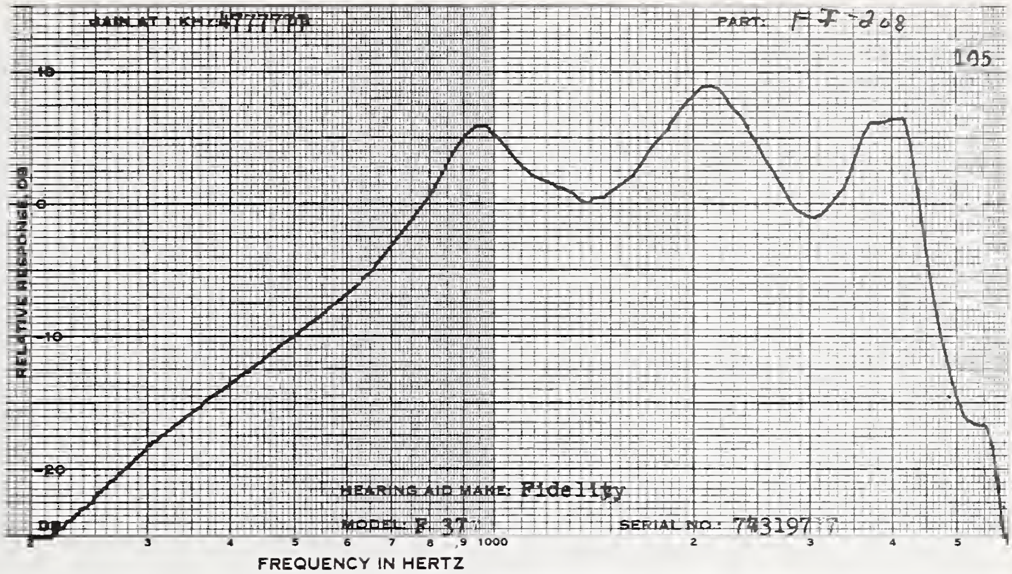

GAIN AT 1 KHZ: 55 DB
PART: DX-142
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: DANAVOX
MODEL: 69S PPE
SERIAL NO.: 86034
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

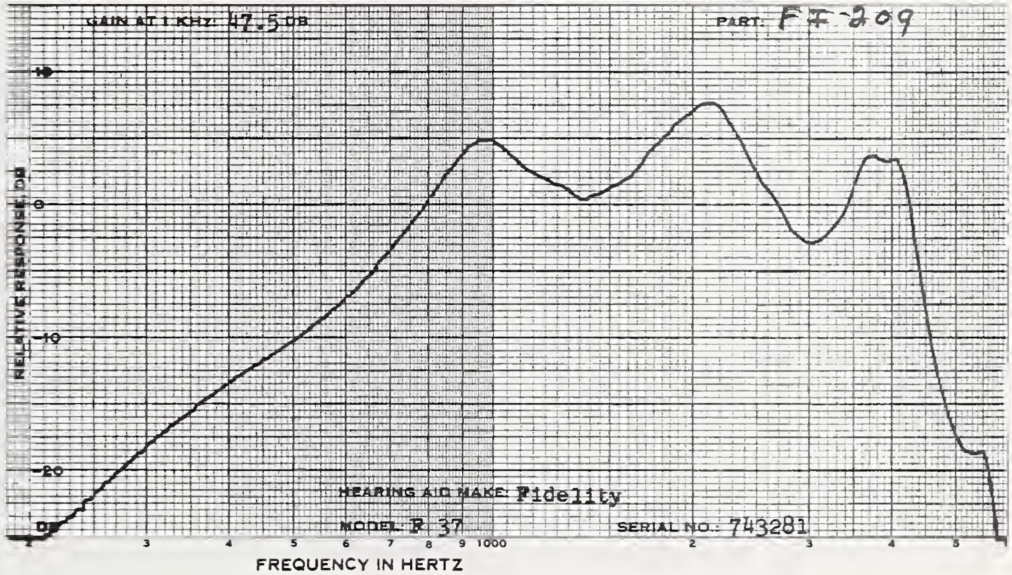

GAIN AT 1 KHZ: 55 DB
PART: DX-143
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: DANAVOX
MODEL: 69S PPE
SERIAL NO.: 86447
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

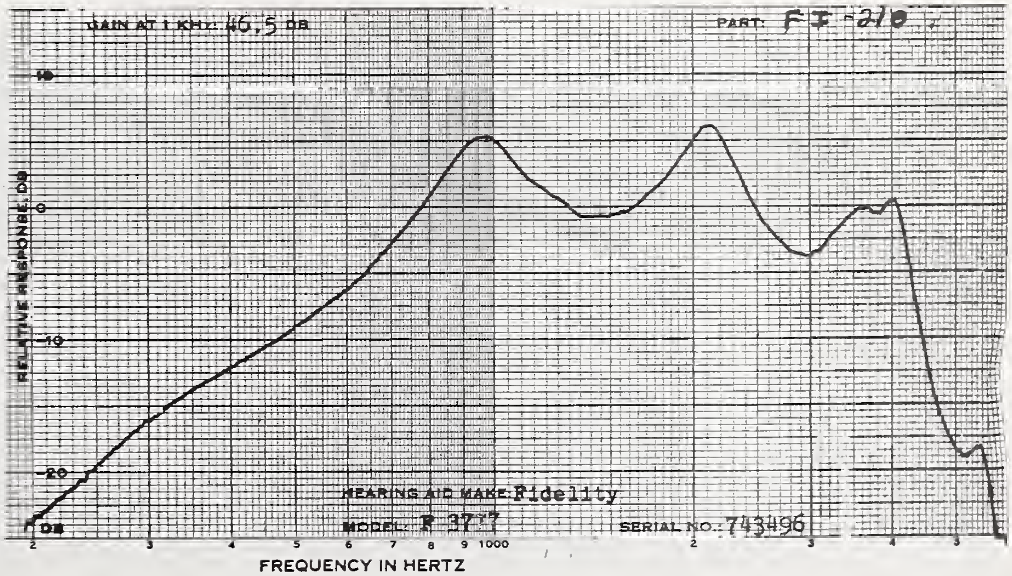

GAIN AT 1 KHZ: 56 DB
PART: DX-144
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: DANAVOX
MODEL: 69S PPE
SERIAL NO.: 86494
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

FIDELITY
MODEL:F-37   TONE:N   COMP:0   TUBING:28MM   OE BATTERY:675

CODE	FI-208		FI-209		FI-210	
SERIAL #	743197		743281		743496	
DATE			JAN 24, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	50.0		52.0		50.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	87.0		87.0		86.0	
OUTPUT LEVEL DB	116.0		116.0		113.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	47.0		47.5		46.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	5	18	3	11	5	12
700 HZ %	3	8	3	6	2	5
900 HZ %	2	5	2	3	1	2
MAX DIST %	5	18	3	11	5	12
FREQ OF MAX DIS	500	500	700	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	41.5		41.0		44.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.9		1.8		1.7	
65 DB INPUT	1.9		1.8		1.7	
BATTERY VOLTAGE	1.30		1.33		1.32	

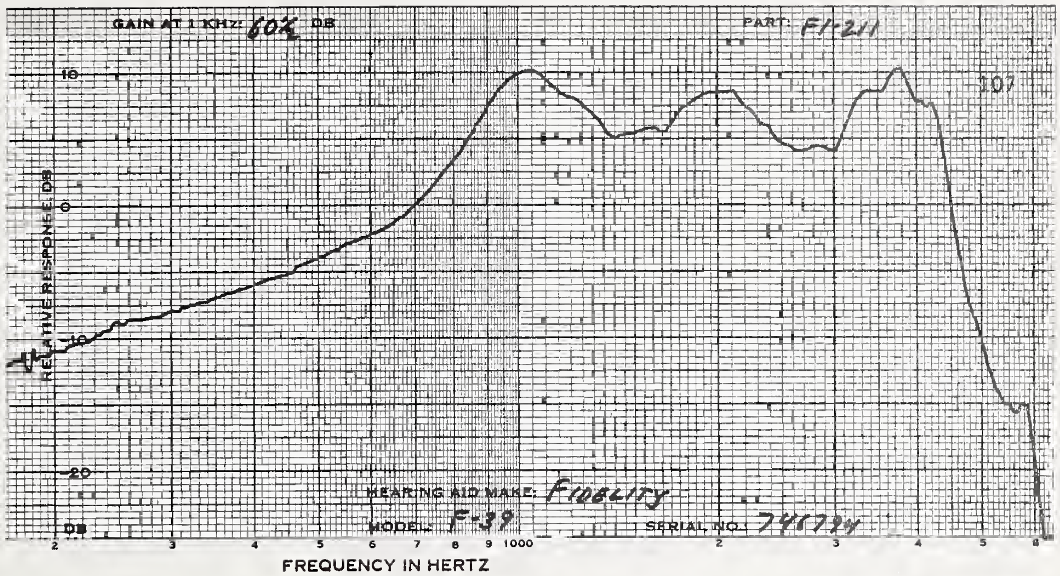

GAIN AT 1 KHz:
PART: FF-208
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Fidelity
MODEL: F 37
SERIAL NO.: 743197
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 47.5 DB
PART: FF-209
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Fidelity
MODEL: F 37
SERIAL NO.: 743281
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

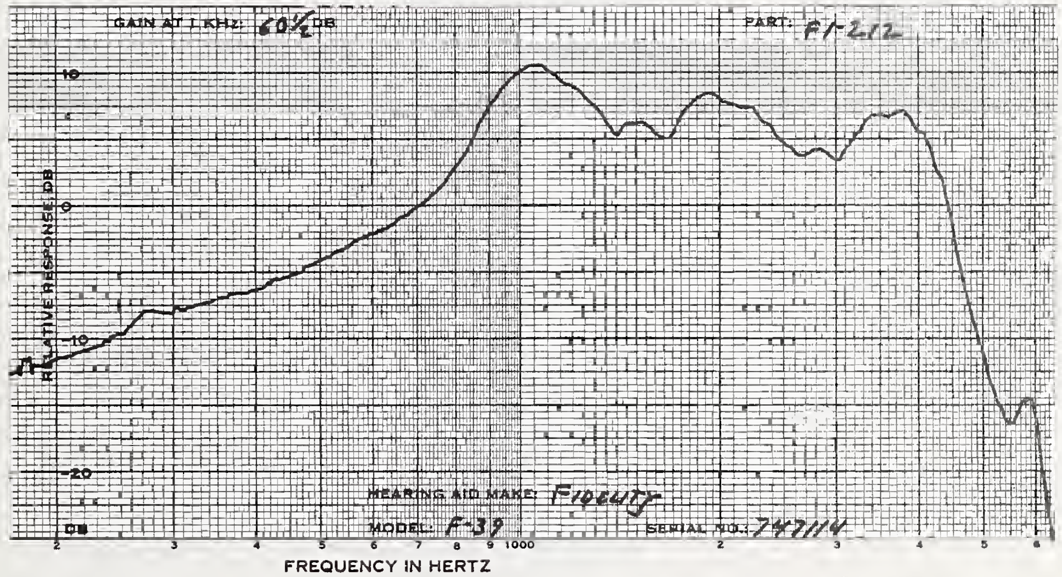

GAIN AT 1 KHz: 46.5 DB
PART: FF-210
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Fidelity
MODEL: F 37
SERIAL NO.: 743496
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

FIDELITY
OE
MODEL:F39 TONE:N PC:+ TUBING:25MM BATTERY:675

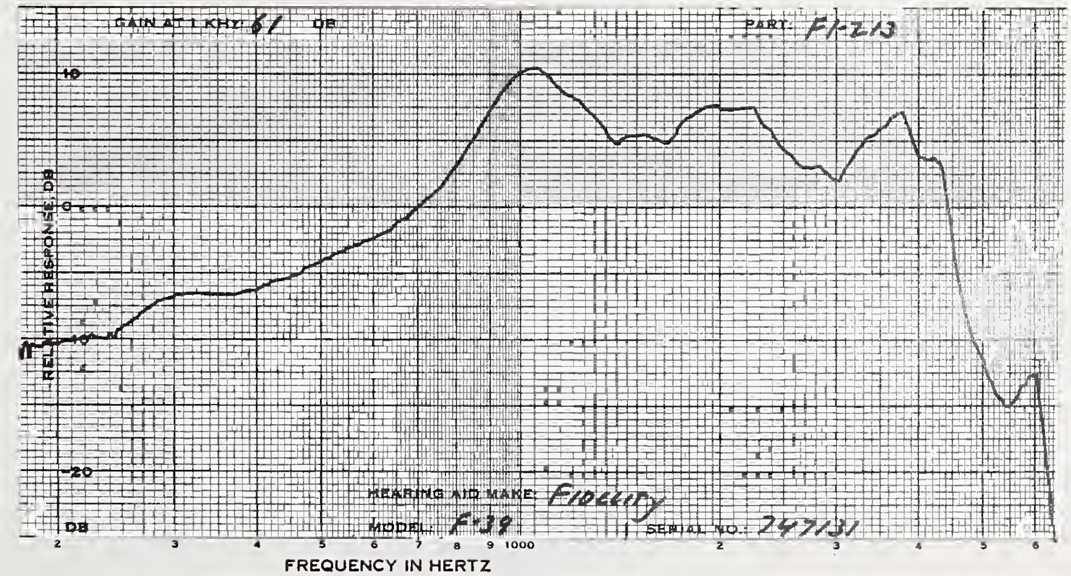
CODE	FI-211		FI-212		FI-213	
SERIAL #	746794		747114		747131	
DATE			JAN 31, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	69.0		68.0		68.5	
MPO, RANDCM NOISE						
INPUT LEVEL, DB	71.0		71.0		71.5	
OUTPUT LEVEL DB	128.5		128.0		128.5	
MEASUREMENTS WITH REDUCED VOLUME CONTRCL SETTING						
1KHZ GAIN DB	60.5		60.5		61.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	20	39	18	34	20	35
700 HZ %	6	14	6	13	6	12
900 HZ %	3	5	3	6	3	5
MAX DIST %	20	39	18	34	21	35
FREQ OF MAX DIS	500	500	550	550	550	500
S/N RATIO DB						
1KHZ SIGNAL	47.5		47.5		48.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.5		2.5		2.5	
65 DB INPUT	3.2		3.3		3.3	
BATTERY VOLTAGE	1.33		1.33		1.32	



GAIN AT 1 KHZ: 60½ DB
PART: F1-211
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-39
SERIAL NO.: 745794
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ



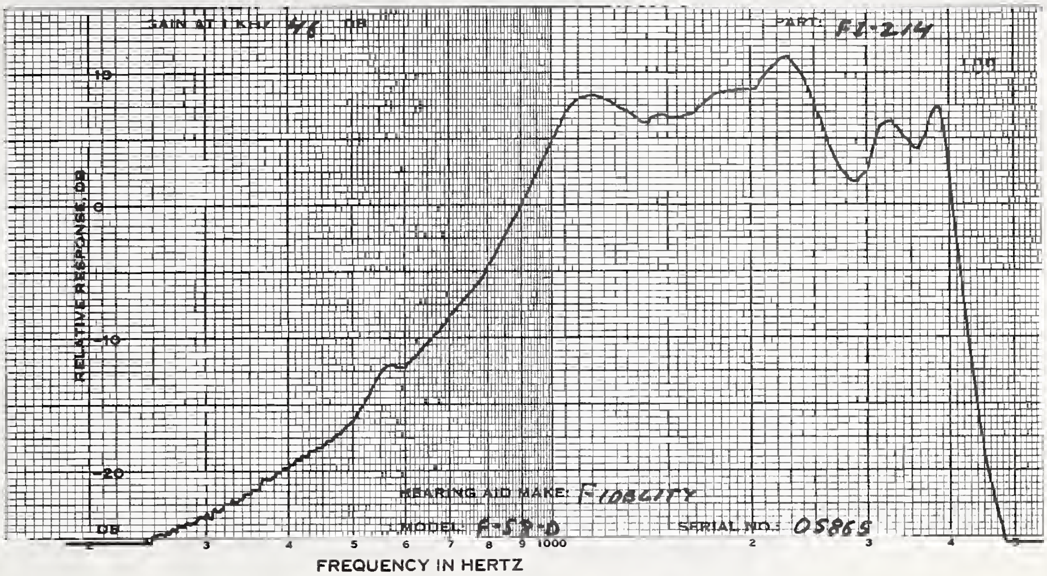
GAIN AT 1 KHZ: 60½ DB
PART: F1-212
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-39
SERIAL NO.: 747114
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ



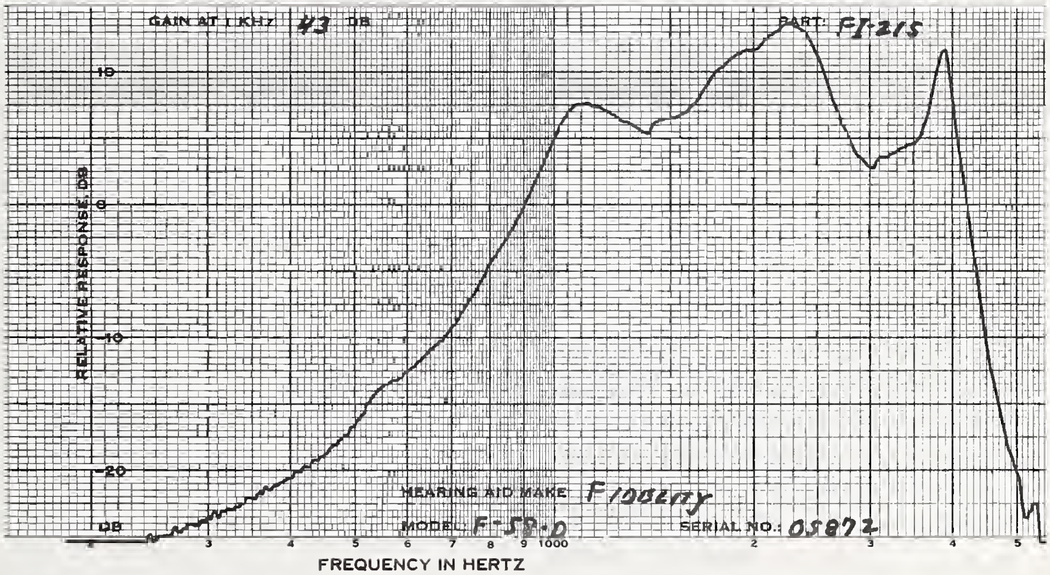
GAIN AT 1 KHZ: 61 DB
PART: F1-213
RELATIVE RESPONSE, DB
10
0
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-39
SERIAL NO.: 247131
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

FIDELITY DIR OE
MODEL:F58D AVC:0 TUBING:25MM BATTERY:675

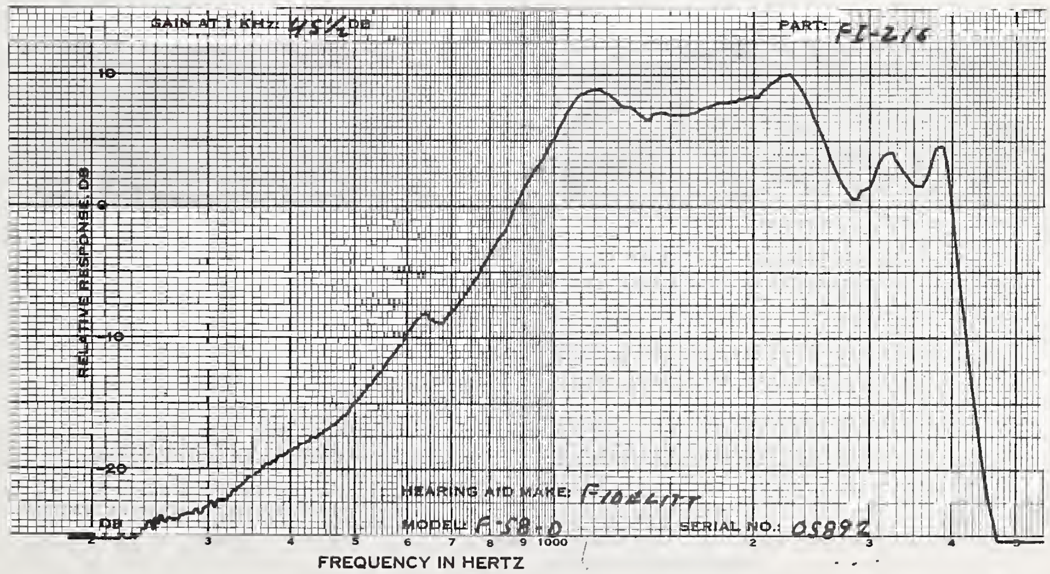
CODE	FI-214	FI-215	FI-216
SERIAL #	05865	05872	05892
DATE		APR 17, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	52.0	51.0	51.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.5	77.0	74.0
OUTPUT LEVEL DB	116.5	115.0	116.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	46.0	43.0	45.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 7	7 5	7 7
700 HZ %	4 7	4 4	5 7
900 HZ %	3 6	3 4	3 4
MAX DIST %	7 10	9 6	7 9
FREQ OF MAX DIS	500 1590	556 1750	500 1595
S/N RATIO DB			
1KHZ SIGNAL	41.0	41.0	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.3	1.3
65 DB INPUT	1.3	1.3	1.3
BATTERY VOLTAGE	1.37	1.37	1.37



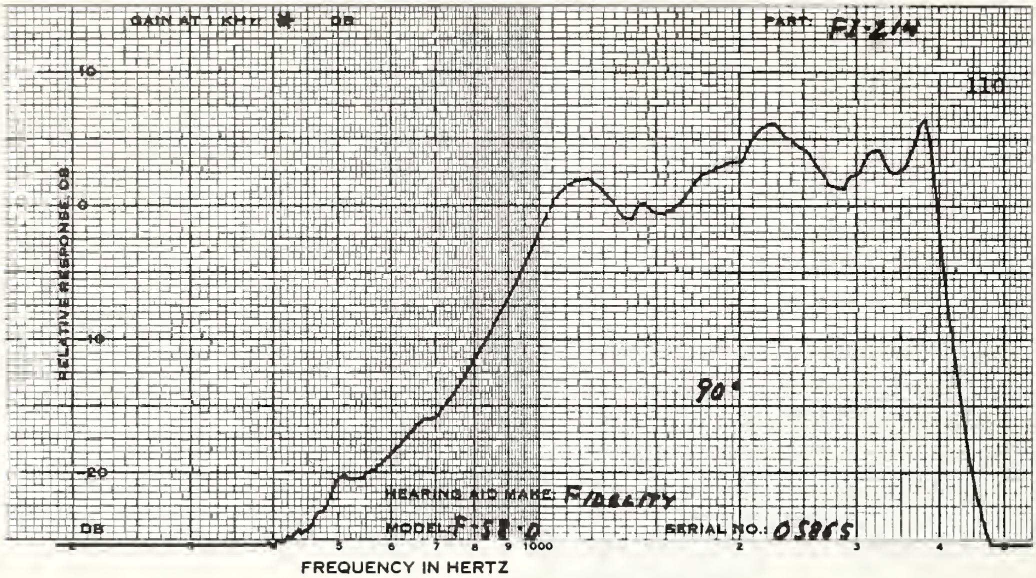
GAIN AT 1 KHz 46 DB
PART: FI-214
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-58-D
SERIAL NO.: 05865
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

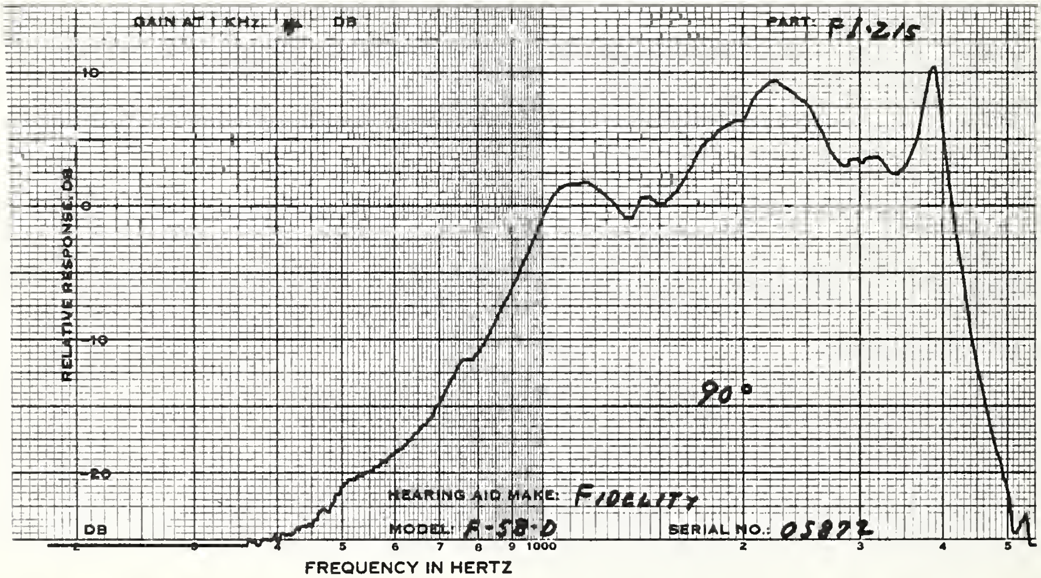


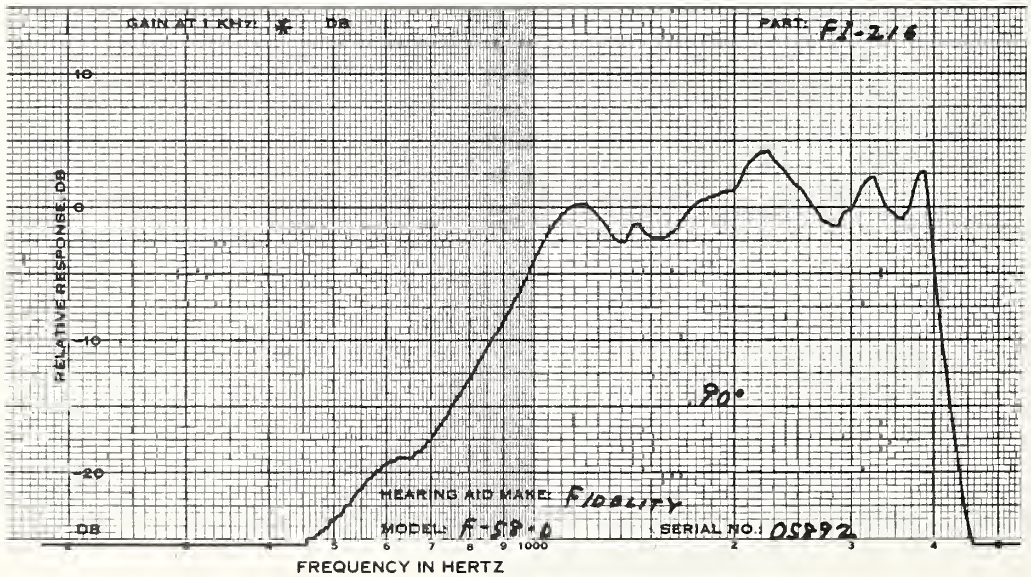
GAIN AT 1 KHz 43 DB
PART: FI-215
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-58-D
SERIAL NO.: 05872
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ



GAIN AT 1 KHz: 45½ DB
PART: FI-216
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-58-D
SERIAL NO.: 05892
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

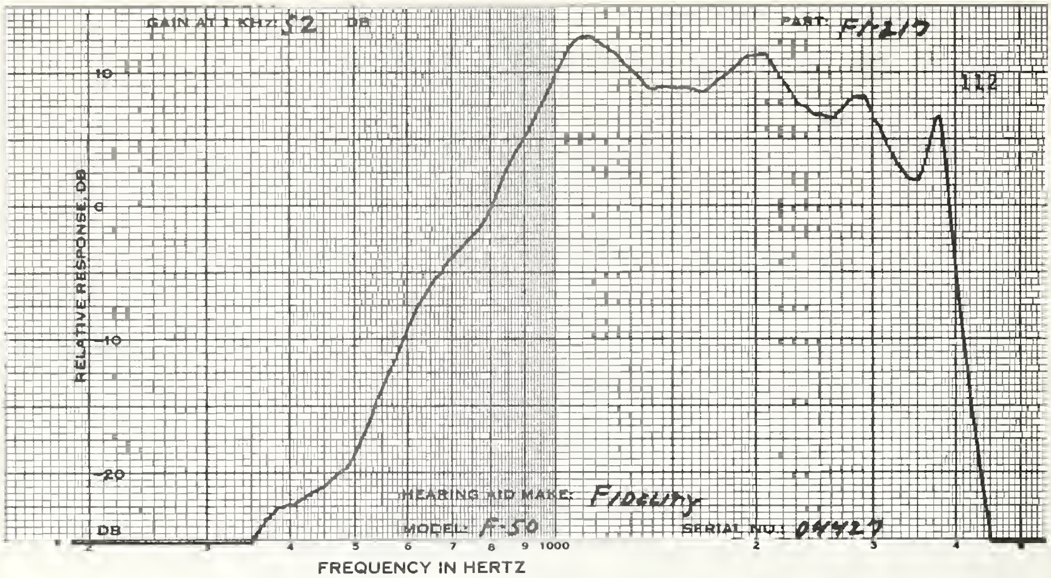

GAIN AT 1 KHz: * DB
PART: F1-214
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: FIDELITY
MODEL: F-58-D
SERIAL NO.: 05865
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

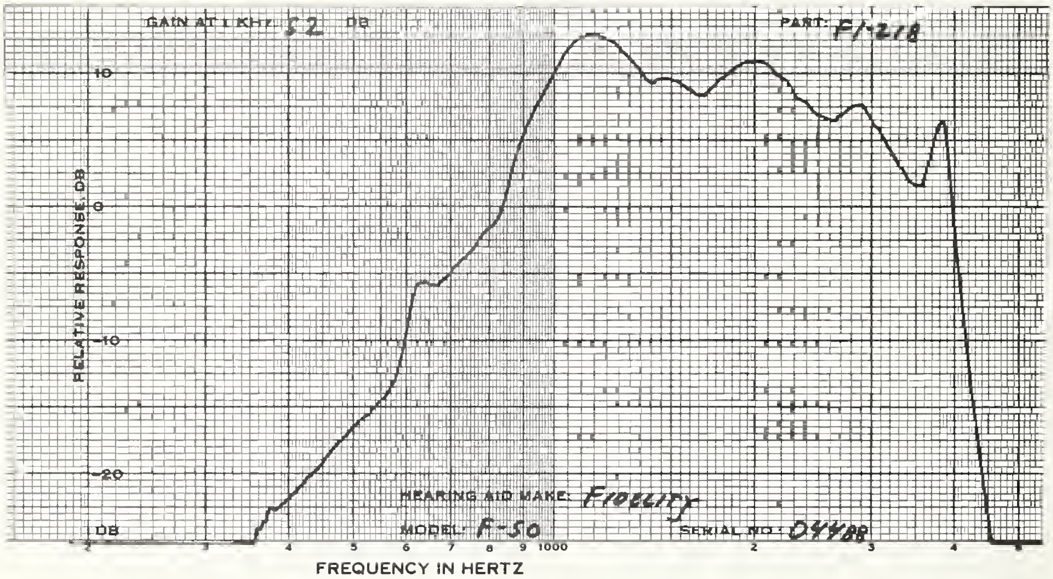

GAIN AT 1 KHz: * DB
PART: F1-215
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: FIDELITY
MODEL: F-58-D
SERIAL NO.: 05872
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

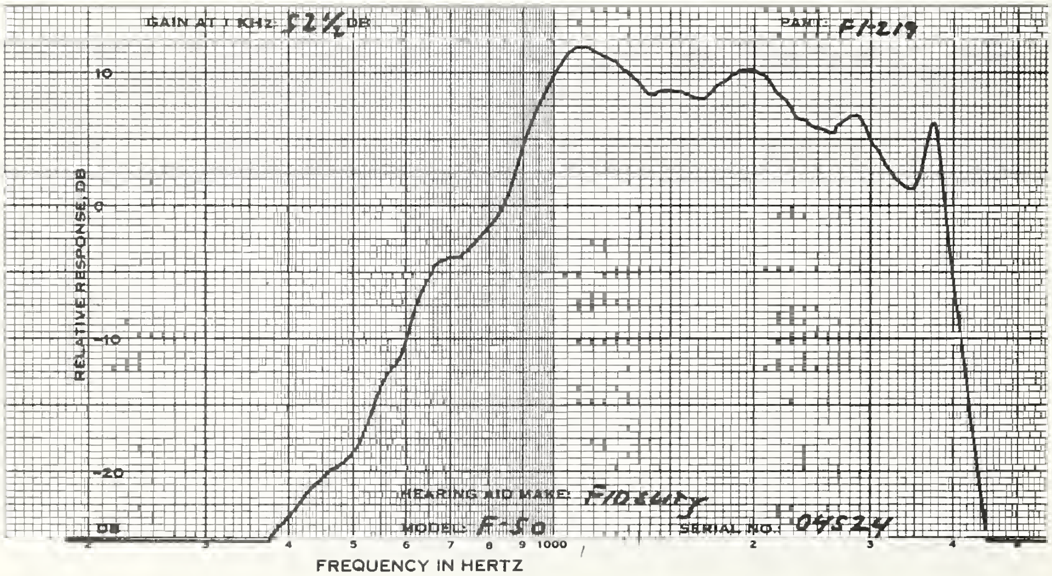

GAIN AT 1 KHz: * DB
PART: F1-216
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: FIDELITY
MODEL: F-58-D
SERIAL NO.: 05892
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

FIDELITY OE
MODEL:F50 TONE:NONE TUBING:28MM BATTERY:675

CODE	FI-217	FI-218	FI-219
SERIAL #	04427	04488	04524
DATE		FEB 3, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	57.5	56.0	57.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	72.0	72.5	72.0
OUTPUT LEVEL DB	121.5	121.0	121.5
MEASUREMENTS WITH REDUCED VCLUME CONTROL SETTING			
1KHZ GAIN DB	52.0	52.0	52.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	17 16	15 15	18 22
700 HZ %	2 7	2 7	1 9
900 HZ %	0 4	0 6	0 6
MAX DIST %	17 16	15 15	18 22
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	51.0	51.0	52.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	1.7	1.7
65 DB INPUT	1.7	1.7	1.7
BATTERY VOLTAGE	1.33	1.33	1.33

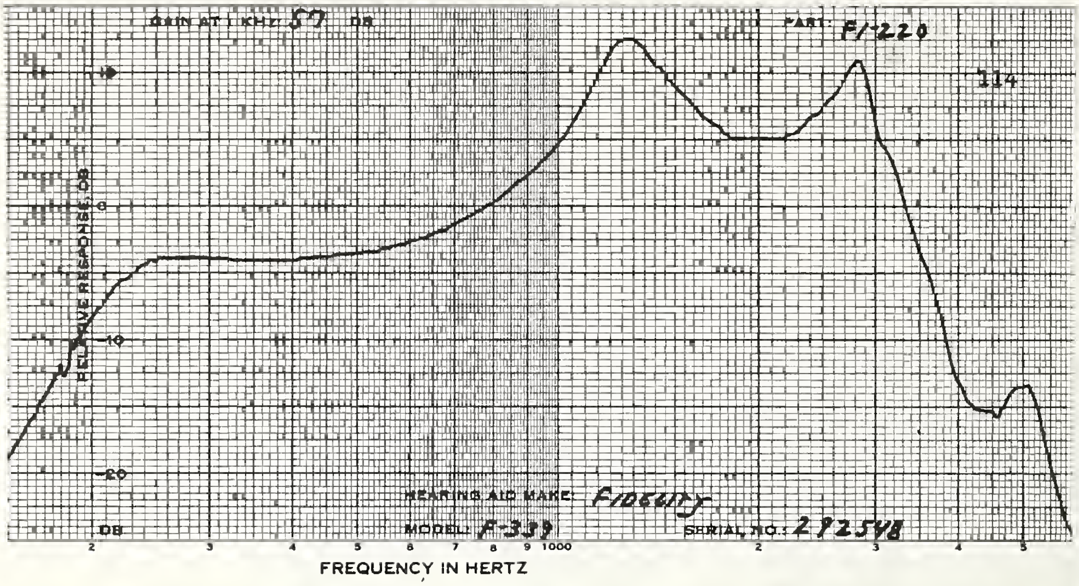

GAIN AT 1 KHZ: 52 DB
PART: F1-217
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-50
SERIAL NO.: 04427
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

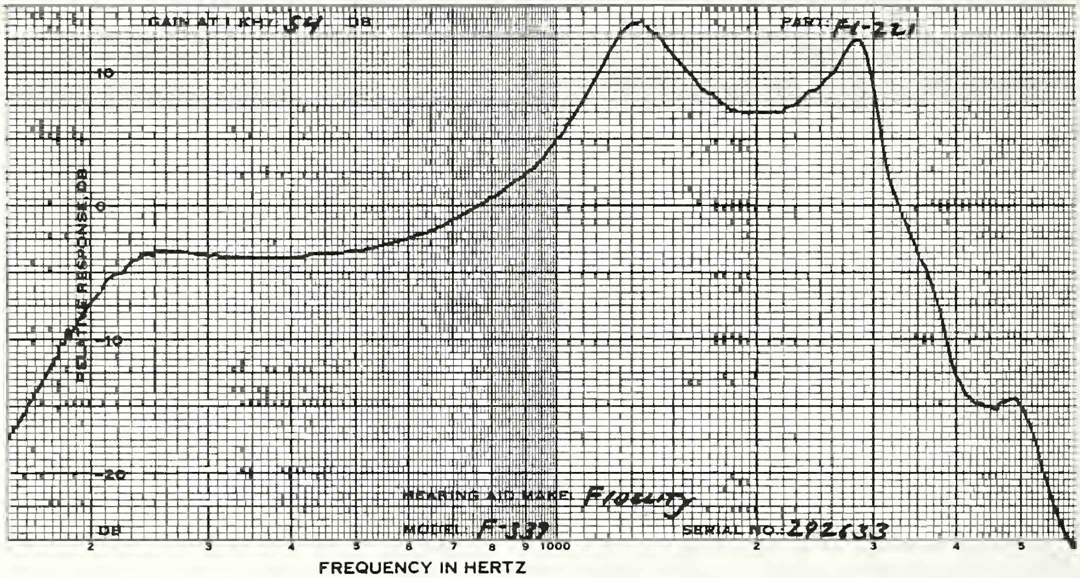

GAIN AT 1 KHZ: 52 DB
PART: F1-218
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-50
SERIAL NO.: 04488
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

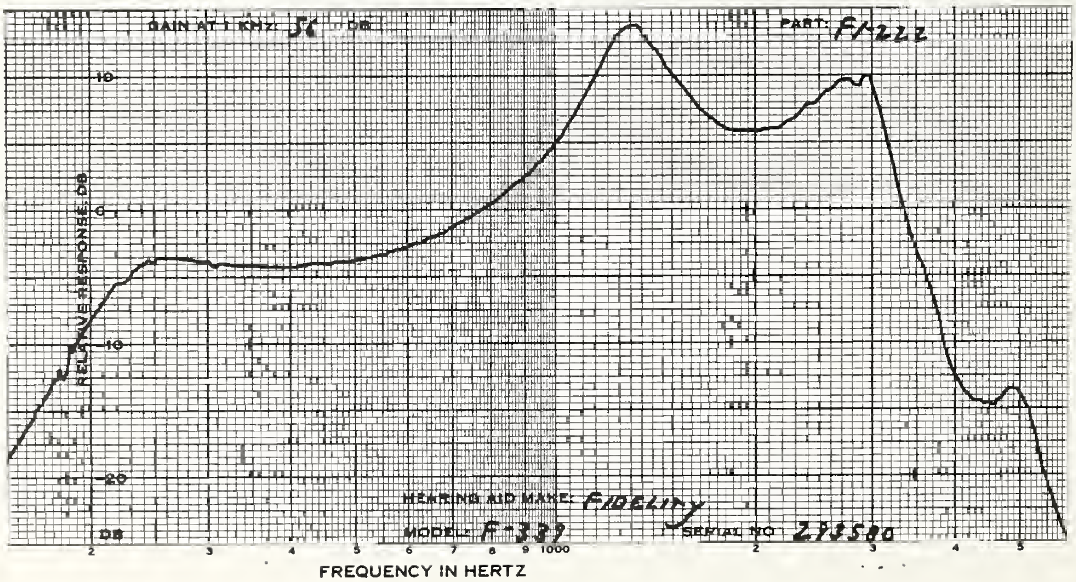

GAIN AT 1 KHZ: 52½ DB
PART: F1-219
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-50
SERIAL NO.: 04524
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

MODEL:F339 TONE:N RECEIVER:62 BATTERY:1015

CODE	FI-220	FI-221	FI-222
SERIAL #	292548	292633	293580
DATE		FEB 4, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	69.0	67.5	67.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	71.5	69.0	72.0
OUTPUT LEVEL DB	128.5	128.0	128.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	57.0	54.0	56.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 19	4 14	4 13
700 HZ %	9 19	6 22	6 20
900 HZ %	2 5	2 6	1 5
MAX DIST %	12 31	9 30	7 26
FREQ OF MAX DIS	670 620	660 660	640 640
S/N RATIO DB			
1KHZ SIGNAL	50.5	48.5	47.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	5.0	4.4	4.8
65 DB INPUT	5.0	4.4	4.8
BATTERY VOLTAGE	1.55	1.55	1.55


GAIN AT 1 KHZ: 57 DB
PART: F1220
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-339
SERIAL NO.: 292548
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 54 DB
PART: F1-221
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-339
SERIAL NO.: 292633
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 56 DB
PART: F1222
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: FIDELITY
MODEL: F-339
SERIAL NO: 293580
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

LEHR HPS EG
MODEL:OPTICA BI-FROS TONE:N TUBING:42MM BATTERY:675

CODE	LE-097	LE-098	LE-099
SERIAL #	4320093	4320011	4020178
DATE		JUN 10, 1975	
MEASUREMENTS WITH FULL VCL CONTROL *			
1KHZ GAIN DB	34.5	33.0	35.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	84.0	84.0	81.5
OUTPUT LEVEL DB	123.0	123.5	124.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	29.5	28.0	30.0
S/N RATIO DB			
2KHZ SIGNAL	45.5	46.5	45.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.8	1.8	2.0
65 DB INPUT	1.8	1.8	2.0
BATTERY VOLTAGE	1.31	1.31	1.31

THESE DATA ARE FOR THE RIGHT SIDES OF A BINAURAL MODEL. THE FOLLOWING PAGE ARE THE DATA FOR THE LEFT SIDE OF ONE OF THE AIDS.

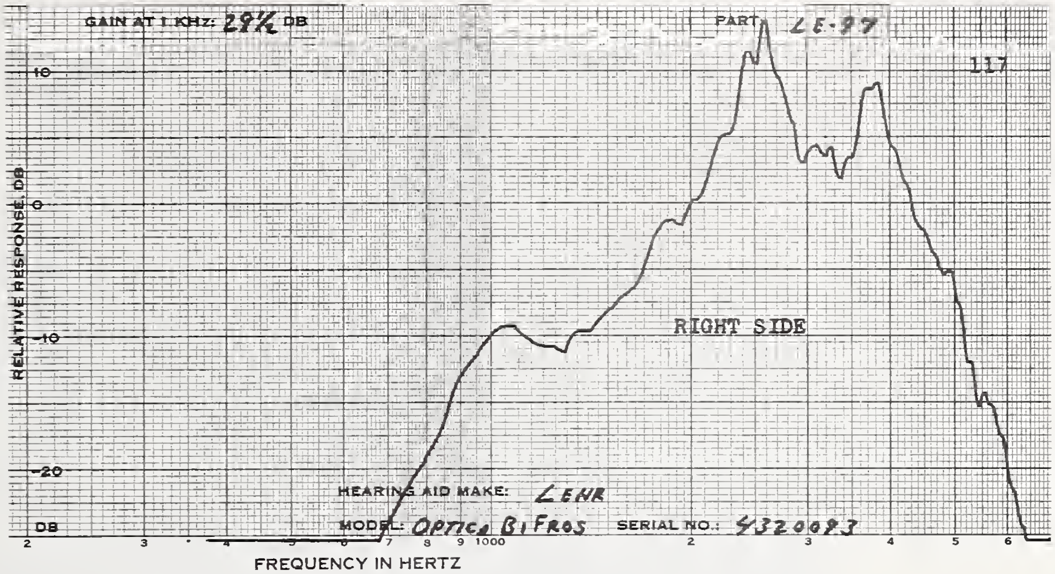
*Maximum setting possible without feedback.

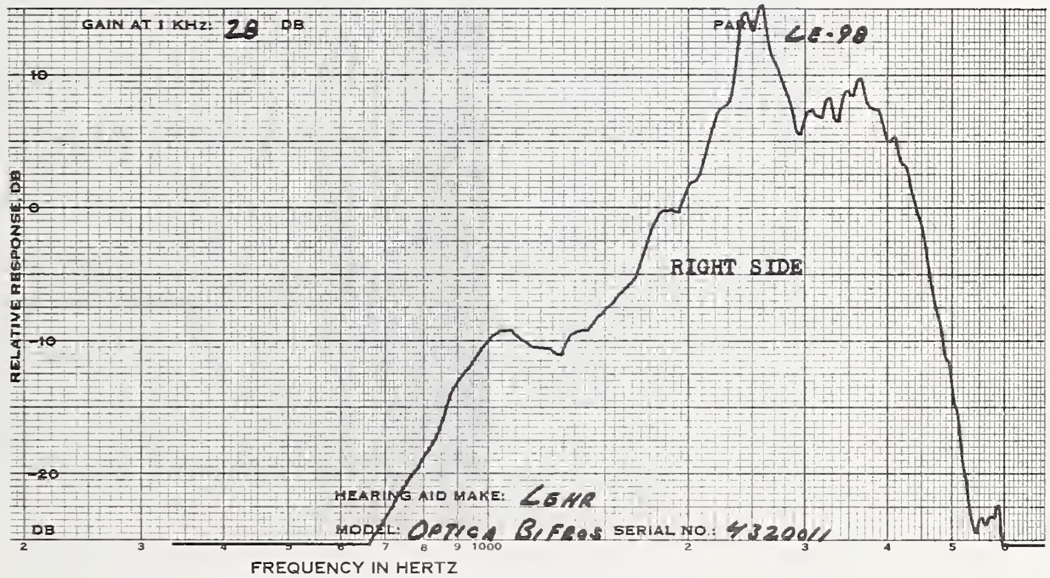
LEHR
OPTICA BI-FROS CONTINUATION.

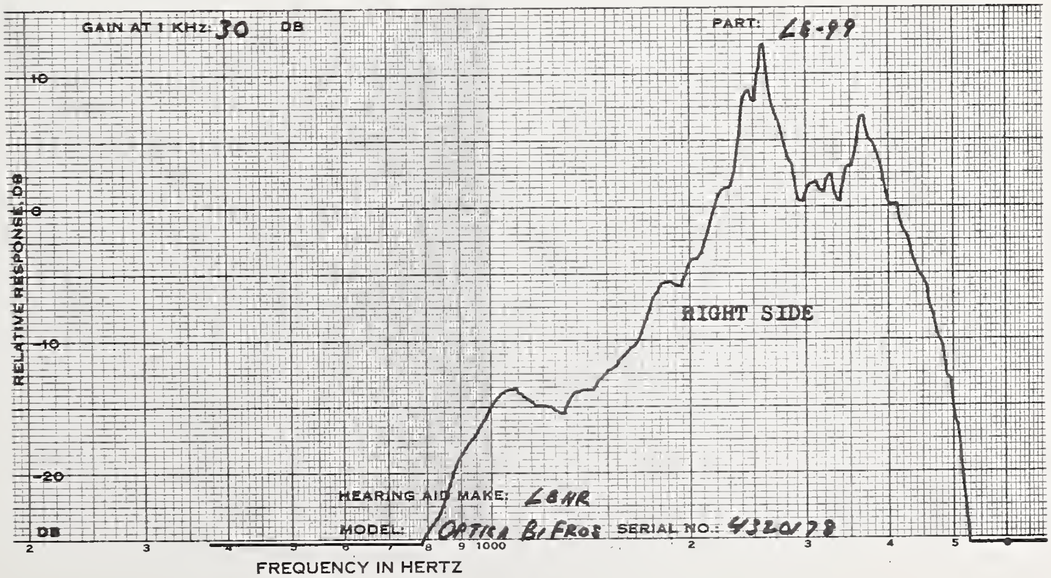
1EG

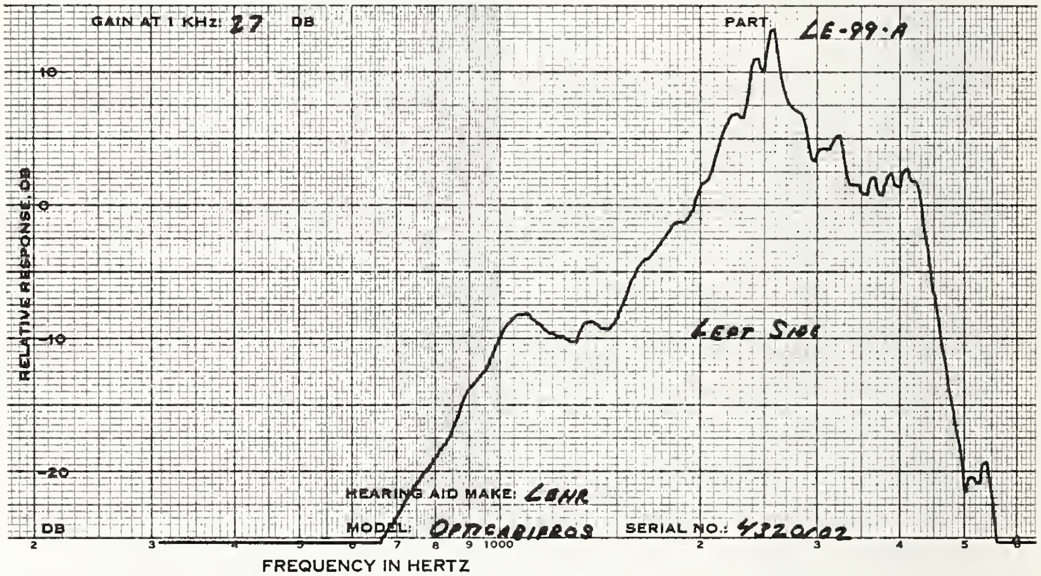
CODE	LE-099
SERIAL #	4320102
DATE	
MEASUREMENTS WITH FULL VCL CONTROL *	
1KHZ GAIN DB	32.0
MPO, RANDCM NOISE	
INPUT LEVEL, DB	84.0
OUTPUT LEVEL DB	121.5
MEASUREMENTS WITH REDUCED VCLUME CONTROL SETTING	
1KHZ GAIN DB	27.0
S/N RATIO DB	
2KHZ SIGNAL	46.5
S/HUM RATIO DB	
2KHZ SIGNAL	N.M.
BATTERY DRAIN, MA	
NO INPUT	1.8
65 DB INPUT	1.8
BATTERY VOLTAGE	1.31

*Maximum setting possible without feedback.


GAIN AT 1 KHZ: 29½ DB
PART: LE-97
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
RIGHT SIDE
HEARING AID MAKE: LEHR
MODEL: OPTICA BiFROS
SERIAL NO.: 4320093
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 28 DB
PART: LE-98
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
RIGHT SIDE
HEARING AID MAKE: LEHR
MODEL: OPTICA BiFROS
SERIAL NO.: 4320011
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

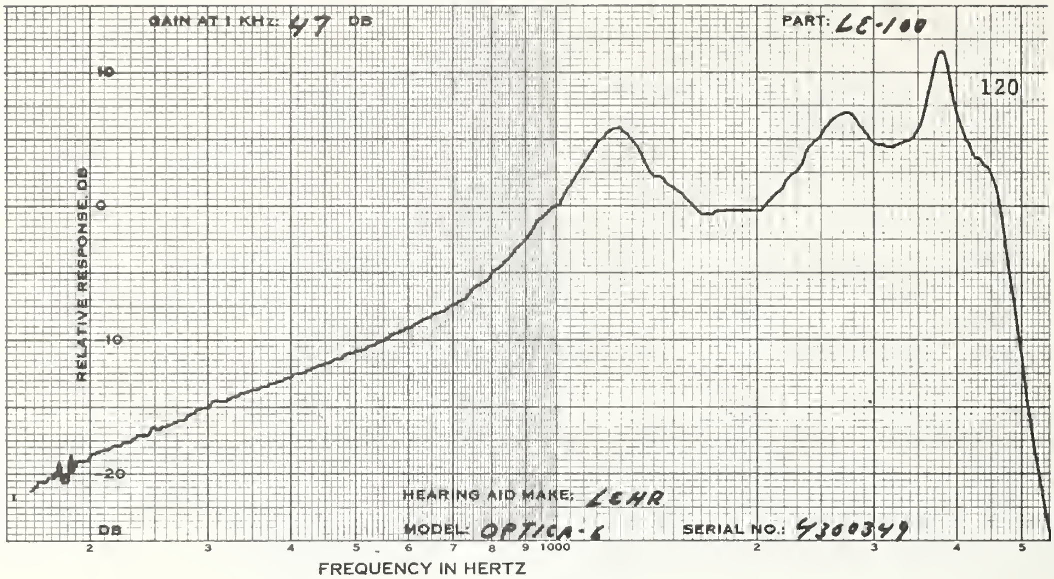

GAIN AT 1 KHZ: 30 DB
PART: LE-99
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
RIGHT SIDE
HEARING AID MAKE: LEHR
MODEL: OPTICA BiFROS
SERIAL NO.: 4320178
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

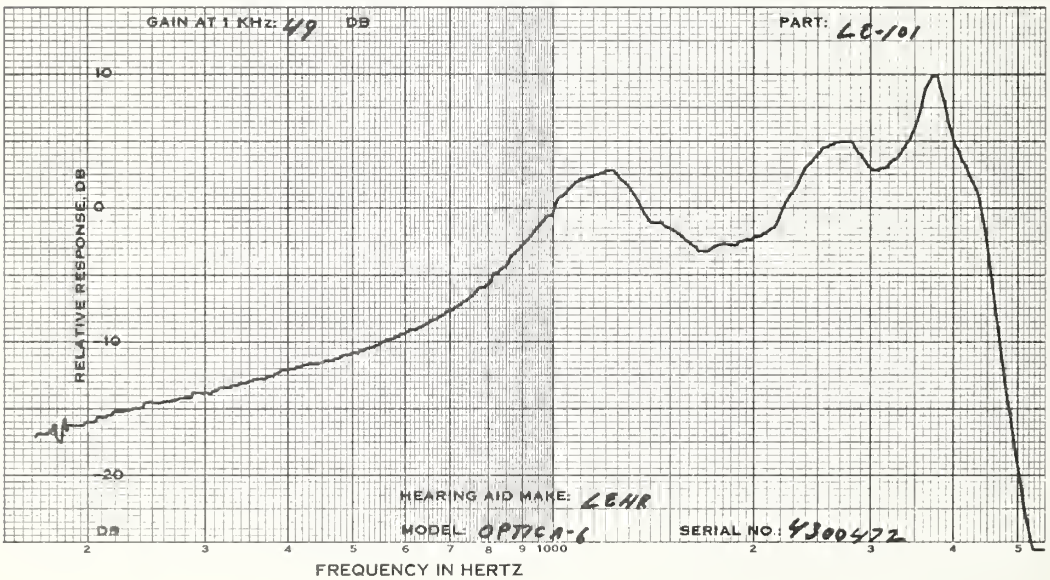

GAIN AT 1 KHz: 27 DB
PART: LE-99-A
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
LEFT SIDE
HEARING AID MAKE: LEHR
MODEL: OPTICABIFROS
SERIAL NO.: 4320102
2
3
4
5
6
7
8
9
1000
FREQUENCY IN HERTZ

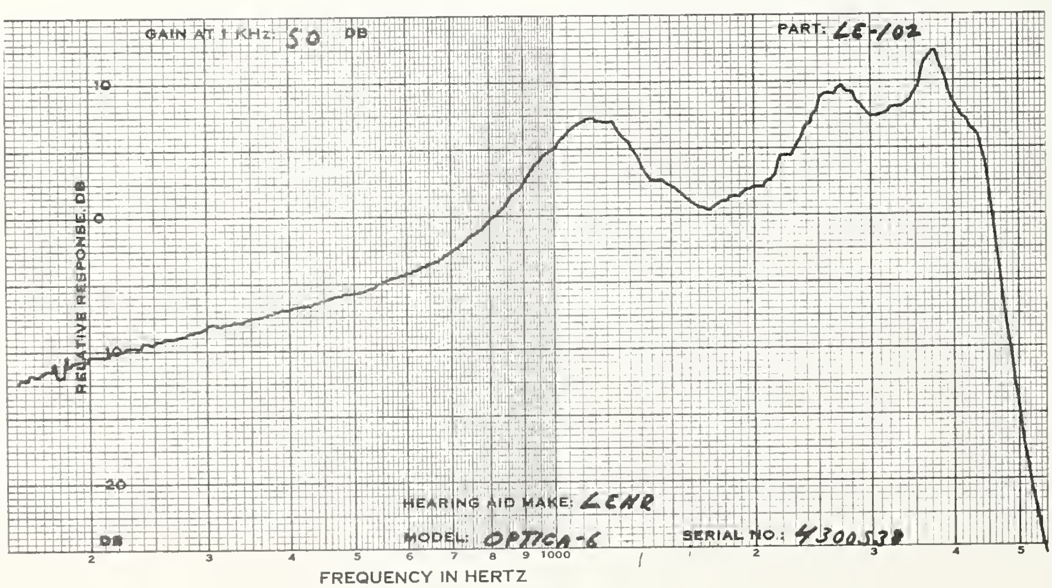
LEHR EG

MODEL:OPTICA 6 TONE:L TUBING:35MM BATTERY:675

CODE	LE-100	LE-101	LE-1C2
SERIAL #	4300349	4300472	4300538
DATE		MAR 4, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	50.0	55.5	53.5
MPO, RANDCM NOISE			
INPUT LEVEL, DB	76.0	75.0	74.0
OUTPUT LEVEL DB	120.0	121.0	120.5
MEASUREMENTS WITH REDUCED VOLUME CCNTRCL SETTING			
1KHZ GAIN DB	47.0	49.0	50.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 6	8 18	6 15
700 HZ %	3 5	4 9	3 7
900 HZ %	2 3	2 4	2 3
MAX DIST %	6 10	9 19	7 15
FREQ OF MAX DIS	610 610	530 530	550 500
S/N RATIO DB			
1KHZ SIGNAL	38.0	40.5	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.9	1.9	1.7
65 DB INPUT	1.9	1.9	1.7
BATTERY VOLTAGE	1.40	1.38	1.38

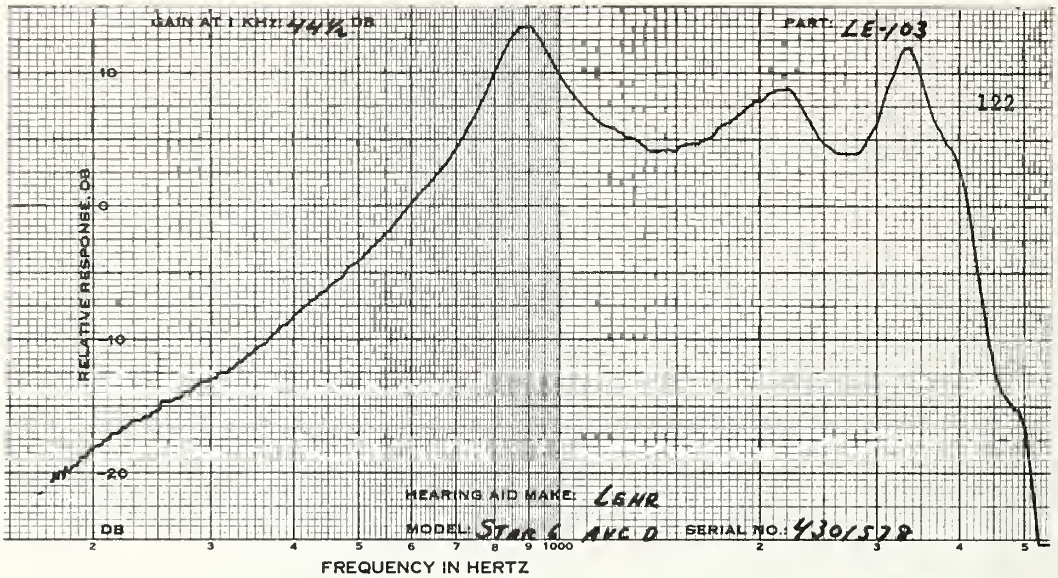

GAIN AT 1 KHz: 47 DB
PART: LE-100
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: OPTICA-6
SERIAL NO.: 4300349
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 49 DB
PART: LE-101
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: OPTICA-6
SERIAL NO.: 4300472
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

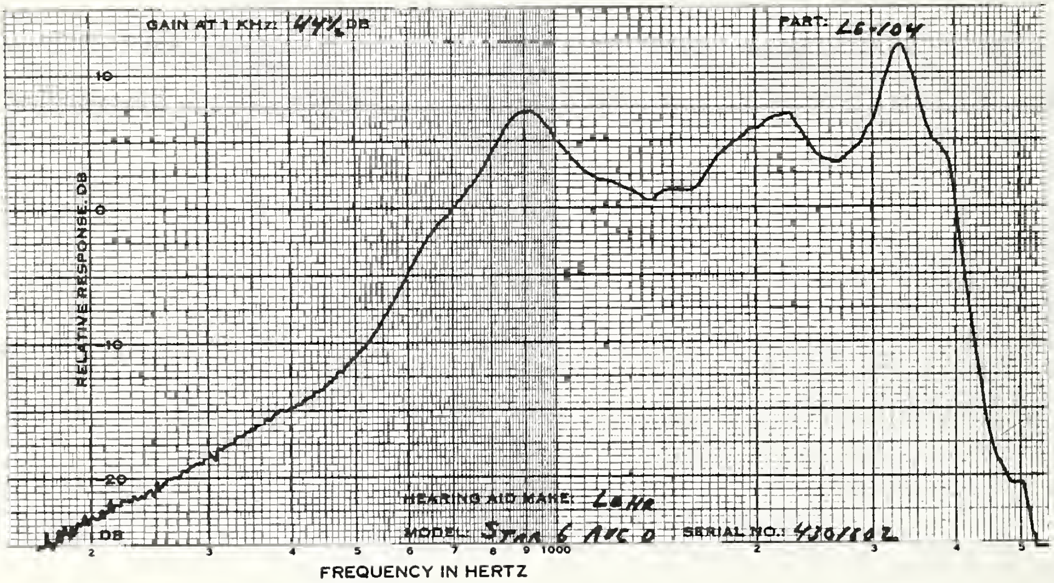

GAIN AT 1 KHz: 50 DB
PART: LE-102
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: OPTICA-6
SERIAL NO.: 4300538
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

LEHR DIR OE
MODEL:*6AVC-D AVC:CCW PC:CW TUBING:25MM BATTERY:675

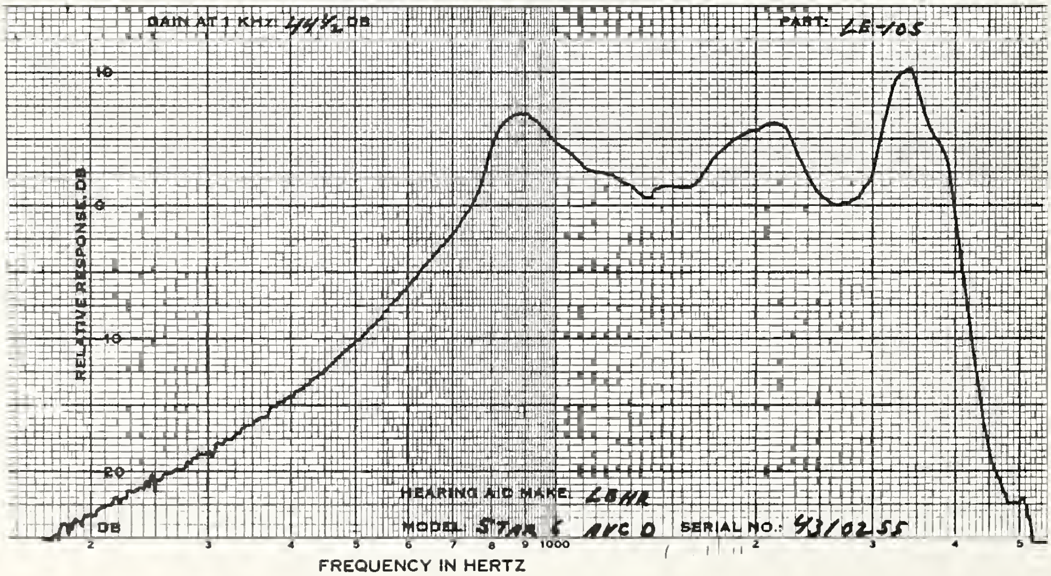
CODE	LE-103	LE-104	LE-105
SERIAL #	4301578	4301602	4310255
DATE		APR 18, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	44.5	44.5	44.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	85.0	84.0	84.5
OUTPUT LEVEL DB	120.0	119.5	119.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	44.5(FULL)	44.5(FULL)	44.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	66.5 76.5	64.0 74.0	65.5 75.5
500 HZ %	5 10	5 8	3 5
700 HZ %	1 4	1 2	1 2
900 HZ %	0 1	0 1	0 0
MAX DIST %	6 21	5 10	5 13
FREQ OF MAX DIS	1640 1640	500 1790	1695 1695
S/N RATIO DB			
1KHZ SIGNAL	41.0	38.5	39.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	1.5	1.6
65 DB INPUT	1.7	1.5	1.6
BATTERY VOLTAGE	1.33	1.33	1.33



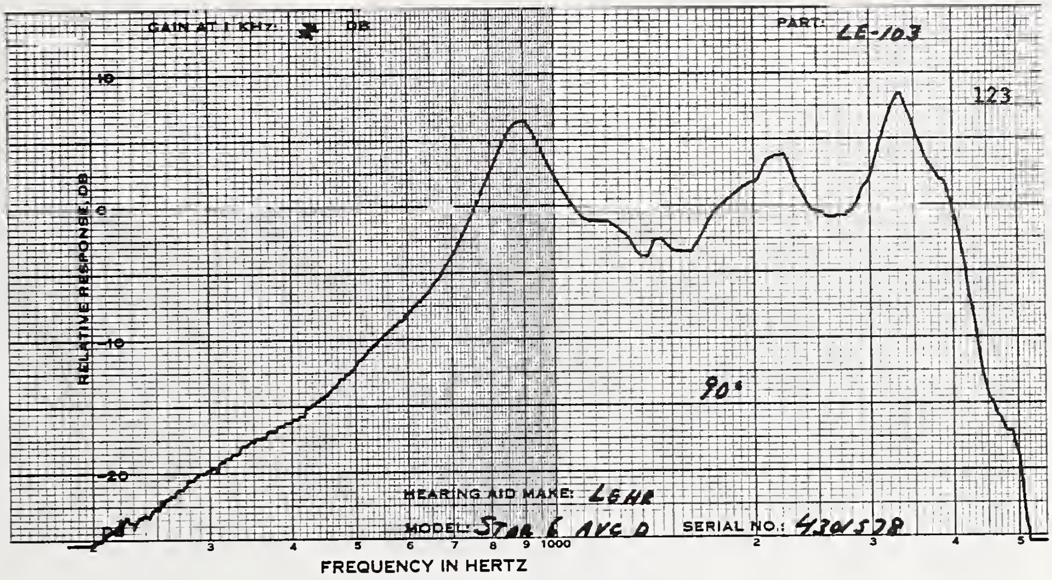
GAIN AT 1 KHz: 44½ DB
PART: LE-103
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: STAR 6 AVC D
SERIAL NO.: 4301578
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

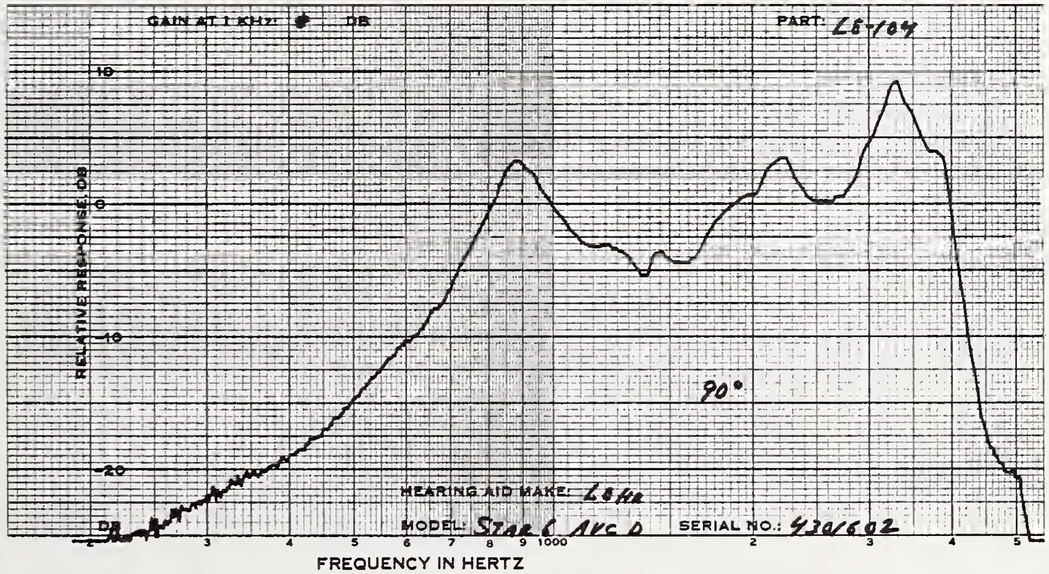


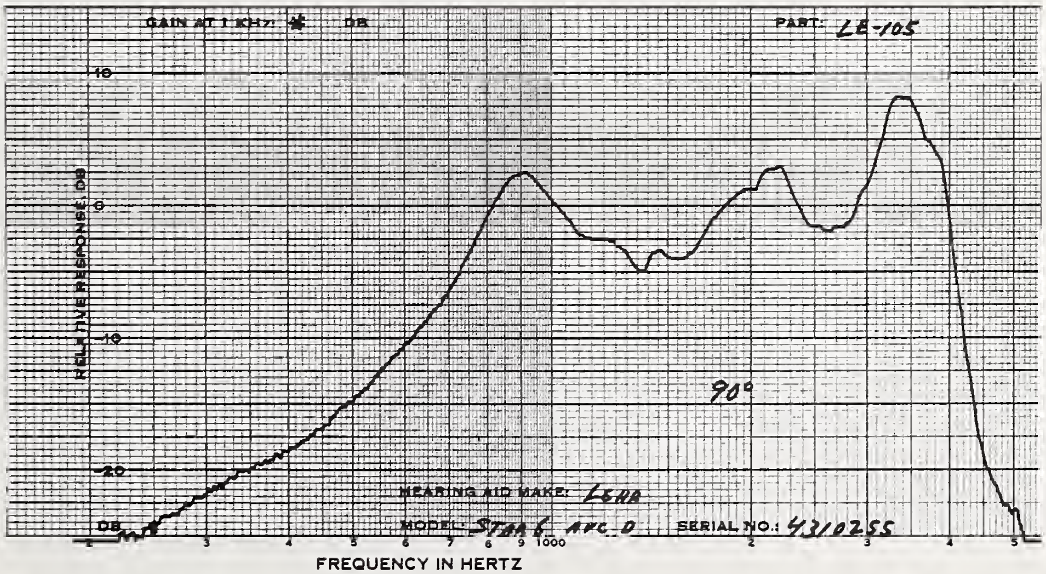
GAIN AT 1 KHz: 44½ DB
PART: LE-104
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: STAR 6 AVC D
SERIAL NO.: 4301602
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ



GAIN AT 1 KHz: 44½ DB
PART: LE-105
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: LEHR
MODEL: STAR 6 AVC D
SERIAL NO.: 4310255
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: LE-103
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: LGHR
MODEL: STAR 6 AVC D
SERIAL NO.: 4301578
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

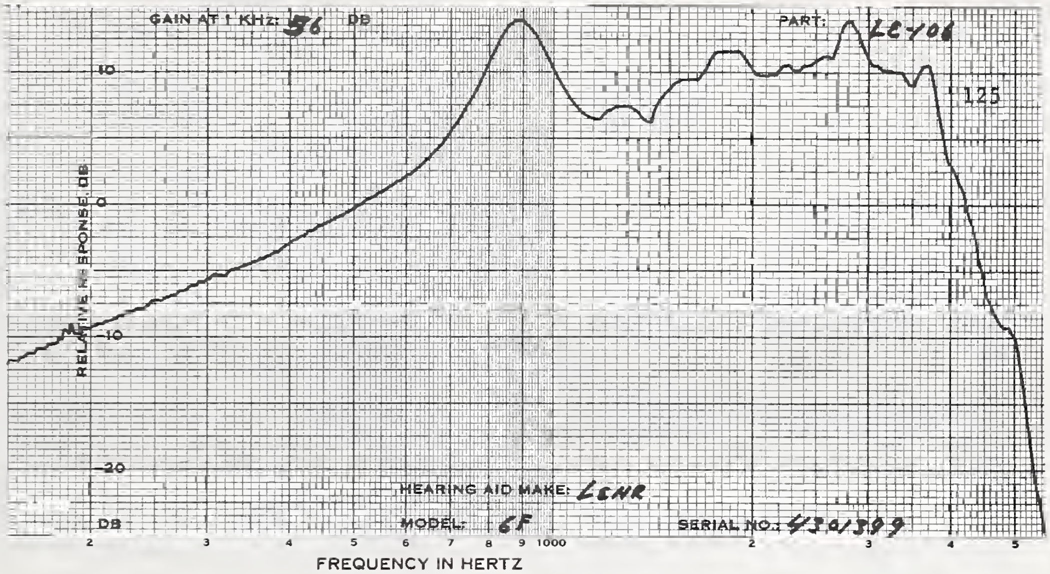

GAIN AT 1 KHz: * DB
PART: LE-104
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: LGHR
MODEL: STAR 6 AVC D
SERIAL NO.: 4301602
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

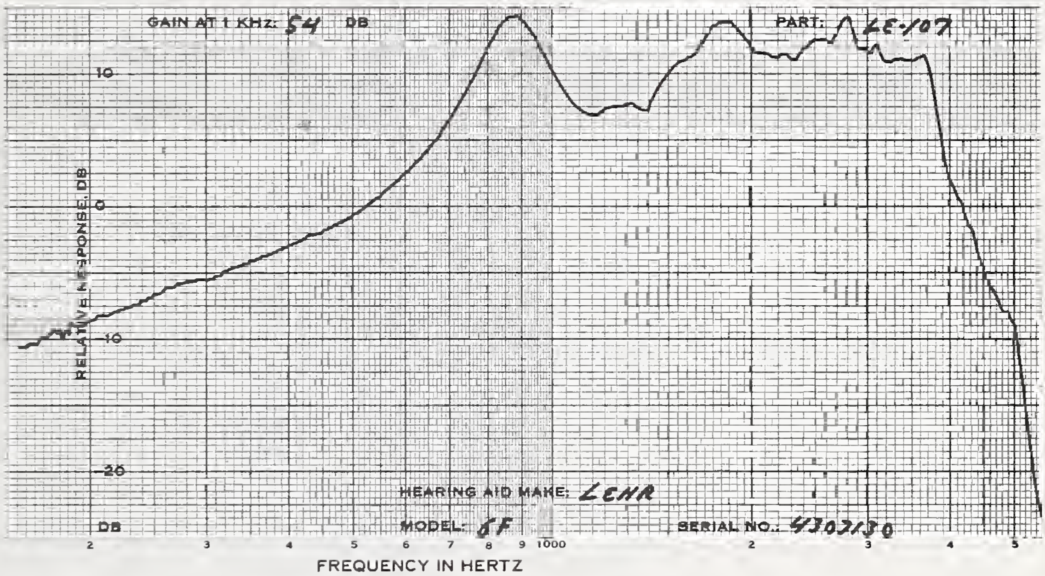

GAIN AT 1 KHz: * DB
PART: LE-105
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: LGHR
MODEL: STAR 6 AVC D
SERIAL NO.: 4310255
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

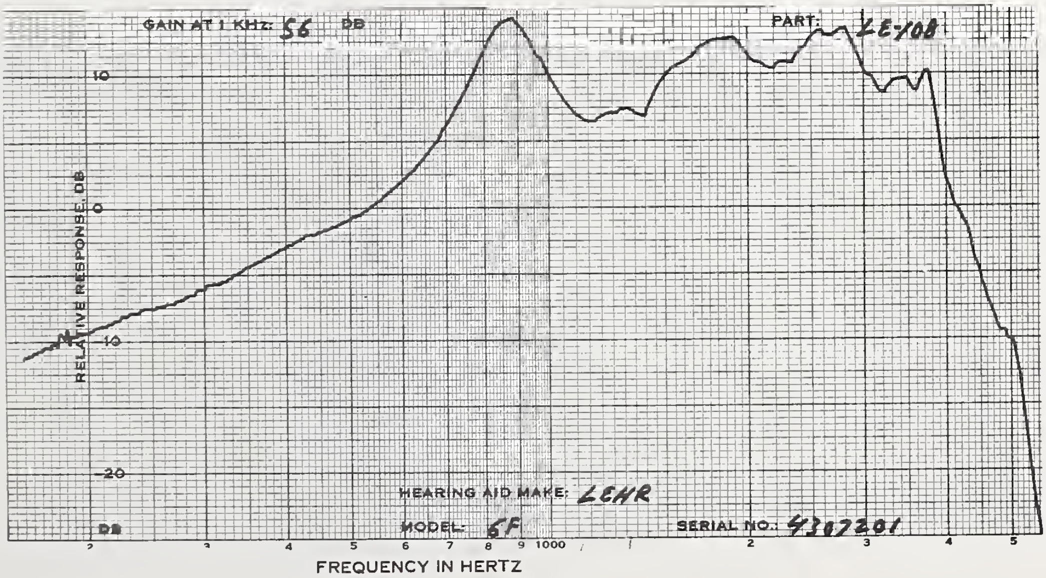
LEHR OE

MODEL:*6F PC:CW TUBING:25MM BATTERY:675

CODE	LE-106		LE-107		LE-108	
SERIAL #	4301399		4307130		4307201	
DATE			FEB 24, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	65.0		60.5		61.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	70.5		71.5		72.5	
OUTPUT LEVEL DB	127.0		126.5		127.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	56.0		54.0		56.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	6	10	4	7	5	8
700 HZ %	1	4	1	2	1	2
900 HZ %	0	0	0	2	0	2
MAX DIST %	6	10	4	7	5	8
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	46.0		43.5		43.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.8		2.8		2.8	
65 DB INPUT	3.3		3.5		3.3	
BATTERY VOLTAGE	1.33		1.33		1.33	


GAIN AT 1 KHz: 56 DB
PART: LE-106
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: 6F
SERIAL NO.: 4301399
2
3
4
5
6
7
8
9
1000
FREQUENCY IN HERTZ

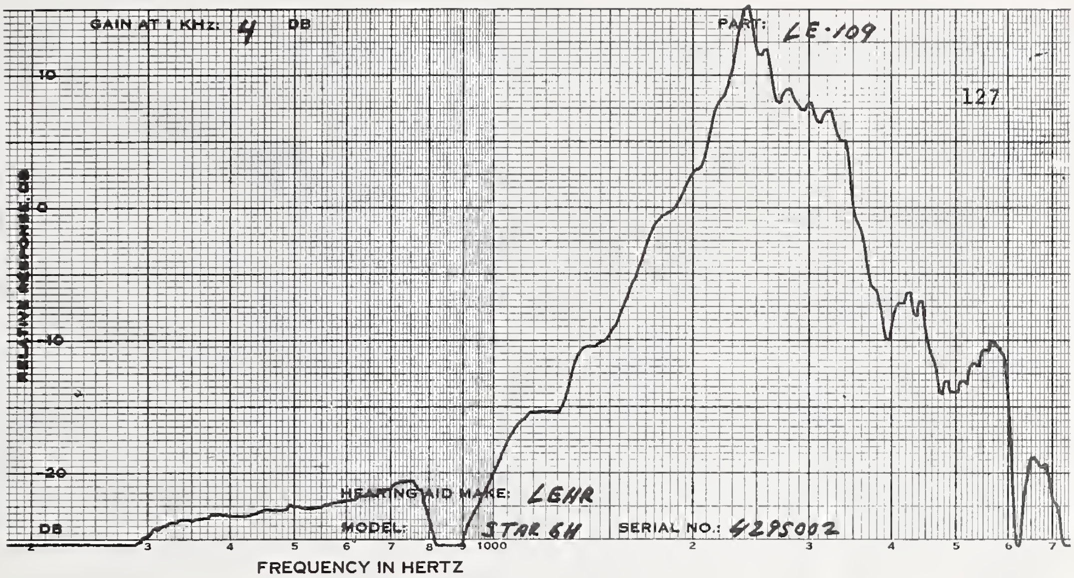

GAIN AT 1 KHz: 54 DB
PART: LE-107
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: 6F
SERIAL NO.: 4307130
2
3
4
5
6
7
8
9
1000
FREQUENCY IN HERTZ

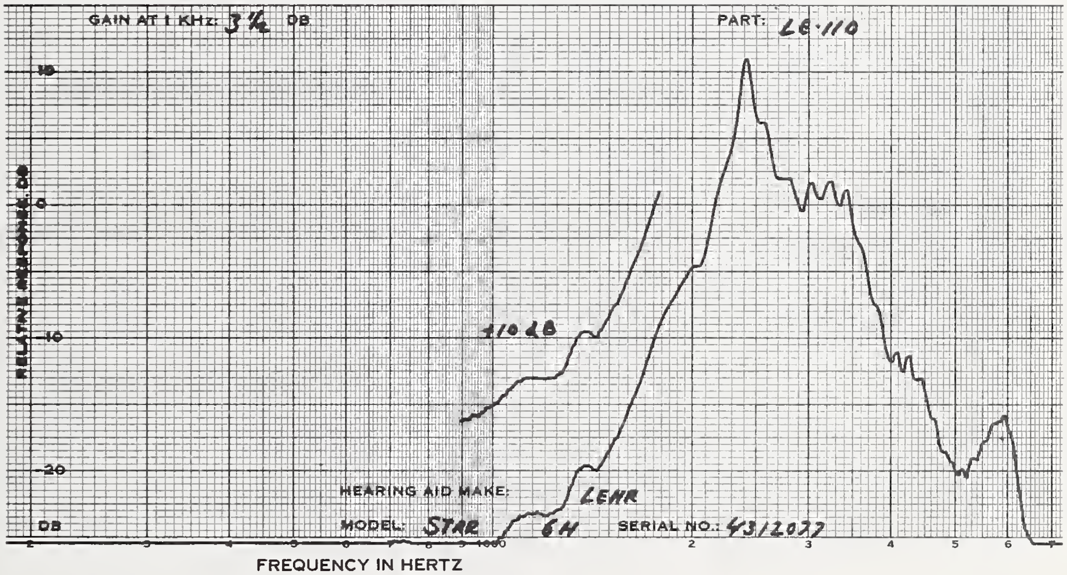

GAIN AT 1 KHz: 56 DB
PART: LE-108
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: 6F
SERIAL NO.: 4307201
2
3
4
5
6
7
8
9
1000
FREQUENCY IN HERTZ

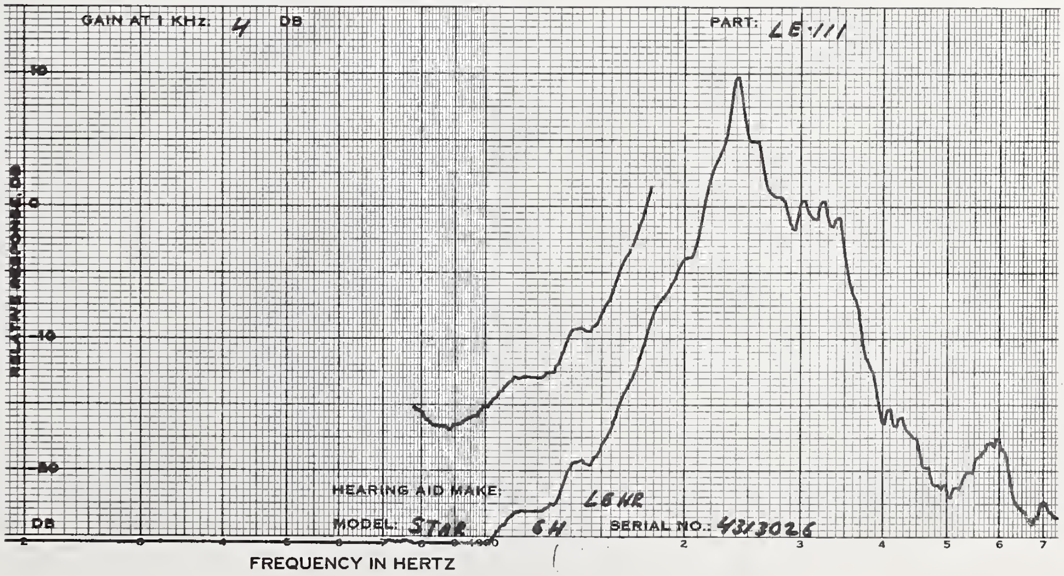
MODEL:*6H TONE H:CCW PC:CW TUBING:25MM BATTERY:675

CODE	LE-109	LE-110	LE-111
SERIAL #	4295002	4312077	4313026
DATE		JULY 2, 1975	
MEASUREMENTS WITH FULL VOL CONTROL *			
1KHZ GAIN DB	7.0	7.0	7.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	86.0	86.0	86.0
OUTPUT LEVEL DB	120.0	121.0	122.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	4.0	3.5	4.0
S/N RATIO DB			
2KHZ SIGNAL	37.0	39.5	40.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.9	1.9	1.9
65 DB INPUT	1.9	1.9	1.9
BATTERY VOLTAGE	1.33	1.33	1.33

*Maximum setting possible without feedback.

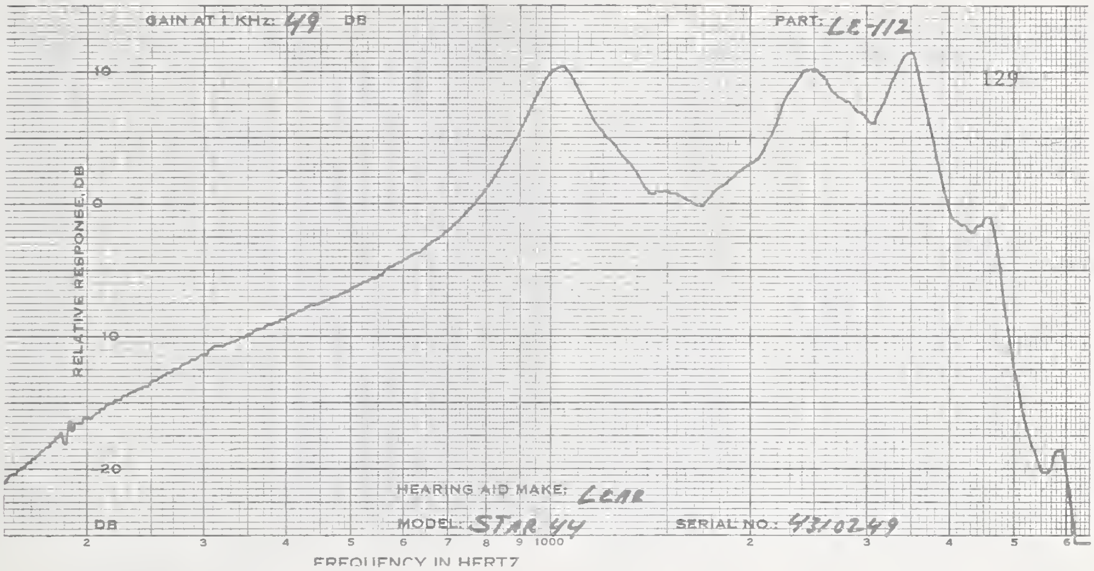

GAIN AT 1 KHz: 4 DB
PART: LE-109
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: STAR 6H
SERIAL NO.: 4295002
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

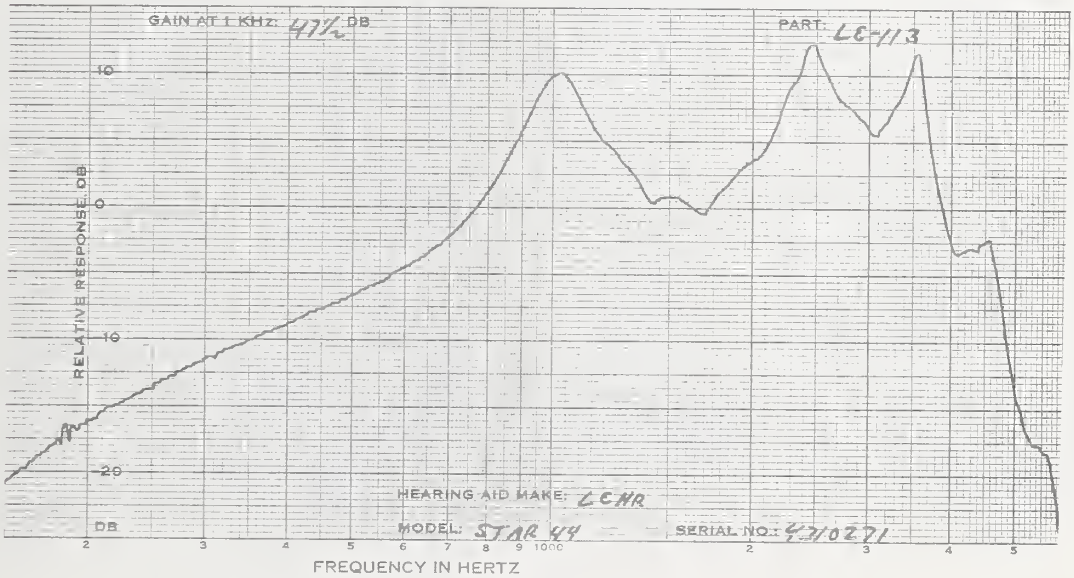

GAIN AT 1 KHz: 3½ DB
PART: LE-110
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
+10 dB
HEARING AID MAKE: LEHR
MODEL: STAR 6H
SERIAL NO.: 4312077
FREQUENCY IN HERTZ

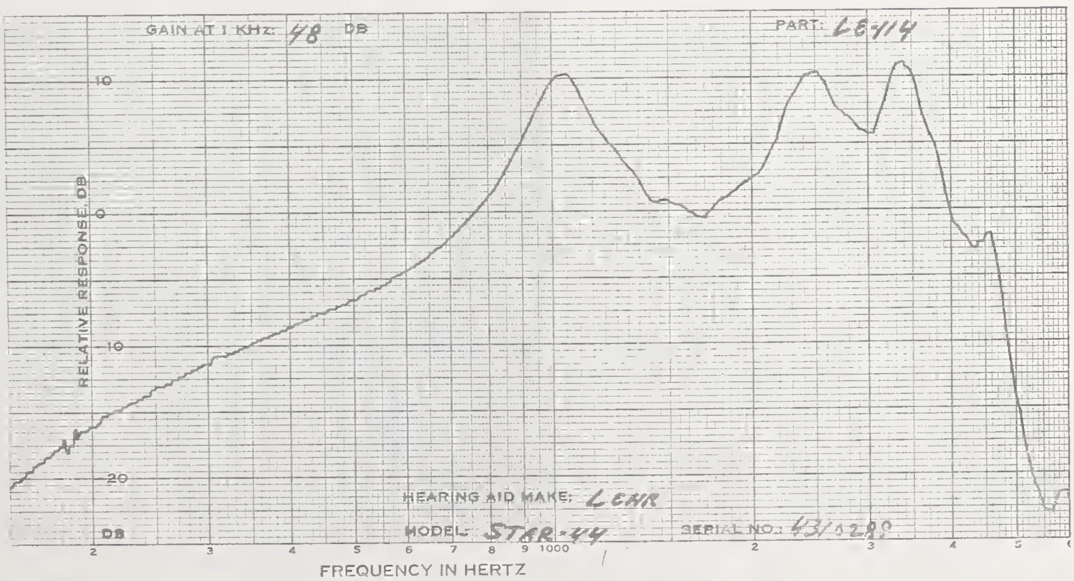

GAIN AT 1 KHz: 4 DB
PART: LE-111
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: LEHR
MODEL: STAR 6H
SERIAL NO.: 4313026
FREQUENCY IN HERTZ

MODEL:S44 TONE:CW TUBING:25MM BATTERY:RM13

CODE	LE-112		LE-113		LE-114	
SERIAL #	4310249		4310271		4310289	
DATE			FEB 28, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	56.0		54.0		52.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	70.0		71.0		73.0	
OUTPUT LEVEL DB	114.5		114.0		114.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	49.0		47.5		48.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	11	30	10	30	13	40
700 HZ %	2	5	2	5	2	7
900 HZ %	1	1	1	1	0	1
MAX DIST %	11	30	10	30	13	40
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	50.0		49.0		49.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	.9		1.0		.8	
65 DB INPUT	.9		1.0		.8	
BATTERY VOLTAGE	1.38		1.37		1.35	


GAIN AT 1 KHz: 49 DB
PART: LE-112
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: LEAR
MODEL: STAR 44
SERIAL NO.: 4310249
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

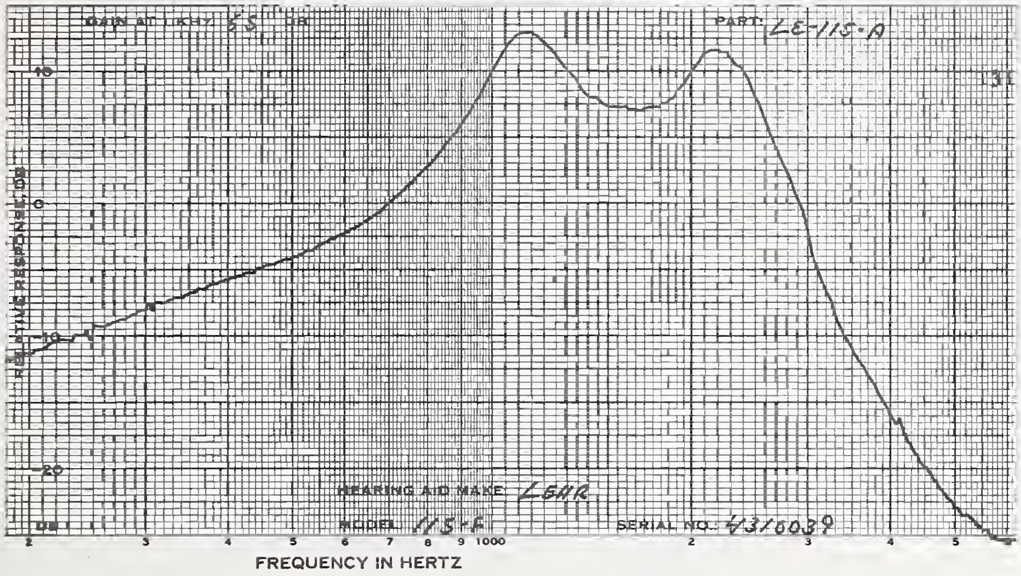

GAIN AT 1 KHz: 47½ DB
PART: LE-113
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: LEAR
MODEL: STAR 44
SERIAL NO.: 4310271
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

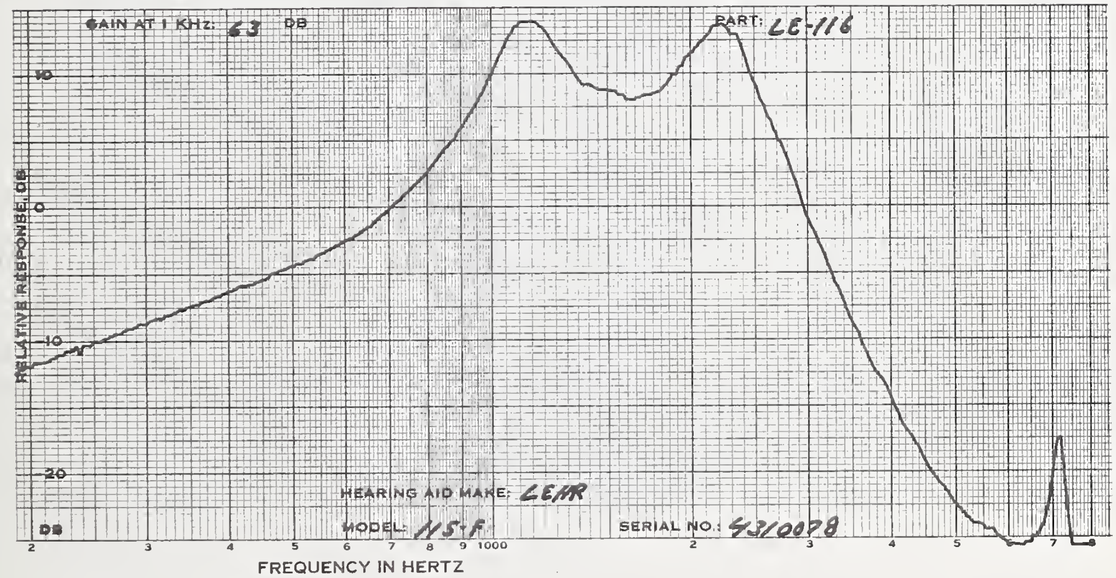

GAIN AT 1 KHz: 48 DB
PART: LE-114
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: LEAR
MODEL: STAR-44
SERIAL NO.:
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

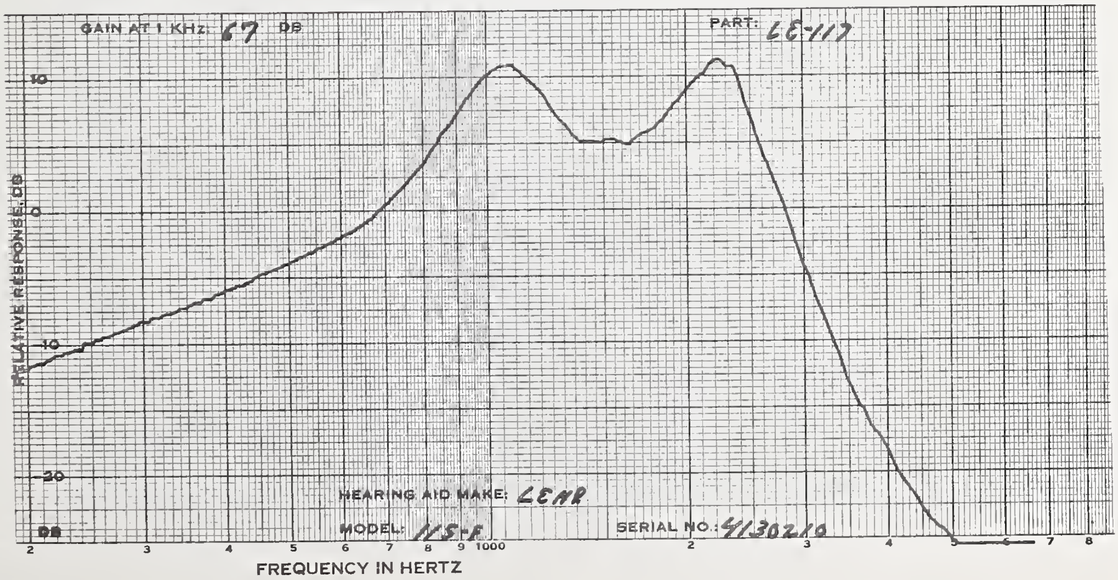
MODEL:115F PC:CCW RECEIVER:L120 BATTERY:MN150C

CODE	LE115A	LE-116	LE-117
SERIAL #	4310039	4310078	4310210
DATE	APR 3, 1975	MAR 6, 1975	MAR 6, 1975
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	76.0	78.0	79.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	71.5	72.0
OUTPUT LEVEL DB	135.0	135.5	135.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	65.0	63.0	67.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	11 15	10 19	10 16
700 HZ %	10 10	9 14	9 8
900 HZ %	2 5	2 5	2 4
MAX DIST %	11 15	10 19	10 16
FREQ OF MAX DIS	500 500	500 560	500 500
S/N RATIO DB			
1KHZ SIGNAL	50.5	51.0	52.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.9	3.7	3.7
65 DB INPUT	10.8	9.3	10.6
BATTERY VOLTAGE	1.52	1.52	1.51

LE-115, SERIAL # 420026, WAS CONSIDERED DEFECTIVE BECAUSE FOR CERTAIN HIGH FREQUENCY INPUTS THE OUTPUT CONSISTED OF A BROADBAND NOISE. SEE THE ATTACHED SAMPLE SPECTRUM


GAIN AT 1 KHZ: 55 DB
PART: LE-115-A
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: LEHR
MODEL: 115-F
SERIAL NO.: 4310039
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

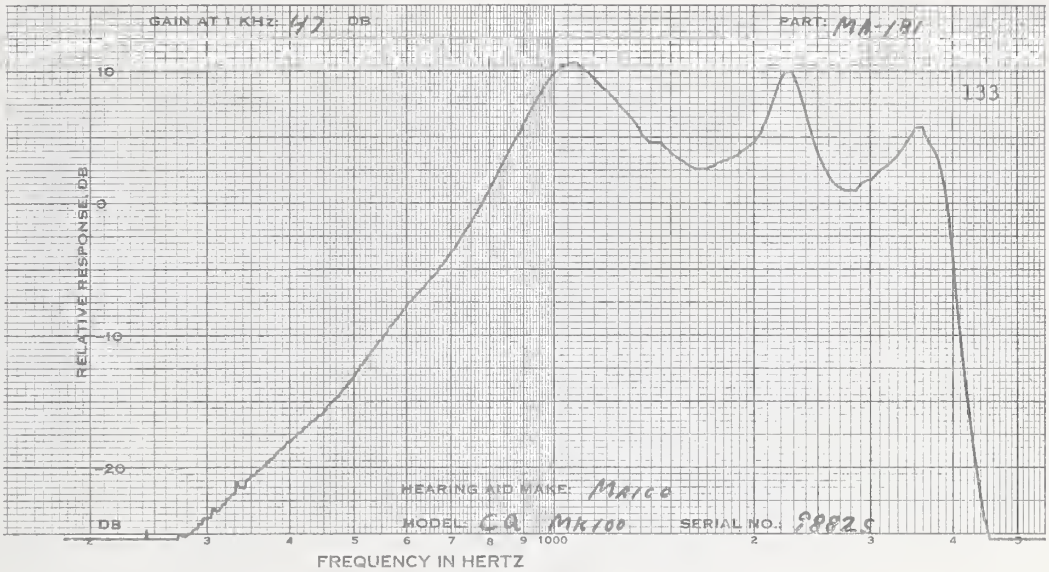

GAIN AT 1 KHz: 63 DB
PART: LE-116
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: LEHR
MODEL: 115-F
SERIAL NO.: 4310078
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7 8
FREQUENCY IN HERTZ

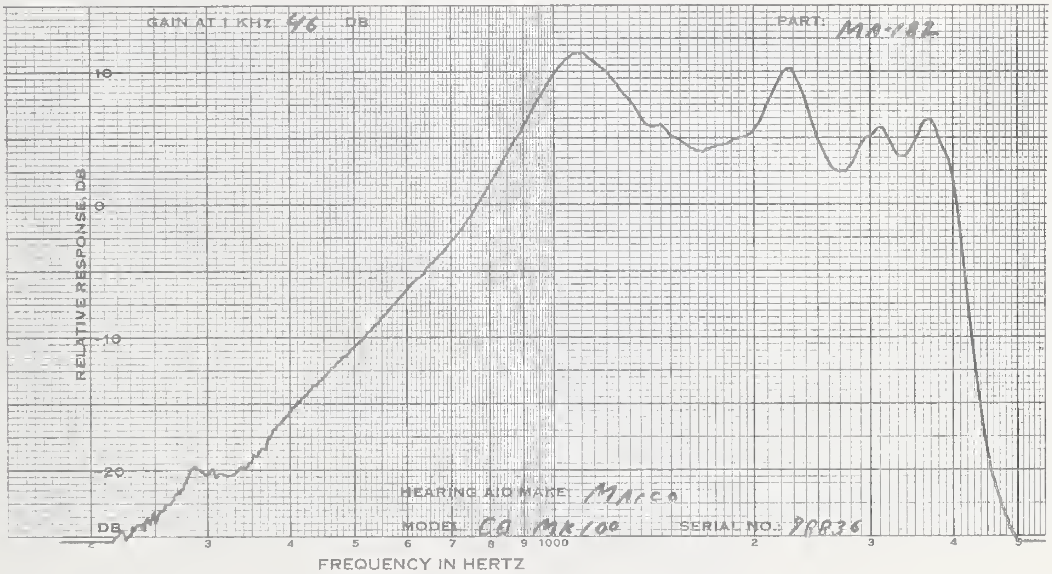

GAIN AT 1 KHz: 67 DB
PART: LE-117
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: LEHR
MODEL: 115-F
SERIAL NO.: 4130210
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7 8
FREQUENCY IN HERTZ

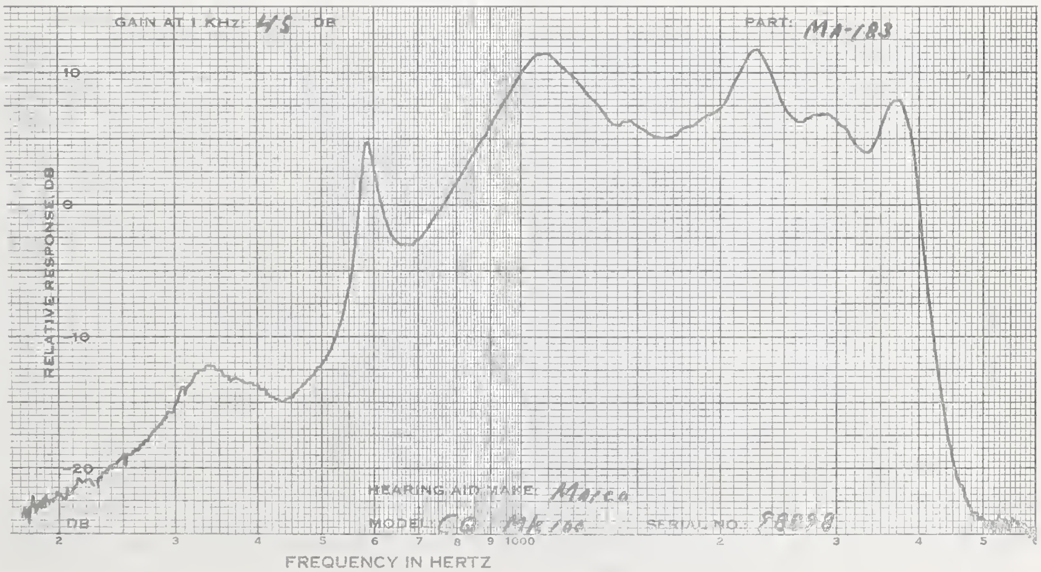
MAICO DIR OE
MODEL:CQ MK 100 PWR:MAX(CCW) TUBING:25MM BATTERY:S76

CODE	MA-181	MA-182	MA-183
SERIAL #	98825	98836	98898
DATE		APR 21, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	53.0	46.0	47.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	83.0	82.0
OUTPUT LEVEL DB	113.0	114.0	113.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	47.0	46.0	45.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	61.0 71.0	60.0 70.0
500 HZ %	9 8	8 6	10 5
700 HZ %	2 3	2 3	2 2
900 HZ %	0 2	1 1	1 1
MAX DIST %	23 67	14 47	24 68
FREQ OF MAX DIS	1754 1754	1790 1790	1800 1800
S/N RATIO DB			
1KHZ SIGNAL	46.0	45.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.2	1.1	1.2
65 DB INPUT	1.2	1.1	1.2
BATTERY VOLTAGE	1.57	1.57	1.57

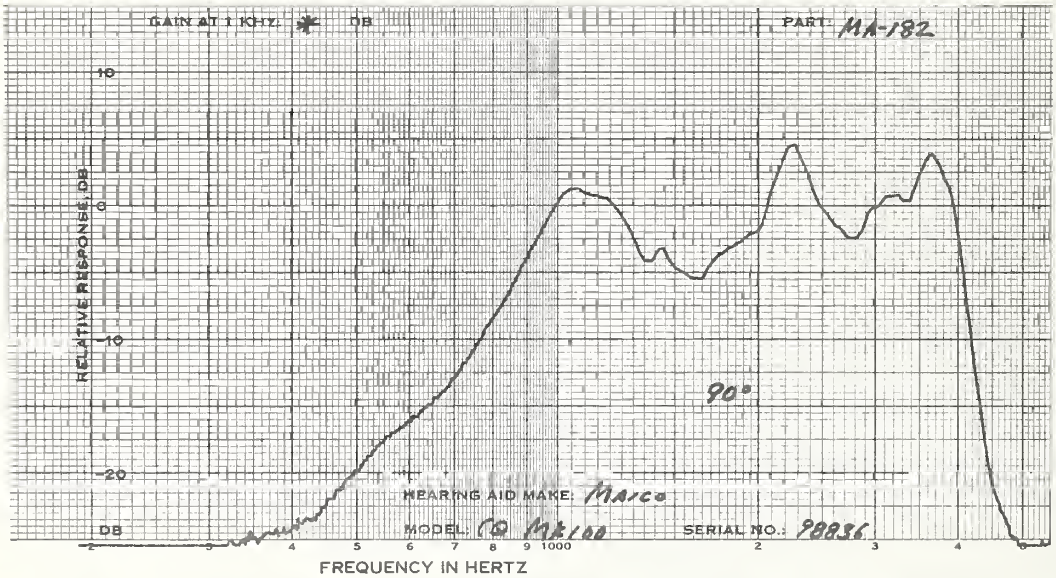
THE GAIN ON MA-182 HAD TO BE REDUCED SLIGHTLY BEFORE BEGINNING THE TEST TO PREVENT FEEDBACK.

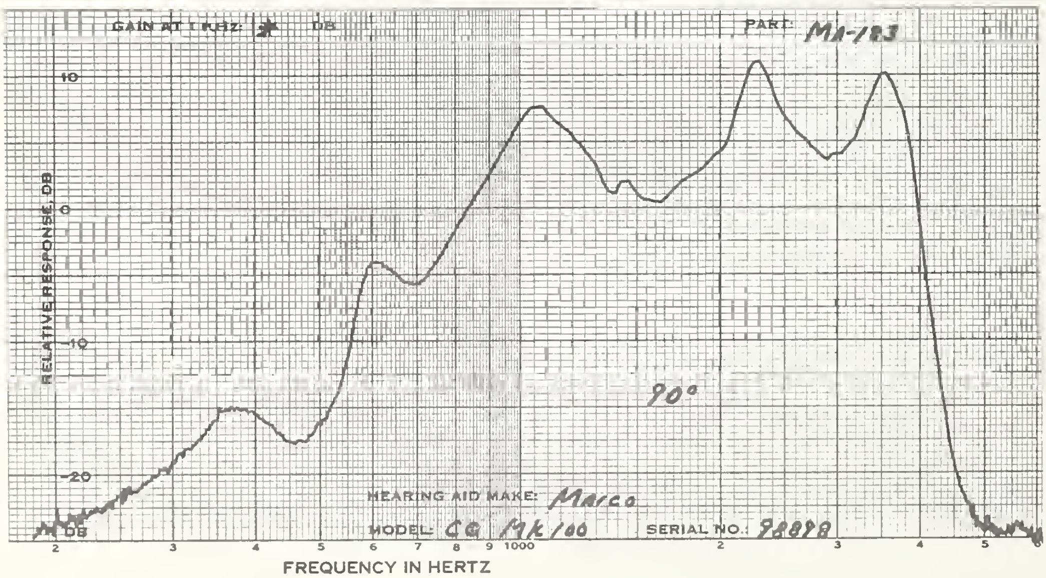

GAIN AT 1 KHz: 47 DB
PART: MA-181
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Maico
MODEL: CQ MK100
SERIAL NO.:
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 46 DB
PART: MA-182
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Maico
MODEL: CQ MK100
SERIAL NO.:
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 45 DB
PART: MA-183
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Maico
MODEL: CQ MK100
SERIAL NO.:
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: * DB
PART: MA-181
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: MAICO
MODEL: CQ MK100
SERIAL NO.: 98825
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

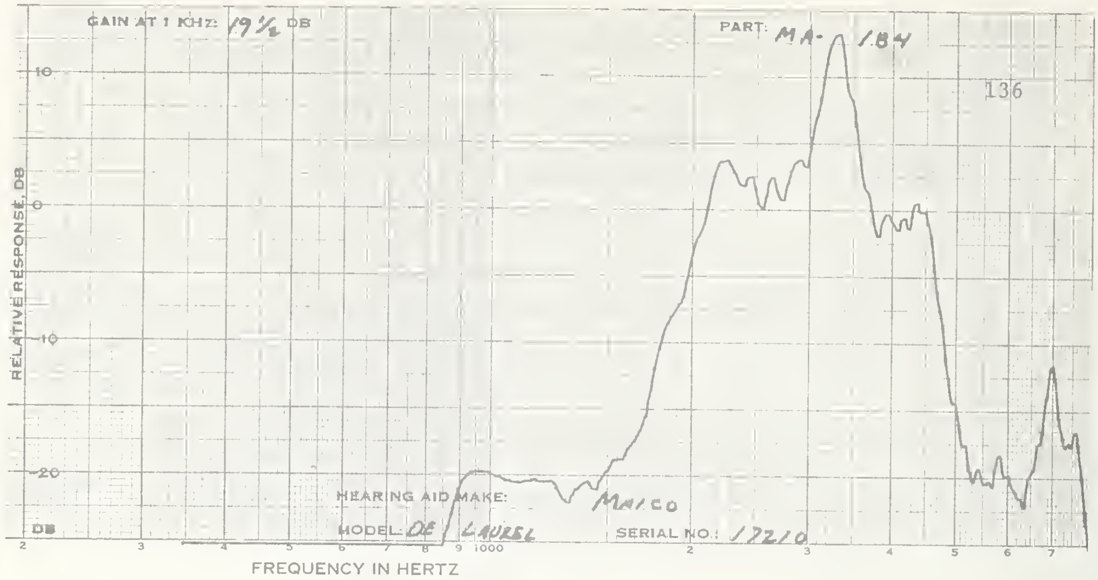

GAIN AT 1 KHZ: * DB
PART: MA-182
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: MAICO
MODEL: CQ MK100
SERIAL NO.: 98836
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

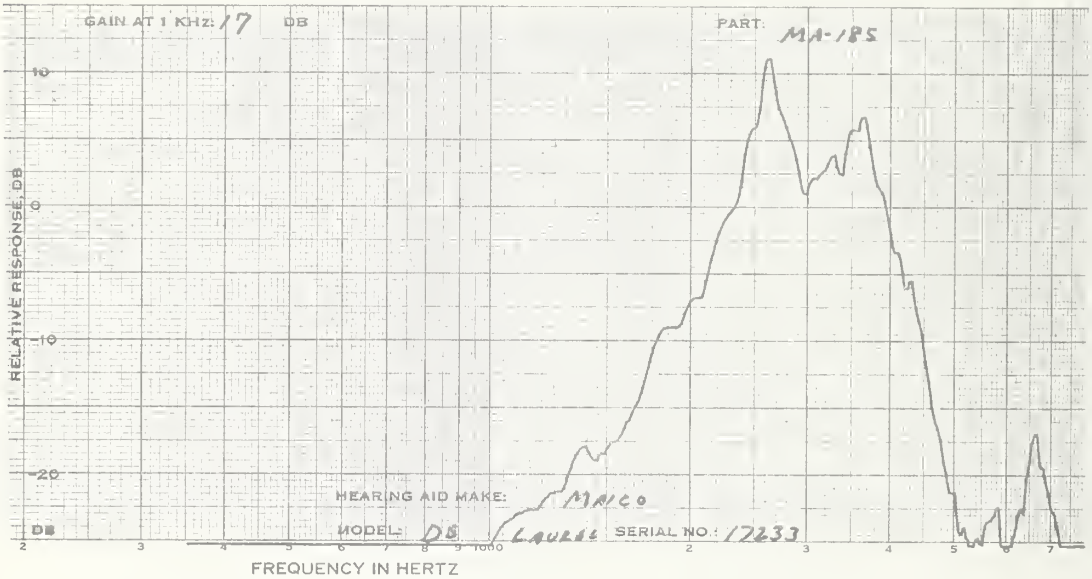

GAIN AT 1 KHZ: * DB
PART: MA-183
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: MARCO
MODEL: CQ MK100
SERIAL NO.: 98898
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

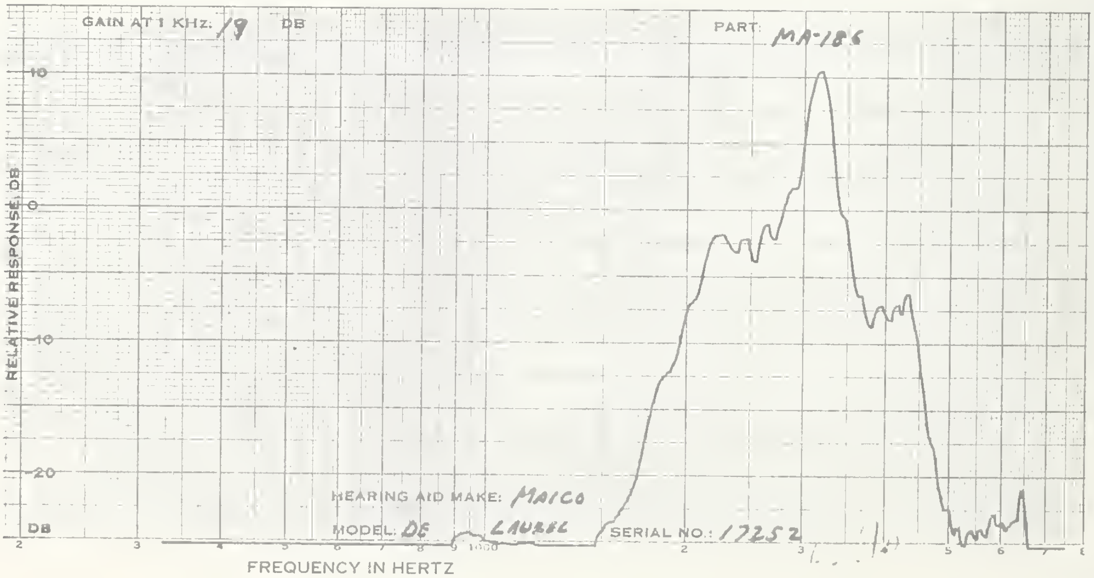
MODEL:DE LAUREL OUTPUT:CW GRN TONE SCR TUBING:25MM BAT:S13

CODE	MA-184	MA-185	MA-186
SERIAL #	17210	17233	17252
DATE		MAY 27, 1975	
MEASUREMENTS WITH FULL VCL CONTROL *			
1KHZ GAIN DB	24.5	22.0	24.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	85.5	84.5	85.0
OUTPUT LEVEL DB	117.5	117.5	119.5
MEASUREMENTS WITH REDUCED VCLUME CONTRCL SETTING			
1KHZ GAIN DB	19.5	17.0	19.0
S/N RATIO DB			
2KHZ SIGNAL	30.0	36.0	25.5
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.3	.3	.3
65 DB INPUT	.3	.3	.3
BATTERY VOLTAGE	1.56	1.56	1.56

*Maximum setting possible without feedback.

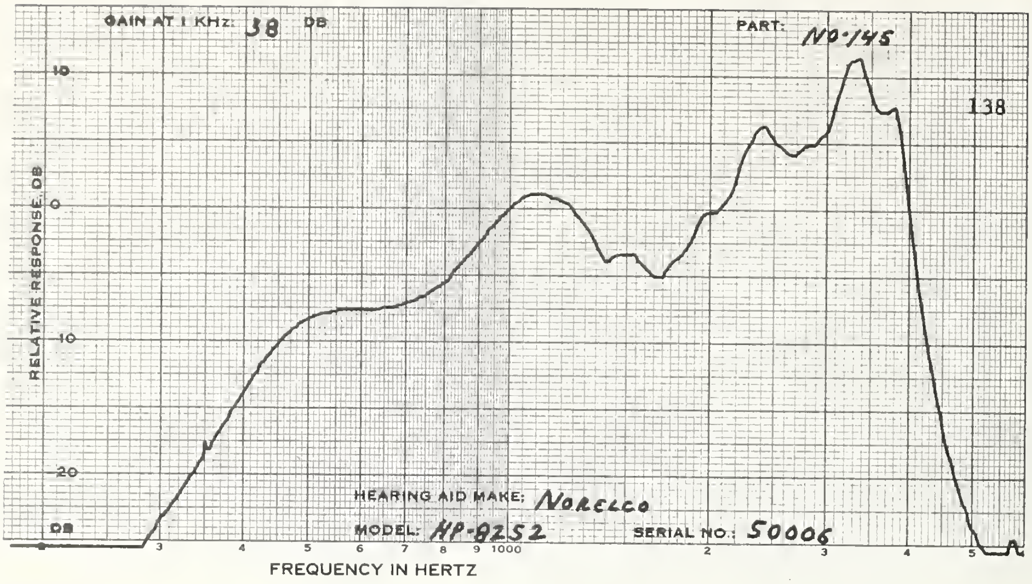

GAIN AT 1 KHZ: 19½ DB
PART: MA-184
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: MAICO
MODEL: DE LAUREL
SERIAL NO.: 17210
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

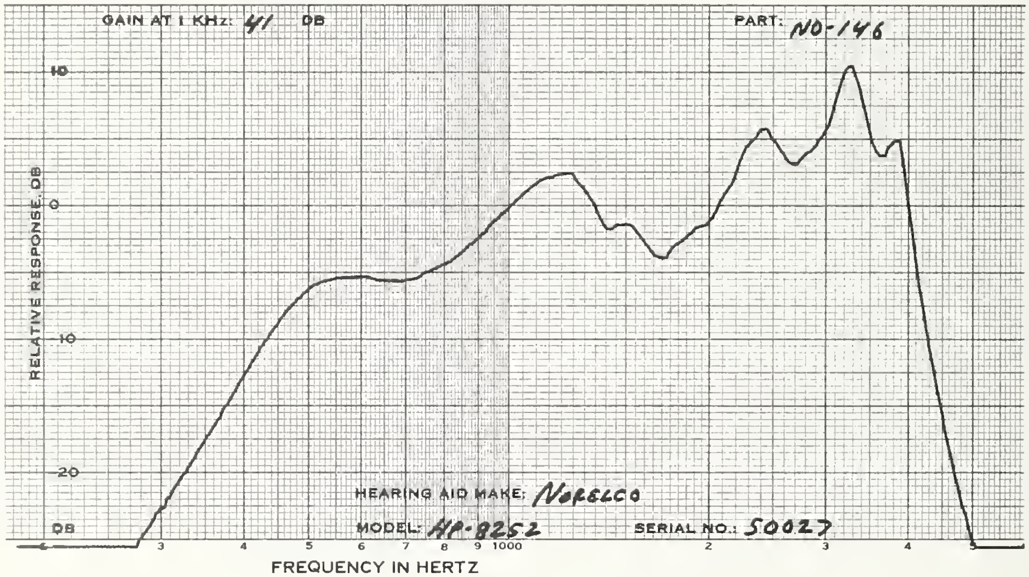

GAIN AT 1 KHZ: 17 DB
PART: MA-185
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: MAICO
MODEL: DE LAUREL
SERIAL NO.: 17233
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

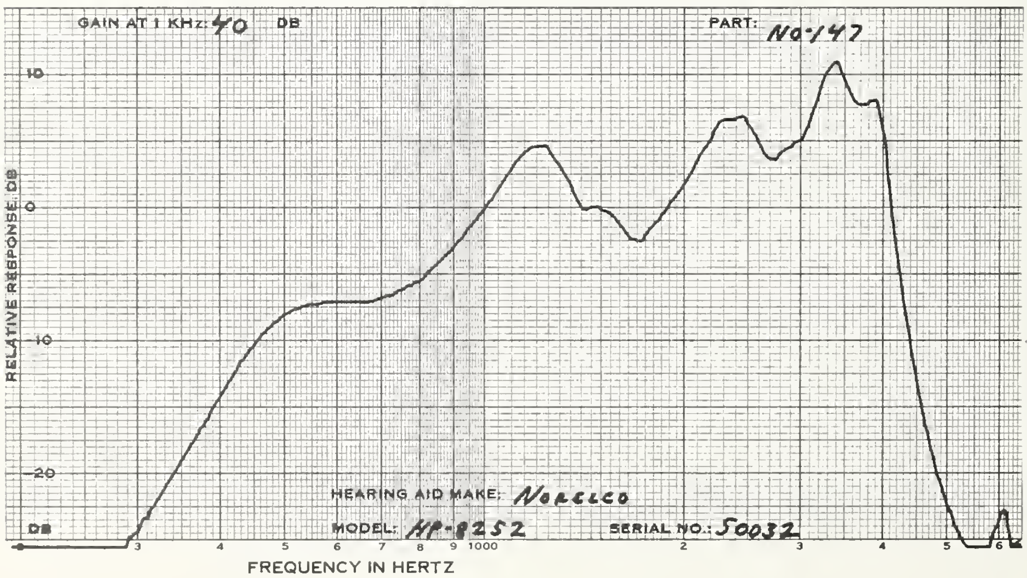

GAIN AT 1 KHZ: 19 DB
PART: MA-186
10
0
-10
-20
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: MAICO
MODEL: DE LAUREL
SERIAL NO.: 17252
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

MODEL:HP8252 TONE:NONE TUBING:25MM BATTERY:675

CODE	NO-145	NO-146	NO-147
SERIAL #	50006	50027	50032
DATE		FEB 20, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	43.5	46.0	47.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	74.0	73.0
OUTPUT LEVEL DB	111.0	112.5	112.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	38.0	41.0	40.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 2	1 1	2 2
700 HZ %	1 0	0 1	1 1
900 HZ %	1 1	1 5	1 1
MAX DIST %	5 41	3 40	3 50
FREQ OF MAX DIS	1620 1860	1590 1530	1660 1870
S/N RATIO DB			
1KHZ SIGNAL	42.0	43.5	41.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NC INPUT	.9	.9	.9
65 DB INPUT	.9	.9	.9
BATTERY VOLTAGE	1.38	1.38	1.37


GAIN AT 1 KHz: 38 DB
PART: NO-145
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8252
SERIAL NO.: 50006
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

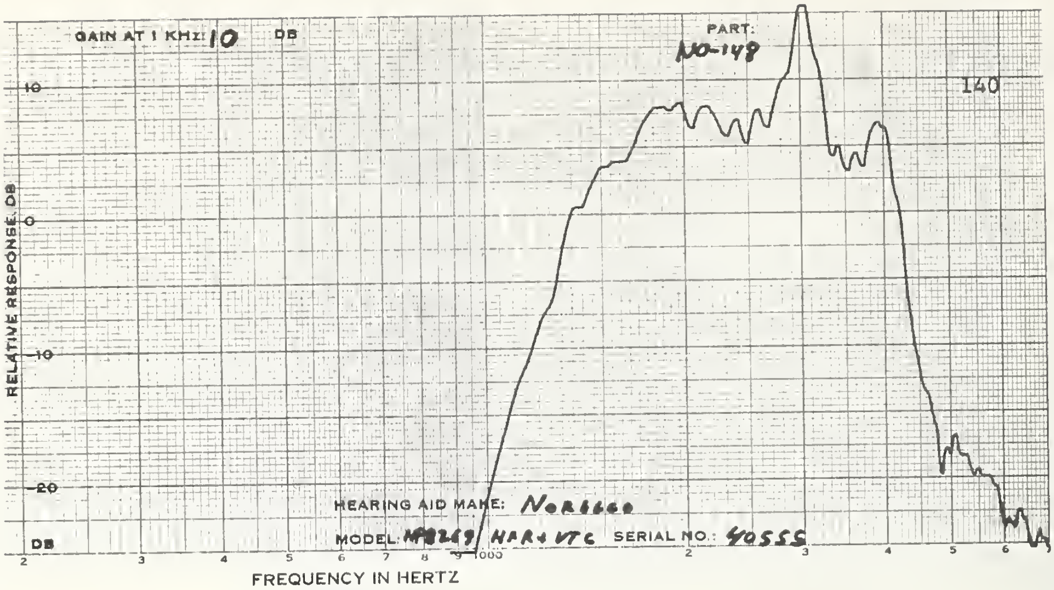

GAIN AT 1 KHz: 41 DB
PART: NO-146
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8252
SERIAL NO.: 50027
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

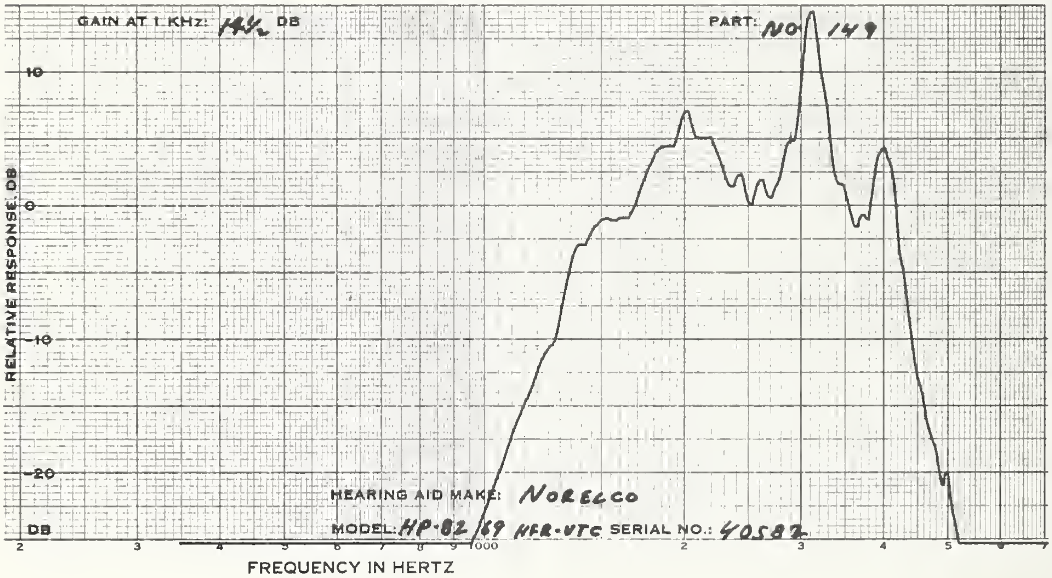

GAIN AT 1 KHz: 40 DB
PART: NO-147
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8252
SERIAL NO.: 50032
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

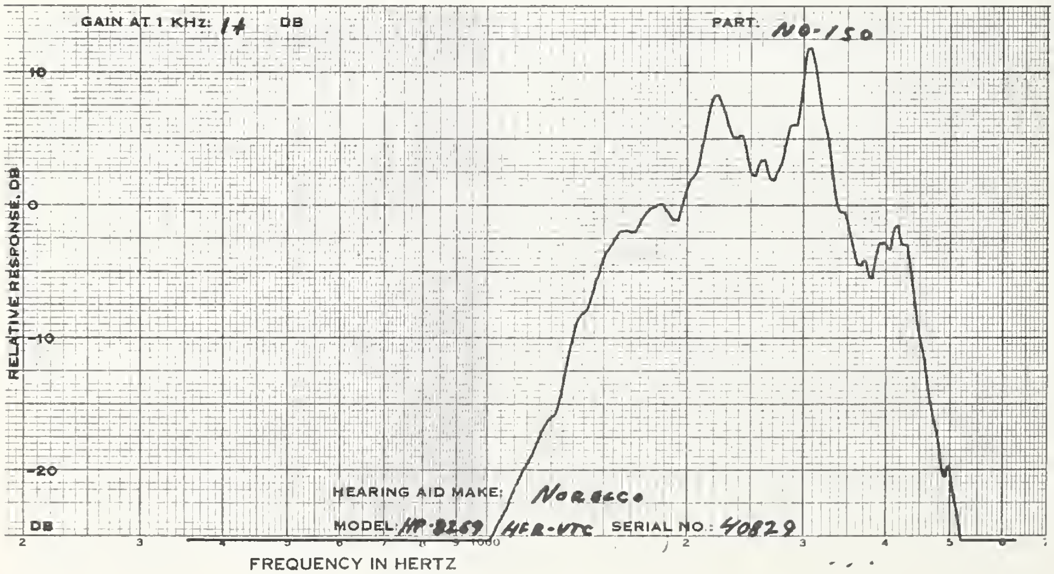
NORELCO HP OE
MODEL:HP8269 HFR&VTC TUBING:25MM BATTERY:675

CODE	NO-148	NO-149	NO-150
SERIAL #	040555	40582	40829
DATE		MAY 20, 1975	
MEASUREMENTS WITH FULL VOL CONTROL *			
1KHZ GAIN DB	16.0	19.5	17.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	84.0	85.0	84.0
OUTPUT LEVEL DB	120.5	120.5	120.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	10.0	14.5	11.0
S/N RATIO DB			
2KHZ SIGNAL	49.0	51.5	49.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.5	2.4
65 DB INPUT	2.4	2.5	2.4
BATTERY VOLTAGE	1.34	1.33	1.33

*Maximum setting possible without feedback.


GAIN AT 1 KHz: 10 DB
PART: NO-148
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP8269 HFR+VTC SERIAL NO.: 40555
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

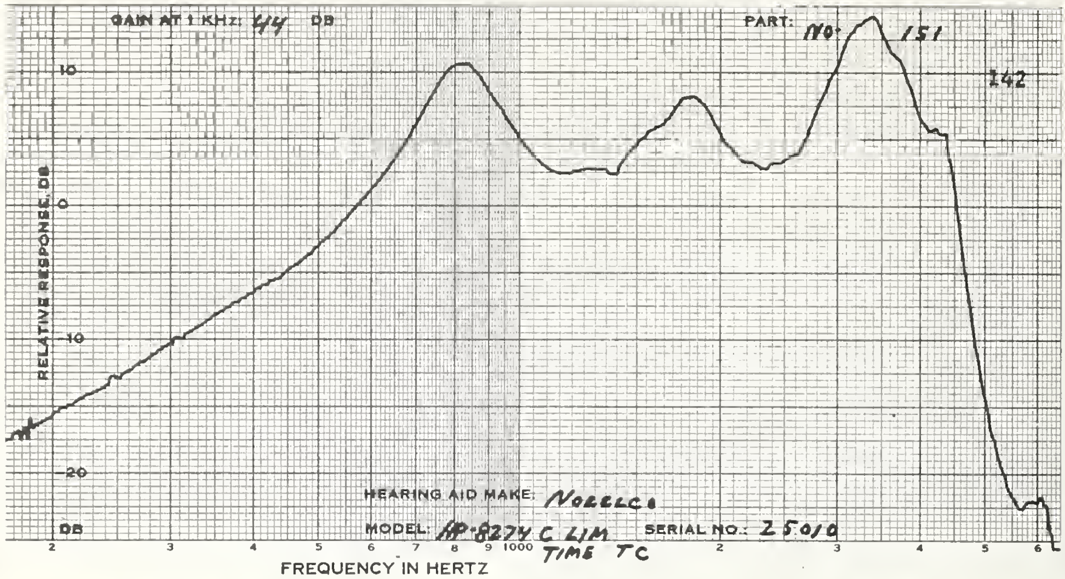

GAIN AT 1 KHz: 14½ DB
PART: NO 149
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP-8269 HFR-VTC SERIAL NO.: 40582
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

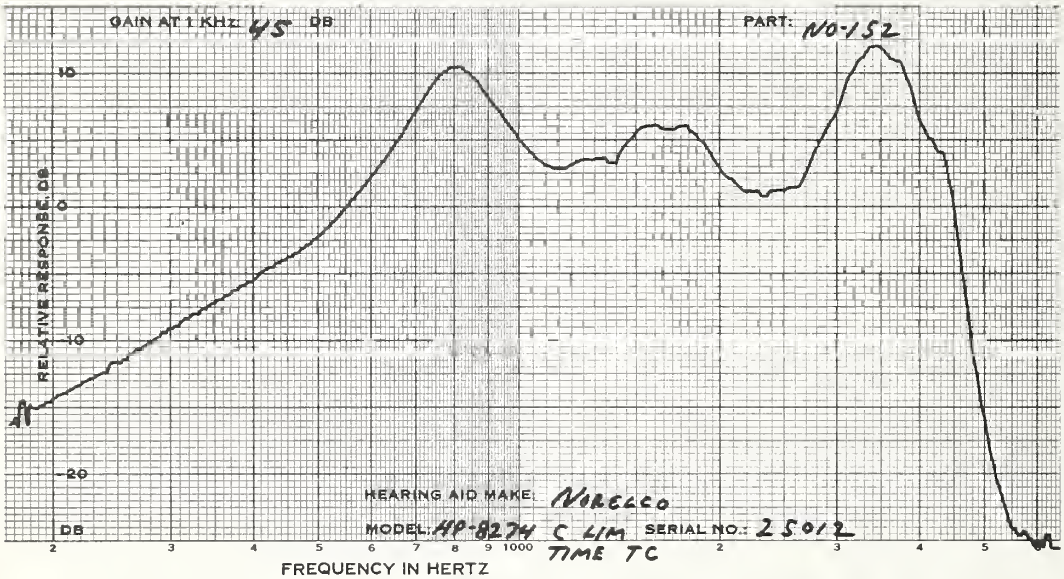

GAIN AT 1 KHz: 14 DB
PART: NO-150
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP-8269 HFR-VTC SERIAL NO.: 40829
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

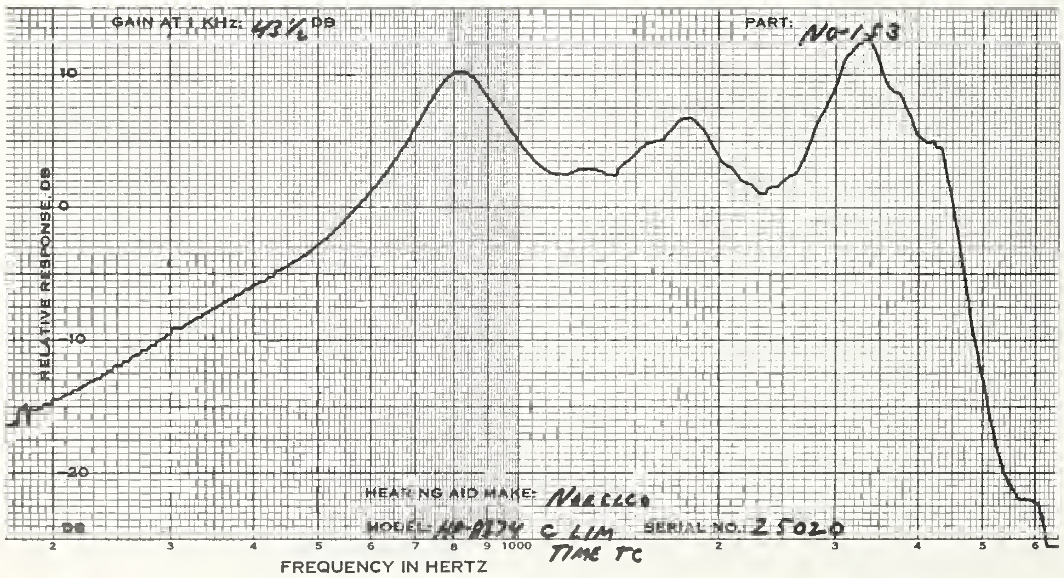
NORELCO OE
MODEL:HP8274 C LIM TIME TC TONE:SEE BELOW TUBING:25MM BATTERY:675

CODE	NO-151		NO-152		NO-153	
SERIAL #	25010		25012		25020	
DATE			FEB 20, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	58.0		58.5		57.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	74.0		73.0		72.0	
OUTPUT LEVEL DB	117.5		117.5		116.C	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	44.0		45.0		43.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	2	6	3	6	3	6
700 HZ %	1	2	1	3	1	3
900 HZ %	1	3	1	3	1	3
MAX DIST %	4	6	4	10	3	7
FREQ OF MAX DIS	1590	1530	1830	1830	500	1890
S/N RATIO DB						
1KHZ SIGNAL	40.0		40.0		39.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.3		.5		2.C	
65 DB INPUT	2.3		2.5		2.C	
BATTERY VOLTAGE	1.35		1.34		1.34	

TONE:N LIM:5 F/S:S CF:7

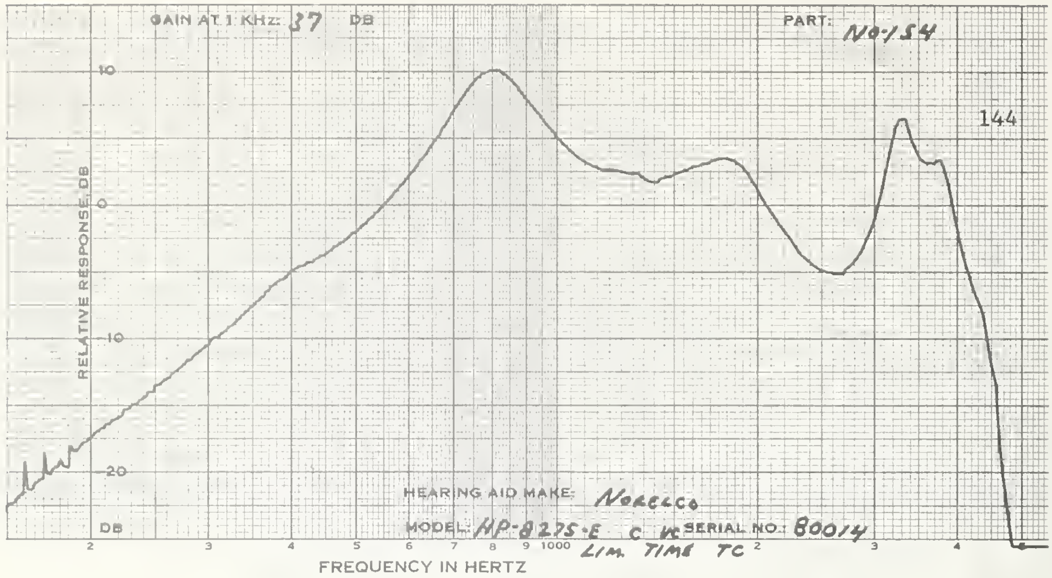

GAIN AT 1 KHz: 44 DB
PART: NO-151
142
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8274 C LIM
TIME TC
SERIAL NO.: 25010
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

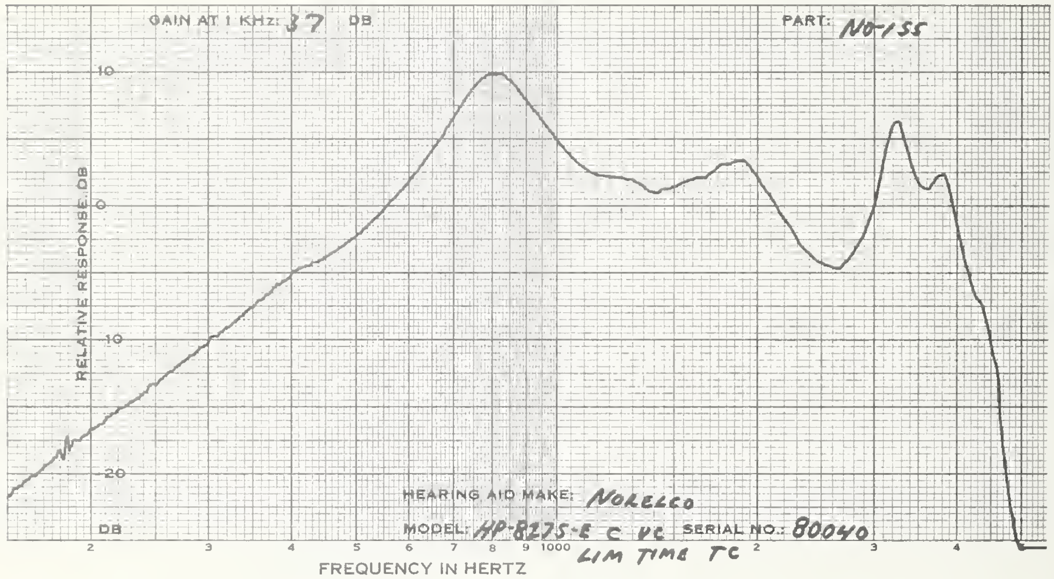

GAIN AT 1 KHz: 45 DB
PART: NO-152
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8274 C LIM
TIME TC
SERIAL NO.: 25012
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

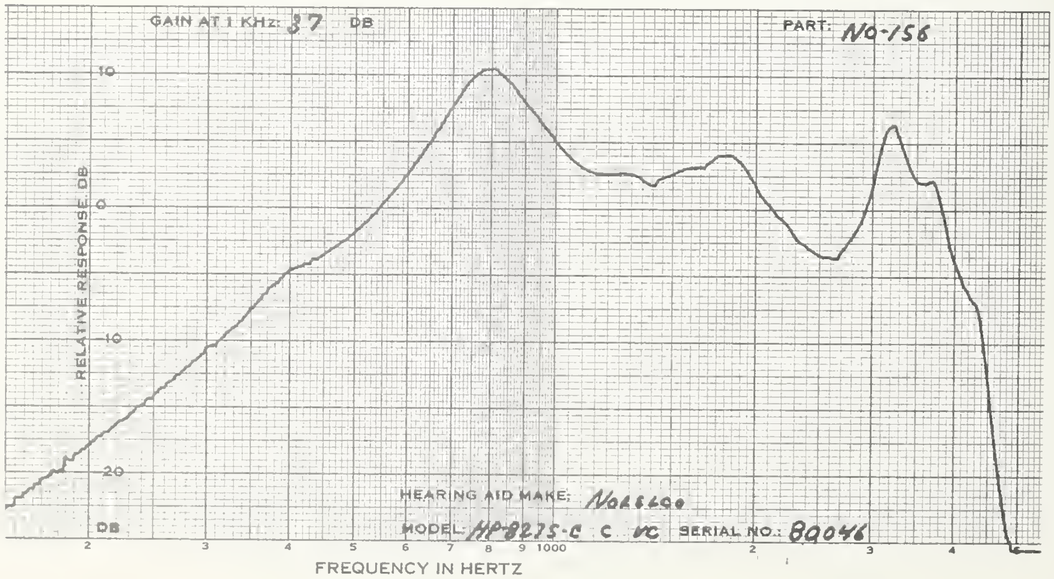

GAIN AT 1 KHz: 43½ DB
PART: NO-153
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8274 C LIM
TIME TC
SERIAL NO.: 25020
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

NORELCO OE
MODEL:HP8275E C$VC LIM TIME TC TONE:BELOW TUBING:25MM BATTERY:675

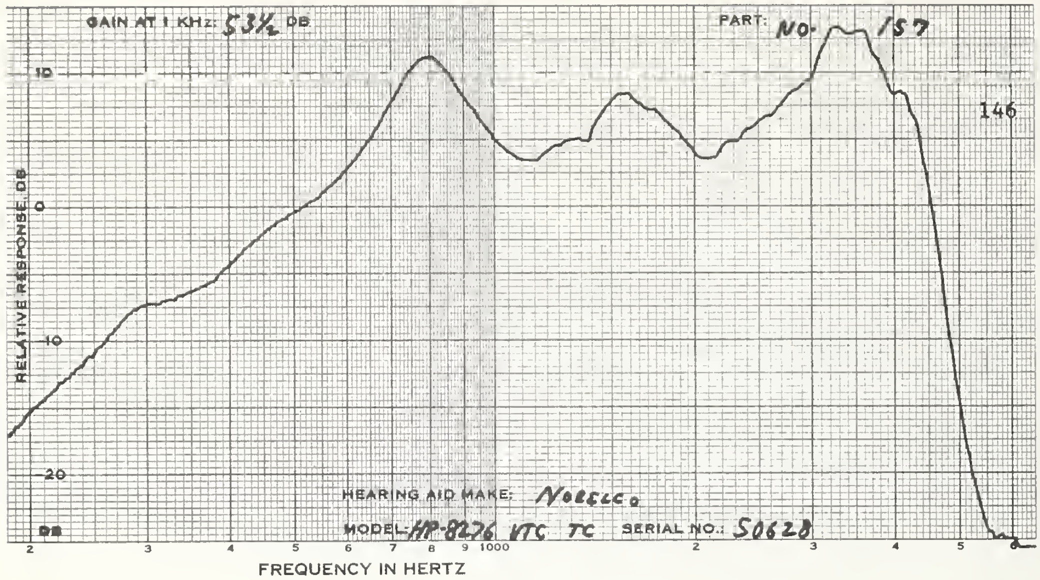
CODE	NO-154		NO-155		NO-156	
SERIAL #	80014		80040		80046	
DATE			FEB 21, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	47.5		47.5		48.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	68.5		69.0		69.0	
OUTPUT LEVEL DB	107.0		107.5		108.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	37.0		37.0		37.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	19	50	16	47	22	61
700 HZ %	7	11	6	11	7	14
900 HZ %	9	14	8	14	11	22
MAX DIST %	24	50	23	66	30	61
FREQ OF MAX DIS	1635	500	500	500	1600	500
S/N RATIO DB						
1KHZ SIGNAL	40.0		38.5		36.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	.6		.6		.6	
65 DB INPUT	.6		.6		.6	
BATTERY VOLTAGE	1.35		1.33		1.33	

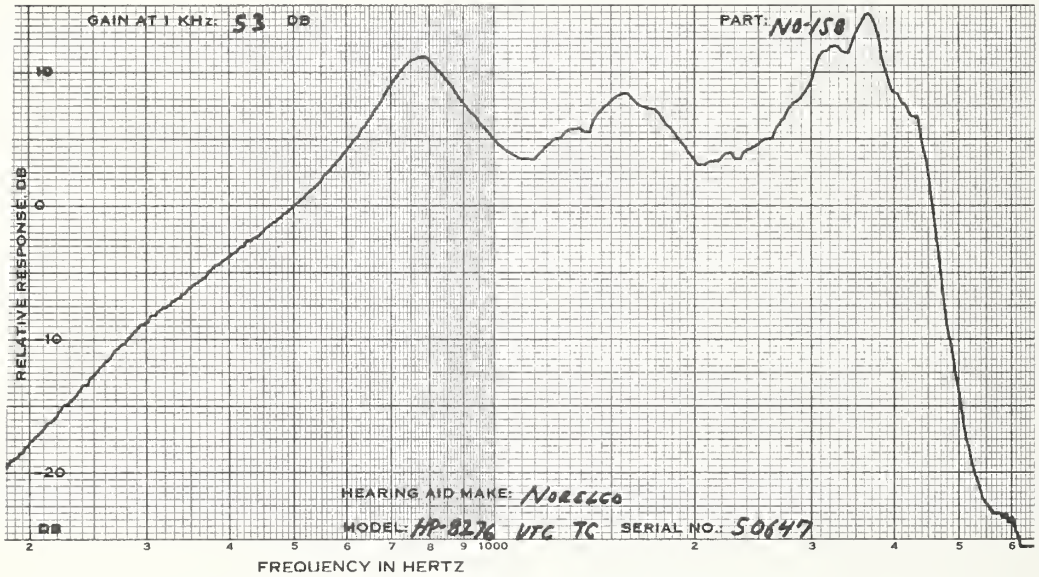

GAIN AT 1 KHz: 37 DB
PART: NO-154
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8275-E C VC
SERIAL NO.: 80014
LIM. TIME TC
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

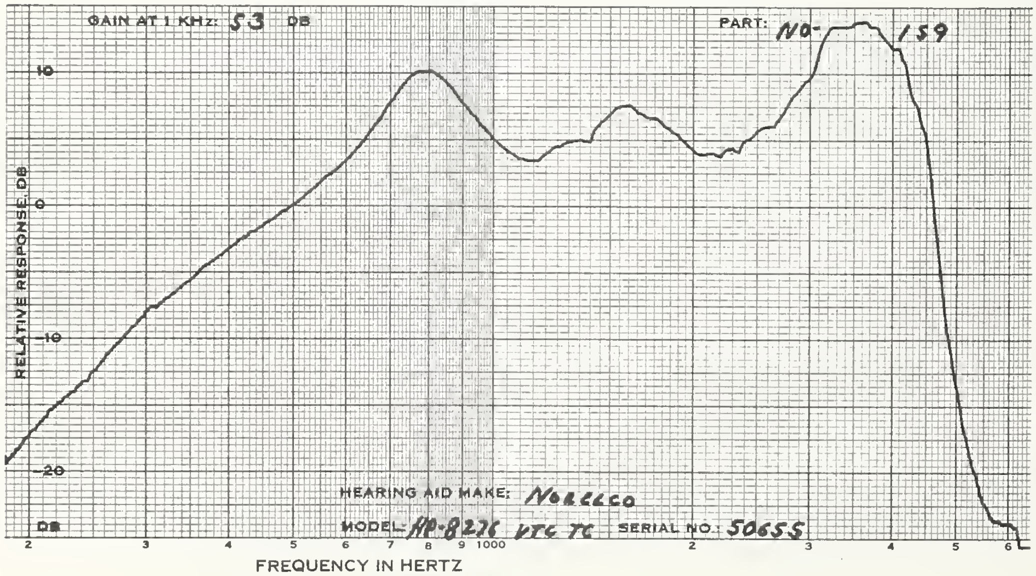

GAIN AT 1 KHz: 37 DB
PART: NO-155
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8275-E C VC
SERIAL NO.: 80040
LIM TIME TC
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 37 DB
PART: NO-156
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: NORELCO
MODEL: HP-8275-C C VC
SERIAL NO.: 80046
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

CODE	NO-157		NO-158		NO-159	
SERIAL #	50628		50647		50655	
DATE			FEB 21, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	64.0		63.0		61.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	70.0		69.0		71.0	
OUTPUT LEVEL DB	127.5		127.5		127.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	53.5		53.0		53.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	8	12	10	15	9	13
700 HZ %	2	2	2	3	2	3
900 HZ %	2	4	3	5	3	4
MAX DIST %	8	12	10	15	9	13
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	44.0		42.0		43.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.5		2.8		2.4	
65 DB INPUT	3.1		3.2		3.4	
BATTERY VOLTAGE	1.32		1.35		1.33	


GAIN AT 1 KHz: 53½ DB
PART: NO-157
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP-8276 VTC TC
SERIAL NO.: 50628
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

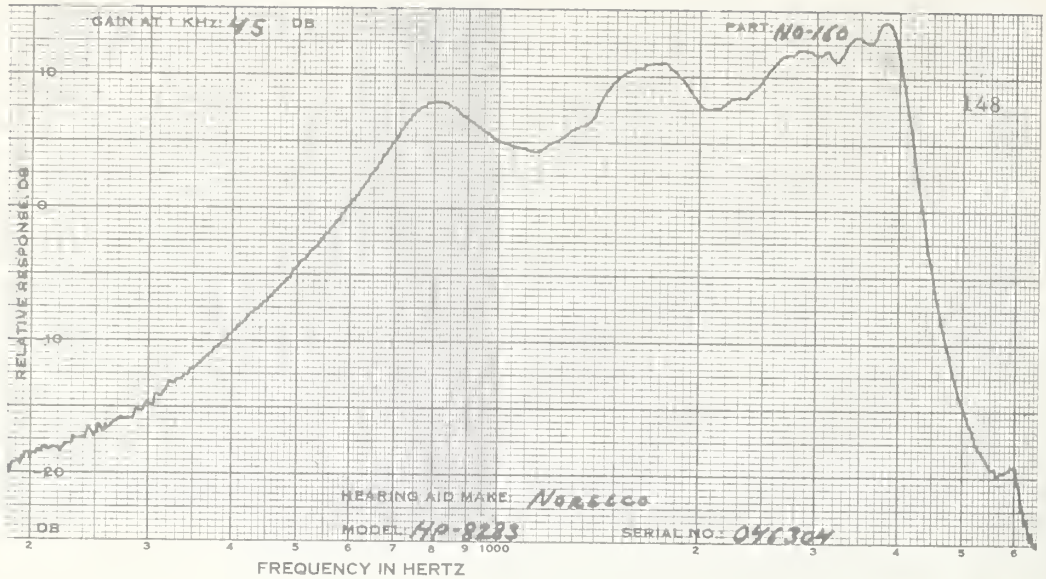

GAIN AT 1 KHz: 53 DB
PART: NO-158
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP-8276 VTC TC
SERIAL NO.: 50647
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

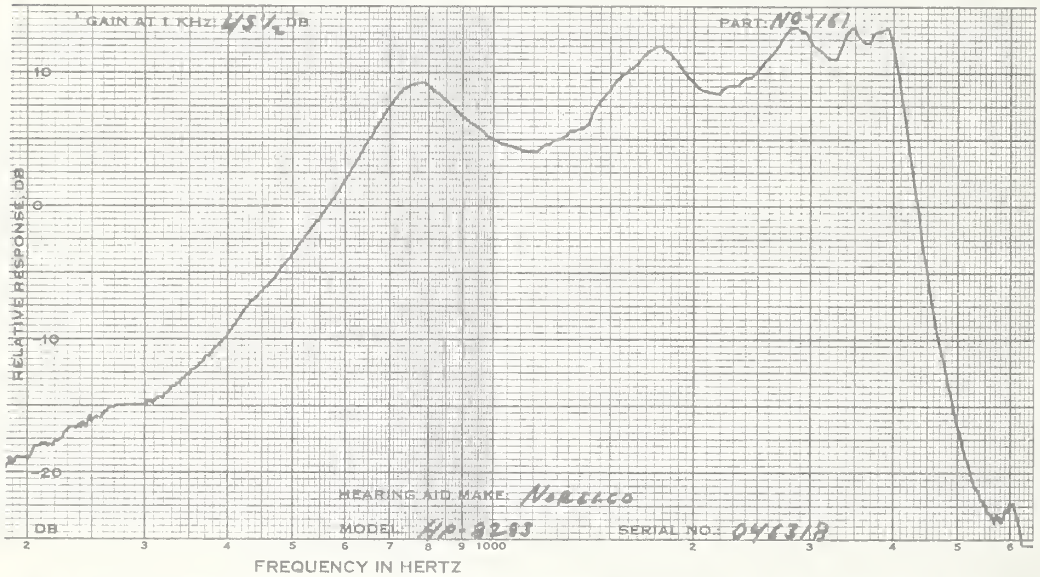

GAIN AT 1 KHz: 53 DB
PART: NO-159
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP-8276 VTC TC
SERIAL NO.: 50655
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

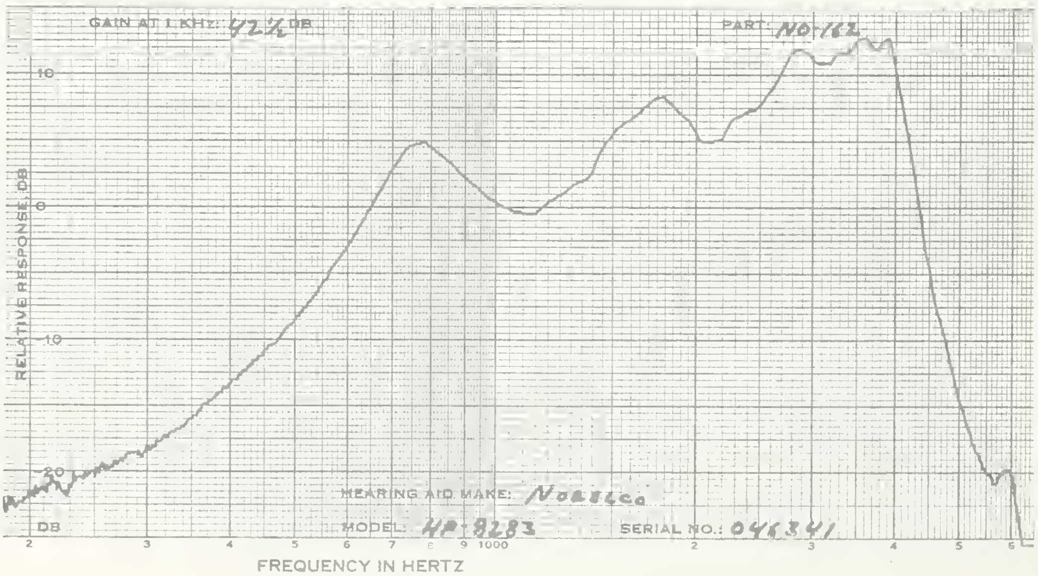
NORELCO DIR OE

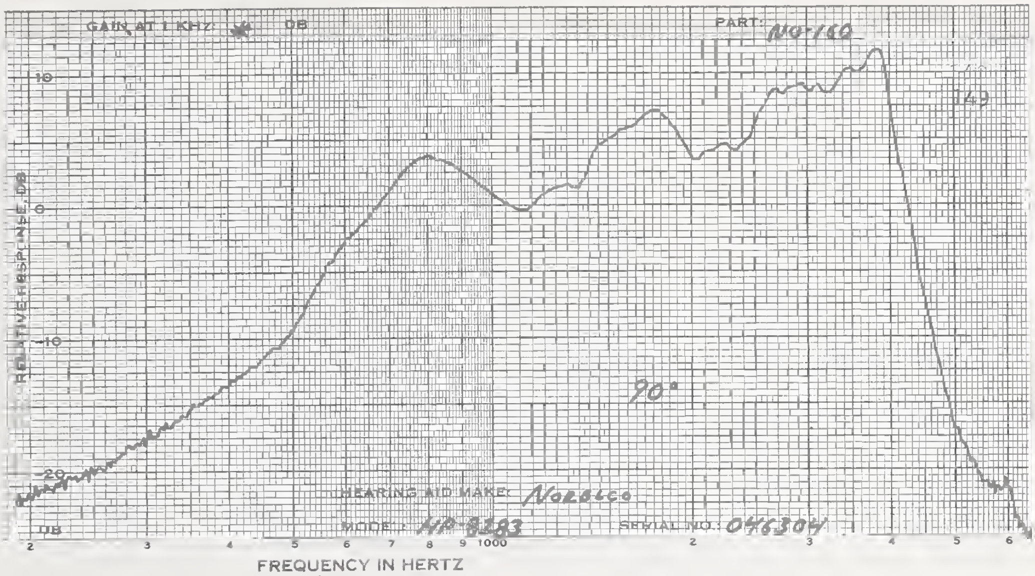
MODEL:HP8283 TONE:N PC:5 TUBING:25MM BATTERY:675

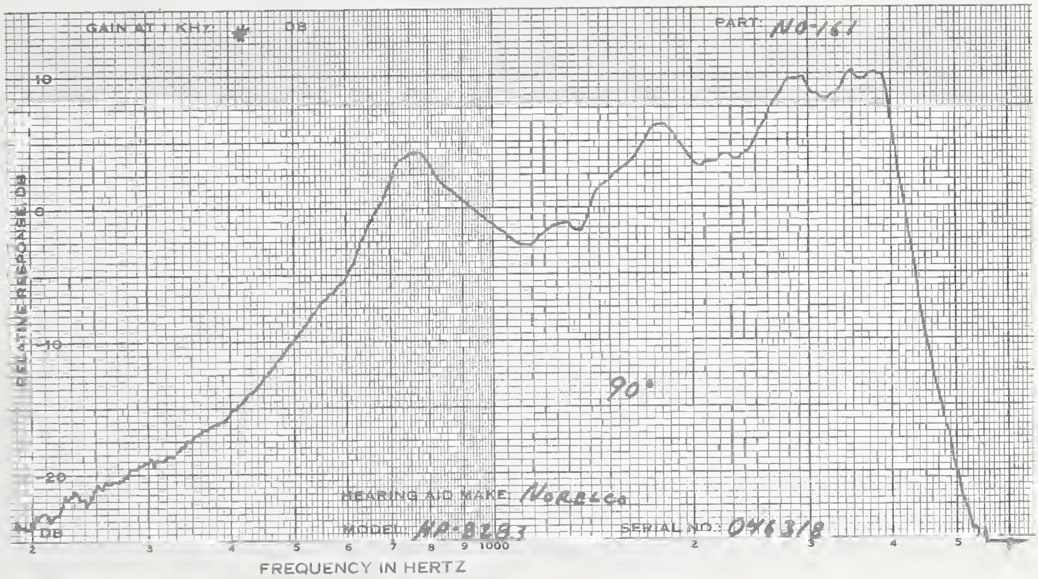
CODE	NO-160		NO-161		NO-162	
SERIAL #	046304		046318		046341	
DATE			APR 15, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	54.0		57.0		51.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	81.0		79.5		79.0	
OUTPUT LEVEL DB	119.5		120.0		119.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	45.0		45.5		42.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	0	4	2	3	0	2
700 HZ %	1	2	0	1	0	1
900 HZ %	1	2	1	1	1	1
MAX DIST %	3	12	2	14	1	12
FREQ OF MAX DIS	1272	1429	500	1437	900	1440
S/N RATIO DB						
1KHZ SIGNAL	35.5		39.0		33.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.2		2.2		2.2	
65 DB INPUT	2.2		2.2		2.2	
BATTERY VOLTAGE	1.33		1.33		1.33	

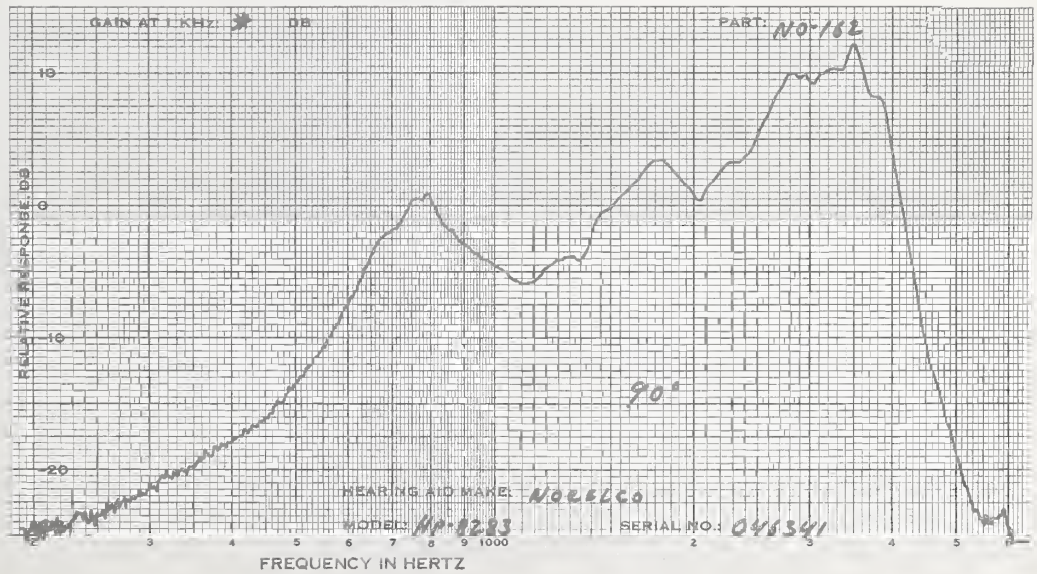

GAIN AT 1 KHZ: 45 DB
PART: NO-160
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: Norelco
MODEL: HP-8283
SERIAL NO.: 046304
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 45½ DB
PART: NO-161
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: Norelco
MODEL: HP-8283
SERIAL NO.: 046318
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 42½ DB
PART: NO-162
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: Norelco
MODEL: HP-8283
SERIAL NO.: 046341
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: * DB
PART: NO-160
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: Norelco
MODEL: HP-8283
SERIAL NO.: 046304
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

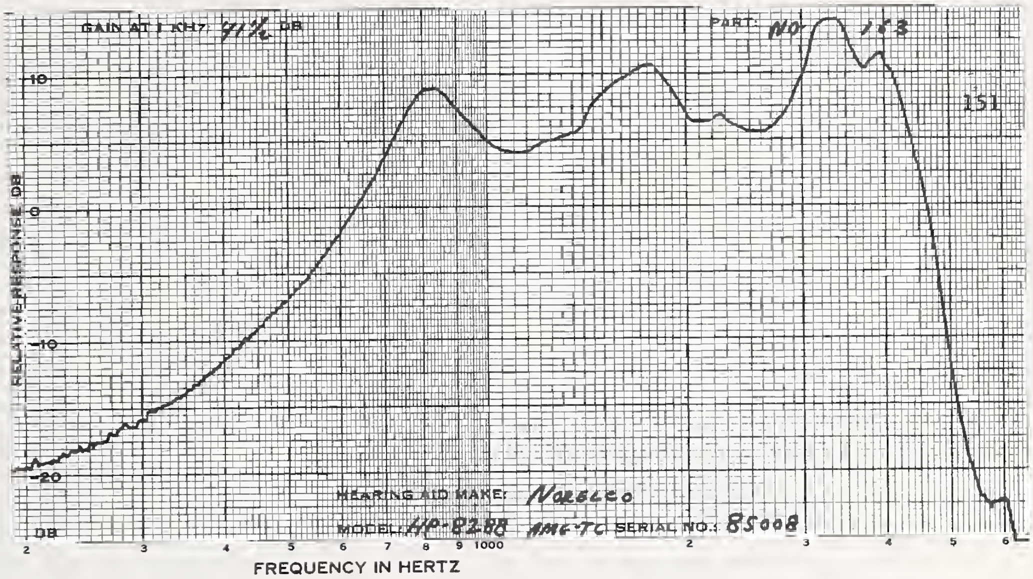

GAIN AT 1 KHZ: * DB
PART: NO-161
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: Norelco
MODEL: HP-8283
SERIAL NO.: 046318
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

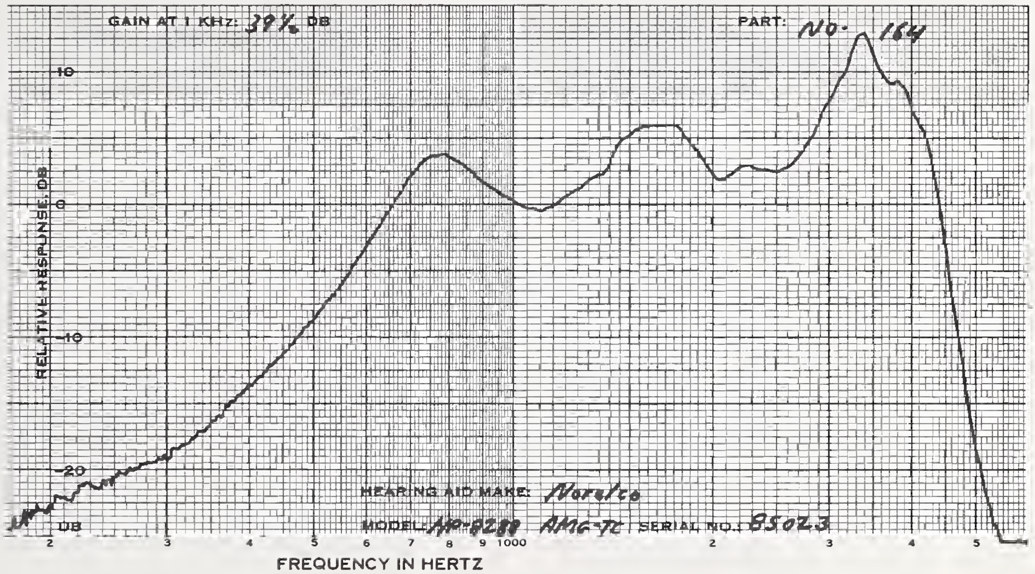

GAIN AT 1 KHZ: * DB
PART: NO-162
RELATIVE RESPONSE, DB
10
0
-10
-20
90°
HEARING AID MAKE: Norelco
MODEL: HP-8283
SERIAL NO.: 046341
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

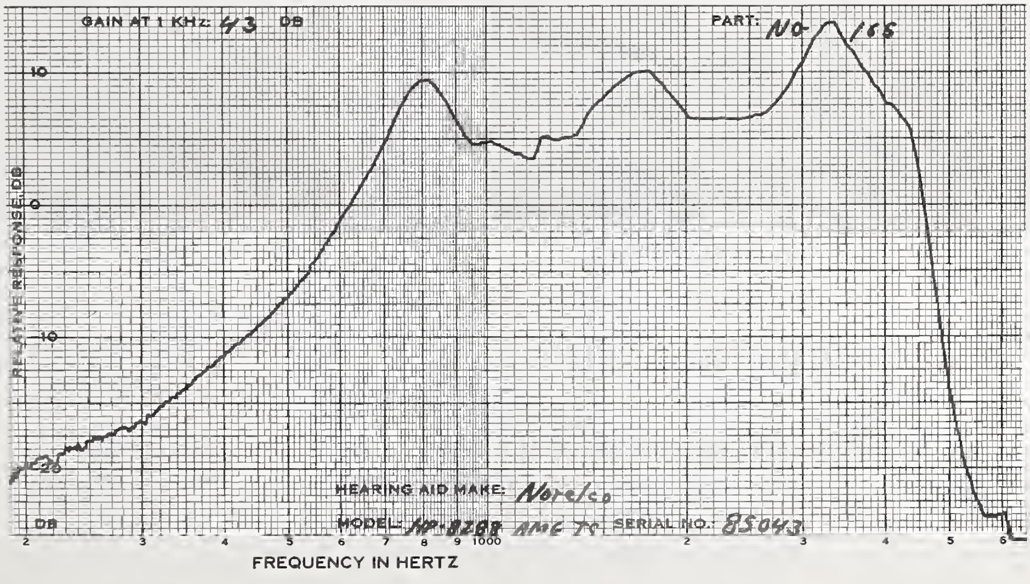
NORELCO DIR OE

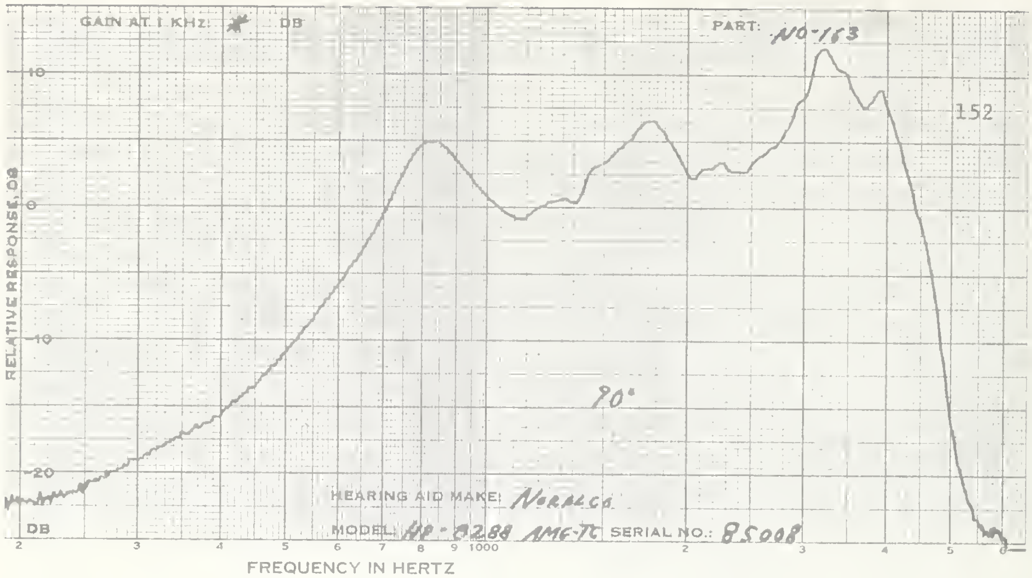
MODEL:HP8288AMG-TC TONE:N AMG:MAX TUBING:25MM BATTERY:675

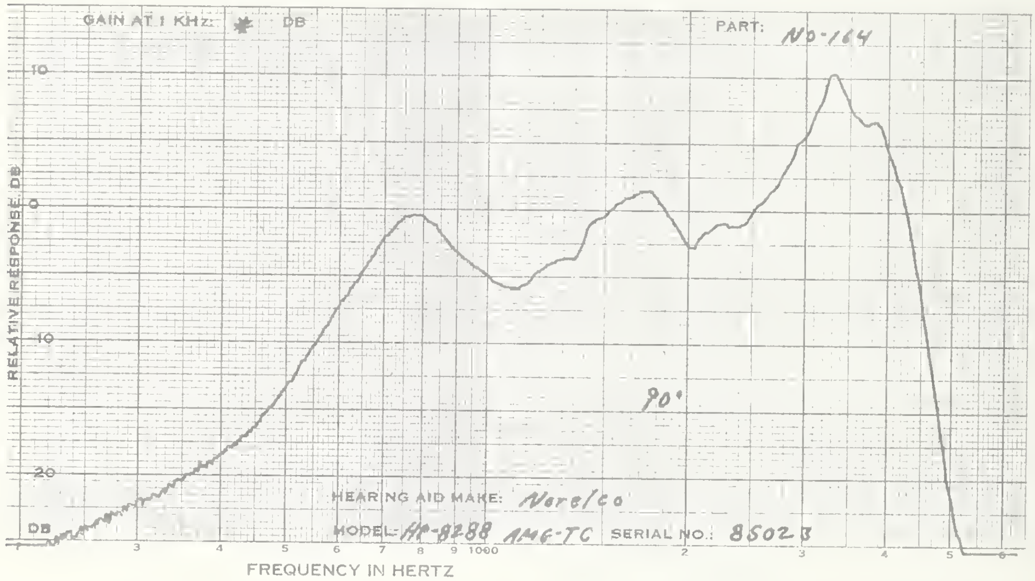
CODE	NO-163	NO-164	NO-165
SERIAL #	85008	85023	85043
DATE		APR 21, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	45.5	44.5	49.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	81.0	81.5	82.C
OUTPUT LEVEL DB	115.5	114.0	116.5
MEASUREMENTS WITH REDUCED VOLUME CONTRCL SETTING			
1KHZ GAIN DB	41.5	39.5	43.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 10	4 7	6 12
700 HZ %	1 4	1 3	2 6
900 HZ %	2 6	2 6	3 9
MAX DIST %	5 40	8 24	8 31
FREQ OF MAX DIS	1730 1576	1717 1595	1755 1554
S/N RATIO DB			
1KHZ SIGNAL	37.5	35.5	38.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.7	.9
65 DB INPUT	.7	.7	.9
BATTERY VOLTAGE	1.34	1.33	1.33

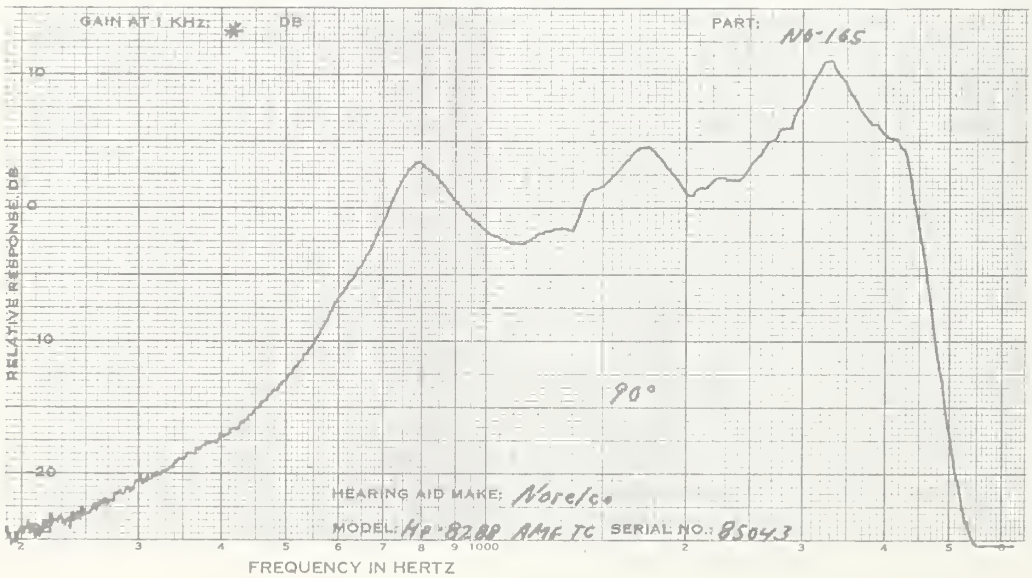

GAIN AT 1 KHZ 41½ DB
PART: NO 163
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP-8288 AMG-TC
SERIAL NO.: 85008
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 39½ DB
PART: NO. 164
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP-8288 AMG-TC
SERIAL NO.: 85023
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 43 DB
PART: NO 165
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Norelco
MODEL: HP-8288 AMG-TC
SERIAL NO.: 85043
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

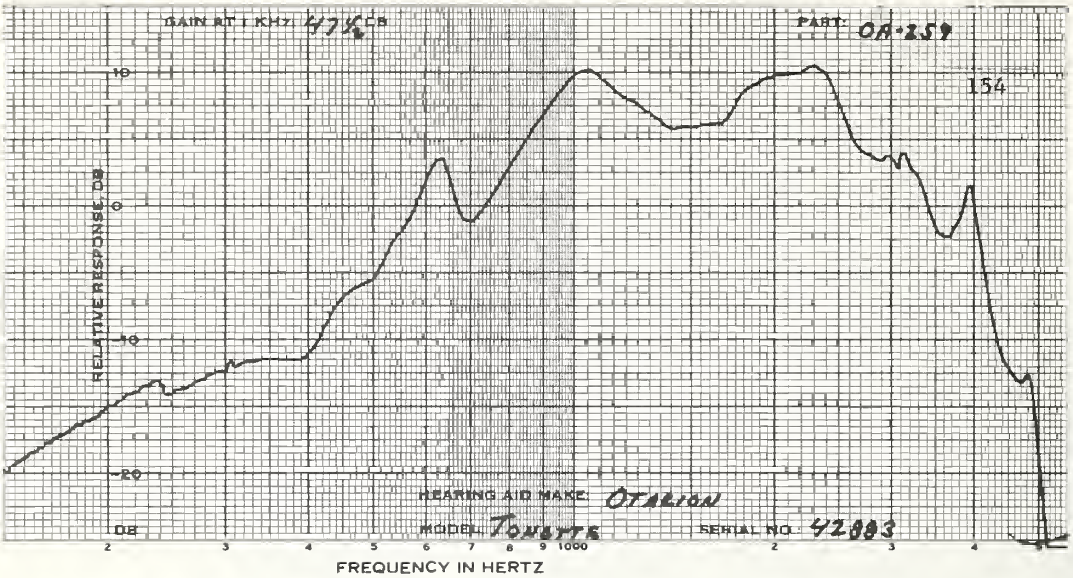

GAIN AT 1 KHz: * DB
PART: NO-163
RELATIVE RESPONSE, DB
10
0
10
20
DB
90°
HEARING AID MAKE: Norelco
MODEL: HP-8288 AMG-TC SERIAL NO.: 85008
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

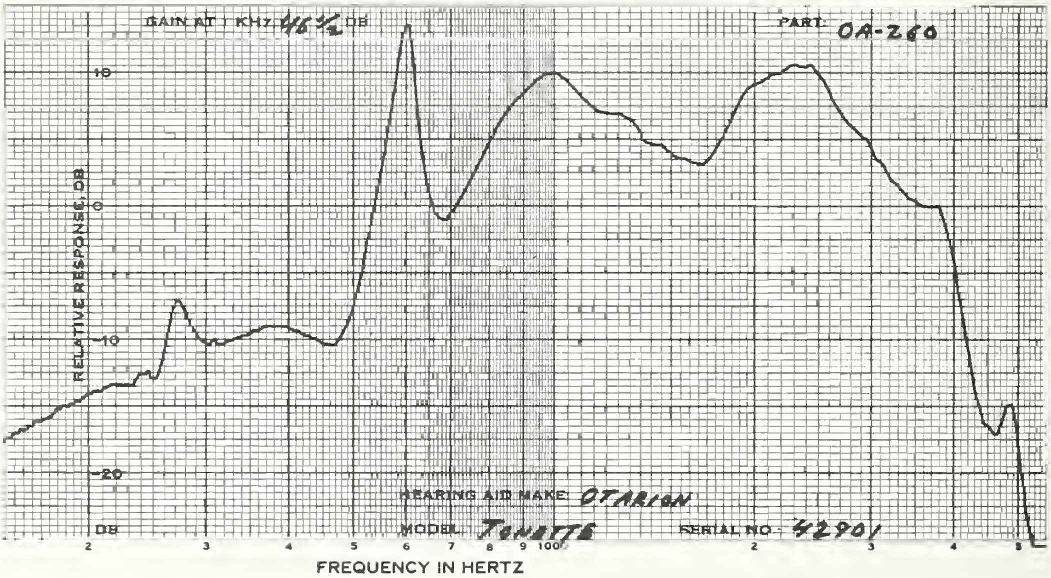

GAIN AT 1 KHz: * DB
PART: NO-164
RELATIVE RESPONSE, DB
10
0
10
20
DB
90°
HEARING AID MAKE: Norelco
MODEL: HP-8288 AMG-TC SERIAL NO.: 85023
3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

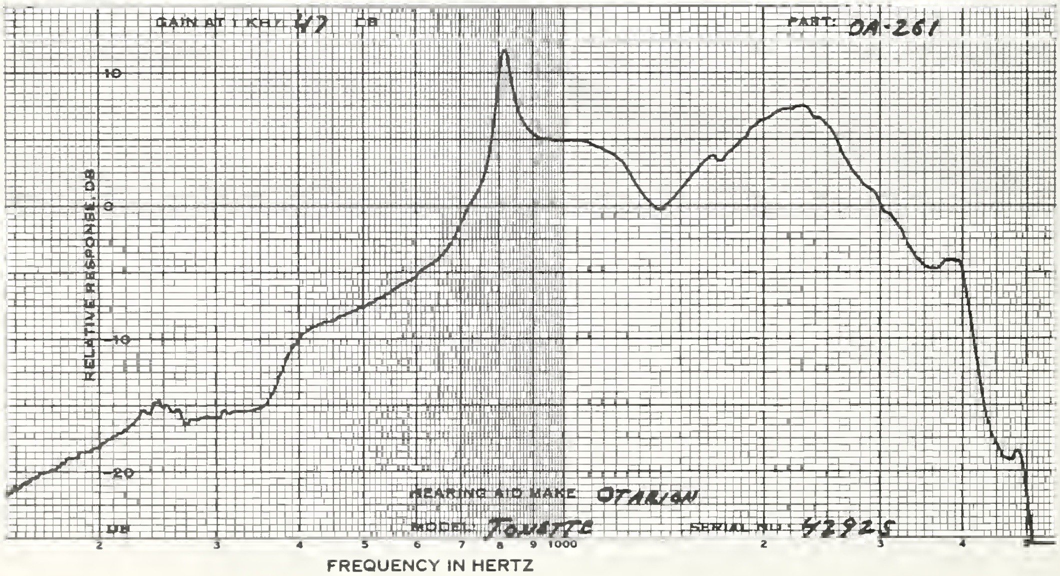

GAIN AT 1 KHz: * DB
PART: NO-165
RELATIVE RESPONSE, DB
10
0
10
20
90°
HEARING AID MAKE: Norelco
MODEL: HP-8288 AMG TC SERIAL NO.: 85043
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

CODE	OA-259	OA-260	OA-261
SERIAL #	42883	42901	42925
DATE		APR 9, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	47.5	46.5	47.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	84.0	81.5	82.5
OUTPUT LEVEL DB	118.5	117.5	119.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	47.5(FULL)	46.5(FULL)	47.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	63.0 73.0	63.0 73.0	63.0 73.0
500 HZ %	15 50	9 42	10 36
700 HZ %	5 13	3 10	3 17
900 HZ %	2 6	1 3	1 5
MAX DIST %	18 57	31 60	10 36
FREQ OF MAX DIS	540 526	583 568	500 500
S/N RATIO DB			
1KHZ SIGNAL	48.5	45.5	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	.9	.9
65 DB INPUT	.9	.9	.9
BATTERY VOLTAGE	1.56	1.56	1.56

OA-261, SERIAL # 42901, INITIALLY HAD A PEAK NEAR 500HZ, WHICH DISAPPEARED WHEN THE AID WAS RAPPED.


GAIN AT 1 KHZ: 47½ DB
PART: OA-259
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTARION
MODEL: TONETTE
SERIAL NO: 42883
FREQUENCY IN HERTZ

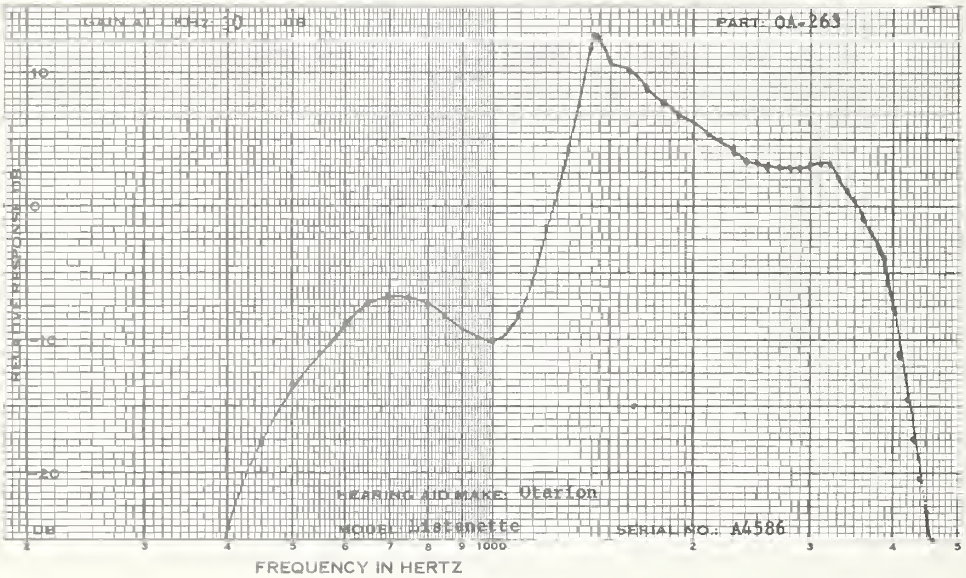

GAIN AT 1 KHZ: 46½ DB
PART: OA-260
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTARION
MODEL: TONETTE
SERIAL NO: 42901
FREQUENCY IN HERTZ

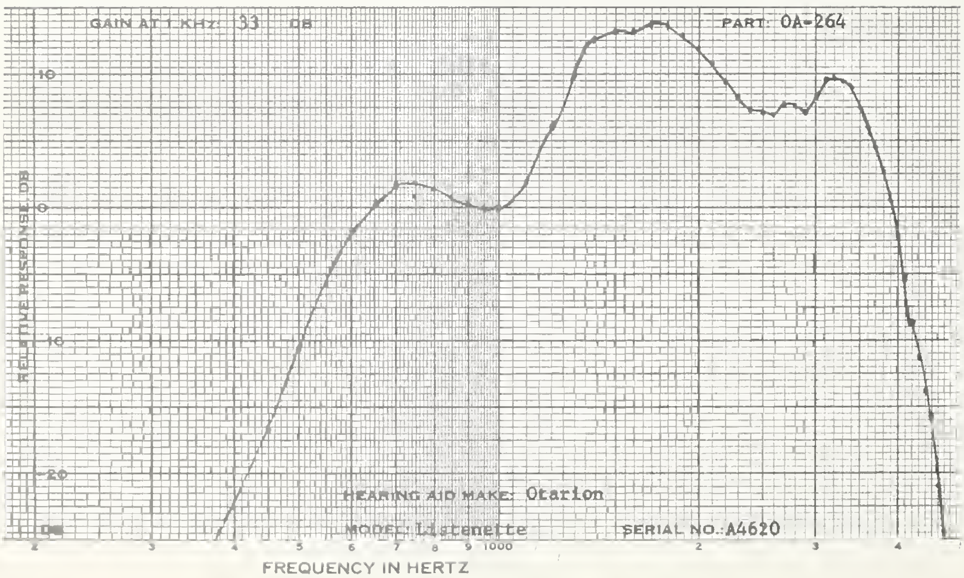

GAIN AT 1 KHZ: 47 DB
PART: OA-261
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTARION
MODEL: TONETTE
SERIAL NO: 42925
FREQUENCY IN HERTZ

OTARION IE
MODEL:LISTENETTE TONE:NONE BATTERY:S13

CODE	OA-262	OA-263	OA-264
SERIAL #	R4104	A4586	A4620
DATE		JUN 18, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	37.0	31.0	33.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	78.0	79.0	79.0
OUTPUT LEVEL DB	112.0	117.0	113.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	37.0(FULL)	30.0	33.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.5 70.5
500 HZ %	4 5	0 1	0 3
700 HZ %	1 2	12 19	3 5
900 HZ %	1 3	7 11	5 6
MAX DIST %	4 6	18 32	5 6
FREQ OF MAX DIS	500 1510	680 680	900 1510
S/N RATIO DB			
1KHZ SIGNAL	41.0	29.5	36.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.0	1.0
65 DB INPUT	.9	.9	1.0
BATTERY VOLTAGE	1.54	1.54	1.54

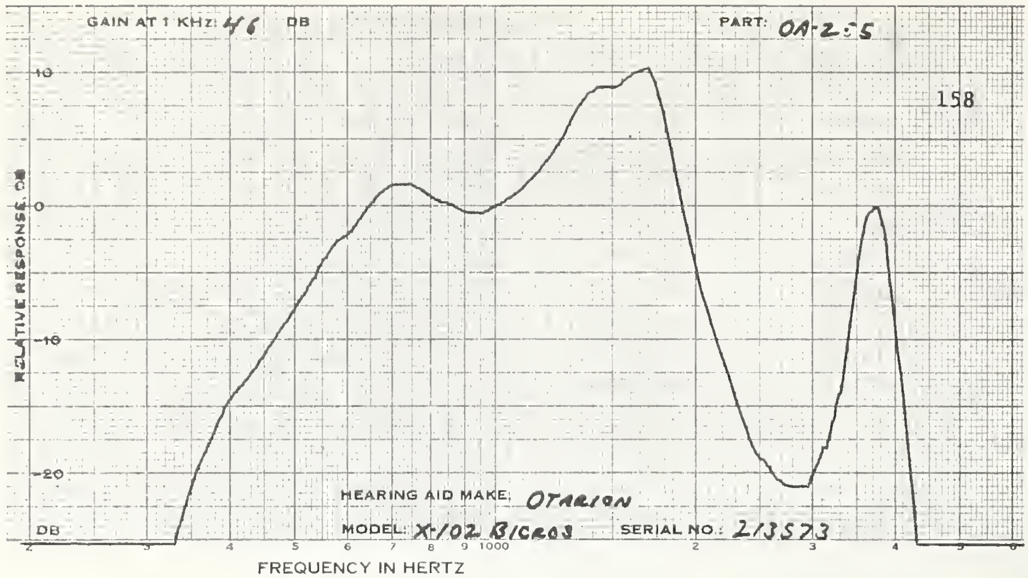

GAIN AT 1 KHZ: 37 DB
PART OA-262
156
RELATIVE RESPONSE DB
10
0
-10
-20
DB
HEARING AID MAKE: Otarion
MODEL Listenette
SERIAL NO.: R4104
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

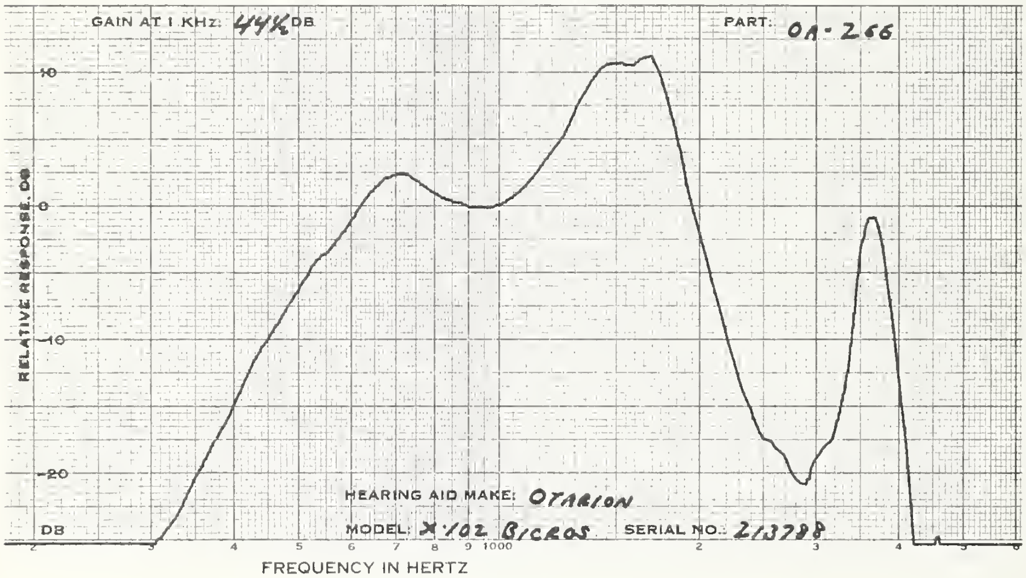

GAIN AT 1 KHZ: 30 DB
PART: OA-263
RELATIVE RESPONSE DB
10
0
-10
-20
DB
HEARING AID MAKE: Otarion
MODEL Listenette
SERIAL NO.: A4586
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

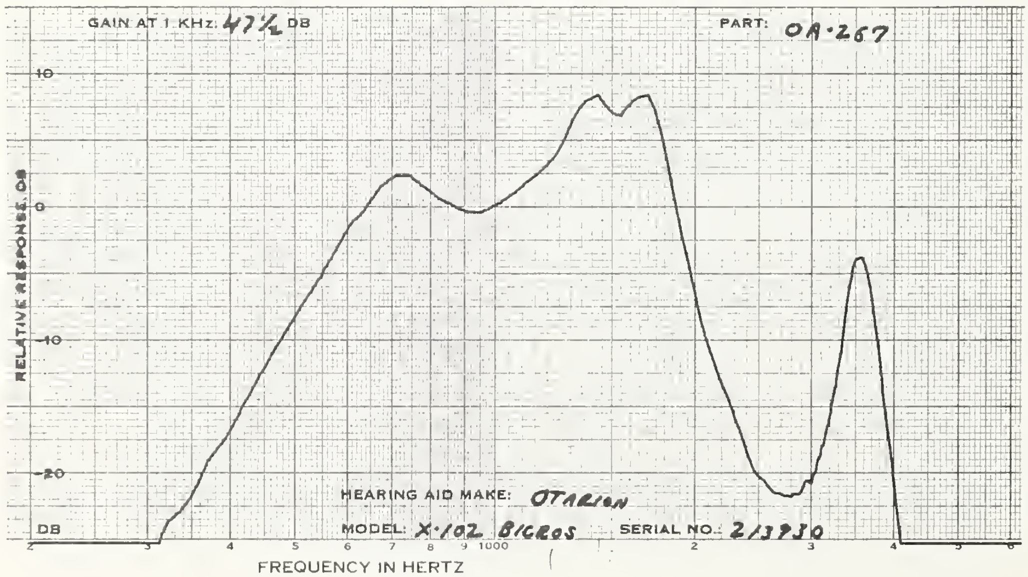

GAIN AT 1 KHZ: 33 DB
PART: OA-264
RELATIVE RESPONSE DB
10
0
10
-20
DB
HEARING AID MAKE: Otarion
MODEL Listenette
SERIAL NO.: A4620
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

OTARICN BI EG
MODEL:X102 BICROS TONE:NONE TUBING:35MM BATTERY:S76

CODE	OA-265	OA-266	OA-267
SERIAL #	213573	213788	213930
DATE		JUN 12, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	47.0	45.5	48.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	77.0	79.5	77.5
OUTPUT LEVEL DB	120.5	119.5	121.0
MEASUREMENTS WITH REDUCED VCLUME CONTRCL SETTING			
1KHZ GAIN DB	46.0	44.5	47.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	1 4	2 5	2 7
700 HZ %	1 2	2 4	1 5
900 HZ %	0 2	3 6	1 5
MAX DIST %	5 35	7 38	4 26
FREQ OF MAX DIS	1770 1800	1750 1780	1720 1740
S/N RATIO DB			
1KHZ SIGNAL	48.0	47.5	48.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NC INPUT	2.4	2.4	2.2
65 DB INPUT	2.4	2.4	2.2
BATTERY VOLTAGE	1.56	1.55	1.55


GAIN AT 1 KHz: 46 DB
PART: OA-265
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTARION
MODEL: X-102 BICROS
SERIAL NO.: 213573
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

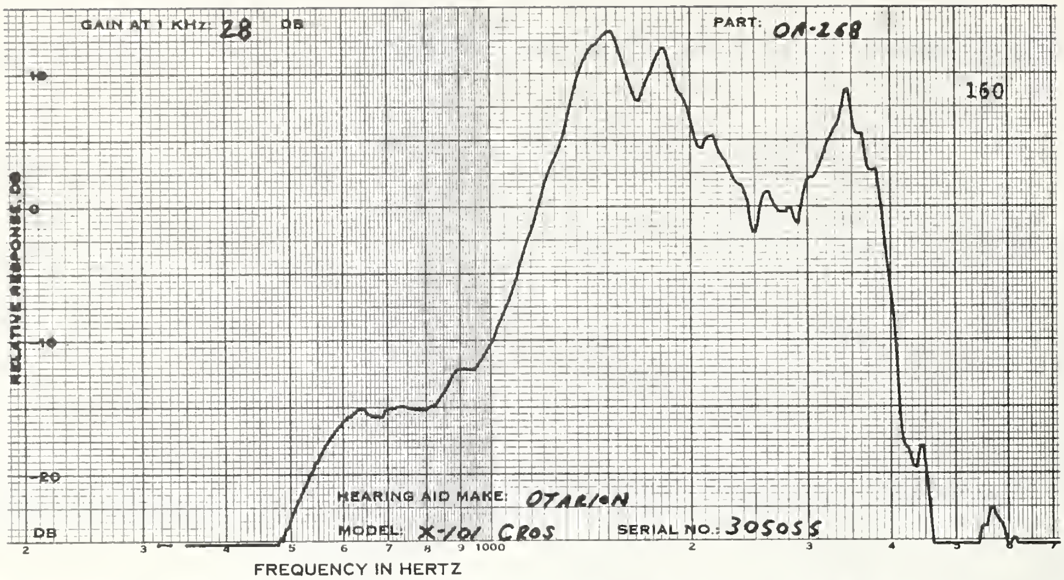

GAIN AT 1 KHz: 44½ DB
PART: OA-266
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTARION
MODEL: X-102 BICROS
SERIAL NO.: 213788
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

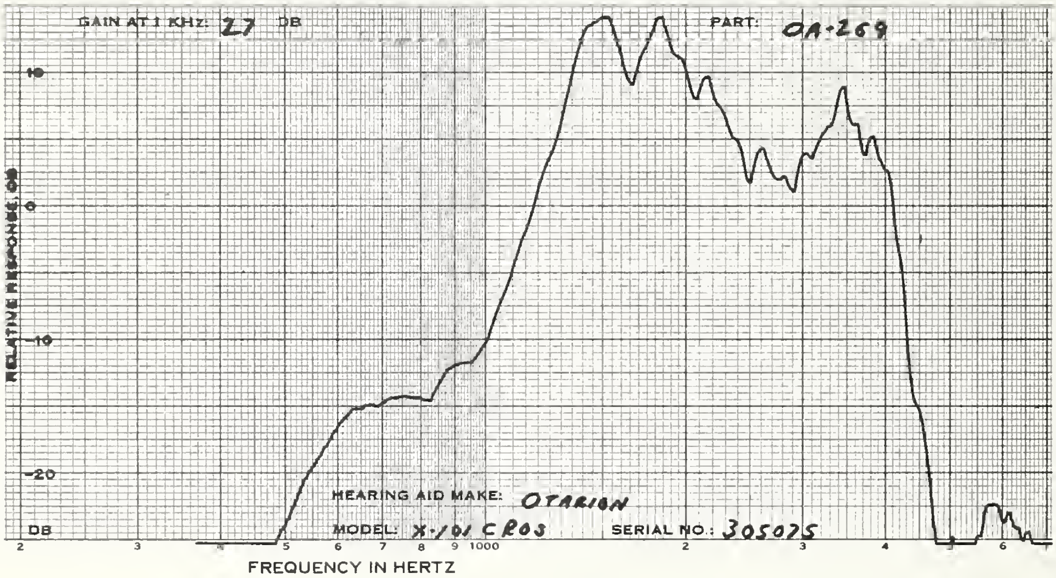

GAIN AT 1 KHz: 47½ DB
PART: OA-267
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTARION
MODEL: X-102 BICROS
SERIAL NO.: 213930
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

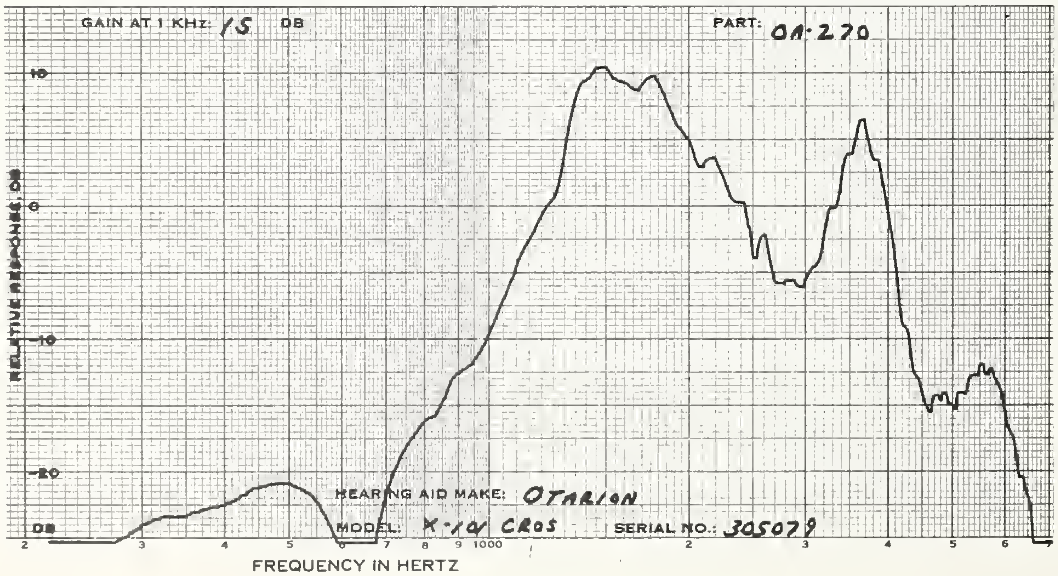
CTARION CROS EG

MODEL:X101 CROS TONE:NONE TUBING:42MM BATTERY:S76

CODE	OA-268	OA-269	OA-270
SERIAL #	305055	305075	305079
DATE		JUN 6, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	33.0	32.0	20.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	84.0	82.5	89.0
OUTPUT LEVEL DB	117.0	117.0	116.0
MEASUREMENTS WITH REDUCED VCLUME CONTROL SETTING			
1KHZ GAIN DB	28.0	27.0	15.0
S/N RATIO DB			
2KHZ SIGNAL	48.5	52.0	>38.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.4	2.4	2.2
65 DB INPUT	2.4	2.4	2.2
BATTERY VOLTAGE	1.55	1.55	1.55

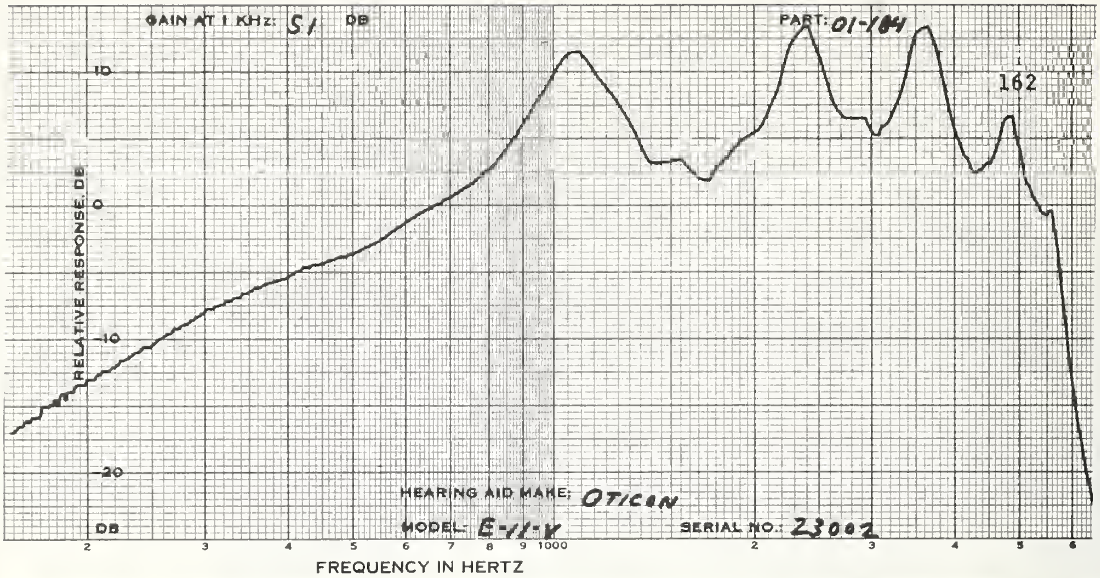

GAIN AT 1 KHz: 28 DB
PART: OA-268
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTARION
MODEL: X-101 CROS
SERIAL NO.: 305055
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

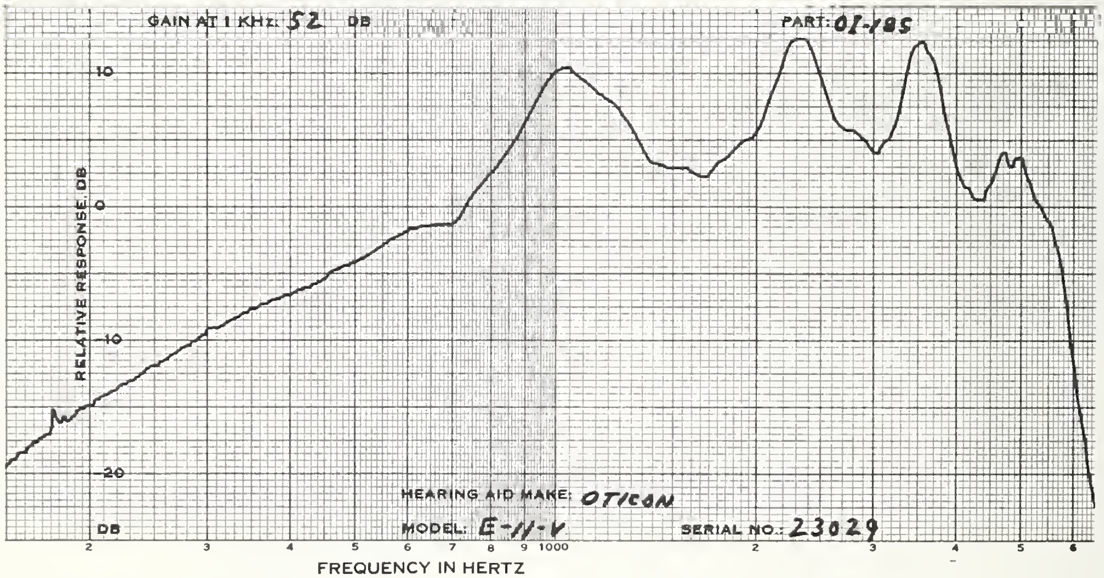

GAIN AT 1 KHz: 27 DB
PART: OA-269
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTARION
MODEL: X-101 CROS
SERIAL NO.: 305075
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

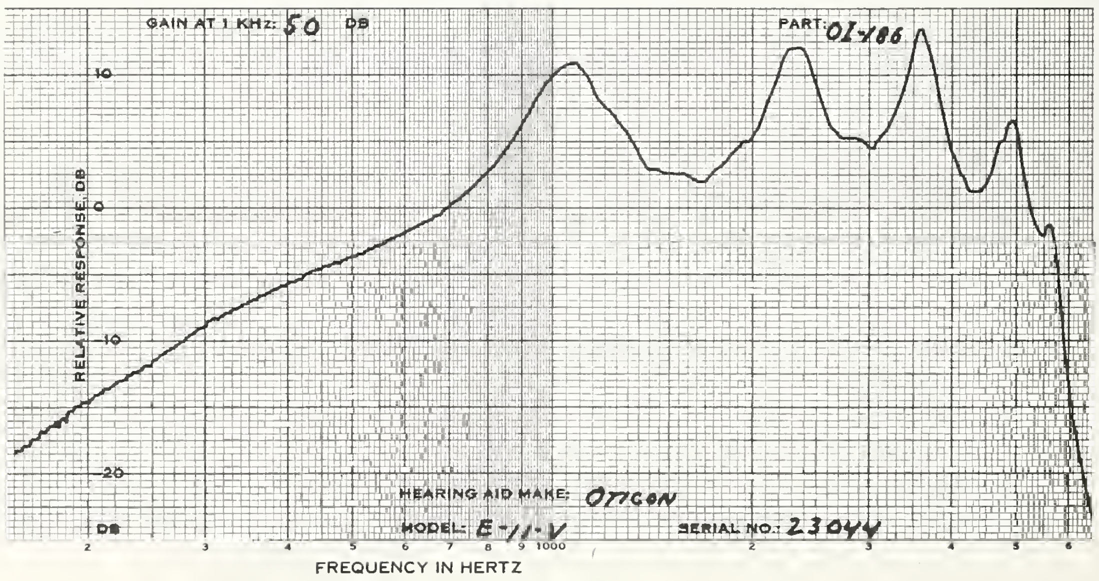

GAIN AT 1 KHz: 15 DB
PART: OA-270
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTARION
MODEL: X-101 CROS
SERIAL NO.: 305079
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

OTICON OE
MODEL:E11V DB-HL:70 TONE:N TUBING:25MM BATTERY:675

CODE	OI-184	OI-185	OI-186
SERIAL #	23002	23029	23044
DATE		FEB 25, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	54.0	52.0	52.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	75.0	74.0
OUTPUT LEVEL DB	118.5	118.0	117.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	51.0	52.0(FULL)	50.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 5	5 9	4 6
700 HZ %	1 2	1 2	1 2
900 HZ %	0 0	0 0	0 0
MAX DIST %	5 20	5 23	5 12
FREQ OF MAX DIS	530 1800	500 1750	540 1780
S/N RATIO DB			
1KHZ SIGNAL	43.0	44.0	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.0	2.3	2.0
65 DB INPUT	2.0	2.3	2.0
BATTERY VOLTAGE	1.33	1.33	1.33


GAIN AT 1 KHz: 51 DB
PART: 01-184
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: E-11-V
SERIAL NO.: 23002
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

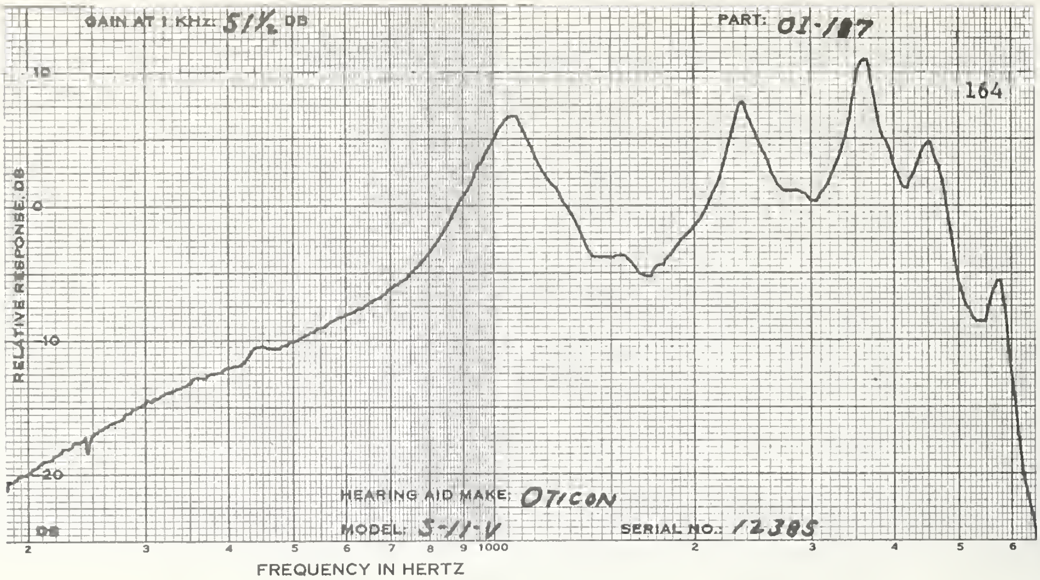

GAIN AT 1 KHz: 52 DB
PART: 01-185
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: E-11-V
SERIAL NO.: 23029
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

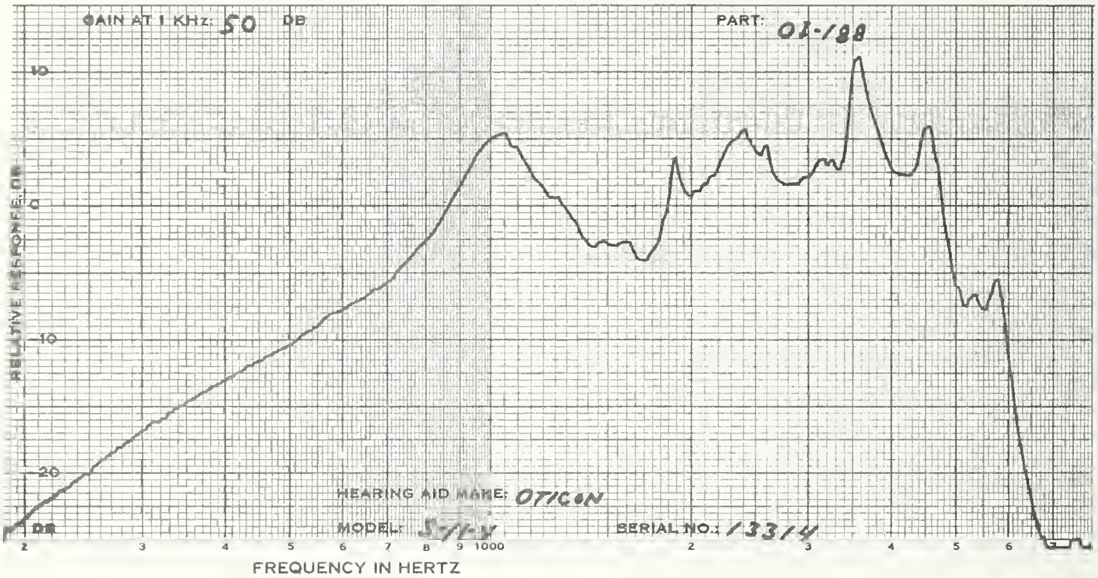

GAIN AT 1 KHz: 50 DB
PART: 01-186
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: E-11-V
SERIAL NO.: 23044
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

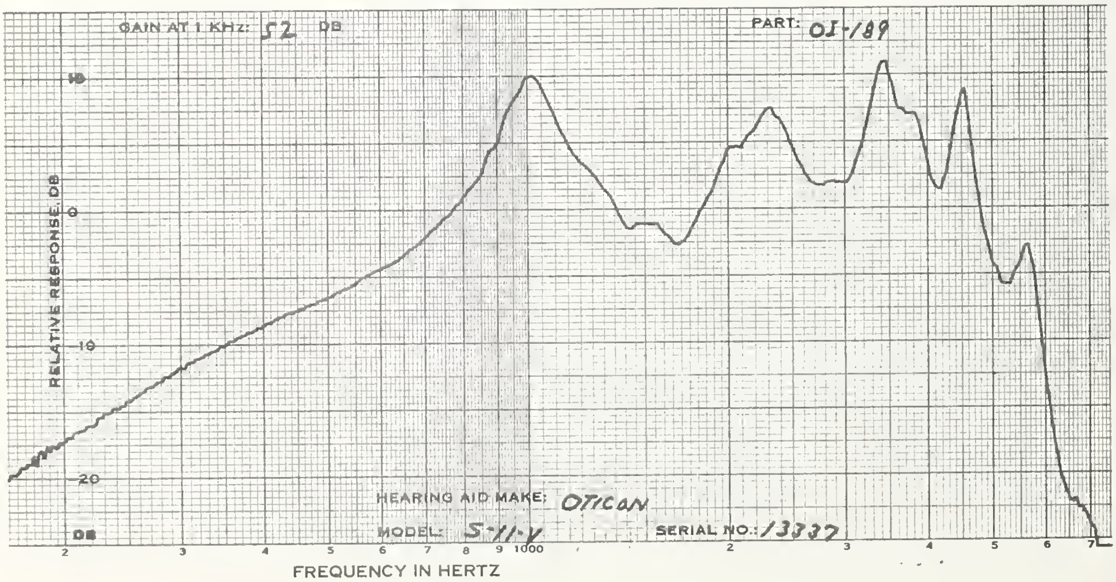
OTICON EG

MODEL:S11V DB-HL:70 TONE:N TUBING:35MM BATTERY:675

CODE	OI-187	OI-188	OI-189
SERIAL #	12385	13314	13337
DATE		MAR 3, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	54.0	51.5	52.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.5	76.5	75.0
OUTPUT LEVEL DB	118.5	118.0	118.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	51.5	50.0	52.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 8	4 5	5 7
700 HZ %	1 1	1 1	1 1
900 HZ %	0 0	0 0	0 0
MAX DIST %	6 16	5 23	5 10
FREQ OF MAX DIS	500 1775	520 1840	500 1875
S/N RATIO DB			
1KHZ SIGNAL	44.5	45.5	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.8	1.6	1.9
65 DB INPUT	1.8	1.6	1.9
BATTERY VOLTAGE	1.38	1.35	1.35

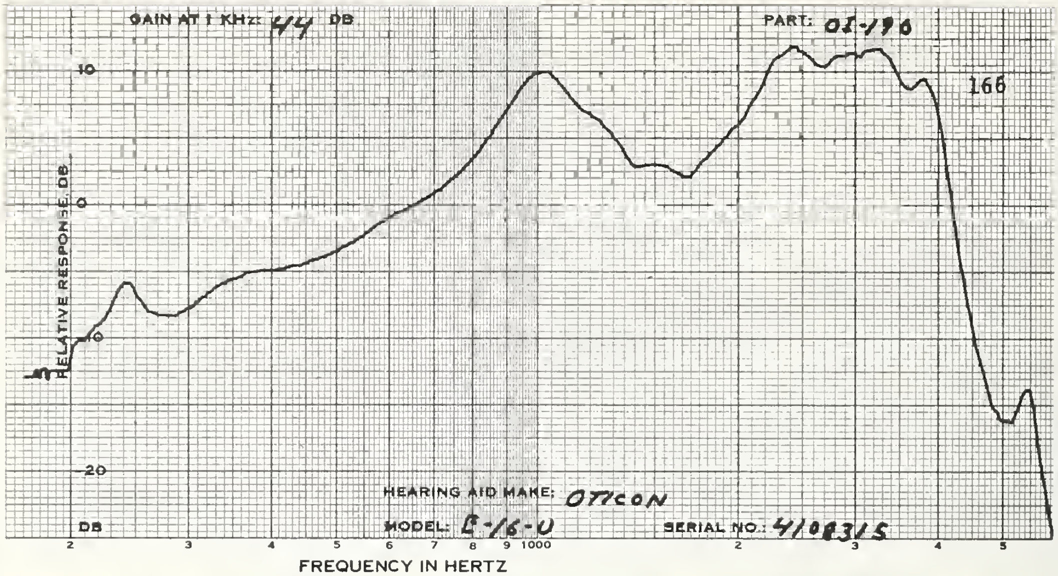

GAIN AT 1 KHz: 51½ DB
PART: OI-187
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: S-11-V
SERIAL NO.: 12385
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

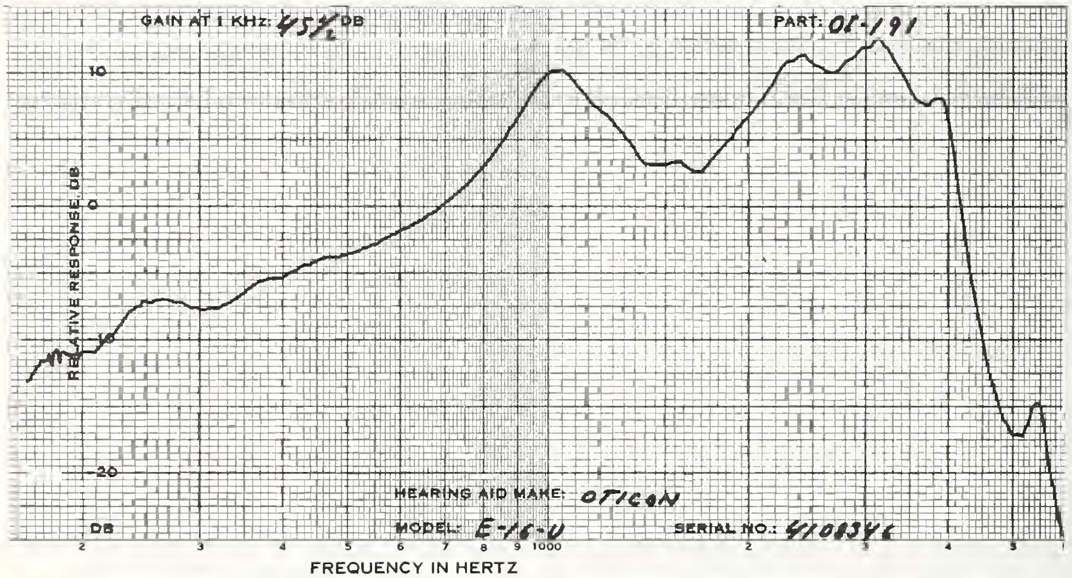

GAIN AT 1 KHz: 50 DB
PART: OI-188
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: S-11-V
SERIAL NO.: 13314
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

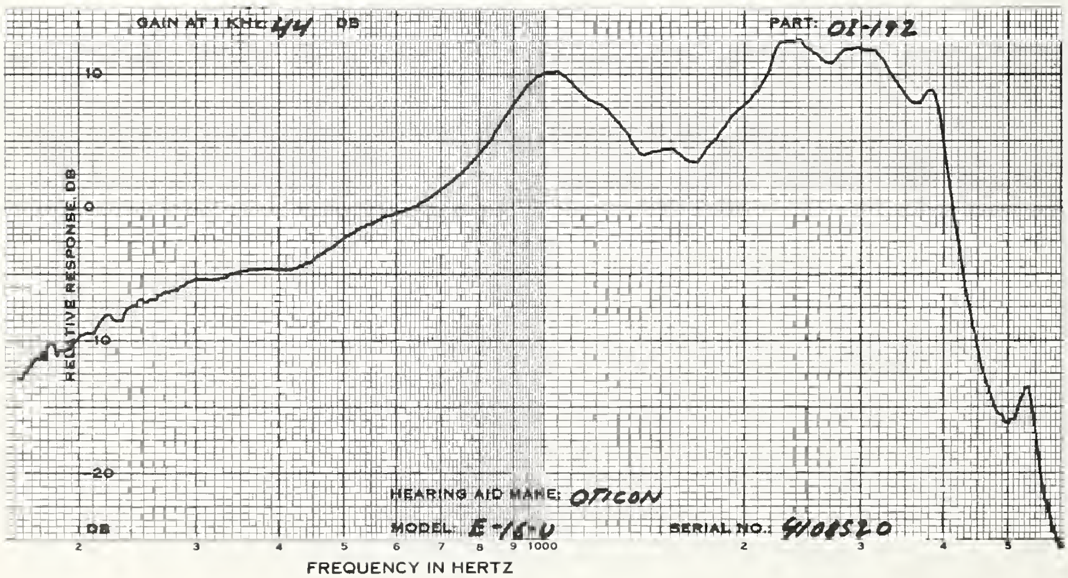

GAIN AT 1 KHz: 52 DB
PART: OI-189
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: S-11-V
SERIAL NO.: 13337
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

MODEL:E16U TONE:N TUBING:25MM BATTERY:675

CODE	OI-190	OI-191	OI-192
SERIAL #	4108315	4108346	4108520
DATE		FEB 25, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	44.0	45.5	44.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	74.5	74.0
OUTPUT LEVEL DB	112.0	113.5	112.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	44.0(FULL)	45.5(FULL)	44.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 8	5 9	5 11
700 HZ %	1 2	1 2	1 3
900 HZ %	0 0	0 0	1 1
MAX DIST %	5 8	5 9	5 11
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	43.5	44.5	42.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.8
65 DB INPUT	.8	.8	.8
BATTERY VOLTAGE	1.40	1.40	1.40

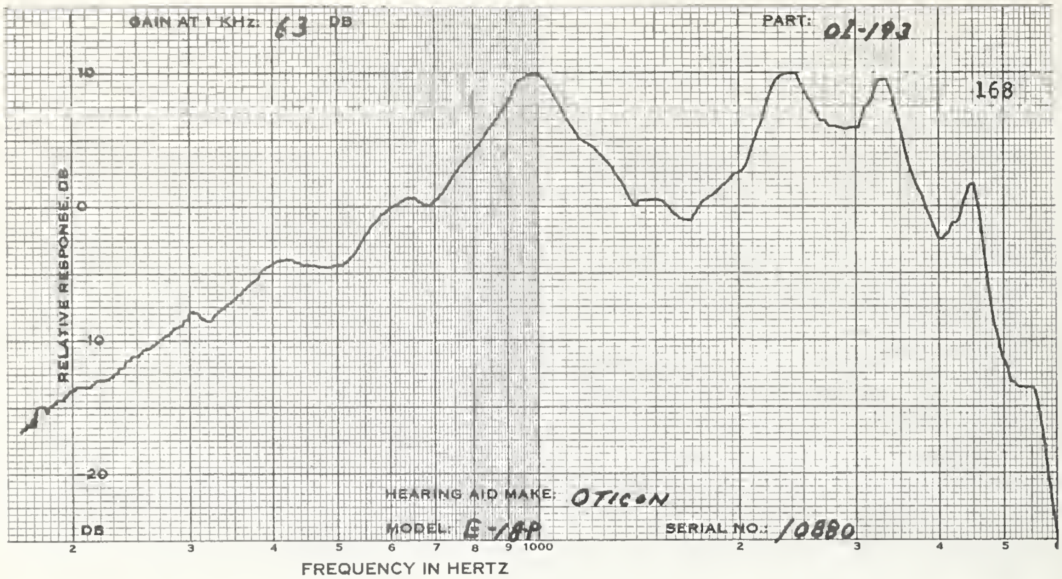

GAIN AT 1 KHz: 44 DB
PART: OI-190
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTICON
MODEL: E-16-U
SERIAL NO.: 4108315
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

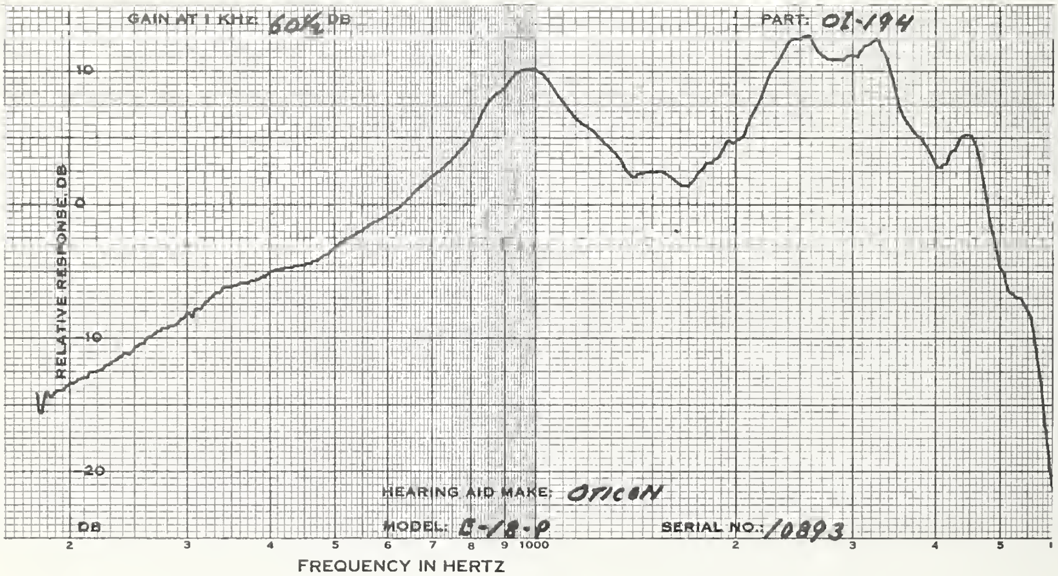

GAIN AT 1 KHz: 45½ DB
PART: OI-191
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTICON
MODEL: E-16-U
SERIAL NO.: 4108346
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

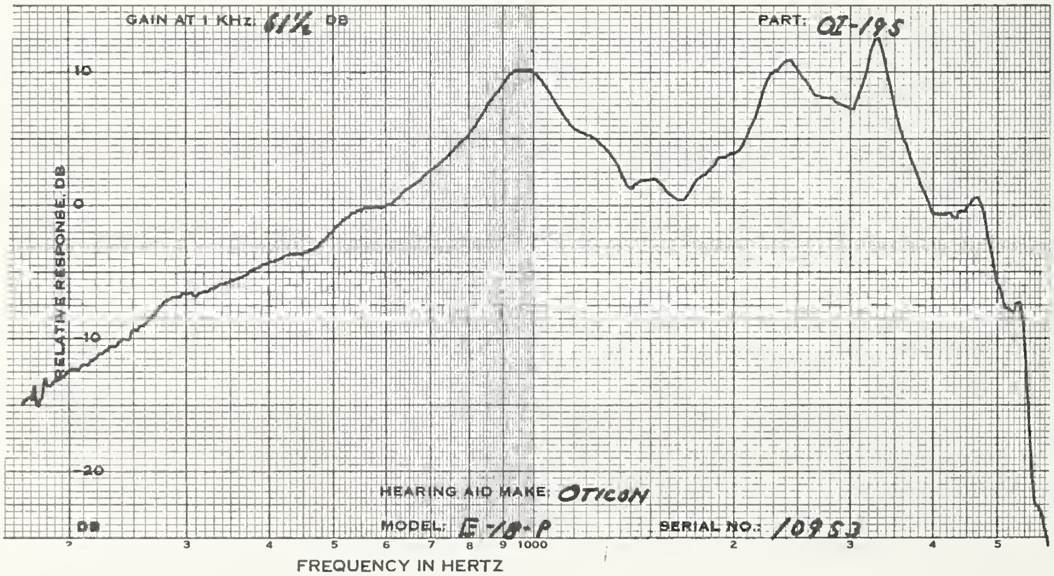

GAIN AT 1 KHz: 44 DB
PART: OI-192
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTICON
MODEL: E-16-U
SERIAL NO.: 4108520
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

OTICON OE
MODEL:E18P DB-SPL:137 TONE:N TUBING:25MM BATTERY:675

CODE	OI-193		OI-194		OI-195	
SERIAL #	10880		10893		10953	
DATE			FEB 25, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	70.5		71.5		71.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	72.0		71.0		69.5	
OUTPUT LEVEL DB	130.0		129.0		130.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	63.0		60.5		61.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	5	7	2	5	2	4
700 HZ %	1	6	1	5	1	4
900 HZ %	1	4	0	3	0	3
MAX DIST %	5	7	2	6	3	5
FREQ OF MAX DIS	500	500	500	790	2250	1110
S/N RATIO DB						
1KHZ SIGNAL	47.5		45.5		46.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.6		2.9		2.8	
65 DB INPUT	4.5		4.5		4.5	
BATTERY VOLTAGE	1.35		1.33		1.33	

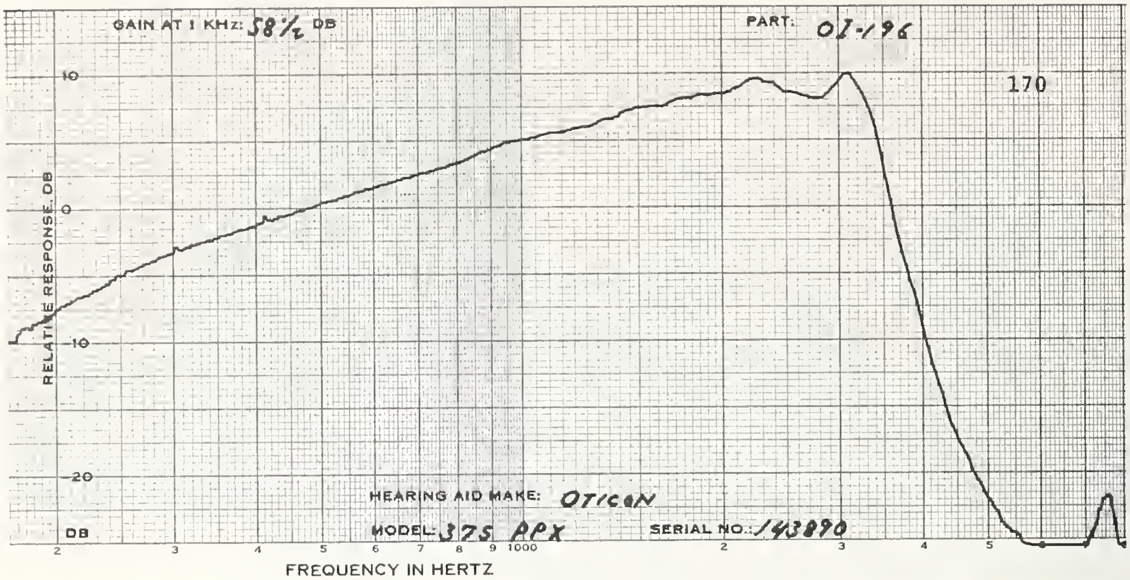

GAIN AT 1 KHZ: 63 DB
PART: OI-193
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: E-18P
SERIAL NO.: 10880
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

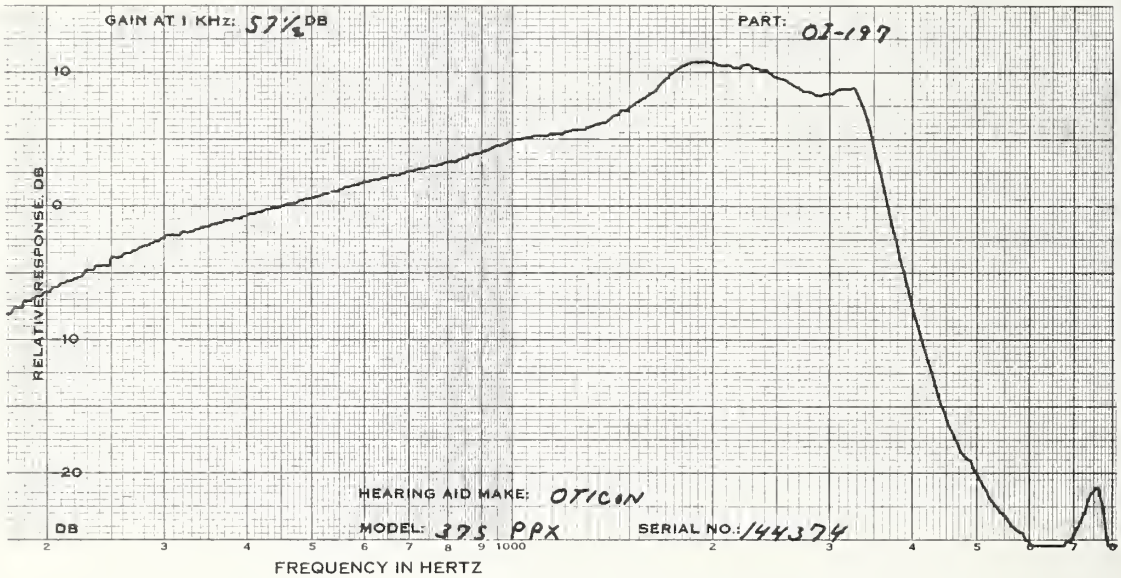

GAIN AT 1 KHZ: 60½ DB
PART: OI-194
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: E-18-P
SERIAL NO.: 10893
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

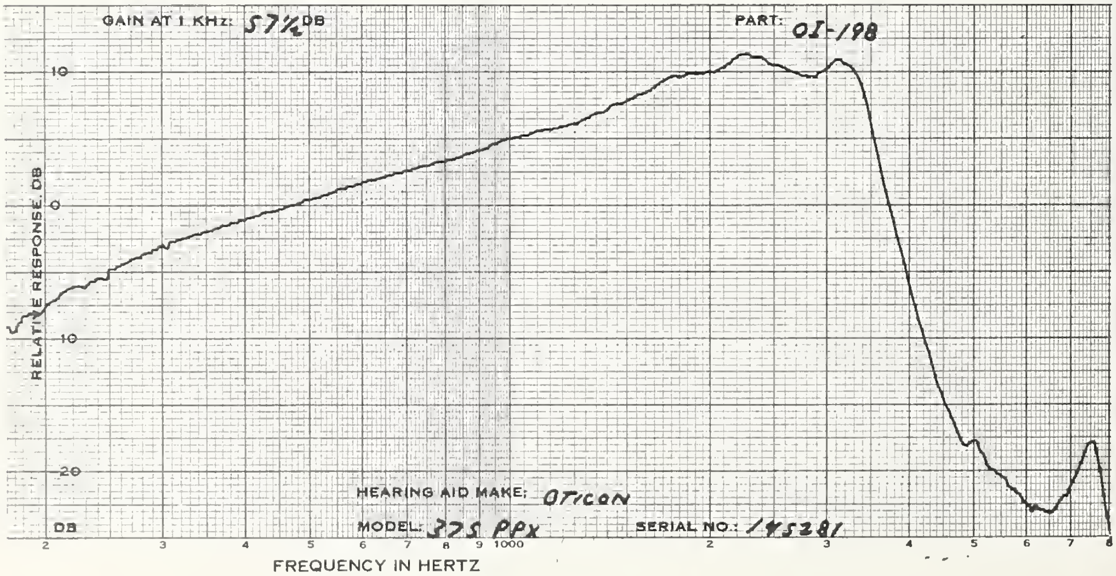

GAIN AT 1 KHZ: 61½ DB
PART: OI-195
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: E-18-P
SERIAL NO.: 10953
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

OTICON DB
MODEL:375PPX TONE:H RECEIVER:CFD-8 BATTERY:502

CODE	OI-196	OI-197	OI-198
SERIAL #	143890	144374	145281
DATE		APR 22, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	71.0	70.5	69.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	76.0	72.5	77.0
OUTPUT LEVEL DB	130.5	131.0	130.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	58.5	57.5	57.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 2	2 2	2 2
700 HZ %	3 4	3 5	3 4
900 HZ %	4 6	2 6	4 4
MAX DIST %	4 6	3 6	4 5
FREQ OF MAX DIS	900 900	700 900	900 1045
S/N RATIO DB			
1KHZ SIGNAL	40.0	39.0	38.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.5	3.5	3.5
65 DB INPUT	14.5	12.4	12.8
BATTERY VOLTAGE	1.43	1.43	1.43

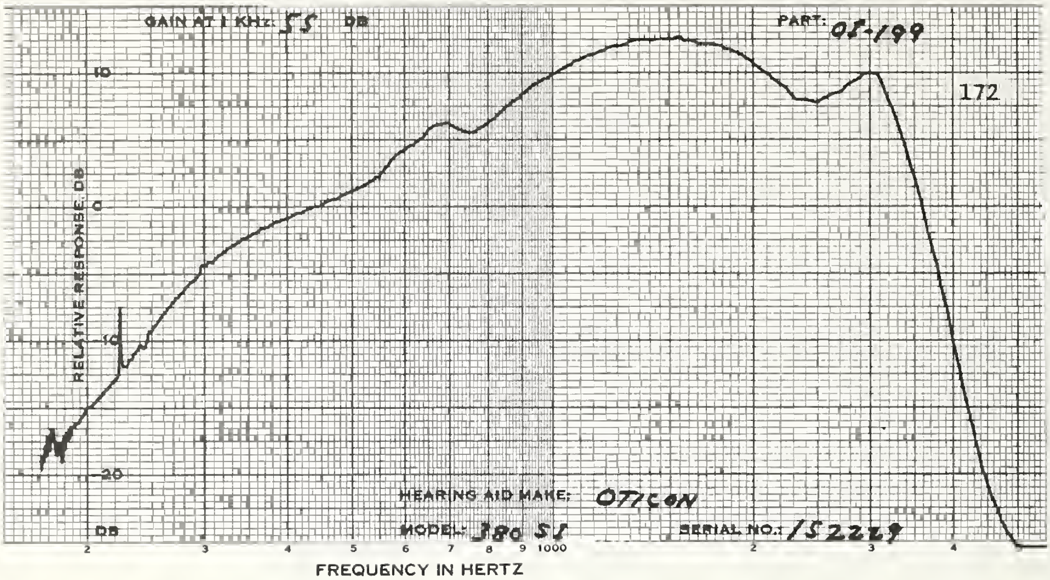

GAIN AT 1 KHz: 58½ DB
PART: OI-196
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: 375 PPX
SERIAL NO.: 143890
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

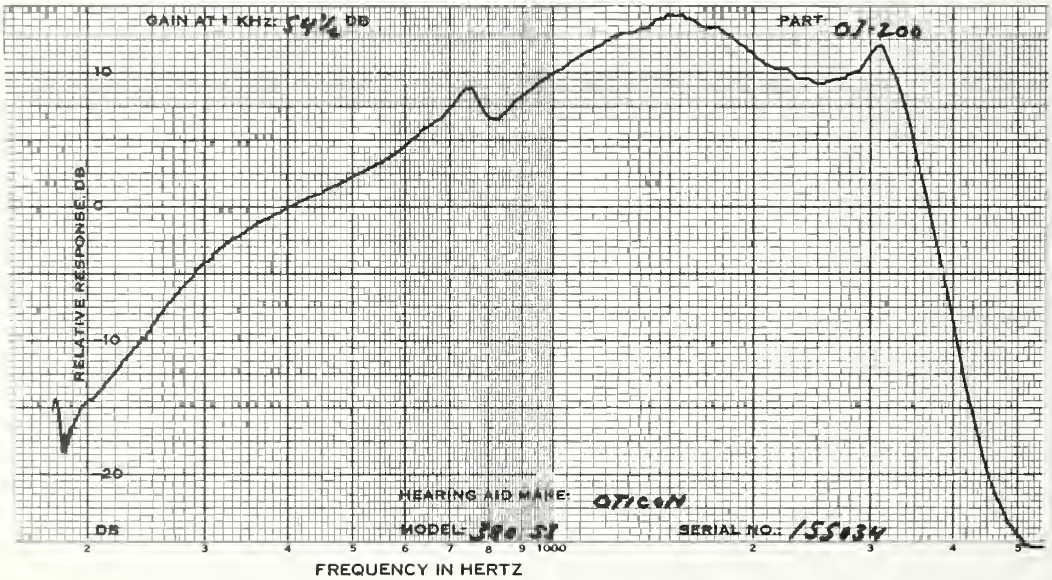

GAIN AT 1 KHz: 57½ DB
PART: OI-197
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: 375 PPX
SERIAL NO.: 144374
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7 8
FREQUENCY IN HERTZ

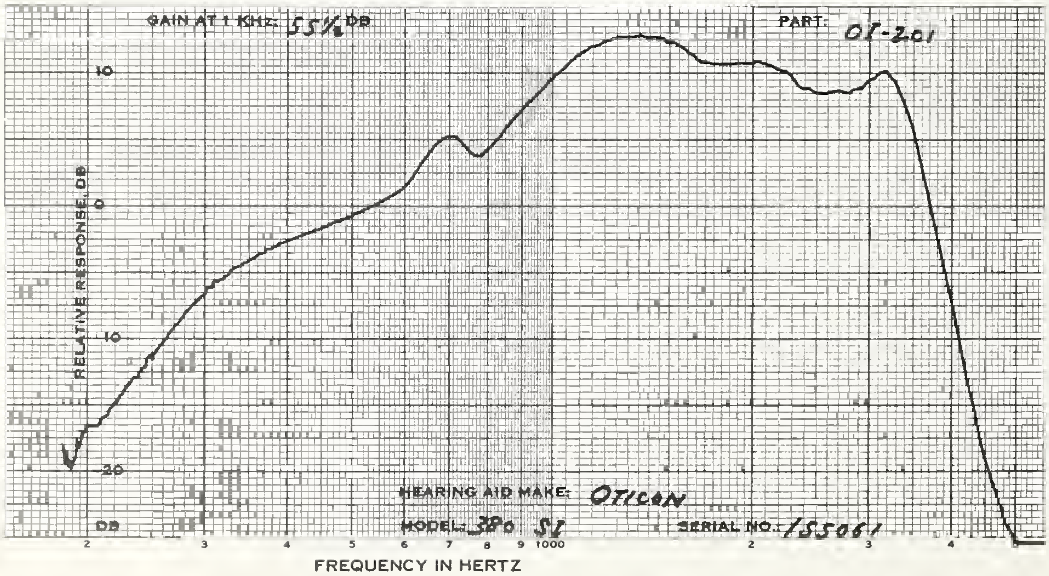

GAIN AT 1 KHz: 57½ DB
PART: OI-198
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: OTICON
MODEL: 375 PPX
SERIAL NO.: 145281
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7 8
FREQUENCY IN HERTZ

OTICON OB
MODEL:380SI TONE:NONE RECEIVER:AFM8 BATTERY:5C2

CODE	OI-199	OI-200	OI-201
SERIAL #	152229	155034	155C61
DATE		APR 22, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	58.0	57.5	59.5
MPO, RANDCM NOISE			
INPUT LEVEL, DB	79.5	80.5	80.0
OUTPUT LEVEL DB	125.0	125.5	125.5
MEASUREMENTS WITH REDUCED VCLUME CONTRCL SETTING			
1KHZ GAIN DB	55.0	54.5	55.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	4 7	4 8	1 4
700 HZ %	3 8	3 10	1 7
900 HZ %	4 12	4 10	1 12
MAX DIST %	4 15	4 15	3 18
FREQ OF MAX DIS	900 1360	500 1210	133C 1140
S/N RATIO DB			
1KHZ SIGNAL	47.5	47.0	49.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NC INPUT	5.1	4.9	5.8
65 DB INPUT	5.1	4.9	5.8
BATTERY VOLTAGE	1.44	1.44	1.44

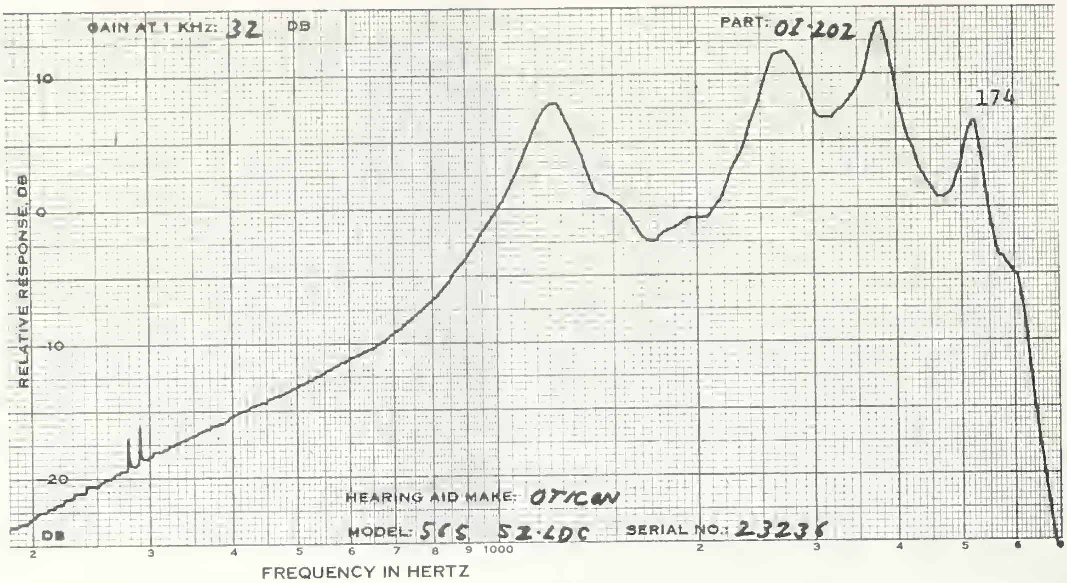

GAIN AT 1 KHz: 55 DB
PART: OT-199
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: OTICON
MODEL: 380 SI
SERIAL NO.: 152229
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 54½ DB
PART: OT-200
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: OTICON
MODEL: 380 SI
SERIAL NO.: 155034
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

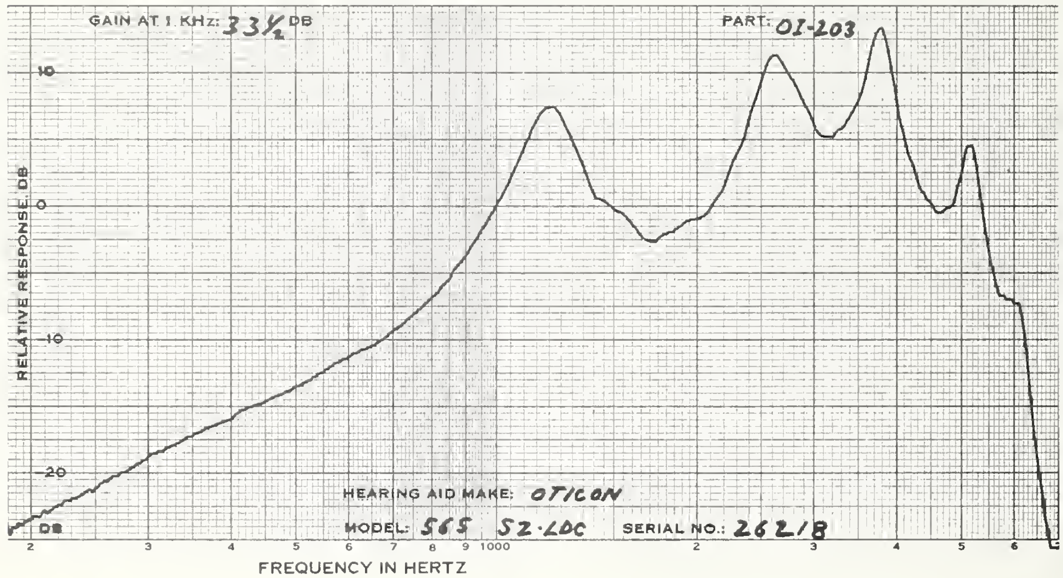

GAIN AT 1 KHz: 55½ DB
PART: OT-201
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: OTICON
MODEL: 380 SI
SERIAL NO.: 155061
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

OTICON OE
MODEL:565SZ-LDC DB-SPL:120 TONE:H TUBING:25MM BATTERY:675

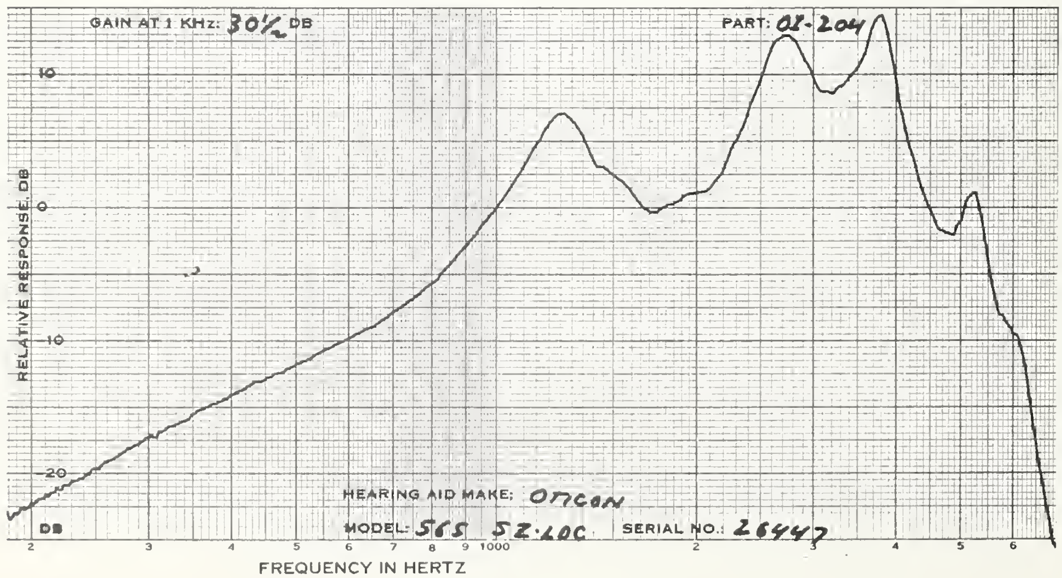
CODE	OI-202		OI-203		OI-204	
SERIAL #	23236		20218		26447	
DATE			FEB 25, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	41.5		43.0		41.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	70.5		68.0		69.0	
OUTPUT LEVEL DB	106.5		106.0		105.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	32.0		33.5		30.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	3	2	3	2	2	1
700 HZ %	2	1	1	1	2	1
900 HZ %	1	1	1	1	1	1
MAX DIST %	3	2	3	2	3	2
FREQ OF MAX DIS	500	500	500	500	1835	1835
S/N RATIO DB						
1KHZ SIGNAL	37.5		37.5		38.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.9		2.0		1.9	
65 DB INPUT	1.9		2.0		1.9	
BATTERY VOLTAGE	1.38		1.38		1.35	



GAIN AT 1 KHz: 32 DB
PART: OI-202
174
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTICON
MODEL: 565 52-LDC
SERIAL NO.: 23236
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ



GAIN AT 1 KHz: 33½ DB
PART: OI-203
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTICON
MODEL: 565 52-LDC
SERIAL NO.: 26218
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ



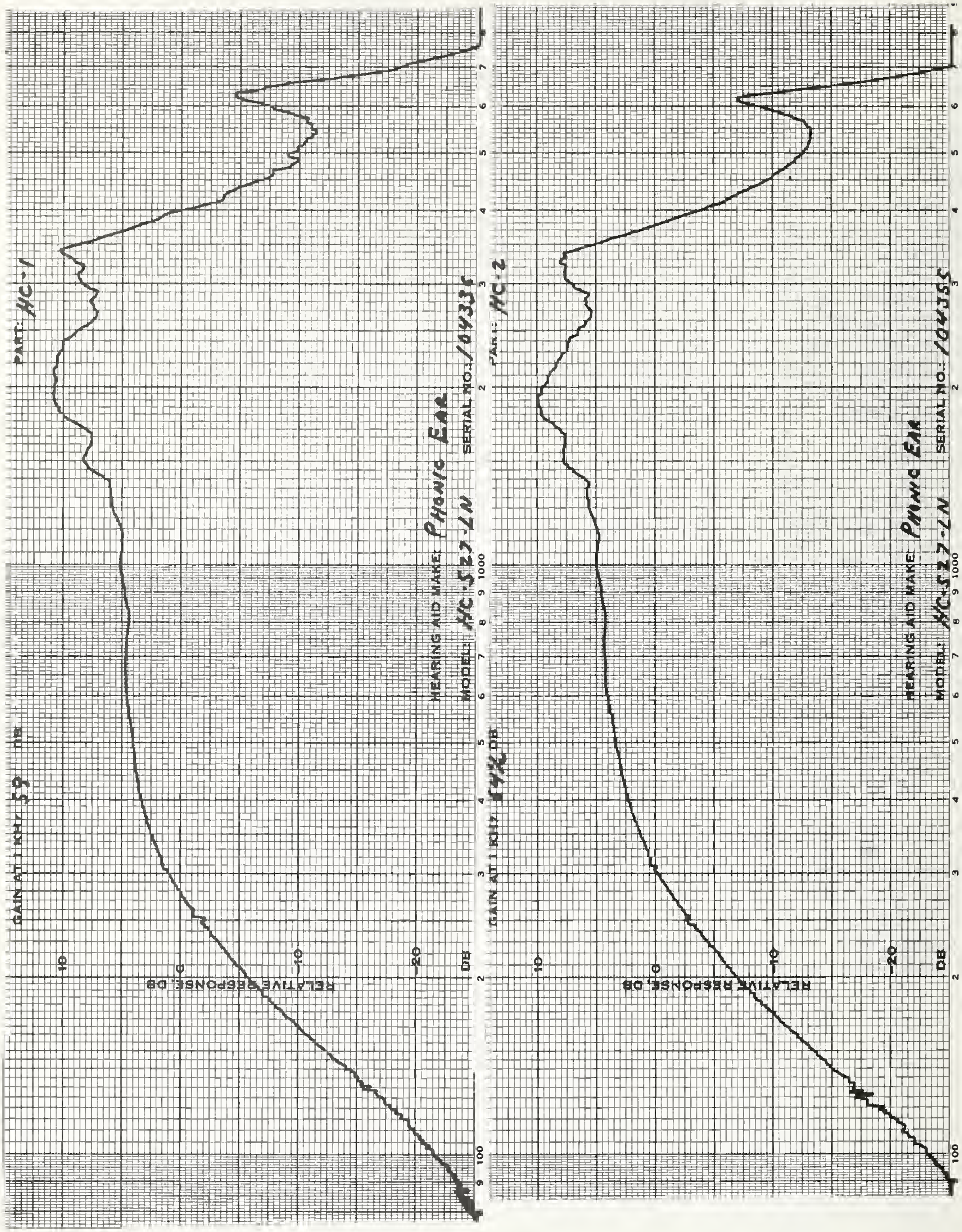
GAIN AT 1 KHz: 30½ DB
PART: OI-204
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: OTICON
MODEL: 565 52-LDC
SERIAL NO.: 26447
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

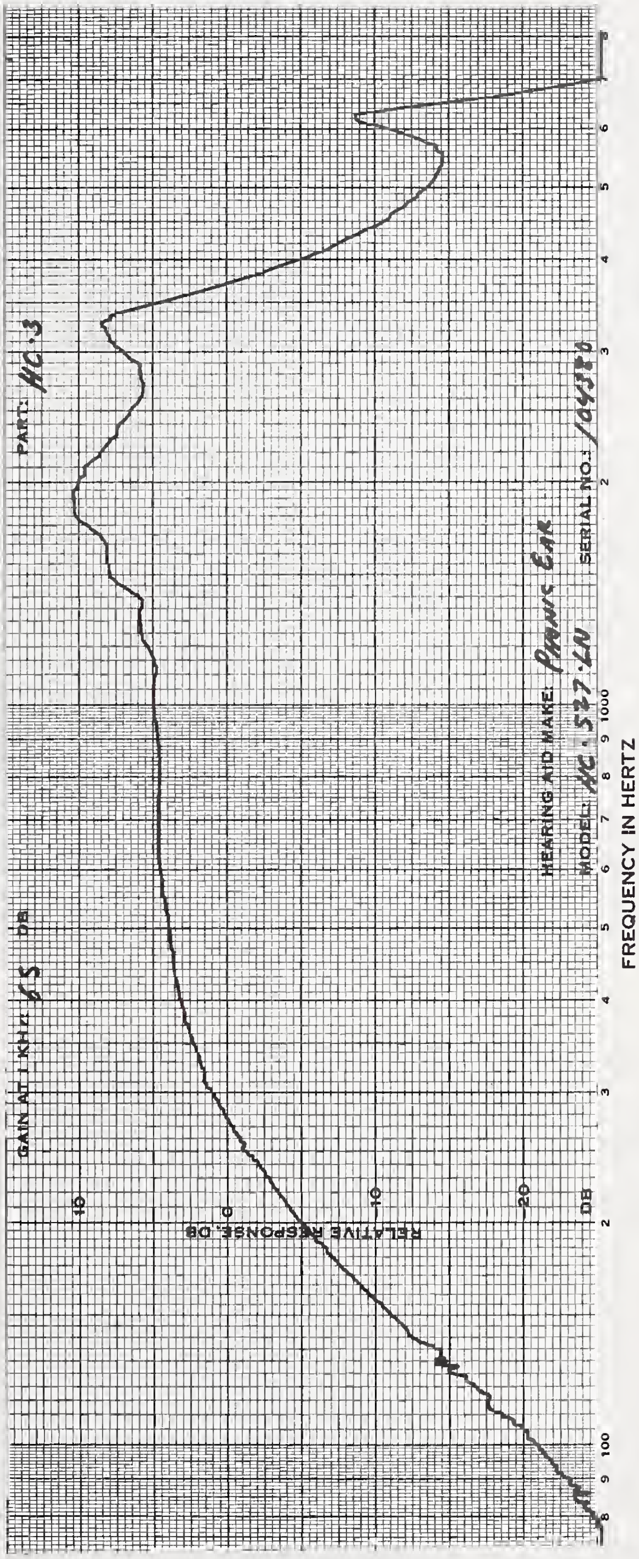
PHONIC EAR SPEC OB
MODEL:HC 527 LN S RESPONSE AV:7 TONE:L RECEIVER:AT16N BAT:INT

CODE	HC-001	HC-002	HC-003
SERIAL #	104336	104355	104380
DATE		JUN 16, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	59.0	64.5	65.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.5	76.0	77.0
OUTPUT LEVEL DB	124.5	126.0	126.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	59.0(FULL)	64.5(FULL)	65.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 6	4 8	3 6
700 HZ %	3 8	4 8	4 6
900 HZ %	5 11	6 8	6 7
MAX DIST %	5 11	6 8	6 7
FREQ OF MAX DIS	900 900	900 900	900 900
S/N RATIO DB			
1KHZ SIGNAL	40.5	40.5	39.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	*****	*****	*****
65 DB INPUT	*****	*****	*****
BATTERY VOLTAGE	******	******	******

THE HEARING AID HAS AN INTERNAL RECHARGEABLE BATTERY. THUS THE DRAIN COULD NOT BE OBTAINED.

BECAUSE THESE HEARING AIDS HAVE NO EXTERNAL VOLUME CONTROL CONTROL, AND BECAUSE THE INTERNAL CONTROL REDUCES THE SATURATION LEVEL AS WELL AS THE VOLUME, THE GAIN COULD NOT BE REDUCED SO THAT THE OUTPUT LEVEL WAS 12 DB BELOW SATURATION WITH 60 DB IN. INSTEAD THE FULL SETTING OF THE INTERNAL CONTROL WAS USED. THE ACTUAL OUTPUT LEVEL WITH 60 DB IN FOR THE THREE AIDS WAS 120, 124, AND 124 DB.

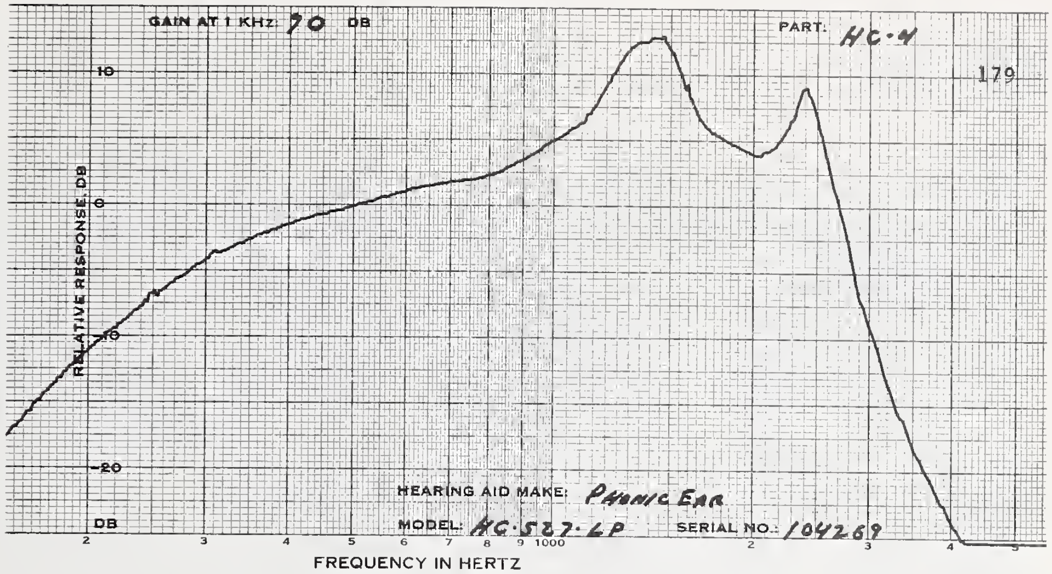

PART: HC-1
GAIN AT 1 KHZ: 59 DB
HEARING AID MAKE: PHONIC EAR
MODEL: HC-527-LN
SERIAL NO.: 104336
RELATIVE RESPONSE, DB
PART: HC-2
HEARING AID MAKE: PHONIC EAR
MODEL: HC-527-LN
SERIAL NO.: 104355
RELATIVE RESPONSE, DB
FREQUENCY IN HERTZ

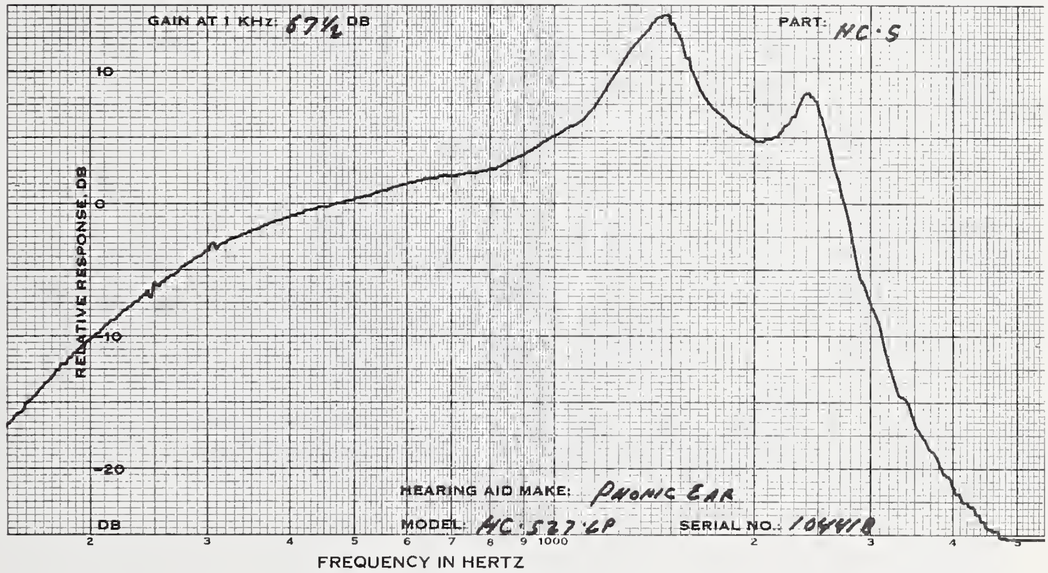

GAIN AT 1 KHz: 65 DB
PART: HC-3
HEARING AID MAKE: Phonic Ear
MODEL: HC-527-LN
SERIAL NO.: 104380
RELATIVE RESPONSE, DB
FREQUENCY IN HERTZ

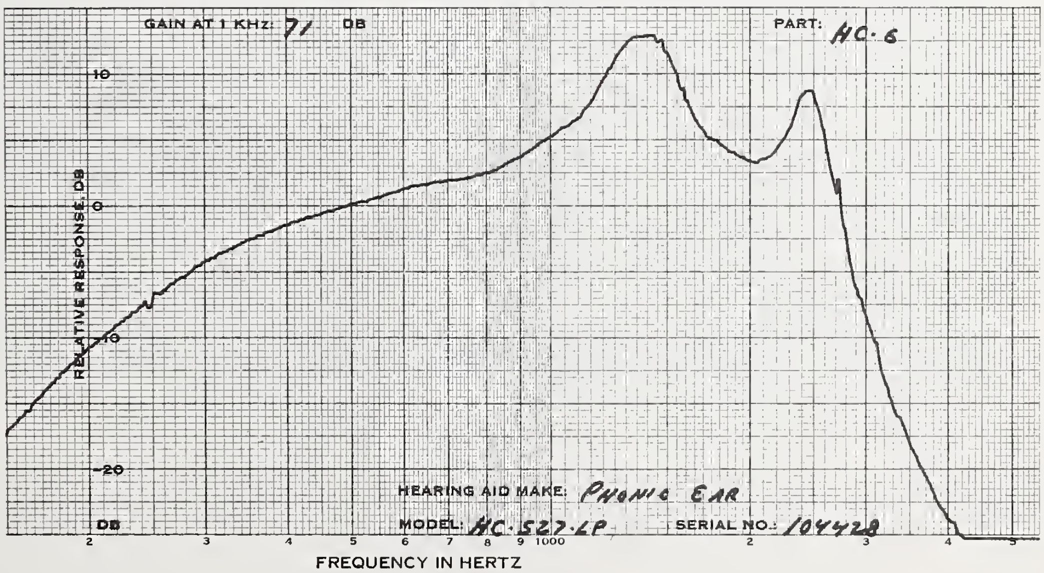
PHONIC EAR SPEC OB
MODEL:HC 527 LP S RESPONSE AV:7 TONE:L RECEIVER:AT16P BAT:INT

CODE	HC-004	HC-005	HC-006
SERIAL #	104269	104418	104428
DATE		JUN 16, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	70.0	67.5	71.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	76.0	75.0
OUTPUT LEVEL DB	131.0	131.5	131.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	70.0(FULL)	67.5(FULL)	71.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 7	1 3	1 4
700 HZ %	4 7	3 4	3 6
900 HZ %	0 0	1 1	0 1
MAX DIST %	4 7	3 6	6 9
FREQ OF MAX DIS	700 700	700 1210	1230 1230
S/N RATIO DB			
1KHZ SIGNAL	41.5	40.5	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	*****	*****	*****
65 DB INPUT	*****	*****	*****
BATTERY VOLTAGE	******	******	******

THE NOTES FOR THE PRECEEDING MODEL APPLY ALSO FOR THIS ONE.
THE OUTPUT FOR THE THREE INSTRUMENTS WITH 60 DB IN IS 128.5,128, AND 129.5.


GAIN AT 1 KHz: 70 DB
PART: HC-4
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: PHONIC EAR
MODEL: HC-527-LP
SERIAL NO.: 104269
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

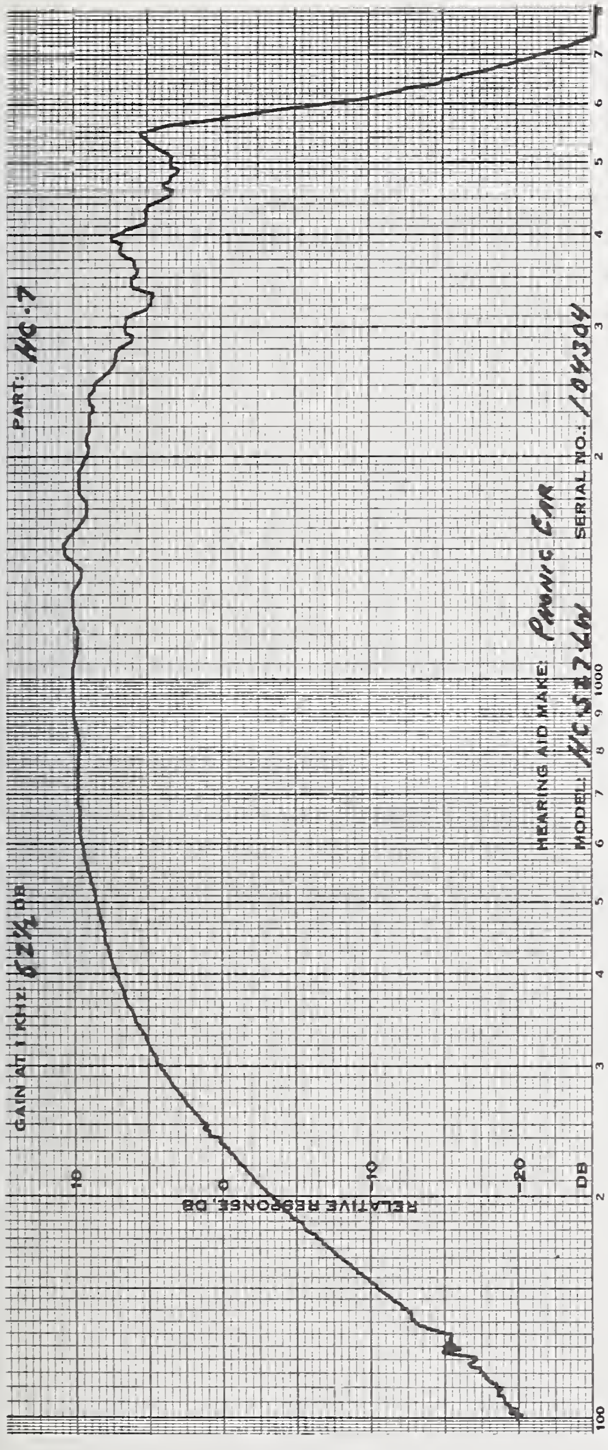

GAIN AT 1 KHz: 67½ DB
PART: HC-5
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: PHONIC EAR
MODEL: HC-527-LP
SERIAL NO.: 104418
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

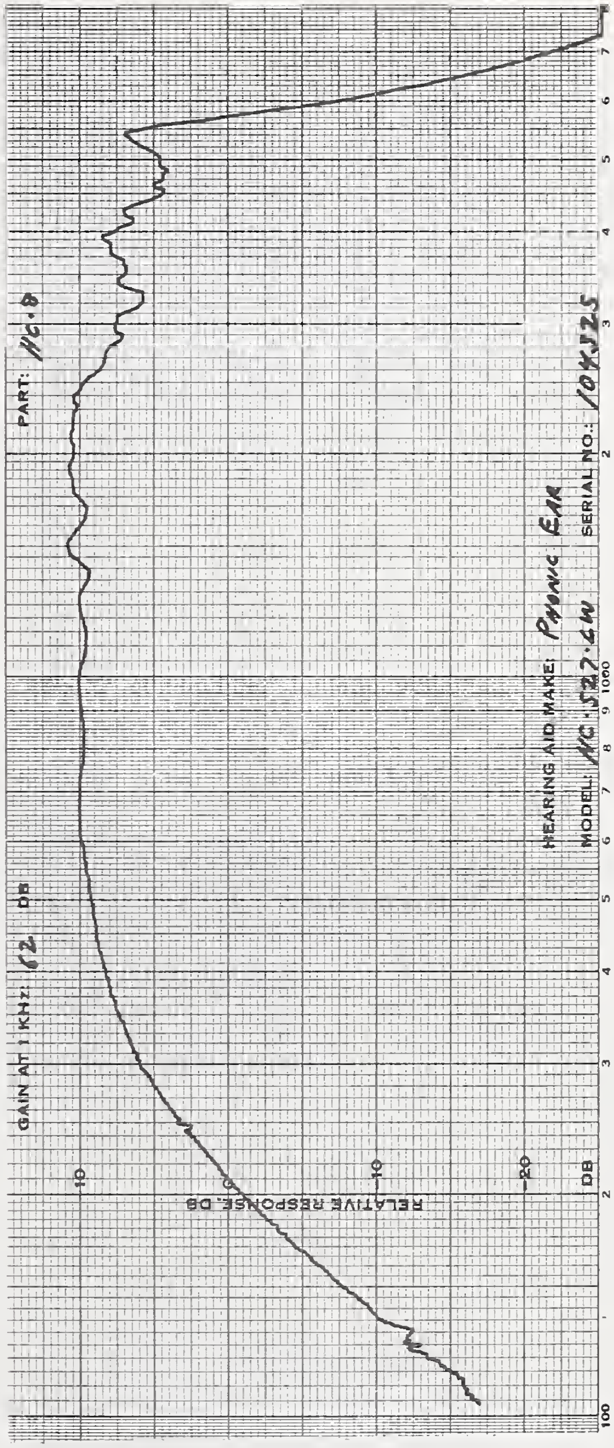

GAIN AT 1 KHz: 71 DB
PART: HC-6
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: PHONIC EAR
MODEL: HC-527-LP
SERIAL NO.: 104428
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

PHONIC EAR SPEC OB
MODEL:HC527LW S RESPONSE AV:7 TONE:L RECEIVER:AT16W BAT: INT

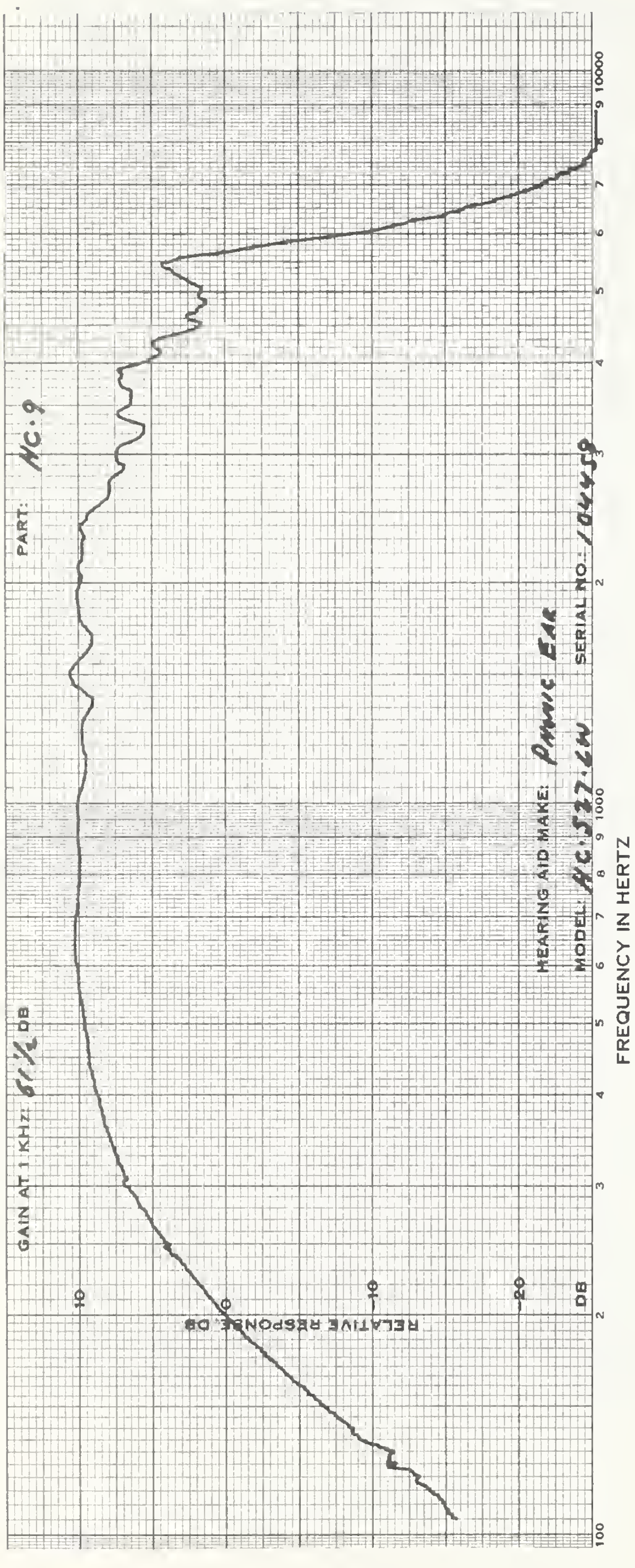
CODE	HC-007	HC-008	HC-009
SERIAL #	104304	104325	104458
DATE		JUN 16, 1675	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	62.5	62.0	61.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	81.0	72.0	74.0
OUTPUT LEVEL DB	123.5	123.5	122.5
MEASUREMENTS WITH RECUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	62.5(FULL)	62.0(FULL)	61.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 6	2 7	3 7
700 HZ %	4 6	4 8	4 7
900 HZ %	4 8	4 8	4 8
MAX DIST %	4 8	4 8	4 8
FREQ OF MAX DIS	900 900	900 900	900 900
S/N RATIO DB			
1KHZ SIGNAL	42.5	41.0	40.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	*****	*****	*****
65 DB INPUT	*****	*****	*****
BATTERY VOLTAGE	******	******	******

THE NOTES FOR MODEL HC527LN ALSO APPLY TO THIS MODEL.
THE OUTPUT WITH 60 DB IN FOR THE THREE INSTRUMENTS IS 120, 120.5, AND 120 DB.





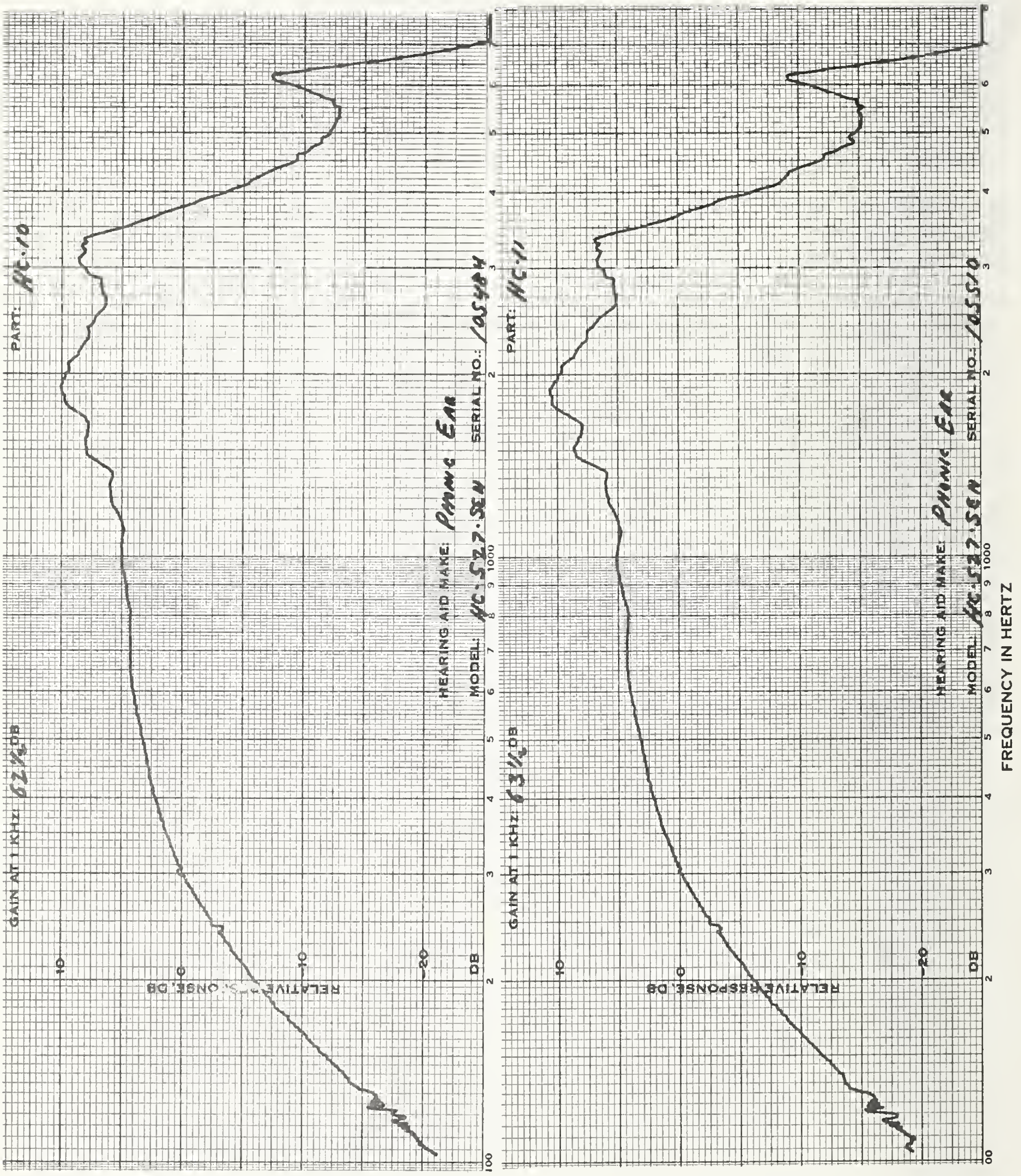
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 61½ DB
PART: HC-9
RELATIVE RESPONSE, DB
DB
HEARING AID MAKE: Phonic Ear
MODEL: HC 527-CW
SERIAL NO.: 104459
FREQUENCY IN HERTZ

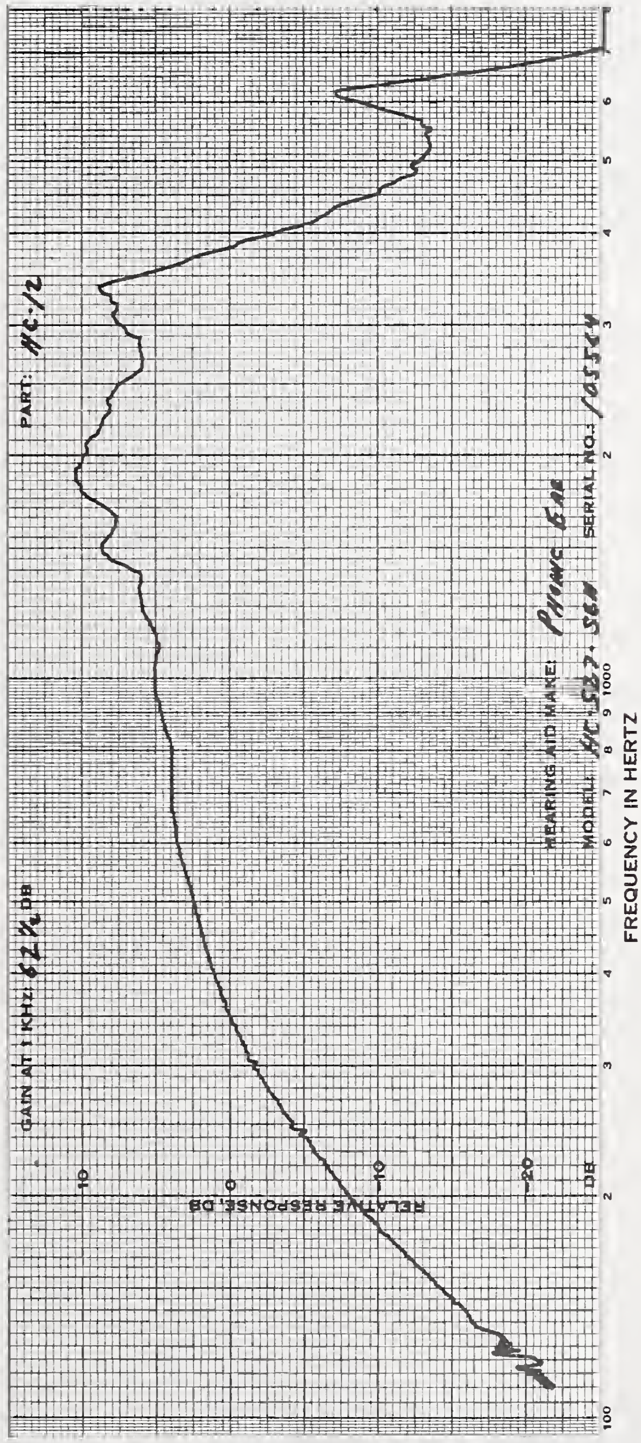
PHONIC EAR SPEC OB
MODEL:HC527SEN S RESPONSE AV:7 RECEIVER:AT16N BATTERY:INT

CODE	HC-010	HC-011	HC-012
SERIAL #	105484	105510	105564
DATE		JUN 16, 1675	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	62.5	63.5	62.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	71.0	75.0	72.0
OUTPUT LEVEL DB	125.0	123.5	124.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	62.5(FULL)	63.5(FULL)	62.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 4	2 4	2 4
700 HZ %	4 6	3 5	4 5
900 HZ %	4 7	5 6	5 7
MAX DIST %	4 7	5 6	5 7
FREQ OF MAX DIS	900 900	900 900	900 900
S/N RATIO DB			
1KHZ SIGNAL	41.0	39.0	41.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	*****	*****	*****
65 DB INPUT	*****	*****	*****
BATTERY VOLTAGE	******	******	******

THE NOTES FOR MODEL HC527LN ALSO APPLY TO THIS MODEL.
THE OUTPUT WITH 60 DB IN FOR THE THREE INSTRUMENTS IS 122.5,122, AND 122 DB.



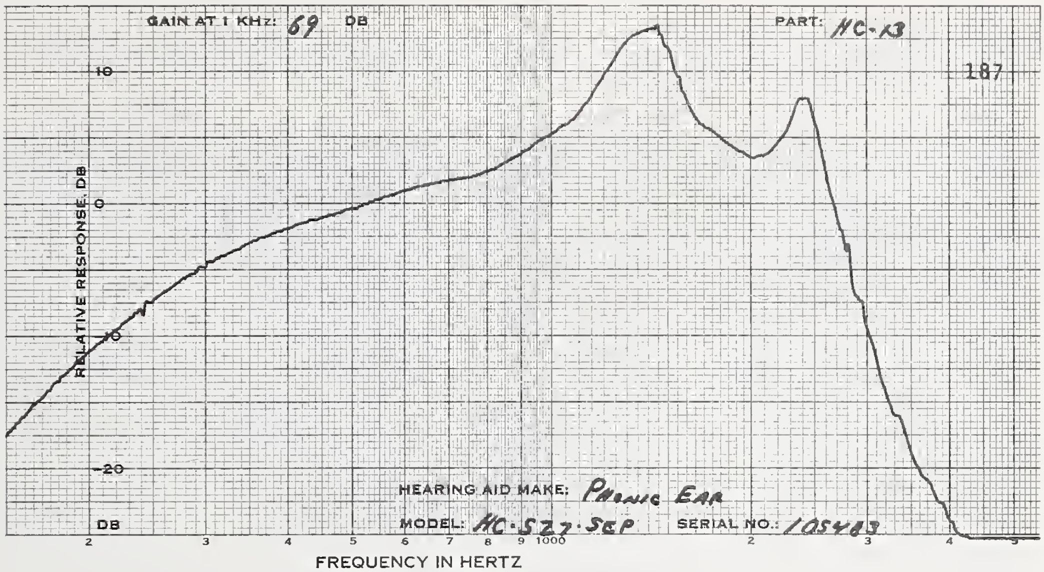
GAIN AT 1 KHz: 62½ DB
PART: HC-10
HEARING AID MAKE: Phonic Ear
MODEL: HC-527-SEN
SERIAL NO.: 105484
RELATIVE RESPONSE, DB
GAIN AT 1 KHz: 63½ DB
PART: HC-11
HEARING AID MAKE: Phonic Ear
MODEL: HC-527-SEN
SERIAL NO.: 105510
RELATIVE RESPONSE, DB
FREQUENCY IN HERTZ

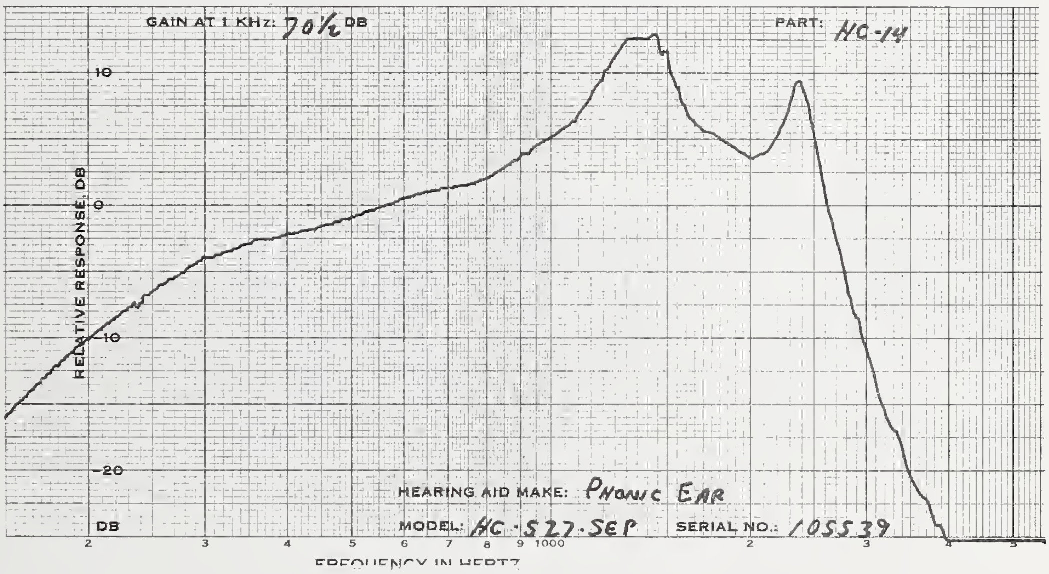

GAIN AT 1 KHZ: DB
PART:
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: Phonic Ear
MODEL:
SERIAL NO.:
100
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

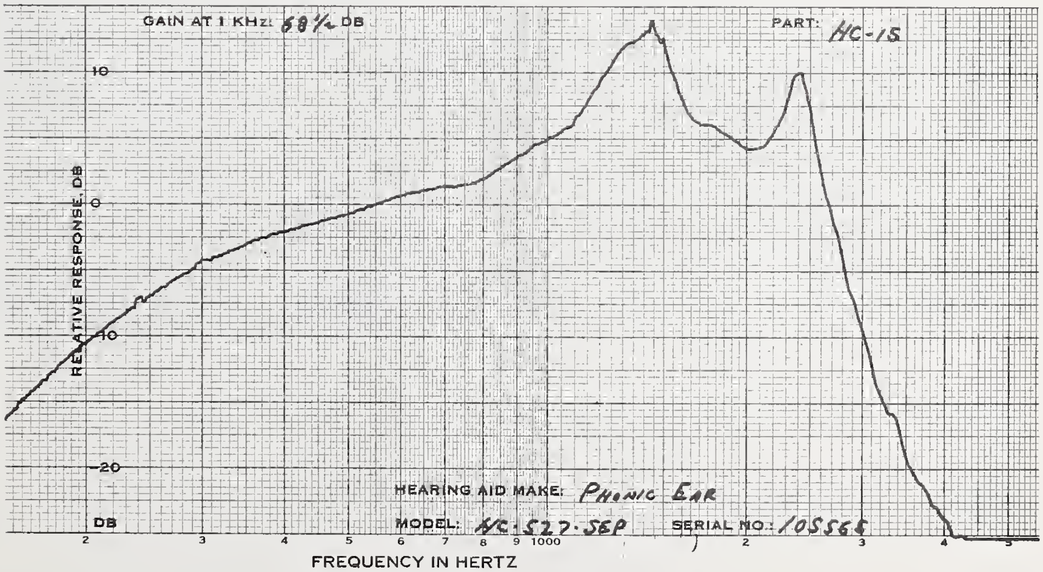
PHONIC EAR SPEC 08
MODEL:HC527SEP S RESPONSE AV:7 RECEIVER:AT16P BATTERY:INT

CODE	HC-013	HC-014	HC-015
SERIAL #	105483	105539	105565
DATE		JUN 16, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	69.0	70.5	68.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.5	73.0	70.5
OUTPUT LEVEL DB	131.5	130.5	130.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	69.0(FULL)	70.5(FULL)	68.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 5	2 5	2 4
700 HZ %	6 11	5 8	4 6
900 HZ %	1 1	0 1	1 0
MAX DIST %	6 11	5 8	4 6
FREQ OF MAX DIS	700 700	700 700	700 700
S/N RATIO DB			
1KHZ SIGNAL	42.5	42.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	*****	*****	*****
65 DB INPUT	*****	*****	*****
BATTERY VOLTAGE	******	******	******

THE NOTES FOR MODEL HC527LN ALSO APPLY TO THIS MODEL.
THE OUTPUT WITH 60 DB IN FOR THE THREE INSTRUMENTS IS 128.5, 128.5, AND 128 DB.


GAIN AT 1 KHz: 69 DB
PART: HC-13
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Phonic Ear
MODEL: HC-527-SEP
SERIAL NO.: 105483
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

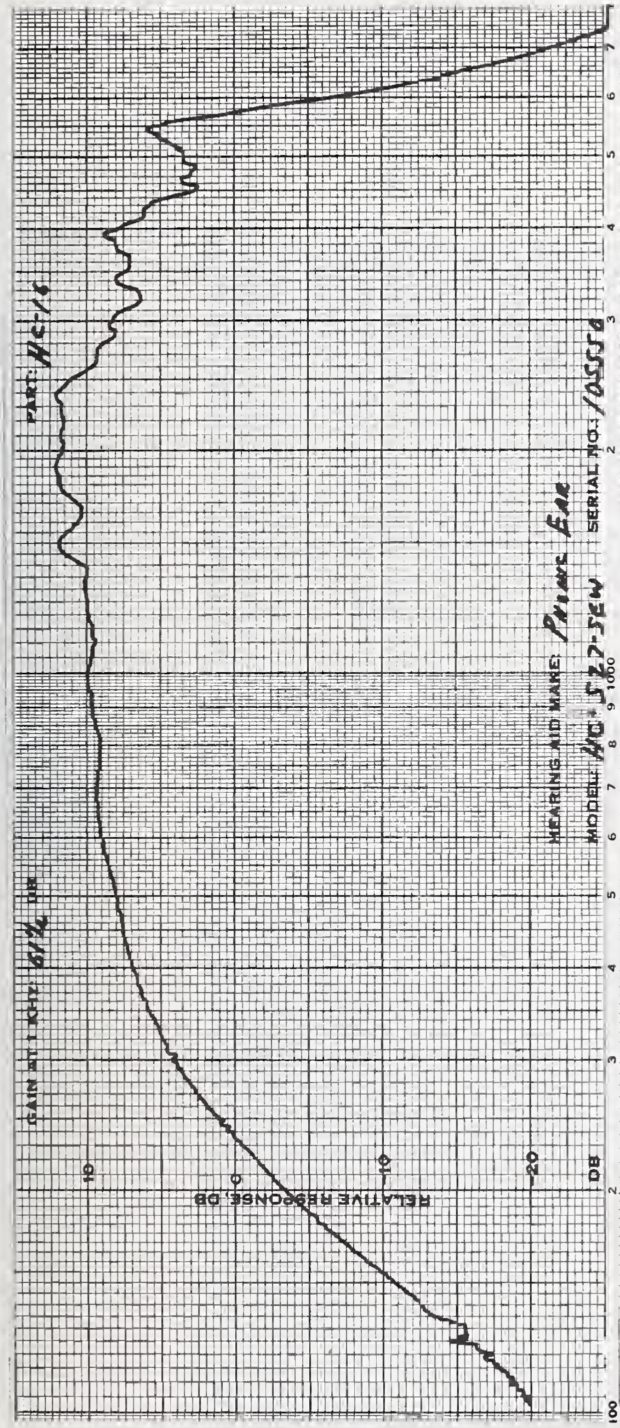

GAIN AT 1 KHz: 70½ DB
PART: HC-14
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Phonic Ear
MODEL: HC-527-SEP
SERIAL NO.: 105539
2 3 4 5 6 7 8 9 1000 2 3 4 5

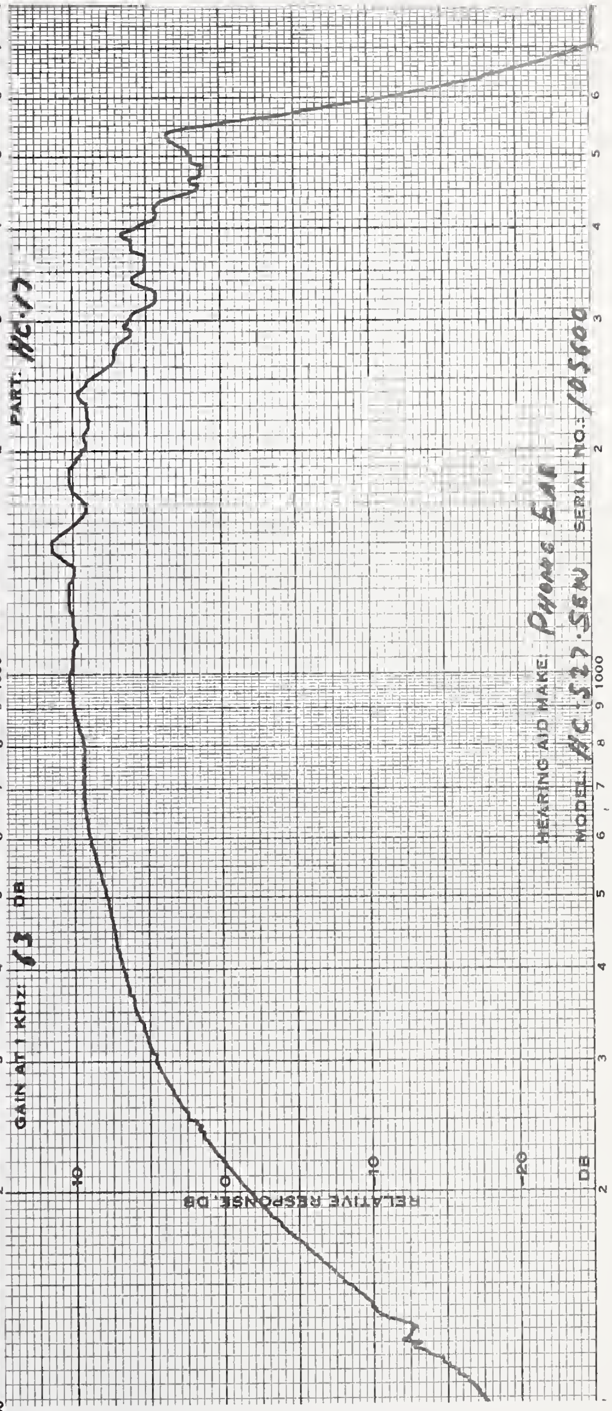

GAIN AT 1 KHz: 68½ DB
PART: HC-15
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Phonic Ear
MODEL: HC-527-SEP
SERIAL NO.: 105565
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

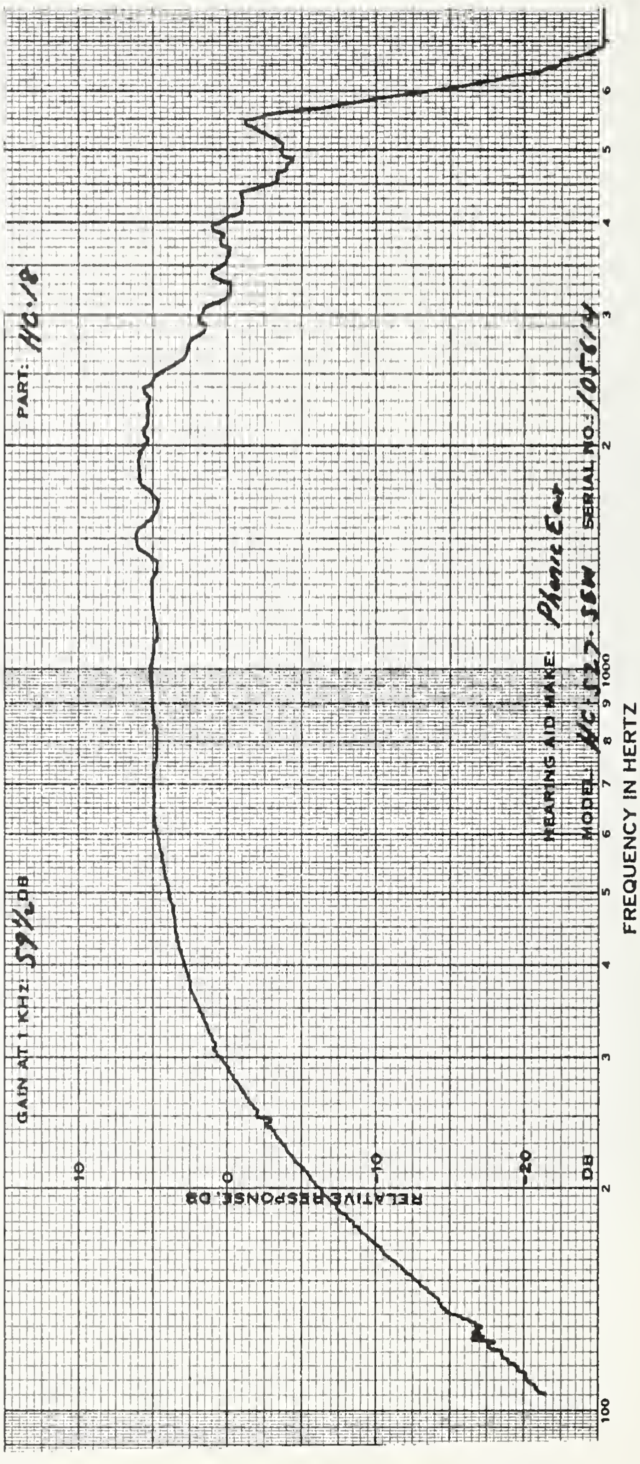
PHONIC EAR SPEC OB
MODEL:HC527SEW S RESPONSE AV:7 RECEIVER:AT16W BATTERY:INT

CODE	HC-016	HC-017	HC-018
SERIAL #	105550	105660	105614
DATE		JUN 16, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	61.5	63.0	59.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.0	75.5	74.0
OUTPUT LEVEL DB	121.5	123.0	121.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	61.5(FULL)	63.0(FULL)	59.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 6	3 5	2 4
700 HZ %	5 8	5 7	6 7
900 HZ %	5 9	6 9	6 8
MAX DIST %	5 9	6 9	6 8
FREQ OF MAX DIS	900 900	900 900	900 900
S/N RATIO DB			
1KHZ SIGNAL	41.0	41.5	40.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	*****	*****	*****
65 DB INPUT	*****	*****	*****
BATTERY VOLTAGE	******	******	******

THE NOTES FOR MODEL HC527LN ALSO APPLY TO THIS MODEL.
THE OUTPUT WITH 60 DB IN FOR THE THREE INSTRUMENTS IS 119.5, 120, AND 118.5 DB.

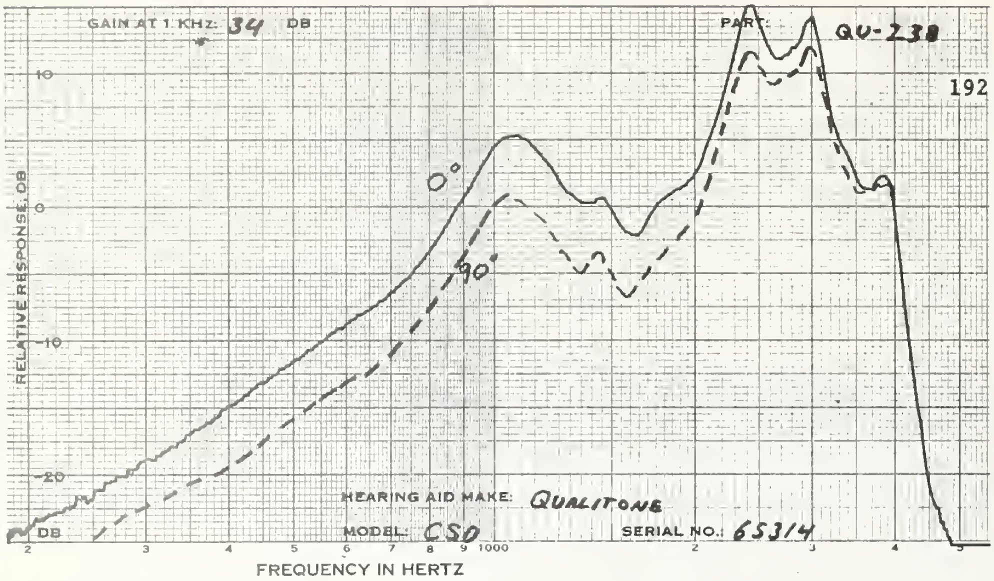

GAIN AT 1 KHZ:
DB
PART: HC-16
HEARING AID MAKE: Phone Ear
MODEL: HC-527-SEW
SERIAL NO.:
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
100
2
3
4
5
6
7
8
9
1000

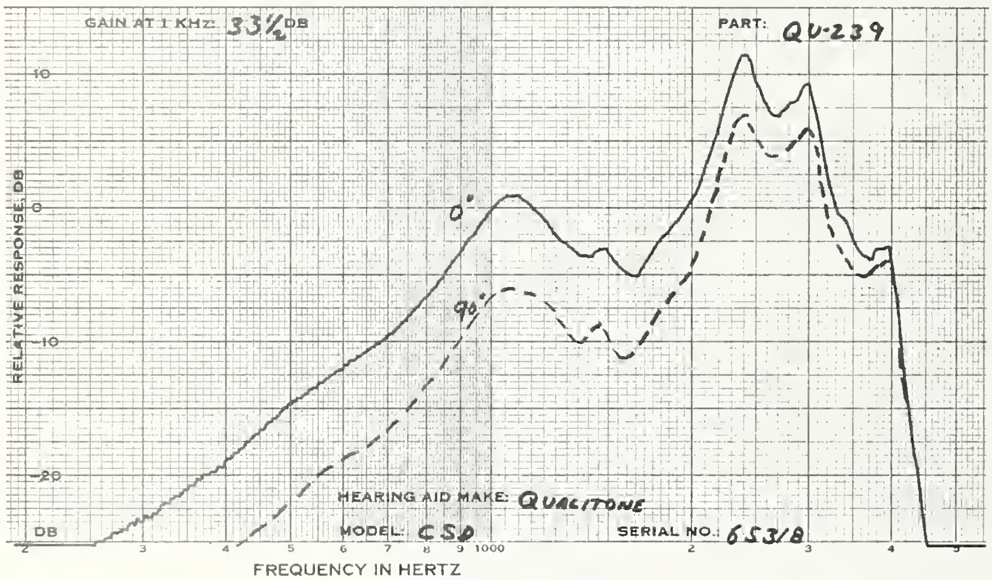

GAIN AT 1 KHZ: 63 DB
PART: HC-17
HEARING AID MAKE: Phone Ear
MODEL: HC 527-SEW
SERIAL NO.:
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
2
3
4
5
6
7
8
9
1000

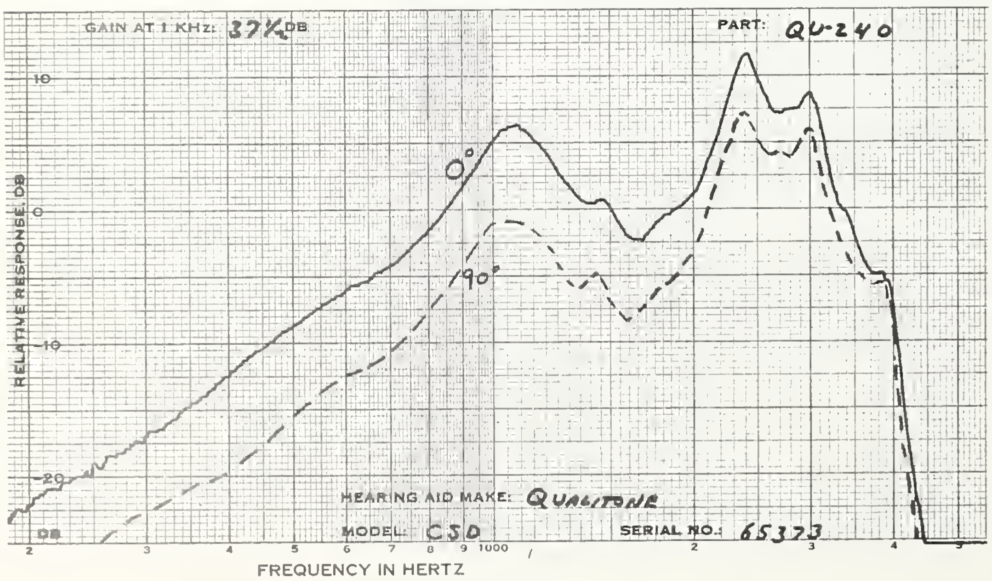

GAIN AT 1 KHZ:
DB
PART:
HEARING AID MAKE: Phonic Ear
MODEL:
SERIAL NO.:
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
FREQUENCY IN HERTZ
100
2
3
4
5
6
7
8
9
1000
2
3
4
5
6

QUALITONE DIR OE
MODEL:CSD TONE:N TUBING:25MM BATTERY:S76

CODE	QU-238	QU-239	QU-240
SERIAL #	65314	65318	65373
DATE		MAY 28, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	45.0	42.5	46.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	79.5	82.0	81.0
OUTPUT LEVEL DB	105.0	106.0	105.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	34.0	33.5	37.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	8 4	6 2	6 2
700 HZ %	2 1	3 1	1 1
900 HZ %	1 1	1 1	1 1
MAX DIST %	8 4	6 2	6 2
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	40.5	38.5	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.3	.4	.4
65 DB INPUT	.3	.4	.4
BATTERY VOLTAGE	1.56	1.56	1.56

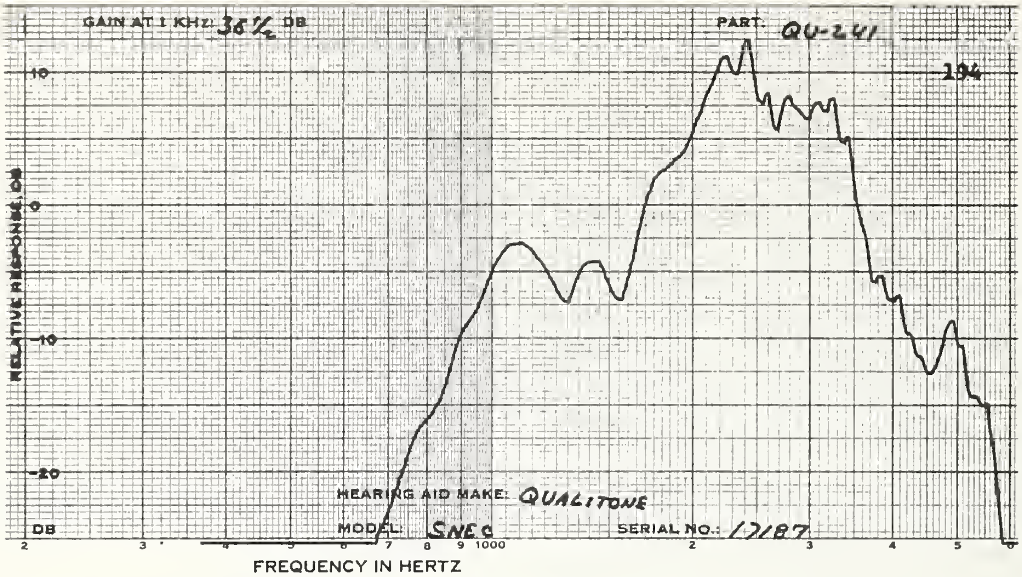

GAIN AT 1 KHz: 34 DB
PART: QU-238
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
0°
90°
HEARING AID MAKE: QUALITONE
MODEL: CSD
SERIAL NO.: 65314
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

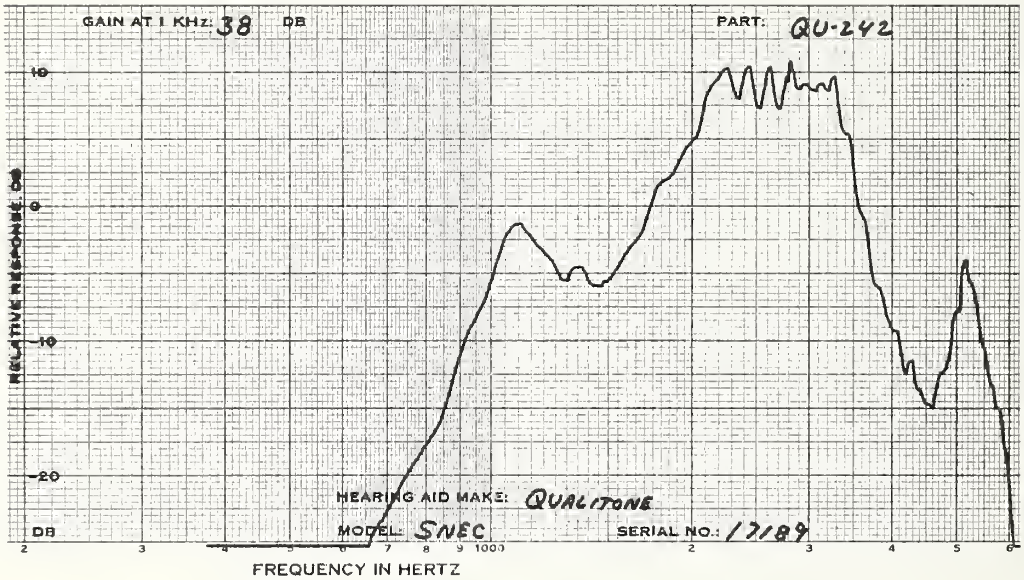

GAIN AT 1 KHz: 33½ DB
PART: QU-239
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
0°
90°
HEARING AID MAKE: QUALITONE
MODEL: CSD
SERIAL NO.: 65318
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

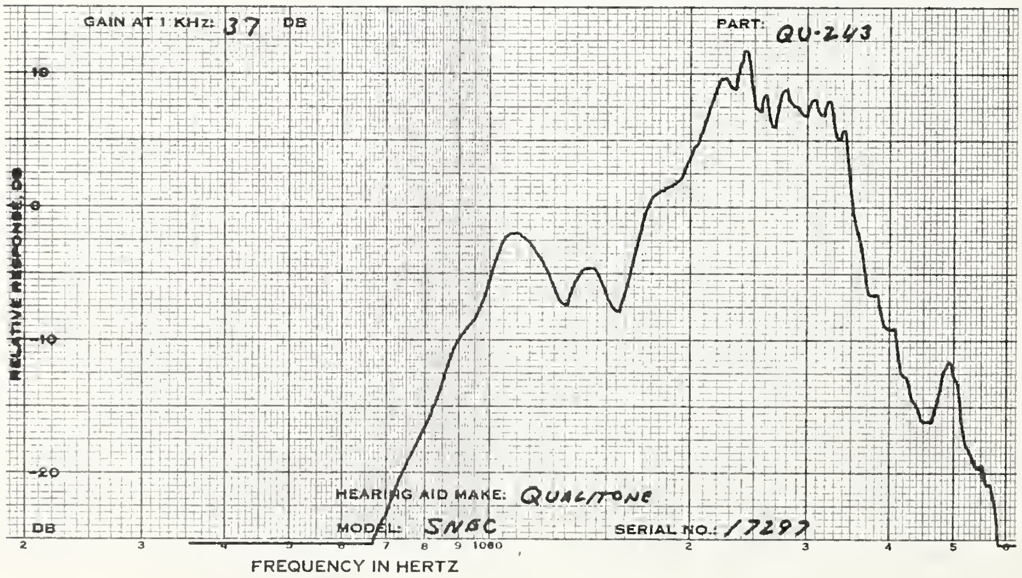

GAIN AT 1 KHz: 37½ DB
PART: QU-240
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
0°
90°
HEARING AID MAKE: QUALITONE
MODEL: CSD
SERIAL NO.: 65373
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

QUALITONE CROS EG
MODEL:SNEC TONE:N TUBING:42MM BATTERY:S76

CODE	QU-241	QU-242	QU-243
SERIAL #	17187	17189	17297
DATE		JUN 10, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	41.5	43.0	42.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	86.0	85.5	86.0
OUTPUT LEVEL DB	122.5	122.0	124.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	36.5	38.0	37.0
S/N RATIO DB			
2KHZ SIGNAL	49.5	48.0	46.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.0	2.0	2.0
65 DB INPUT	2.0	2.0	2.0
BATTERY VOLTAGE	1.55	1.55	1.55

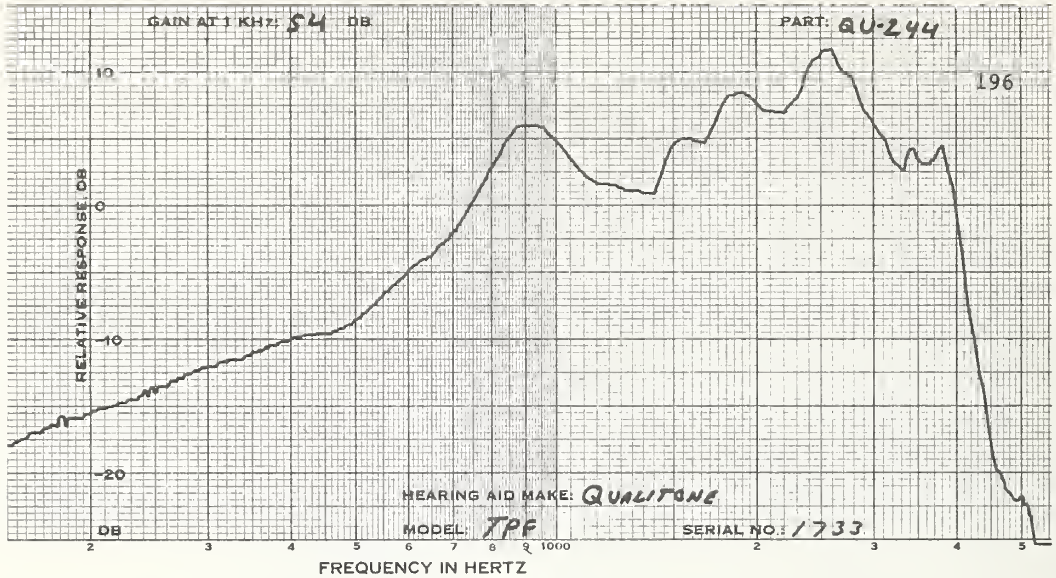

GAIN AT 1 KHz: 36½ DB
PART: QU-241
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: SNEC
SERIAL NO.: 17187
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

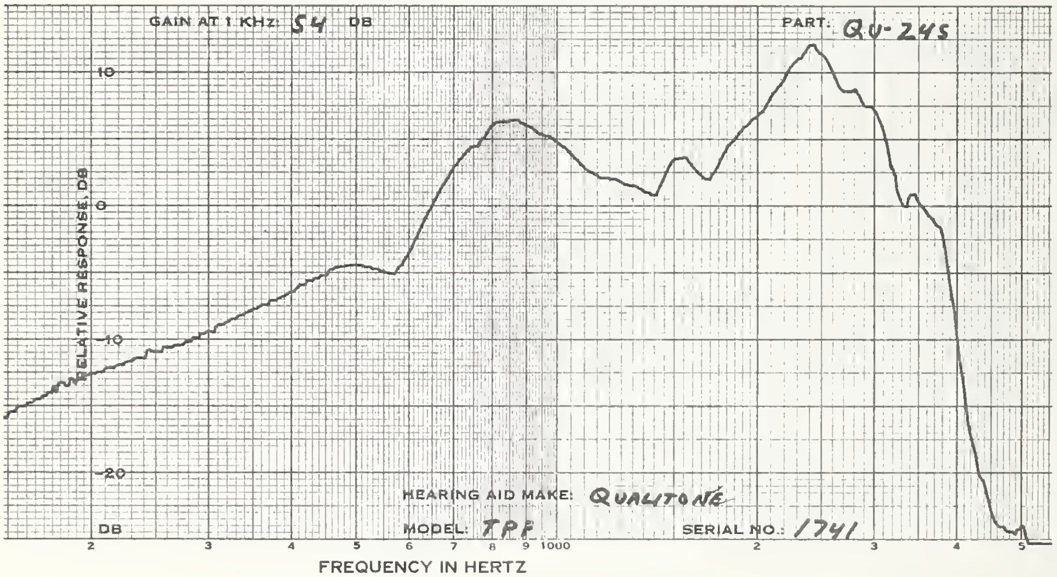

GAIN AT 1 KHz: 38 DB
PART: QU-242
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: SNEC
SERIAL NO.: 17189
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

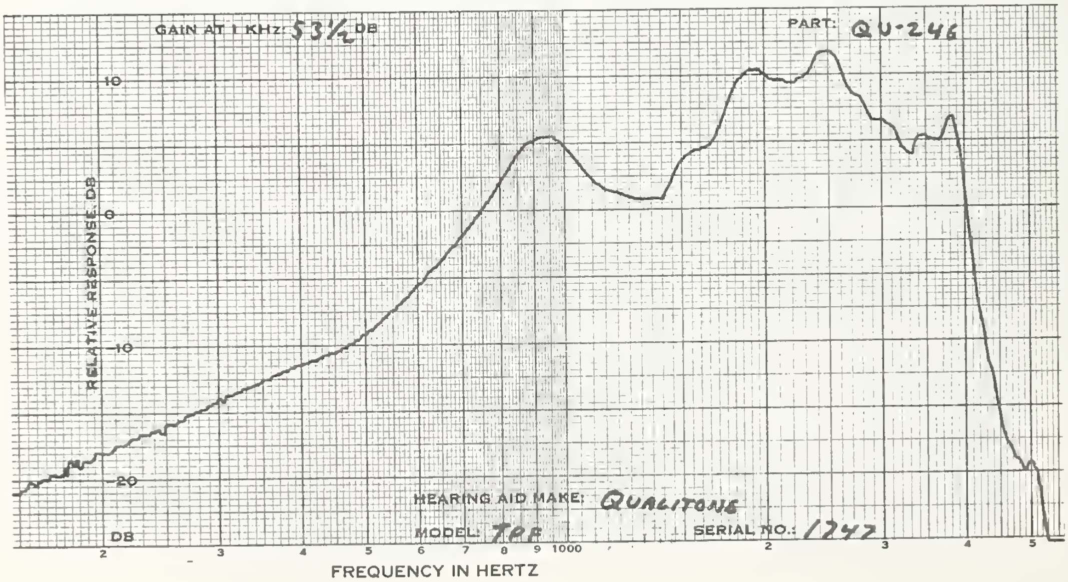

GAIN AT 1 KHz: 37 DB
PART: QU-243
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: SNEC
SERIAL NO.: 17297
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

QUALITONE OE
MODEL:TPF TONE:N SCR1&2:IN TUBING:25MM BATTERY:S76

CODE	QU-244		QU-245		QU-246	
SERIAL #	1733		1741		1747	
DATE			MAY 28, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	62.5		61.5		62.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	76.0		79.0		78.5	
OUTPUT LEVEL DB	126.5		125.5		126.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	54.0		54.0		53.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	7	5	4	4	6	9
700 HZ %	3	3	1	7	2	8
900 HZ %	2	4	1	4	2	2
MAX DIST %	7	5	4	10	6	11
FREQ OF MAX DIS	500	1270	500	800	500	600
S/N RATIO DB						
1KHZ SIGNAL	41.0		41.5		40.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	.9		1.0		1.1	
65 DB INPUT	2.0		2.0		1.9	
BATTERY VOLTAGE	1.56		1.56		1.56	

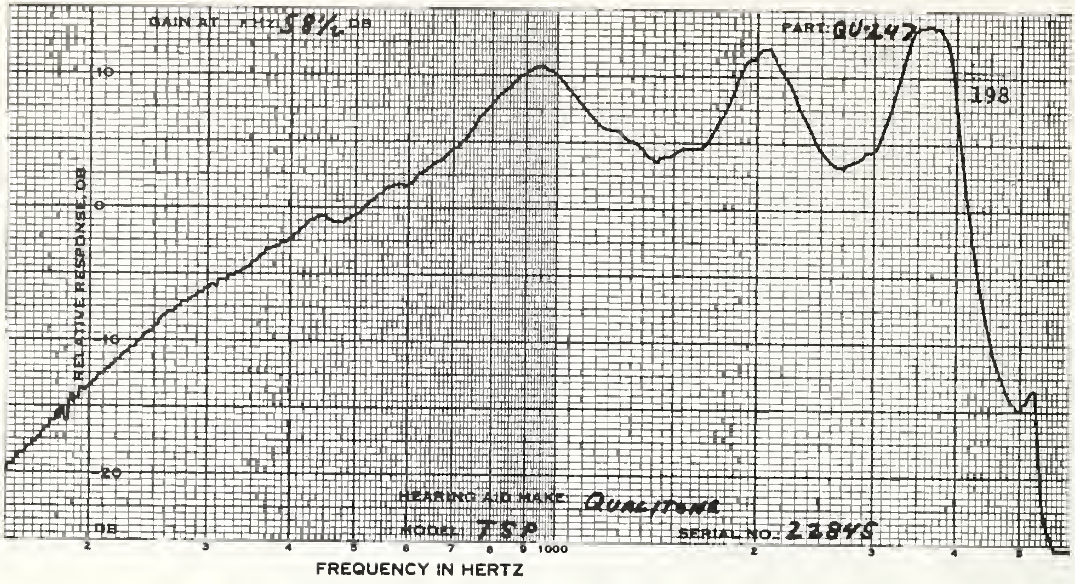

GAIN AT 1 KHz: 54 DB
PART: QU-244
RELATIVE RESPONSE, DB
HEARING AID MAKE: QUALITONE
MODEL: TPF
SERIAL NO.: 1733
FREQUENCY IN HERTZ

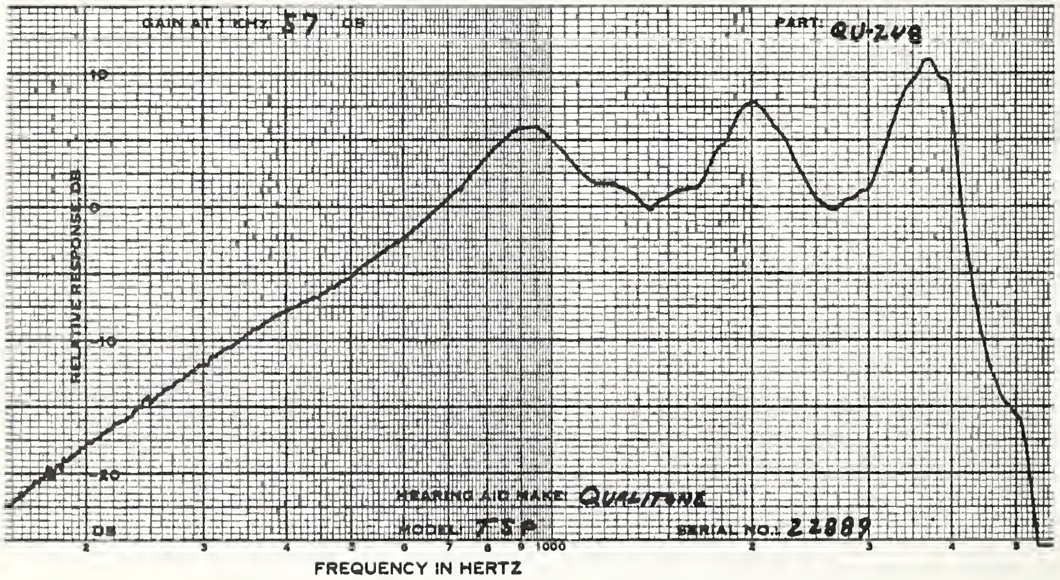

GAIN AT 1 KHz: 54 DB
PART: QU-245
RELATIVE RESPONSE, DB
HEARING AID MAKE: QUALITONE
MODEL: TPF
SERIAL NO.: 1741
FREQUENCY IN HERTZ

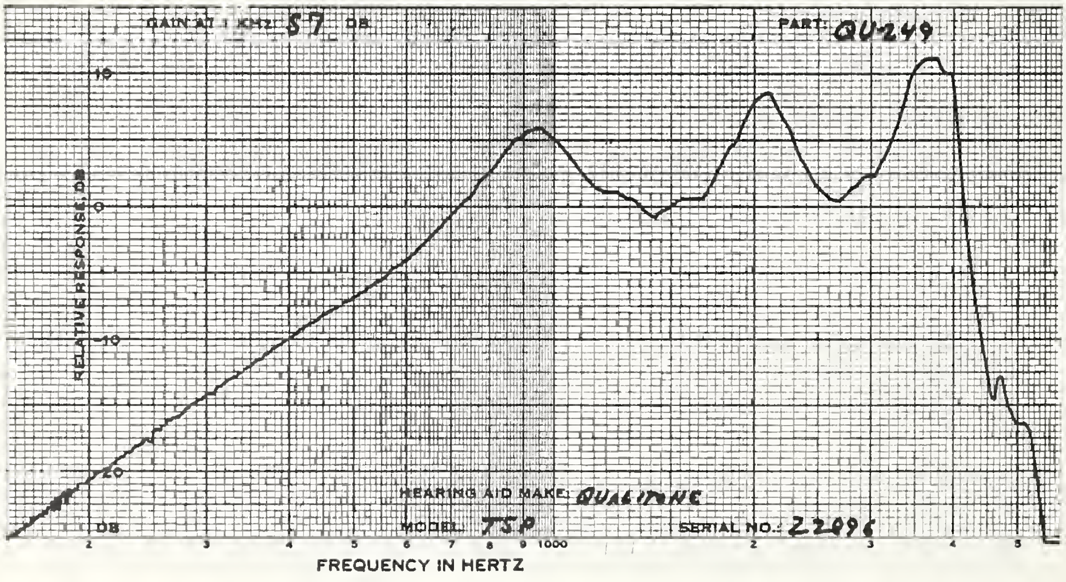

GAIN AT 1 KHz: 53½ DB
PART: QU-246
RELATIVE RESPONSE, DB
HEARING AID MAKE: QUALITONE
MODEL: TPF
SERIAL NO.: 1747
FREQUENCY IN HERTZ

QUALITONE OE
MODEL:TSP TONE:NONE TUBING:30MM BATTERY:S76

CODE	QU-247	QU-248	QU-249
SERIAL #	22845	22889	22896
DATE		MAR 26, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	58.5	57.0	57.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	81.0	82.0
OUTPUT LEVEL DB	129.0	128.5	128.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	58.5(FULL)	57.0(FULL)	57.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.0 71.0	61.5 71.5	61.0 71.0
500 HZ %	4 3	12 14	6 5
700 HZ %	2 3	2 6	2 4
900 HZ %	3 5	4 7	2 4
MAX DIST %	4 8	12 14	6 13
FREQ OF MAX DIS	500 1840	500 500	500 1780
S/N RATIO DB			
1KHZ SIGNAL	43.0	42.5	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.5	.8
65 DB INPUT	3.6	3.2	2.8
BATTERY VOLTAGE	1.57	1.57	1.57


GAIN AT 1 KHZ: 58½ DB
PART: QU-247
RELATIVE RESPONSE, DB
HEARING AID MAKE: QUALITONE
MODEL: TSP
SERIAL NO.: 22845
FREQUENCY IN HERTZ

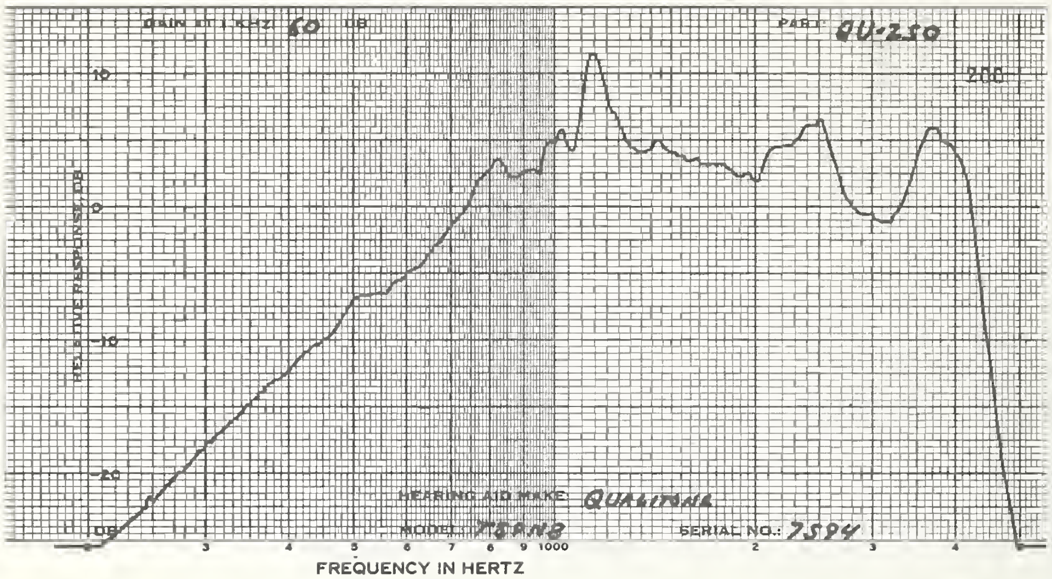

GAIN AT 1 KHZ: 57 DB
PART: QU-248
RELATIVE RESPONSE, DB
HEARING AID MAKE: QUALITONE
MODEL: TSP
SERIAL NO.: 22889
FREQUENCY IN HERTZ

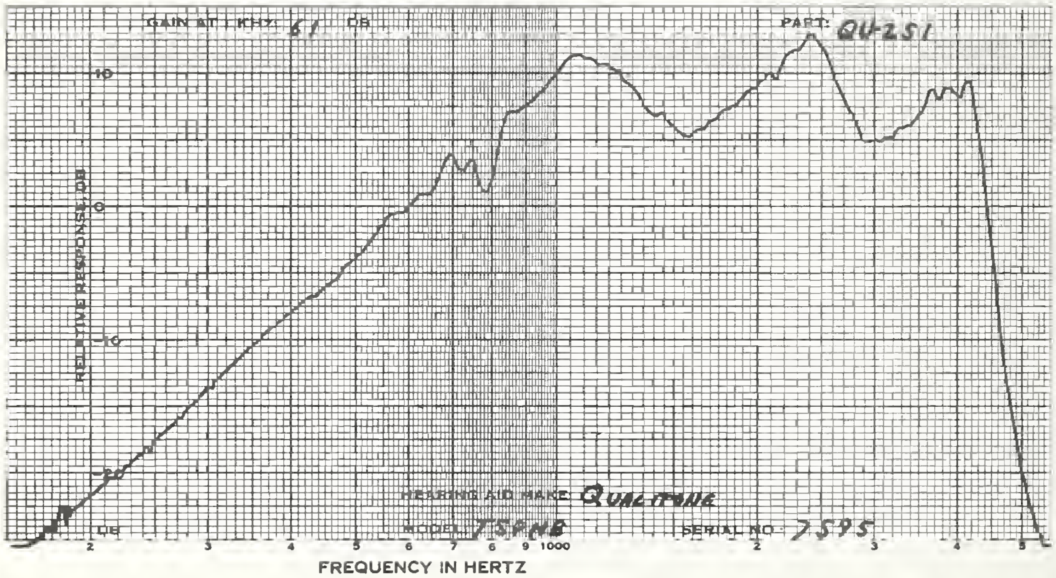

GAIN AT 1 KHZ: 57 DB
PART: QU-249
RELATIVE RESPONSE, DB
HEARING AID MAKE: QUALITONE
MODEL: TSP
SERIAL NO.: 22096
FREQUENCY IN HERTZ

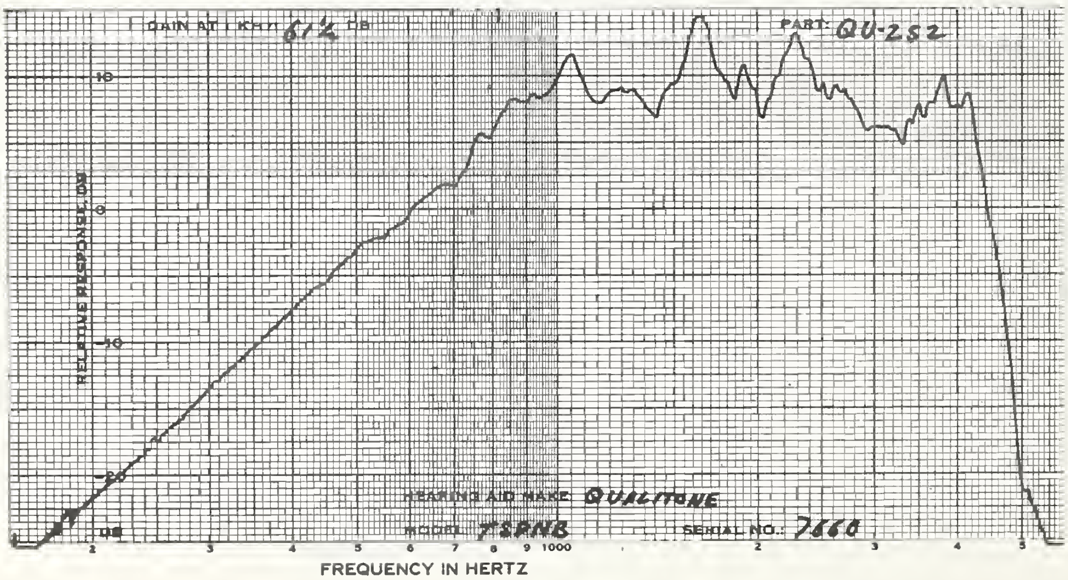
QUALITONE BI EG
MODEL:TSPNB TONE:N TUBING:35MM BATTERY:S76

CODE	QU-250	QU-251	QU-252
SERIAL #	7594	7595	7660
DATE		MAR 27, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	62.0	64.5	66.5
MPO, RANDCM NOISE			
INPUT LEVEL, DB	77.5	76.0	73.0
OUTPUT LEVEL DB	130.0	129.5	129.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	60.0	61.0	61.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	8 10	12 15	45 43
700 HZ %	6 8	6 10	12 29
900 HZ %	4 9	3 6	5 14
MAX DIST %	12 16	12 17	45 47
FREQ OF MAX DIS	564 564	500 670	500 760
S/N RATIO DB			
1KHZ SIGNAL	47.5	49.5	49.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.2	1.2
65 DB INPUT	3.5	3.7	3.5
BATTERY VOLTAGE	1.55	1.55	1.55

BOTH MICRCPHONES WERE LEFT CONNECTED AND PLACED WITHIN ONE-HALF INCH OF EACH OTHER FOR THE TEST.


GAIN AT 1 KHZ: 60 DB
PART: QU-250
200
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: TSRNB
SERIAL NO.: 7594
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

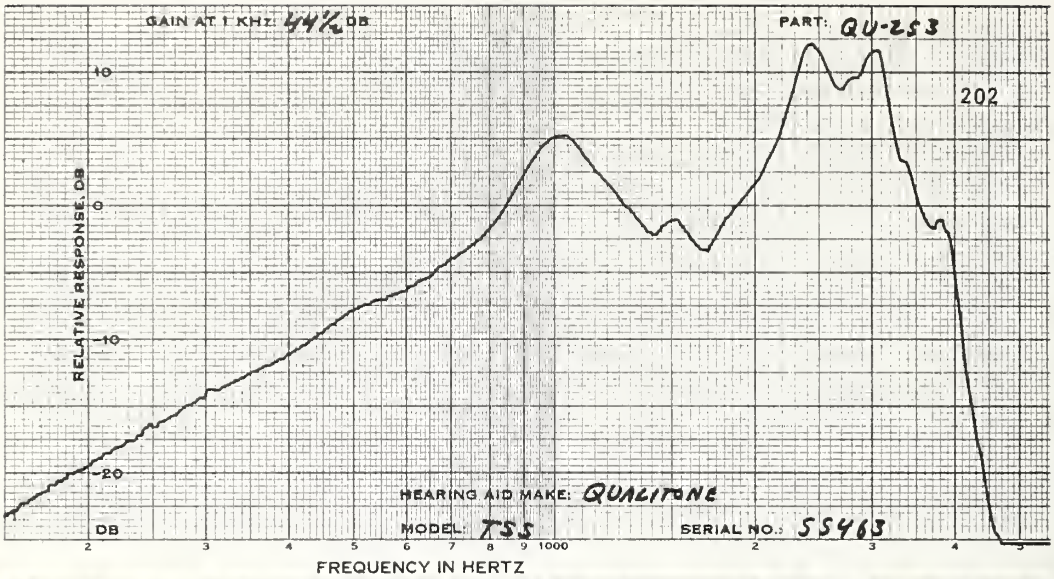

GAIN AT 1 KHZ: 61 DB
PART: QU-251
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: TSRNB
SERIAL NO.: 7595
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

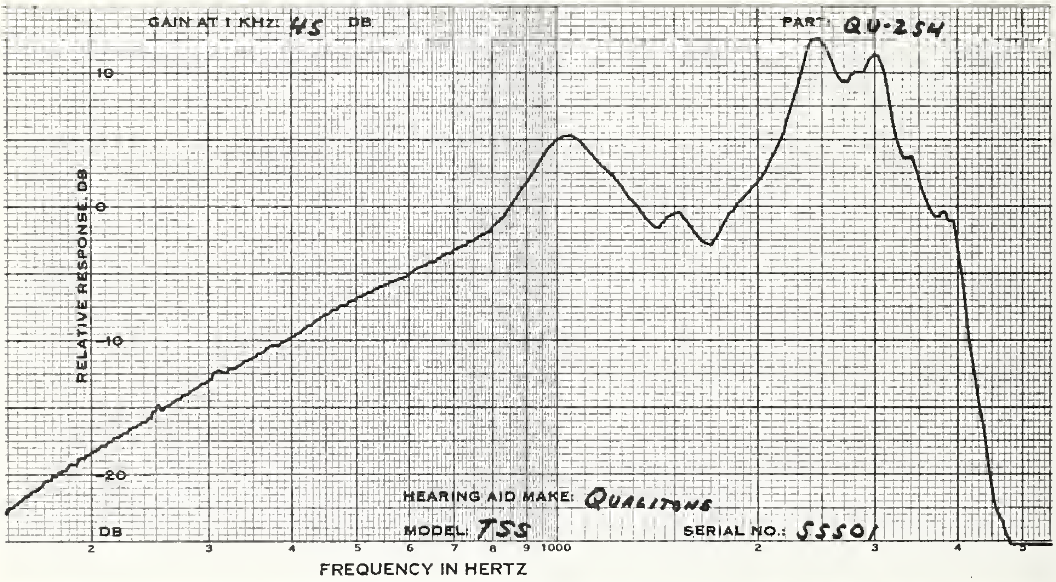

GAIN AT 1 KHZ: 61½ DB
PART: QU-252
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: TSRNB
SERIAL NO.: 7660
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

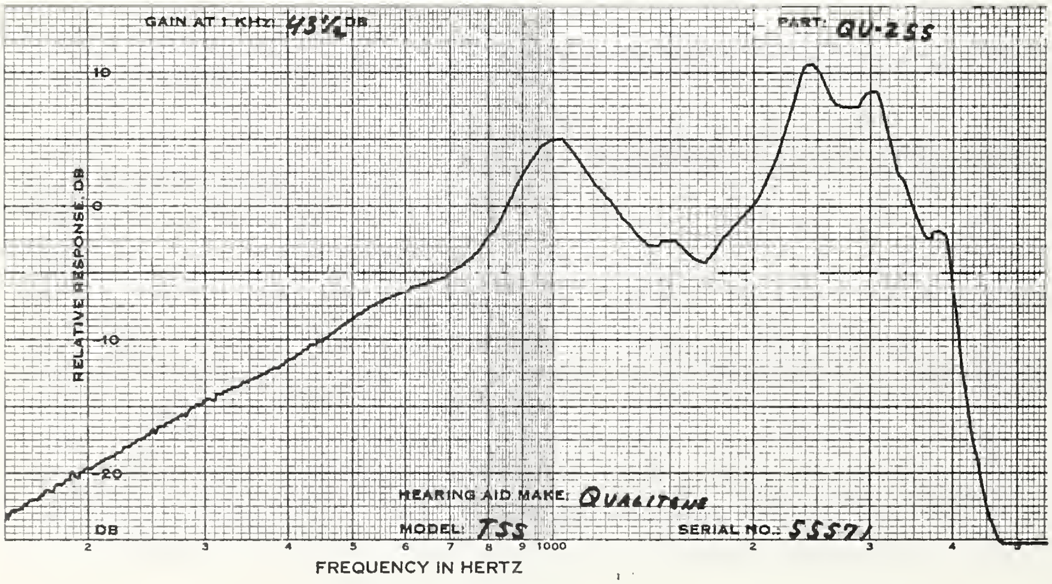
QUALITONE OE

MODEL:TSS TONE:N TUBING:25MM BATTERY:S76

CODE	QU-253	QU-254	QU-255
SERIAL #	55463	55501	55571
DATE		MAY 29, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	44.5	45.0	43.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	87.5	86.0	86.5
OUTPUT LEVEL DB	121.5	121.0	120.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	44.5(FULL)	45.0(FULL)	43.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	67.0 77.0	64.0 74.0	68.0 78.0
500 HZ %	3 6	5 11	4 9
700 HZ %	1 1	1 2	1 2
900 HZ %	0 1	1 1	1 1
MAX DIST %	4 45	5 21	5 25
FREQ OF MAX DIS	1200 1480	500 1480	1200 1500
S/N RATIO DB			
1KHZ SIGNAL	44.5	44.0	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.5	2.3	2.3
65 DB INPUT	2.5	2.3	2.3
BATTERY VOLTAGE	1.56	1.56	1.56

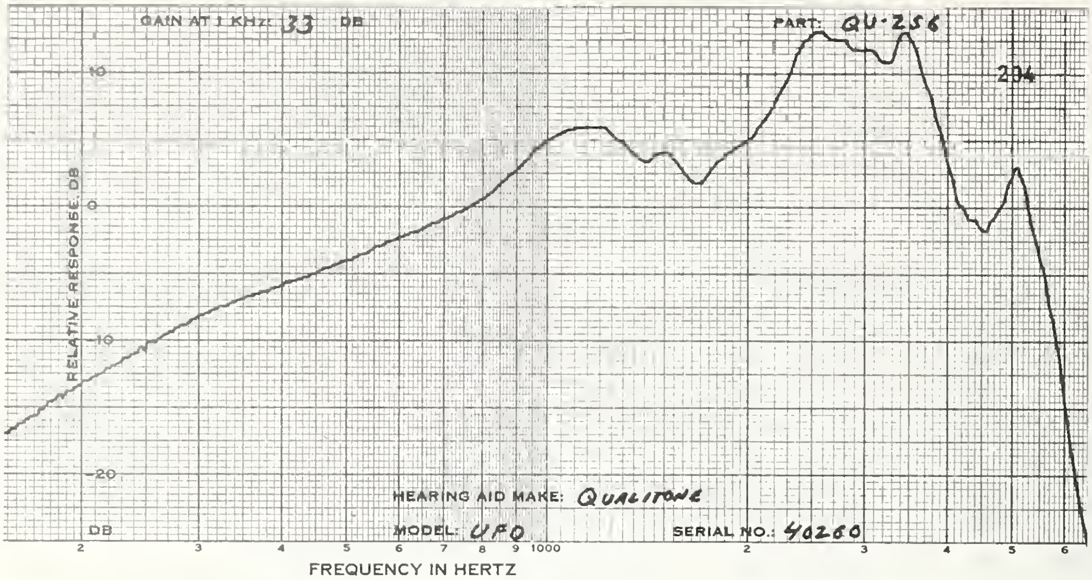

GAIN AT 1 KHz: 44½ DB
PART: QU-253
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: TSS
SERIAL NO.: 55463
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

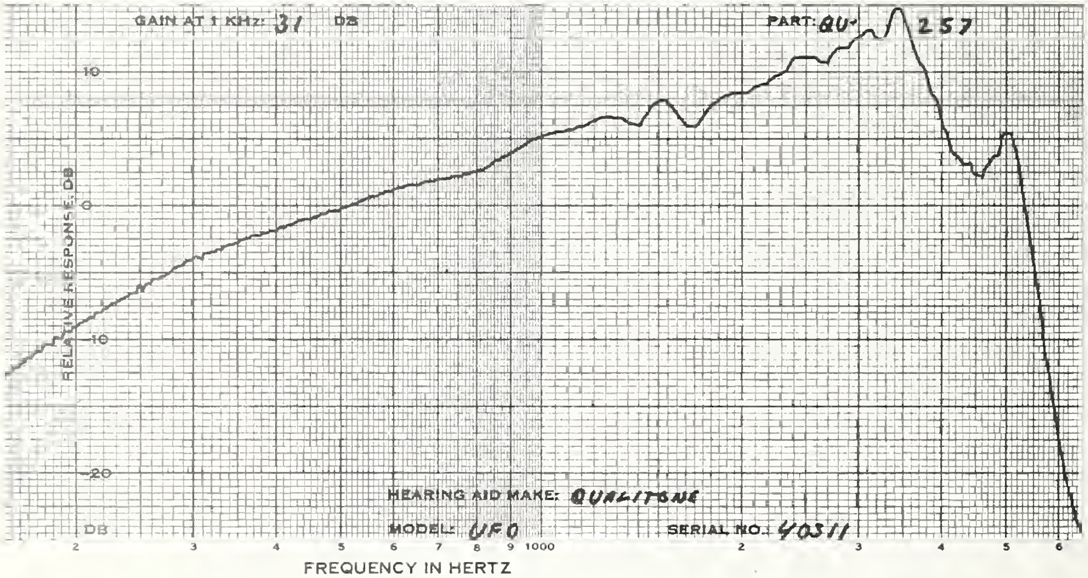

GAIN AT 1 KHz: 45 DB
PART: QU-254
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: TSS
SERIAL NO.: 55501
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

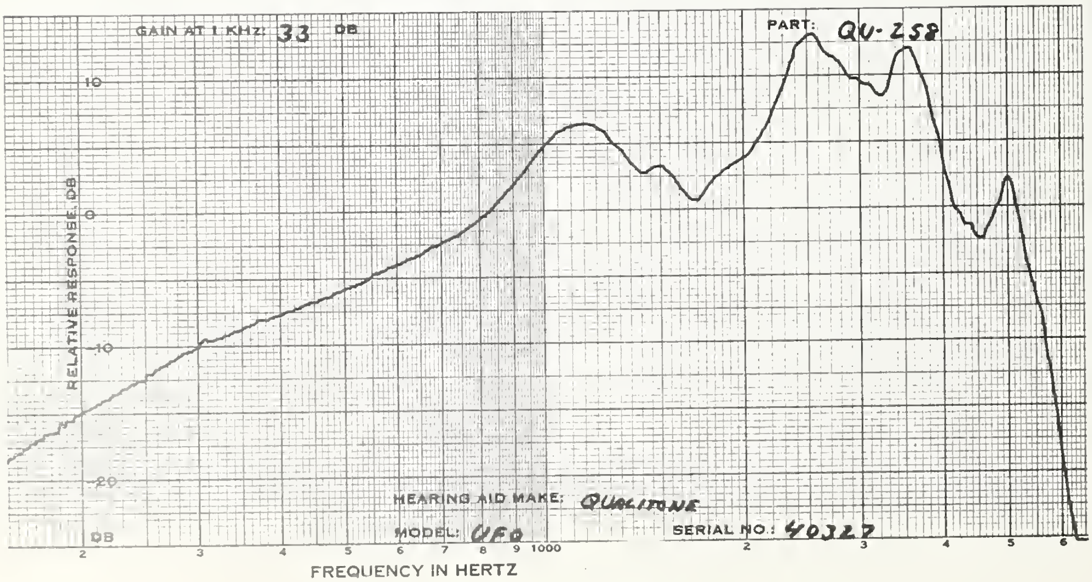

GAIN AT 1 KHz: 43¼ DB
PART: QU-255
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: TSS
SERIAL NO.: 55571
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

QUALITONE DE
MODEL:UFC TONE:NONE TUBING:25MM BATTERY:S13

CODE	QU-256	QU-257	QU-258
SERIAL #	40260	40311	40327
DATE		MAY 29, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	33.0	31.0	33.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	84.0	85.0	84.0
OUTPUT LEVEL DB	109.0	106.0	109.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	33.0(FULL)	31.0(FULL)	33.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	64.0 74.0	62.0 72.0	65.0 75.0
500 HZ %	2 2	2 2	3 3
700 HZ %	1 1	2 2	1 1
900 HZ %	1 1	2 2	1 1
MAX DIST %	3 15	3 24	3 22
FREQ OF MAX DIS	1370 2470	1540 2460	500 1830
S/N RATIO DB			
1KHZ SIGNAL	41.0	40.0	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.4	.4	.4
65 DB INPUT	.4	.4	.4
BATTERY VOLTAGE	1.56	1.56	1.56


GAIN AT 1 KHz: 33 DB
PART: QU-256
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: UFO
SERIAL NO.: 40260
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 31 DB
PART: QU-257
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: UFO
SERIAL NO.: 40311
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

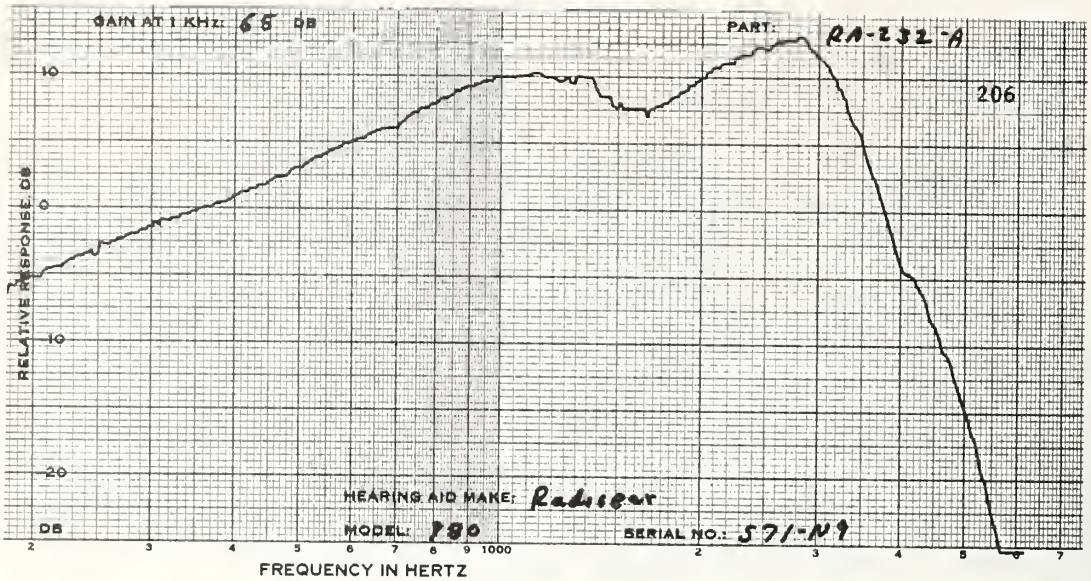

GAIN AT 1 KHz: 33 DB
PART: QU-258
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: QUALITONE
MODEL: UFO
SERIAL NO.: 40327
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

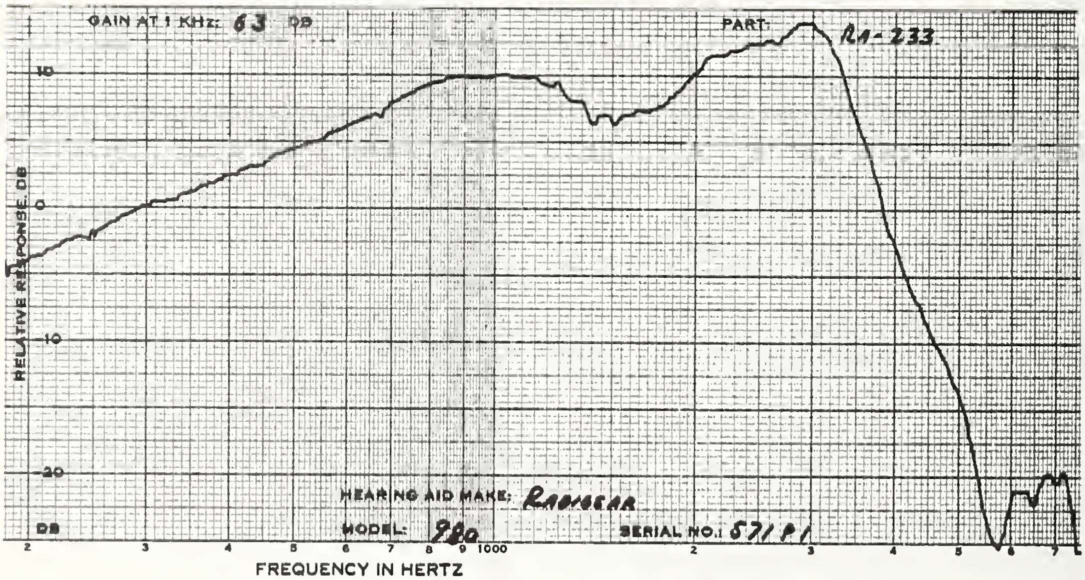
RADIOEAR OB
MODEL:980 SC:1,2,4,5,7, IN 3,6 OUT RECEIVER:M98 BATTERY:401

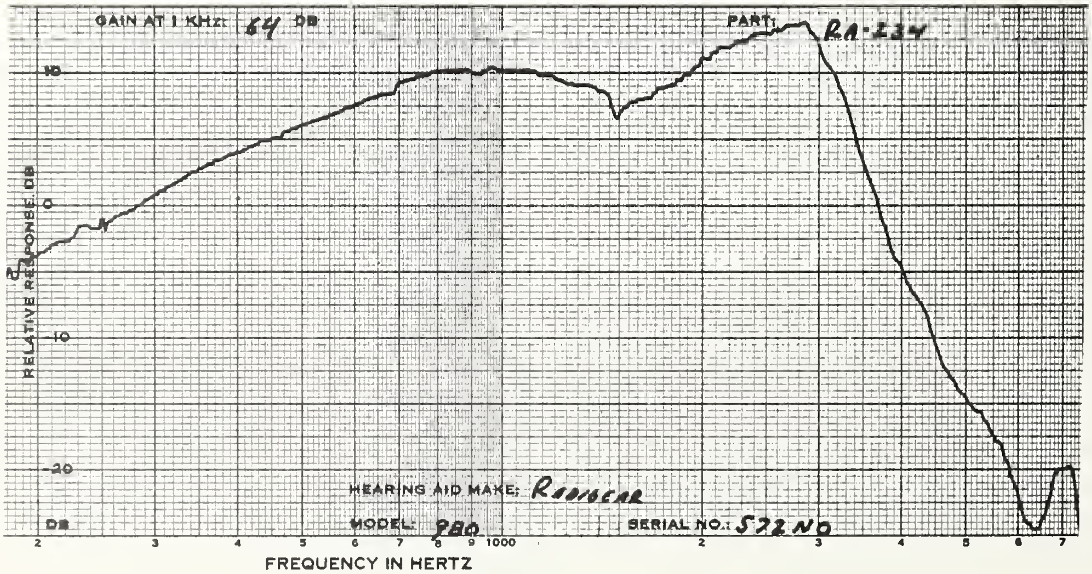
CODE	RA-232	RA-233	RA-234
SERIAL #	571N9	571P1	572N0
DATE	APR 30, 1975	MAR 10, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	72.5	71.0	70.5
MPO, RANDCM NOISE			
INPUT LEVEL, DB	84.0	75.0	75.0
OUTPUT LEVEL DB	135.0	134.0	134.5
MEASUREMENTS WITH REDUCED VOLUME CONTRCL SETTING			
1KHZ GAIN DB	65.0	63.0	64.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 10	5 8	4 10
700 HZ %	4 10	3 7	3 8
900 HZ %	4 9	2 5	2 4
MAX DIST %	5 10	5 8	4 10
FREQ OF MAX DIS	500 700	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	44.0	43.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	5.9	6.1	6.2
65 DB INPUT	8.4	7.0	8.7
BATTERY VOLTAGE	1.43	1.41	1.40

RA-232, SERIAL # 571N9, ORIGINALLY HAD HIGH DISTORTION WHICH ORIGINATED IN THE RECEIVER. THREE REPLACEMENT RECEIVERS WERE OBTAINED, AND THE DISTORTION CHECKED WITH THESE. THE DATA ARE SHOWN BELOW. THE ORIGINAL RECEIVER IS NO. 4. THE DATA ABOVE ARE WITH RECEIVER 2.

RCVR	1		2		3		4	
LEVEL	60	70	60	70	60	70	60	70
FREQ								
500	11	65	5	10	1	5	10	62
700	9	51	4	10	1	6	7	38
900	11	43	4	9	1	7	13	66

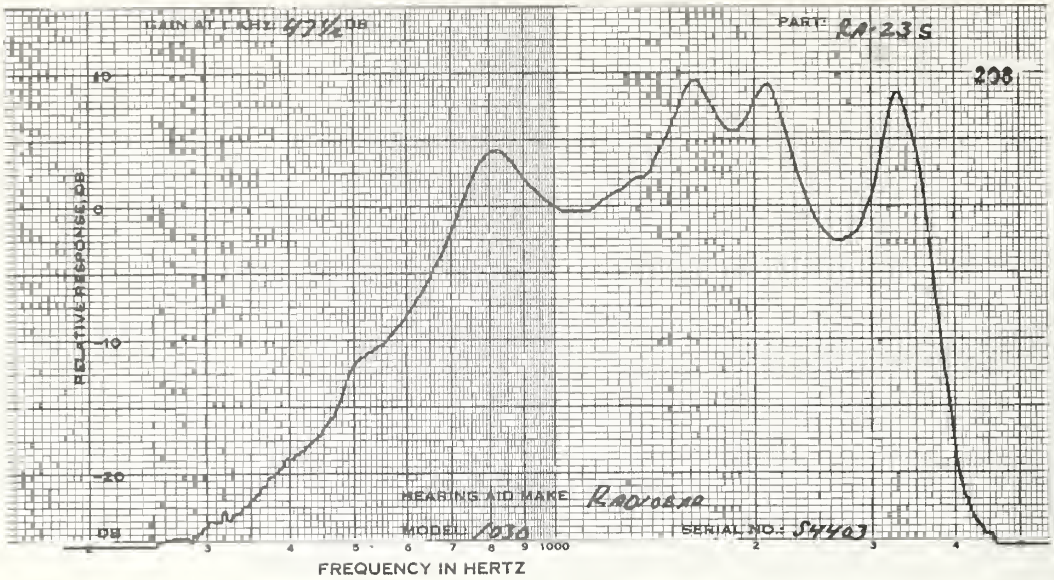

GAIN AT 1 KHZ: 65 DB
PART: RA-232-A
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: Radioear
MODEL: 980
SERIAL NO.: 571-N9
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

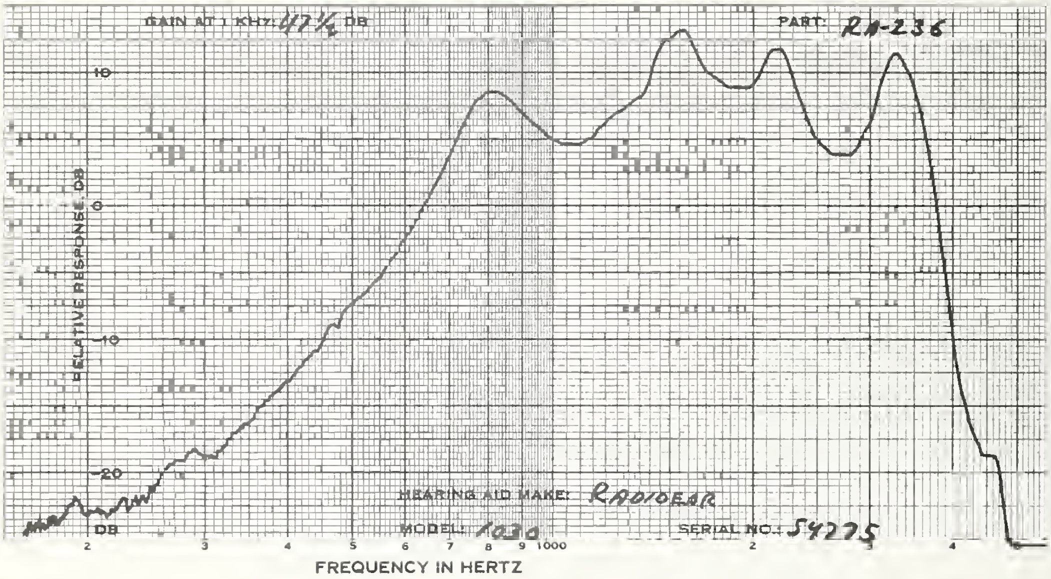

GAIN AT 1 KHZ: 63 DB
PART: RA-233
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: RADIOEAR
MODEL: 980
SERIAL NO.: 571 P1
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

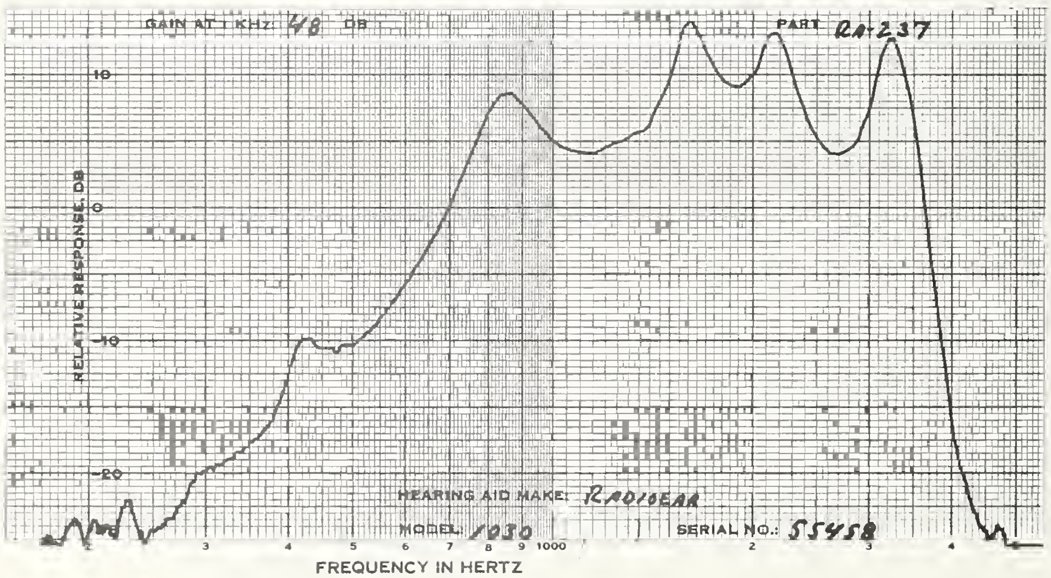

GAIN AT 1 KHZ: 64 DB
PART: RA-234
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: RADIOEAR
MODEL: 980
SERIAL NO.: 572 N0
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

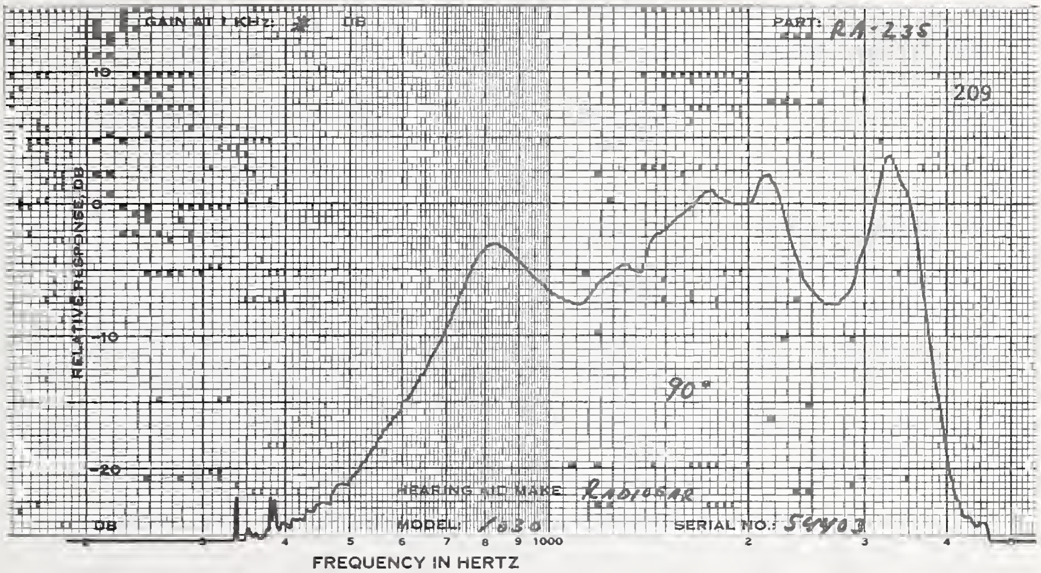
RADIOEAR DIR OE
MODEL:1030 LF SC:IN AVC SC:OUT TUBING:25MM BATTERY:S76

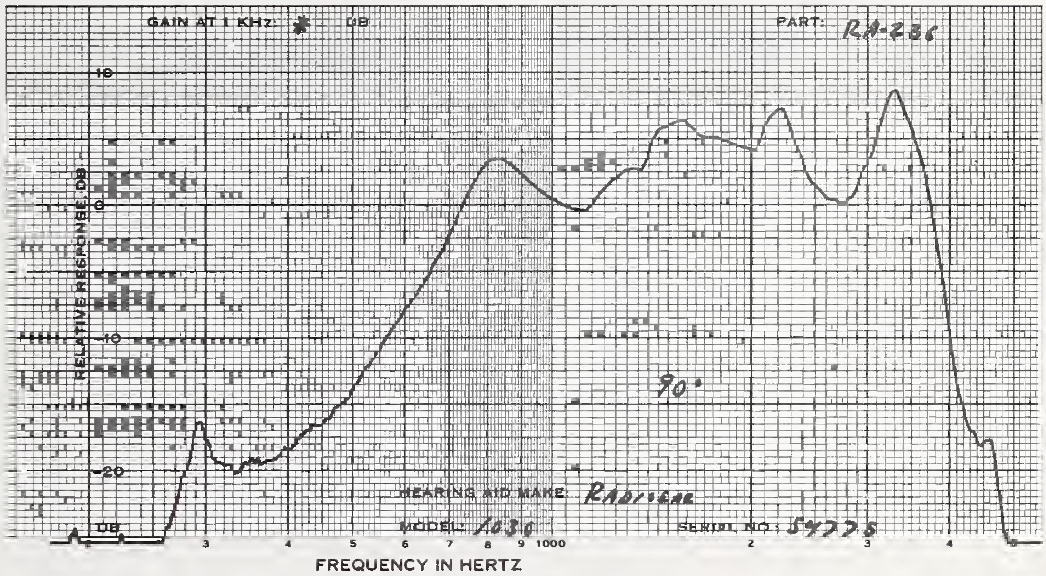
CODE	RA-235	RA-236	RA-237
SERIAL #	54403	54775	55458
DATE		APR 21, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	48.0	48.0	50.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	82.0	79.5
OUTPUT LEVEL DB	121.0	121.5	121.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	47.5	47.5	48.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	0 3	3 6	4 4
700 HZ %	1 1	1 3	2 1
900 HZ %	2 2	1 2	1 1
MAX DIST %	2 24	3 20	5 21
FREQ OF MAX DIS	900 1680	500 1670	1580 1640
S/N RATIO DB			
1KHZ SIGNAL	38.0	37.5	38.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.7	1.7	1.8
65 DB INPUT	1.7	1.7	1.8
BATTERY VOLTAGE	1.56	1.55	1.55

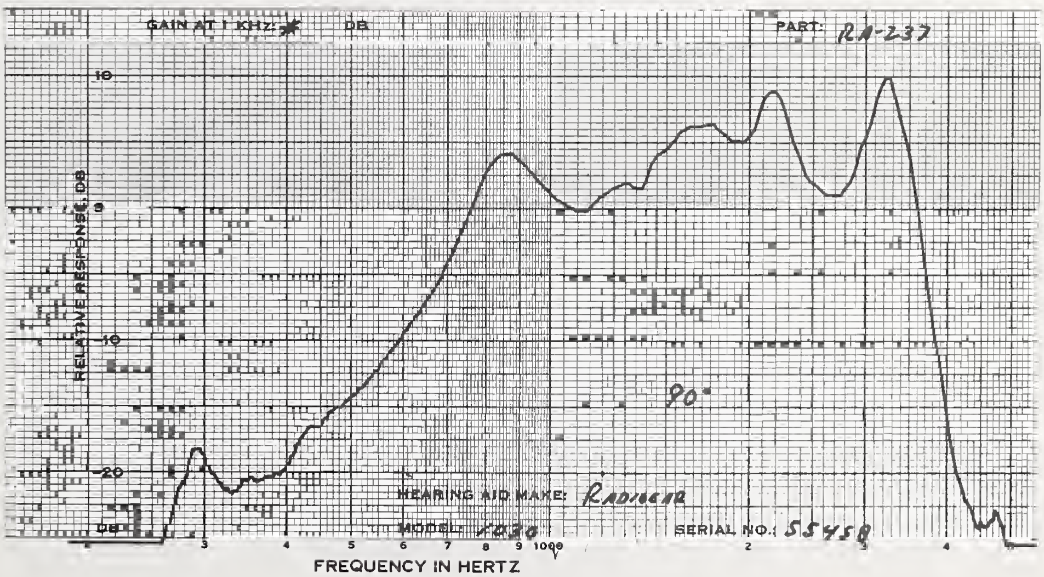

GAIN AT 1 KHZ: 47½ DB
PART: RA-235
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: RADIOEAR
MODEL: 1030
SERIAL NO.: S4403
3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 47½ DB
PART: RA-236
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: RADIOEAR
MODEL: 1030
SERIAL NO.: S4275
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 48 DB
PART: RA-237
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: RADIOEAR
MODEL: 1030
SERIAL NO.: S5458
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

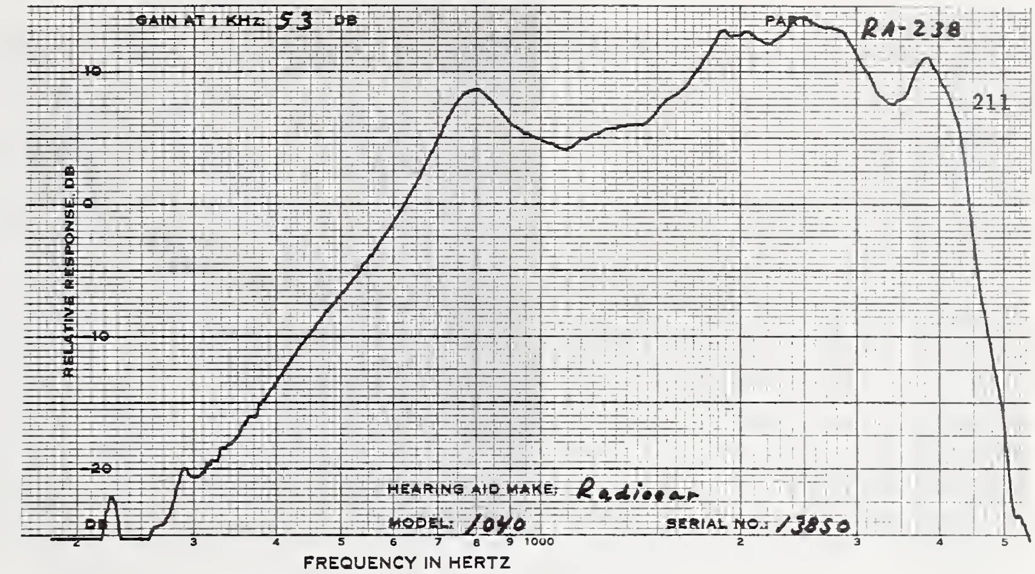

GAIN AT 1 KHz: * DB
PART: RA-235
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: RADIOEAR
MODEL: 1030
SERIAL NO.: 54403
4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

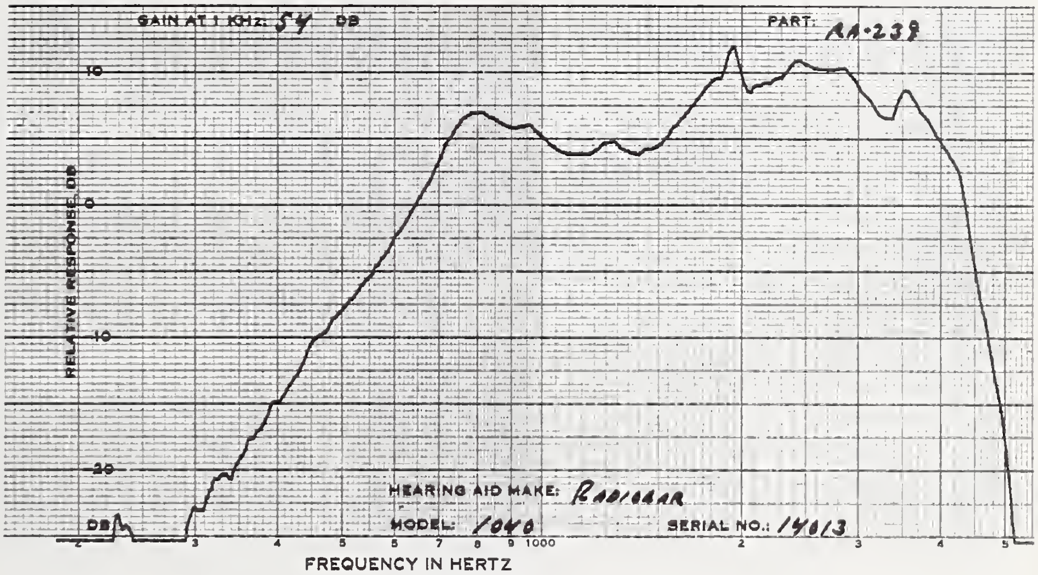

GAIN AT 1 KHz: * DB
PART: RA-236
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: RADIOEAR
MODEL: 1030
SERIAL NO.: 54775
3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

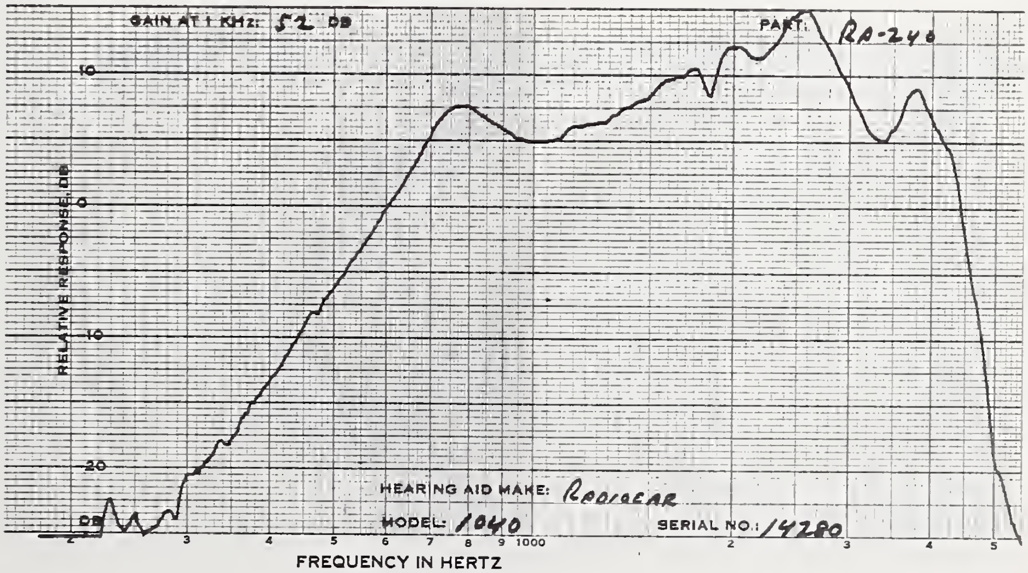

GAIN AT 1 KHz: * DB
PART: RA-237
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: RADIOEAR
MODEL: 1030
SERIAL NO.: 55450
3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

RADIOEAR EG
MODEL:1040 LF:CCW GAIN:CCW TUBING:35MM BATTERY:S76

CODE	RA-238	RA-239	RA-240
SERIAL #	13850	14013	14280
DATE		APR 24, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	58.0	58.0	58.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	79.0	78.0	75.0
OUTPUT LEVEL DB	127.0	127.0	127.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	53.0	54.0	52.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 4	3 6	3 8
700 HZ %	1 5	1 5	1 6
900 HZ %	4 7	4 8	3 10
MAX DIST %	10 47	11 47	13 29
FREQ OF MAX DIS	1240 1280	1220 1220	1350 1270
S/N RATIO DB			
1KHZ SIGNAL	45.0	46.5	46.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.1	1.1
65 DB INPUT	2.5	2.6	2.8
BATTERY VOLTAGE	1.55	1.55	1.55

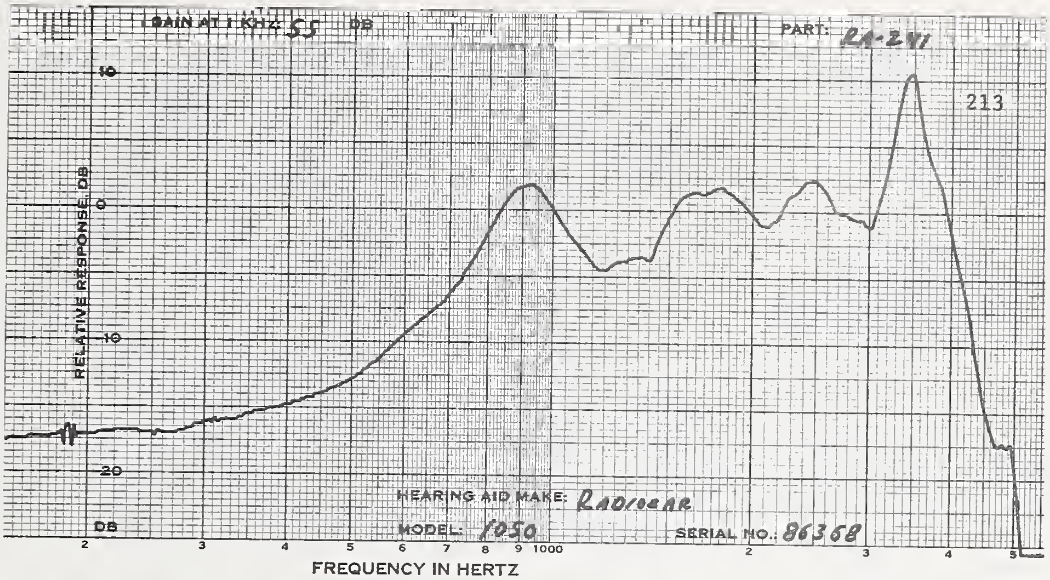

GAIN AT 1 KHz: 53 DB
PART: RA-238
RELATIVE RESPONSE, DB
HEARING AID MAKE: Radioear
MODEL: 1040
SERIAL NO.: 13850
FREQUENCY IN HERTZ

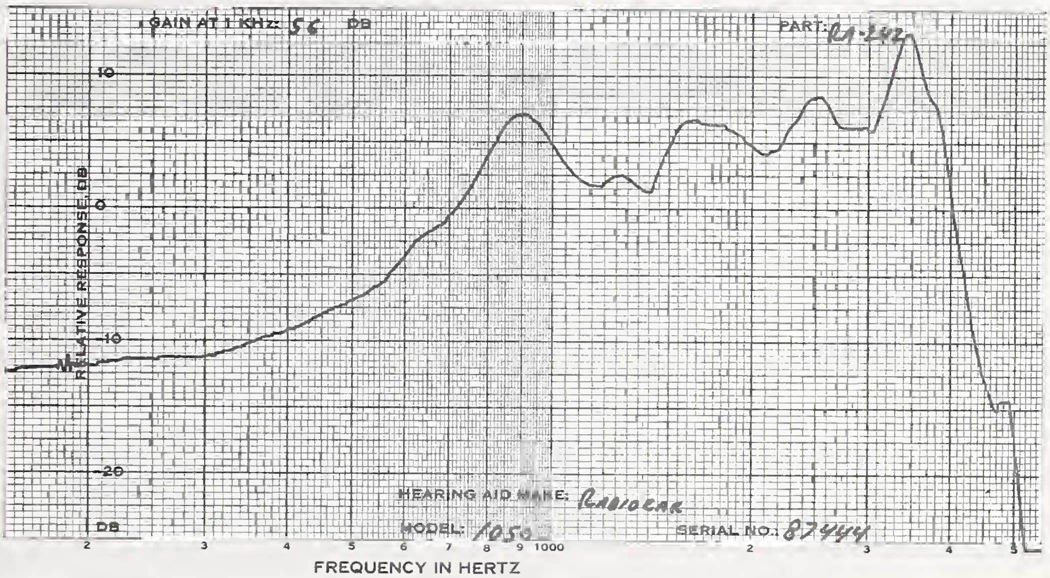

GAIN AT 1 KHz: 54 DB
PART: RA-238
RELATIVE RESPONSE, DB
HEARING AID MAKE: RADIOEAR
MODEL: 1040
SERIAL NO.: 14013
FREQUENCY IN HERTZ

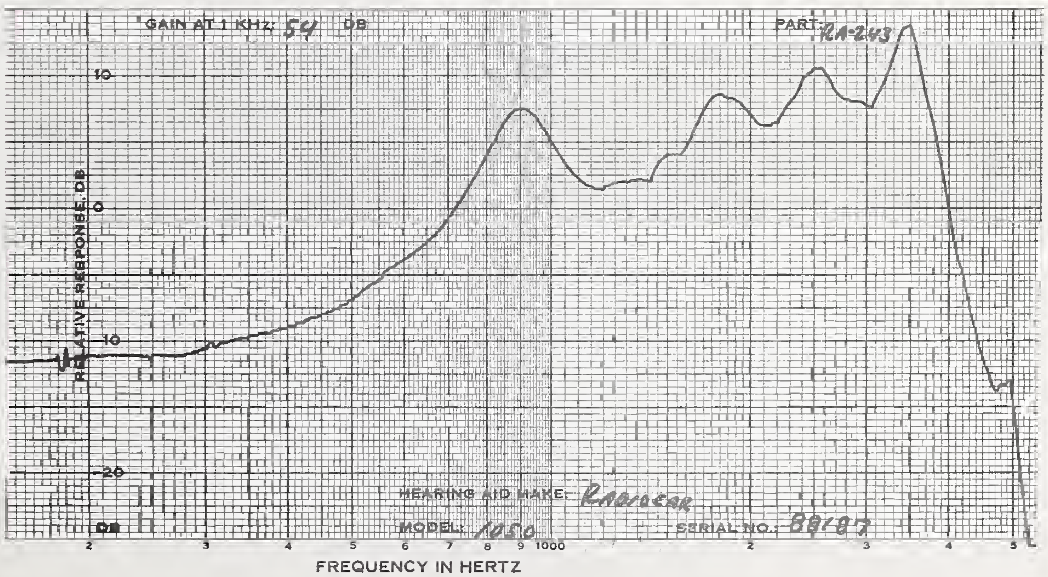

GAIN AT 1 KHz: 52 DB
PART: RA-240
RELATIVE RESPONSE, DB
HEARING AID MAKE: RADIOEAR
MODEL: 1040
SERIAL NO.: 14280
FREQUENCY IN HERTZ

MODEL:1050 LF SC:IN OUTPUT SC:IN TUBING:25MM BATTERY:S76

CODE	RA-241		RA-242		RA-243	
SERIAL #	86368		87444		88187	
DATE			FEB 28, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	67.0		64.0		62.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	73.0		71.0		70.5	
OUTPUT LEVEL DB	127.0		127.5		126.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	55.0		56.0		54.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	6	5	4	13	6	10
700 HZ %	3	3	1	5	3	5
900 HZ %	1	0	1	2	1	1
MAX DIST %	7	5	4	13	6	12
FREQ OF MAX DIS	560	500	500	500	575	575
S/N RATIO DB						
1KHZ SIGNAL	48.0		44.5		43.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	.9		1.0		1.0	
65 DB INPUT	2.5		2.9		2.8	
BATTERY VOLTAGE	1.54		1.54		1.54	

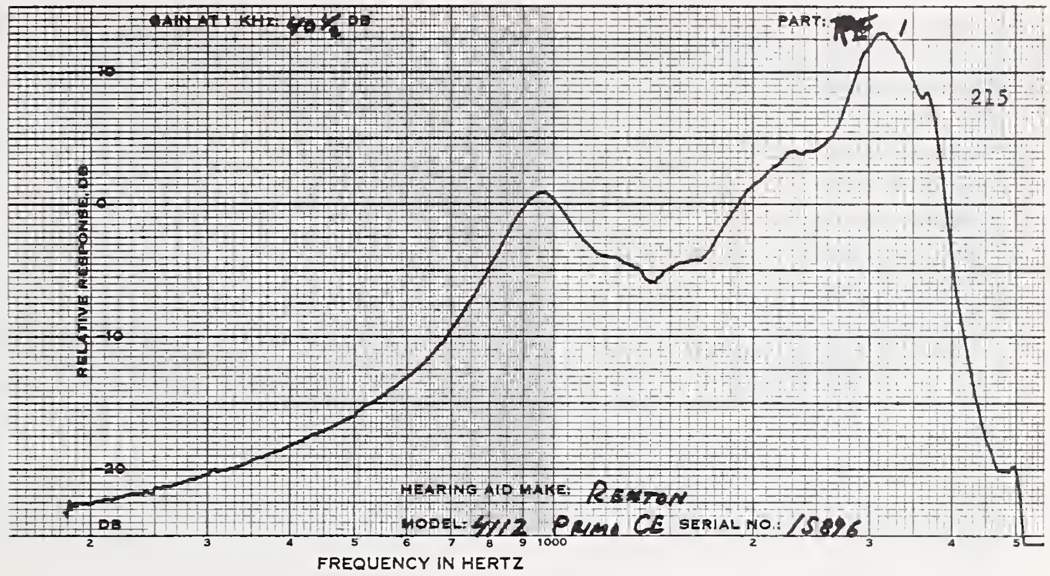

GAIN AT 1 KHZ: 55 DB
PART: RA-241
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: RADIOEAR
MODEL: 1050
SERIAL NO.: 86368
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

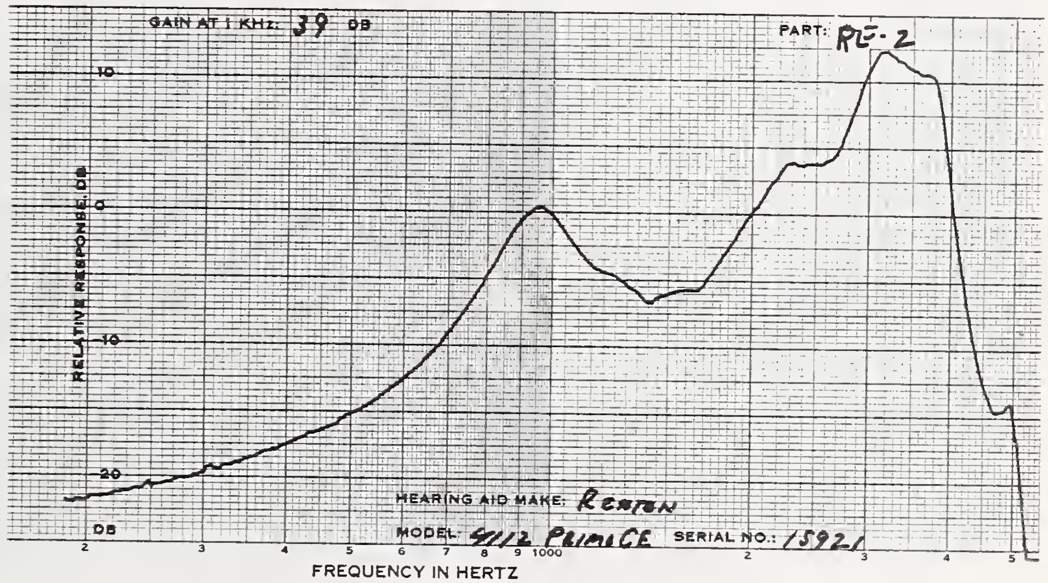

GAIN AT 1 KHZ: 56 DB
PART: RA-242
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: RADIOEAR
MODEL: 1050
SERIAL NO.: 87444
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

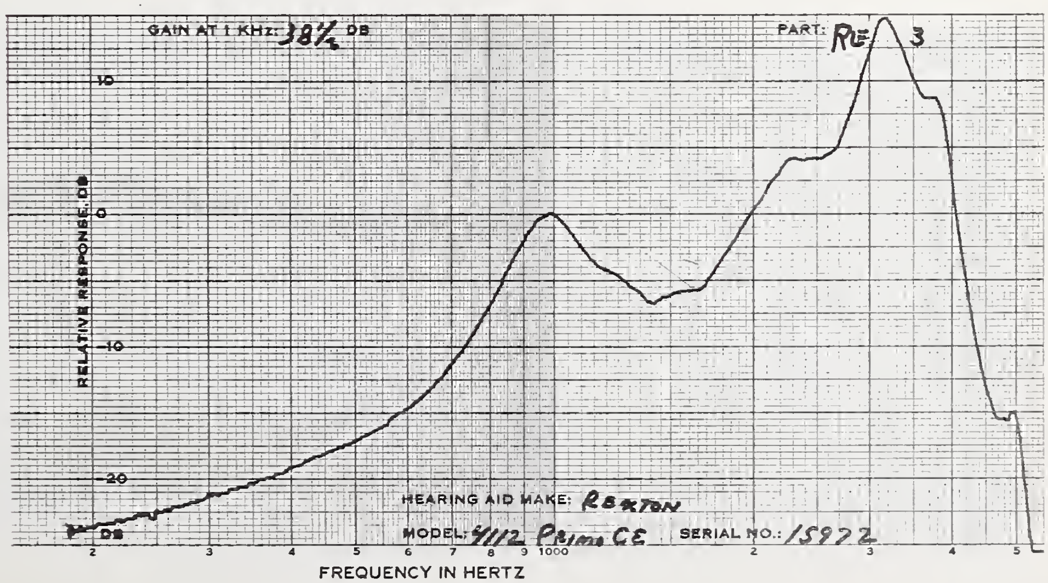

GAIN AT 1 KHZ: 54 DB
PART: RA-243
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: RADIOEAR
MODEL: 1050
SERIAL NO.: 88187
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

MODEL:4112 PRIMO CE TONE:H COMP:N TUBING:25MM BATTERY:S13

CODE	RE-001		RE-C02		RE-003	
SERIAL #	15896		15921		15972	
DATE			FEB 27, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	49.0		44.5		40.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	71.0		71.0		74.0	
OUTPUT LEVEL DB	114.5		113.5		113.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	40.5		39.0		38.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	3	8	2	2	2	4
700 HZ %	1	2	1	1	0	1
900 HZ %	0	1	0	0	1	1
MAX DIST %	4	8	4	2	5	4
FREQ OF MAX DIS	1580	500	1610	500	1510	500
S/N RATIO DB						
1KHZ SIGNAL	42.5		42.5		39.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.1		1.1		1.1	
65 DB INPUT	1.1		1.1		1.1	
BATTERY VOLTAGE	1.55		1.55		1.55	

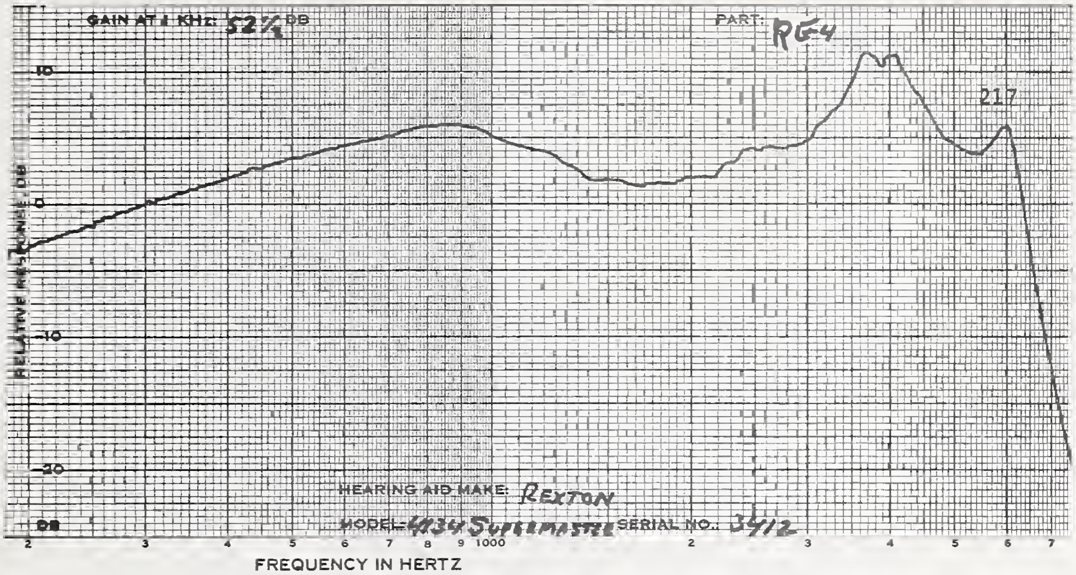

GAIN AT 1 KHz: 40½ DB
PART: RE 1
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4112 PRIMO CE
SERIAL NO.: 15896
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

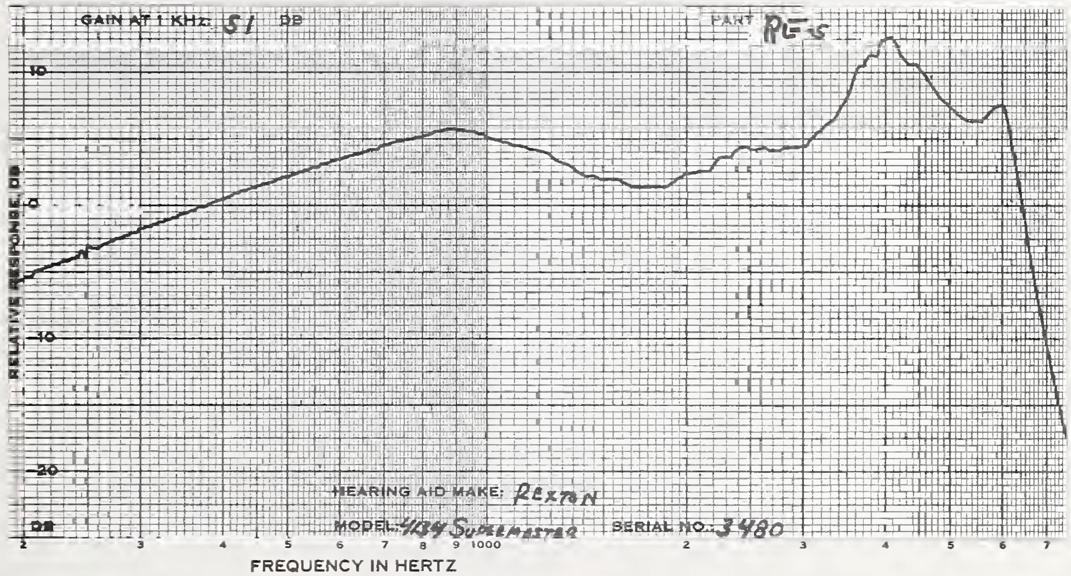

GAIN AT 1 KHz: 39 DB
PART: RE-2
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4112 PRIMO CE
SERIAL NO.: 15921
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

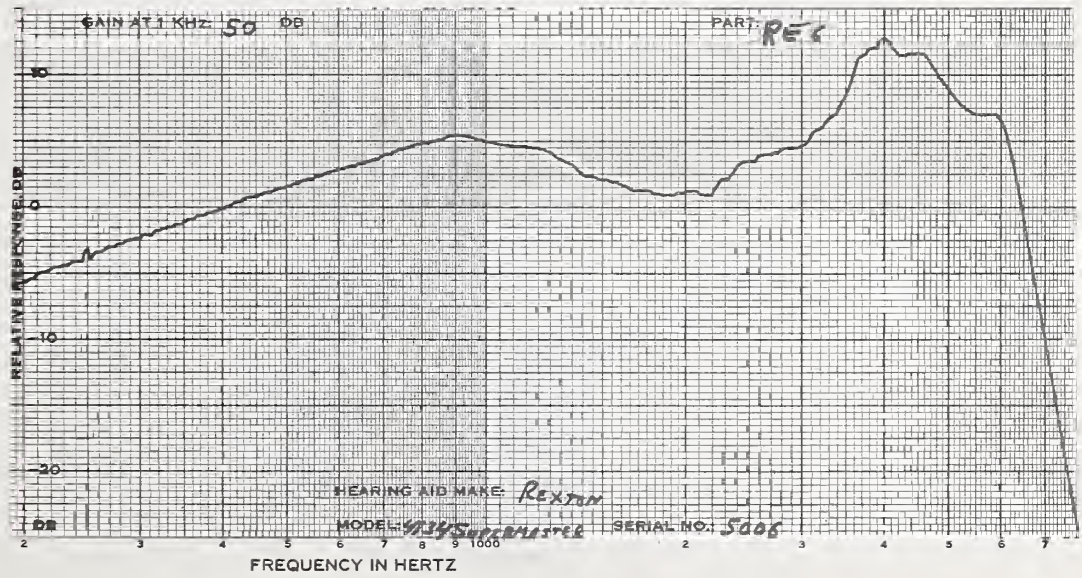

GAIN AT 1 KHz: 38½ DB
PART: RE 3
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4112 PRIMO CE
SERIAL NO.: 15972
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

REXTON OB
MODEL:4134 SUPERMASTER TONE:N RECEIVER:AFD4 BATTERY:401

CODE	RE-004		RE-005		RE-006	
SERIAL #	3412		3480		5006	
DATE			MAR 7, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	68.5		67.0		67.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	68.0		69.5		67.0	
OUTPUT LEVEL DB	125.0		124.0		123.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	52.5		51.0		50.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	3	6	1	6	1	4
700 HZ %	3	5	1	3	1	3
900 HZ %	4	6	2	6	2	6
MAX DIST %	4	6	5	8	6	8
FREQ OF MAX DIS	900	900	2000	1220	2040	1840
S/N RATIO DB						
1KHZ SIGNAL	38.5		39.0		37.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.3		1.2		1.0	
65 DB INPUT	2.5		2.5		2.5	
BATTERY VOLTAGE	1.40		1.40		1.39	

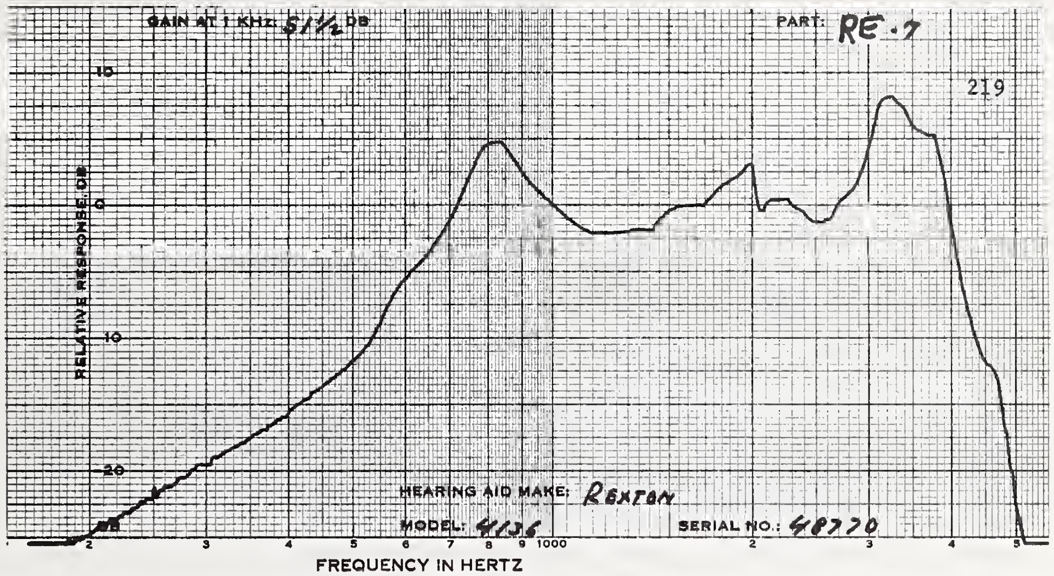

GAIN AT 1 KHz: 52½ DB
PART: RE4
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4134 SUPERMASTER
SERIAL NO.: 3412
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

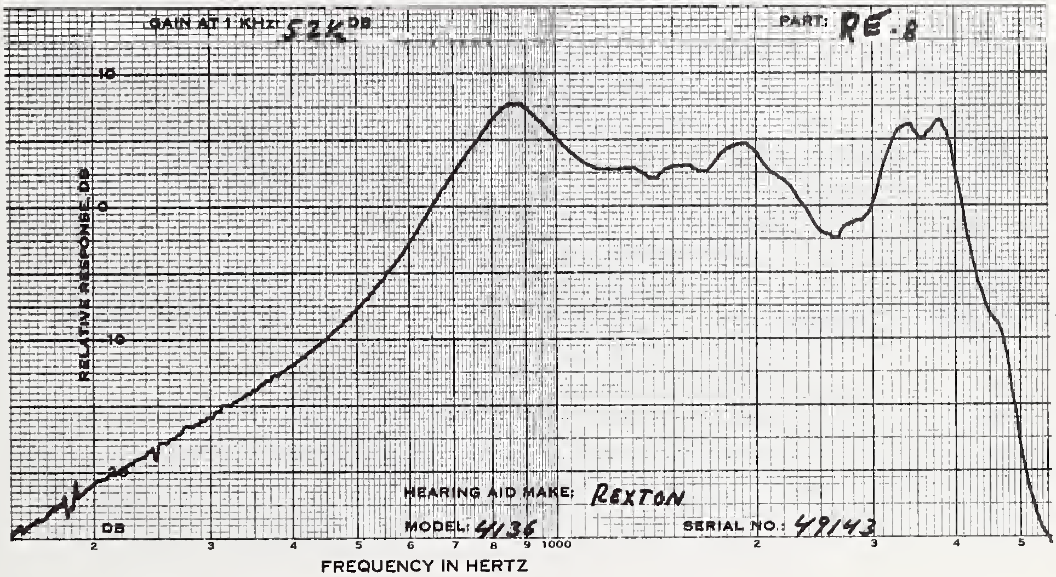

GAIN AT 1 KHz: 51 DB
PART: RE5
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4134 SUPERMASTER
SERIAL NO.: 3480
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

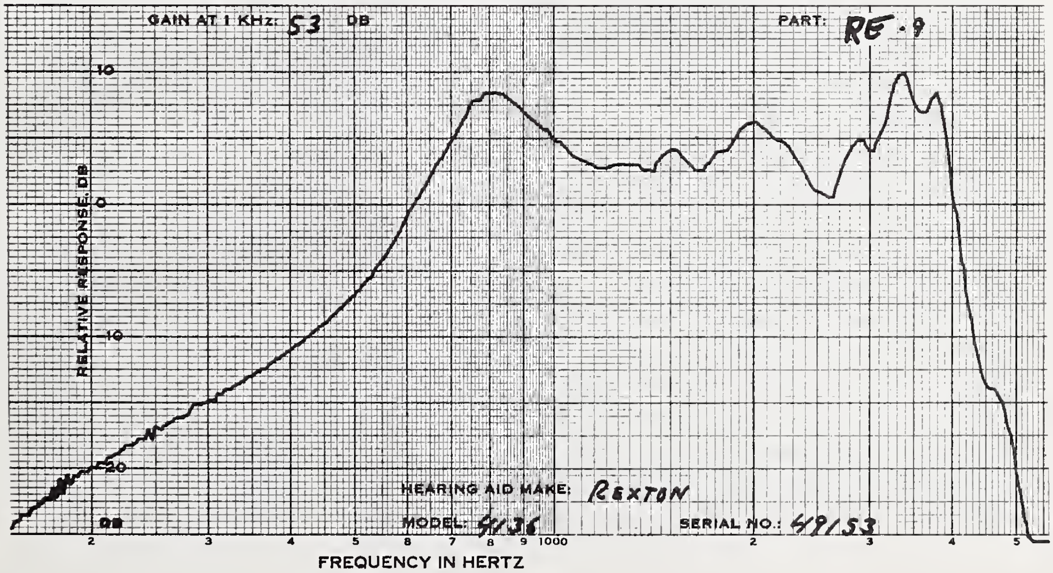

GAIN AT 1 KHz: 50 DB
PART: RE6
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4134 SUPERMASTER
SERIAL NO.: 5006
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

MODEL:4136 COMP:N(CCW) TUBING:25MM BATTERY:675

CODE	RE-007	RE-008	RE-009
SERIAL #	48770	49143	49153
DATE		MAY 14, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	51.5	52.5	53.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	81.0	80.5	79.0
OUTPUT LEVEL DB	124.0	124.0	124.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	51.5(FULL)	52.5(FULL)	53.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	61.5 71.5	60.0 70.0
500 HZ %	0 4	4 7	0 4
700 HZ %	1 2	2 2	1 1
900 HZ %	2 2	1 1	1 2
MAX DIST %	7 10	4 14	4 16
FREQ OF MAX DIS	1830 1250	500 1265	1900 1240
S/N RATIO DB			
1KHZ SIGNAL	39.5	41.0	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.7	.7
65 DB INPUT	1.8	1.0	2.0
BATTERY VOLTAGE	1.33	1.33	1.33

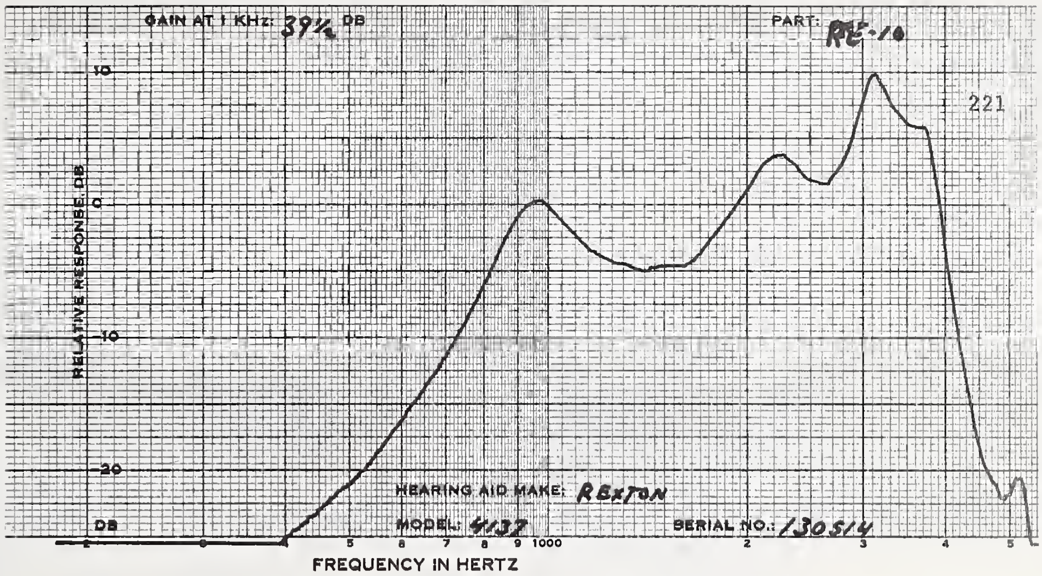

GAIN AT 1 KHz: 51½ DB
PART: RE-7
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: REXTON
MODEL: 4136
SERIAL NO.: 48770
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

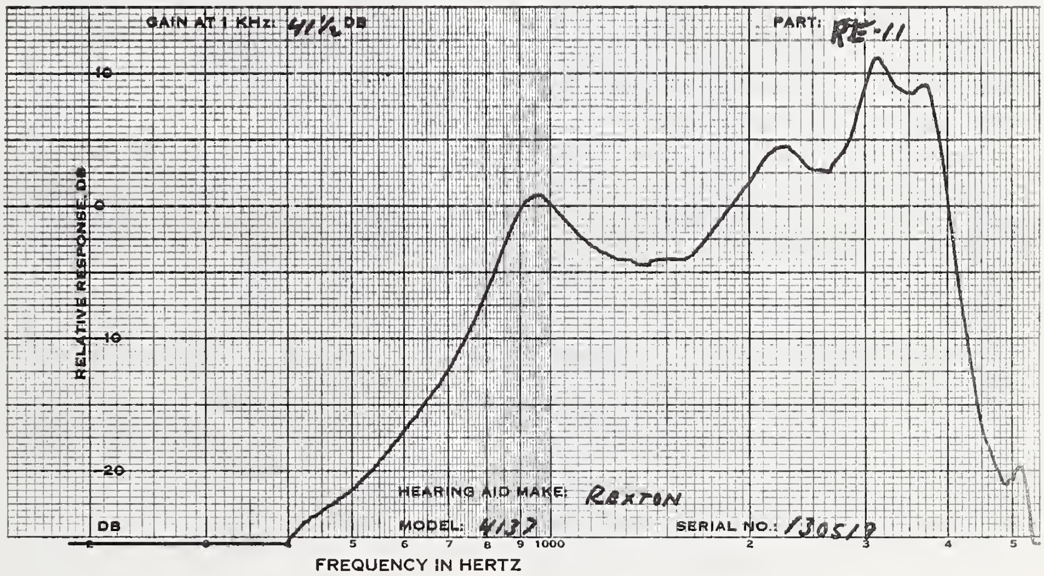

GAIN AT 1 KHz: 52½ DB
PART: RE-8
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: REXTON
MODEL: 4136
SERIAL NO.: 49143
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

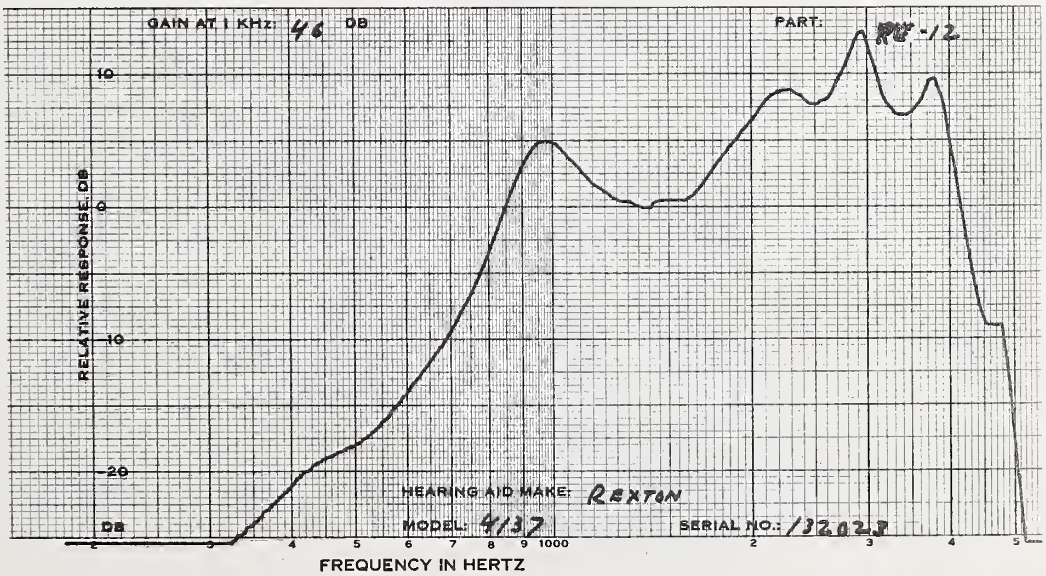

GAIN AT 1 KHz: 53 DB
PART: RE-9
RELATIVE RESPONSE, DB
10
0
10
20
DB
HEARING AID MAKE: REXTON
MODEL: 4136
SERIAL NO.: 49153
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

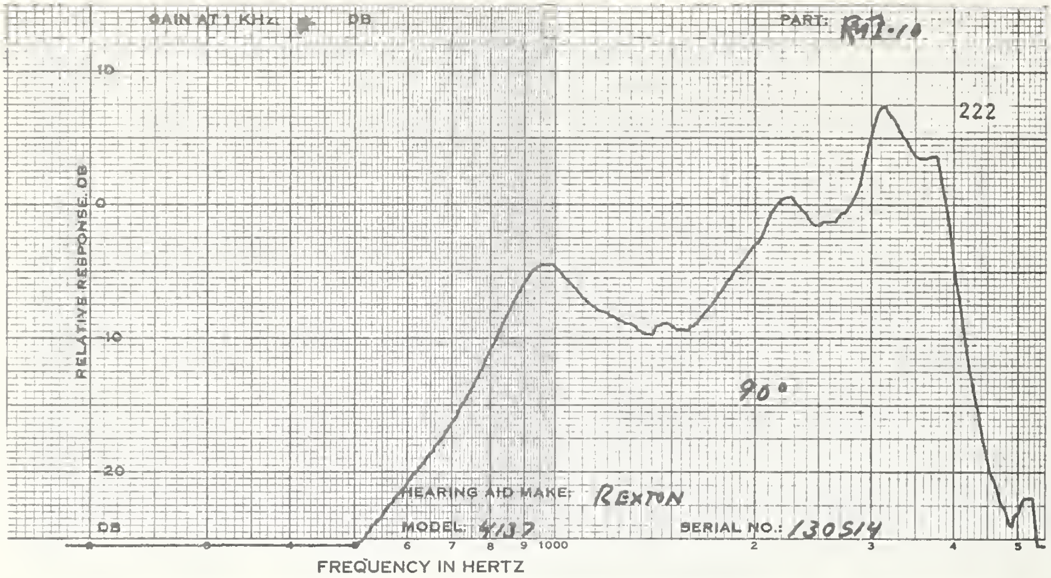
REXTON DIR OE
MODEL:4137 COMP:N(CCW) TUBING:25MM BATTERY:675

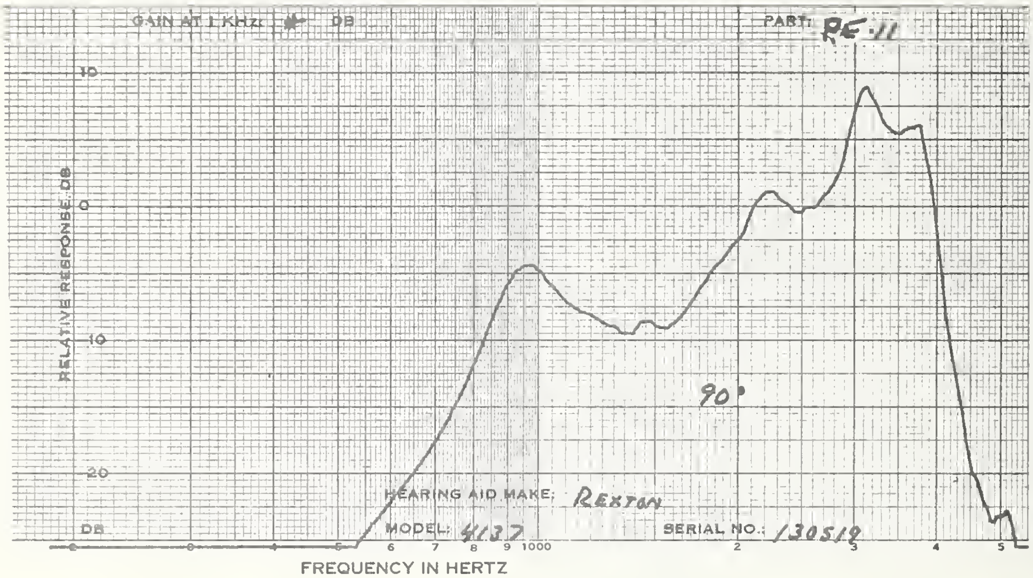
CODE	RE-010	RE-011	RE-012
SERIAL #	130514	130519	132023
DATE		MAY 14, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	39.5	42.5	46.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	81.0	78.0	76.0
OUTPUT LEVEL DB	114.5	114.5	115.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	39.5(FULL)	41.5	46.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	63.0 73.0	60.0 70.0	60.0 70.0
500 HZ %	0 6	0 2	0 5
700 HZ %	0 3	1 1	0 2
900 HZ %	1 3	0 1	0 1
MAX DIST %	10 25	6 13	6 15
FREQ OF MAX DIS	1520 1520	1510 1510	1435 1435
S/N RATIO DB			
1KHZ SIGNAL	41.0	42.5	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.2	1.3	1.4
65 DB INPUT	1.2	1.3	1.4
BATTERY VOLTAGE	1.38	1.36	1.33

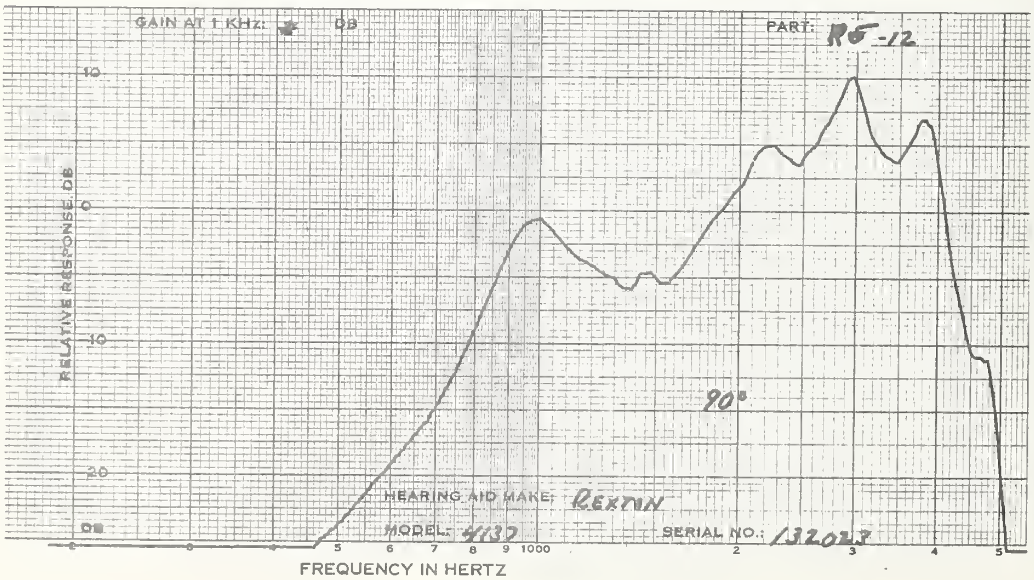

GAIN AT 1 KHz: 39½ DB
PART: RE-10
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4137
SERIAL NO.: 130514
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 41½ DB
PART: RE-11
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4137
SERIAL NO.:
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 46 DB
PART: RE-12
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: REXTON
MODEL: 4137
SERIAL NO.:
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

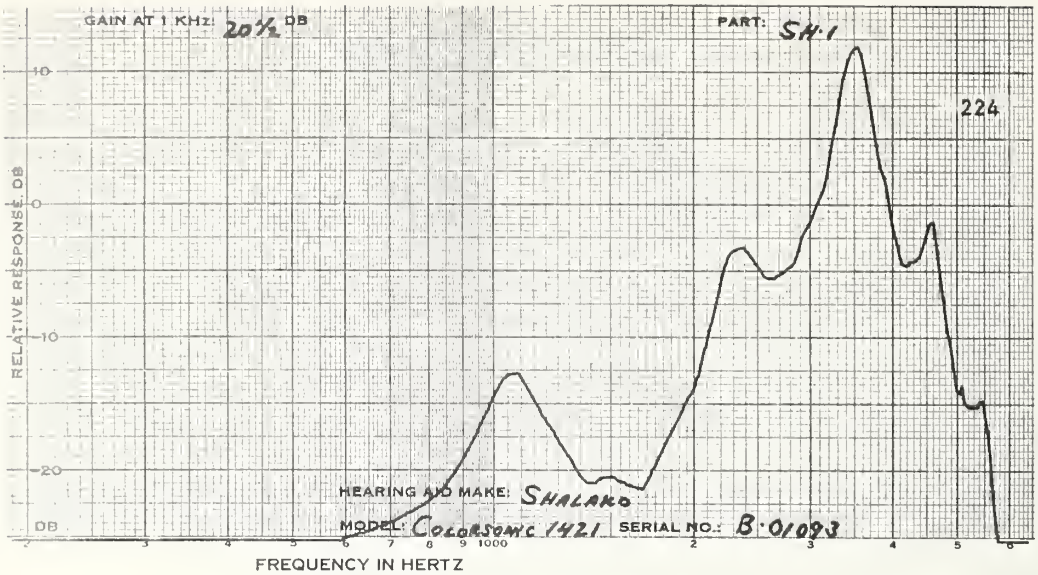

GAIN AT 1 KHz: * DB
PART: RM-10
10
0
10
20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: REXTON
MODEL: 4137
SERIAL NO.: 130514
5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

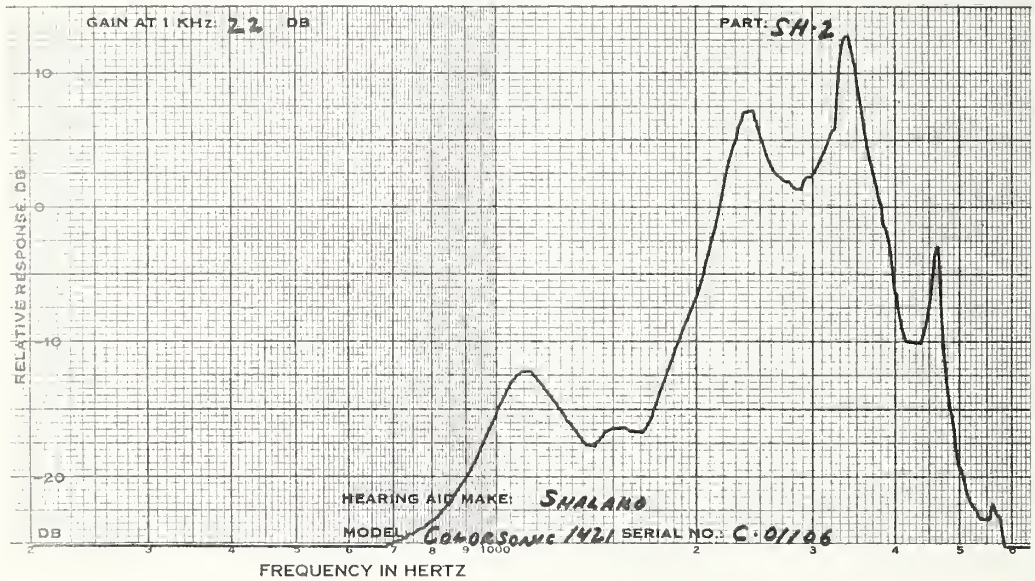

GAIN AT 1 KHz: * DB
PART: RE-11
10
0
10
20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: REXTON
MODEL: 4137
SERIAL NO.: 130519
5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

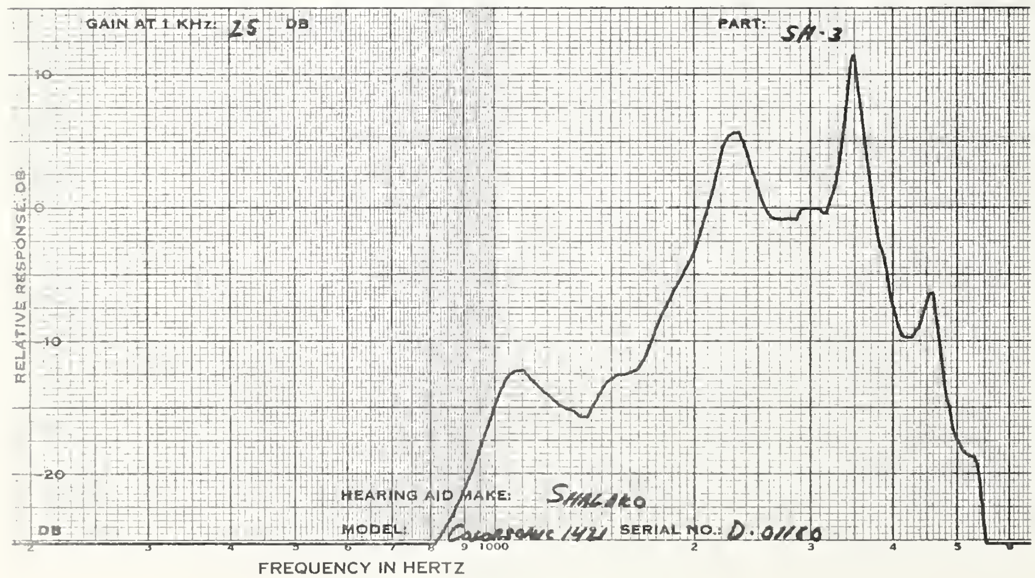

GAIN AT 1 KHz: * DB
PART: RG-12
10
0
10
20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: REXTON
MODEL: 4137
SERIAL NO.: 132023
5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

MODEL:COLORSONIC 1421 TONE:NONE TUBING:25MM BATTERY:675

CODE	SH-001	SH-002	SH-003
SERIAL #	B01093	C01106	D0116C
DATE		JUN 17, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	20.5	22.0	25.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	81.0	77.0	76.0
OUTPUT LEVEL DB	104.0	108.0	108.0
MEASUREMENTS WITH REDUCED VCLUME CONTROL SETTING			
1KHZ GAIN DB	20.5(FULL)	22.0(FULL)	25.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.0 71.0	61.0 71.0	61.0 71.0
500 HZ %	3 2	2 2	3 4
700 HZ %	0 0	1 3	2 6
900 HZ %	0 1	1 3	3 3
MAX DIST %	18 13	11 6	5 9
FREQ OF MAX DIS	1740 1740	1690 1690	1150 770
S/N RATIO DB			
1KHZ SIGNAL	32.5	29.0	32.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.4	1.4
65 DB INPUT	1.3	1.4	1.4
BATTERY VOLTAGE	1.32	1.32	1.32
S/N 2KHZ	33.0	38.0	44.0


GAIN AT 1 KHz: 20½ DB
PART: SH·1
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SHALAKO
MODEL: COLORSONIC 1421
SERIAL NO.: B·01093
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 22 DB
PART: SH·2
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SHALAKO
MODEL: COLORSONIC 1421
SERIAL NO.: C·01106
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

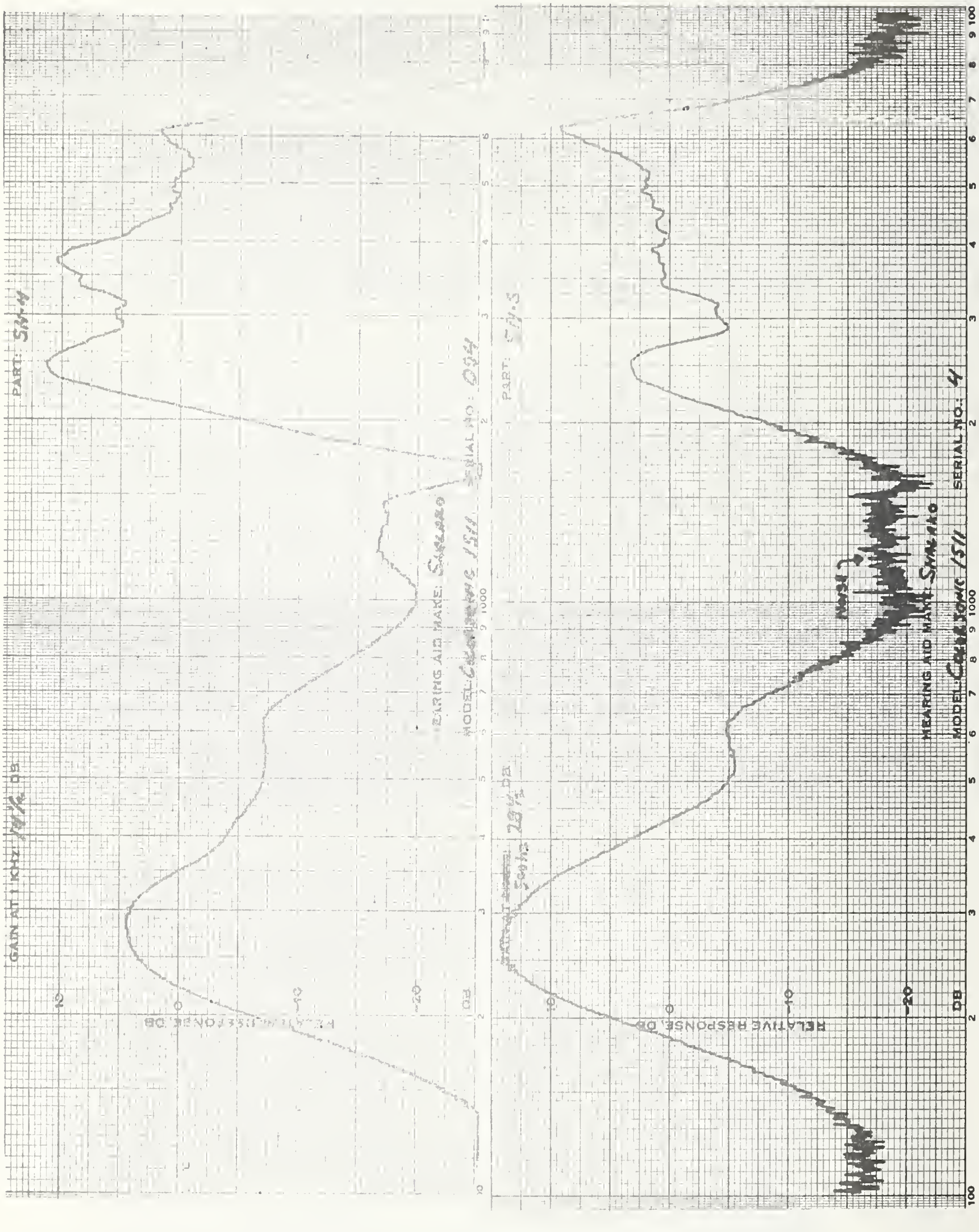

GAIN AT 1 KHz: 25 DB
PART: SH·3
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SHALAKO
MODEL: COLORSONIC 1421
SERIAL NO.: D·01160
2 3 4 5 6 7 8 9 1000 2 3 4 5 6
FREQUENCY IN HERTZ

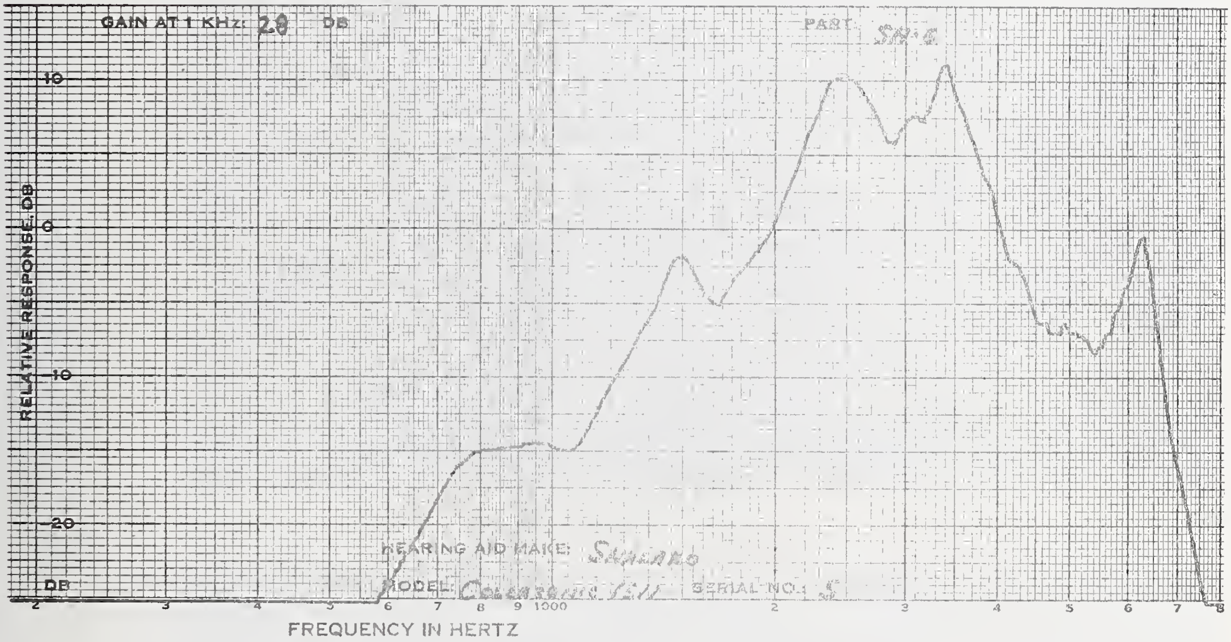
MODEL:COLCRSONIC 1511 TONE:SEE BELOW RECEIVER:CFD8 BATTERY:MN1500

CODE	SH-004		SH-005		SH-006	
SERIAL #	004		4		5	
DATE			JUN 17, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	14.5		*****		28.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	79.0		81.0		78.0	
OUTPUT LEVEL DB	108.0		113.5		115.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	14.5(FULL)		*****(FULL)		28.0(FULL)	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	63.0	73.0	60.0	70.0
500 HZ %	0	2	0	1	0	8
700 HZ %	0	1	1	1	2	4
900 HZ %	1	6	0	0	2	4
MAX DIST %	15	16	10	16	5	8
FREQ OF MAX DIS	1270	1290	500	500	1250	500
S/N RATIO DB						
1KHZ SIGNAL	14.5		>****		20.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	4.8		5.0		4.8	
65 DB INPUT	4.8		5.0		4.8	
BATTERY VOLTAGE	1.50		1.50		1.50	

BECAUSE OF THE SPECIAL NATURE OF THIS INSTRUMENT, THE AID WAS TESTED AS IT CAME, WITHOUT FURTHER CHECKING OF THE TONE SCREWS.

THE SIGNAL FOR SH-005 WAS BELOW THE NOISE LEVEL AT 1KHZ. THE GAIN AT 500HZ WAS 18 DB AND THE S/N AT 500HZ WAS 27.5 DB.

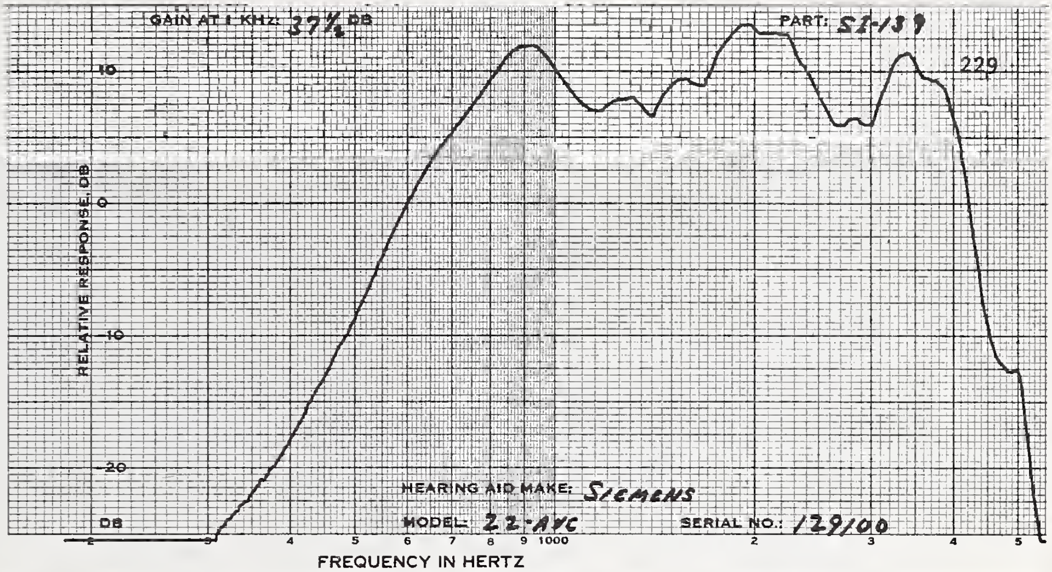

GAIN AT 1 KHZ: DB
PART:
HEARING AID MAKE:
MODEL:
SERIAL NO.:
RELATIVE RESPONSE, DB
FREQUENCY IN HERTZ

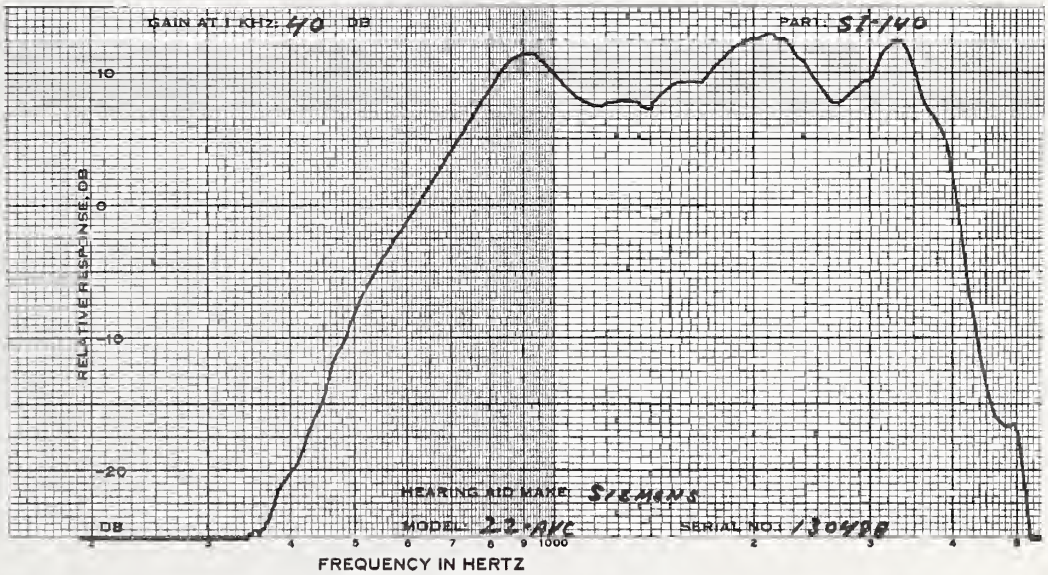


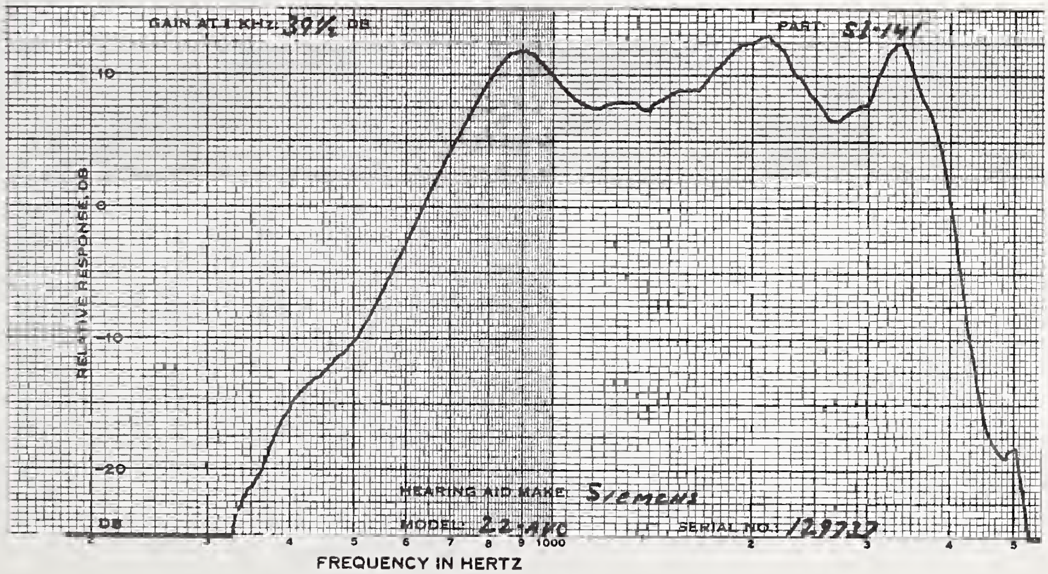
GAIN AT 1 KHz: 28 DB
PART: SA-6
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE:
MODEL:
SERIAL NO.:
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
8
FREQUENCY IN HERTZ

SIEMENS OE
MODEL:22AVC AVC:ON TUBING:22MM BATTERY:675

CODE	SI-139		SI-140		SI-141	
SERIAL #	129100		130498		129737	
DATE			FEB 19, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	46.5		46.0		46.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	69.0		74.0		73.0	
OUTPUT LEVEL DB	109.0		111.0		110.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	37.5		40.0		39.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	6	6	6	7	6	6
700 HZ %	0	0	1	0	1	0
900 HZ %	1	1	1	0	1	0
MAX DIST %	6	6	6	7	6	6
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	46.5		48.0		48.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.9		1.9		1.9	
65 DB INPUT	1.9		1.9		1.9	
BATTERY VOLTAGE	1.33		1.33		1.32	


GAIN AT 1 KHZ: 37½ DB
PART: SI-139
RELATIVE RESPONSE, DB
HEARING AID MAKE: SIEMENS
MODEL: 22-AVC
SERIAL NO.: 129100
FREQUENCY IN HERTZ

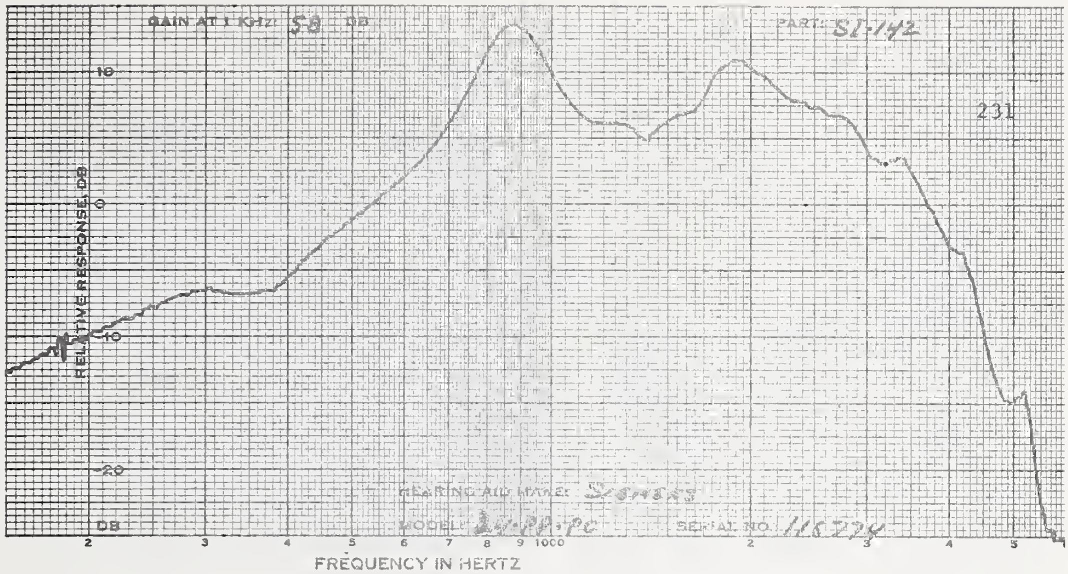

GAIN AT 1 KHZ: 40 DB
PART: SI-140
RELATIVE RESPONSE, DB
HEARING AID MAKE: SIEMENS
MODEL: 22-AVC
SERIAL NO.: 130498
FREQUENCY IN HERTZ

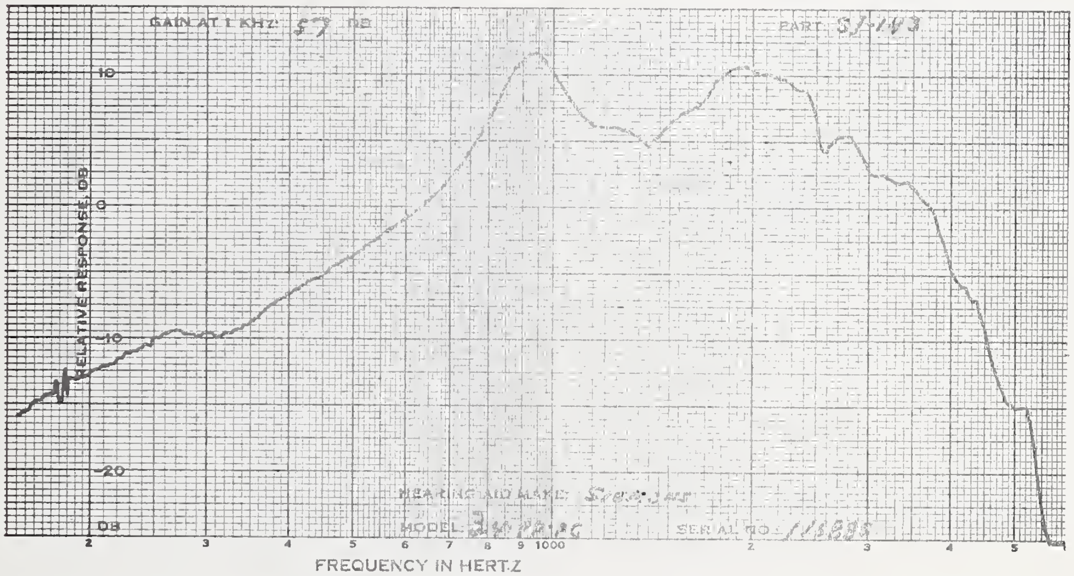

GAIN AT 1 KHZ: 30½ DB
PART: SI-141
RELATIVE RESPONSE, DB
HEARING AID MAKE: SIEMENS
MODEL: 22-AVC
SERIAL NO.: 129727
FREQUENCY IN HERTZ

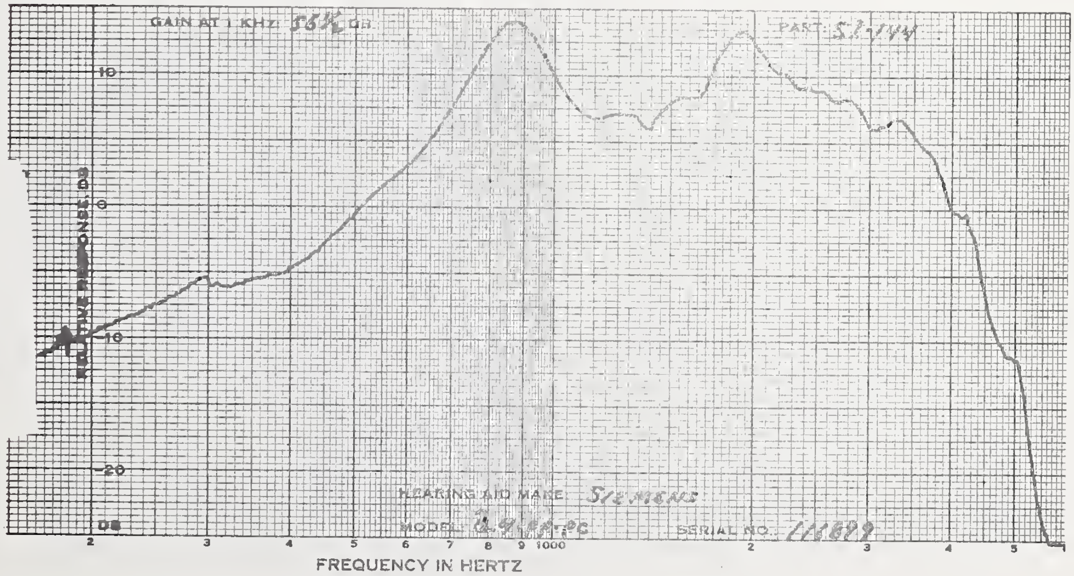
SIEMENS OE

MODEL:2APP-PC TONE:N FC:OFF TUBING:25MM BATTERY:675

CODE		SI-142	SI-143	SI-144
SERIAL #		116774	116885	116899
DATE			FEB 19, 1975	
MEASUREMENTS WITH FULL VOL CONTROL				
1KHZ GAIN	DB	65.0	65.5	63.0
MPO, RANDOM NOISE				
INPUT LEVEL,	DB	73.0	72.5	73.0
OUTPUT LEVEL	DB	128.5	127.0	128.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING				
1KHZ GAIN	DB	58.0	57.0	56.5
HARMONIC DIST				
@INPUT LEVEL	DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ	%	8 15	10 24	8 12
700 HZ	%	4 6	5 8	5 7
900 HZ	%	1 6	2 5	1 5
MAX DIST	%	8 15	10 24	8 12
FREQ OF MAX DIS		500 500	500 500	500 500
S/N RATIO	DB			
1KHZ SIGNAL		42.5	46.5	46.0
S/HUM RATIO	DB			
1KHZ SIGNAL		N.M.	N.M.	N.M.
BATTERY DRAIN, MA				
NO INPUT		2.5	2.7	2.5
65 DB INPUT		3.2	3.3	3.0
BATTERY VOLTAGE		1.37	1.34	1.34


GAIN AT 1 KHZ: 58 DB
PART: SI-142
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE:
MODEL:
SERIAL NO.
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 57 DB
PART: SI-143
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE:
MODEL:
SERIAL NO.
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

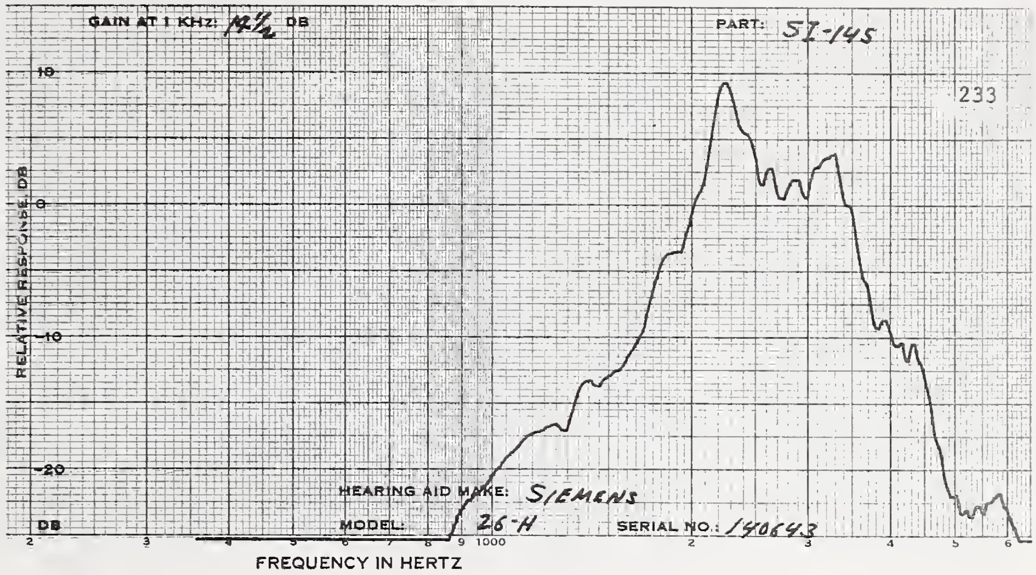

GAIN AT 1 KHZ: 56½ DB
PART: SI-144
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL:
SERIAL NO.
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

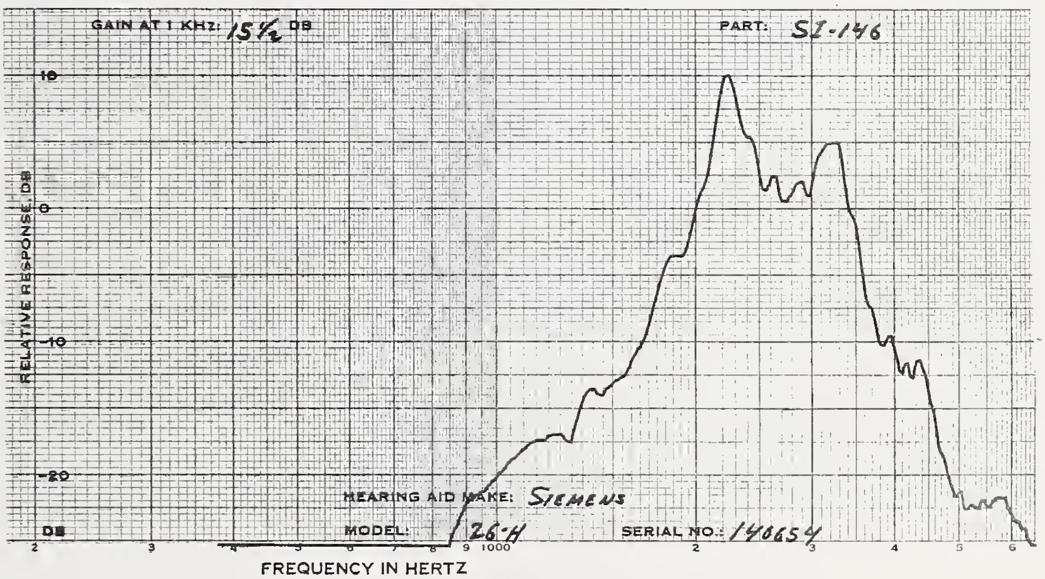
SIEMENS HP OE

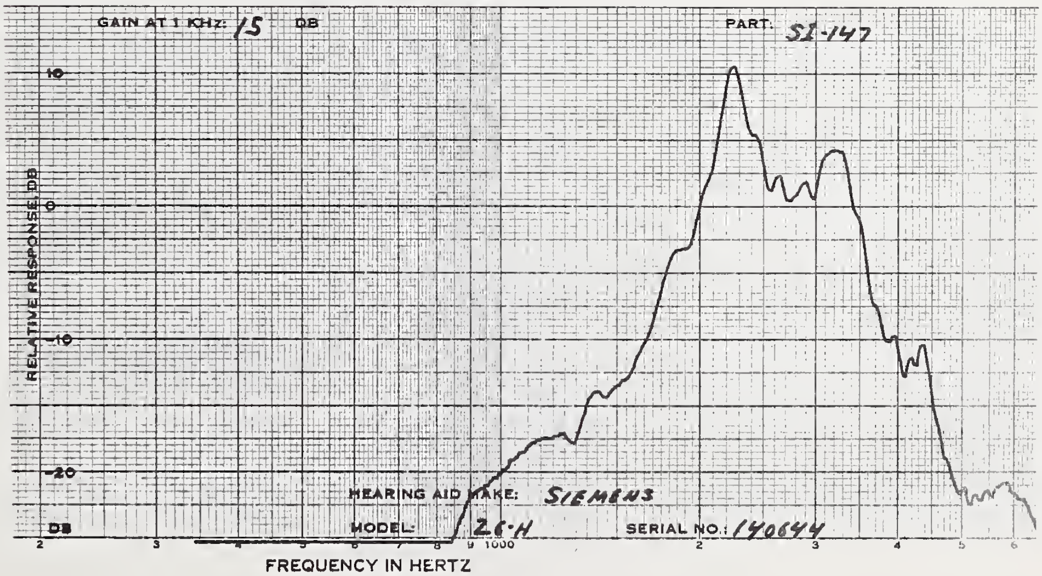
MODEL:26H TONE:CW TUBING:25MM BATTERY:675

CODE	SI-145	SI-146	SI-147
SERIAL #	140643	140654	140644
DATE		MAY 22, 1975	
MEASUREMENTS WITH FULL VOL CONTROL *			
1KHZ GAIN DB	19.5	20.5	20.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	82.5	82.5	85.0
OUTPUT LEVEL DB	123.0	123.5	123.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	14.5	15.5	15.0
S/N RATIO DB			
2KHZ SIGNAL	44.5	44.5	45.3
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.8	1.9	1.8
65 DB INPUT	1.8	1.9	1.8
BATTERY VOLTAGE	1.33	1.33	1.33

*Maximum setting possible without feedback.

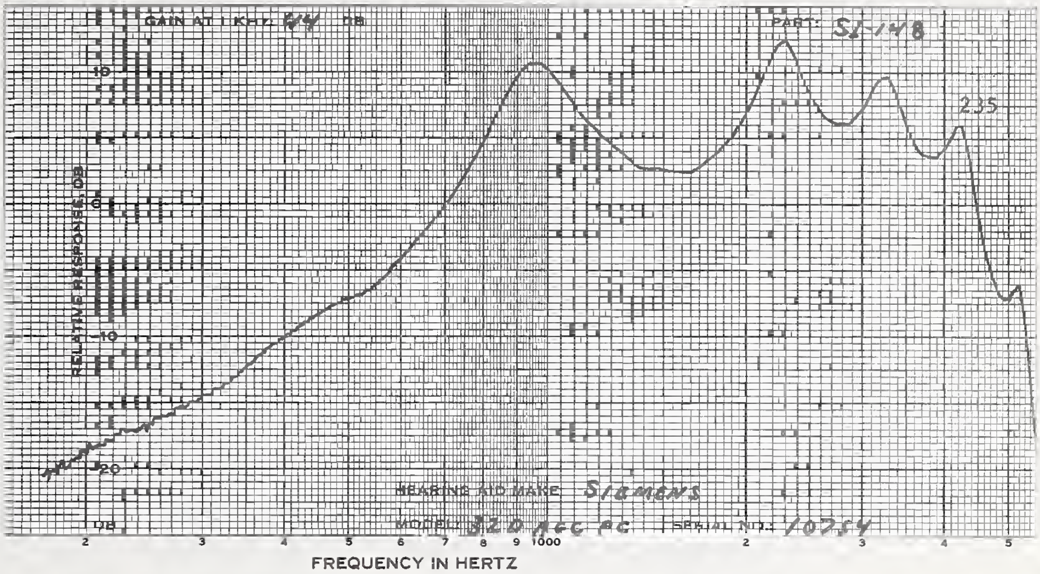

GAIN AT 1 KHz: 14½ DB
PART: SI-145
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 26-H
SERIAL NO.: 140643
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

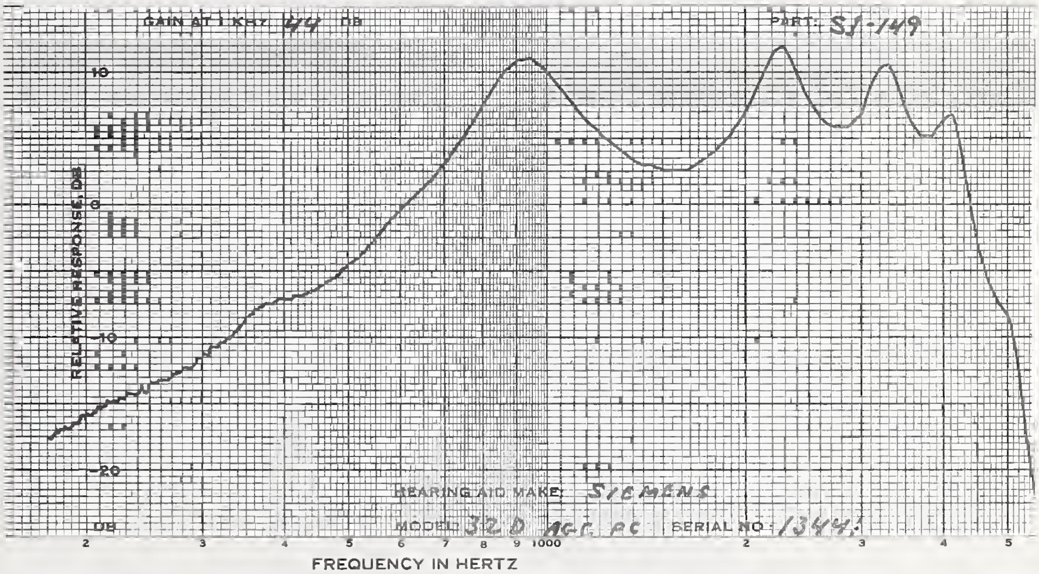

GAIN AT 1 KHz: 15½ DB
PART: SI-146
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 26-H
SERIAL NO.: 140654
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

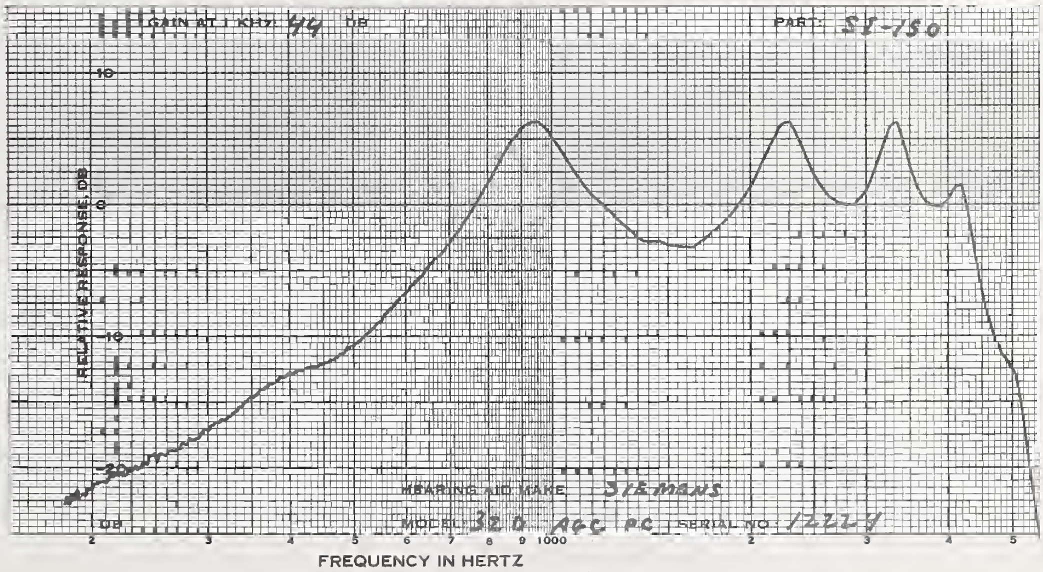

GAIN AT 1 KHz: 15 DB
PART: SI-147
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 26-H
SERIAL NO.: 140644
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

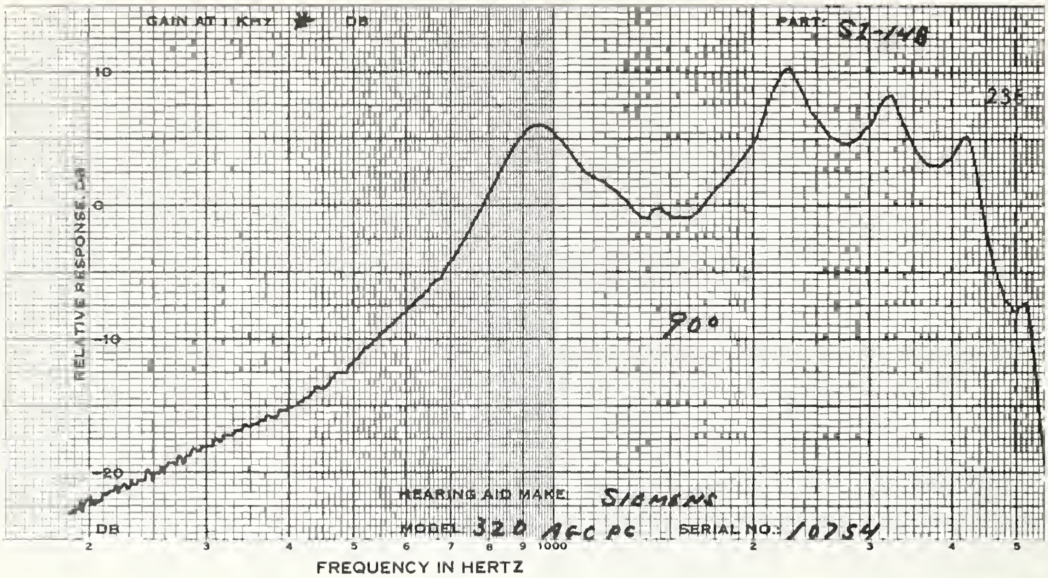
SIEMENS DIR OE
MODEL:32D AFC PC TONE:N PC:OFF TUBING:25MM BATTERY:675

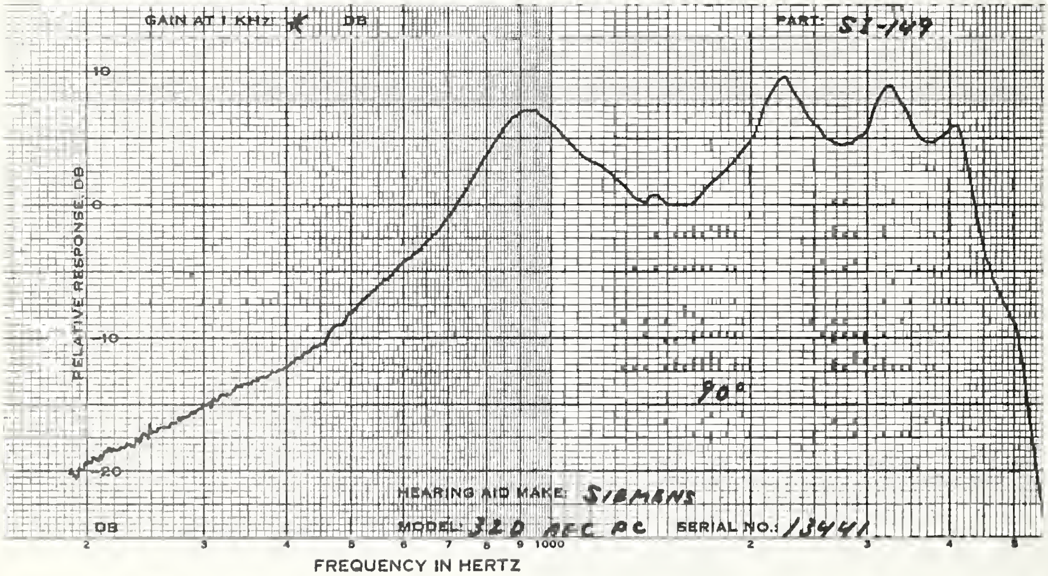
CODE	SI-148	SI-149	SI-150
SERIAL #	10754	13441	12224
DATE		APR 16, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	44.0	44.0	44.C
MPO, RANDCM NOISE			
INPUT LEVEL, DB	90.C	90.0	86.0
OUTPUT LEVEL DB	116.0	118.0	115.C
MEASUREMENTS WITH REDUCED VOLUME CONTRCL SETTING			
1KHZ GAIN DB	44.0(FULL)	44.0(FULL)	44.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	73.C 83.0	75.0 85.0	6C.0 7C.0
500 HZ %	14 20	14 23	11 18
700 HZ %	5 11	6 11	4 12
900 HZ %	3 6	4 6	2 5
MAX DIST %	14 20	14 23	11 18
FREQ OF MAX DIS	50C 500	5J0 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	40.5	40.C	37.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.9	1.8	1.9
65 DB INPUT	1.9	1.8	1.9
BATTERY VOLTAGE	1.33	1.33	1.33

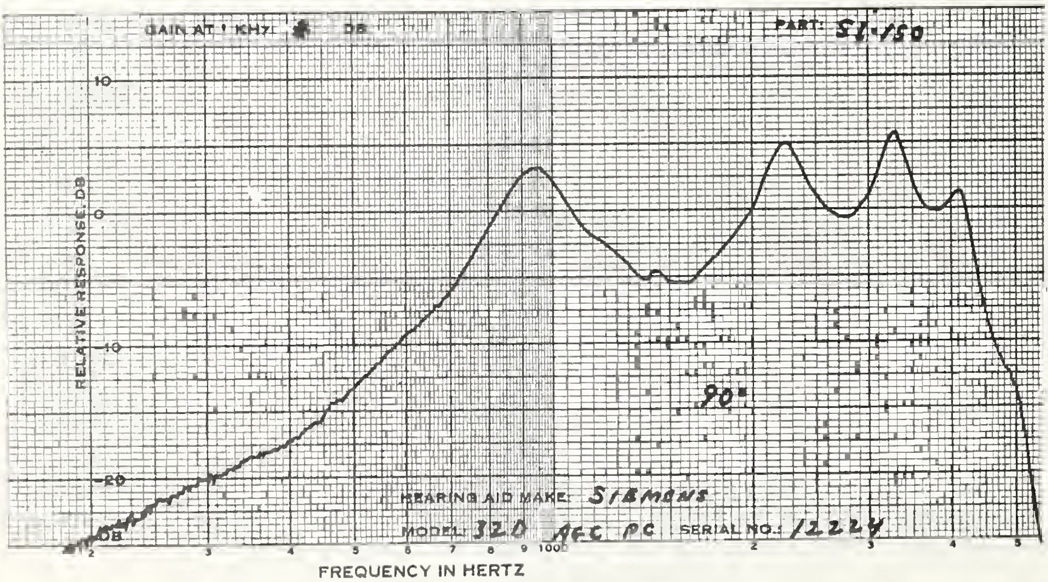

GAIN AT 1 KHZ: 44 DB
PART: SI-148
235
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 320 AGC PC
SERIAL NO.: 10754
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 44 DB
PART: SI-149
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 320 AGC PC
SERIAL NO.: 13441
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 44 DB
PART: SI-150
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 320 AGC PC
SERIAL NO.: 12224
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: SI-148
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
235
90°
HEARING AID MAKE: SIEMENS
MODEL: 320 AFC PC
SERIAL NO.: 10754
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

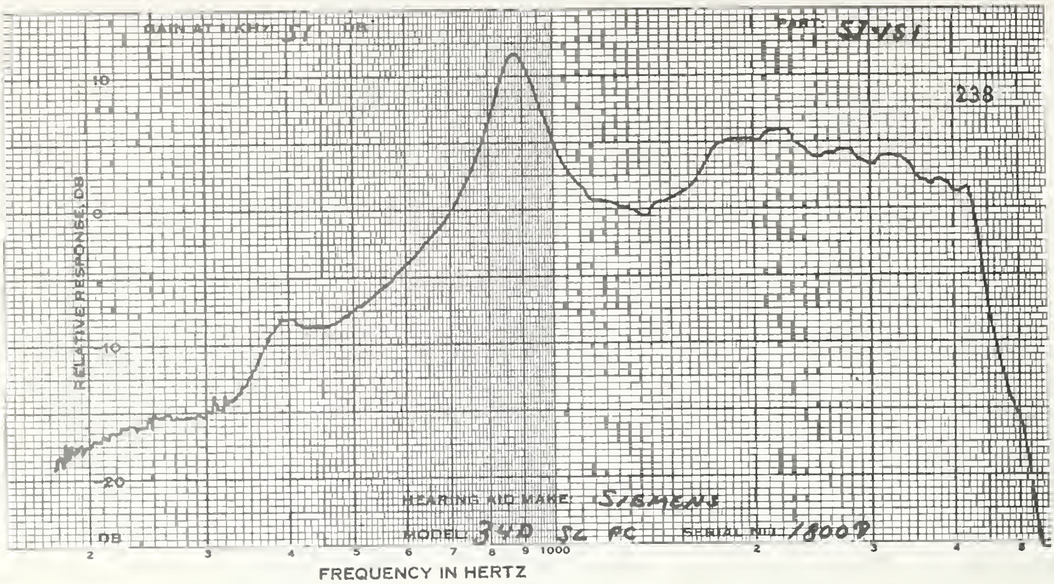

GAIN AT 1 KHz: * DB
PART: SI-149
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: SIEMENS
MODEL: 320 AFC PC
SERIAL NO.: 13441
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

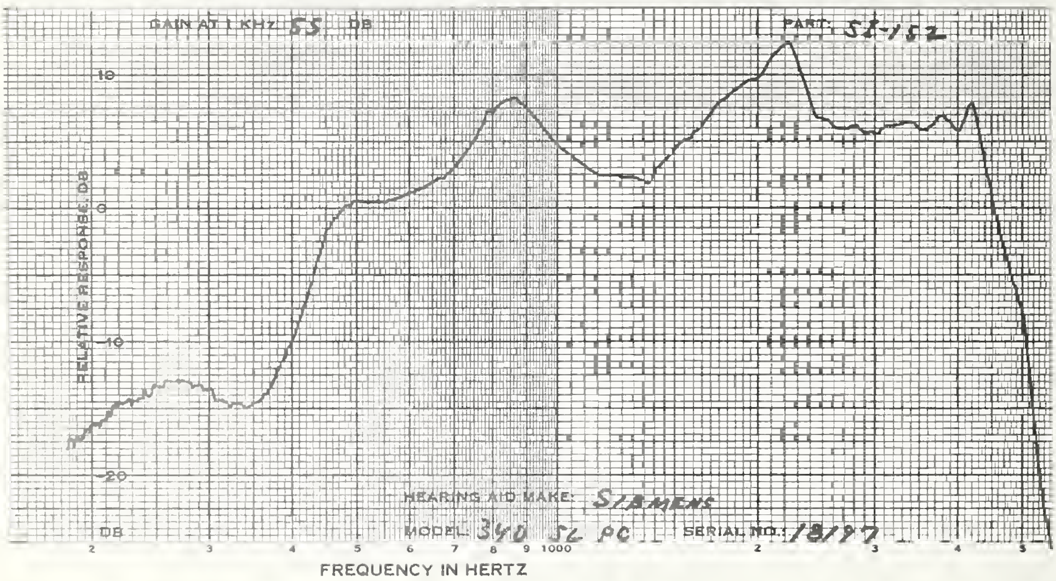

GAIN AT 1 KHz: * DB
PART: SI-150
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: SIEMENS
MODEL: 320 AFC PC
SERIAL NO.: 12224
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

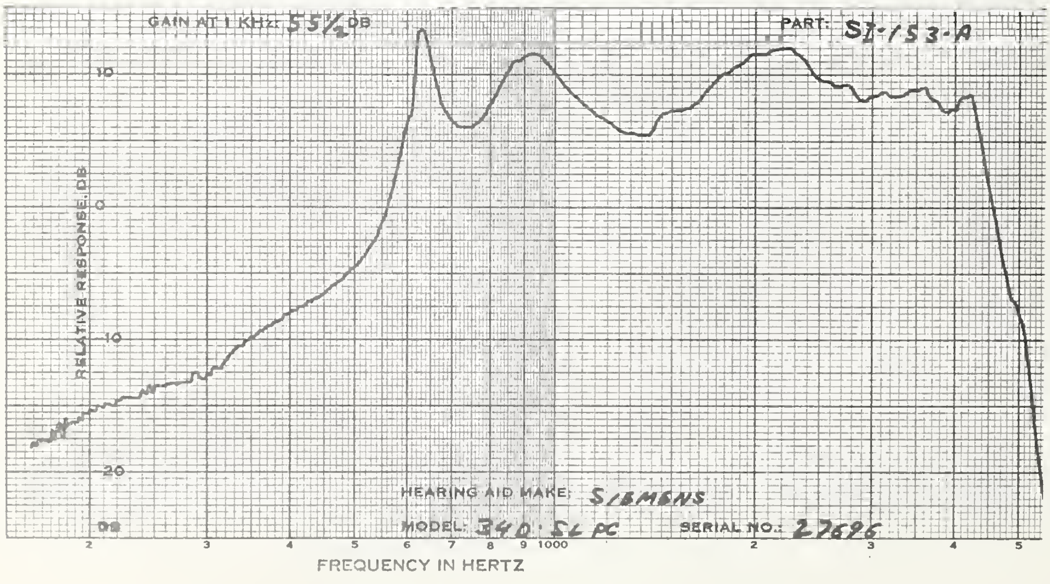
SIEMENS DIR OE
MODEL:34D SL LC PC:OFF(CW) TUBING:25MM BATTERY:675

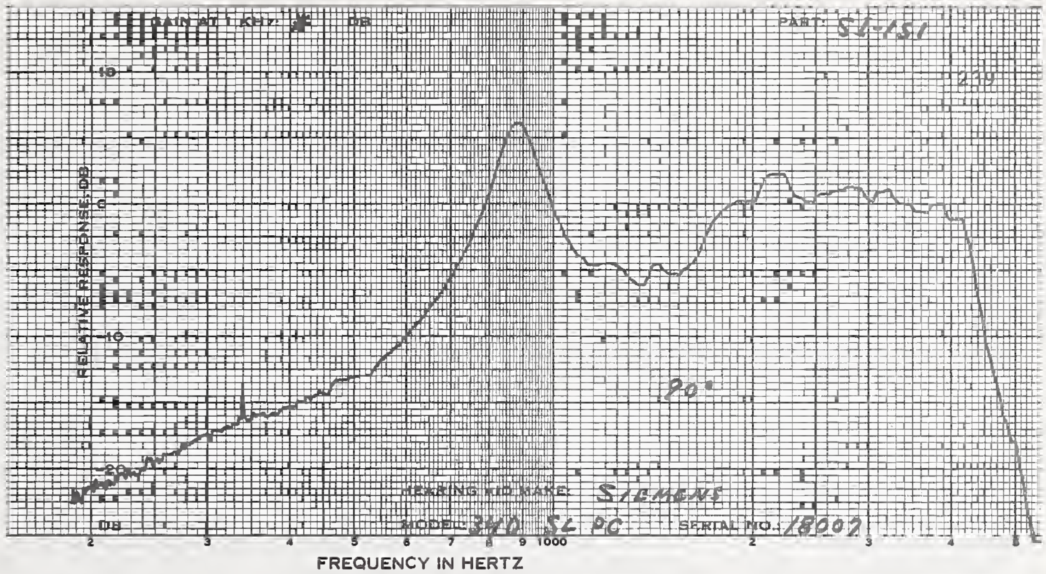
CODE	SI-151		SI-152		SI153A	
SERIAL #	18007		18197		27696	
DATE			MAY 16, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	51.0		56.5		55.5	
MPO, RANDCM NOISE						
INPUT LEVEL, DB	84.5		83.0		84.0	
OUTPUT LEVEL DB	126.5		128.0		127.5	
MEASUREMENTS WITH REDUCED VOLUME CONTRCL SETTING						
1KHZ GAIN DB	51.0(FULL)		55.0		55.5(FULL)	
HARMONIC DIST						
@INPUT LEVEL DB	64.0	74.0	60.0	70.0	61.0	71.0
500 HZ %	9	21	8	27	10	23
700 HZ %	5	9	4	6	7	12
900 HZ %	2	6	1	4	2	7
MAX DIST %	9	21	8	27	10	23
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	40.0		38.5		44.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NC INPUT	2.2		2.2		2.2	
65 DB INPUT	2.8		2.8		2.8	
BATTERY VOLTAGE	1.33		1.33		1.34	

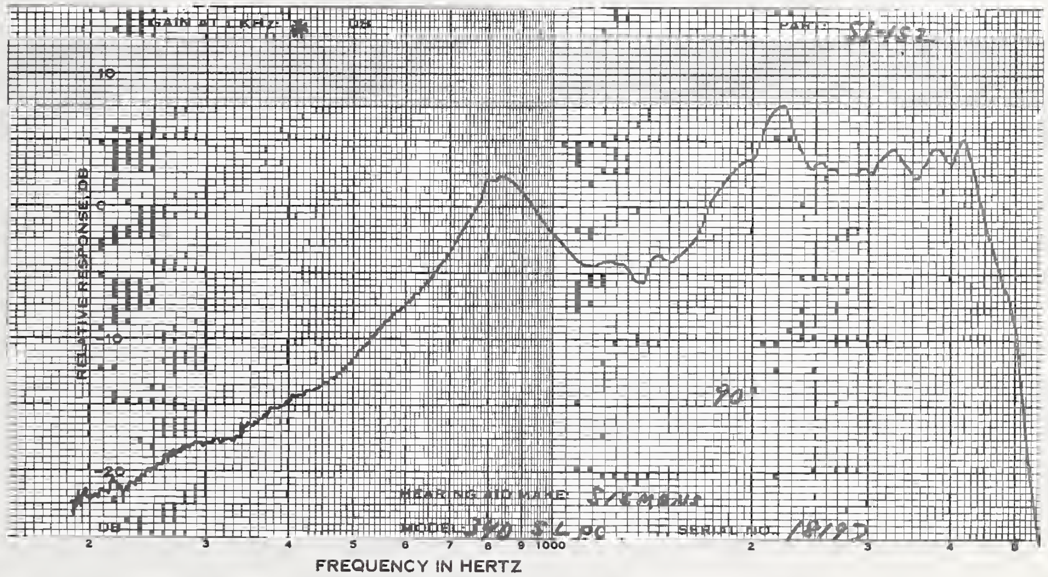
SI-153, SERIAL # 19579 , WAS CONSIDERED DEFECTIVE BECAUSE OF SEVERE FEEDBACK.

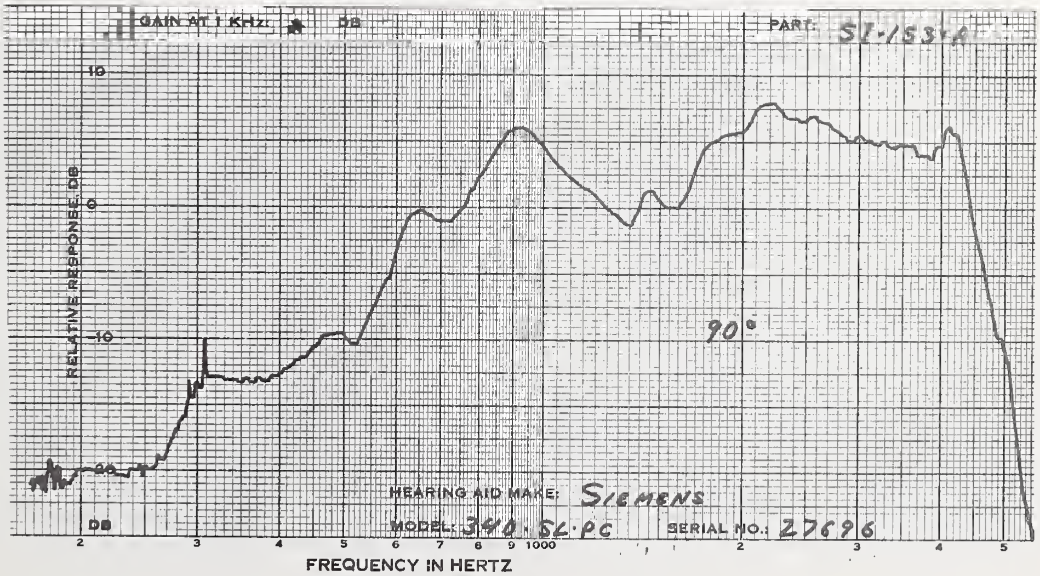

GAIN AT 1 KHZ: 51 DB
PART: SI-VS1
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 340 SL PC
SERIAL NO.: 18009
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 55 DB
PART: SI-152
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 340 SL PC
SERIAL NO.: 18197
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 55½ DB
PART: SI-153-A
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SIEMENS
MODEL: 340 SL PC
SERIAL NO.: 27696
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: SI-151
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: SIEMENS
MODEL: 340 SL PC
SERIAL NO.: 18007
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

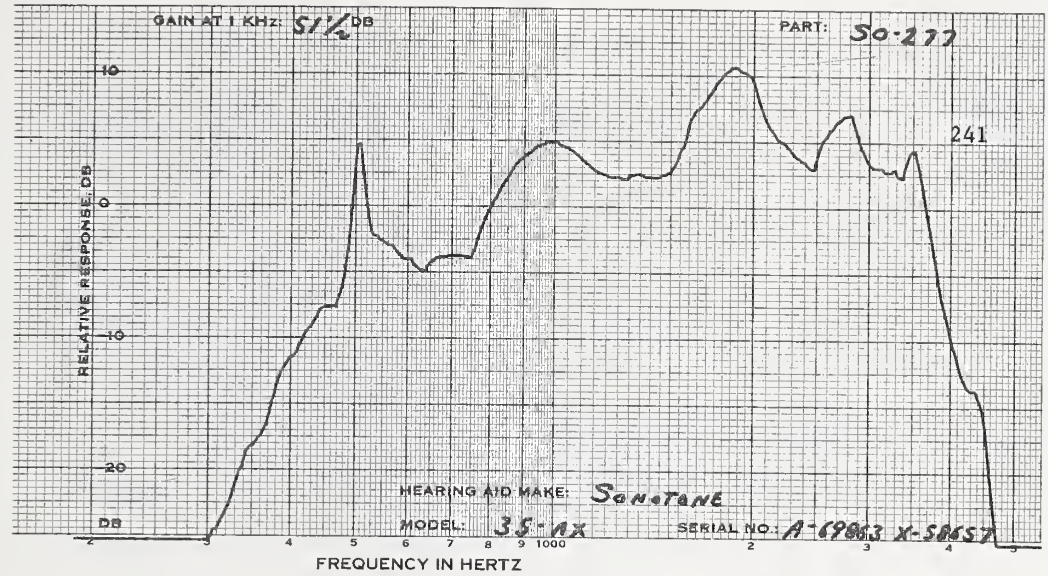

GAIN AT 1 KHz: * DB
PART: SI-152
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: SIEMENS
MODEL: 340 SL PC
SERIAL NO.: 18192
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

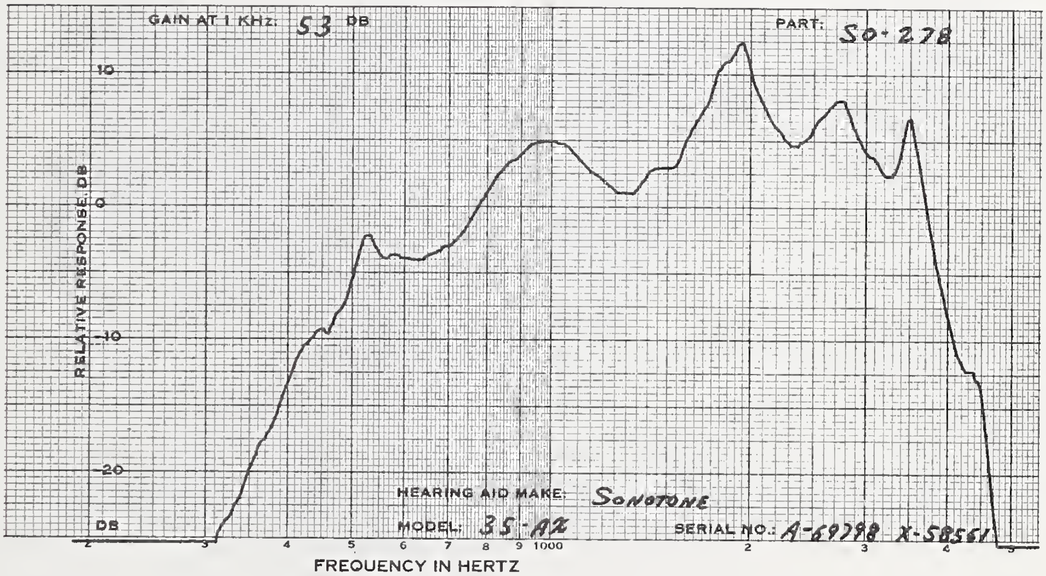

GAIN AT 1 KHz: * DB
PART: SI-153-A
RELATIVE RESPONSE, DB
10
0
-10
DB
90°
HEARING AID MAKE: SIEMENS
MODEL: 340-SL-PC
SERIAL NO.: 27696
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

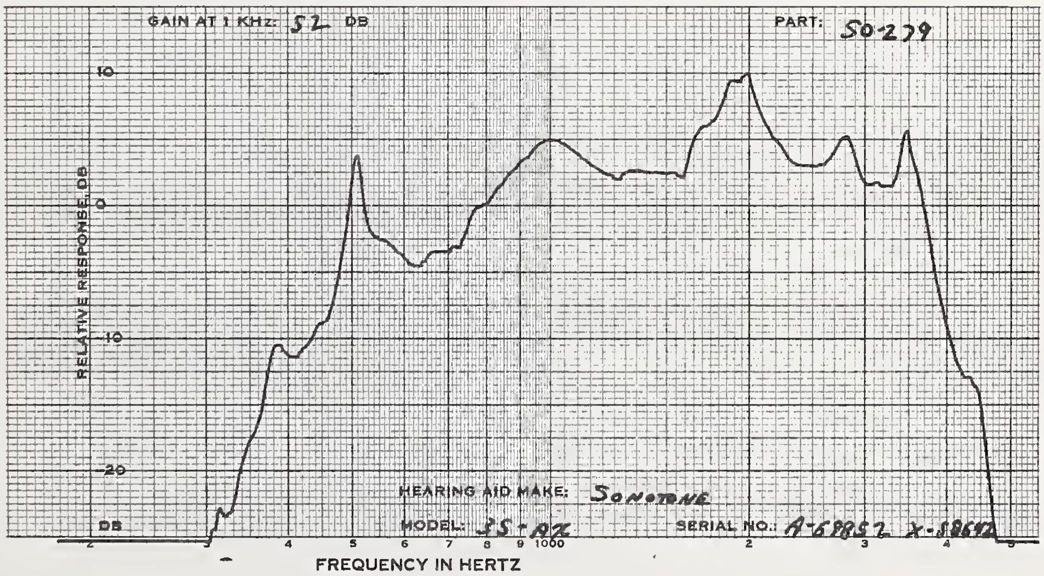
SONOTONE BI EG
MODEL:35AX TONE:NONE TUBING:35MM BATTERY:S76

CODE	SO-277		SO-278		SO-279	
SERIAL #	A69863X58657		A69798X58561		A69852X58642	
DATE			APR 30, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	53.0		53.5		54.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	77.0		80.0		77.0	
OUTPUT LEVEL DB	123.0		124.0		122.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	51.5		53.0		52.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	5	10	6	13	6	14
700 HZ %	1	3	3	7	1	3
900 HZ %	1	2	3	6	1	3
MAX DIST %	5	10	6	13	6	14
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	49.5		49.5		51.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.9		1.8		1.9	
65 DB INPUT	1.9		1.8		1.9	
BATTERY VOLTAGE	1.56		1.56		1.56	

BOTH MICROPHONES WERE LEFT CONNECTED AND PLACED CLOSE TOGATHER TO AVOID PHASE INTERFERENCE.

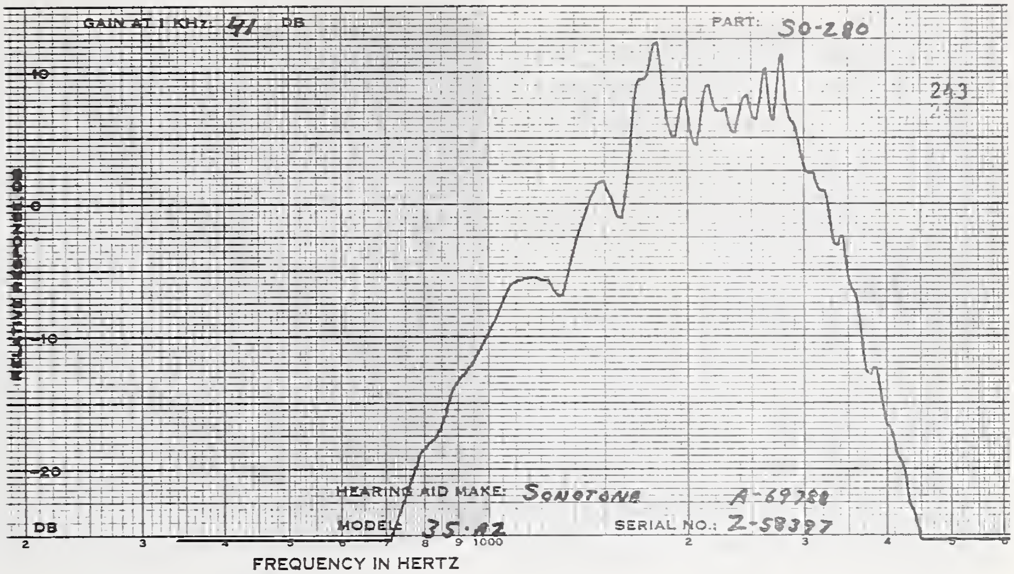

GAIN AT 1 KHz: 51½ DB
PART: SO-277
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SONOTONE
MODEL: 35-AX
SERIAL NO.: A-69853 X-58657
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

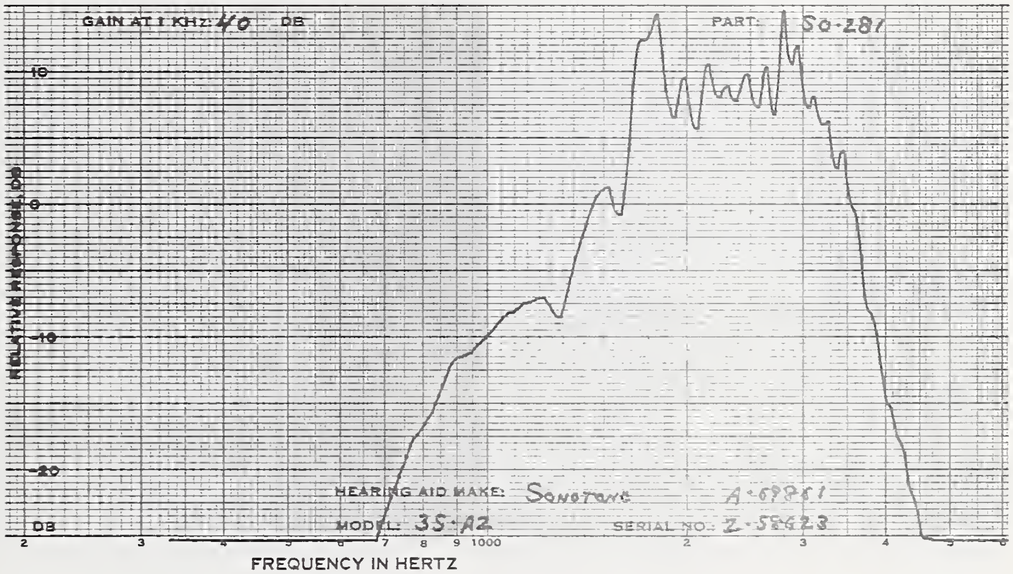

GAIN AT 1 KHz: 53 DB
PART: SO-278
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SONOTONE
MODEL: 35-AX
SERIAL NO.: A-69798 X-58561
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

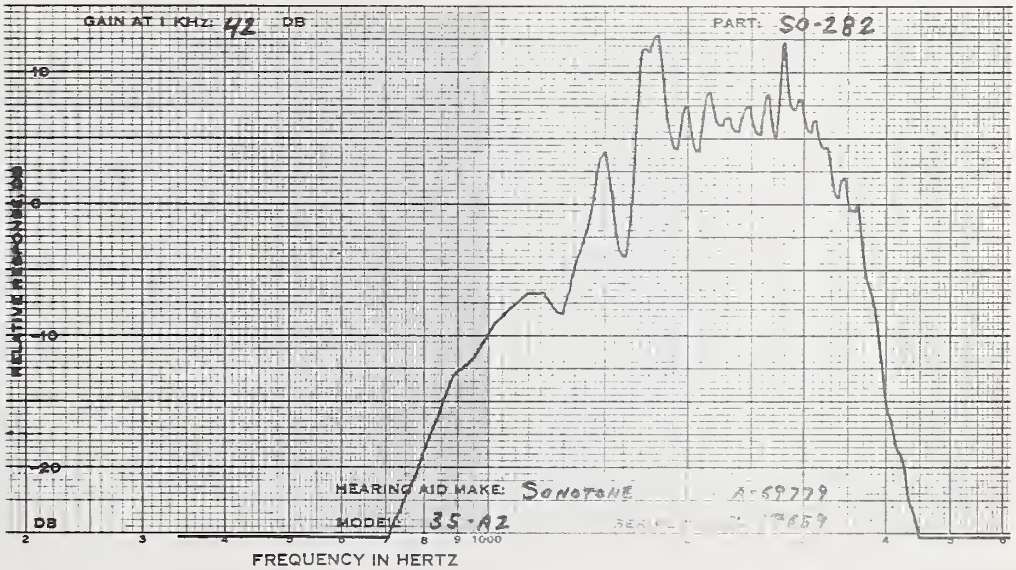

GAIN AT 1 KHz: 52 DB
PART: SO-279
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SONOTONE
MODEL: 35-AX
SERIAL NO.: A-69852
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

MODEL:35AZ TONE:NONE TUBING:42MM BATTERY:S76

CODE	SO-280	SO-281	SO-282
SERIAL #	A69788Z58397	A69861Z58623	A69779Z58659
DATE		JUNE 6, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	46.0	45.0	47.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	77.0	80.5	79.0
OUTPUT LEVEL DB	125.0	125.0	125.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	41.0	40.0	42.0
S/N RATIO DB			
2KHZ SIGNAL	53.5	54.0	54.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.0	2.2	2.4
65 DB INPUT	2.0	2.2	2.4
BATTERY VOLTAGE	1.55	1.55	1.54


GAIN AT 1 KHz: 41 DB
PART: SO-280
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
A-69758
MODEL: 35-AZ
SERIAL NO.: Z-58397
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

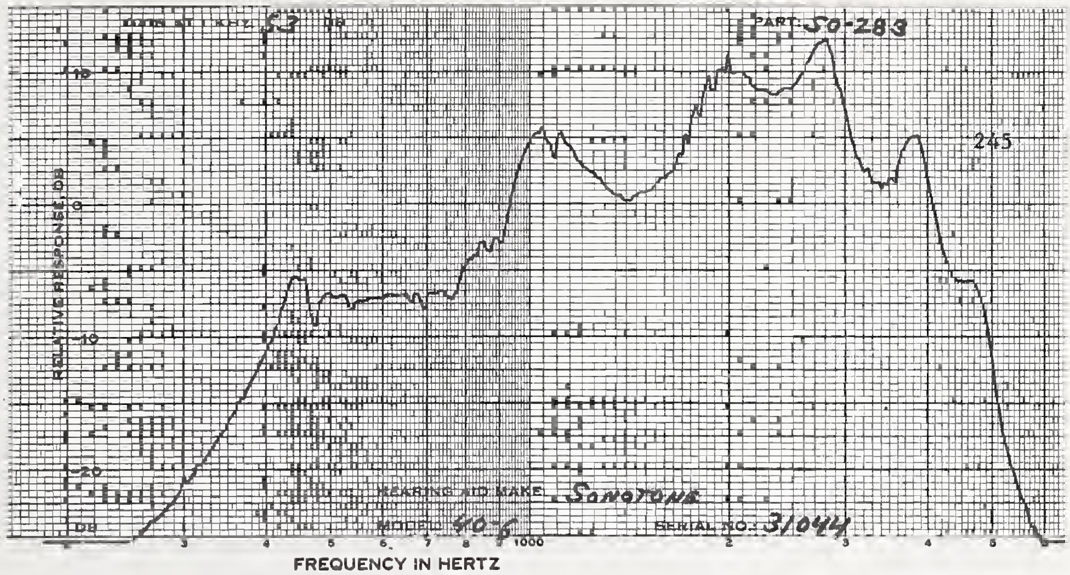

GAIN AT 1 KHz: 40 DB
PART: SO-281
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
A-69861
MODEL: 35-AZ
SERIAL NO.: Z-58623
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

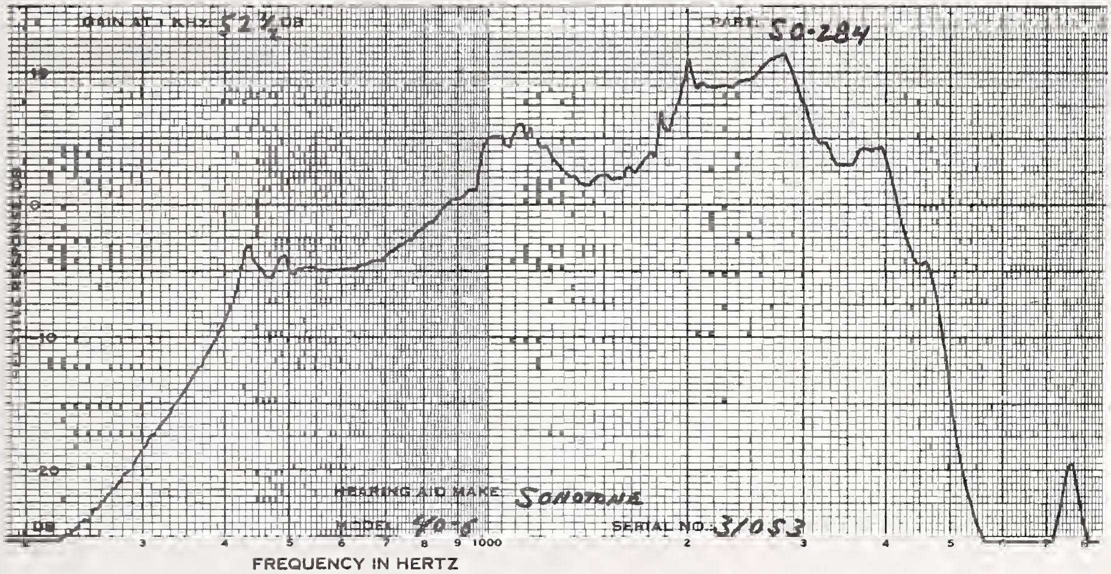

GAIN AT 1 KHz: 42 DB
PART: SO-282
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
A-59779
MODEL: 35-AZ
2
3
4
5
6
7
8
9
1000
4
5
6
FREQUENCY IN HERTZ

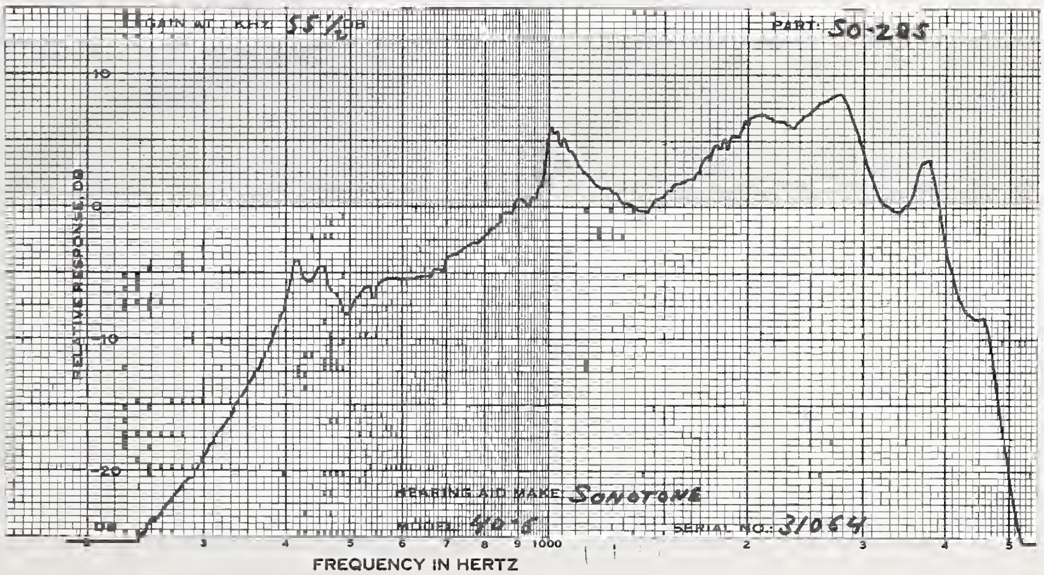
SONOTONE EG

MODEL:40-6 TONE:NONE TUBING:35MM BATTERY:S76

CODE	SO-283	SO-284	SO-285
SERIAL #	31044	31053	31064
DATE		APR 3, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	53.0	55.0	58.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	80.0	78.5	79.0
OUTPUT LEVEL DB	123.0	123.5	123.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	53.0(FULL)	52.5	55.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 4	2 3	3 3
700 HZ %	1 3	1 3	1 3
900 HZ %	2 4	2 2	2 1
MAX DIST %	3 22	2 10	3 16
FREQ OF MAX DIS	500 1876	500 1780	500 1835
S/N RATIO DB			
1KHZ SIGNAL	43.5	44.5	46.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.0	2.9	2.9
65 DB INPUT	3.0	2.9	2.9
BATTERY VOLTAGE	1.55	1.55	1.55


GAIN AT 1 KHZ: 53 DB
PART: SO-283
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SONOTONE
MODEL: 40-6
SERIAL NO.: 31044
3
4
5
6
7
8
1000
2
3
4
5
FREQUENCY IN HERTZ

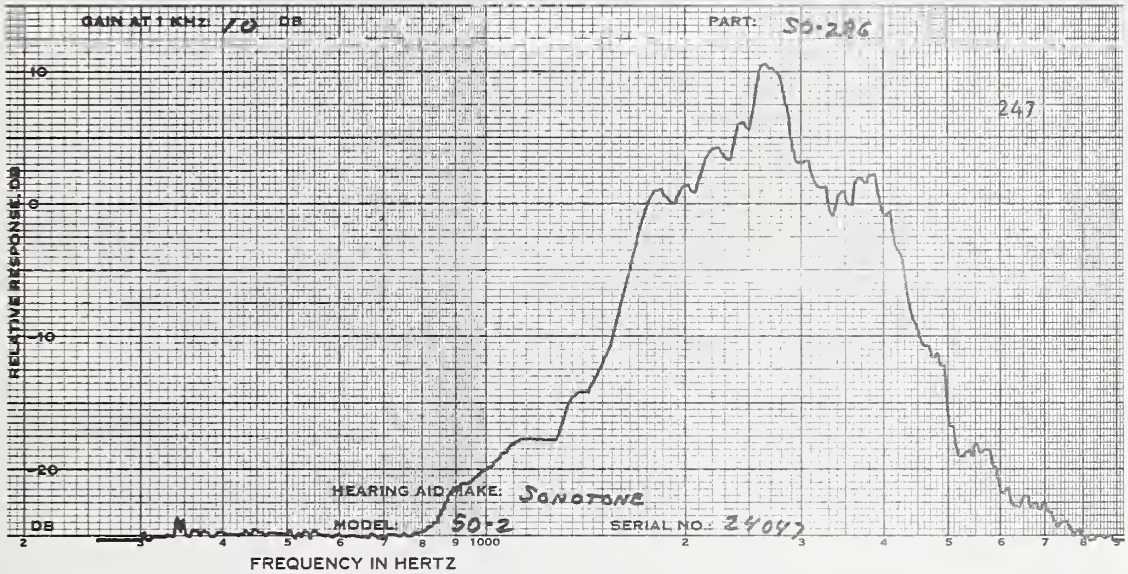

GAIN AT 1 KHZ: 52 1/2 DB
PART: SO-284
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SONOTONE
MODEL: 40-6
SERIAL NO.: 31053
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

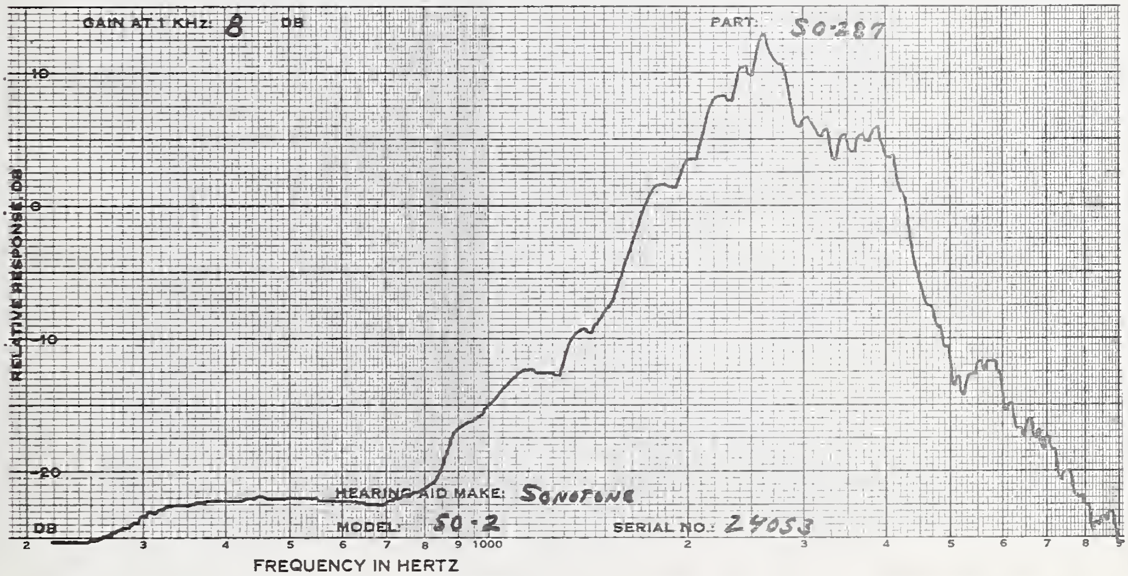

GAIN AT 1 KHZ: 55 1/2 DB
PART: SO-285
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: SONOTONE
MODEL: 40-6
SERIAL NO.: 31064
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

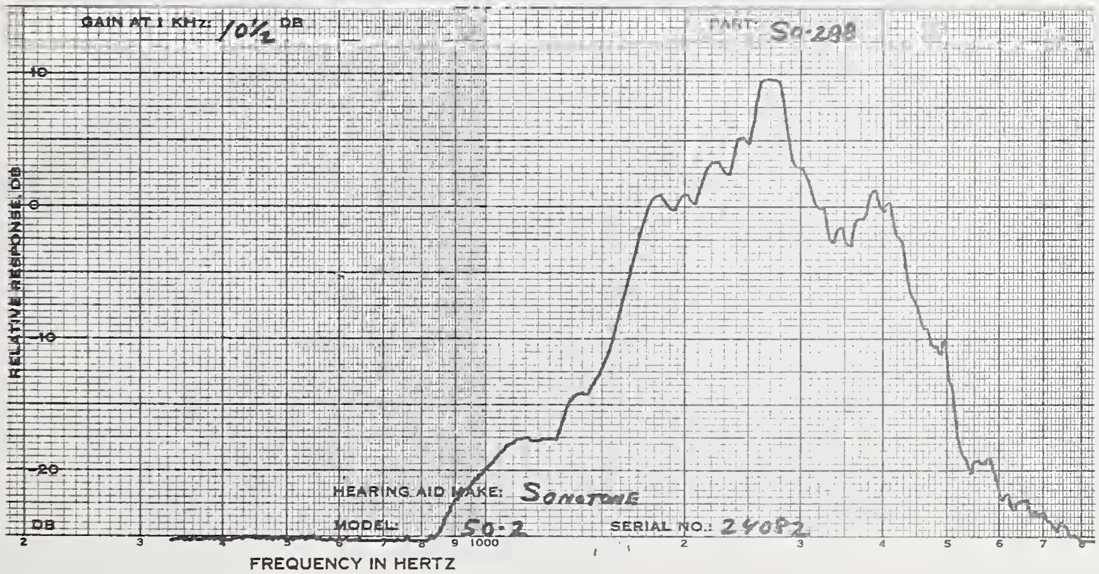
SONOTONE HP EG
MODEL:50-2 TONE:NONE TUBING:42MM BATTERY:S13

CODE	SO-286	SO-287	SO-288
SERIAL #	24047	24053	24082
DATE		JUNE 9, 1975	
MEASUREMENTS WITH FULL VOL CONTROL *			
1KHZ GAIN DB	14.0	11.0	14.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	89.0	90.0	88.0
OUTPUT LEVEL DB	121.5	116.0	120.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	10.0	8.0	10.5
S/N RATIO DB			
2KHZ SIGNAL	41.5	>36.5	41.5
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.7	.7
65 DB INPUT	.7	.7	.7
BATTERY VOLTAGE	1.55	1.55	1.55

*Maximum setting possible without feedback.

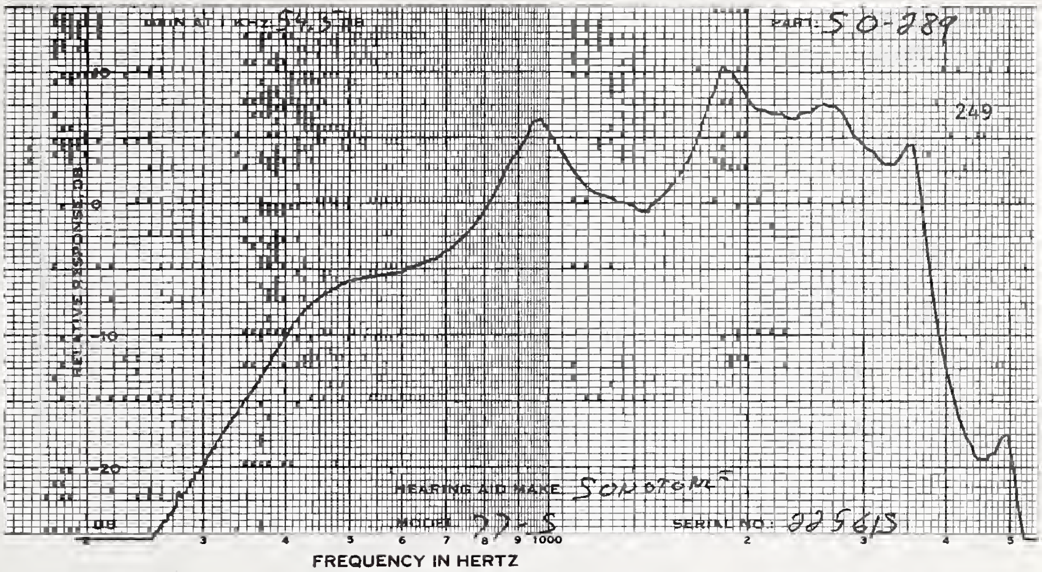

GAIN AT 1 KHz: 10 DB
PART: SO-286
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
MODEL: SO-2
SERIAL NO.: 24047
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7 8 9
FREQUENCY IN HERTZ

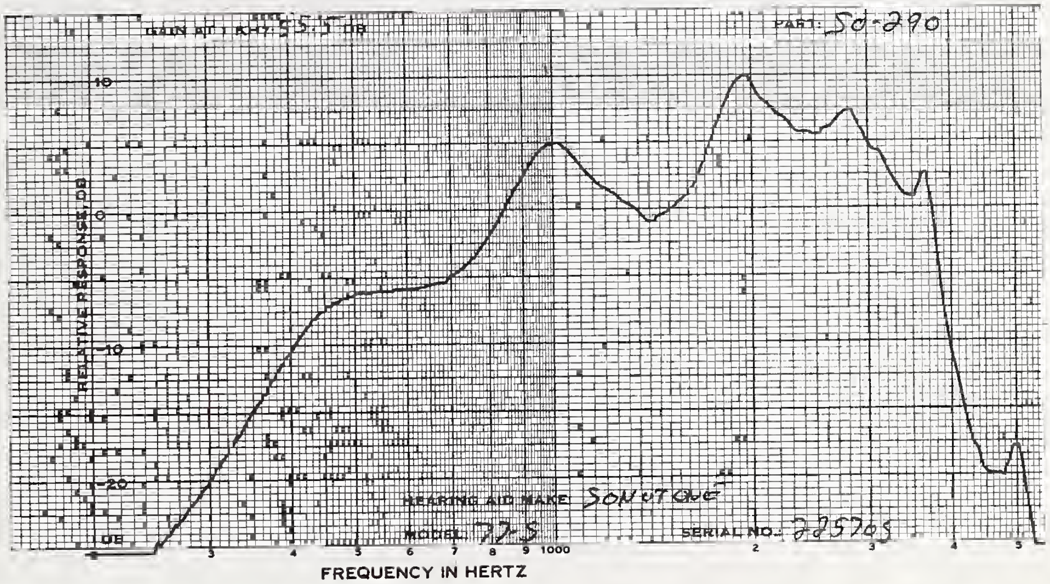

GAIN AT 1 KHz: 8 DB
PART: SO-287
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
MODEL: SO-2
SERIAL NO.: 24053
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7 8 9
FREQUENCY IN HERTZ

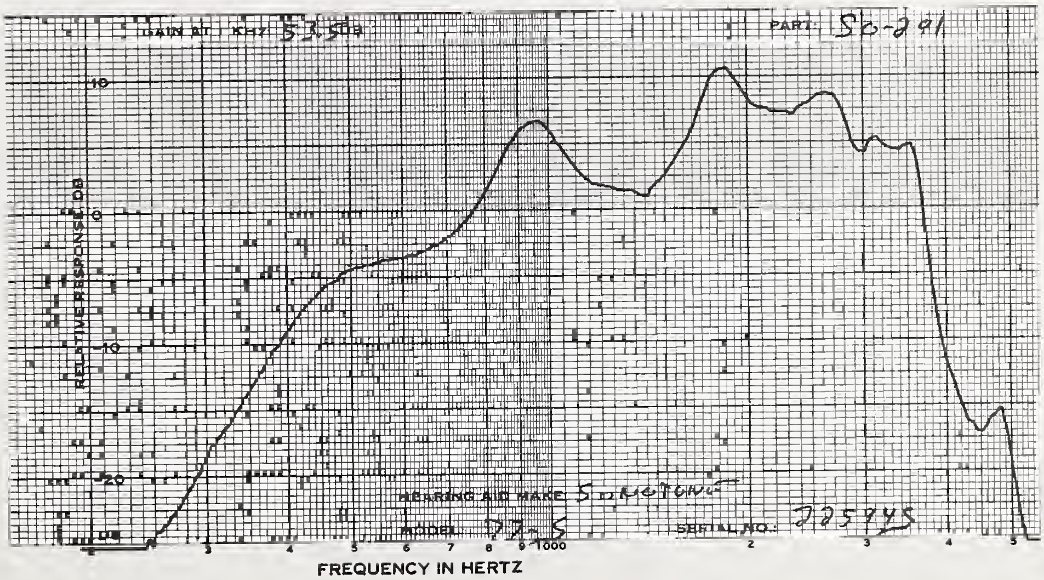

GAIN AT 1 KHz: 10½ DB
PART: SO-288
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
MODEL: SO-2
SERIAL NO.: 24082
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7 8
FREQUENCY IN HERTZ

SONOTONE OE
MODEL:77S TONE:NONE TUBING:25MM BATTERY:S76

CODE	SO-289	SO-290	SO-291
SERIAL #	22561S	22570S	22594S
DATE		APR 2, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	54.5	55.5	53.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	86.5	85.0	83.0
OUTPUT LEVEL DB	124.5	124.5	124.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	54.5(FULL)	55.5(FULL)	53.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.5 71.5	60.5 70.5	60.0 70.0
500 HZ %	2 6	3 4	2 3
700 HZ %	1 4	3 4	1 2
900 HZ %	1 4	2 5	2 2
MAX DIST %	3 19	3 23	2 16
FREQ OF MAX DIS	1720 1735	1760 1815	900 1720
S/N RATIO DB			
1KHZ SIGNAL	44.0	44.5	43.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	3.0	3.0	3.3
65 DB INPUT	3.0	3.0	3.3
BATTERY VOLTAGE	1.55	1.55	1.55

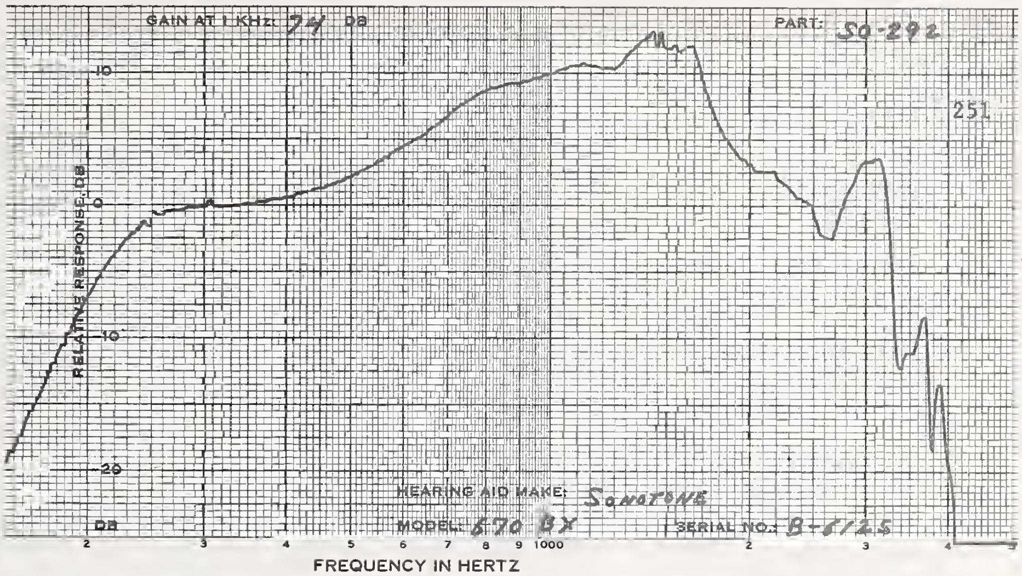

GAIN AT 1 KHZ 54.5 DB
PART: 50-289
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE Sonotone
MODEL 77-S
SERIAL NO.: 225615
3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

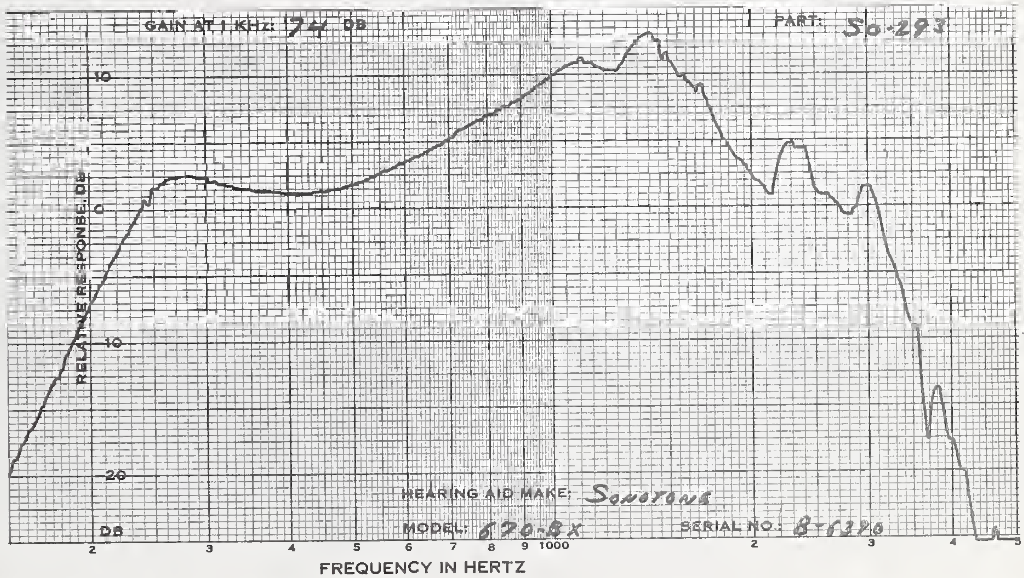

GAIN AT 1 KHZ 55.5 DB
PART: 50-290
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE Sonotone
MODEL 77-S
SERIAL NO.: 225705
3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

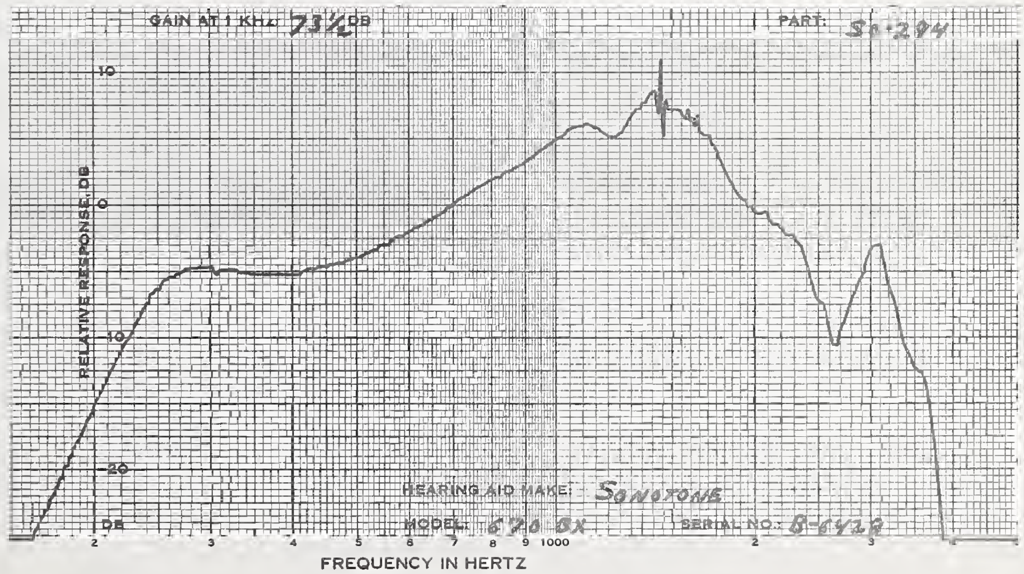

GAIN AT 1 KHZ 53.5 DB
PART: 50-291
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE Sonotone
MODEL 77-S
SERIAL NO.: 225945
3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

SONOTONE OB
MODEL:670BX TONE:F-N-N-P;WHT MIC INSERT RECEIVER:4121RD BAT:132

CODE	SO-292	SO-293	SO-294
SERIAL #	B6125	B6390	B6428
DATE		MAY 2, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	84.0	83.5	83.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	72.0	73.0
OUTPUT LEVEL DB	142.5	142.5	141.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	74.0	74.0	73.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	10 16	8 20	10 20
700 HZ %	5 9	3 10	3 8
900 HZ %	3 4	2 4	2 3
MAX DIST %	10 16	8 20	10 20
FREQ OF MAX DIS	500 500	500 500	500 500
S/N RATIO DB			
1KHZ SIGNAL	47.5	48.0	48.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	9.2	9.3	7.7
65 DB INPUT	20.0	21.5	21.5
BATTERY VOLTAGE	2.76	2.67	2.68

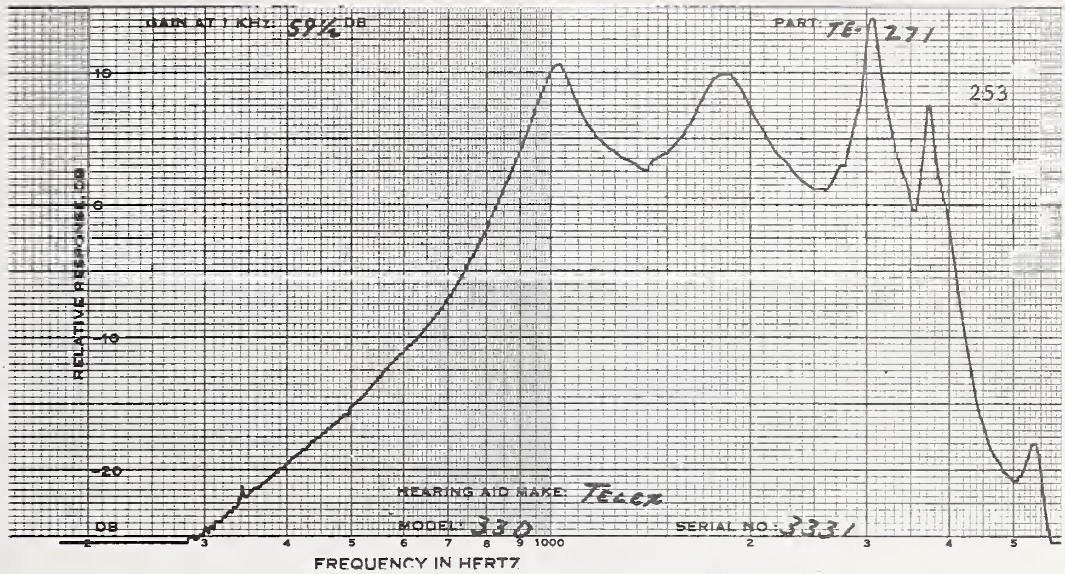

GAIN AT 1 KHz: 74 DB
PART: So-292
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
MODEL: 670 BX
SERIAL NO.: B-6125
2
3
4
5
6
7
8
9
1000
FREQUENCY IN HERTZ

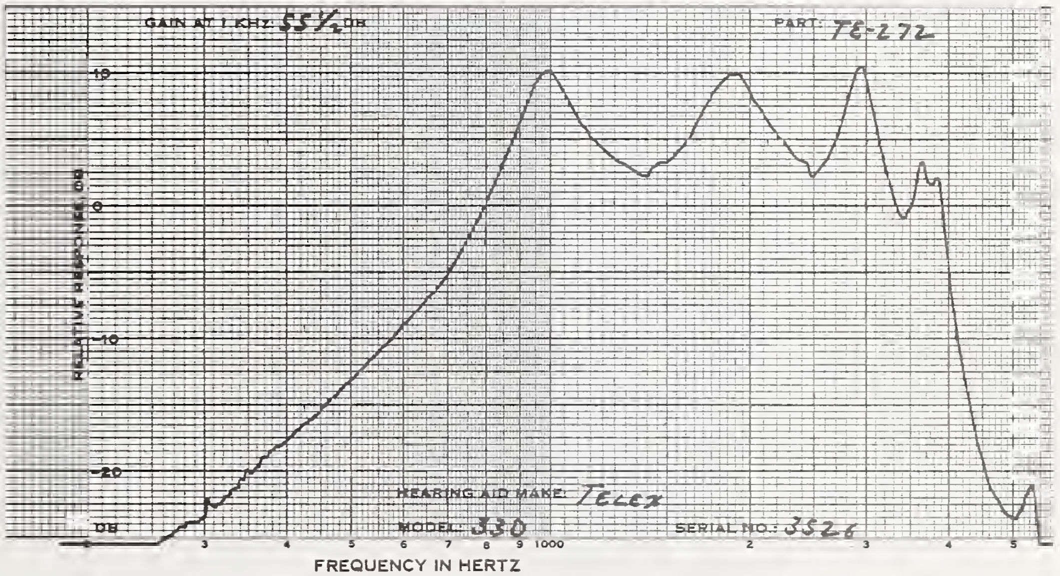

GAIN AT 1 KHz: 74 DB
PART: So-293
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
MODEL: 670-BX
SERIAL NO.: B-6390
2
3
4
5
6
7
8
9
1000
FREQUENCY IN HERTZ

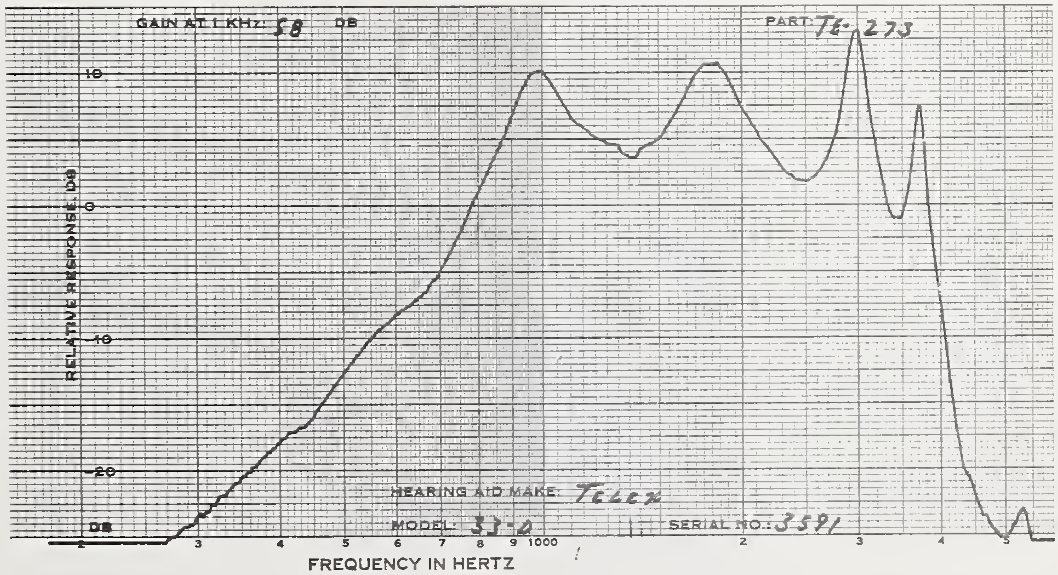

GAIN AT 1 KHz: 73½ DB
PART: So-294
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Sonotone
MODEL: 670 BX
SERIAL NO.: B-6428
2
3
4
5
6
7
8
9
1000
FREQUENCY IN HERTZ

TELEX DIR OE
MODEL:33D TONE:CCW TUBING:25MM BATTERY:S76

CODE	TE-271	TE-272	TE-273
SERIAL #	3331	3526	3591
DATE		APR 11, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	59.5	55.5	58.0
MPO, RANDCM NOISE			
INPUT LEVEL, DB	79.5	85.0	79.5
OUTPUT LEVEL DB	125.5	125.5	125.5
MEASUREMENTS WITH REDUCED VOLUME CCNTRCL SETTING			
1KHZ GAIN DB	59.5(FULL)	55.5(FULL)	58.0(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	63.5 73.5	60.0 70.0
500 HZ %	20 21	6 17	20 32
700 HZ %	3 7	4 12	4 11
900 HZ %	2 4	2 4	3 5
MAX DIST %	20 21	6 20	20 32
FREQ OF MAX DIS	500 500	500 625	500 500
S/N RATIO DB			
1KHZ SIGNAL	47.5	46.0	48.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NC INPUT	2.1	2.1	2.1
65 DB INPUT	2.2	2.2	2.2
BATTERY VOLTAGE	1.56	1.56	1.56

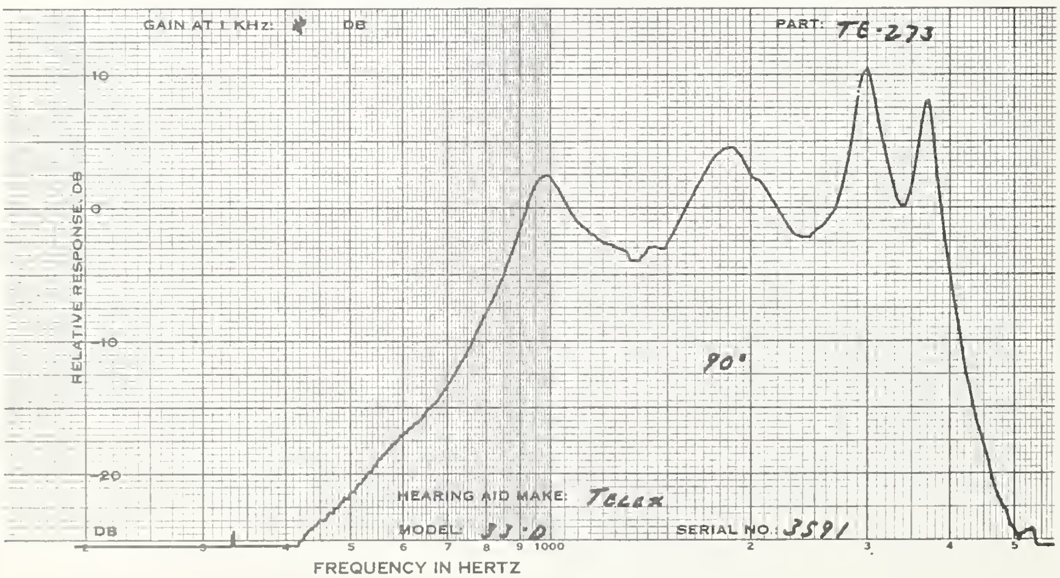

GAIN AT 1 KHZ: 59½ DB
PART: TE-271
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 330
SERIAL NO.: 3331
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 55½ DB
PART: TE-272
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 330
SERIAL NO.: 3526
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 58 DB
PART: TE-273
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 330
SERIAL NO.: 3591
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

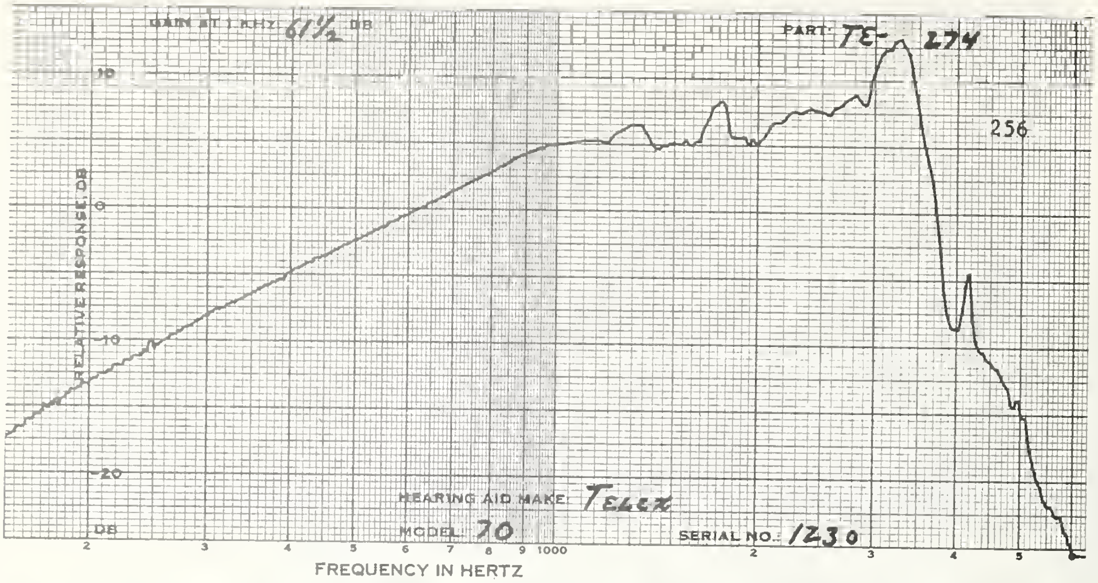

GAIN AT 1 KHZ: * DB
PART: TE-271
10
0
-10
-20
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: Telex
MODEL: 330
SERIAL NO.: 3331
DB
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

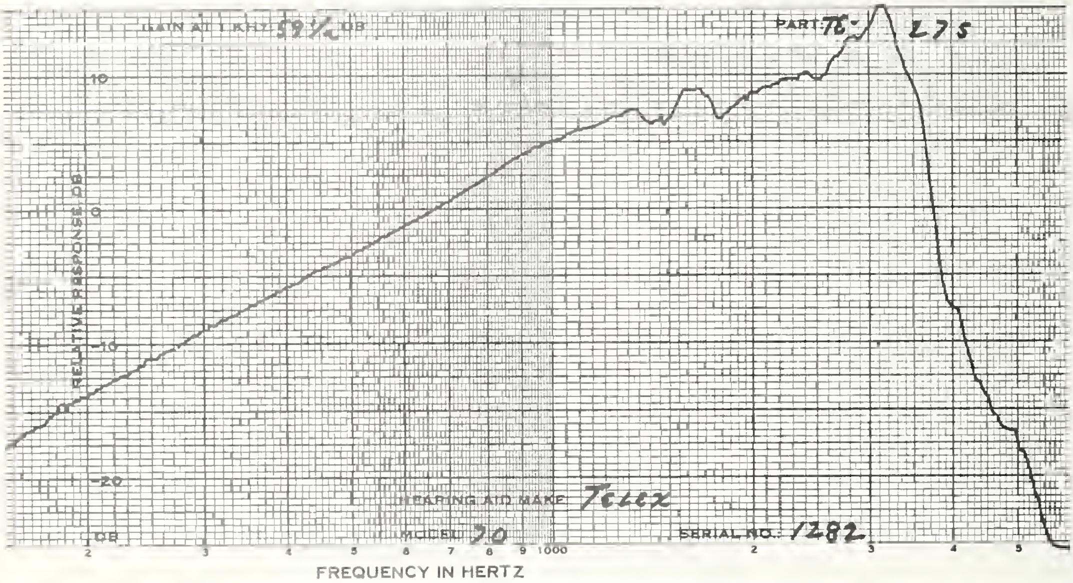

GAIN AT 1 KHZ: * DB
PART: TE-272
10
0
-10
-20
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: TELEX
MODEL: 330
SERIAL NO.: 3526
DB
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

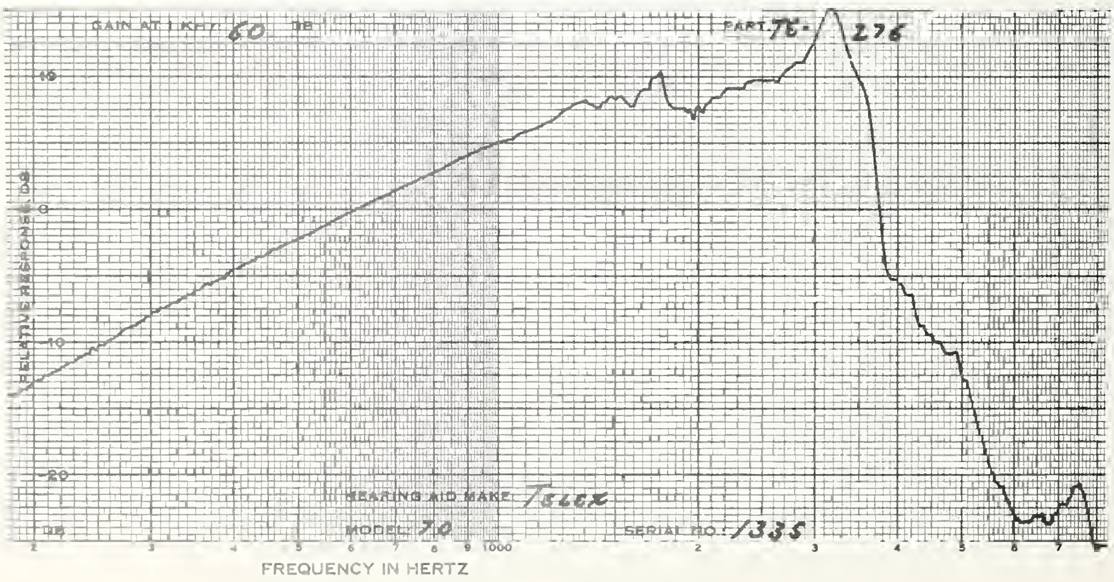

GAIN AT 1 KHZ: * DB
PART: TE-273
10
0
-10
-20
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: Telex
MODEL: 33-0
SERIAL NO.: 3591
DB
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

TELEX OB
MODEL:70 TONE:MAX(CW) P:MAX(CW) RECEIVER:A8 BATTERY:1015

CODE	TE-274	TE-275	TE-276
SERIAL #	1230	1282	1335
DATE		MAR 28, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	65.0	67.0	64.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	79.5	74.0	75.0
OUTPUT LEVEL DB	133.0	133.0	133.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	61.5	59.5	60.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 7	5 6	2 4
700 HZ %	1 4	4 4	1 2
900 HZ %	3 6	5 6	2 3
MAX DIST %	3 7	6 9	4 5
FREQ OF MAX DIS	900 500	1000 1000	1020 1020
S/N RATIO DB			
1KHZ SIGNAL	39.5	44.5	38.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	5.3	4.9	5.0
65 DB INPUT	11.3	11.0	10.8
BATTERY VOLTAGE	1.55	1.55	1.55


GAIN AT 1 KHZ: 61½ DB
PART: TE- 274
256
RELATIVE RESPONSE DB
HEARING AID MAKE: Telex
MODEL: 70
SERIAL NO.: 1230
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 59½ DB
PART: TE- 275
RELATIVE RESPONSE DB
HEARING AID MAKE: Telex
MODEL: 70
SERIAL NO.: 1282
FREQUENCY IN HERTZ

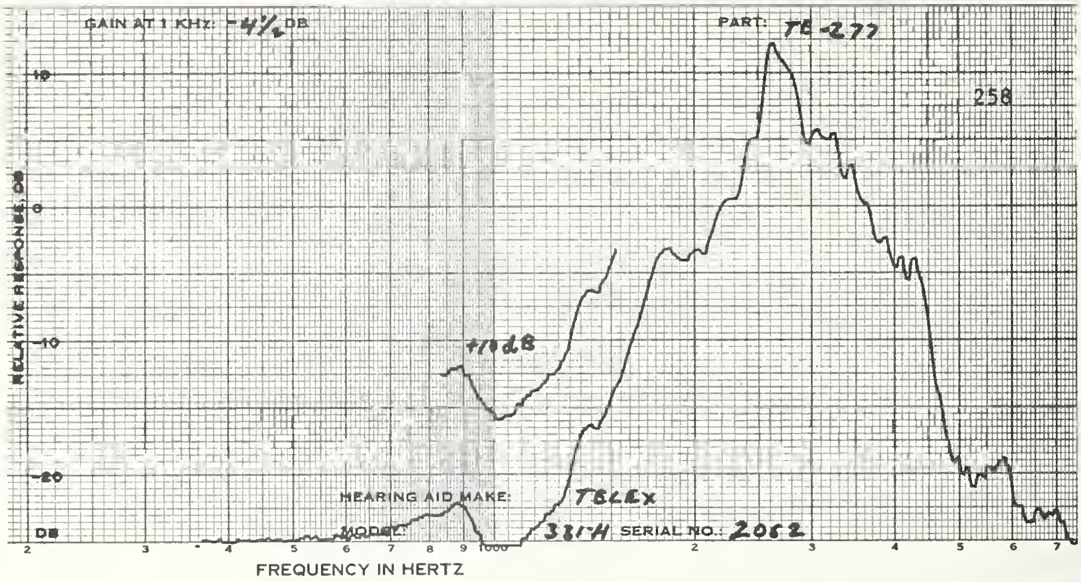

GAIN AT 1 KHZ: 60 DB
PART: TE- 276
RELATIVE RESPONSE DB
HEARING AID MAKE: Telex
MODEL: 70
SERIAL NO.: 1335
FREQUENCY IN HERTZ

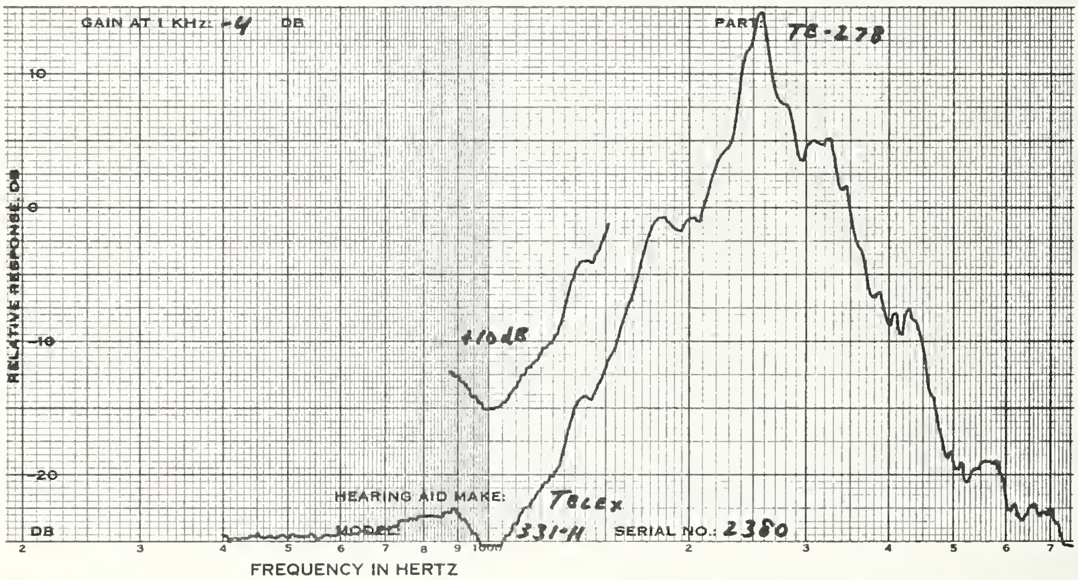
TELEX HP OE
MODEL:331H TONE:CCW TUBING:25MM BATTERY:S13

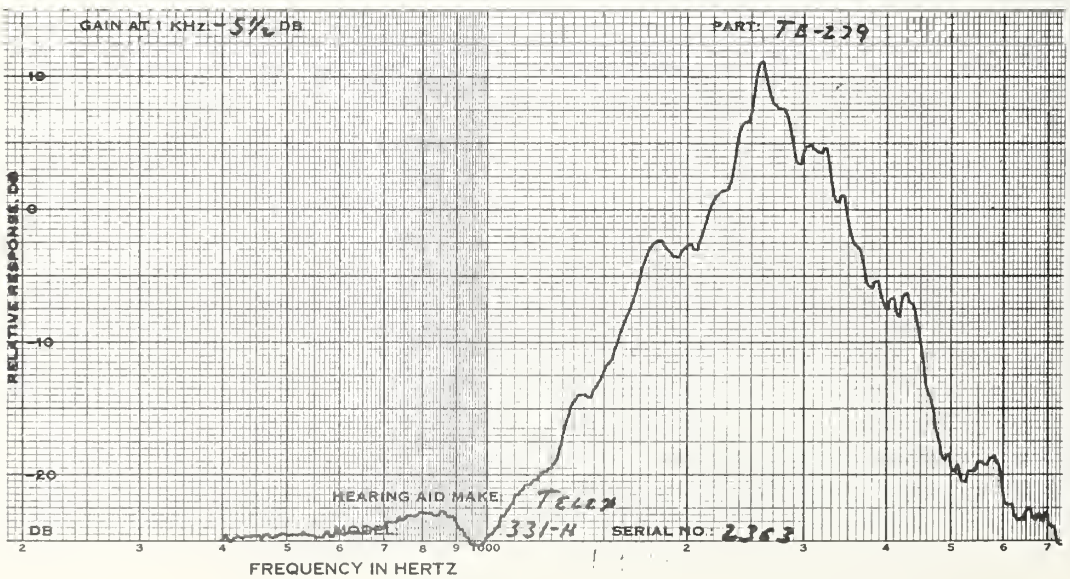
CODE	TE-277	TE-278	TE-279
SERIAL #	2062	2380	2363
DATE		JUNE 5, 1975	
MEASUREMENTS WITH FULL VCL CONTROL *			
1KHZ GAIN DB	7.0	7.0	6.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	85.0	85.0	86.5
OUTPUT LEVEL DB	119.0	120.0	119.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	-4.5	-4.0	-5.5
S/N RATIO DB			
2KHZ SIGNAL	>38.0	>37.5	>39.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.0	1.0
65 DB INPUT	1.0	1.1	1.0
BATTERY VOLTAGE	1.54	1.55	1.55

GAIN REDUCED 5DB AT 1.5KHZ.

*Maximum setting possible without feedback.

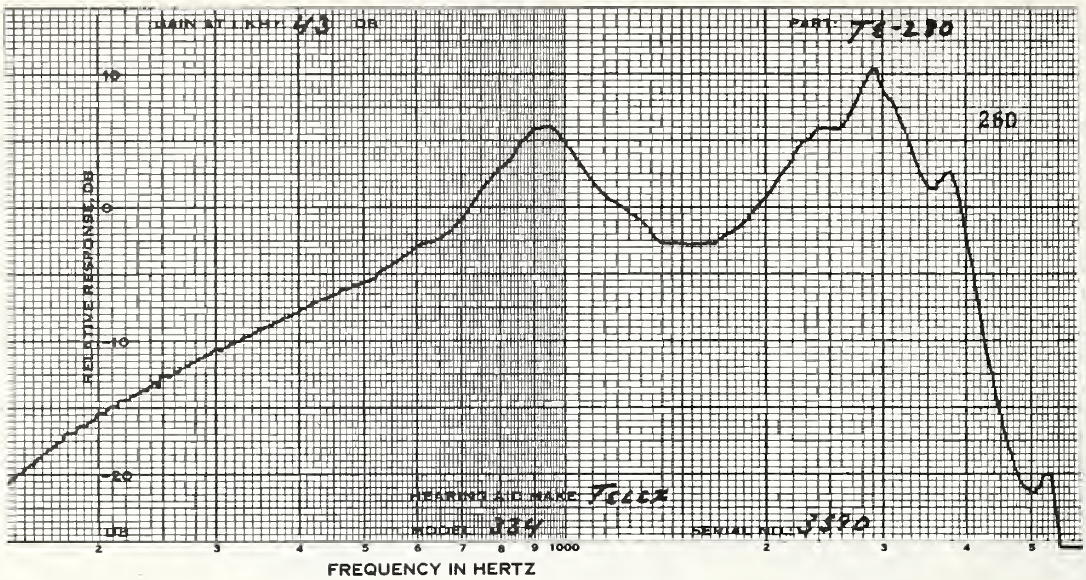

GAIN AT 1 KHz: -4½ DB
PART: TE-277
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
+10dB
HEARING AID MAKE: TELEX
MODEL: 331-H
SERIAL NO.: 2052
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

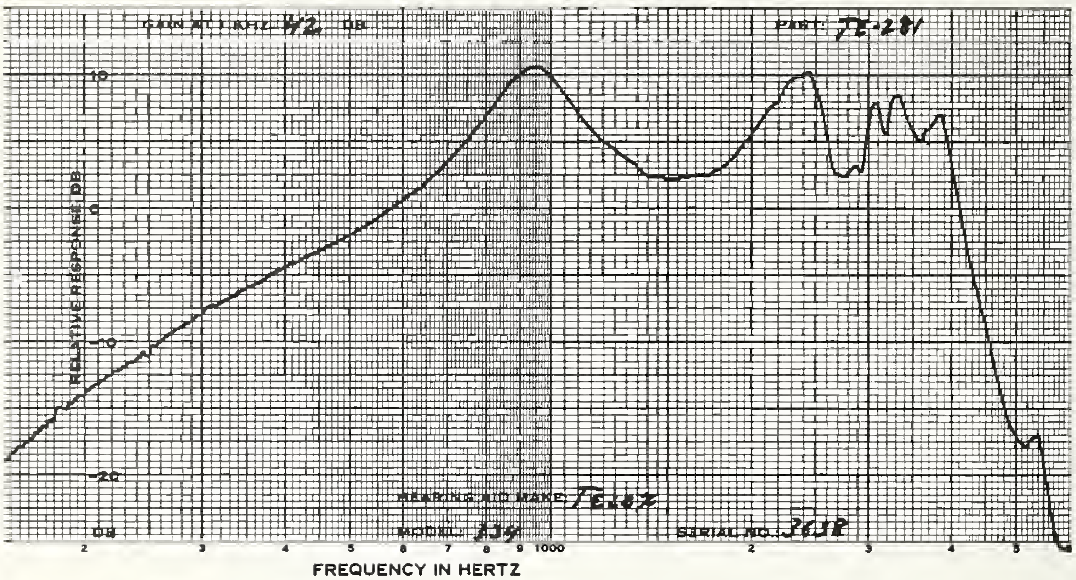

GAIN AT 1 KHz: -4 DB
PART: TE-278
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
+10dB
HEARING AID MAKE: TELEX
MODEL: 331-H
SERIAL NO.: 2380
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

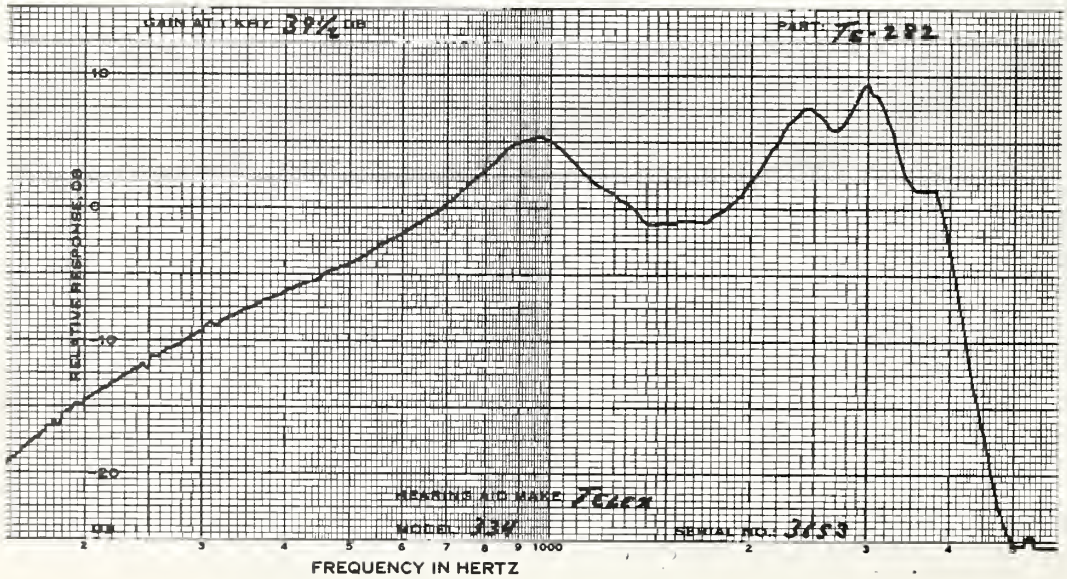

GAIN AT 1 KHz: -5½ DB
PART: TE-279
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: TELEX
MODEL: 331-H
SERIAL NO.: 2363
2 3 4 5 6 7 8 9 1000 2 3 4 5 6 7
FREQUENCY IN HERTZ

TELEX OE
MODEL:334 TONE:CCW PWR:CW TUBING:20MM BATTERY:S76

CODE	TE-280		TE-281		TE-282	
SERIAL #	3590		3638		3653	
DATE			MAR 14, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	53.0		51.0		50.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	71.5		72.0		72.0	
OUTPUT LEVEL DB	111.5		109.0		109.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	43.0		42.0		39.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	3	8	3	6	5	12
700 HZ %	1	5	1	7	3	9
900 HZ %	1	6	1	7	2	7
MAX DIST %	5	8	4	9	6	12
FREQ OF MAX DIS	1410	960	1440	960	1470	1470
S/N RATIO DB						
1KHZ SIGNAL	41.0		41.5		44.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.2		2.2		2.2	
65 DB INPUT	2.2		2.2		2.2	
BATTERY VOLTAGE	1.55		1.55		1.55	


GAIN AT 1 KHZ: 43 DB
PART: TE-280
280
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 334
SERIAL NO.: 3570
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

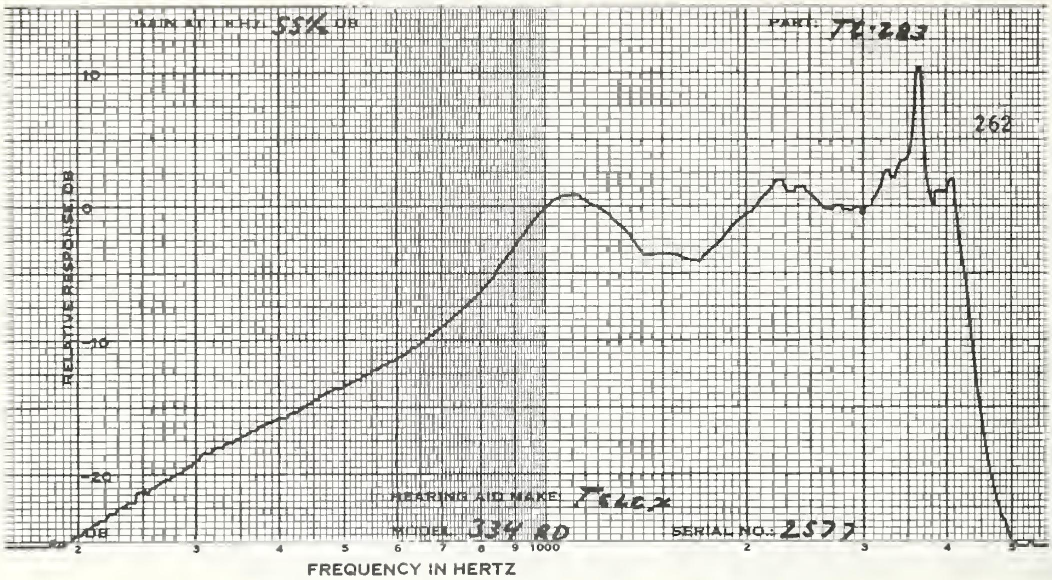

GAIN AT 1 KHZ: 42 DB
PART: TE-281
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 334
SERIAL NO.: 3638
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

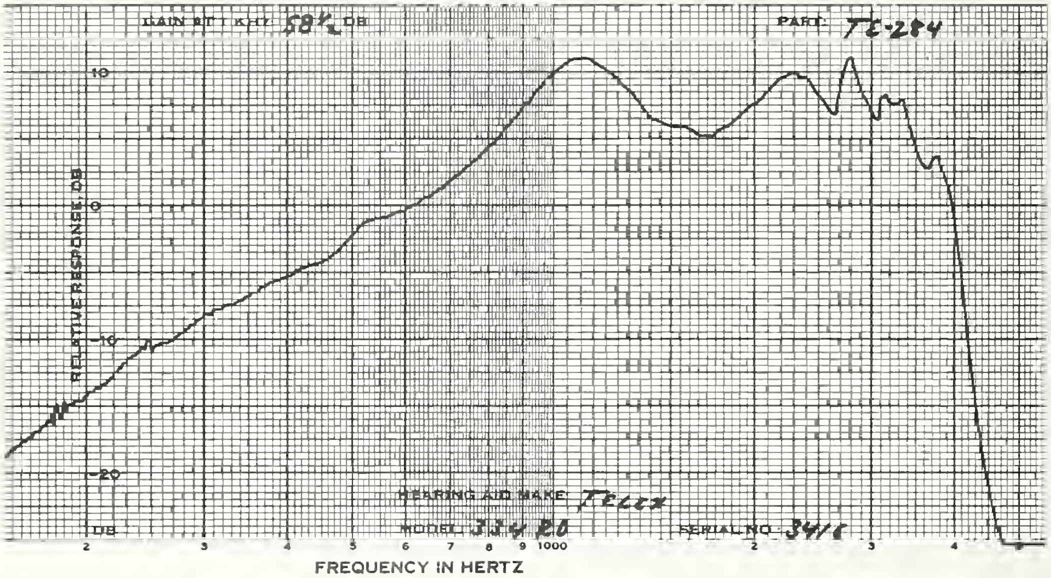

GAIN AT 1 KHZ: 39½ DB
PART: TE-282
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 334
SERIAL NO.: 3153
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

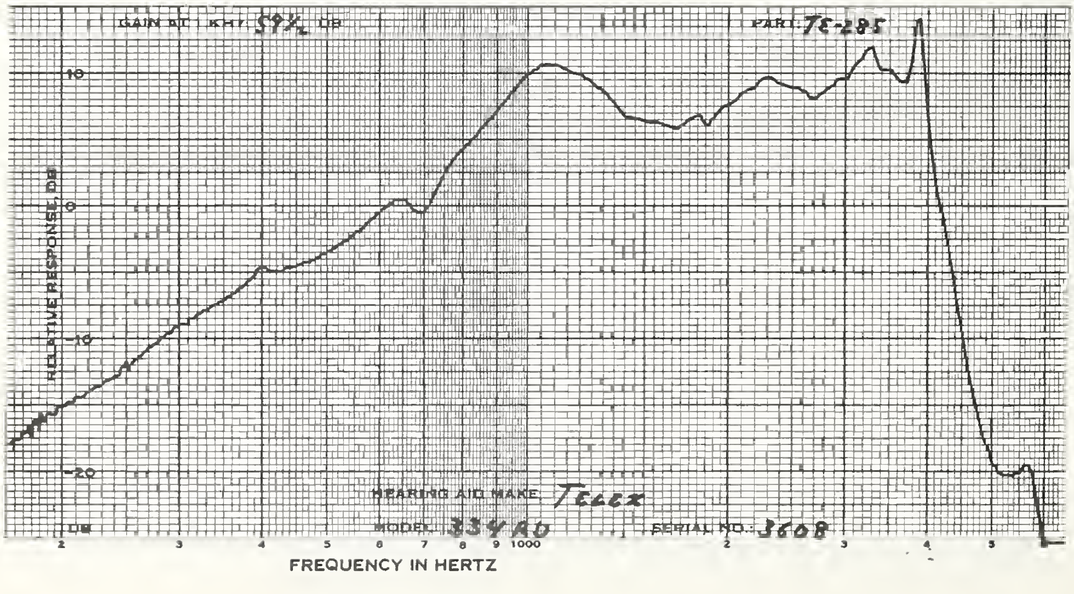
TELEX OE

MODEL:334 RD TONE:2 O'CLOCK PWR:CCW TUBING:20MM BATTERY:S76

CODE	TE-283	TE-284	TE-285
SERIAL #	2577	3416	3608
DATE		MAR 24, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	55.5	60.5	59.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	79.0	80.0	82.0
OUTPUT LEVEL DB	125.0	127.0	127.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	55.5(FULL)	58.5	59.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.0 71.0	60.0 70.0	60.0 70.0
500 HZ %	2 0	3 4	3 3
700 HZ %	1 0	1 2	0 2
900 HZ %	1 0	1 1	0 3
MAX DIST %	4 15	3 4	3 5
FREQ OF MAX DIS	1790 1790	500 500	500 590
S/N RATIO DB			
1KHZ SIGNAL	45.0	46.5	44.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.9	2.7	2.5
65 DB INPUT	3.3	3.5	3.7
BATTERY VOLTAGE	1.55	1.55	1.54

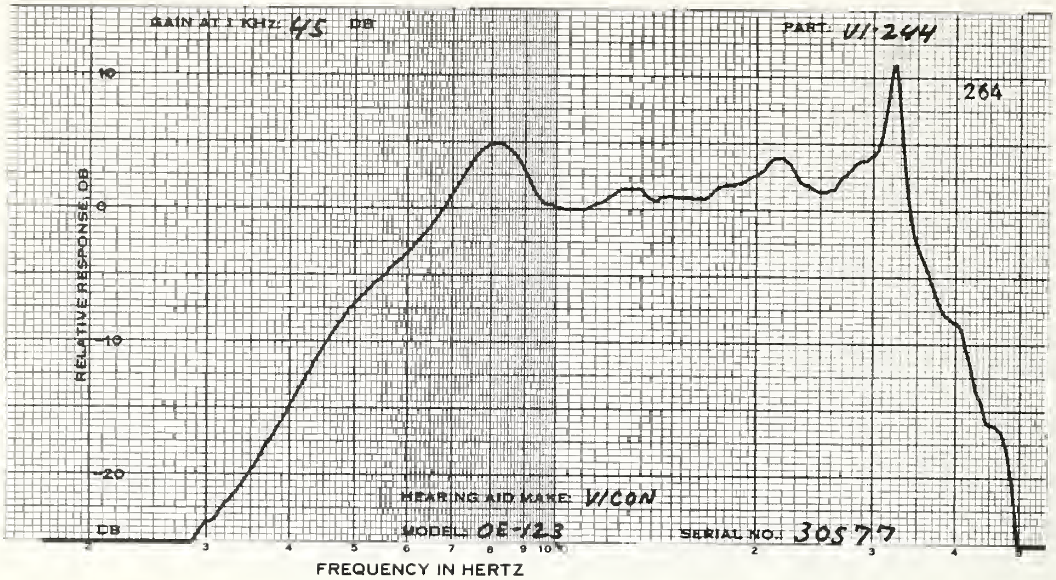

GAIN AT 1 KHZ: 55½ DB
PART: TE-283
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 334 RD
SERIAL NO.: 2577
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

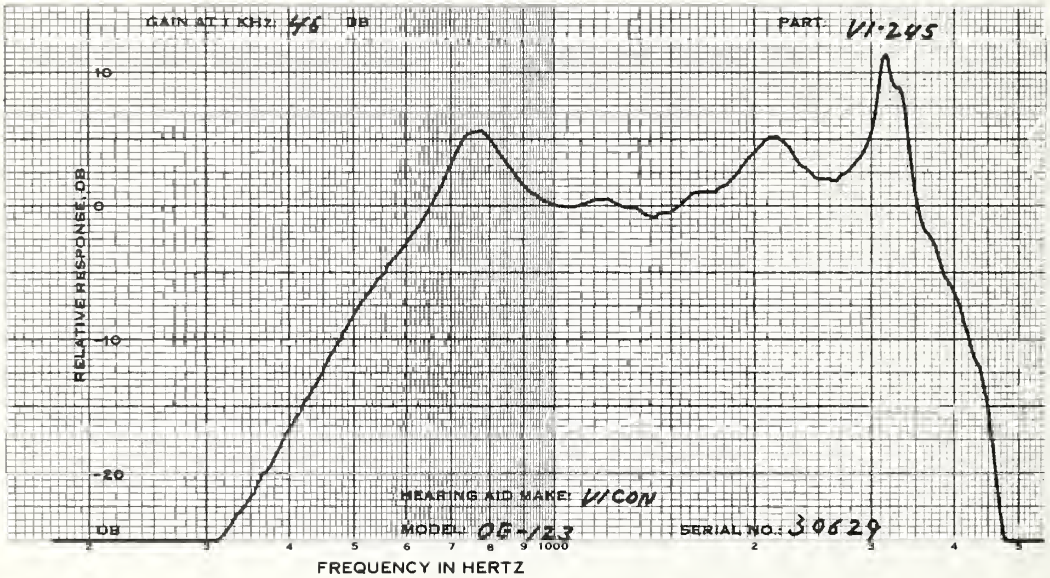

GAIN AT 1 KHZ: 58½ DB
PART: TE-284
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 334 RD
SERIAL NO.: 3416
2 3 4 5 6 7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

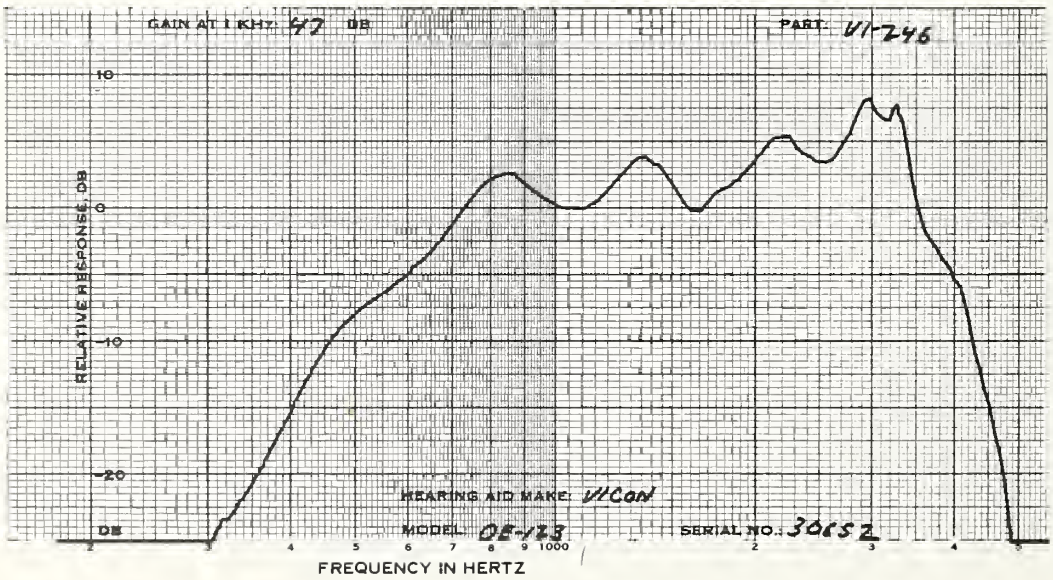

GAIN AT 1 KHZ: 59½ DB
PART: TE-285
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Telex
MODEL: 334 RD
SERIAL NO.: 3608
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

MODEL:OE123 TONE:A TUBING:22MM BATTERY:S76

CODE	VI-244	VI-245	VI-246
SERIAL #	30577	30629	30652
DATE		JAN 29, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	48.0	49.5	50.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.0	71.5	72.0
OUTPUT LEVEL DB	118.0	119.5	119.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	45.0	46.0	47.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	3 5	2 4	2 4
700 HZ %	1 1	1 1	0 1
900 HZ %	1 1	1 2	0 2
MAX DIST %	4 24	3 31	4 34
FREQ OF MAX DIS	1570 1590	1600 1600	1280 1280
S/N RATIO DB			
1KHZ SIGNAL	49.0	47.5	48.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.0	2.0	2.0
65 DB INPUT	2.0	2.0	2.0
BATTERY VOLTAGE	1.55	1.55	1.55

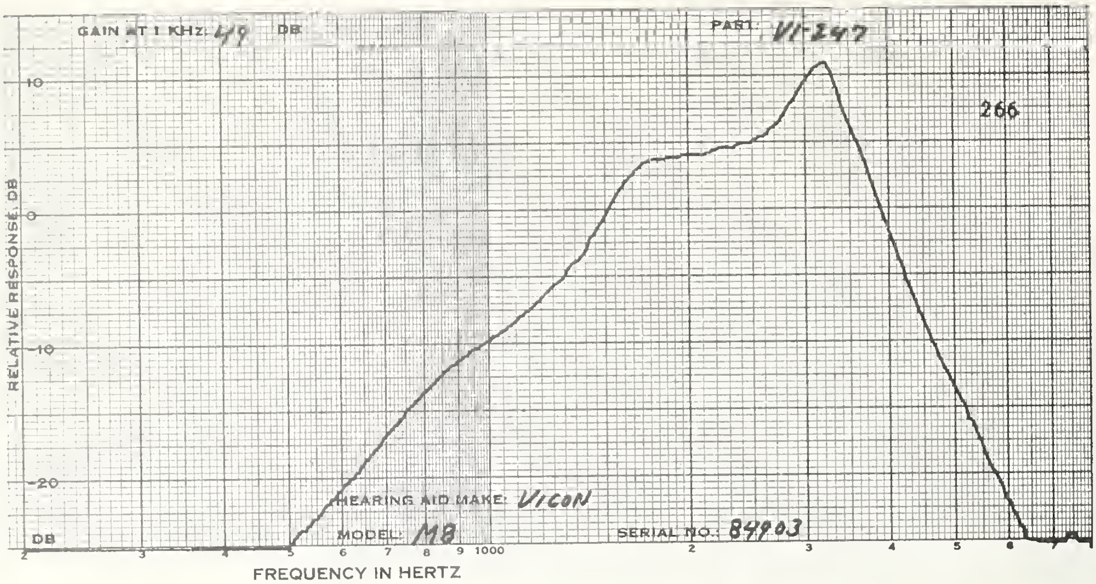

GAIN AT 1 KHz: 45 DB
PART: VI-244
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-123
SERIAL NO.: 30577
2
3
4
5
6
7
8
9
2
3
4
5
FREQUENCY IN HERTZ

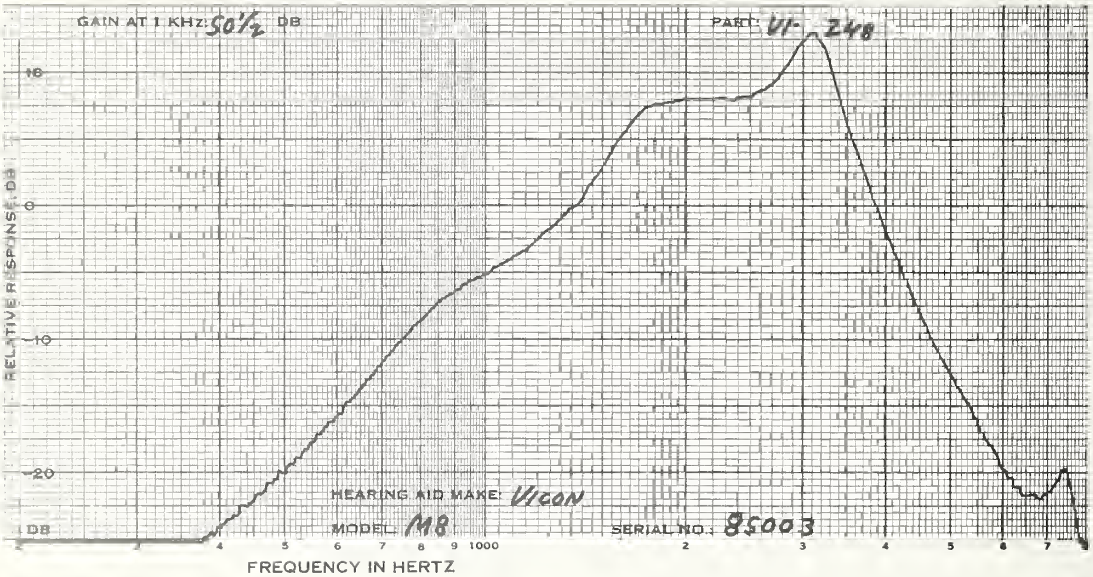

GAIN AT 1 KHz: 46 DB
PART: VI-245
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-123
SERIAL NO.: 30629
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

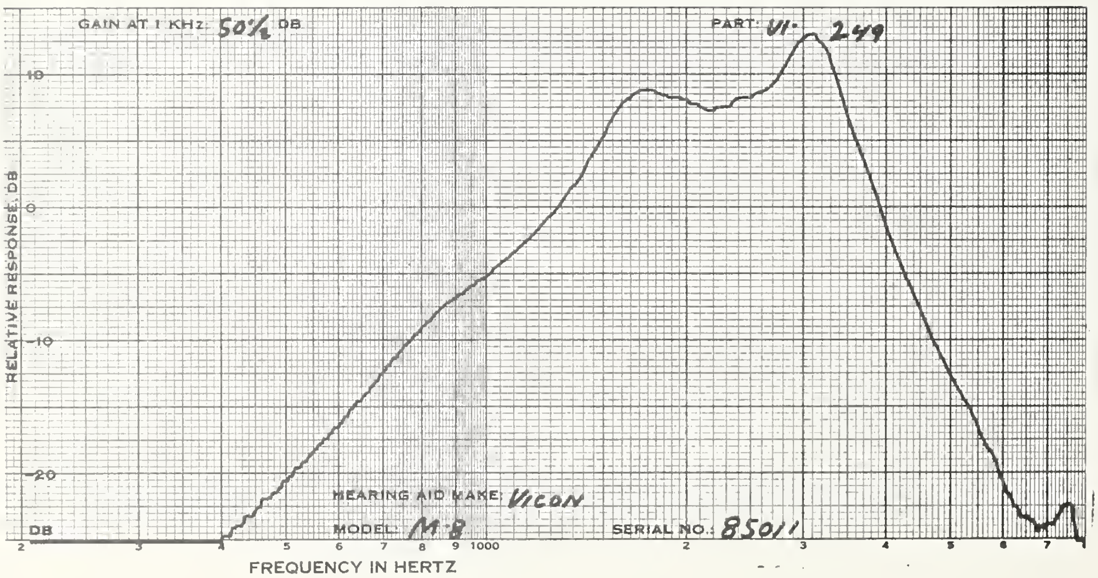

GAIN AT 1 KHz: 47 DB
PART: VI-246
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-123
SERIAL NO.: 30652
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

VICON OB
MODEL:M8 TONE:#3 SC IN RECEIVER:Q1 BATTERIES:401(2)

CODE	VI-247		VI-248		VI-249	
SERIAL #	84903		85003		85011	
DATE			FEB 6, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	61.5		62.0		60.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	71.5		72.0		70.5	
OUTPUT LEVEL DB	131.0		130.5		131.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	49.0		50.5		50.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	0	4	0	3	0	3
700 HZ %	3	4	3	4	3	4
900 HZ %	5	5	3	4	4	4
MAX DIST %	5	5	3	4	4	4
FREQ OF MAX DIS	900	900	900	900	900	900
S/N RATIO DB						
1KHZ SIGNAL	30.5		28.5		31.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	4.0	3.9	4.1	4.4	4.2	3.9
65 DB INPUT	5.2	4.8	4.8	5.3	5.5	5.0
BATTERY VOLTAGE	1.36	1.38	1.38	1.34	1.36	1.38

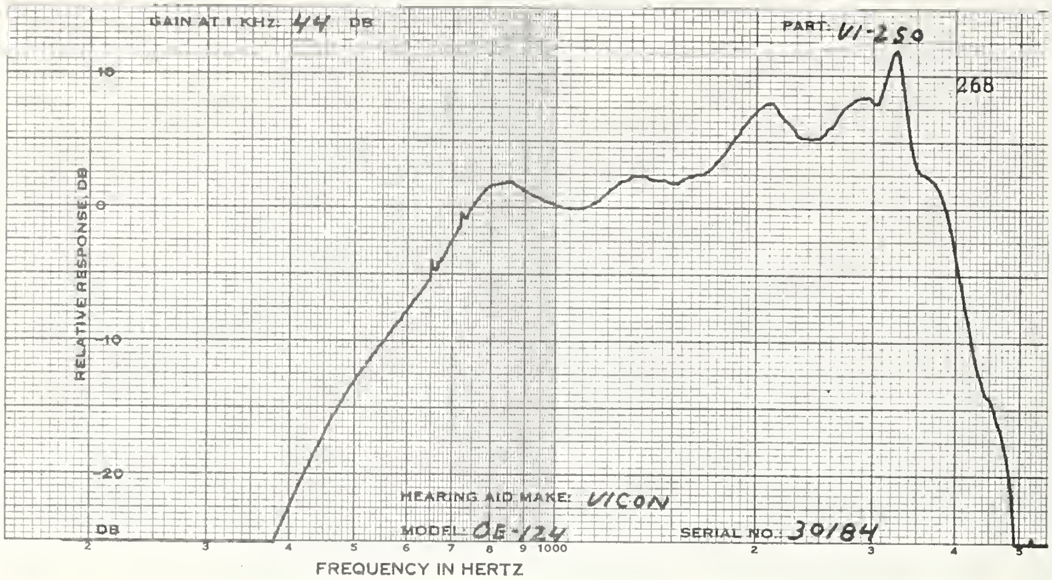

GAIN AT 1 KHz: 49 DB
PART: VI-247
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: M8
SERIAL NO.: 84903
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

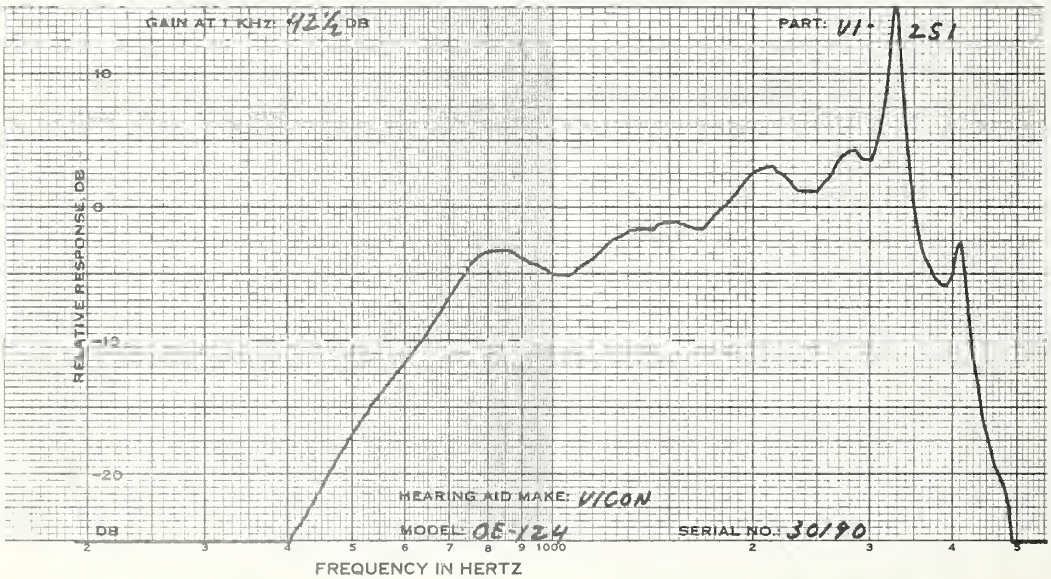

GAIN AT 1 KHz: 50½ DB
PART: VI- 248
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: M8
SERIAL NO.: 85003
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

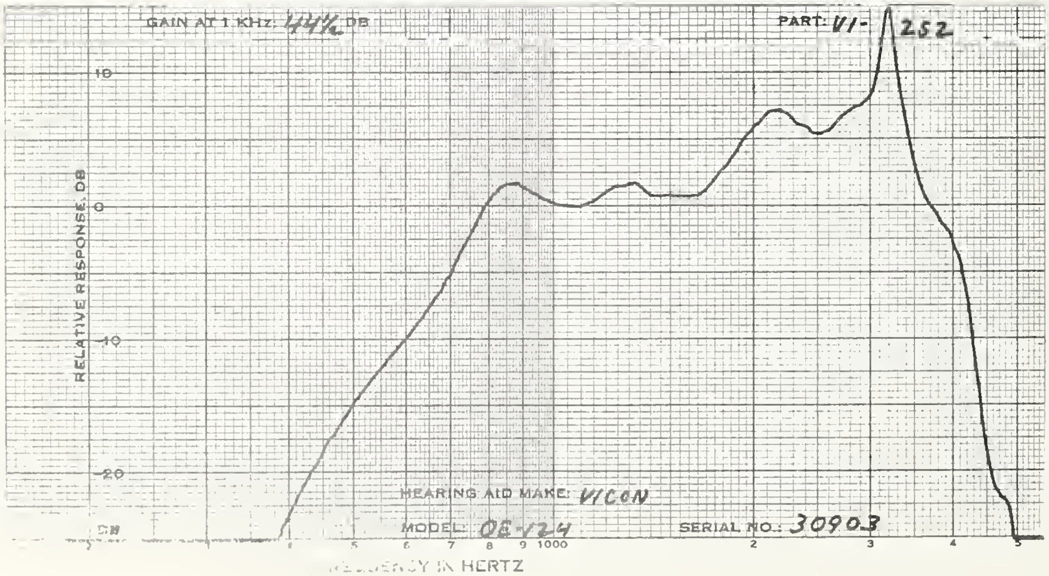

GAIN AT 1 KHz: 50½ DB
PART: VI- 249
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: M-8
SERIAL NO.: 85011
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

MODEL:OE124 TONE:A TUBING:22MM BATTERY:S76

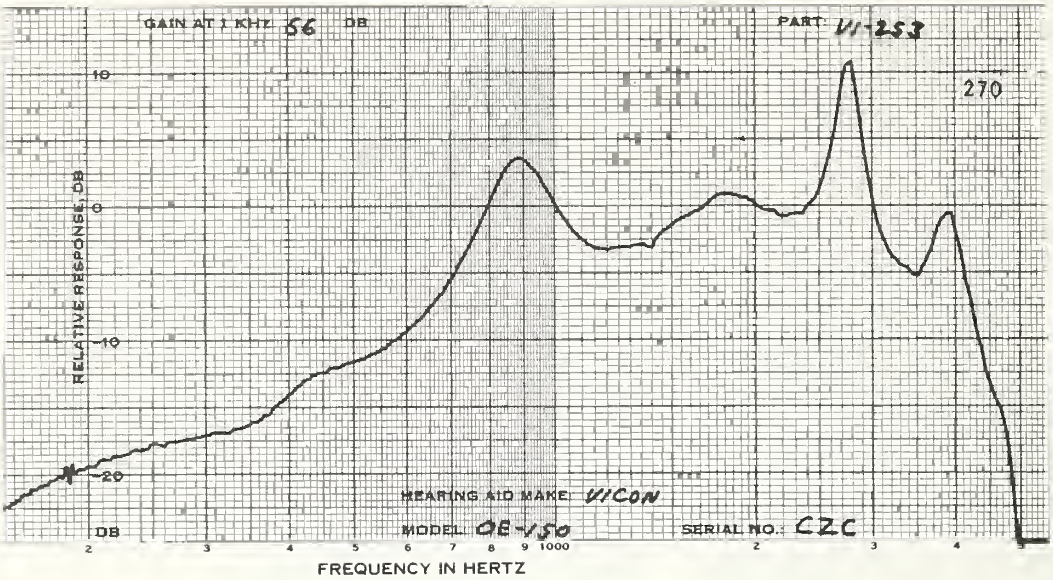
CODE	VI-250		VI-251		VI-252	
SERIAL #	30184		30190		30903	
DATE			JAN 29, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	50.0		51.0		49.0	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	71.0		70.0		72.0	
OUTPUT LEVEL DB	118.0		118.5		118.5	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	44.0		42.5		44.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	2	1	2	1	2	1
700 HZ %	1	0	1	1	1	1
900 HZ %	0	1	0	0	0	0
MAX DIST %	7	26	7	16	5	12
FREQ OF MAX DIS	1580	1580	1620	1600	1560	1560
S/N RATIO DB						
1KHZ SIGNAL	49.0		46.5		42.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	1.8		1.9		1.9	
65 DB INPUT	1.8		1.9		1.9	
BATTERY VOLTAGE	1.55		1.55		1.54	

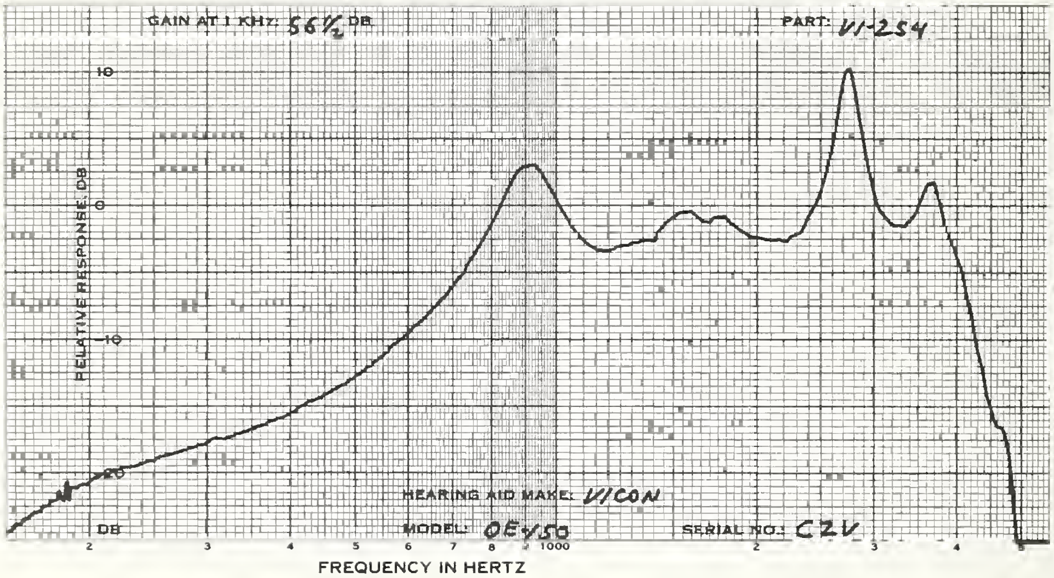

GAIN AT 1 KHZ: 44 DB
PART: VI-250
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-124
SERIAL NO.: 30184
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

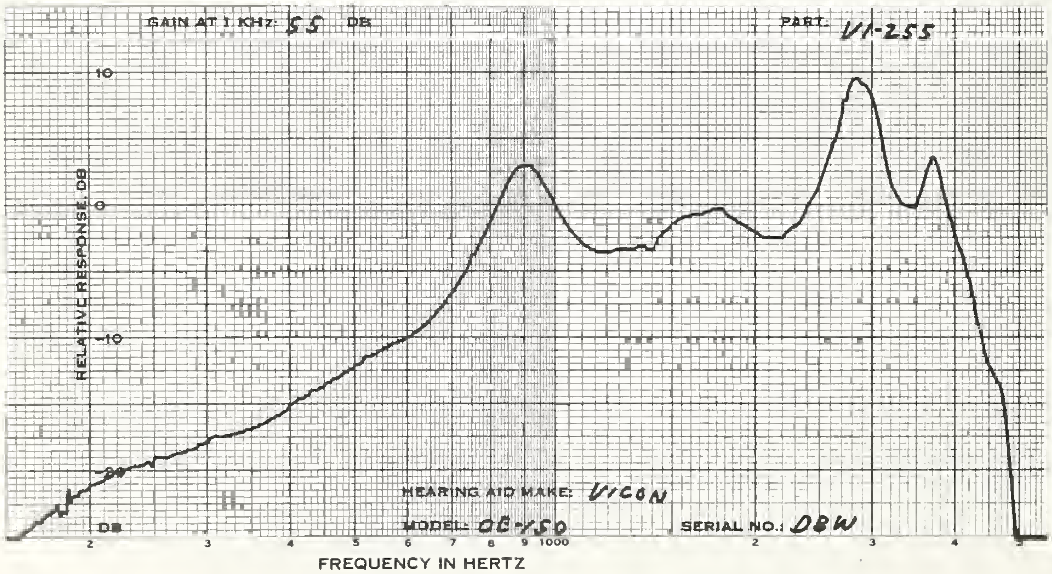

GAIN AT 1 KHZ: 42½ DB
PART: VI-251
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-124
SERIAL NO.: 30190
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 44½ DB
PART: VI-252
RELATIVE RESPONSE, DB
10
0
-10
-20
HEARING AID MAKE: VICON
MODEL: OE-124
SERIAL NO.: 30903
5
6
7
8
9
1000
2
3
4
5
HERTZ

CODE	VI-253		VI-254		VI-255	
SERIAL #	CZC		CZV		DBW	
DATE			JAN 30, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	63.0		63.5		64.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	72.0		70.0		69.0	
OUTPUT LEVEL DB	127.5		127.0		126.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	56.0		56.5		55.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	6	14	4	12	4	11
700 HZ %	2	4	1	4	1	4
900 HZ %	0	1	0	1	1	2
MAX DIST %	6	21	4	16	4	14
FREQ OF MAX DIS	500	1320	500	1280	500	1280
S/N RATIO DB						
1KHZ SIGNAL	45.5		45.5		44.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	.9		1.0		.9	
65 DB INPUT	2.0		1.5		1.9	
BATTERY VOLTAGE	1.55		1.55		1.54	


GAIN AT 1 KHZ: 56 DB
PART: VI-253
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-150
SERIAL NO.: CZC
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

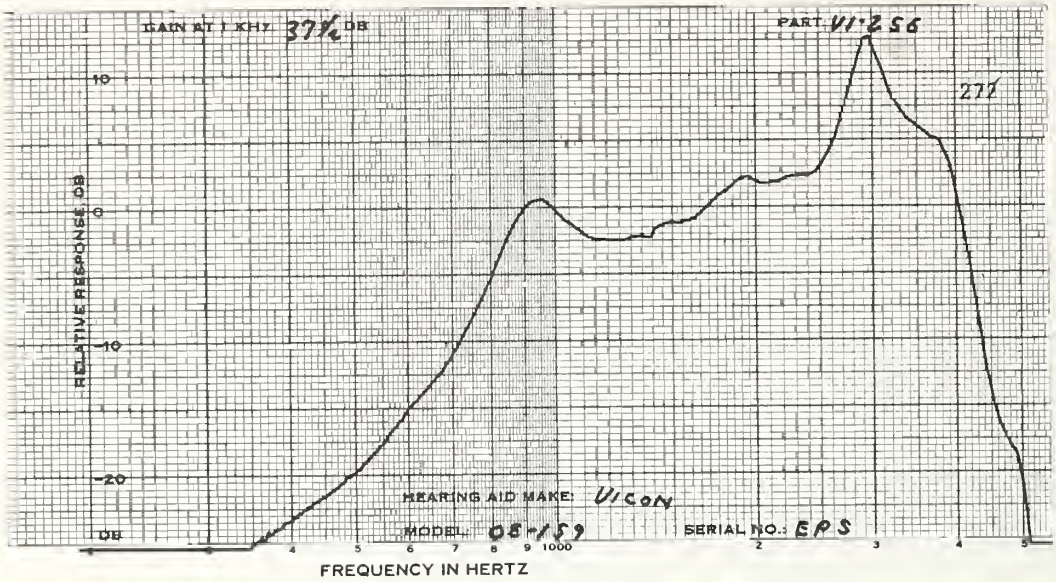

GAIN AT 1 KHZ: 56½ DB
PART: VI-254
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-150
SERIAL NO.: CZV
2
3
4
5
6
7
8
1000
2
3
4
FREQUENCY IN HERTZ

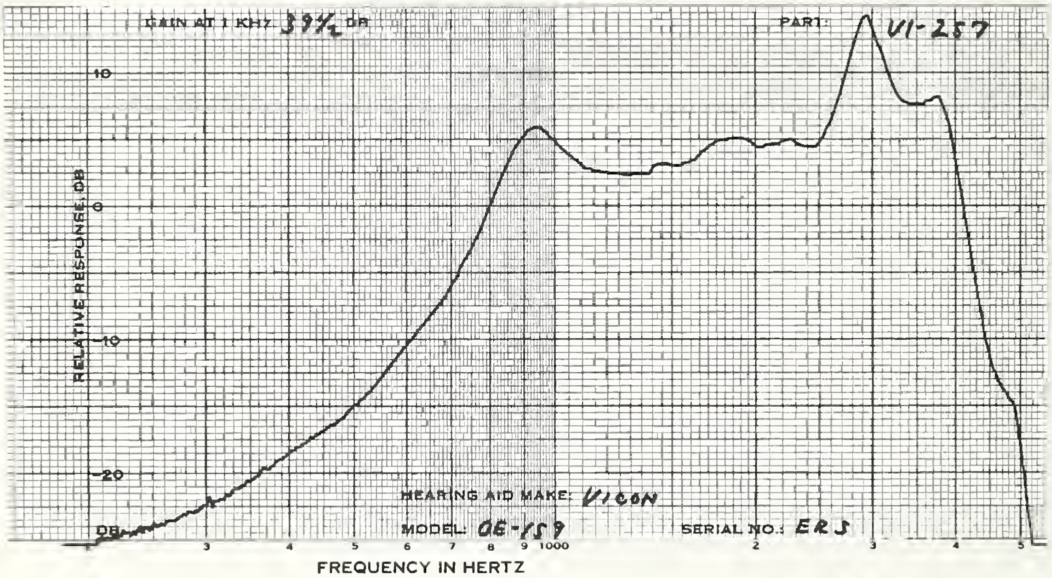

GAIN AT 1 KHZ: 55 DB
PART: VI-255
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-150
SERIAL NO.: DBW
2
3
4
5
6
7
8
9
1000
2
3
4
FREQUENCY IN HERTZ

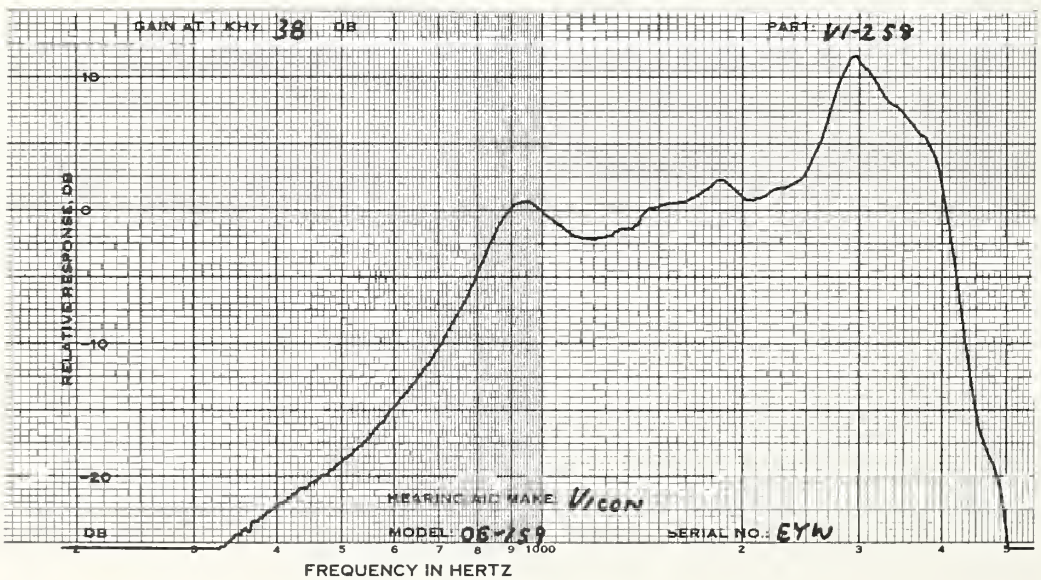
VICON DIR OE

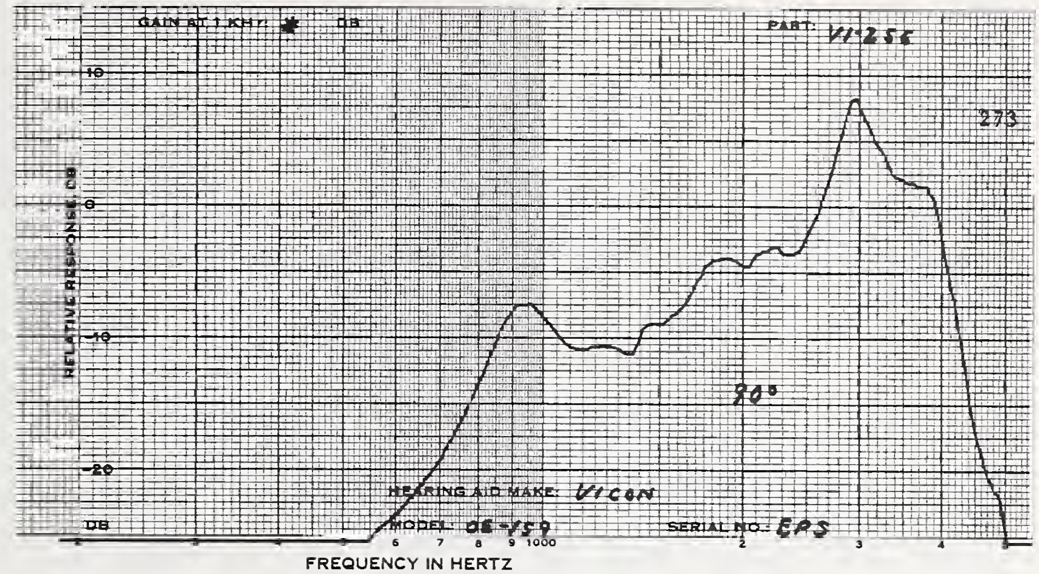
MODEL:OE159 TONE:A COMP:MIN(CW) TUBING:25MM BATTERY:S13

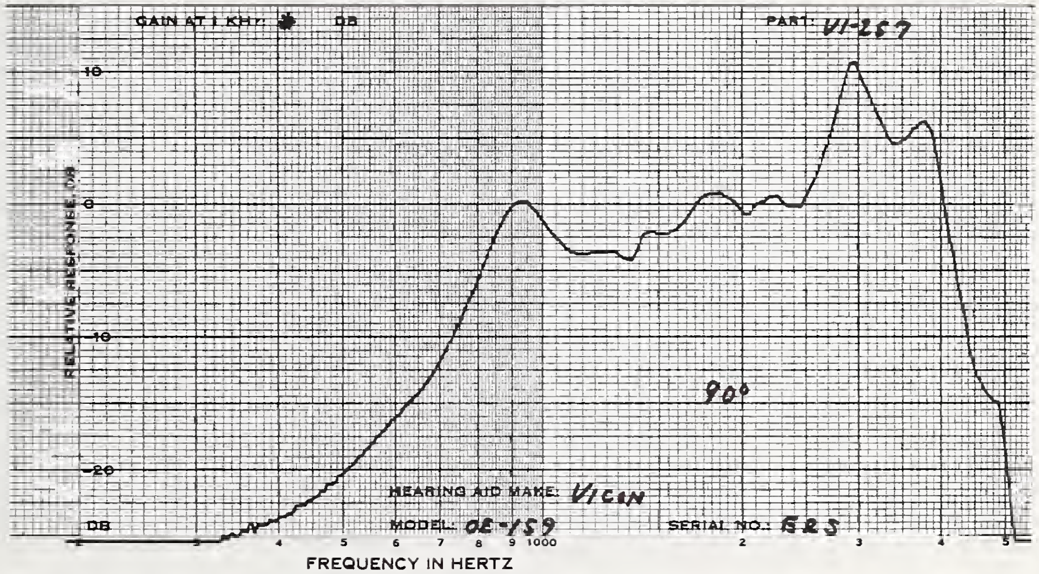
CODE	VI-256	VI-257	VI-258
SERIAL #	EPS	ERS	EYW
DATE		APR 17, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	40.5	47.0	43.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	78.0	80.0	80.5
OUTPUT LEVEL DB	111.0	111.5	112.5
MEASUREMENTS WITH RECUCED VCLUME CONTROL SETTING			
1KHZ GAIN DB	37.5	39.5	38.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	8 6	7 5	7 5
700 HZ %	2 2	2 1	2 2
900 HZ %	0 0	0 0	0 0
MAX DIST %	8 14	7 13	7 30
FREQ OF MAX DIS	500 1686	500 1700	500 1560
S/N RATIO DB			
1KHZ SIGNAL	39.5	40.5	38.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.7	.8	.8
65 DB INPUT	.7	.8	.8
BATTERY VOLTAGE	1.57	1.57	1.57

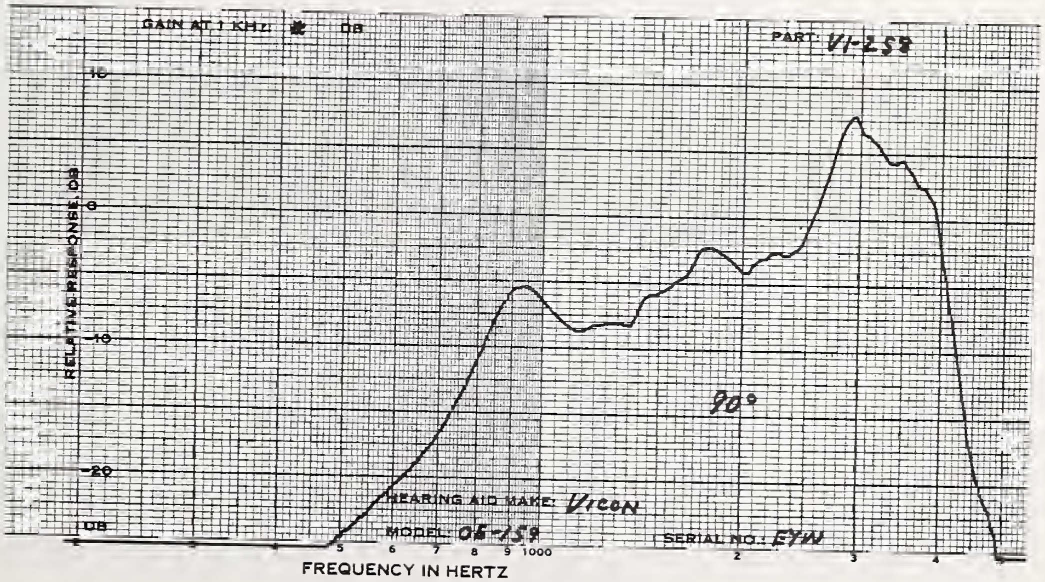

GAIN AT 1 KHZ 37½ DB
PART: VI-256
277
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-159
SERIAL NO.: EPS
4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ 39½ DB
PART: VI-257
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-159
SERIAL NO.: ERS
3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

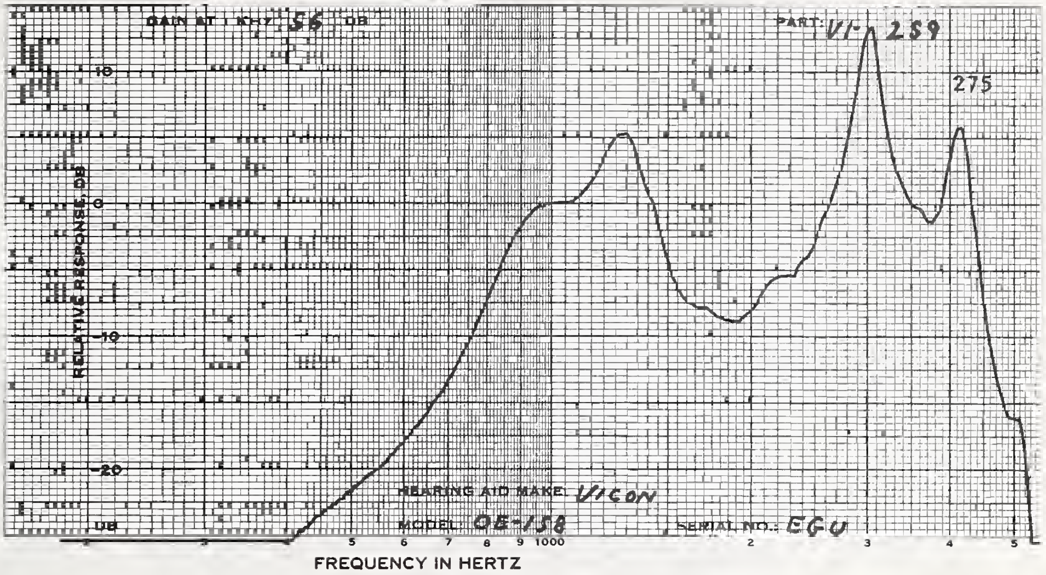

GAIN AT 1 KHZ 38 DB
PART: VI-258
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-159
SERIAL NO.: EYW
4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: * DB
PART: VI-256
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: VICON
MODEL: OE-159
SERIAL NO.: EPS
6 7 8 9 1000
2 3 4 5
FREQUENCY IN HERTZ

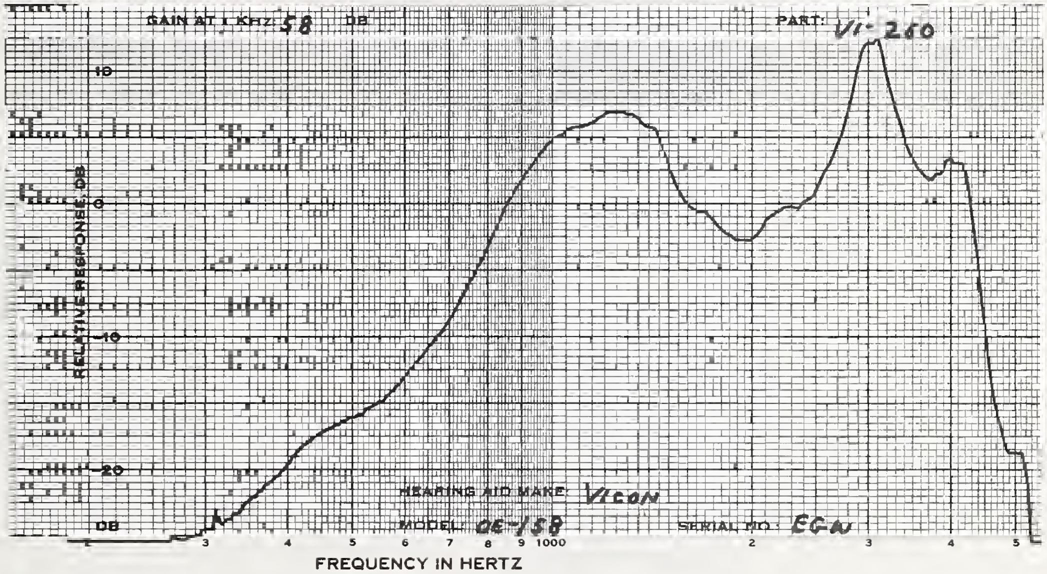

GAIN AT 1 KHZ: * DB
PART: VI-257
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: VICON
MODEL: OE-159
SERIAL NO.: ERS
3 4 5 6 7 8 9 1000
2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: * DB
PART: VI-258
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: VICON
MODEL: OE-159
SERIAL NO.: EYW
5 6 7 8 9 1000
2 3 4
FREQUENCY IN HERTZ

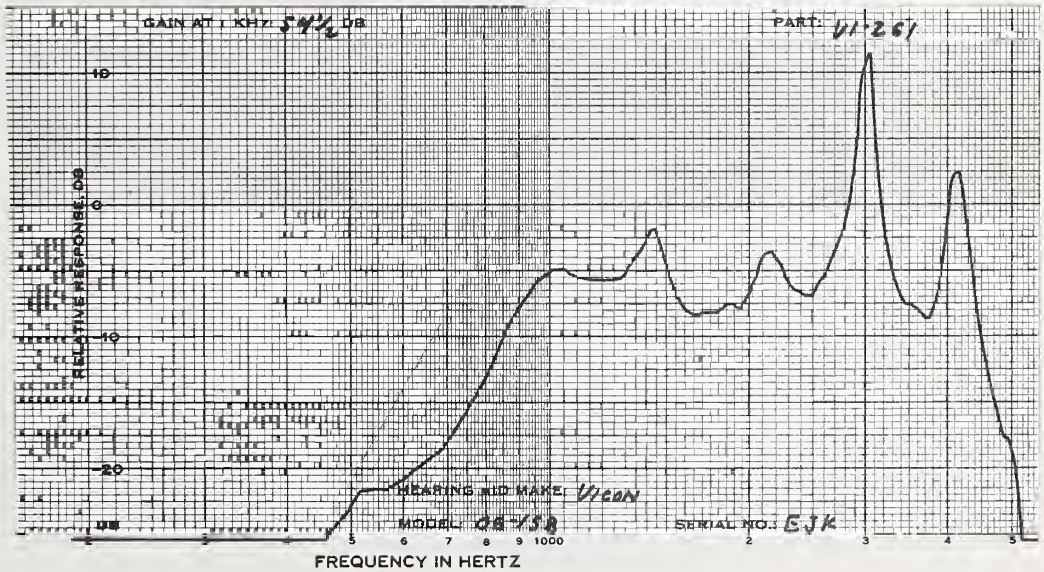
CODE	VI-259	VI-260	VI-261
SERIAL #	EGU	EGW	EJK
DATE		APR 15, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	60.0	58.5	56.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	74.5	78.0	75.0
OUTPUT LEVEL DB	127.0	127.0	126.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	56.0	58.0	54.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	10 9	10 16	7 13
700 HZ %	3 2	3 5	3 5
900 HZ %	0 0	0 1	0 0
MAX DIST %	10 19	10 16	7 18
FREQ OF MAX DIS	500 1340	500 1375	500 1350
S/N RATIO DB			
1KHZ SIGNAL	45.0	48.0	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	.9	1.0
65 DB INPUT	1.4	1.5	1.6
BATTERY VOLTAGE	1.56	1.56	1.55



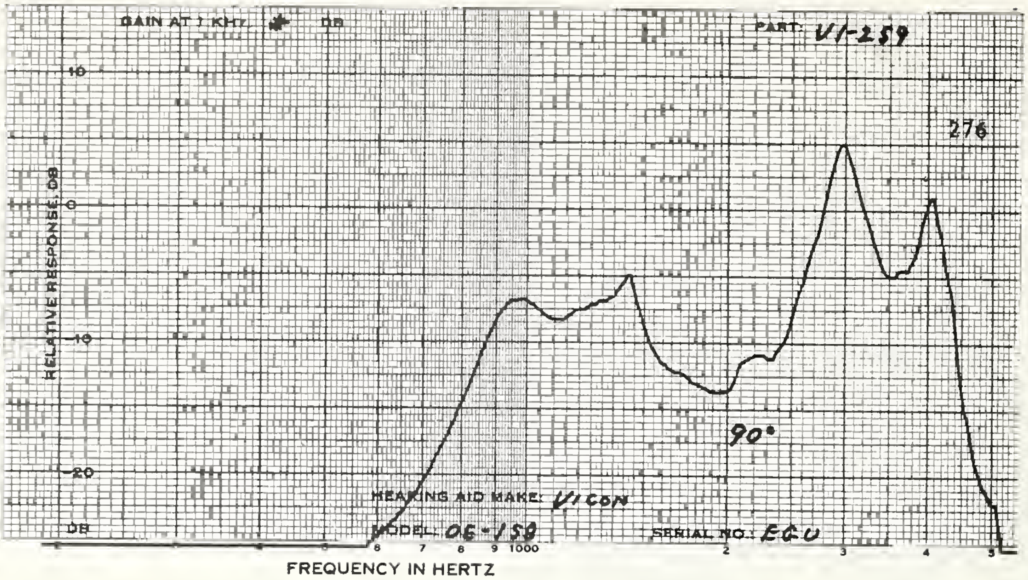
GAIN AT 1 KHZ: 56 DB
PART: VI-259
275
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-158
SERIAL NO.: EGU
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

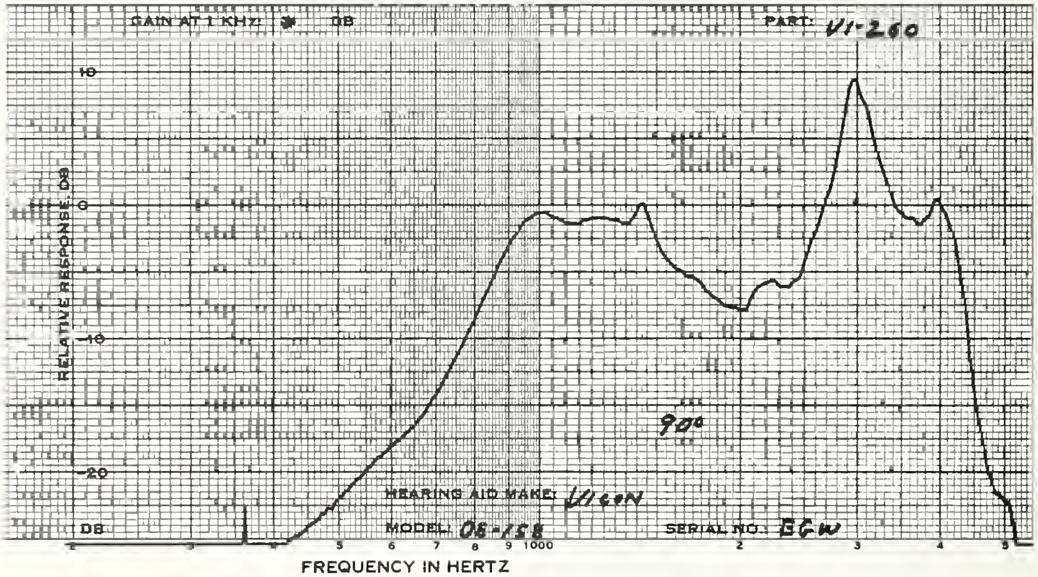


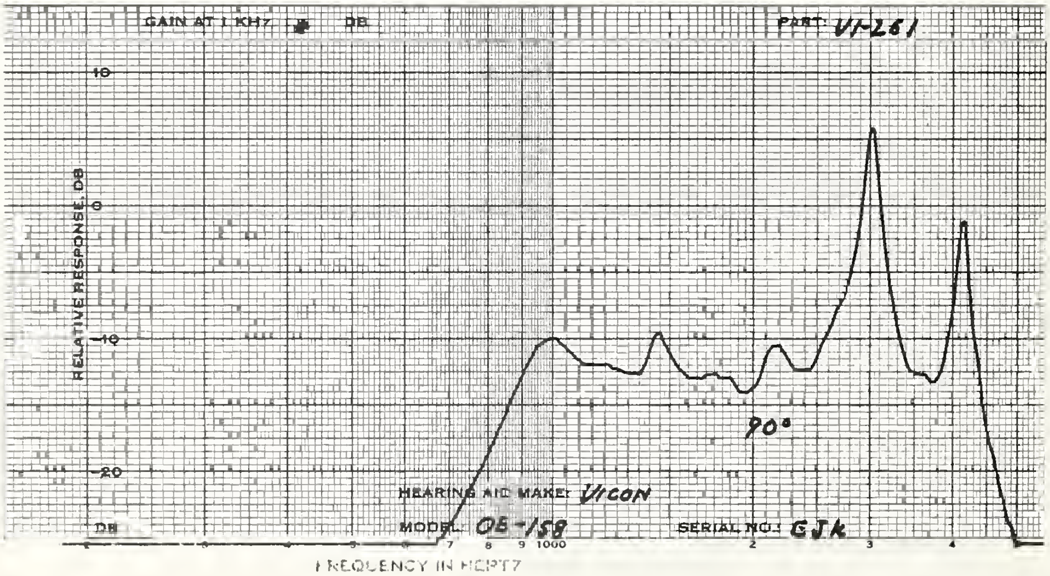
GAIN AT 1 KHZ: 58 DB
PART: VI-260
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-158
SERIAL NO.: EGW
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ



GAIN AT 1 KHZ: 54½ DB
PART: VI-261
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: VICON
MODEL: OE-158
SERIAL NO.: EJK
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

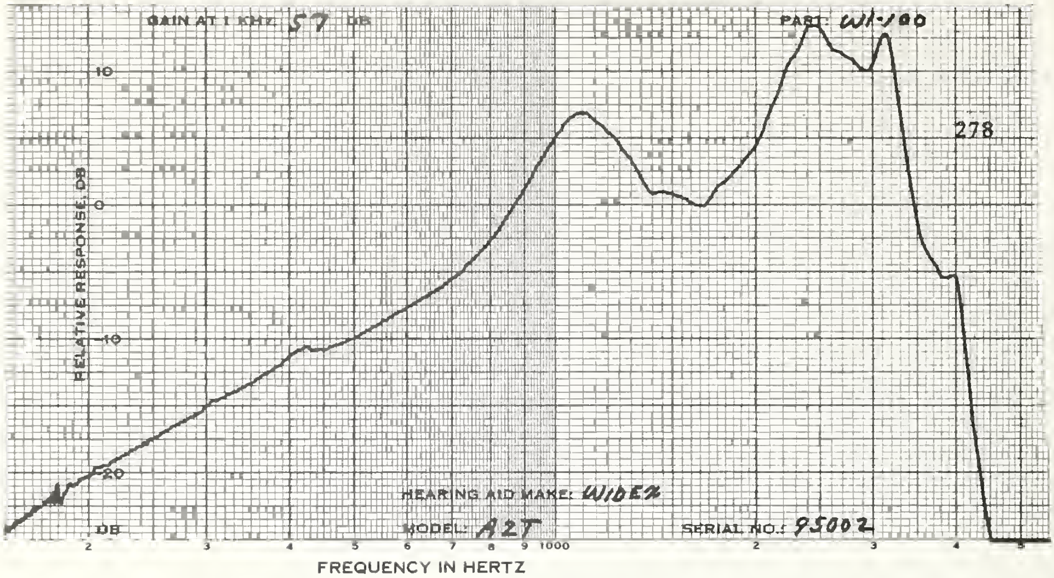

GAIN AT 1 KHZ: * DB
PART: VI-259
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: VICON
MODEL: OE-158
SERIAL NO.: EGU
6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

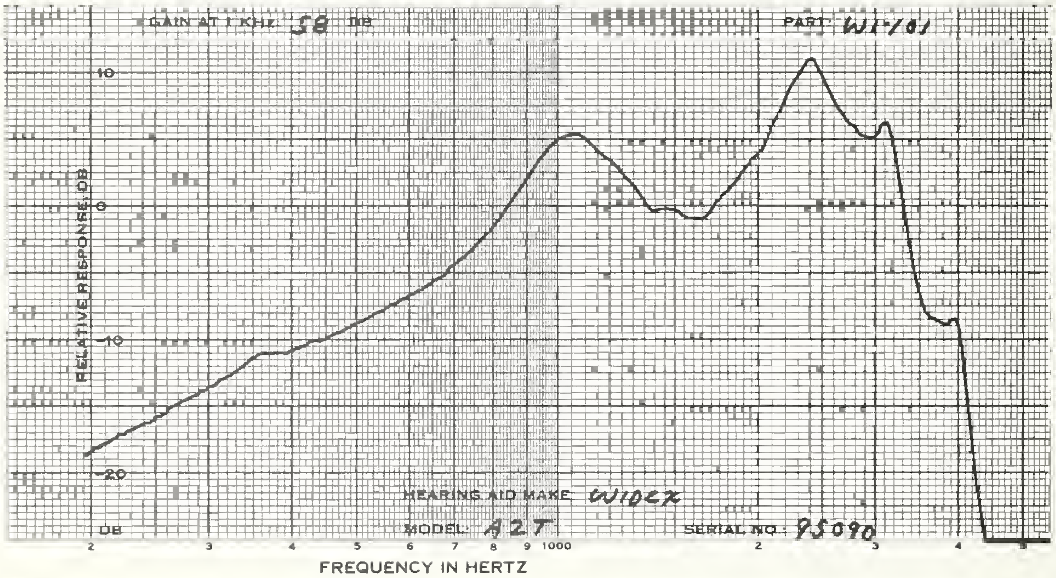

GAIN AT 1 KHZ: * DB
PART: VI-260
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: VICON
MODEL: OE-158
SERIAL NO.: EGW
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

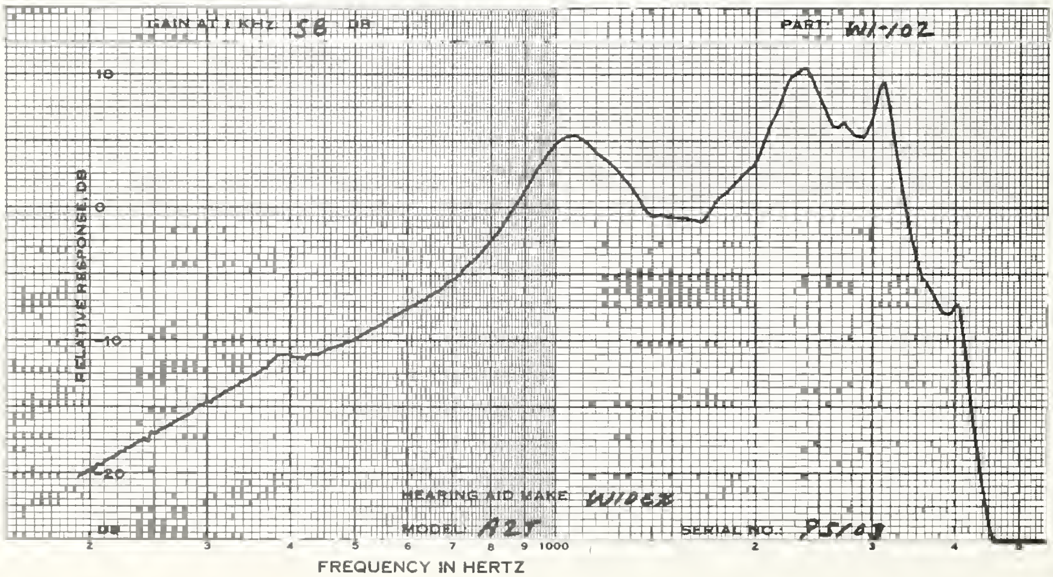

GAIN AT 1 KHZ: * DB
PART: VI-261
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
90°
HEARING AID MAKE: VICON
MODEL: OE-158
SERIAL NO.: GJK
7 8 9 1000 2 3 4
FREQUENCY IN HERTZ

WIDEX OE
MODEL:A2T TONE:LEFT SC;CW/RT SC;CCW TUBING:22MM BATTERY:S76

CODE	WI-100		WI-101		WI-102	
SERIAL #	95002		95090		95103	
DATE			JAN 31, 1975			
MEASUREMENTS WITH FULL VOL CONTROL						
1KHZ GAIN DB	57.0		61.5		59.5	
MPO, RANDOM NOISE						
INPUT LEVEL, DB	75.5		73.5		73.5	
OUTPUT LEVEL DB	127.5		127.5		127.0	
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING						
1KHZ GAIN DB	57.0(FULL)		58.0		58.0	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	6	13	2	3	2	2
700 HZ %	2	4	1	2	0	2
900 HZ %	1	1	0	0	1	0
MAX DIST %	6	13	2	6	2	3
FREQ OF MAX DIS	500	500	500	1950	500	1850
S/N RATIO DB						
1KHZ SIGNAL	44.0		45.5		46.5	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	2.8		2.6		2.6	
65 DB INPUT	3.6		3.5		3.7	
BATTERY VOLTAGE	1.54		1.54		1.54	

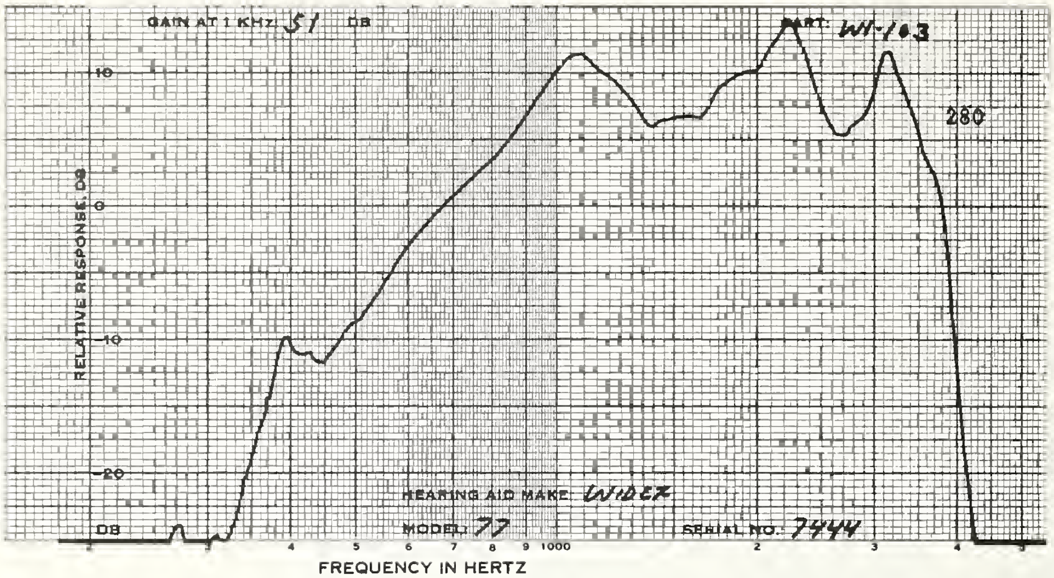

GAIN AT 1 KHZ 57 DB
PART: WI-100
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: WIDEX
MODEL: A2T
SERIAL NO.: 95002
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHZ 58 DB
PART: WI-101
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: WIDEX
MODEL: A2T
SERIAL NO.: 95090
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

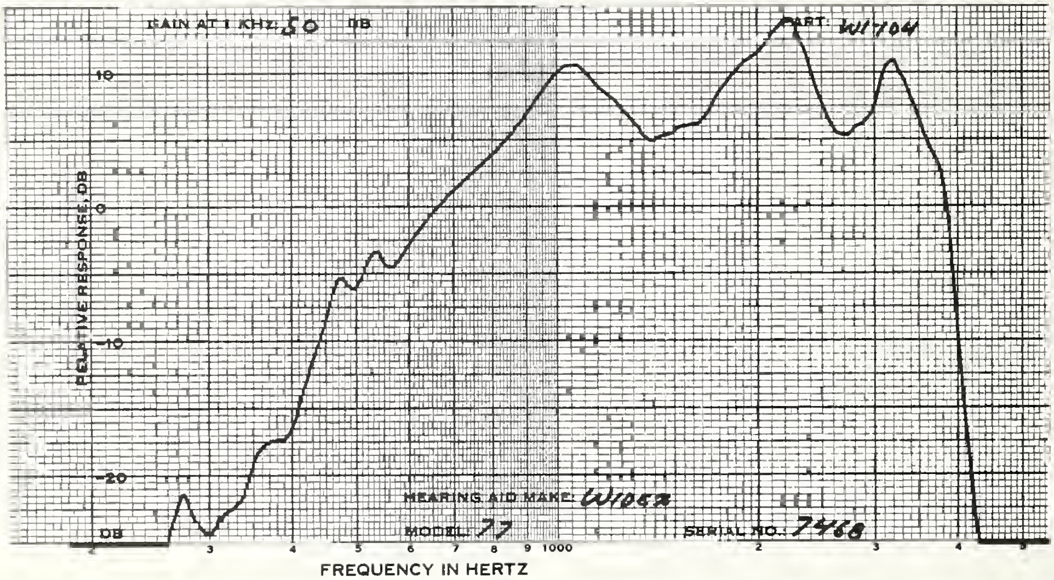

GAIN AT 1 KHZ 58 DB
PART: WI-102
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
HEARING AID MAKE: WIDEX
MODEL: A2T
SERIAL NO.: 95103
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

MODEL:77 TONE:CW TUBING:22MM BATTERY:675

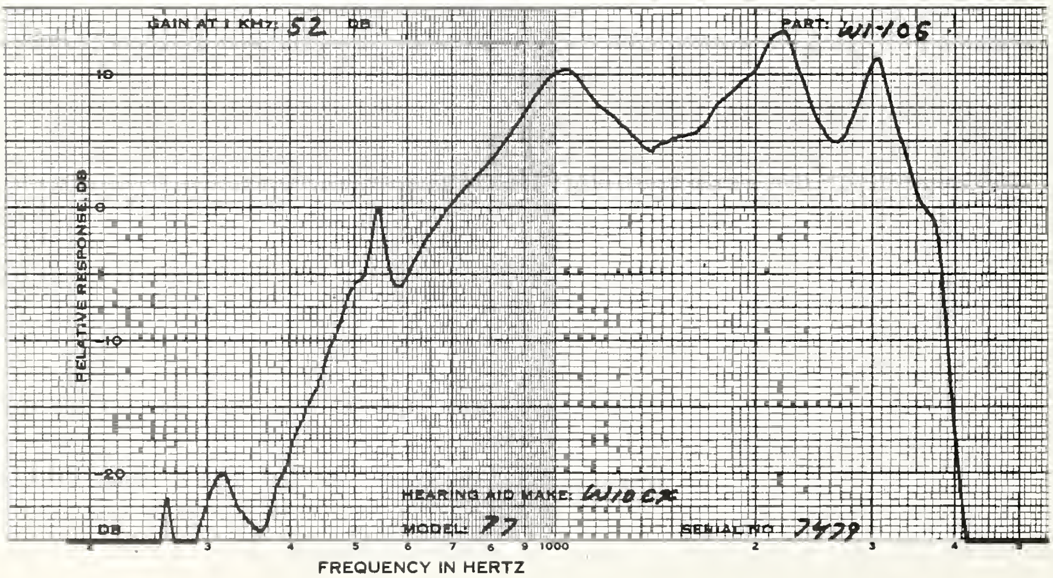
CODE	WI-103	WI-104	WI-105
SERIAL #	7444	7468	7479
DATE		JAN 30, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	52.0	52.0	53.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	73.5	73.5	73.0
OUTPUT LEVEL DB	119.5	119.0	119.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	51.0	50.0	52.0
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	7 5	5 4	3 2
700 HZ %	1 1	1 1	1 1
900 HZ %	1 1	1 1	1 0
MAX DIST %	7 49	5 28	3 40
FREQ OF MAX DIS	500 1550	500 1590	500 1520
S/N RATIO DB			
1KHZ SIGNAL	50.5	50.5	52.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.3	1.2	1.2
65 DB INPUT	1.3	1.2	1.2
BATTERY VOLTAGE	1.40	1.37	1.37



GAIN AT 1 KHZ: 51 DB
PART: WI-103
280
RELATIVE RESPONSE, DB
HEARING AID MAKE: WIDEX
MODEL: 77
SERIAL NO: 7444
FREQUENCY IN HERTZ



GAIN AT 1 KHZ: 50 DB
PART: WI 104
RELATIVE RESPONSE, DB
HEARING AID MAKE: WIDEX
MODEL: 77
SERIAL NO: 7468
FREQUENCY IN HERTZ

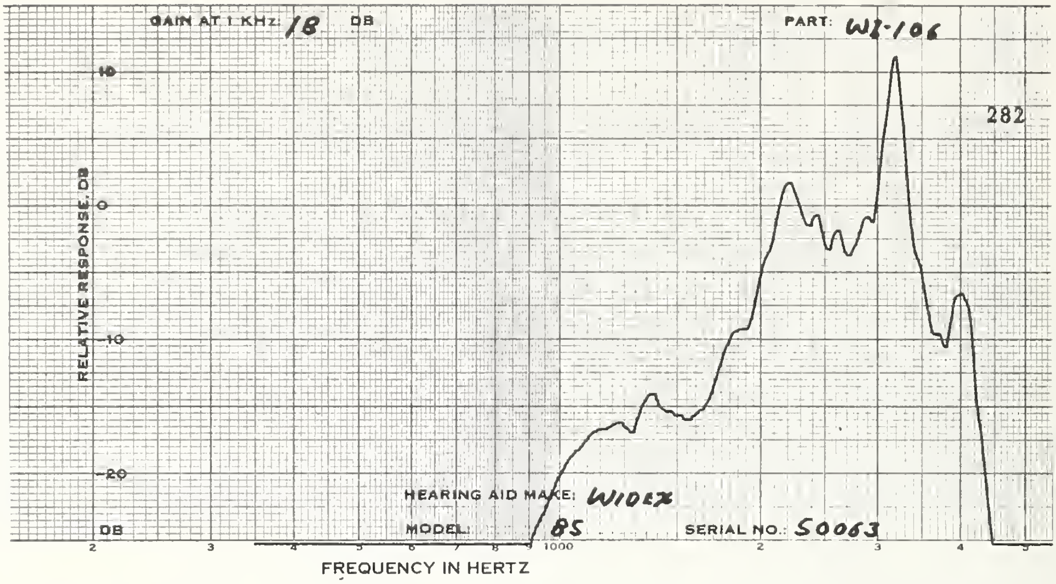


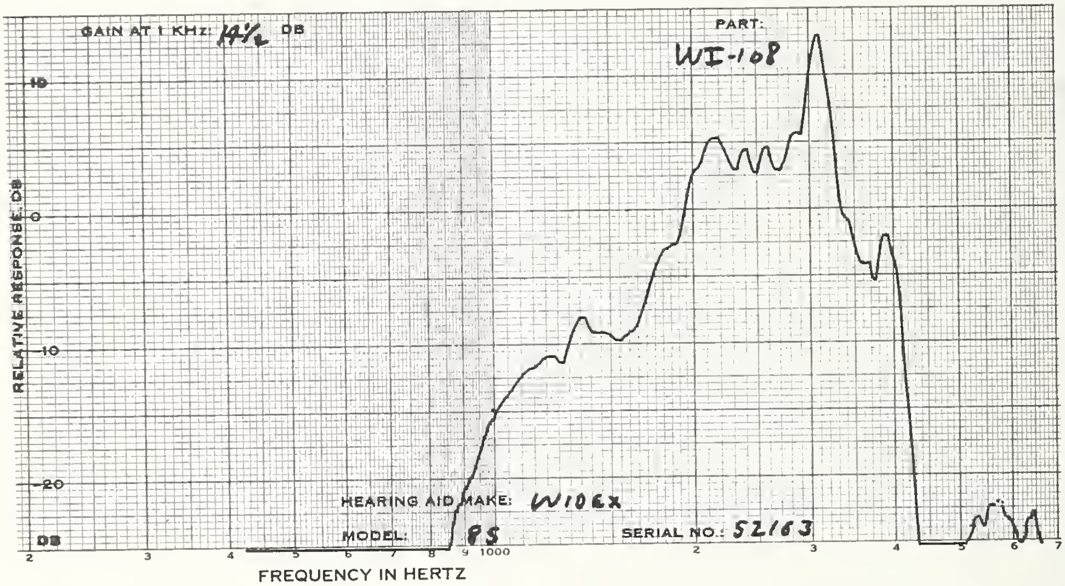
GAIN AT 1 KHZ: 52 DB
PART: WI-106
RELATIVE RESPONSE, DB
HEARING AID MAKE: WIDEX
MODEL: 77
SERIAL NO: 7479
FREQUENCY IN HERTZ

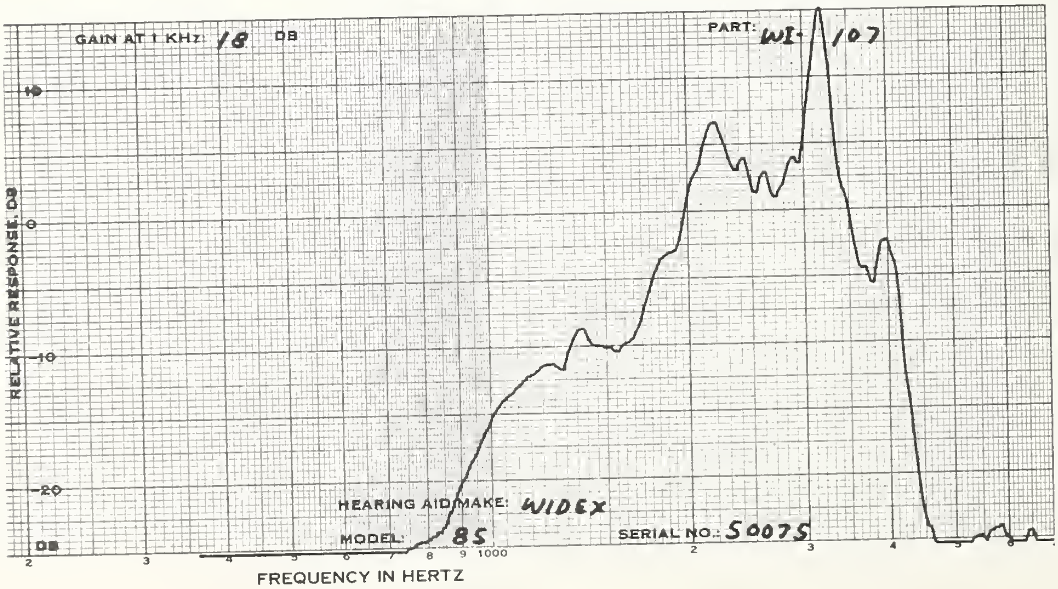
MODEL:85 TONE:H,CW TUBING:25MM BATTERY:675

CODE	WI-106	WI-107	WI-108
SERIAL #	50063	50075	52163
DATE		MAY 20, 1975	
MEASUREMENTS WITH FULL VOL CONTROL *			
1KHZ GAIN DB	23.0	23.0	19.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	85.0	86.5	91.0
OUTPUT LEVEL DB	121.5	122.0	123.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	18.0	18.0	14.5
S/N RATIO DB			
2KHZ SIGNAL	42.0	45.5	42.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.5	1.5	1.4
65 DB INPUT	1.5	1.5	1.4
BATTERY VOLTAGE	1.37	1.37	1.35

*Maximum settimg possible without feedback.

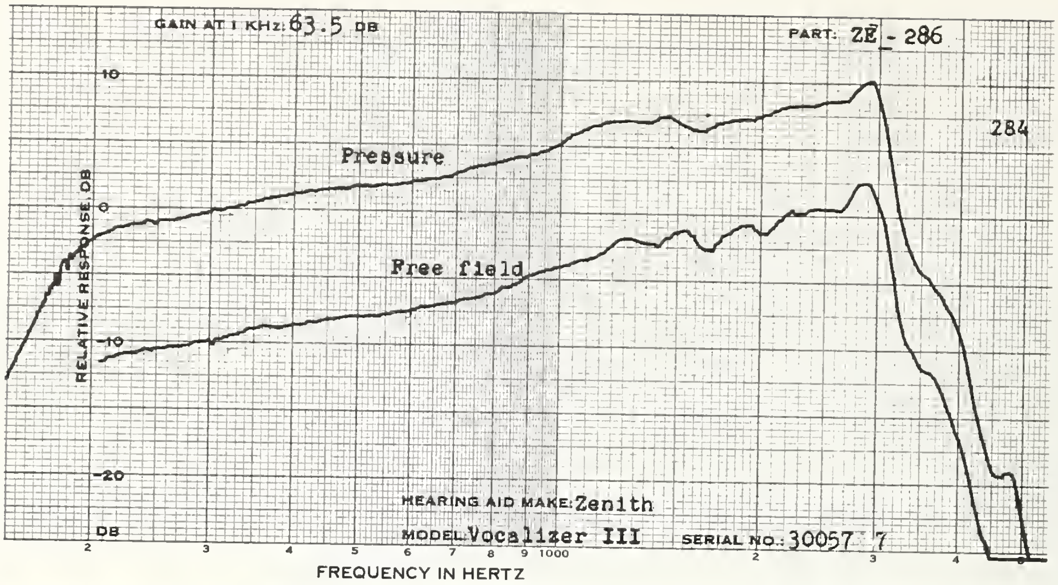

GAIN AT 1 KHz: 18 DB
PART: WI-106
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: WIDEX
MODEL: 85
SERIAL NO.: 50063
2
3
4
5
6
7
8
9
1000
2
3
4
5
FREQUENCY IN HERTZ

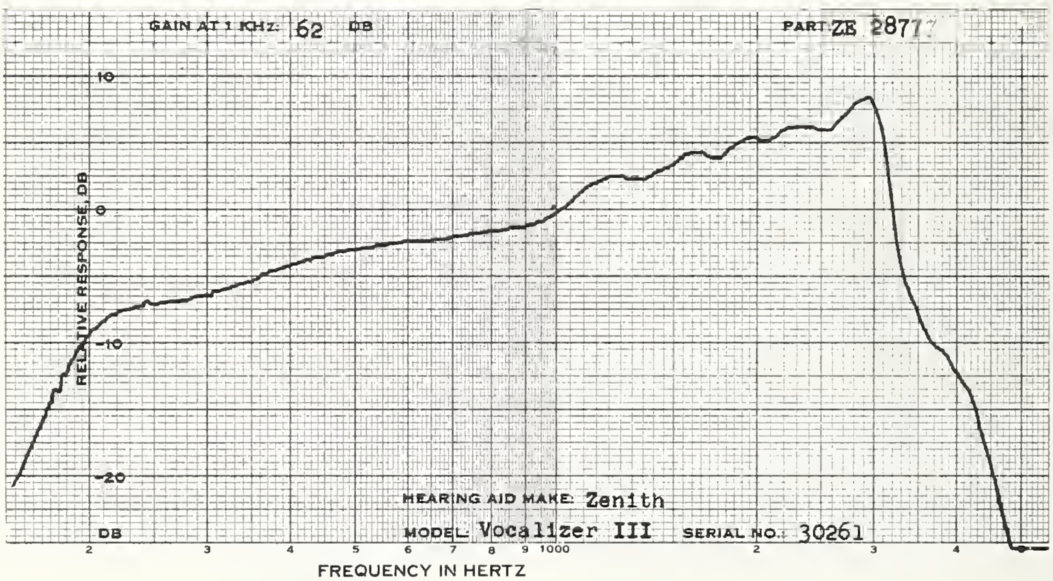

GAIN AT 1 KHz: 14½ DB
PART: WI-108
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: WIDEX
MODEL: 85
SERIAL NO.: 52163
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

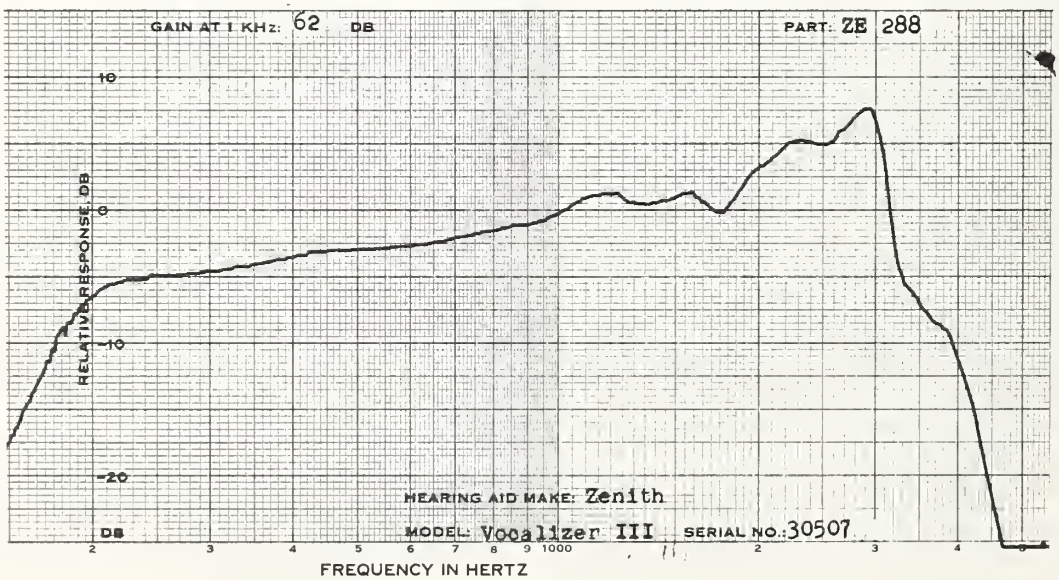

GAIN AT 1 KHz: 18 DB
PART: WI-107
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: WIDEX
MODEL: 85
SERIAL NO.: 50075
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
FREQUENCY IN HERTZ

MODEL:VOCALIZER III TONE:FULL PWR:FULL RECEIVER:Y5 BATTERY:401

CODE	ZE-286	ZE-287	ZE-288
SERIAL #	30057	30261	30502
DATE		JAN 16, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	63.5	65.0	64.5
MPO, RANDOM NOISE			
INPUT LEVEL, DB	87.0	86.0	84.5
OUTPUT LEVEL DB	134.5	135.0	134.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	63.5(FULL)	62.0	62.0
HARMONIC DIST			
@INPUT LEVEL DB	60.5 70.5	60.0 70.0	60.0 70.0
500 HZ %	1 8	3 7	3 5
700 HZ %	2 12	3 6	2 4
900 HZ %	3 11	4 9	3 8
MAX DIST %	8 14	4 9	3 8
FREQ OF MAX DIS	1400 1400	900 900	1410 930
S/N RATIO DB			
1KHZ SIGNAL	47.0	47.0	45.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	2.7	2.7	3.2
65 DB INPUT	12.0	13.6	12.0
BATTERY VOLTAGE	1.32	1.33	1.33


GAIN AT 1 KHz: 63.5 DB
PART: ZE - 286
284
Pressure
Free field
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL: Vocalizer III
SERIAL NO.: 30057 7
2
3
4
5
6
7
8
9 1000
2
3
4
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 62 DB
PART: ZE 287
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL: Vocalizer III
SERIAL NO.: 30261
2
3
4
5
6
7
8
9 1000
2
3
4
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 62 DB
PART: ZE 288
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL: Vocalizer III
SERIAL NO.: 30507
2
3
4
5
6
7
8
9 1000
2
3
4
FREQUENCY IN HERTZ

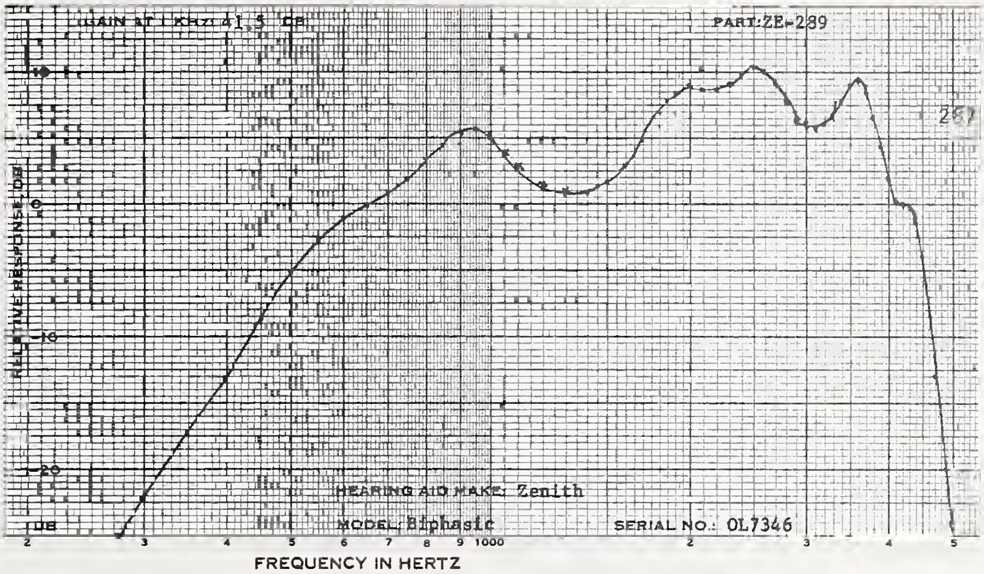
MODEL:BIPHASIC TONE:NONE TUBING:35MM BATTERY:M13

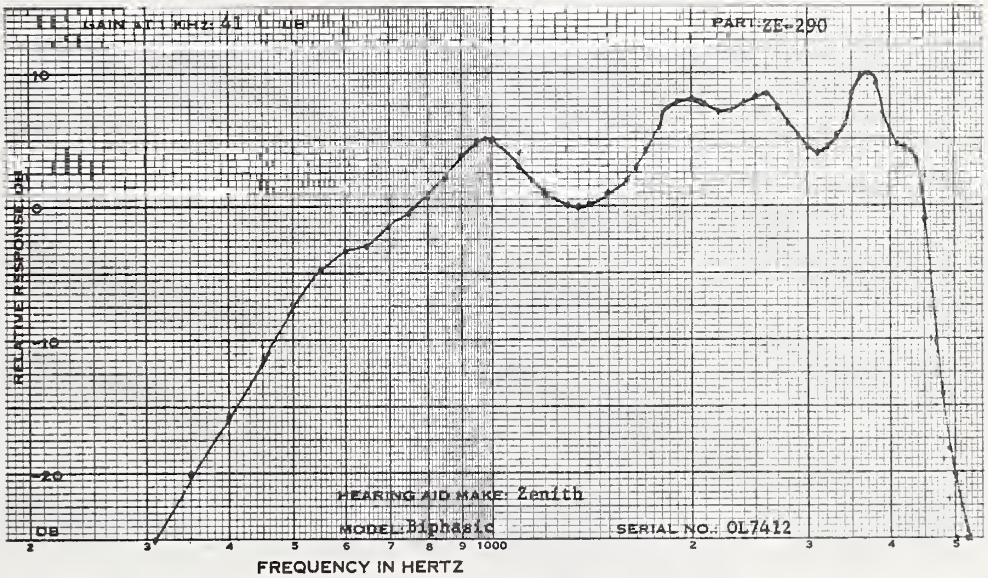
CODE	ZE-289	ZE-290	ZE-291
SERIAL #	OL7346	OL7412	OL7492
DATE		JUN 17, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	44.0	45.0	44.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	75.0	74.0	76.5
OUTPUT LEVEL DB	113.5	112.5	112.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	41.5	41.0	41.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	6 16	7 18	7 15
700 HZ %	2 6	2 7	2 6
900 HZ %	3 9	3 8	3 7
MAX DIST %	7 21	7 18	7 18
FREQ OF MAX DIS	1300 1300	500 500	500 1300
S/N RATIO DB			
1KHZ SIGNAL	42.5	43.0	42.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.8	.8	.9
65 DB INPUT	.8	.8	.9
BATTERY VOLTAGE	1.31	1.31	1.31

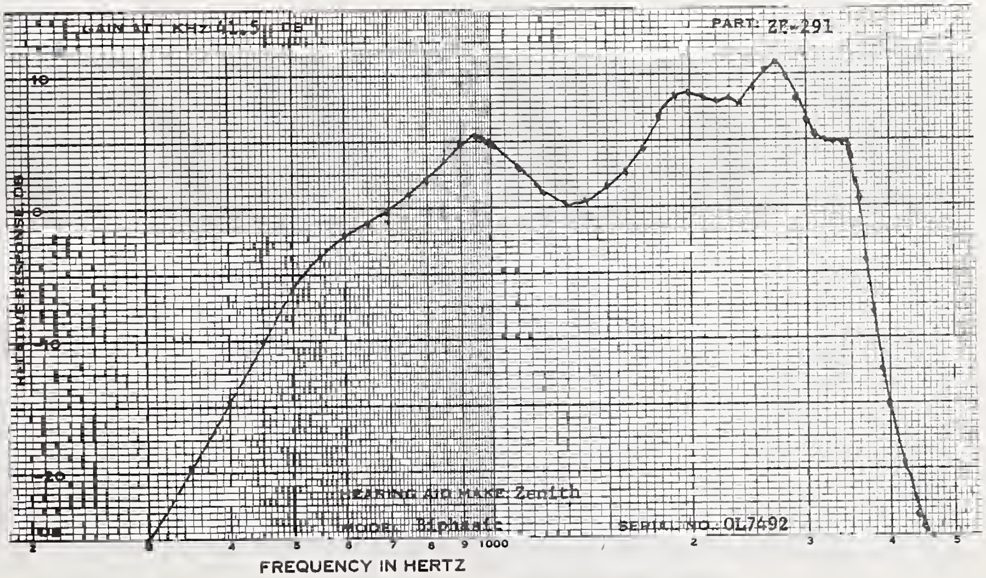
THESE ARE THE DATA FOR THE LEFT SIDE OF A SPECIAL BINAURAL AID, WHICH HAS A DIFFERENT FREQUENCY RESPONSE FOR EACH SIDE. THE DATA FOR THE RIGHT SIDE FOLLOW.

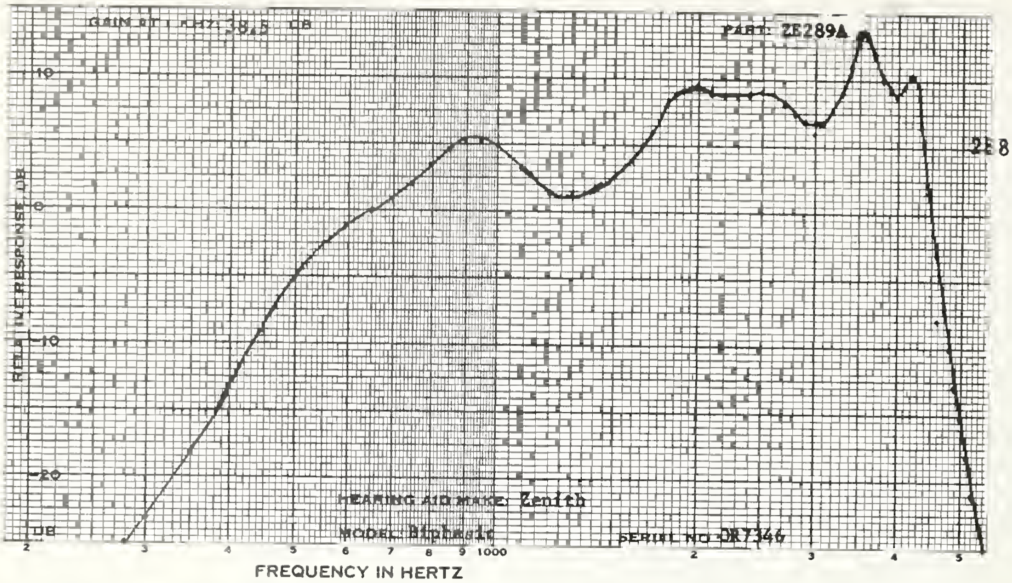
ZENITH
CONTINUATION OF BIPHASIC.

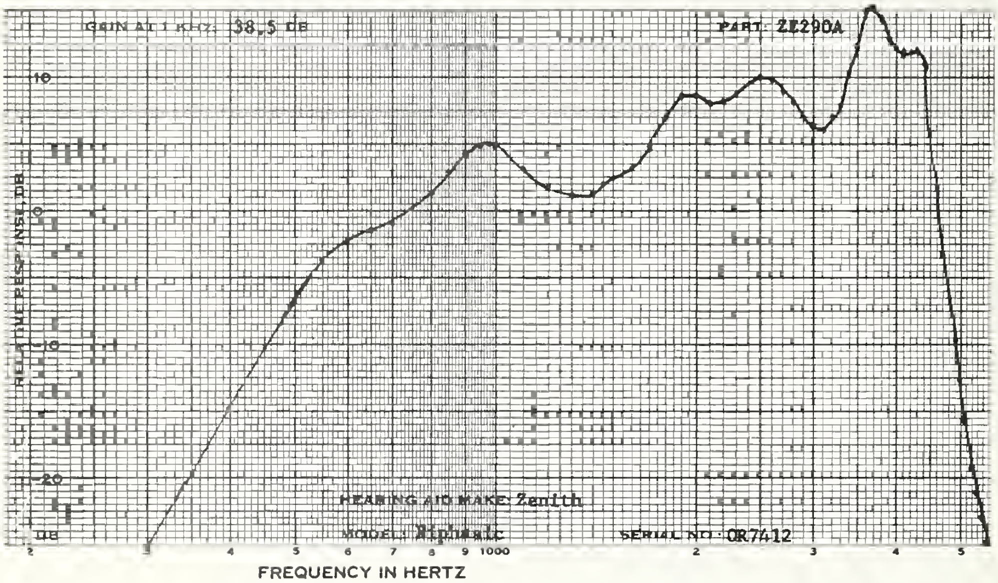
CODE	ZE289A	ZE290A	ZE291A
SERIAL #	OR7346	OR7412	OR7492
DATE		JUN 17, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	44.5	45.0	44.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	71.0	70.0	73.5
OUTPUT LEVEL DB	110.5	110.5	109.5
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	38.5	38.5	36.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	5 15	5 15	6 15
700 HZ %	2 6	2 6	2 6
900 HZ %	3 8	2 7	3 7
MAX DIST %	8 18	6 16	6 15
FREQ OF MAX DIS	1230 1270	1240 1270	500 500
S/N RATIO DB			
1KHZ SIGNAL	43.0	44.5	44.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	.9	.9	.9
65 DB INPUT	.9	.9	.9
BATTERY VOLTAGE	1.31	1.31	1.31

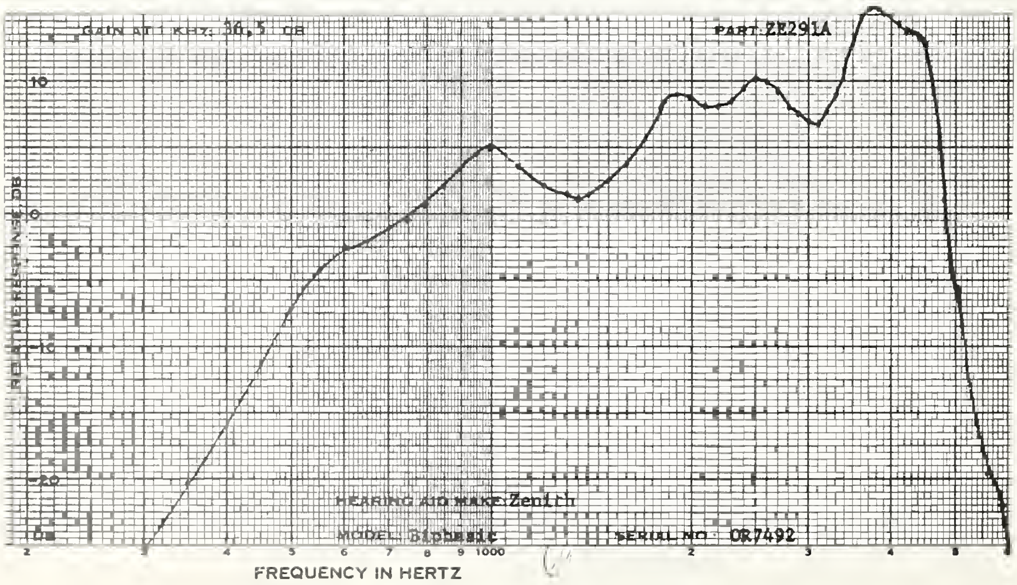

GAIN AT 1 KHZ: 41.5 DB
PART: ZE-289
RELATIVE RESPONSE DB
HEARING AID MAKE: Zenith
MODEL: Biphasic
SERIAL NO.: OL7346
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 41 DB
PART: ZE-290
RELATIVE RESPONSE DB
HEARING AID MAKE: Zenith
MODEL: Biphasic
SERIAL NO.: OL7412
FREQUENCY IN HERTZ


GAIN AT 1 KHZ: 41.5 DB
PART: ZE-291
RELATIVE RESPONSE DB
HEARING AID MAKE: Zenith
MODEL: Biphasic
SERIAL NO.: OL7492
FREQUENCY IN HERTZ

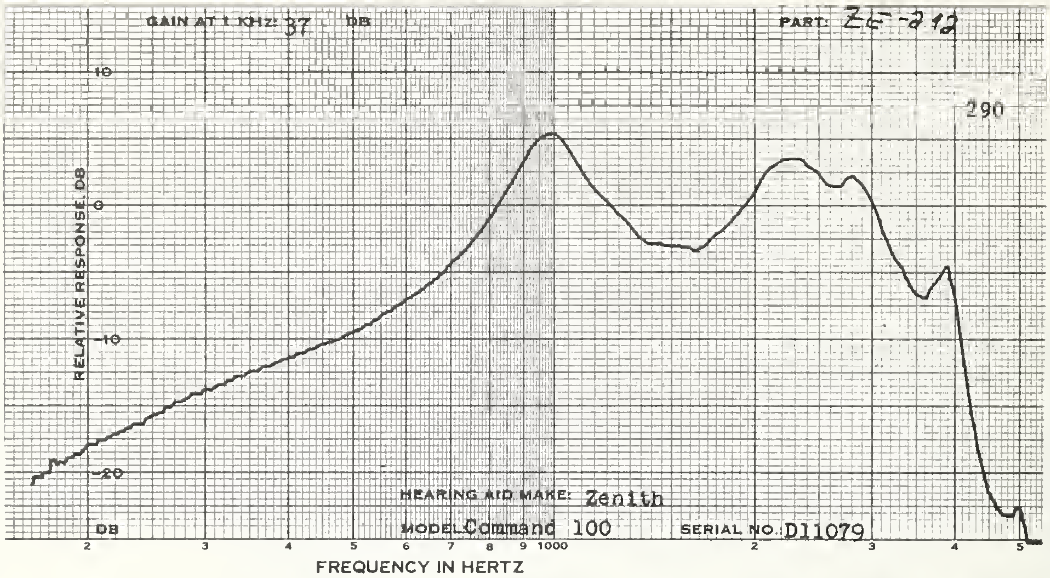

GAIN AT 1 KHZ: 38.5 DB
PART: ZE289A
HEARING AID MAKE: Zenith
MODEL: Biphasic
SERIAL NO. OR7346
RELATIVE RESPONSE, DB
FREQUENCY IN HERTZ

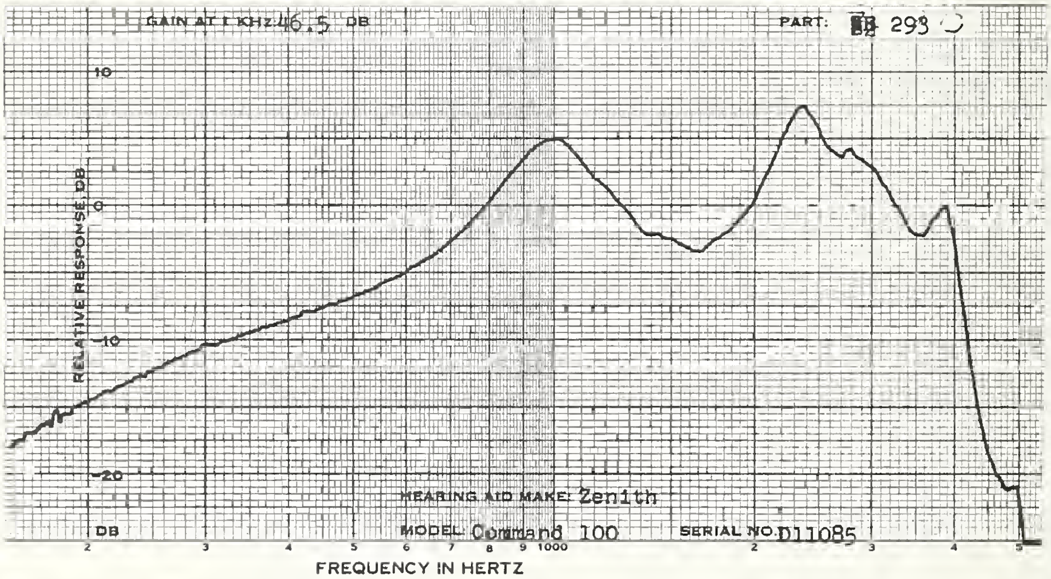

GAIN AT 1 KHZ: 38.5 DB
PART: ZE290A
HEARING AID MAKE: Zenith
MODEL: Biphasic
SERIAL NO. OR7412
RELATIVE RESPONSE, DB
FREQUENCY IN HERTZ

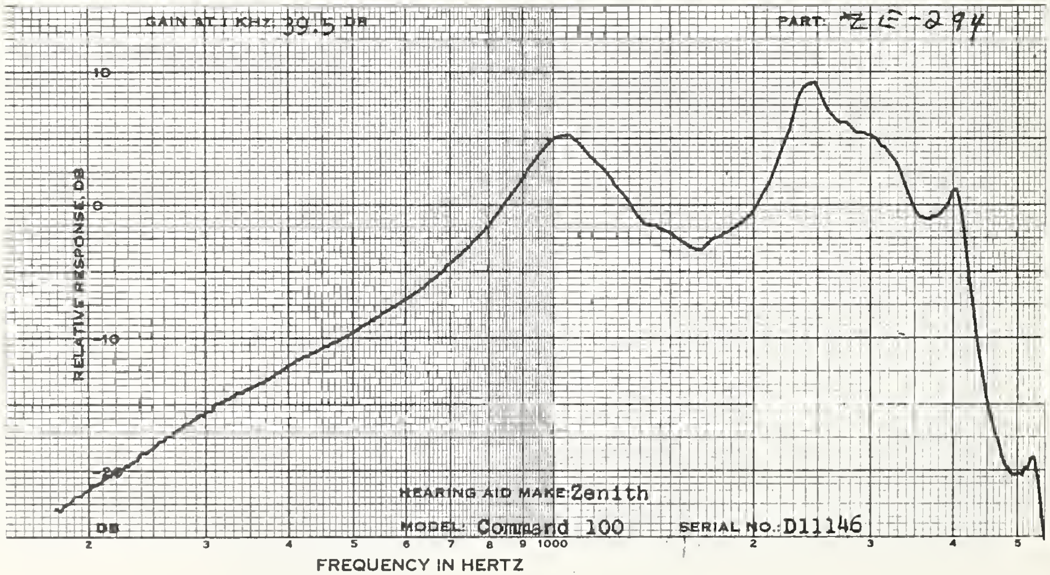

GAIN AT 1 KHZ: 36.5 DB
PART: ZE291A
HEARING AID MAKE: Zenith
MODEL: Biphasic
SERIAL NO. OR7492
RELATIVE RESPONSE, DB
FREQUENCY IN HERTZ

ZENITH OE
MODEL:COMMAND 100 TONE:FULL PWR:FULL TUBING:25MM BATTERY:S13

CODE	ZE-292		ZE-293		ZE-294	
SERIAL #	D11079		D11085		D11146	
DATE			JAN 23, 1975			
MEASUREMENTS WITH FULL VCL CONTROL						
1KHZ GAIN DB	44.0		46.5		47.5	
MPO, RANDCM NOISE						
INPUT LEVEL, DB	88.0		86.0		86.0	
OUTPUT LEVEL DB	103.5		107.5		107.0	
MEASUREMENTS WITH REDUCED VOLUME CONTRCL SETTING						
1KHZ GAIN DB	37.0		40.0		39.5	
HARMONIC DIST						
@INPUT LEVEL DB	60.0	70.0	60.0	70.0	60.0	70.0
500 HZ %	6	17	4	6	3	7
700 HZ %	1	4	1	1	1	1
900 HZ %	0	1	0	0	0	1
MAX DIST %	6	17	4	6	3	7
FREQ OF MAX DIS	500	500	500	500	500	500
S/N RATIO DB						
1KHZ SIGNAL	39.5		44.0		43.0	
S/HUM RATIO DB						
1KHZ SIGNAL	N.M.		N.M.		N.M.	
BATTERY DRAIN, MA						
NO INPUT	.4		.8		.8	
65 DB INPUT	.4		.8		.8	
BATTERY VOLTAGE	1.56		1.53		1.53	


GAIN AT 1 KHZ: 37 DB
PART: ZE-212
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL Command 100
SERIAL NO.: D11079
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

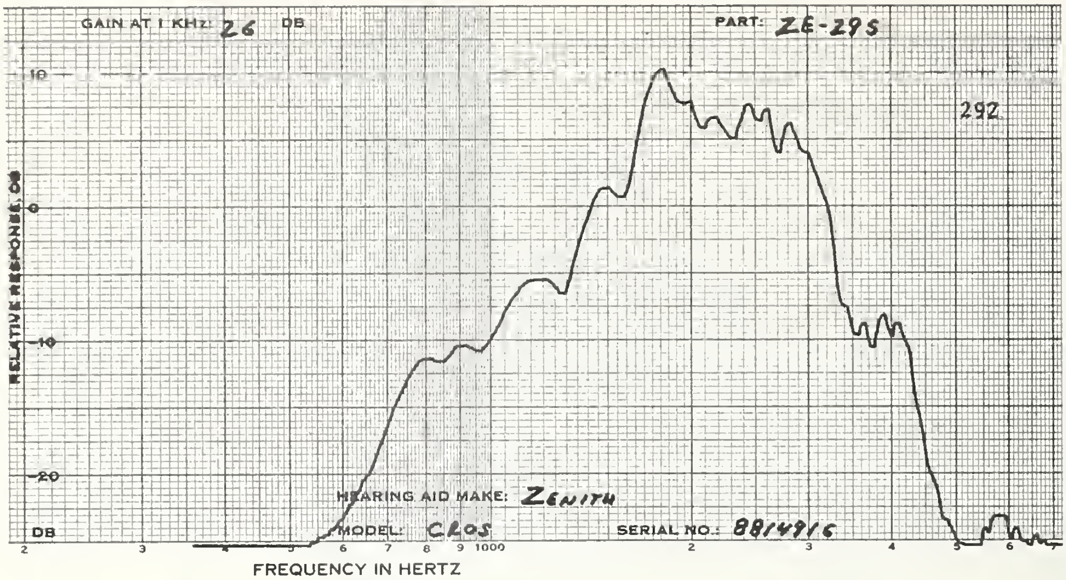

GAIN AT 1 KHZ: 46.5 DB
PART: 293
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL: Command 100
SERIAL NO.: D11085
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

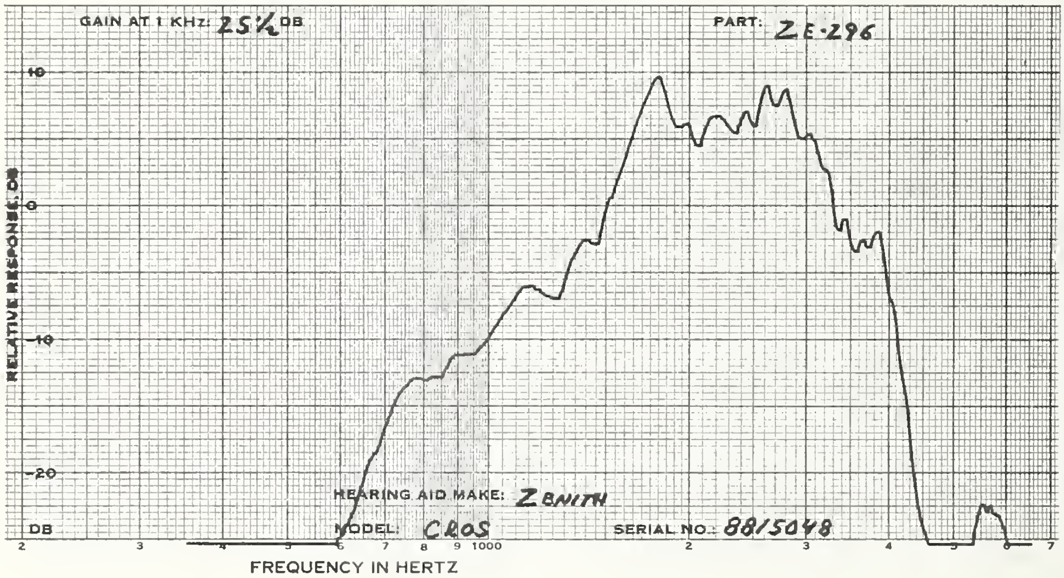

GAIN AT 1 KHZ: 39.5 DB
PART: ZE-294
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL: Command 100
SERIAL NO.: D11146
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

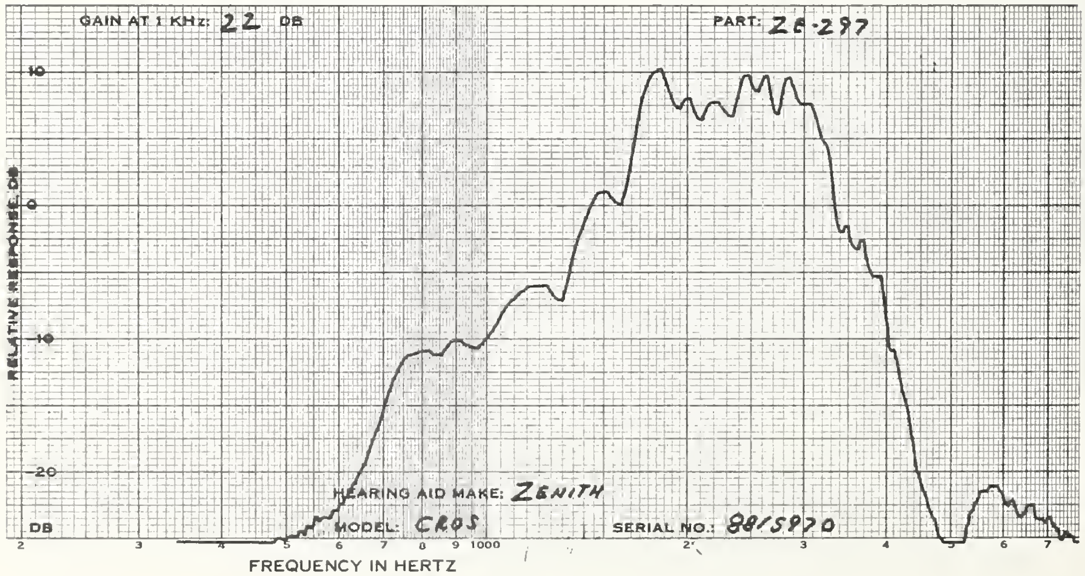
MODEL:CROS TONE:NONE TUBING:42MM BATTERY:M-41

CODE	ZE-295	ZE-296	ZE-297
SERIAL #	8814916	8815048	8815970
DATE		JUN 10, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	31.5	30.5	29.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	83.0	84.0	84.0
OUTPUT LEVEL DB	121.5	120.0	121.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	26.0	25.5	22.0
S/N RATIO DB			
2KHZ SIGNAL	51.5	49.0	49.0
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.6	1.6	1.4
65 DB INPUT	1.6	1.6	1.4
BATTERY VOLTAGE	1.30	1.30	1.30

THE GAIN ON ZE-297 WAS REDUCED 7 DB INSTEAD OF 5 DB BECAUSE OF A DISCONTINUITY IN THE VOLUME CONTROL.


GAIN AT 1 KHz: 26 DB
PART: ZE-295
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: CROS
SERIAL NO.: 8814916
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 25½ DB
PART: ZE-296
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: CROS
SERIAL NO.: 8815048
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

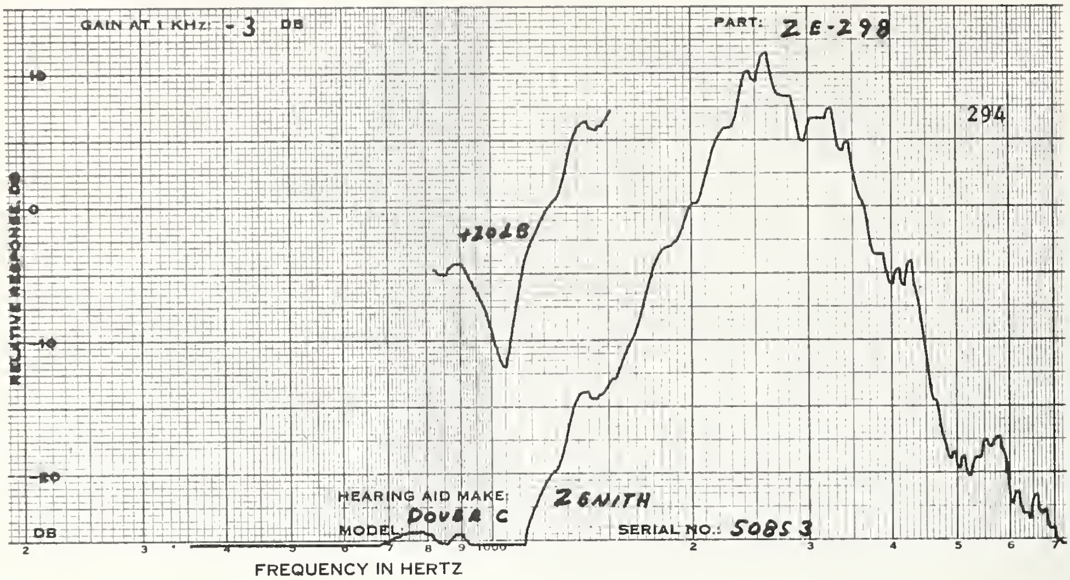

GAIN AT 1 KHz: 22 DB
PART: ZE-297
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: CROS
SERIAL NO.: 8815970
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

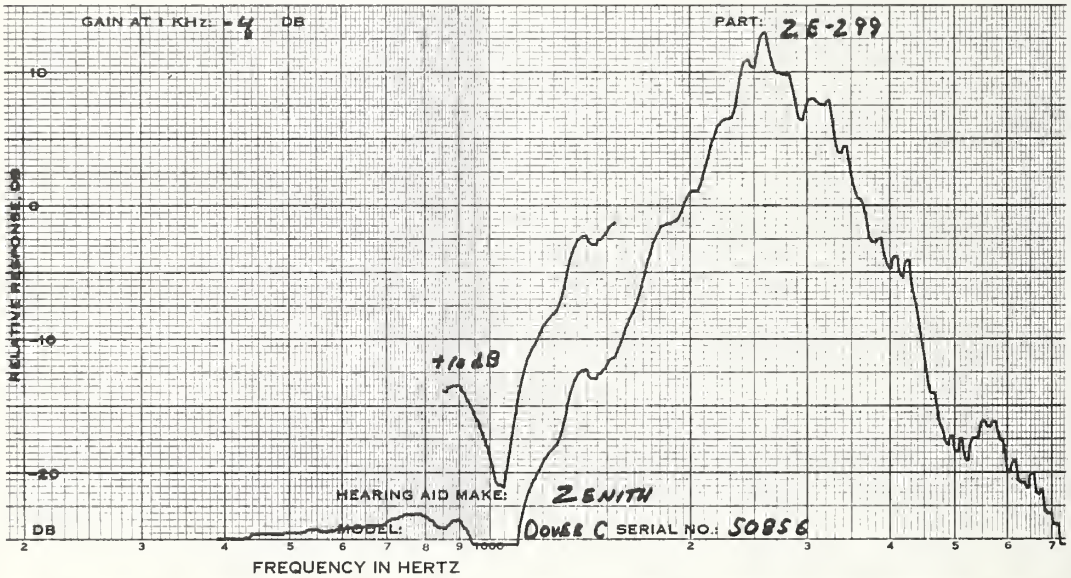
ZENITH HP OE
MODEL:DOVER C PWR:FULL TUBING:25MM BATTERY:S13

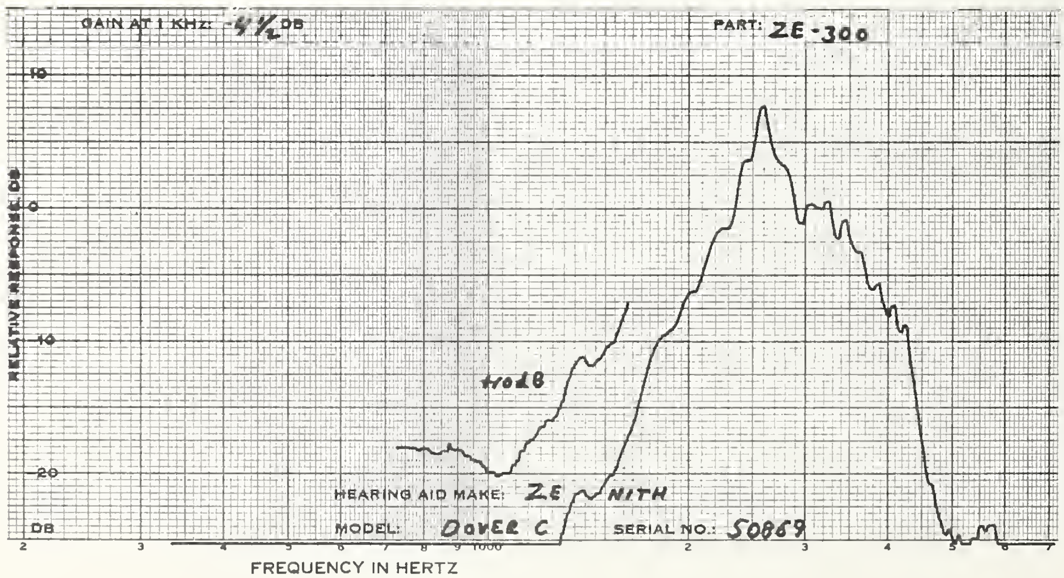
CODE	ZE-298	ZE-299	ZE-300
SERIAL #	50853	50856	50869
DATE		JUNE 5, 1975	
MEASUREMENTS WITH FULL VOL CONTROL *			
1KHZ GAIN DB	7.0	6.5	7.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	86.0	86.0	84.0
OUTPUT LEVEL DB	121.0	121.0	120.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	-3.0	-4.0	-4.5
S/N RATIO DB			
2KHZ SIGNAL	>38.0	>37.0	>39.5
S/HUM RATIO DB			
2KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.0	1.0	1.0
65 DB INPUT	1.0	1.0	1.0
BATTERY VOLTAGE	1.56	1.56	1.56

GAIN REDUCED 5DB AT 1.5KHZ.

*Maximum setting possible without feedback.

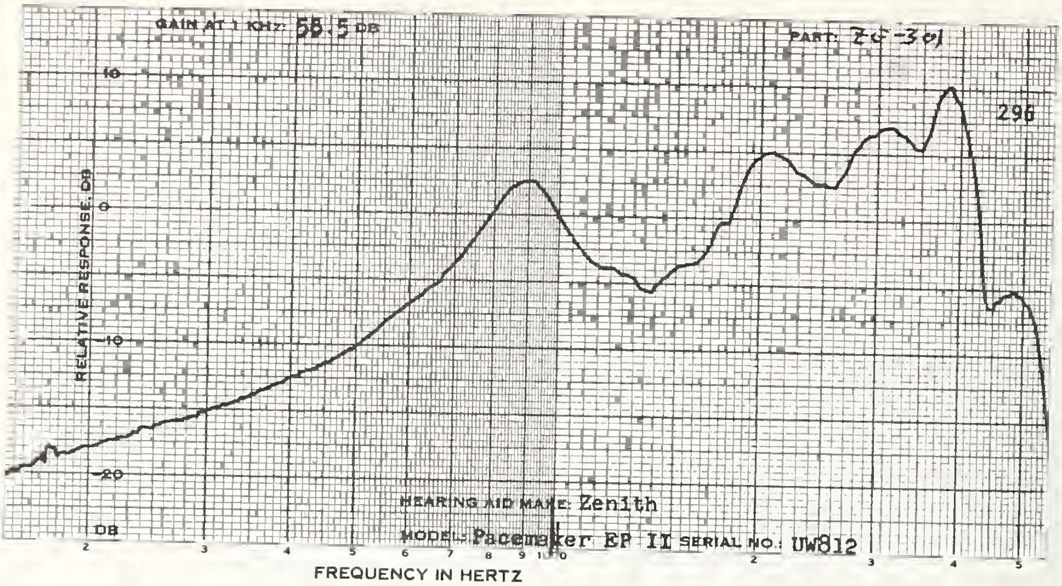

GAIN AT 1 KHz: -3 DB
PART: ZE-298
+20dB
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: DOVER C
SERIAL NO.: 50853
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

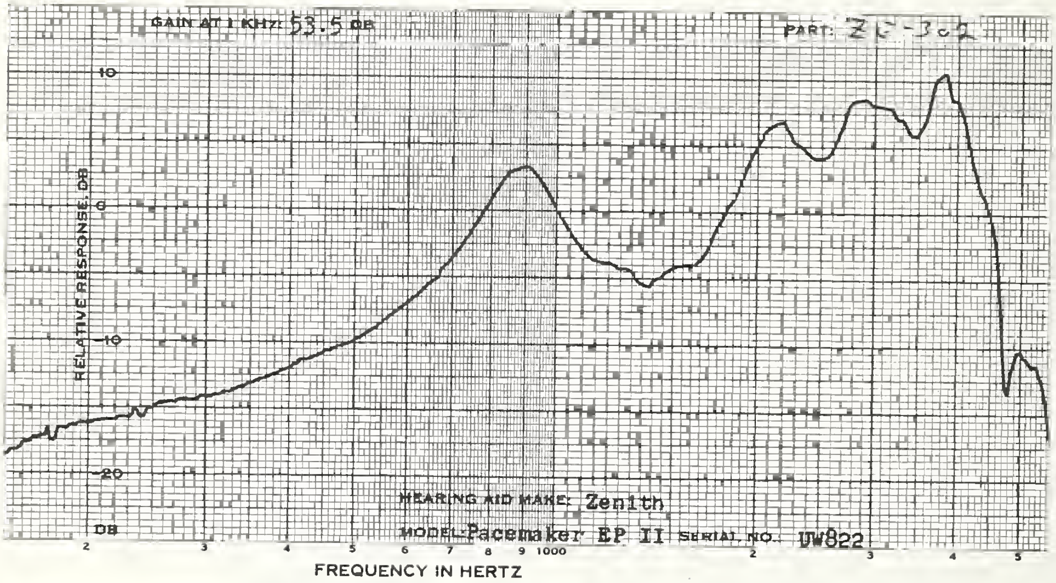

GAIN AT 1 KHz: -4 DB
PART: ZE-299
+10dB
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: DOVER C
SERIAL NO.: 50856
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

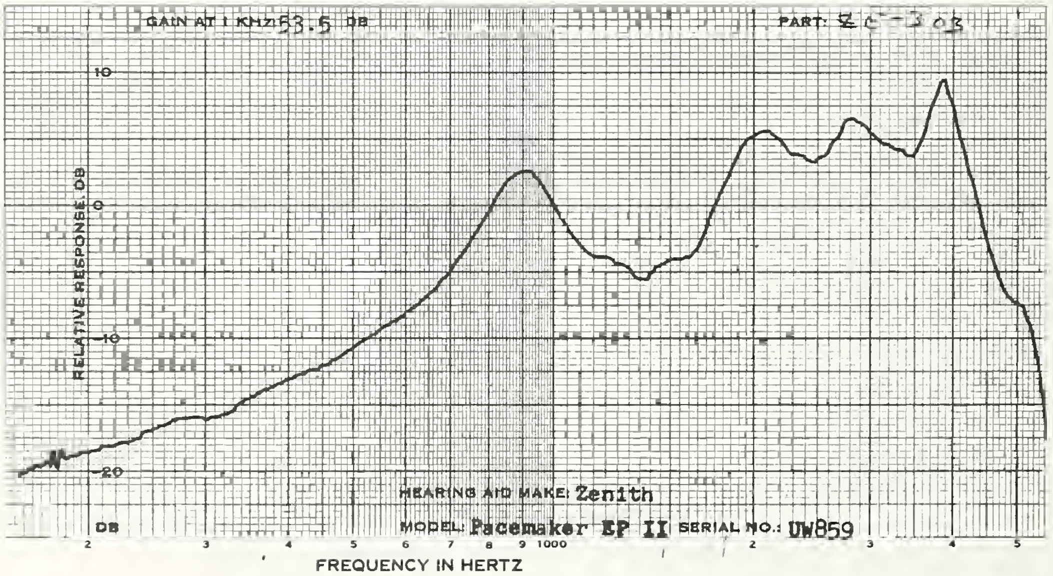

GAIN AT 1 KHz: -4½ DB
PART: ZE-300
+10dB
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: DOVER C
SERIAL NO.: 50869
2
3
4
5
6
7
8
9
1000
2
3
4
5
6
7
FREQUENCY IN HERTZ

MODEL:PACEMAKER EP II TONE,PWR:FULL TUBING:25MM BATTERY:675

CODE	ZE-301	ZE-302	ZE-303
SERIAL #	UW812	UW822	UW859
DATE		JAN 23, 1975	
MEASUREMENTS WITH FULL VCL CONTROL			
1KHZ GAIN DB	56.5	53.5	53.5
MPO, RANDCM NOISE			
INPUT LEVEL, DB	84.0	82.0	81.0
OUTPUT LEVEL DB	127.5	126.0	127.5
MEASUREMENTS WITH REDUCED VCLUME CONTROL SETTING			
1KHZ GAIN DB	56.5(FULL)	53.5(FULL)	53.5(FULL)
HARMONIC DIST			
@INPUT LEVEL DB	61.0 71.0	61.0 71.0	61.5 71.5
500 HZ %	3 5	4 8	3 9
700 HZ %	5 7	2 12	4 12
900 HZ %	1 3	0 2	1 4
MAX DIST %	5 11	4 12	4 12
FREQ OF MAX DIS	700 1270	500 700	700 700
S/N RATIO DB			
1KHZ SIGNAL	45.0	43.5	45.0
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.2	.7	.7
65 DB INPUT	1.9	2.2	2.1
BATTERY VOLTAGE	1.34	1.33	1.33


GAIN AT 1 KHZ: 58.5 DB
PART: ZC-301
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL: Pacemaker EP II SERIAL NO.: UW812
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

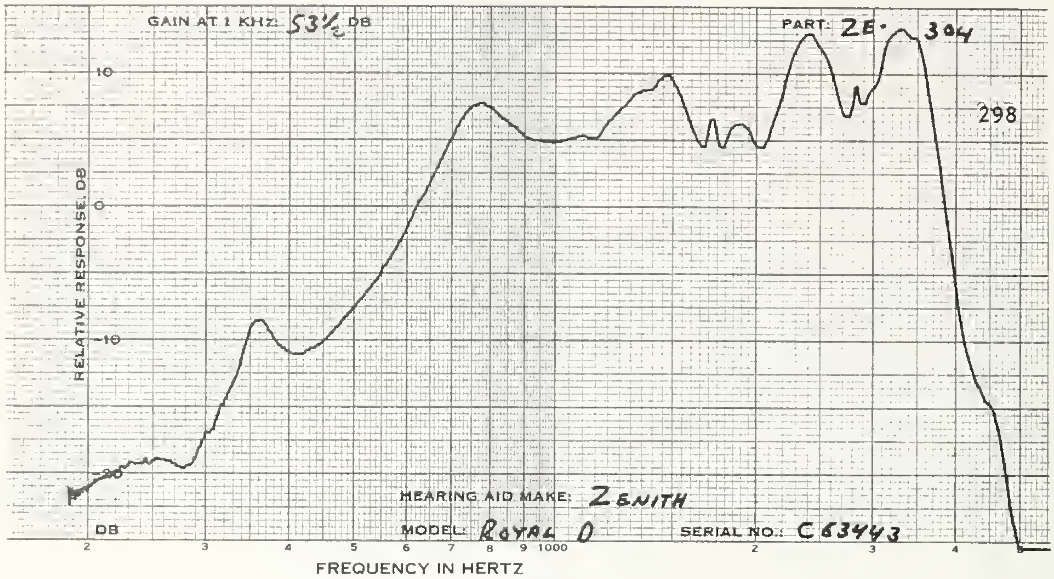

GAIN AT 1 KHZ: 53.5 DB
PART: ZC-302
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL: Pacemaker EP II SERIAL NO.: UW822
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

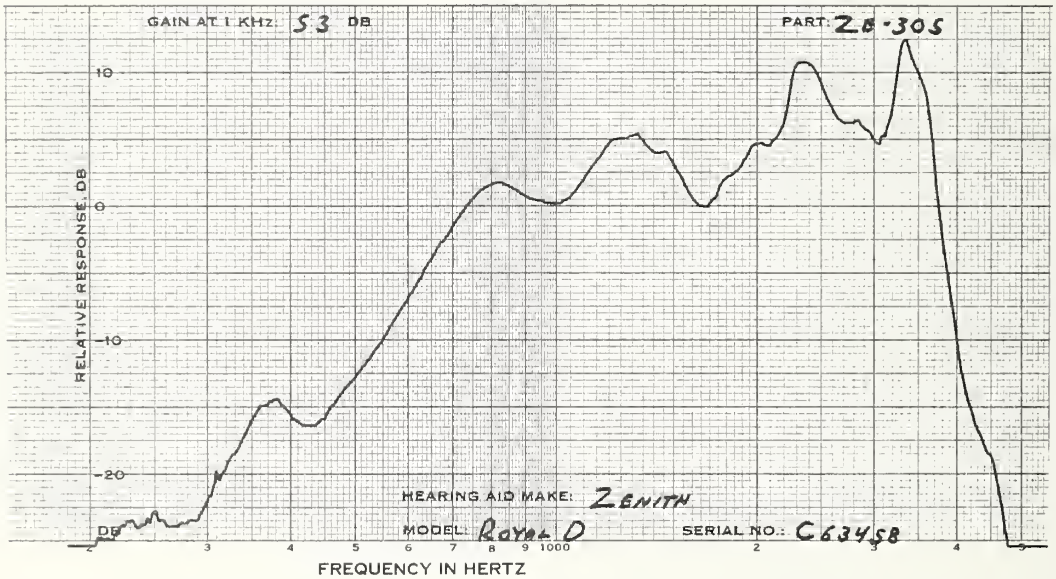

GAIN AT 1 KHZ: 53.5 DB
PART: ZC-303
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: Zenith
MODEL: Pacemaker EP II SERIAL NO.: UW859
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

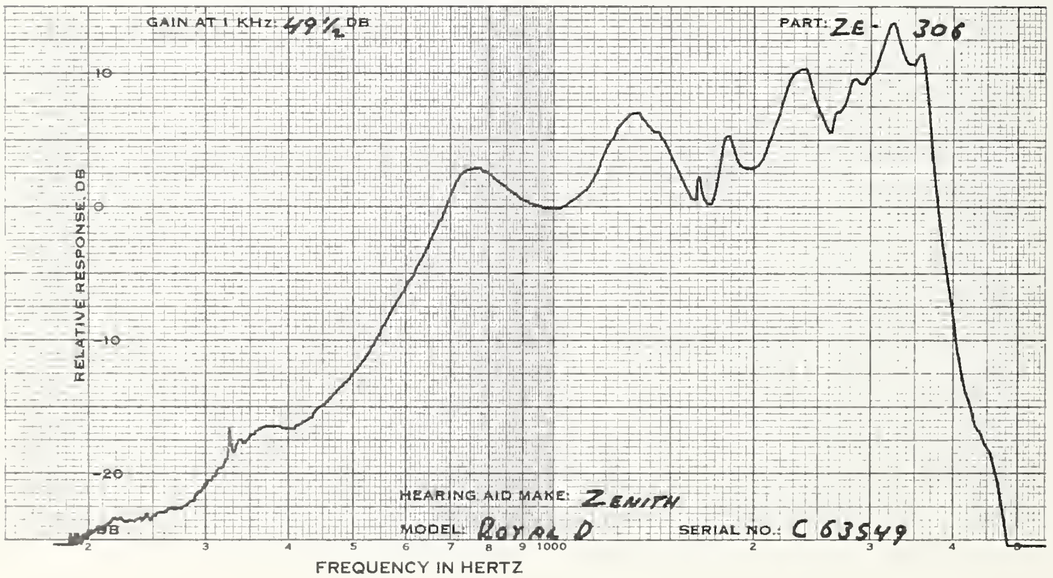
MODEL:ROYAL D TONE:CCW PWR:FULL TUBING:25MM BATTERY:S76

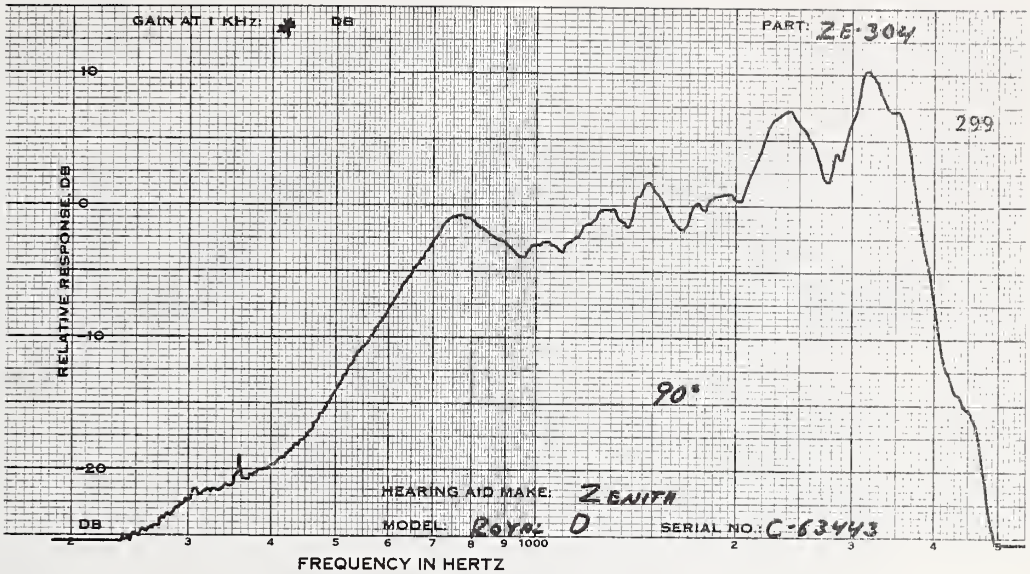
CODE	ZE-304	ZE-305	ZE-306
SERIAL #	C63443	C63458	C63549
DATE		APR 15, 1975	
MEASUREMENTS WITH FULL VOL CONTROL			
1KHZ GAIN DB	55.5	57.0	51.0
MPO, RANDOM NOISE			
INPUT LEVEL, DB	78.0	79.0	79.0
OUTPUT LEVEL DB	126.5	126.5	125.0
MEASUREMENTS WITH REDUCED VOLUME CONTROL SETTING			
1KHZ GAIN DB	53.5	53.0	49.5
HARMONIC DIST			
@INPUT LEVEL DB	60.0 70.0	60.0 70.0	60.0 70.0
500 HZ %	2 5	4 5	3 3
700 HZ %	1 2	2 2	1 0
900 HZ %	2 4	2 4	2 2
MAX DIST %	4 20	6 21	4 25
FREQ OF MAX DIS	1059 1163	1620 1100	1170 1155
S/N RATIO DB			
1KHZ SIGNAL	41.5	42.0	41.5
S/HUM RATIO DB			
1KHZ SIGNAL	N.M.	N.M.	N.M.
BATTERY DRAIN, MA			
NO INPUT	1.2	1.0	1.0
65 DB INPUT	1.7	1.7	1.7
BATTERY VOLTAGE	1.54	1.54	1.54

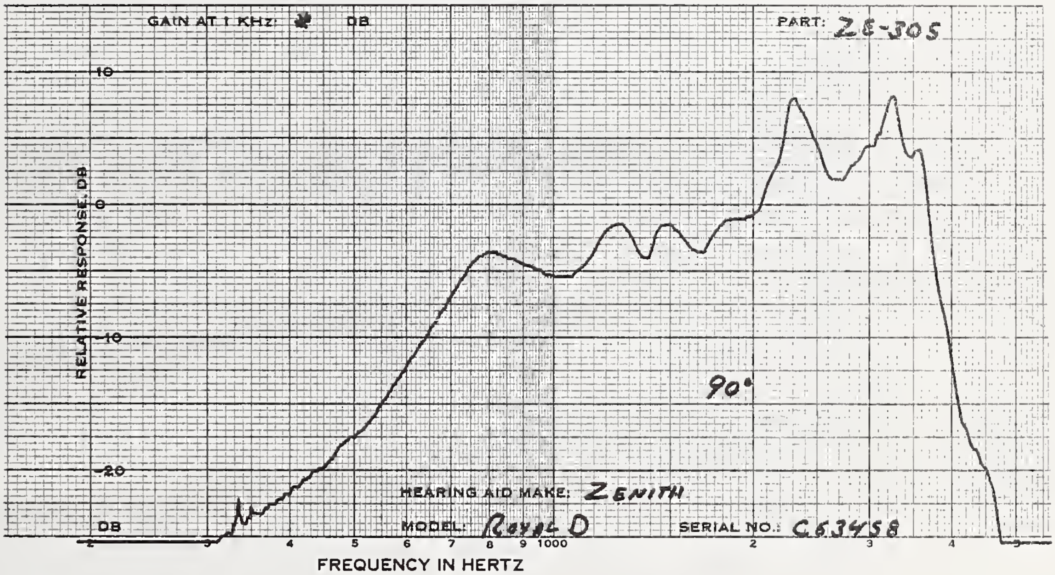
@FIN NIF@

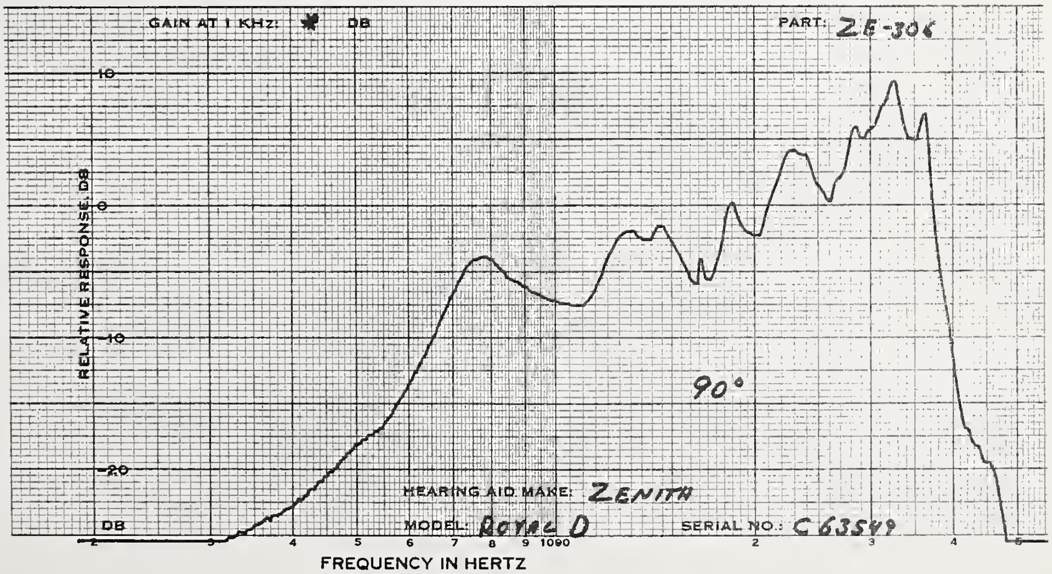

GAIN AT 1 KHz: 53½ DB
PART: ZE-304
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: ROYAL D
SERIAL NO.: C63443
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 53 DB
PART: ZE-305
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: ROYAL D
SERIAL NO.: C63458
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: 49½ DB
PART: ZE-306
RELATIVE RESPONSE, DB
10
0
-10
-20
DB
HEARING AID MAKE: ZENITH
MODEL: ROYAL D
SERIAL NO.: C63549
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: ZE-304
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: ZENITH
MODEL: ROYAL D
SERIAL NO.: C-63443
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: ZE-305
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: ZENITH
MODEL: ROYAL D
SERIAL NO.: C63458
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ


GAIN AT 1 KHz: * DB
PART: ZE-306
10
0
-10
-20
DB
RELATIVE RESPONSE, DB
90°
HEARING AID MAKE: ZENITH
MODEL: ROYAL D
SERIAL NO.: C63549
2 3 4 5 6 7 8 9 1000 2 3 4 5
FREQUENCY IN HERTZ

IV. PERFORMANCE MEASUREMENT DATA FROM THE BIOCOMMUNICATIONS LABORATORY, UNIVERSITY OF MARYLAND

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Equipment Array

Testing of special instruments for the 1976 Hearing Aid Program was conducted at the Biocommunications Laboratory, University of Maryland, utilizing the Knowles Electronics Manikin for Acoustic Research (KEMAR). A full description of KEMAR is provided by Burkhard and Sachs (1975). CROS, BICROS, compression, directional, and high frequency hearing aids submitted for Contract Year 1976 were evaluated. A diagram of the equipment utilized for measurements on KEMAR is shown in Figure 1.

A Bruel and Kjaer hearing-aid test system was utilized in conjunction with an anechoic chamber having an internal volume of 343 cubic feet (7' x 7' x 7'). The B & K 1022 beat frequency oscillator generated the signal which was led to a McIntosh power amplifier and subsequently to a JBL LE8T speaker placed directly in front of KEMAR (in a 0^{o} azimuth relationship) at a distance of 1 meter from the midpoint of a line between KEMAR's ears.

A Scully model 280 ¼" full track tape recorder and a B & K 1405 noise generator were also used in the system for producing tape-recorded materials and noise, respectively. A B & K ½" condenser microphone, model 4134, was attached to a Zwislocki coupler on KEMAR's right side. This microphone was led to a B & K 2606 measuring amplifier, where the sound pressure level from KEMAR's ear was monitored. The output of the B & K 2606 measuring amplifier was delivered to a B & K 2307 graphic level recorder. In addition, a B & K model 4131 1" condenser microphone, located either over KEMAR's head or near his right ear, was connected to a second B & K 2606 measuring amplifier. This arrangement permitted the monitoring of sound pressure level in the free field in which KEMAR was placed. A compression, or regulating, circuit was connected to the coupler microphone to maintain a constant sound pressure level across frequencies when deemed necessary.

Measurement of Saturation Sound Pressure Level (SSPL) was obtained with a pink noise stimulus (-3 dB octave). The input SPL of the pink noise, as monitored one inch above KEMAR's head, was increased in 5 dB steps until there was less than a 1 dB change in output. The first input level where this occurred was called SSPL. For example:

	Input	Output
	60	110
	65	115
	70	117
	75	120
Saturation SPL	80	122
	85	122

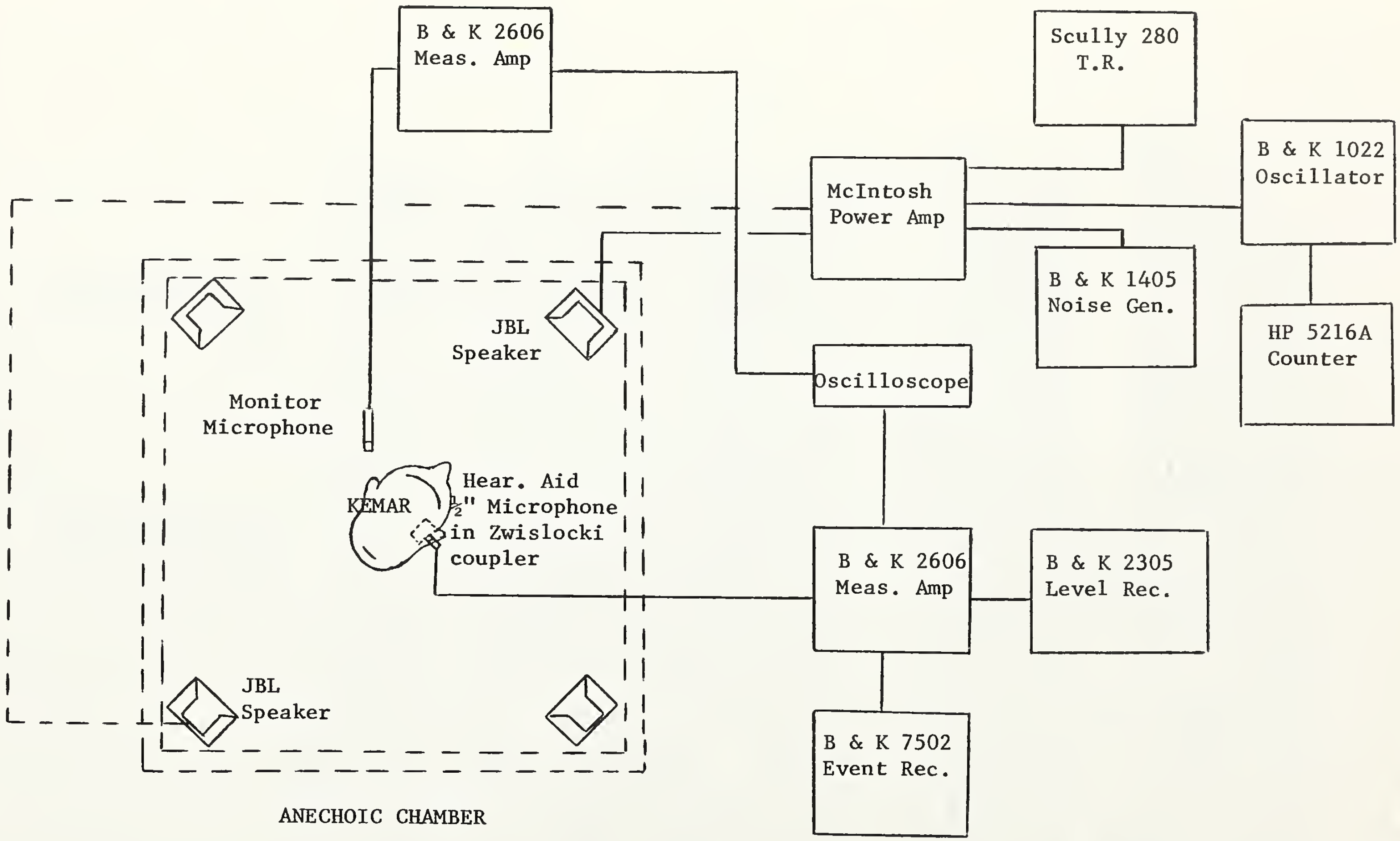


Figure 1. Equipment utilized for Measurements on KEMAR

Saturation SPL was 122 dB, established at an input level of 80 dB SPL.

Pure tone stimuli in the frequency range from 100 to 10,000 Hz were utilized in obtaining responses of amplitude by frequency. Measurement of the orthotelephonic response (Baranek, 1949, p. 621) was utilized for the specification of frequency response in each of the different types of special instruments. The ½" condenser microphone attached to the Zwislocki coupler in KEMAR's ear was made the regulating microphone by activating the previously mentioned compression circuit. The output of the oscillator, controlled by the compression circuit to produce 60 dB SPL throughout the frequency range 100 to 10,000 Hz, was recorded on magnetic tape by a Scully 280 tape recorder. The microphone in the coupler was subsequently converted to the measuring microphone, and the tape-recorded signal was played synchronously with the frequency markings on the recording paper of the graphic level recorder. When the tape-recorded stimuli were played back using the microphone in the Zwislocki coupler (previously the regulating microphone) as a measuring microphone, a flat frequency response was obtained, thereby verifying the efficacy of the recording technique. The tape-recorded pure tone stimuli were then utilized for all testing of hearing aids with KEMAR. The reader will notice that the curves are less smooth than those obtained with a 2cc coupler, due to the attendant diffraction and/or open ear canal effects associated with measurement on KEMAR.

With the previous discussion of equipment and methods for measurement of SSPL and frequency response in mind, a description of procedures used for each of the special categories follows. The data obtained on each instrument are presented after each procedural description.

References

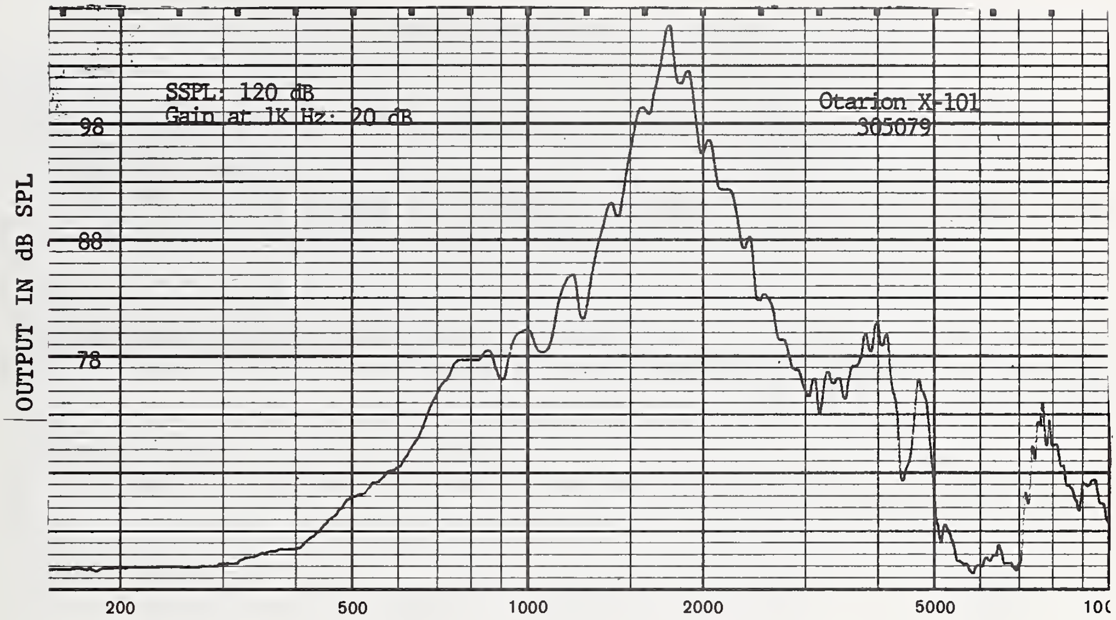
Beranek, L. S. Acoustic Measurements. New York: John Wiley & Sons, Inc., 1949.

Burkhard, M. D. and Sachs, R. M. Anthropometric Manikin for Acoustic Research. J. Acoust. Soc. Amer., 58: 214-222, (1975).

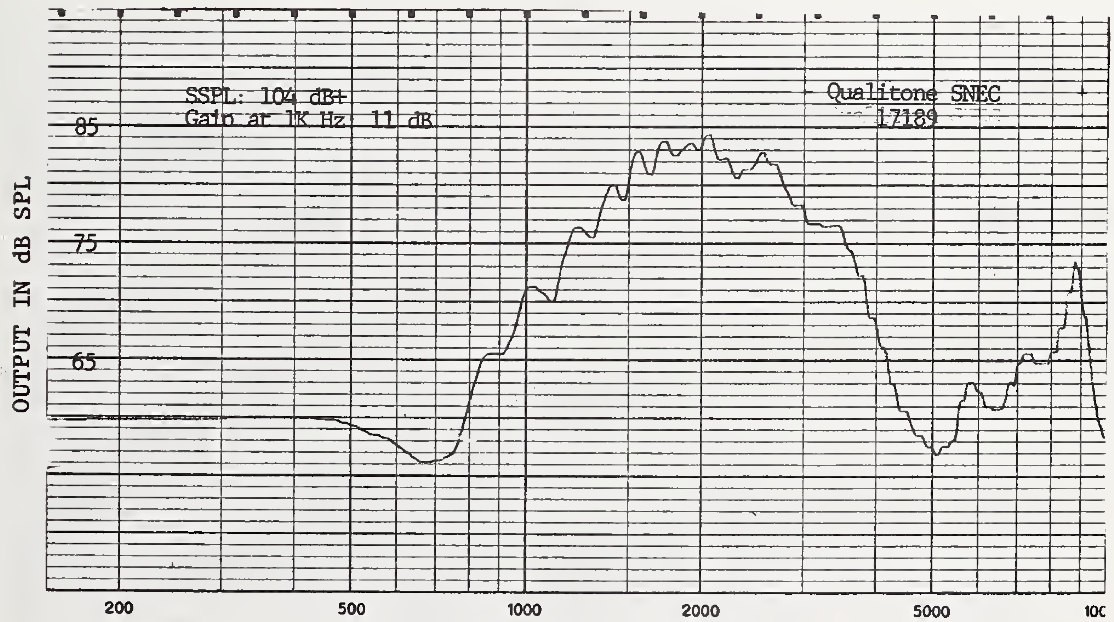
CROS HEARING AIDS

Frequency Response

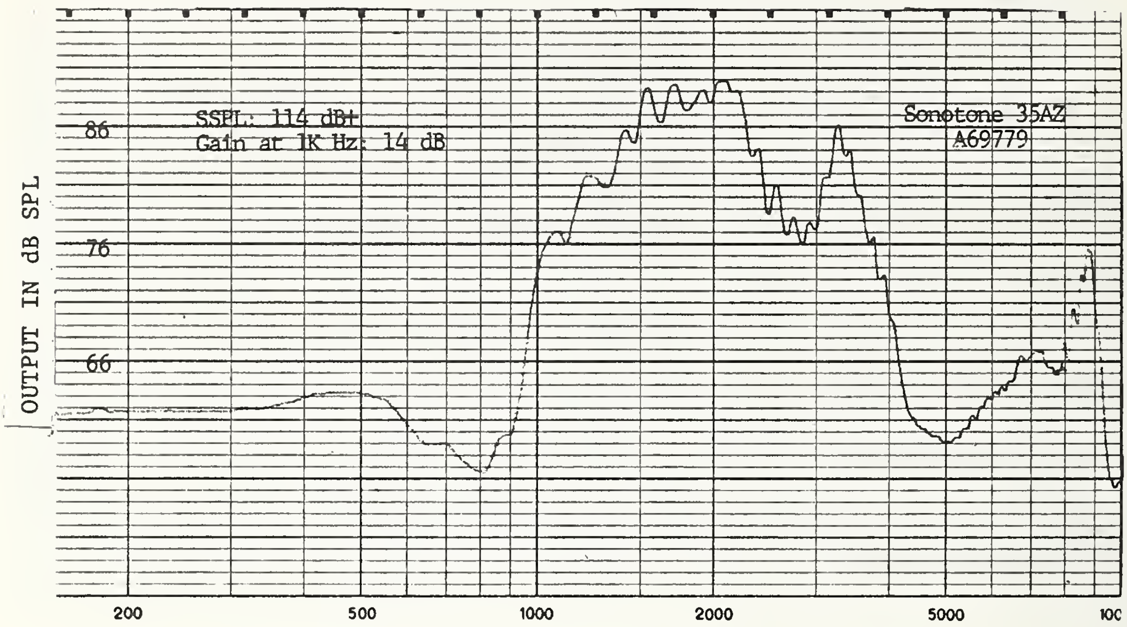
A non-occluding earmold with cemented tubing, 2 mm in inside diameter and 4 cm in length, was inserted into KEMAR's right ear. The hearing aid under test was attached to the tubing of KEMAR's earmold and placed so as to rest on the auricle. Saturation Sound Pressure Level (SSPL) was determined, and the volume control was then adjusted to yield an output 12 dB below SSPL with a 60 dB pink noise input. Using the system calibrated as previously described, a frequency response tracing (60 dB input) of the hearing aid at 0° azimuth was then obtained. Four CROS hearing aids were tested in this fashion.

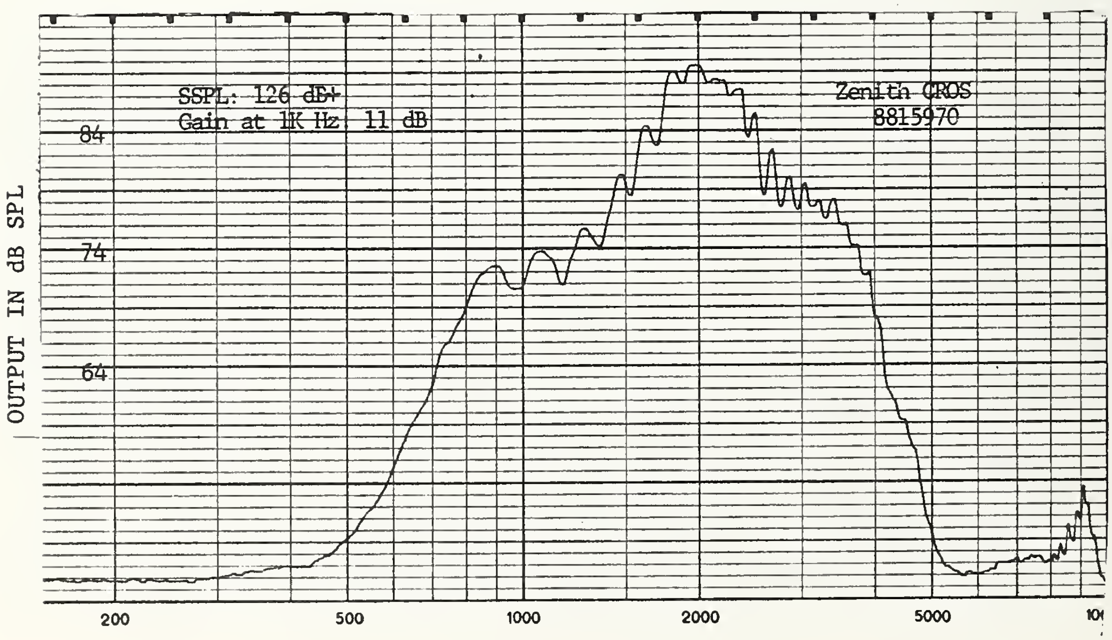


SSPL: 120 dB
Gain at 1K Hz: 20 dB
Otarion X-101
305079
98
88
78
OUTPUT IN dB SPL
200
500
1000
2000
5000



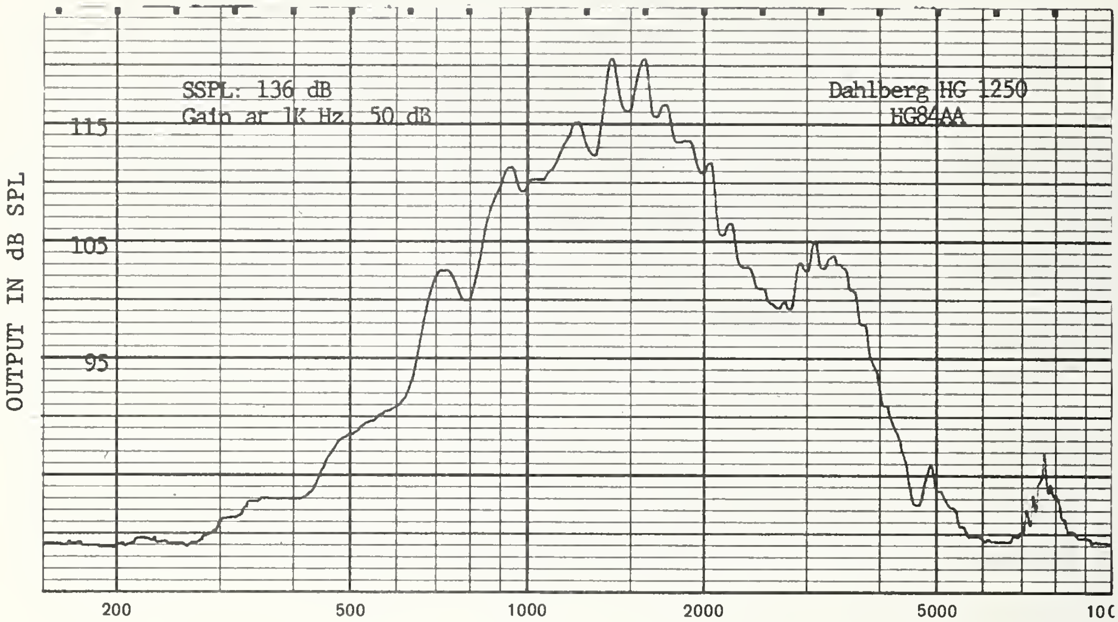
SSPL: 104 dB+
Gain at 1K Hz: 11 dB
Qualitone SNEC
17189
85
75
65
OUTPUT IN dB SPL
200
500
1000
2000
5000

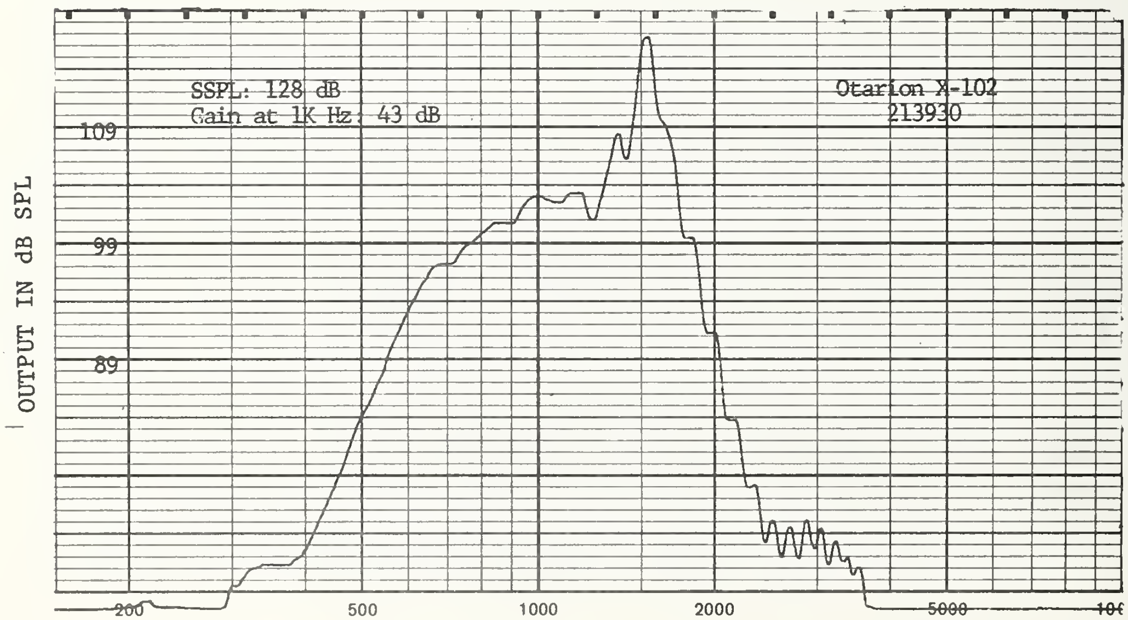

SSPL: 114 dB+
Gain at 1K Hz: 14 dB
Sonotone 35AZ
A69779
OUTPUT IN dB SPL
86
76
66
200
500
1000
2000
5000
10(

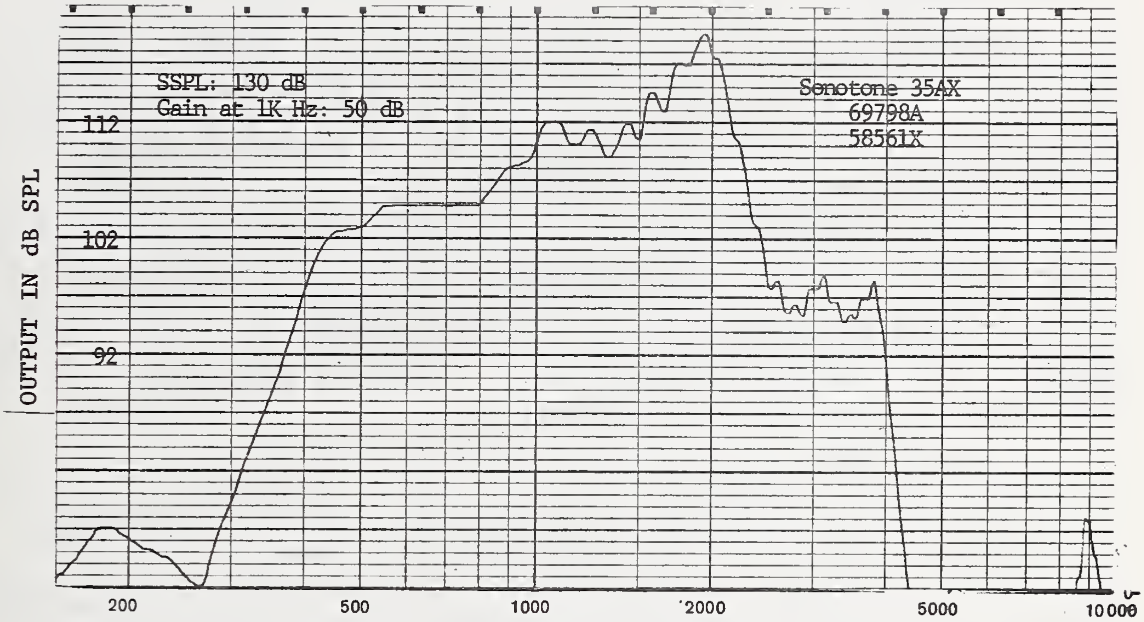

SSPL: 126 dB+
Gain at 1K Hz: 11 dB
Zenith CROS
8815970
OUTPUT IN dB SPL
84
74
64
200
500
1000
2000
5000
10(

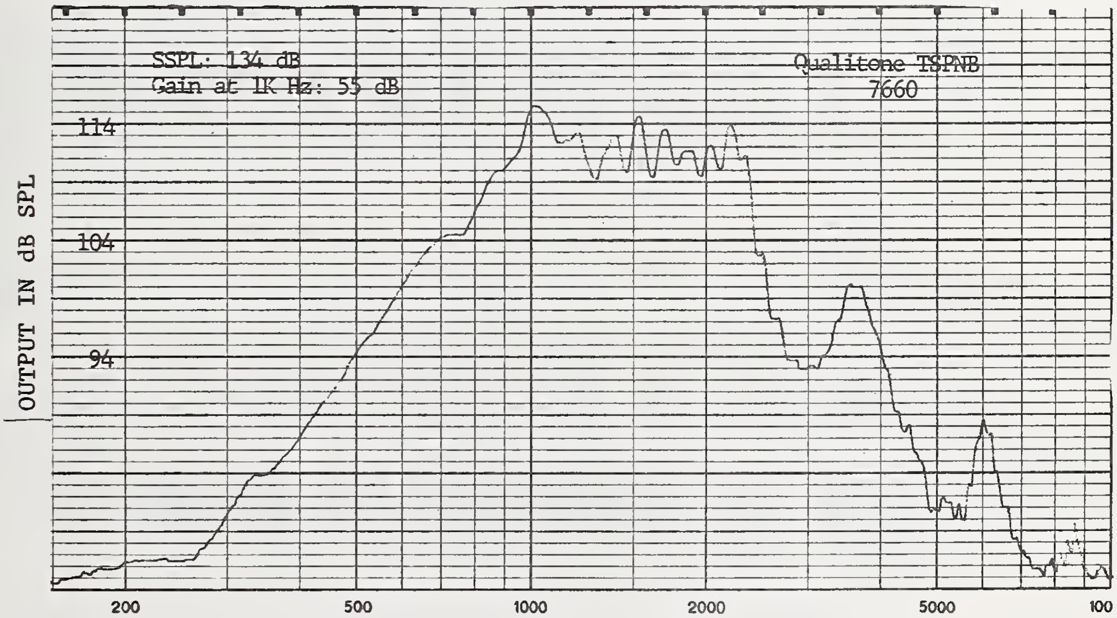
Frequency Response

An occluding earmold with cemented tubing, 2 mm in inside diameter and 4.6 cm in length, was inserted into KEMAR's right ear. The hearing aid under test was attached to the tubing of KEMAR's earmold and placed so as to rest on the auricle. The volume controls were set to full on, or reduced by the degree necessary to prevent feedback, as monitored audibly, and with the aid of an oscilloscope. Absolute output values were reflective of this gain control adjustment in many cases. Saturation Sound Pressure Level (SSPL) was determined, and the volume control was then adjusted to yield an output 12 dB below SSPL with a 60 dB pink noise input. Using the system calibrated as previously described, a frequency response tracing (60 dB input) of the aid at 0^{o} azimuth was then obtained. Four BICROS hearing aids were examined in this fashion.


SSPL: 136 dB
Gain at 1K Hz: 50 dB
Dahlberg HG 1250
HG84AA
OUTPUT IN dB SPL
115
105
95
200
500
1000
2000
5000


SSPL: 128 dB
Gain at 1K Hz: 43 dB
Otarion X-102
213930
OUTPUT IN dB SPL
109
99
89
200
500
1000
2000
5000


SSPL: 130 dB
Gain at 1K Hz: 50 dB
Sonotone 35AX
69798A
58561X
112
102
92
OUTPUT IN dB SPL
200
500
1000
2000
5000
10000


SSPL: 134 dB
Gain at 1K Hz: 55 dB
Qualitone TSPNB
7660
114
104
94
OUTPUT IN dB SPL
200
500
1000
2000
5000
100

Frequency Response

An occluding earmold with cemented tubing, 2 mm in inside diameter and 4.6 cm in length, was inserted into KEMAR's right ear. The hearing aid under test was attached to the tubing of KEMAR's earmold and placed so as to rest on the auricle. The volume controls were set to full on, or reduced by the degree necessary to prevent feedback, as monitored audibly, and with the aid of an oscilloscope. Absolute output values were reflective of this gain control adjustment in many cases. Saturation Sound Pressure Level (SSPL) was determined, and the volume control was then adjusted to yield an output 12 dB below SSPL with a 60 dB pink noise input. Using the system calibrated as previously described, three frequency response tracings at input levels of 60, 70, and 80 dB input were obtained at 0° azimuth for each aid. Seventeen compression hearing aids were examined in this fashion.

Attack-Release Times

A 1000 Hz signal was generated by the B & K 1022 oscillator, and gated by Grason-Stadler 1200 modular equipment to produce a square envelope signal varying repetitively at 2 second intervals from 55 to 80 dB SPL, as monitored free-field at KEMAR's open right ear. Each change in amplitude was instantaneous and occurred at zero crossing on the waveform. The output of the gating network was amplified and led to the front loudspeaker. Continuous monitoring of the input levels, while the aid was in place, was made possible by use of the field microphone (B & K 4131) as reference, positioned one inch from the entrance to KEMAR's right ear.

Eleven over-the-ear instruments were evaluated using an occluding earmold with cemented tubing (described previously), while six body-worn instruments were tested using an occluding earmold with snap ring. For measurements on the body-worn instruments, the instrument itself was mounted centrally on KEMAR's torso in a body harness, the top of which was situated 13 inches below a plane projected anteriorly from KEMAR's tragus. A total of 17 compression aids were evaluated.

The gain controls of the aids were set to full-on, or reduced by an amount necessary to prevent audible feedback. The oscilloscope was also used as an ancillary aid in feedback monitoring.

On instruments having external controls, only one combination of settings was employed in evaluating each of the aids. In all applicable cases, this combination consisted of settings compatible with maximum compression, shortest release time, and tone control setting recommended by the manufacturer for routine testing.

The aided output signal was delivered to the B & K 2606 measuring amplifier and subsequently led to a digital event recorder (B & K 7502), shown in Figure 1. The latter component allowed precision recording and playback of the output waveforms over variable time periods by its incorporation of a wide range of input/output sampling rates. The output of the event recorder was led to an oscilloscope, and Polaroid photographs were made of each separate attack and release display. Attack and release times were calculated directly from these photographs, using voltage ratios corresponding to $\pm$ 2 dB of steady state values. Accordingly, attack time is here defined as the time interval between the moment when the input SPL is increased instantaneously by 25 dB and the moment when the output SPL from the hearing aid stabilizes, within 2 dB, at the elevated steady state level. The release time is defined as the time interval between the moment when the output SPL from the hearing aid stablizes, within 2 dB, at the lowered steady state level.

The loudspeaker response to the electrical waveform revealed restoration of the input waveform within approximately 5 msec for both directions of amplitude shift. Thus, in Table I a value of 5 msec indicates a response as short as that of the loudspeaker source itself.

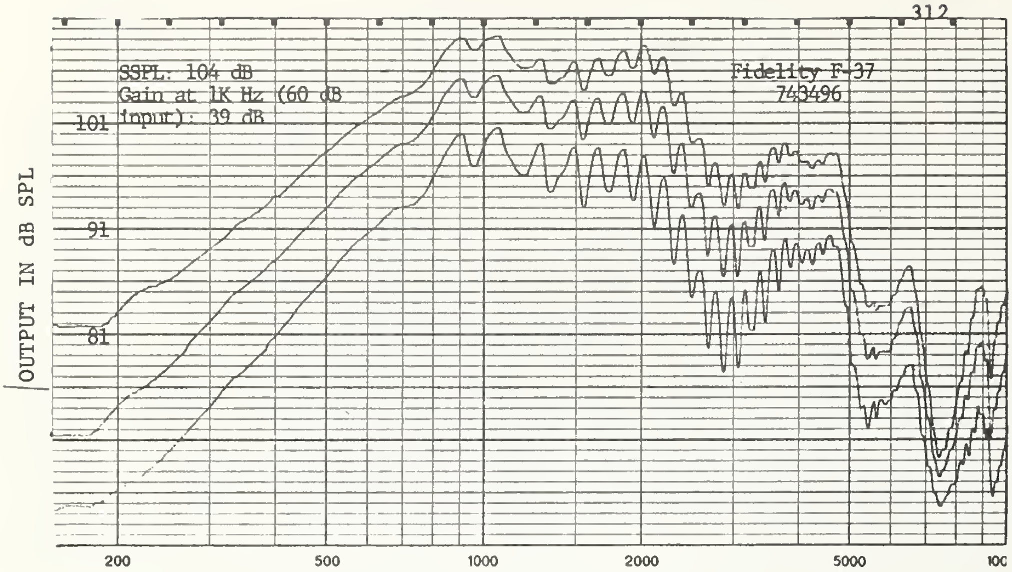
Input-Output Graphs

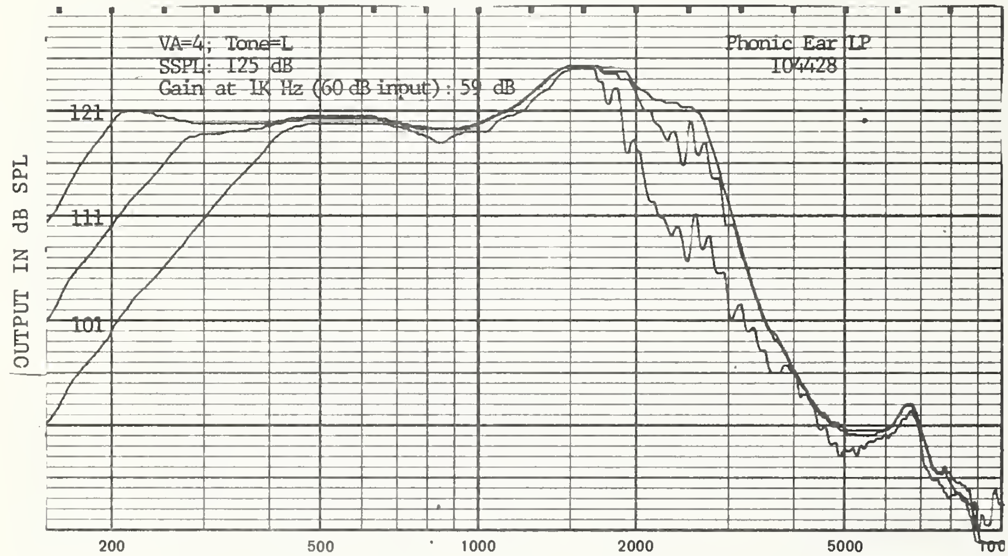
The pink noise output of the B & K 1405 Noise Generator was amplified and delivered to the front loudspeaker. Continuous input monitoring was made possible while the hearing aid was in place by employing a 1" condenser microphone (B & K 4131) as reference, positioned one inch from the entrance to KEMAR's right ear.

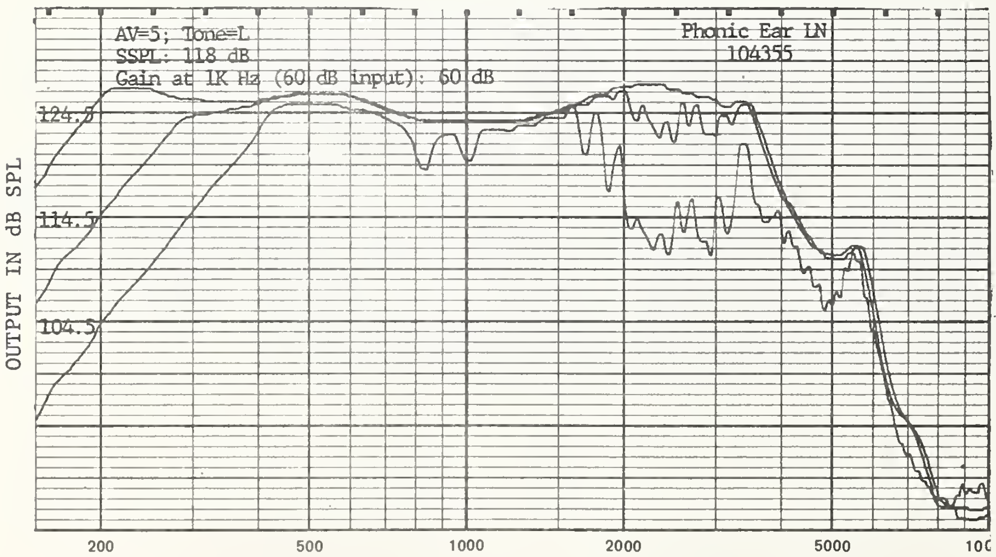
In evaluating over-the-ear instruments, the occluding earmold with cemented tubing was used, while the occluding mold with snap ring was utilized in evaluating body-worn instruments (i.e., HC Electronics Phonic Ear). In the latter instance, the instrument itself was mounted centrally on the torso in a body harness, the top of which was situated 13 inches below a plane projected anteriorly from KEMAR's tragus.

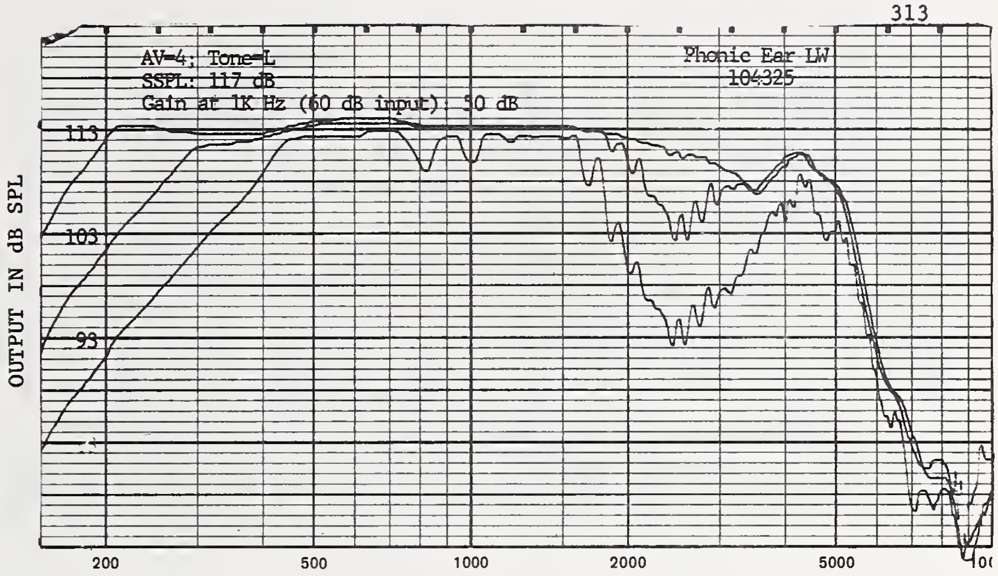
Seventeen compression hearing aids were evaluated, eleven of which were over-the-ear types, and six of which were body-worn instruments. The gain controls of the aids were set to full-on, or reduced by the degree necessary to prevent feedback, as monitored audibly and with the aid of an oscilloscope. Absolute output levels. therefore, were reflective of this gain control adjustment in many cases. Input levels ranged from 50 through 80 dB SPL, in steps of 5 dB.

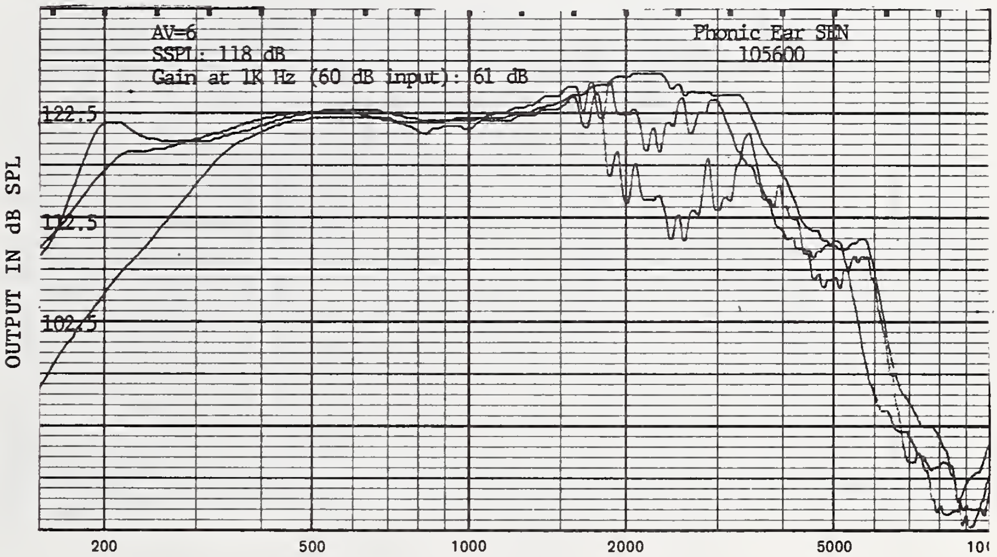
On instruments having external controls, only one combination of settings was employed in the data collection. In every applicable instance, this combination consisted of settings compatible with maximum compression, shortest release time, and tone control setting recommended by the manufacturer for routine testing.

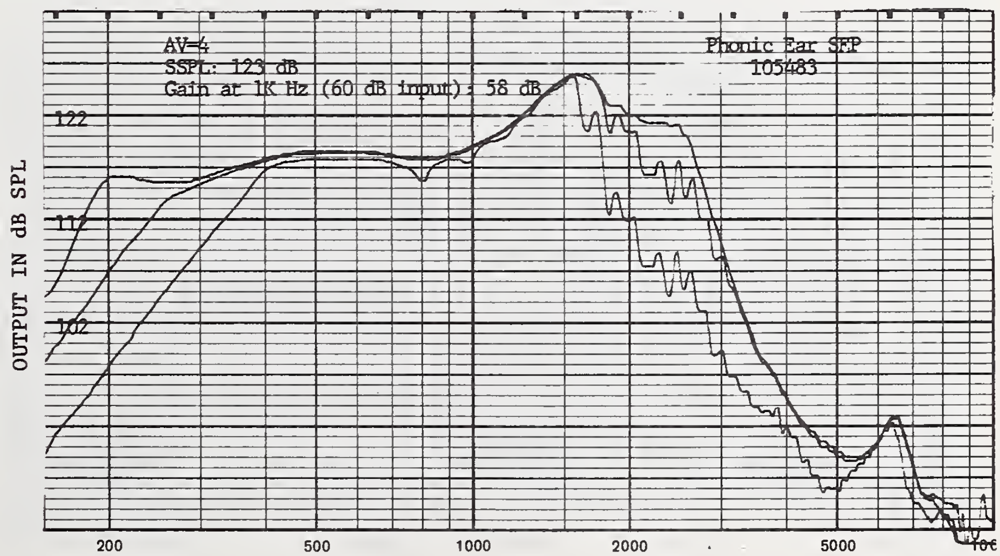

SSPL: 104 dB
Gain at 1K Hz (60 dB
input): 39 dB
Fidelity F-37
743496
OUTPUT IN dB SPL
101
91
81
200
500
1000
2000
5000
100

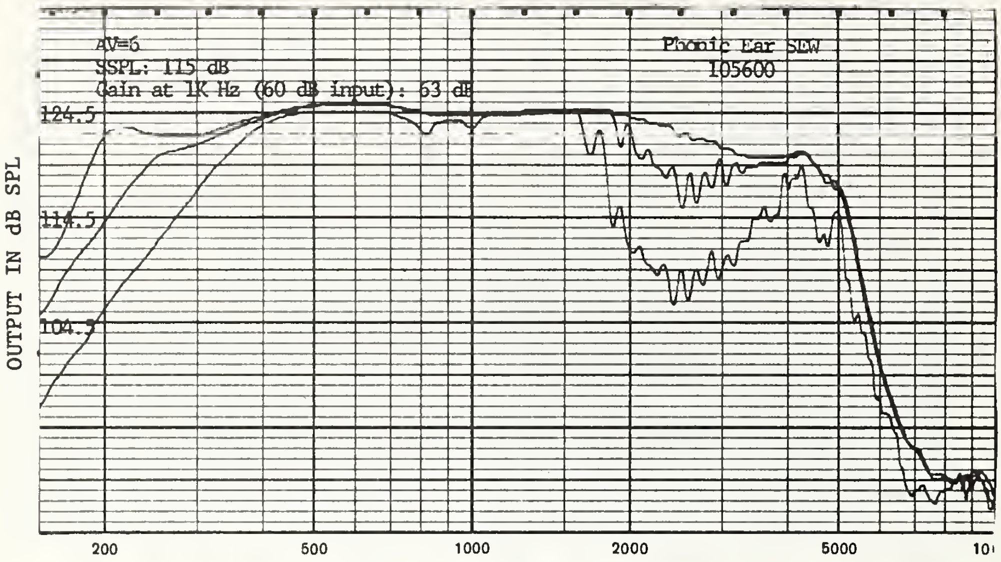

VA=4; Tone=L
SSPL: 125 dB
Gain at 1K Hz (60 dB input): 59 dB
Phonic Ear LP
104428
OUTPUT IN dB SPL
121
111
101
200
500
1000
2000
5000
100

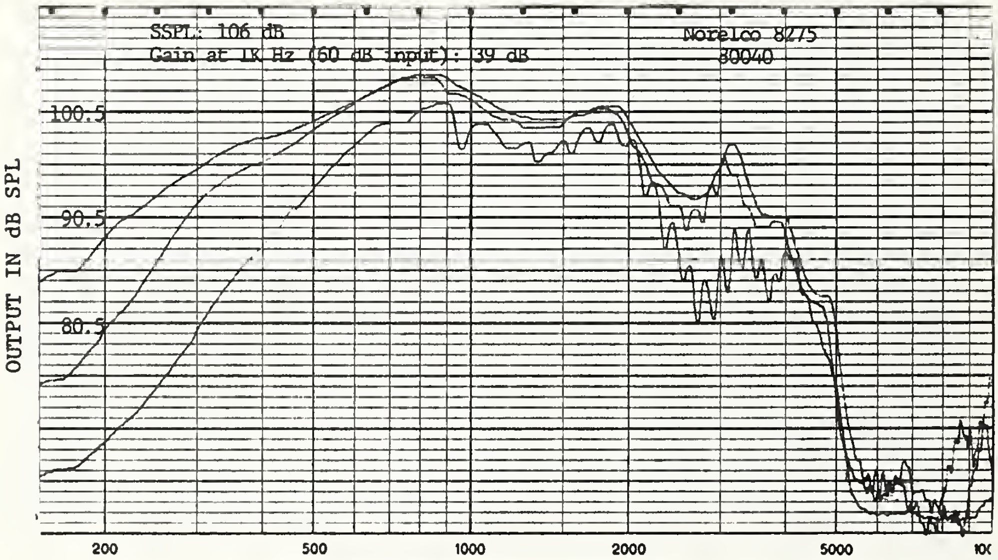

AV=5; Tone=L
SSPL: 118 dB
Gain at 1K Hz (60 dB input): 60 dB
Phonic Ear LN
104355
OUTPUT IN dB SPL
124.5
114.5
104.5
200
500
1000
2000
5000
100

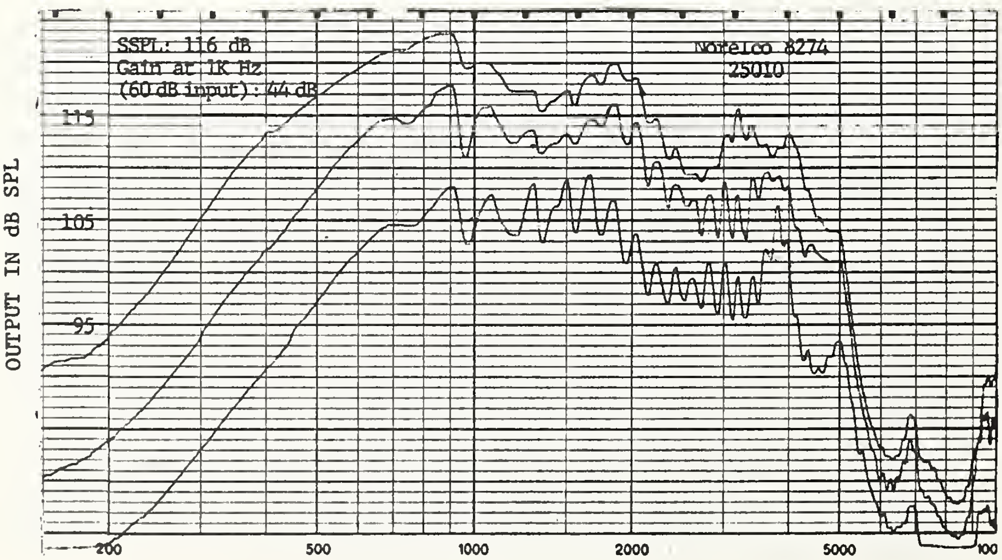

AV=4; Tone=L
SSPL: 117 dB
Gain at 1K Hz (60 dB input): 50 dB
Phonic Ear LW
104325
OUTPUT IN dB SPL
113
103
93
200
500
1000
2000
5000

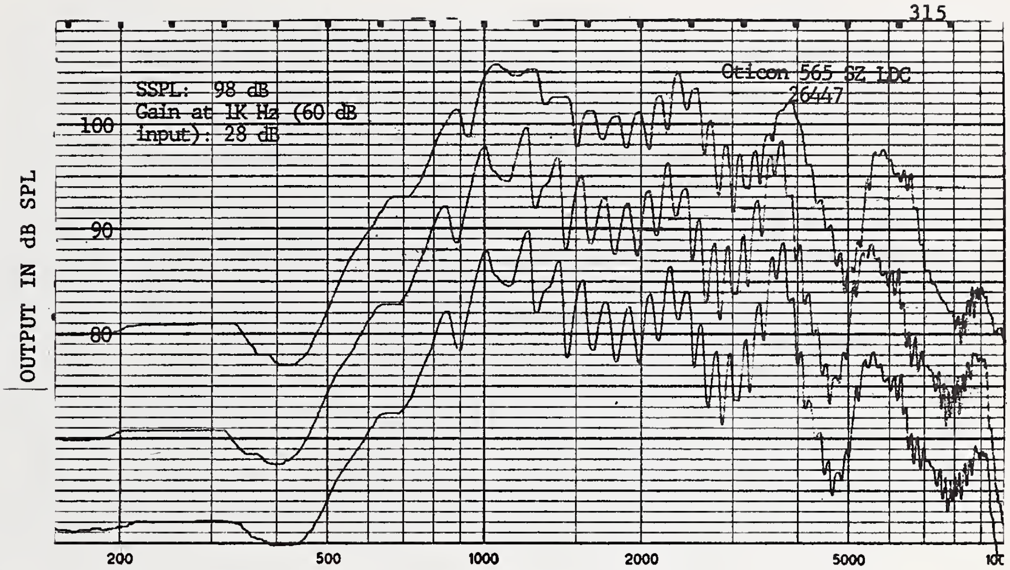

AV=6
SSPL: 118 dB
Gain at 1K Hz (60 dB input): 61 dB
Phonic Ear SEN
105600
OUTPUT IN dB SPL
122.5
112.5
102.5
200
500
1000
2000
5000

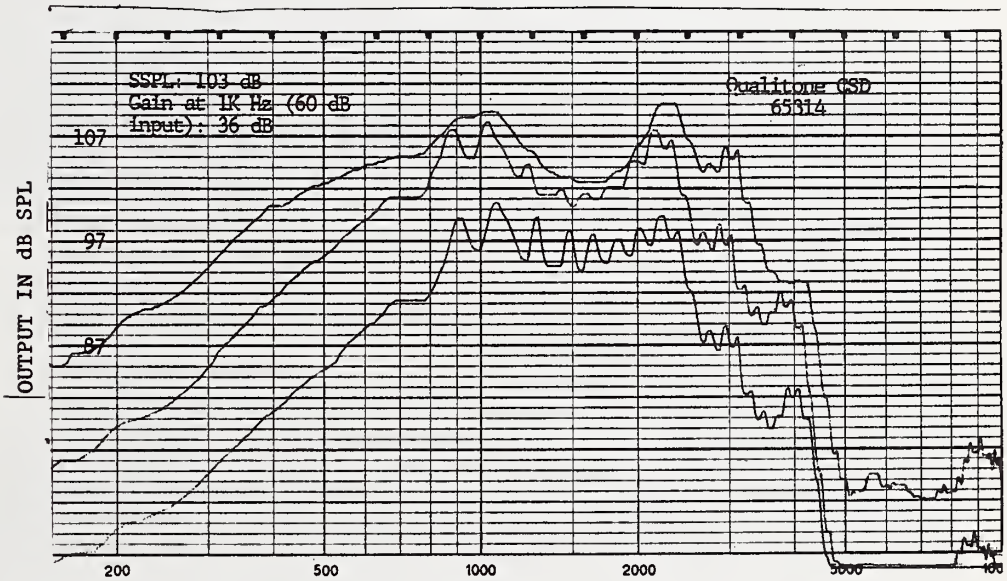

AV=4
SSPL: 123 dB
Gain at 1K Hz (60 dB input): 58 dB
Phonic Ear SFP
105483
OUTPUT IN dB SPL
122
112
102
200
500
1000
2000
5000

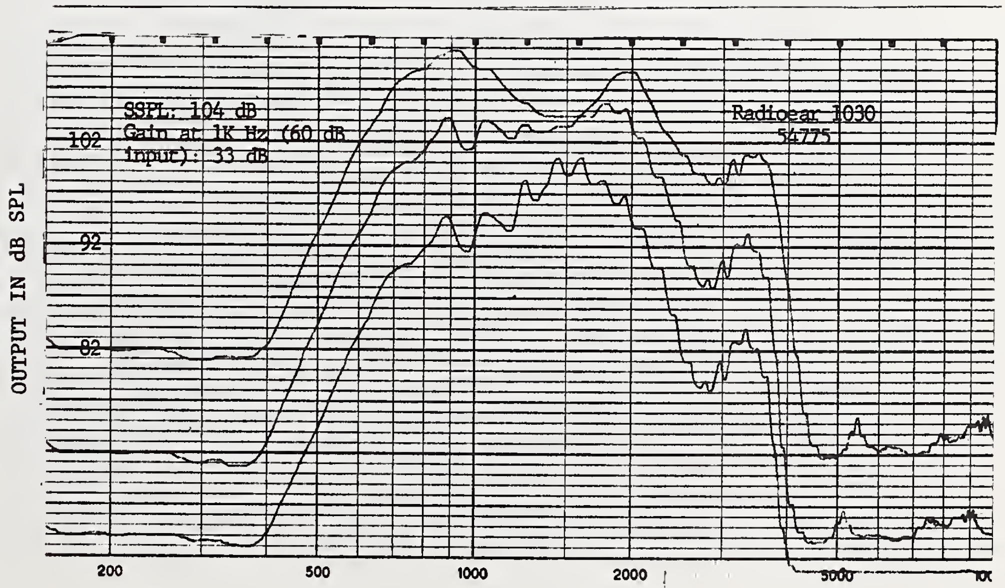

AV=6
SSPL: 115 dB
Gain at 1K Hz (60 dB input): 63 dB
Phonic Ear SEW
105600
124.5
114.5
104.5
OUTPUT IN dB SPL
200
500
1000
2000
5000

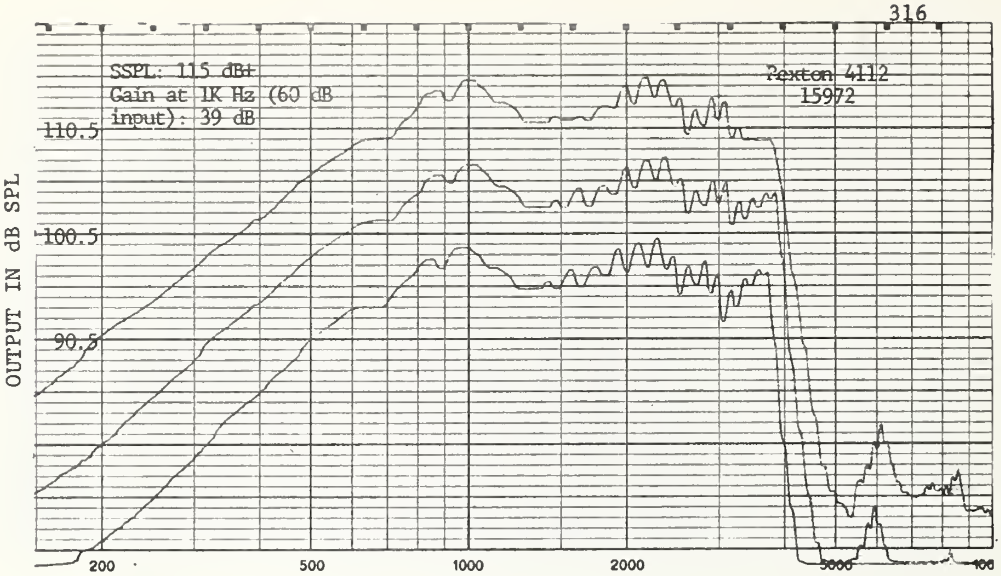

SSPL: 106 dB
Gain at 1K Hz (60 dB input): 39 dB
Norelco 8275
80040
100.5
90.5
80.5
OUTPUT IN dB SPL
200
500
1000
2000
5000

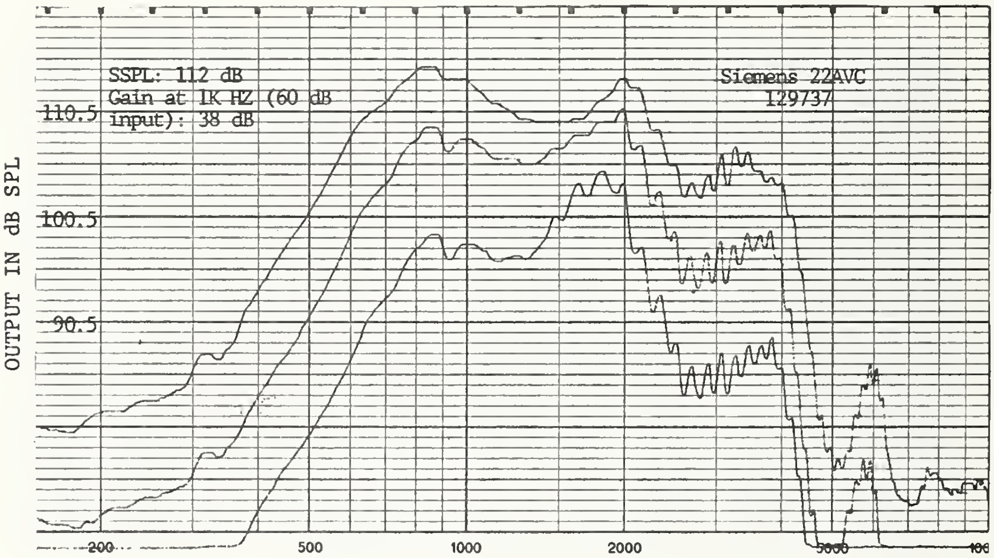

SSPL: 116 dB
Gain at 1K Hz
(60 dB input): 44 dB
Norelco 8274
25010
115
105
95
OUTPUT IN dB SPL
200
500
1000
2000
5000

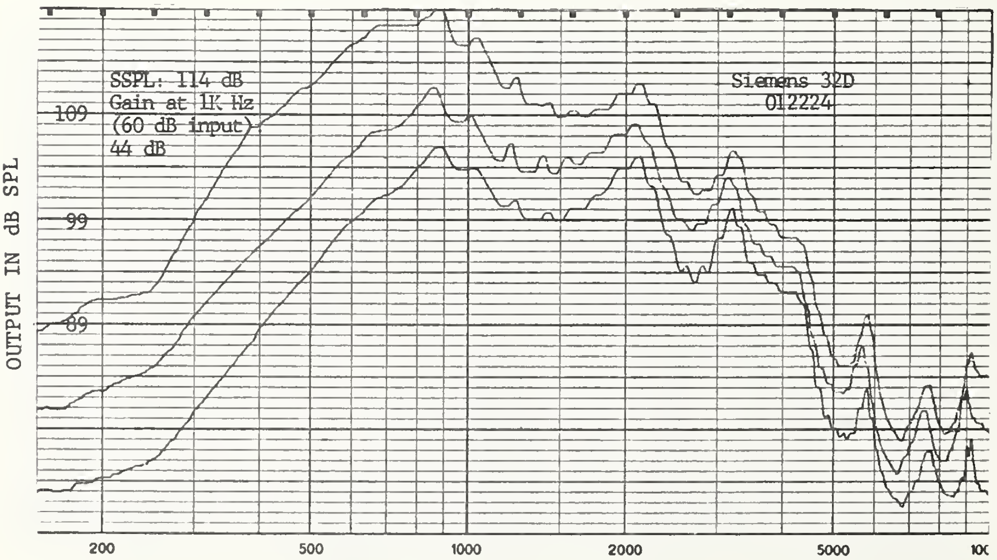

SSPL: 98 dB
Gain at 1K Hz (60 dB input): 28 dB
Oticon 565 SZ LDC
26447
100
90
80
OUTPUT IN dB SPL
200
500
1000
2000
5000

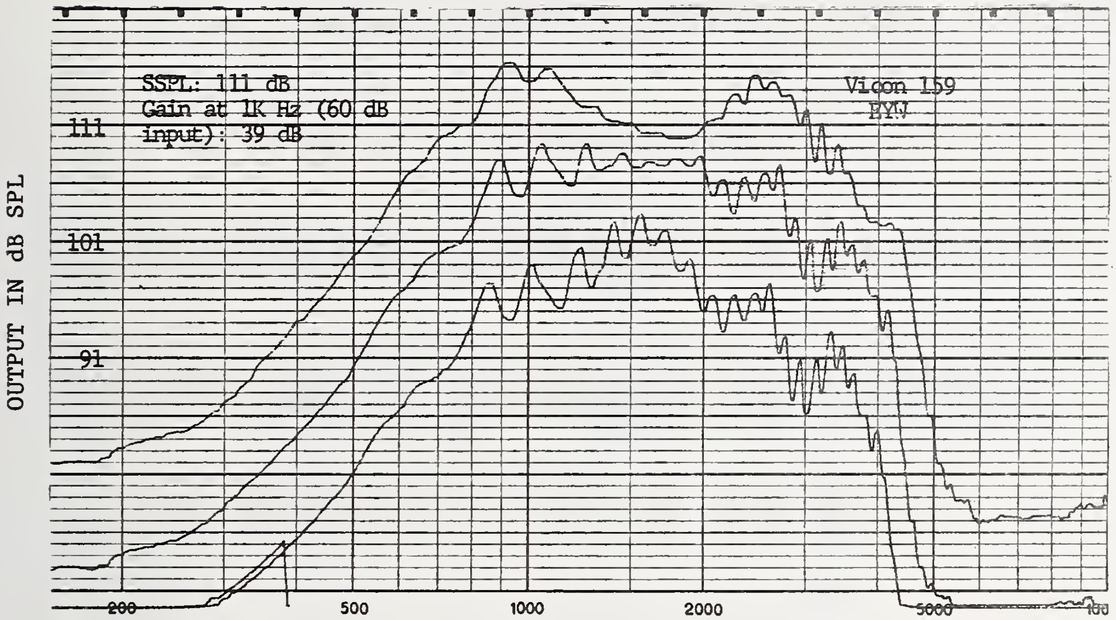

SSPL: 103 dB
Gain at 1K Hz (60 dB input): 36 dB
Qualitone CSD
65314
107
97
87
OUTPUT IN dB SPL
200
500
1000
2000
5000


SSPL: 104 dB
Gain at 1K Hz (60 dB input): 33 dB
Radioear 1030
54775
102
92
82
OUTPUT IN dB SPL
200
500
1000
2000
5000


SSPL: 115 dB+
Gain at 1K Hz (60 dB
input): 39 dB
Rexton 4112
15972
OUTPUT IN dB SPL
110.5
100.5
90.5
200
500
1000
2000
5000


SSPL: 112 dB
Gain at 1K HZ (60 dB
input): 38 dB
Siemens 22AVC
129737
OUTPUT IN dB SPL
110.5
100.5
90.5
200
500
1000
2000
5000


SSPL: 114 dB
Gain at 1K Hz
(60 dB input)
44 dB
Siemens 32D
012224
OUTPUT IN dB SPL
109
99
89
200
500
1000
2000
5000


SSPL: 111 dB
Gain at 1K Hz (60 dB input): 39 dB
Vicon 159
BYJ
OUTPUT IN dB SPL
111
101
91
200
500
1000
2000
5000

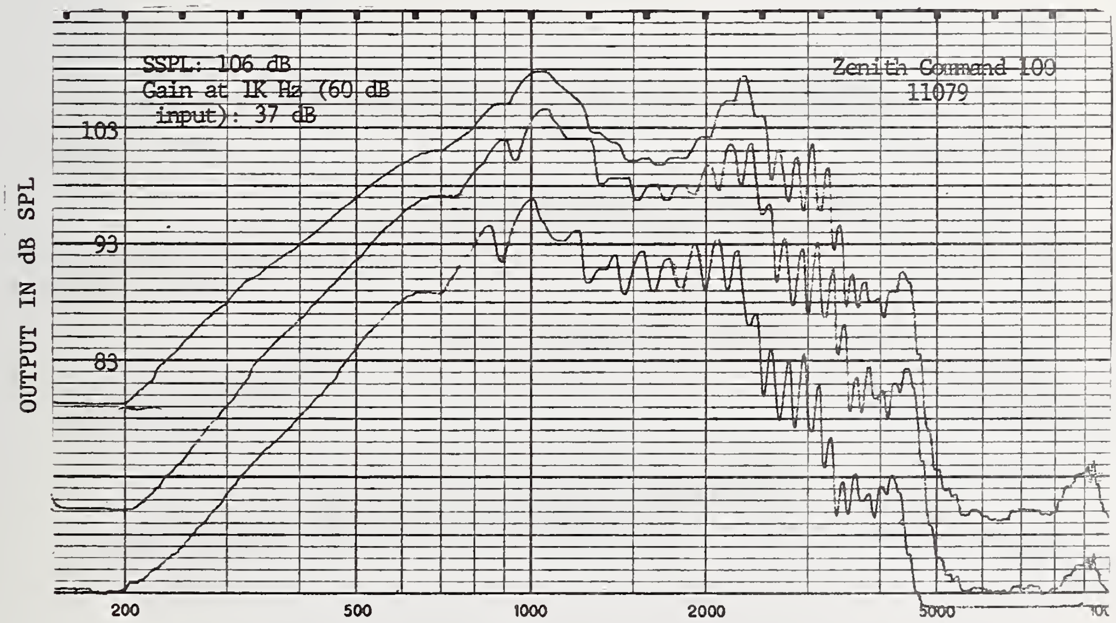

SSPL: 106 dB
Gain at 1K Hz (60 dB input): 37 dB
Zenith Command 100
11079
OUTPUT IN dB SPL
103
93
83
200
500
1000
2000
5000

TABLE I. Attack and release times, measured as time (msec) required to achieve steady state condition ($\pm$ 2 dB) in compression hearing aids.

Hearing Aid	Attack Time	Release Time
Fidelity F-37	5	40
HC Electronics Phonic Ear LN	10	240
LP	10	520
LW	5	520
SEN	15	920
SEP	5	480
SEW	5	240
Norelco 8274	5	60
Norelco 8275	5	55
Oticon 565 SZ-LDC	5	45
Qualitone CSD	10	80
Radioear 1030 B	10	30
Rexton 4112	5	20
Siemens 22 AVC	25	200
Siemens 32 D	5	5
Vicon 159	5	10
Zenith Command 100	20	300

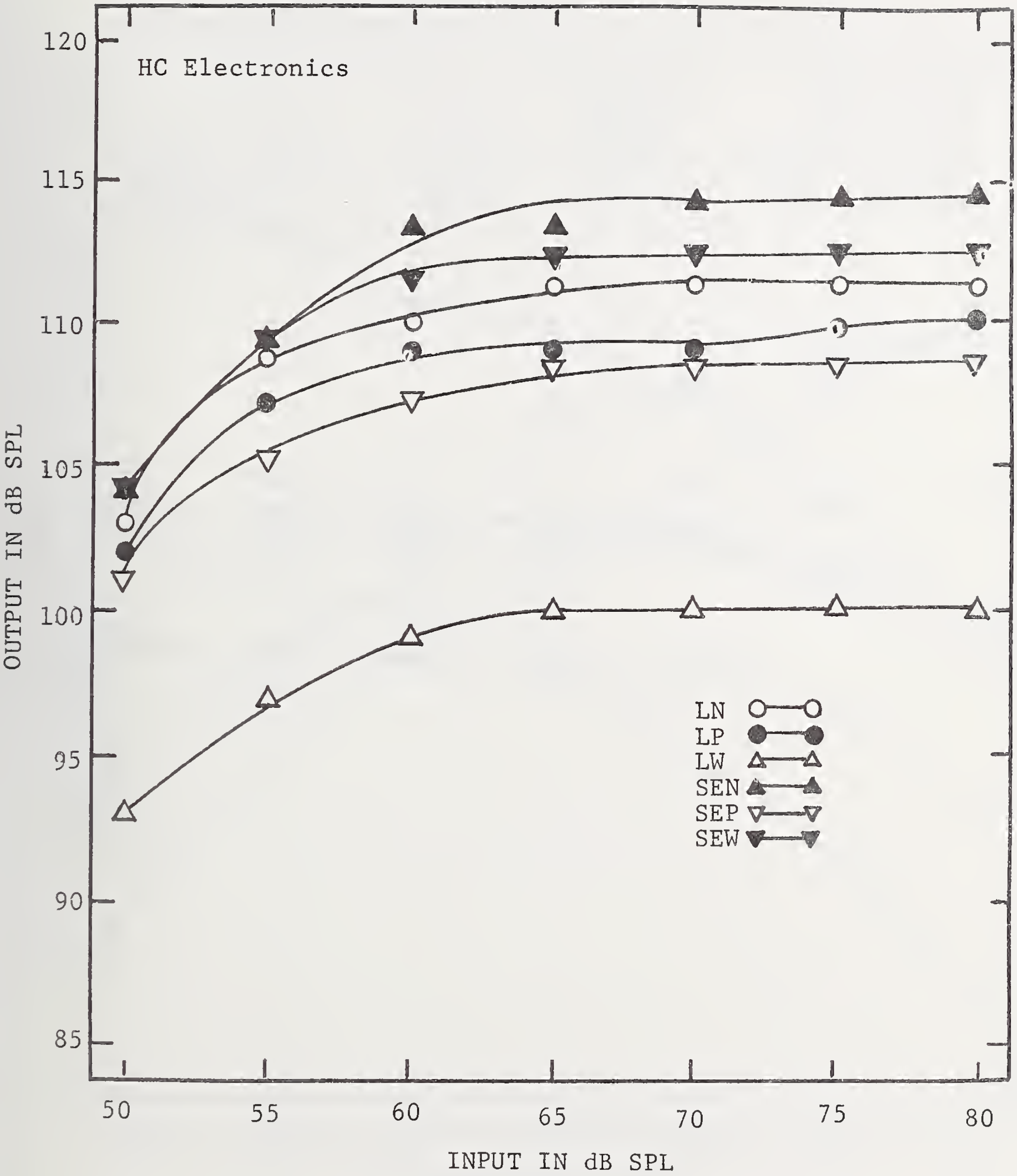


Figure 2a. Input-output graph for compression hearing aids.

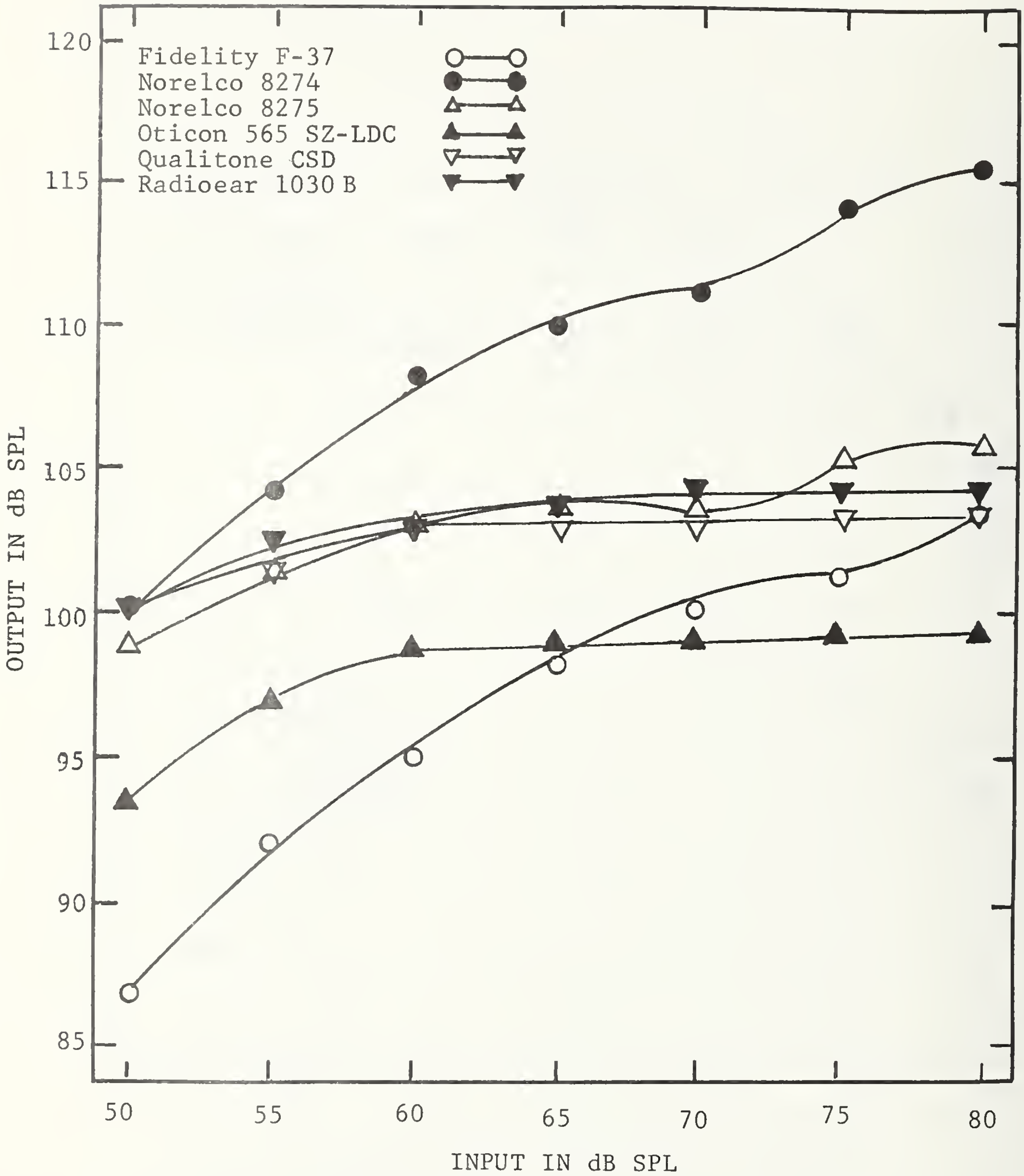


Figure 2b. Input-output graph for compression hearing aids.

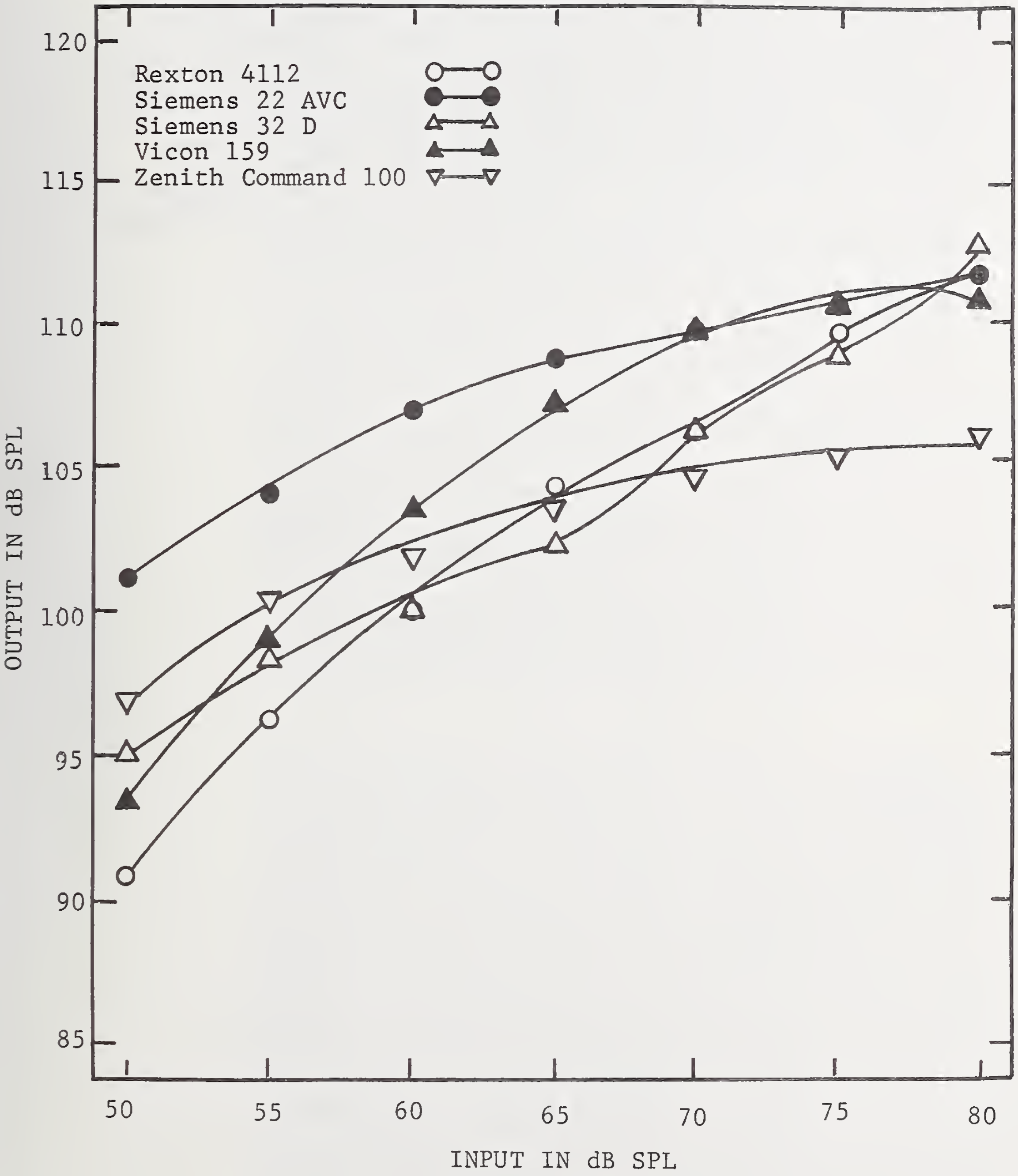
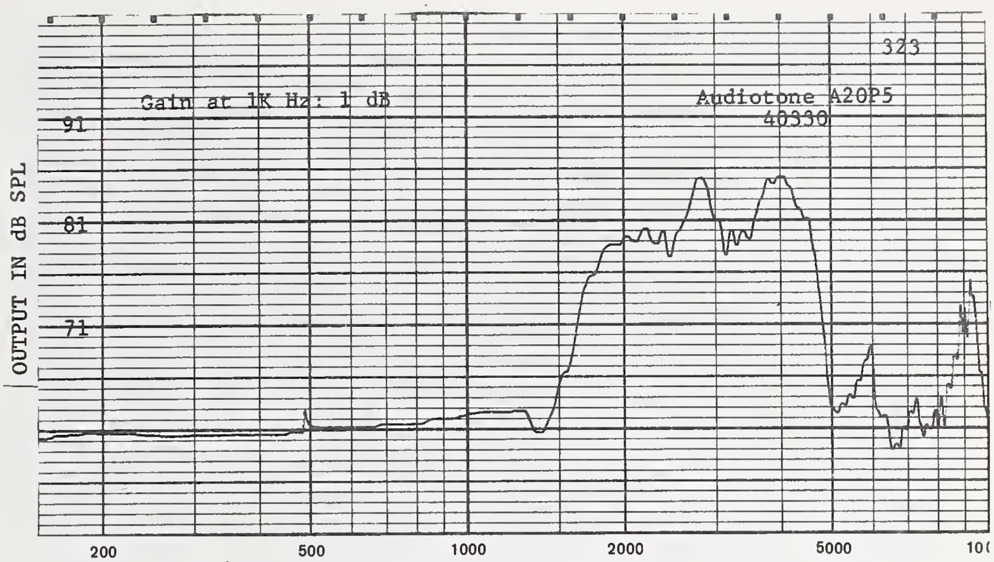


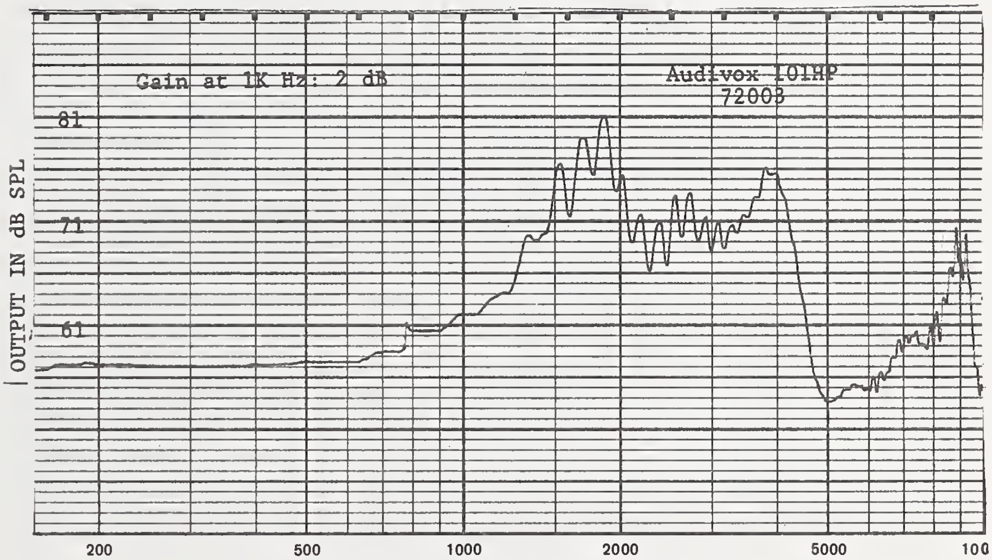
Figure 2c. Input-output graph for compression hearing aids.

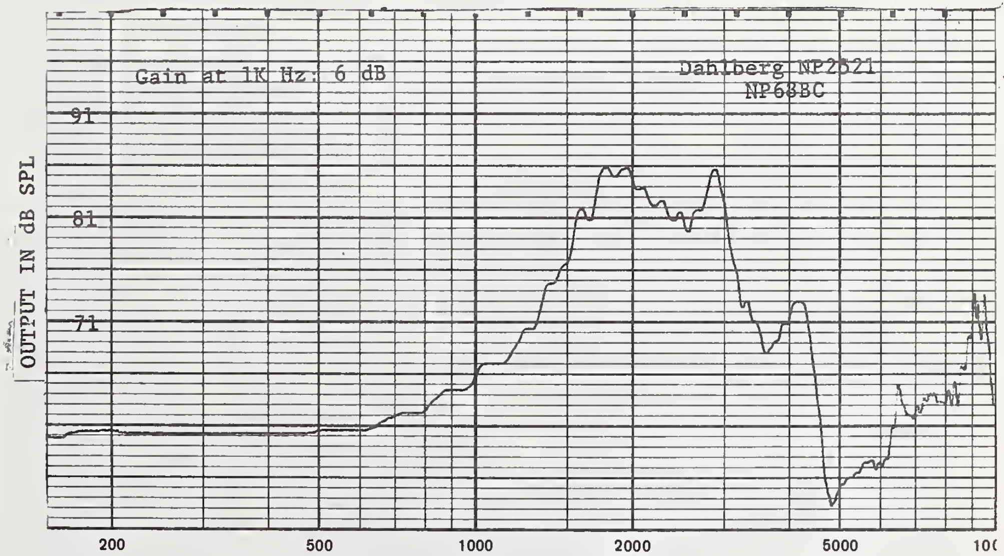
HIGH FREQUENCY HEARING AIDS

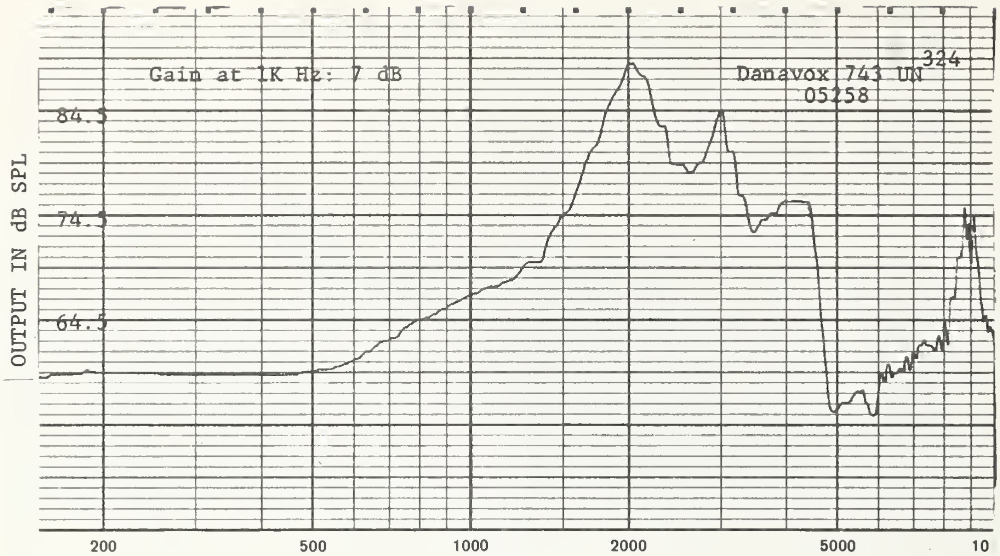
Frequency Response

A non-occluding earmold with cemented tubing, 2 mm in inside diameter and 4 cm in length, was inserted into KEMAR's right ear. The hearing aid under test was attached to the tubing of KEMAR's earmold and placed so as to rest on the auricle. The volume control of the hearing aid was adjusted to a setting just below detectable acoustic feedback. Using a pink noise stimulus the volume control then was reduced five decibels from the previously established setting of just below detectable acoustic feedback to ensure the absence of incipient feedback. Using the system calibrated as previously described, a frequency response tracing (60 dB input) of the hearing aid at 0^{o} azimuth was then obtained. Fourteen high frequency hearing aids were examined in this fashion.

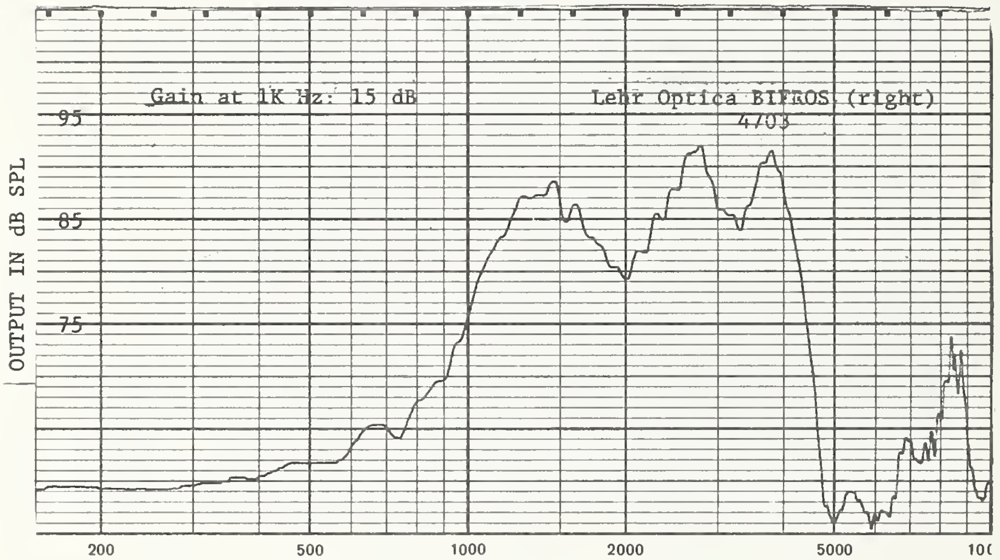

Gain at 1K Hz: 1 dB
Audiotone A20P5
40330
OUTPUT IN dB SPL
91
81
71
200
500
1000
2000
5000


Gain at 1K Hz: 2 dB
Audivox 101HP
72003
OUTPUT IN dB SPL
81
71
61
200
500
1000
2000
5000

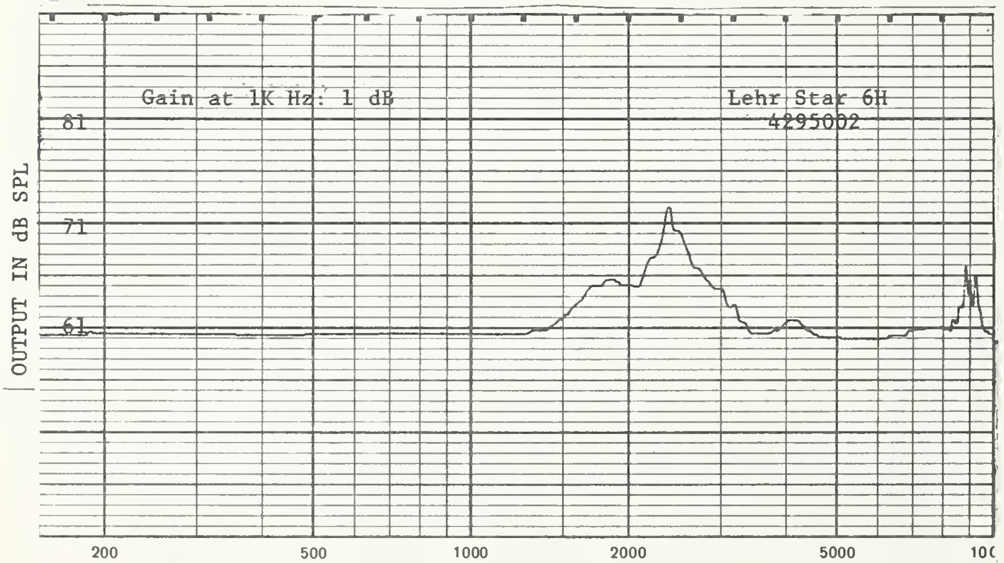

Gain at 1K Hz: 6 dB
Dahlberg NP2321
NP63BC
OUTPUT IN dB SPL
91
81
71
200
500
1000
2000
5000



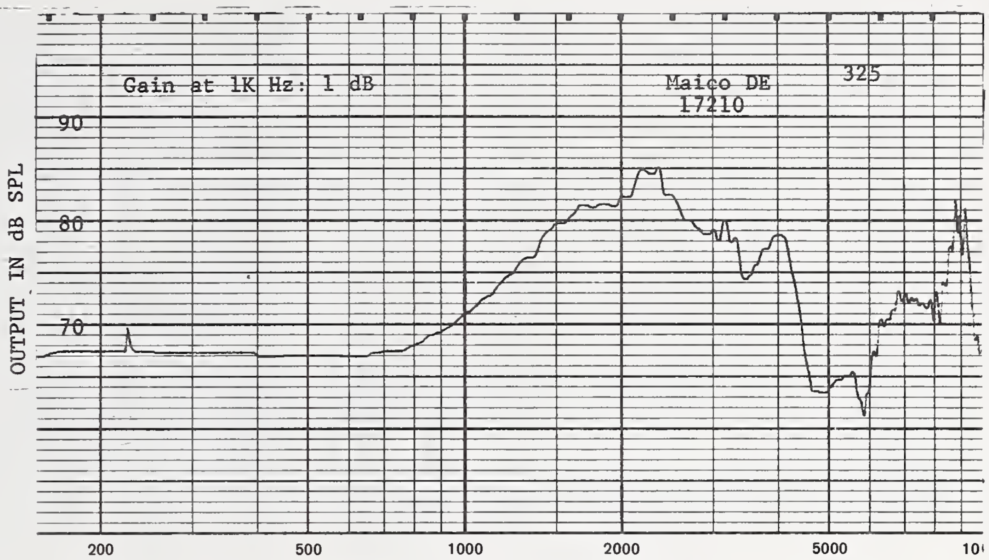
Gain at 1K Hz: 7 dB
Danavox 743 UN
05258
324
84.5
74.5
64.5
OUTPUT IN dB SPL
200
500
1000
2000
5000
10

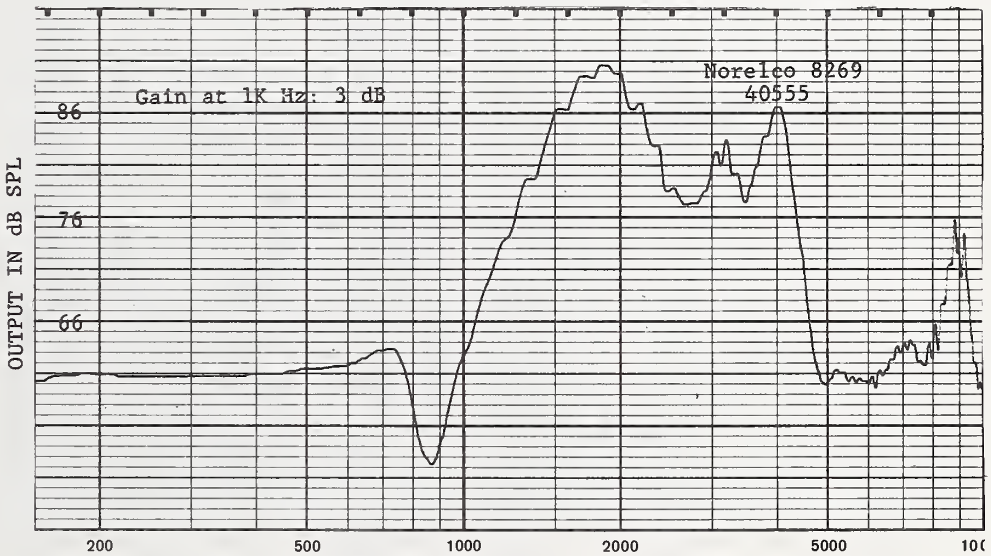


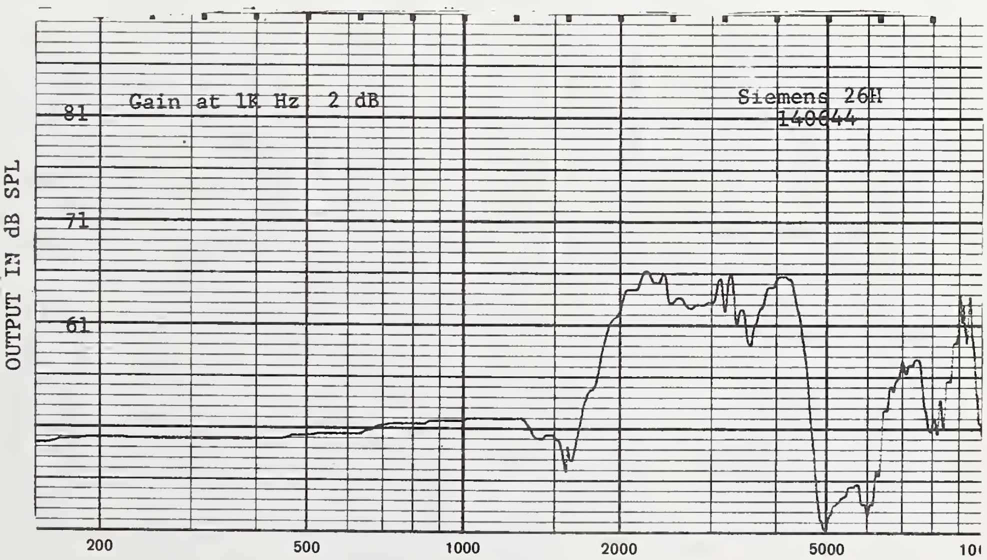
Gain at 1K Hz: 15 dB
Lehr Optica BIFROS (right)
4703
95
85
75
OUTPUT IN dB SPL
200
500
1000
2000
5000
10(

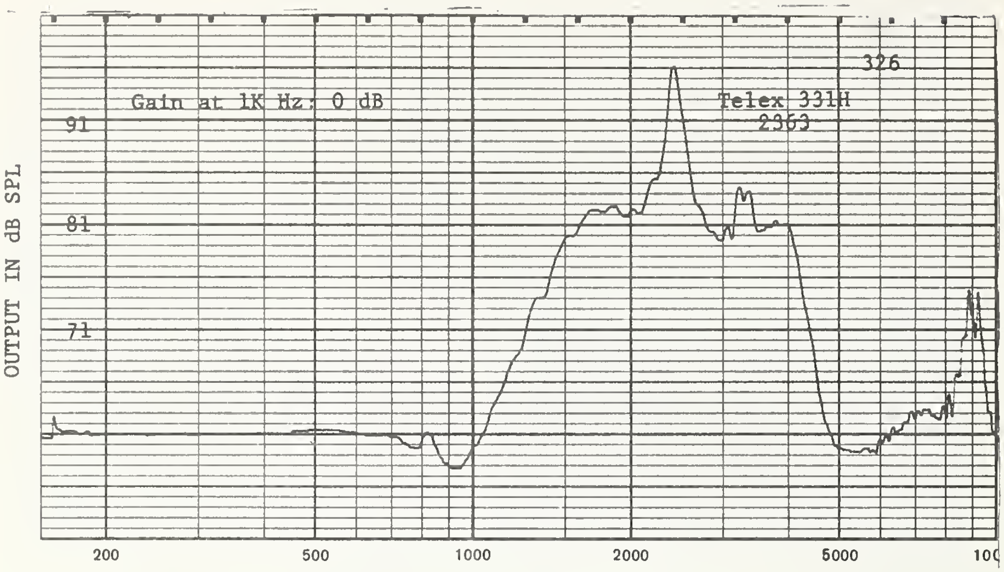


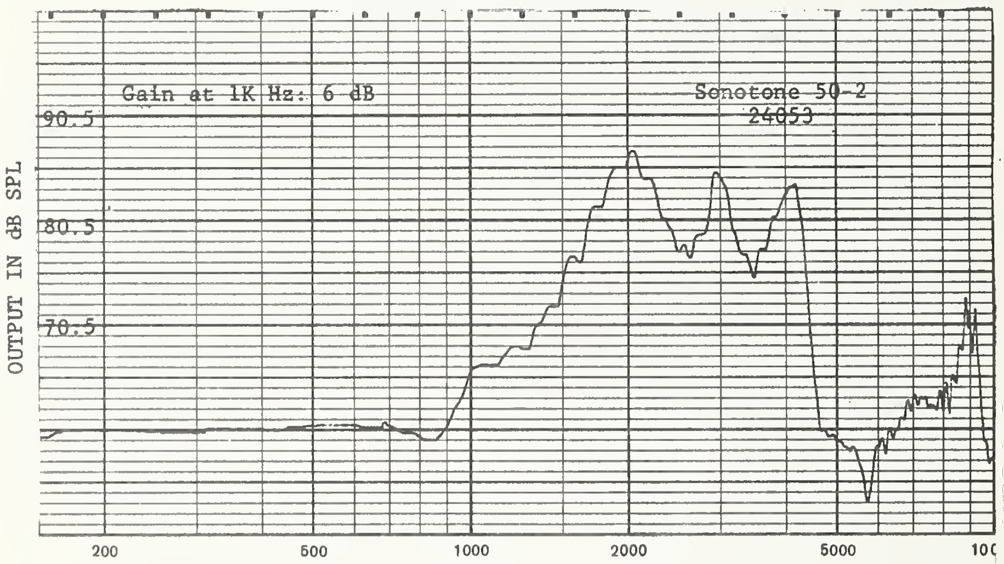
Gain at 1K Hz: 1 dB
Lehr Star 6H
4295002
81
71
61
OUTPUT IN dB SPL
200
500
1000
2000
5000
10(

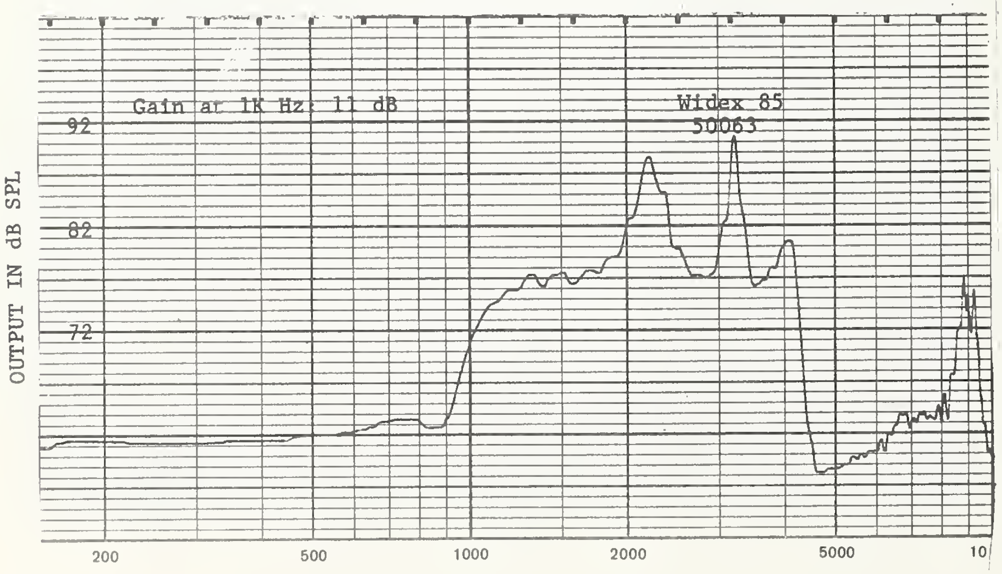

Gain at 1K Hz: 1 dB
Maico DE
17210
90
80
70
OUTPUT IN dB SPL
200
500
1000
2000
5000

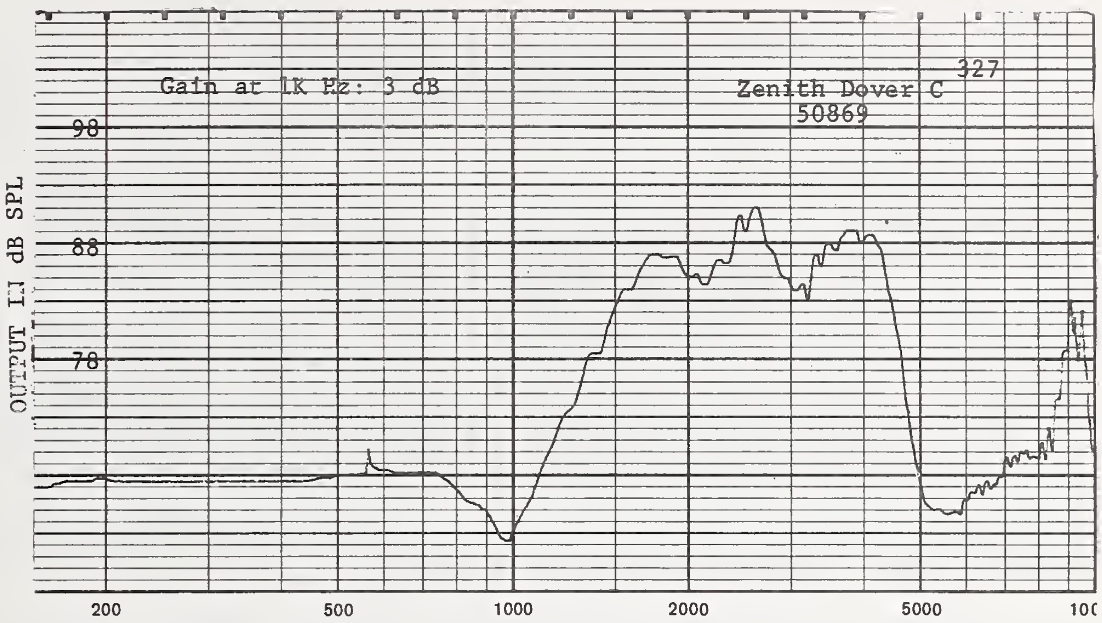

Gain at 1K Hz: 3 dB
Norelco 8269
40555
86
76
66
OUTPUT IN dB SPL
200
500
1000
2000
5000


Gain at 1K Hz 2 dB
Siemens 26H
140644
81
71
61
OUTPUT IN dB SPL
200
500
1000
2000
5000


326
Gain at 1K Hz: 0 dB
Telex 331H
2363
91
81
71
OUTPUT IN dB SPL
200
500
1000
2000
5000
10(


Gain at 1K Hz: 6 dB
Senotone 50-2
24053
90.5
80.5
70.5
OUTPUT IN dB SPL
200
500
1000
2000
5000
10(


Gain at 1K Hz: 11 dB
Widex 85
50063
92
82
72
OUTPUT IN dB SPL
200
500
1000
2000
5000
10



327
Gain at 1K Hz: 3 dB
Zenith Dover C
50869
OUTPUT LI dB SPL
98
88
78
200
500
1000
2000
5000

Frequency Response

An occluding earmold with cemented tubing, 2 mm in inside diameter and 4.6 cm in length, was inserted into KEMAR's right ear. The hearing aid under test was attached to the tubing of KEMAR's earmold and placed so as to rest on the auricle. The volume controls were set to full on, or reduced by the degree necessary to prevent feedback, as monitored audibly, and with the aid of an oscilloscope. Absolute output values were reflective of this gain control adjustment in many cases. Saturation Sound Pressure Level (SSPL) was determined and the volume control was then adjusted to yield an output 12 dB below SSPL with a 60 dB pink noise input. Using the system calibrated as previously described, frequency response tracings (60 dB input) of the hearing aid at 0° and 180° azimuth were obtained.

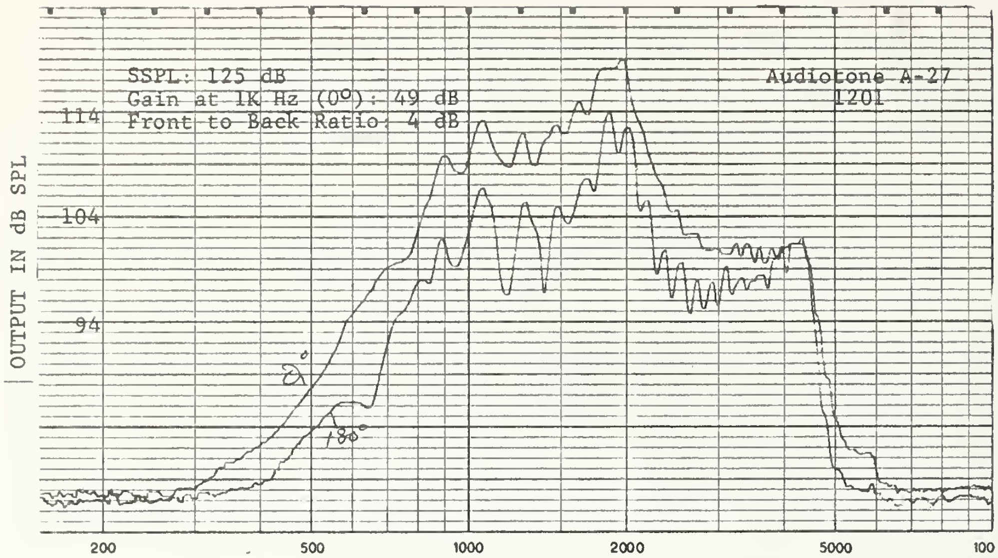
Previous investigation of directional aids indicated that no additional information was obtained with a 90° and 270° azimuth curve because the 90° curve essentially followed the 0° curve and the 270° curve closely followed the 180° curve.

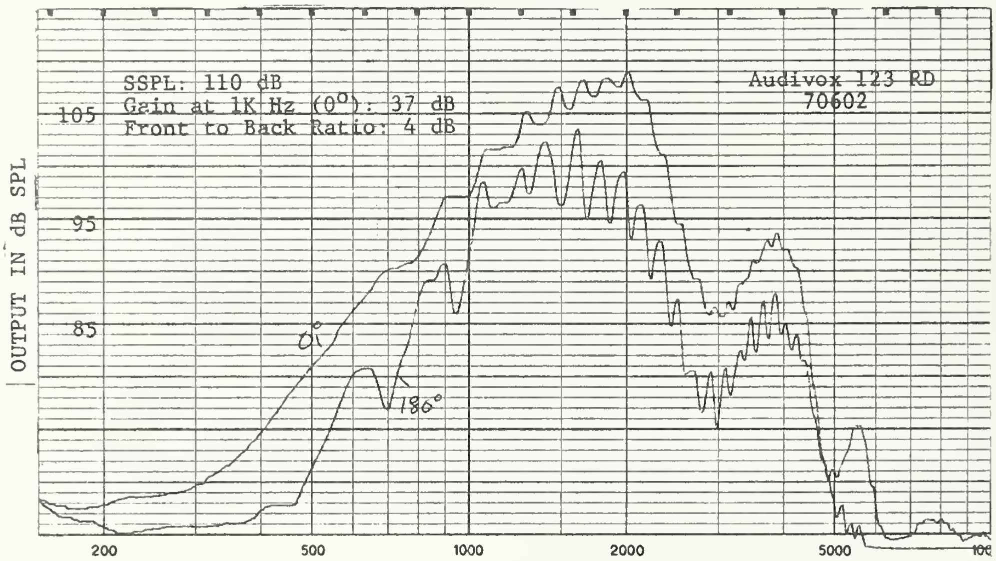
Front to Back Ratio

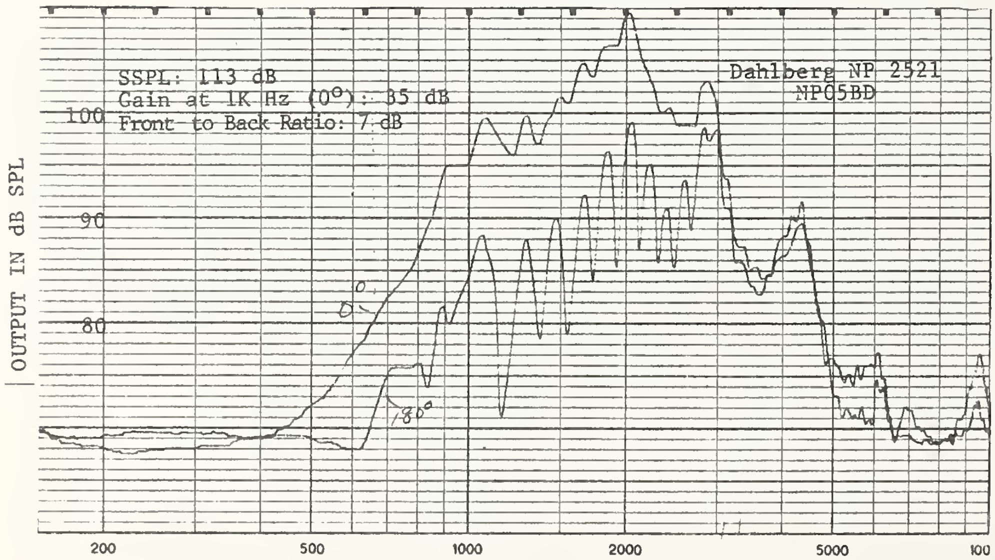
The Bruel & Kjaer 1405 noise generator was utilized to produce white noise which was delivered to each of two matched speakers (front and back), located at 0° and 180° azimuth from the test point in the anechoic chamber. Calibration of the white noise stimulus through the speakers was accomplished with KEMAR removed from the chamber. The test point was identified as the midpoint of an imaginary line perpendicular to the speaker cones, one meter from each of the two speakers. A monitor microphone (B & K 4131) permitted the adjustment of two attenuator networks for the production of 60 dB SPL from each speaker in turn at the test point. The monitor microphone was then removed from the test point, and KEMAR was returned to the chamber in such fashion that the test point was located midway between his ears.

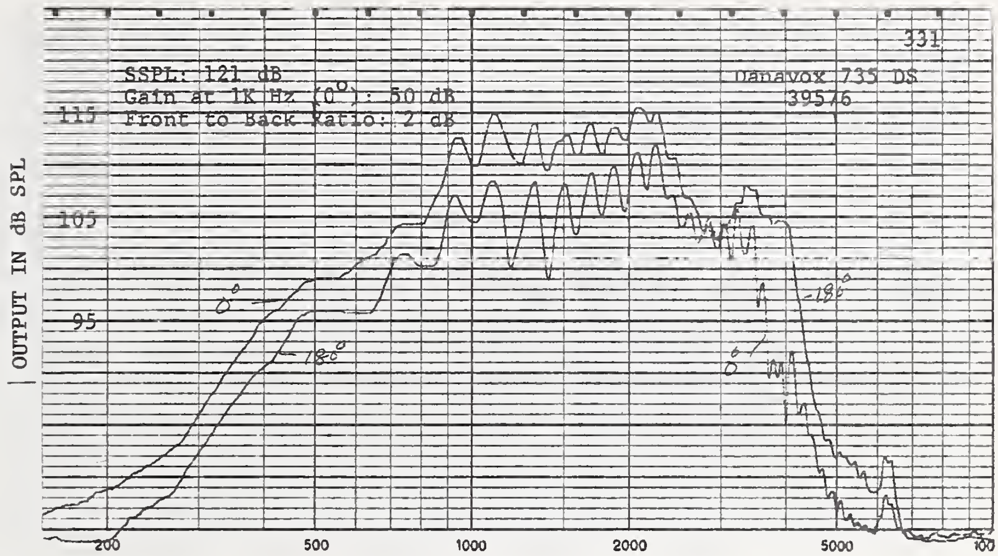
The hearing aid was connected to an occluding earmold with snap ring for the Front to Back Ratio measurement. During preliminary evaluation, the investigators noted that slight variations in placement of the aid on KEMAR could markedly affect the results. All aids were placed on KEMAR so that they rested behind the pinna in the same way that they would be worn by a human listener. For all aids it was determined that either 20 mm or 13 mm tubing length would permit an appropriate fit.

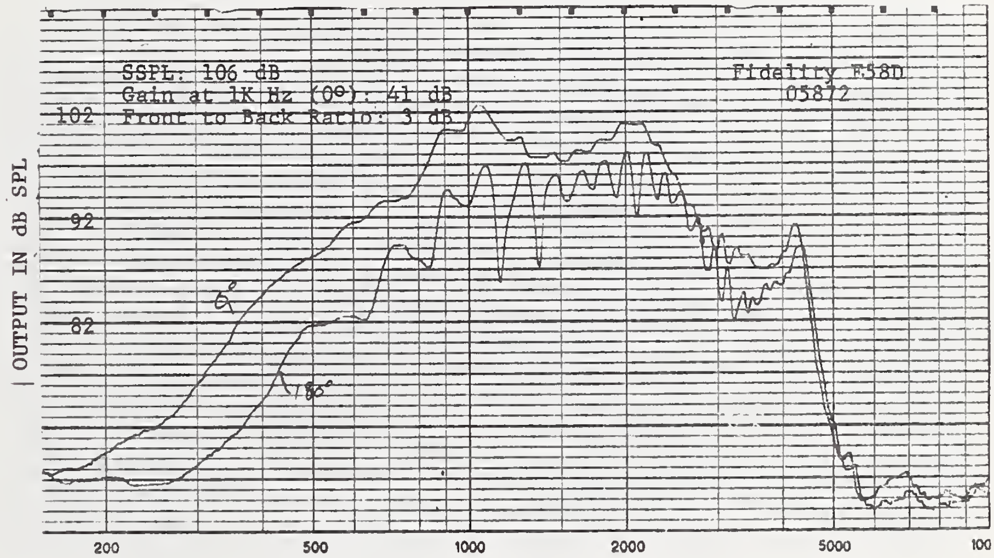
White noise was presented through the front speaker at the previously-established level of 60 dB SPL, and the output of the hearing aid was noted. This proceudre was repeated using the back speaker. The Front to Back Ratio was computed by subtracting the output SPL of the hearing aid with signal from the back speaker from output SPL of the hearing aid with signal from the front speaker. Nineteen directional hearing aids were examined in this fashion.

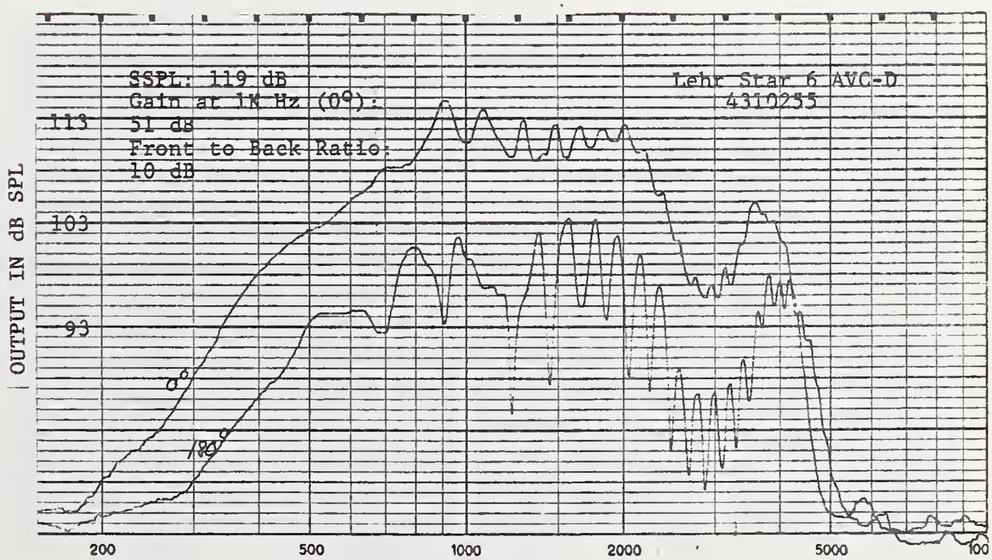

SSPL: 125 dB
Gain at 1K Hz (0°): 49 dB
Front to Back Ratio: 4 dB
Audiotone A-27
1201
114
104
94
OUTPUT IN dB SPL
0°
180°
200
500
1000
2000
5000
100

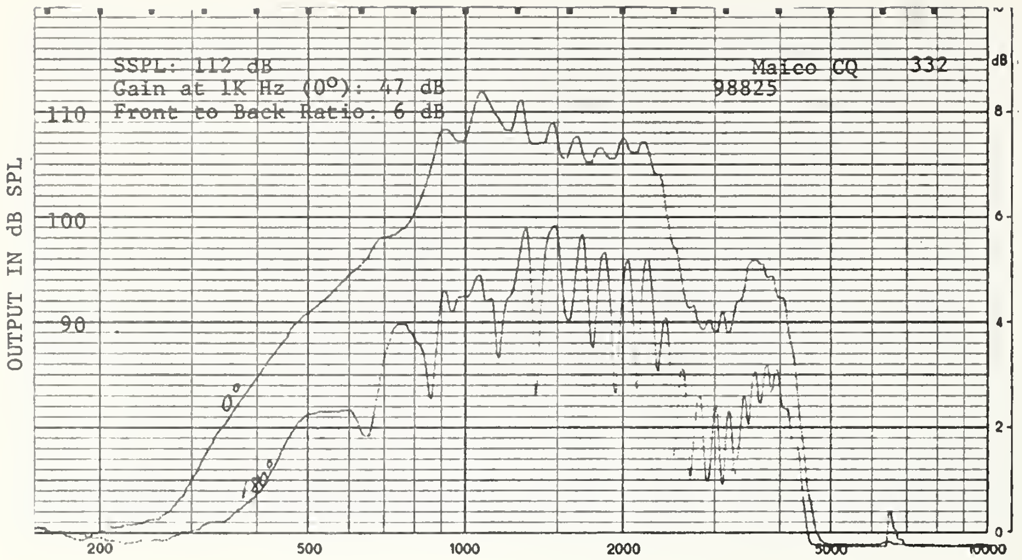

SSPL: 110 dB
Gain at 1K Hz (0°): 37 dB
Front to Back Ratio: 4 dB
Audivox 123 RD
70602
105
95
85
OUTPUT IN dB SPL
0°
180°
200
500
1000
2000
5000
100


SSPL: 113 dB
Gain at 1K Hz (0°): 35 dB
Front to Back Ratio: 7 dB
Dahlberg NP 2521
NP05BD
100
90
80
OUTPUT IN dB SPL
0°
180°
200
500
1000
2000
5000
100

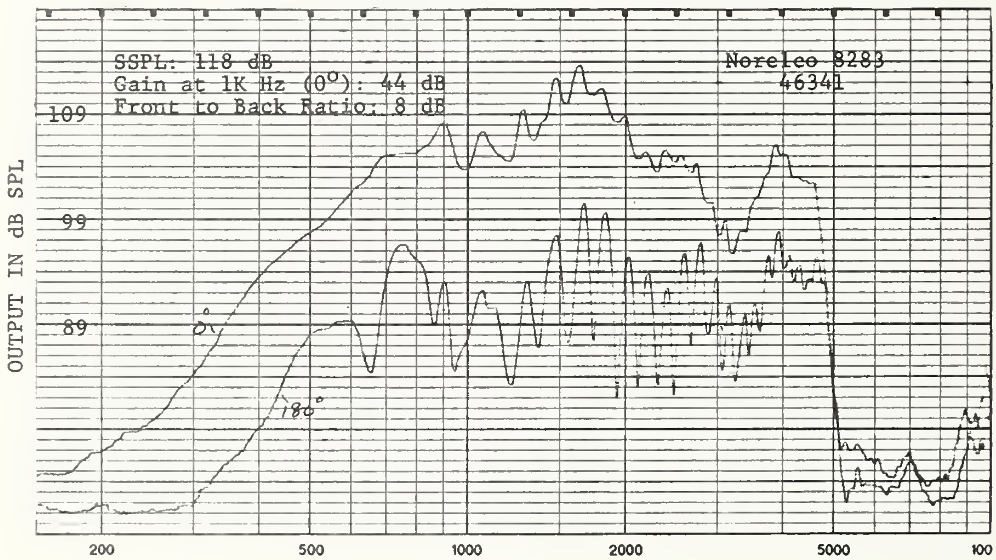

SSPL: 121 dB
Gain at 1K Hz (0°): 50 dB
Front to Back Ratio: 2 dB
Danavox 735 DS
39576
OUTPUT IN dB SPL
115
105
95
0°
180°
-180°
0°
200
500
1000
2000
5000
100


SSPL: 106 dB
Gain at 1K Hz (0°): 41 dB
Front to Back Ratio: 3 dB
Fidelity F58D
05872
OUTPUT IN dB SPL
102
92
82
0°
180°
200
500
1000
2000
5000
100

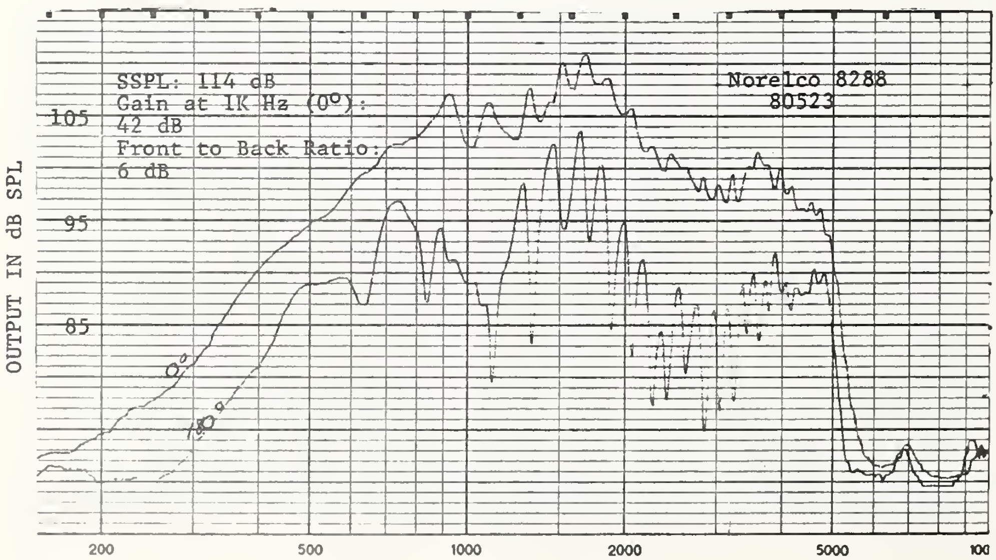

SSPL: 119 dB
Gain at 1K Hz (0°):
51 dB
Front to Back Ratio:
10 dB
Lehr Star 6 AVC-D
4310255
OUTPUT IN dB SPL
113
103
93
0°
180°
200
500
1000
2000
5000
100



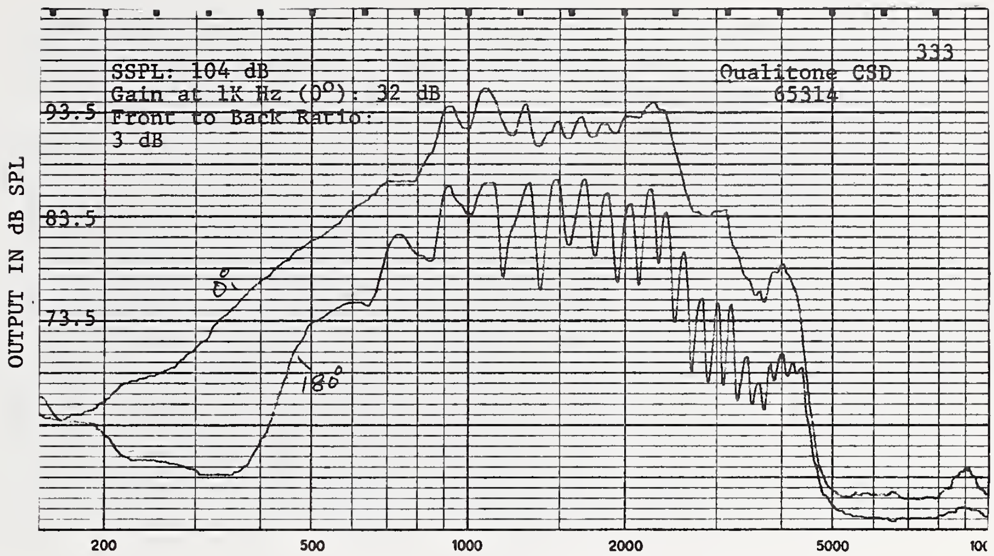
SSPL: 112 dB
Gain at 1K Hz (0°): 47 dB
Front to Back Ratio: 6 dB
Maico CQ 332
98825
OUTPUT IN dB SPL
110
100
90
0°
180°
dB
8
6
4
2
0
200
500
1000
2000
5000
10000

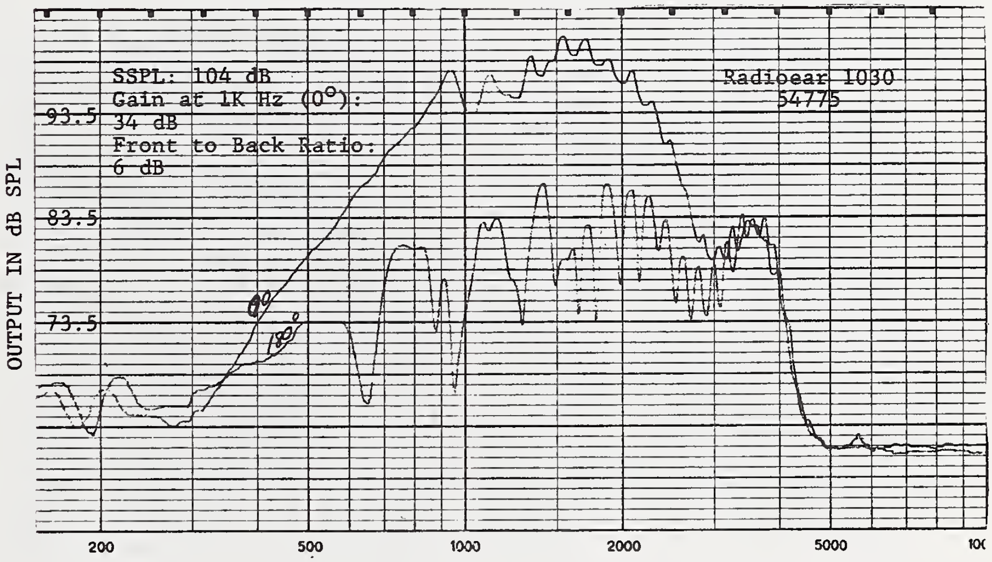


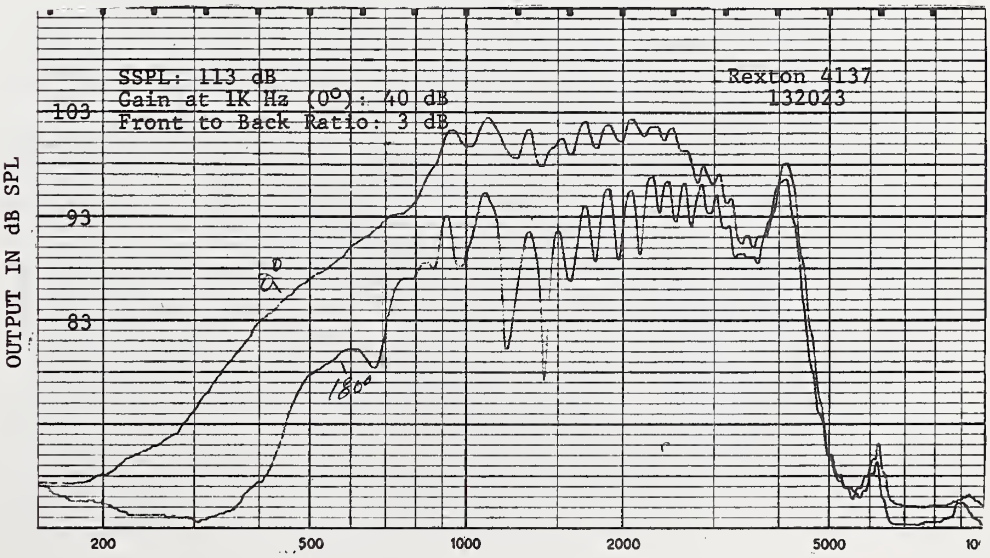
SSPL: 118 dB
Gain at 1K Hz (0°): 44 dB
Front to Back Ratio: 8 dB
Norelco 8283
46341
OUTPUT IN dB SPL
109
99
89
0°
180°
200
500
1000
2000
5000
100

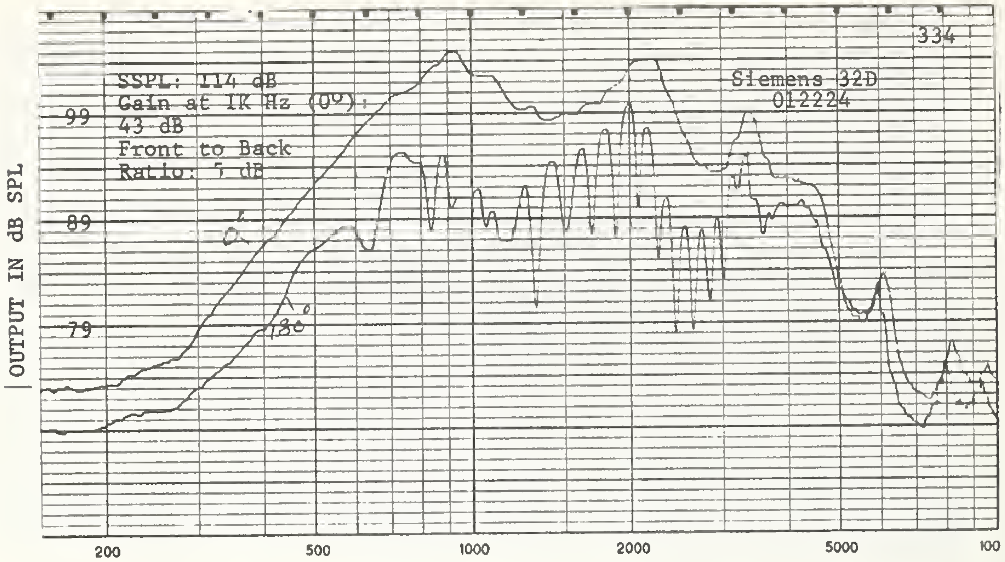


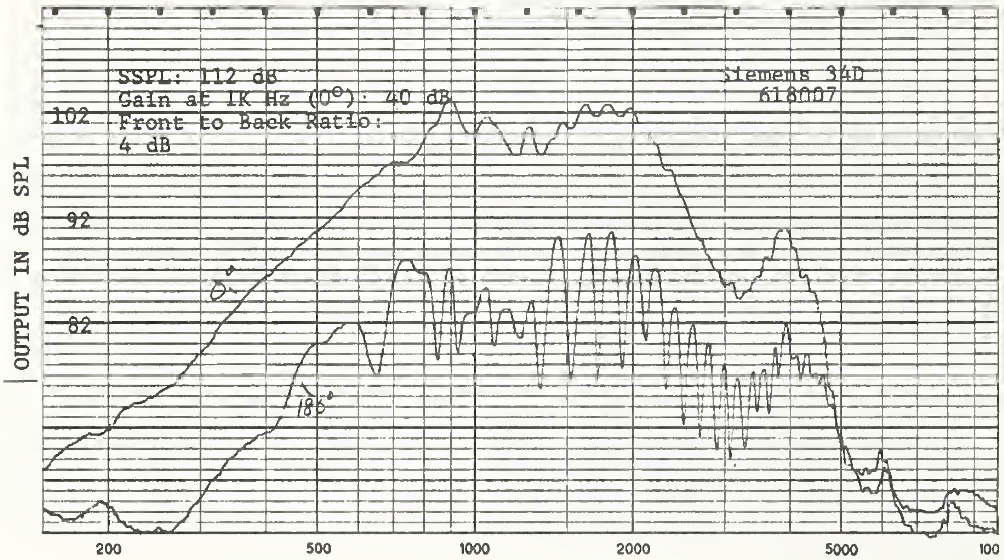
SSPL: 114 dB
Gain at 1K Hz (0°):
42 dB
Front to Back Ratio:
6 dB
Norelco 8288
80523
OUTPUT IN dB SPL
105
95
85
0°
180°
200
500
1000
2000
5000
100

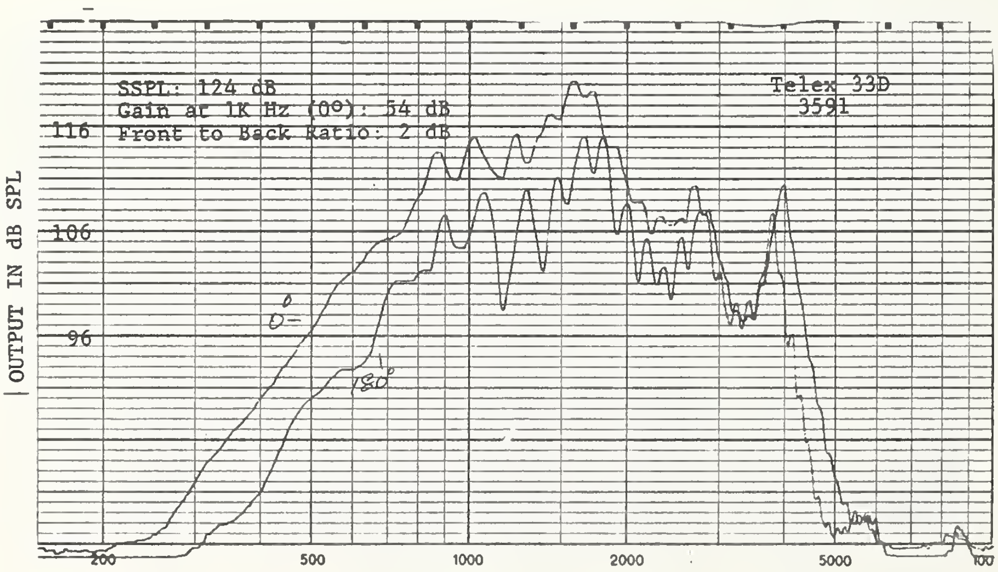

SSPL: 104 dB
Gain at 1K Hz (0°): 32 dB
Front to Back Ratio:
3 dB
Qualitone CSD
65314
OUTPUT IN dB SPL
93.5
83.5
73.5
0°
180°
200
500
1000
2000
5000

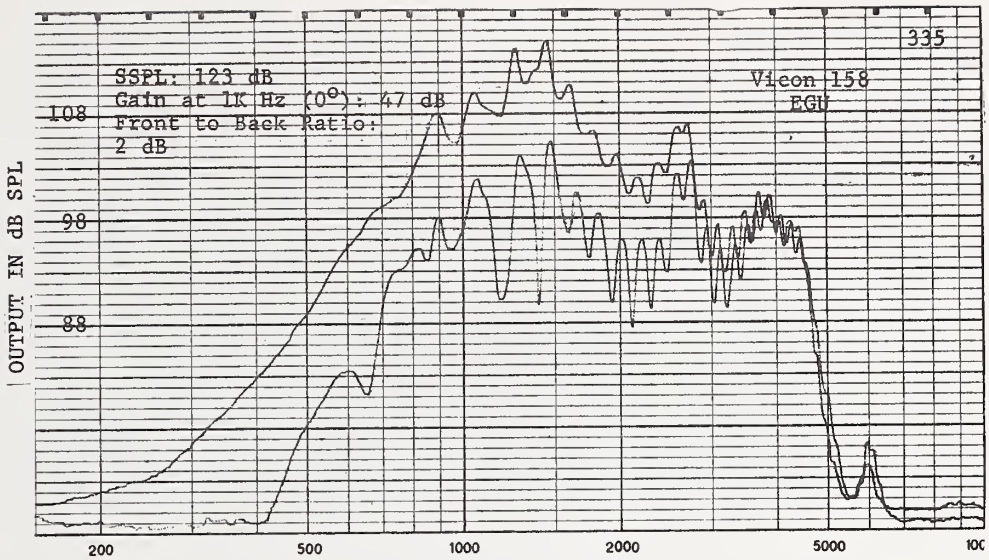

SSPL: 104 dB
Gain at 1K Hz (0°):
34 dB
Front to Back Ratio:
6 dB
Radioear 1030
54775
OUTPUT IN dB SPL
93.5
83.5
73.5
0°
180°
200
500
1000
2000
5000

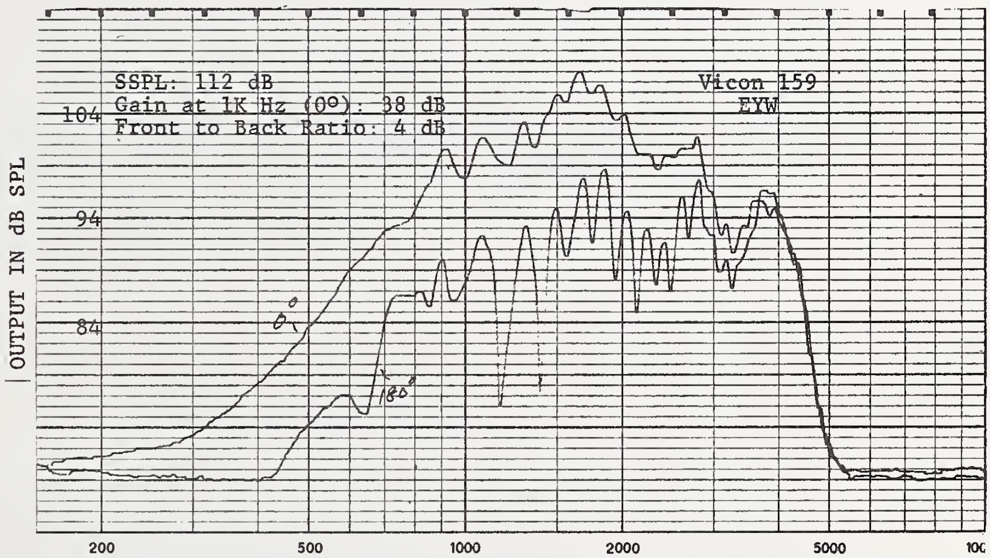

SSPL: 113 dB
Gain at 1K Hz (0°): 40 dB
Front to Back Ratio: 3 dB
Rexton 4137
132023
OUTPUT IN dB SPL
103
93
83
0°
180°
200
500
1000
2000
5000

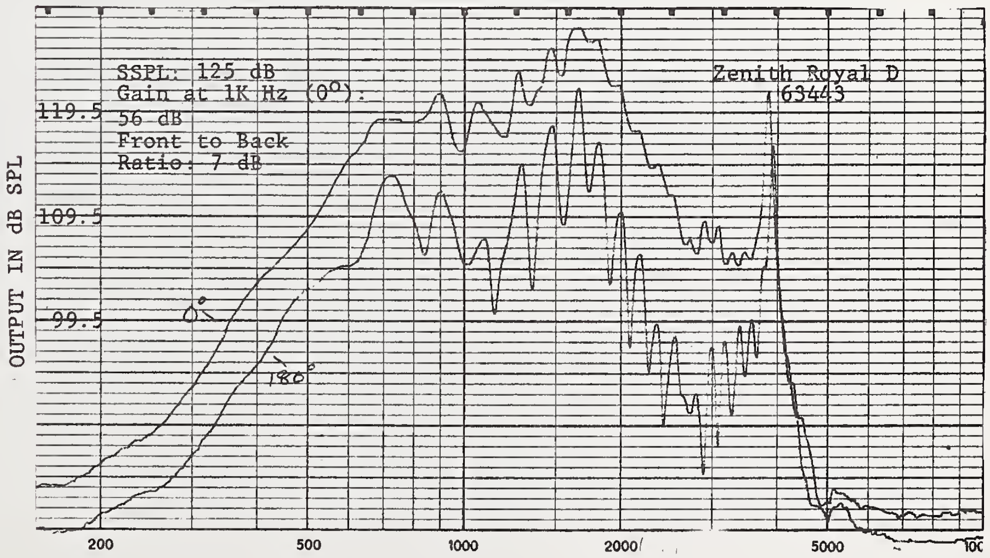

SSPL: 114 dB
Gain at 1K Hz (0°):
43 dB
Front to Back
Ratio: 5 dB
Siemens 32D
012224
99
89
79
OUTPUT IN dB SPL
0°
180°
200
500
1000
2000
5000
100


SSPL: 112 dB
Gain at 1K Hz (0°): 40 dB
Front to Back Ratio:
4 dB
Siemens 34D
618007
102
92
82
OUTPUT IN dB SPL
0°
180°
200
500
1000
2000
5000
100


SSPL: 124 dB
Gain at 1K Hz (0°): 54 dB
Front to Back Ratio: 2 dB
Telex 33D
3591
116
106
96
OUTPUT IN dB SPL
0°
180°
200
500
1000
2000
5000
100


SSPL: 123 dB
Gain at 1K Hz (0°): 47 dB
Front to Back Ratio:
2 dB
Vicon 158
EGU
OUTPUT IN dB SPL
108
98
88
200
500
1000
2000
5000
100


SSPL: 112 dB
Gain at 1K Hz (0°): 38 dB
Front to Back Ratio: 4 dB
Vicon 159
EYW
OUTPUT IN dB SPL
104
94
84
0°
180°
200
500
1000
2000
5000
100


SSPL: 125 dB
Gain at 1K Hz (0°):
56 dB
Front to Back
Ratio: 7 dB
Zenith Royal D
63443
OUTPUT IN dB SPL
119.5
109.5
99.5
0°
180°
200
500
1000
2000
5000
100

V. SPECIAL TEST DATA ON HEARING AIDS SELECTED FOR CONTRACT YEAR 1976

Lucille B. Beck
Eleanor S. Wintercorn

AUDIOLOGIST-ADJUSTABLE TONE CONTROL SETTINGS

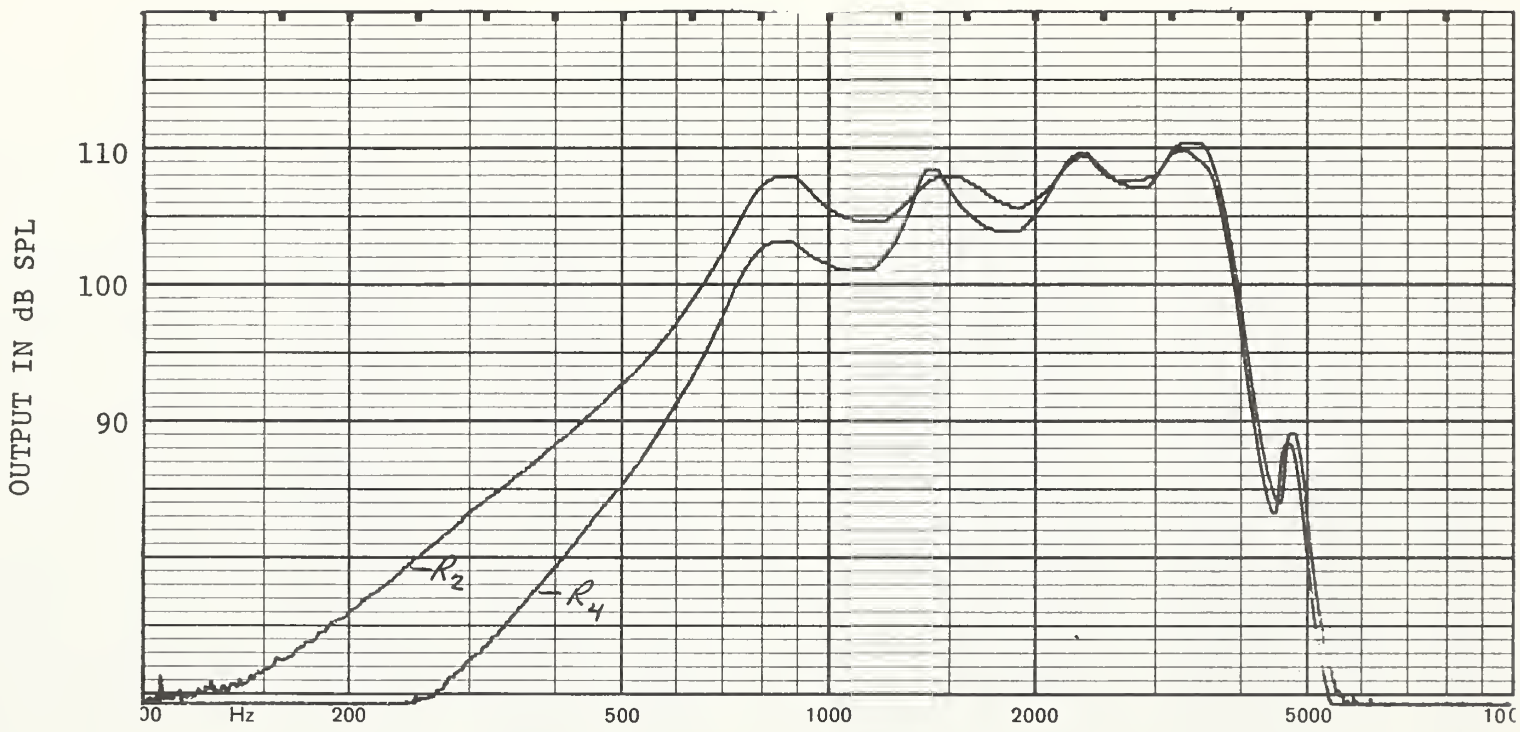
In the following section, frequency responses are included for the hearing aids on contract which have audiologist-adjustable tone control settings. The purpose of this section is to depict the alteration of frequency response when the tone control setting of the aid is manipulated. All curves were obtained utilizing the 2cc coupler at the 12 dB down volume control setting according to NBS procedures (Hearing-Aid Performance Measurement Data and Hearing-Aid Selection Procedures, 1975).

In the legend beneath each aid, the manner of adjusting tone controls for the obtained frequency responses is described. The term internal is used when the tone control adjustment is located inside the battery compartment. The term external is used to indicate tone control adjustments which are located on the outside of the case. The legend further specifies whether the tone control is a switch or screwdriver-operated control. In the designation of tone control for each hearing aid, the terminology used by the manufacturer was employed for this description of tone control settings.

VOLUME CONTROL TAPER

Frequency response as a function of volume control taper was measured for each of the Contract Year 1976 hearing aids. The selected volume control settings were obtained by manipulating the volume control wheel to indicate 100% (full on), 75%, 50%, and 25% rotation.

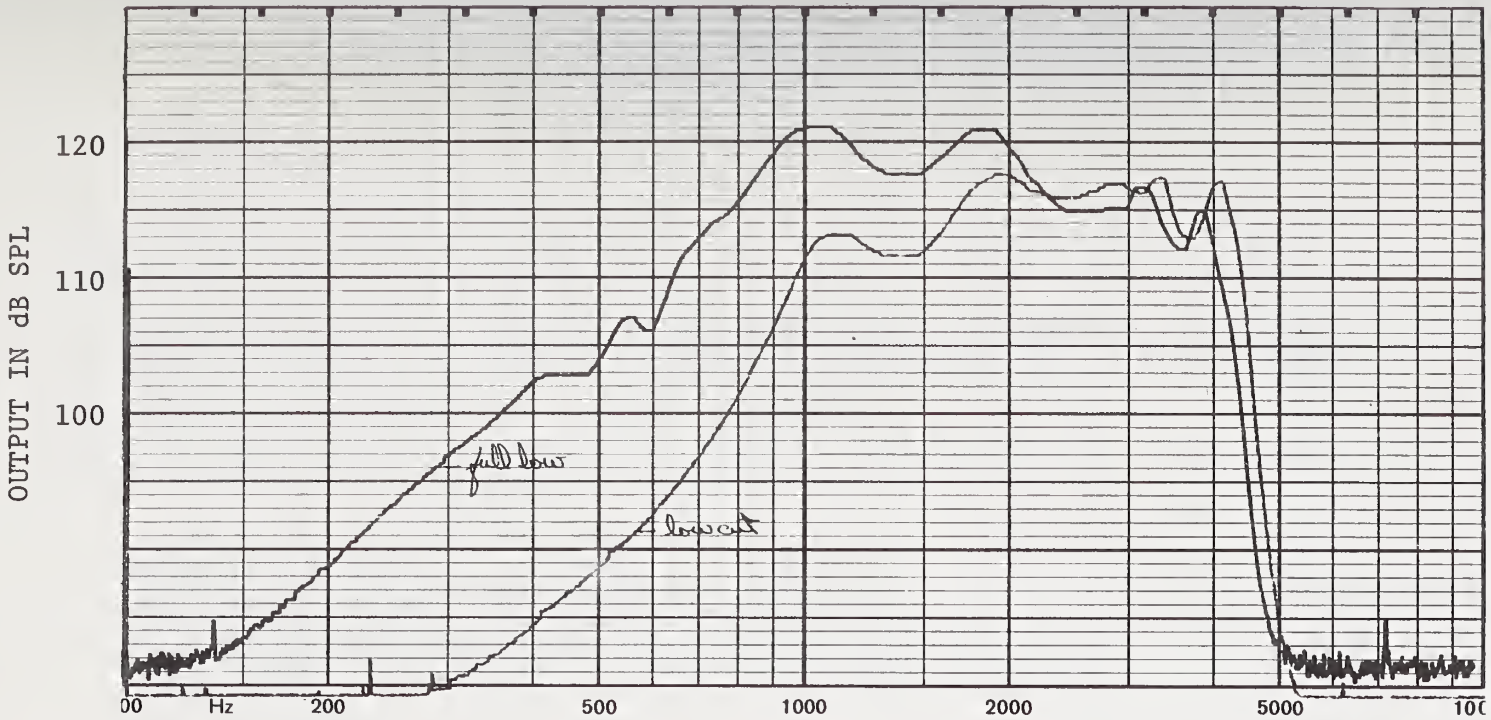
Frequency response measurements were made utilizing the 2cc coupler and a Bruel & Kjaer hearing aid test system. The input sound pressure level was 60 dB. The gain in dB SPL at 1000 Hz for each volume control setting is provided on the frequency response of each aid.



Frequency response curves of the Audiotone A24D #23719 at the following tone control settings:

R2 - external switch to R2 setting
R4 - external switch to R4 setting

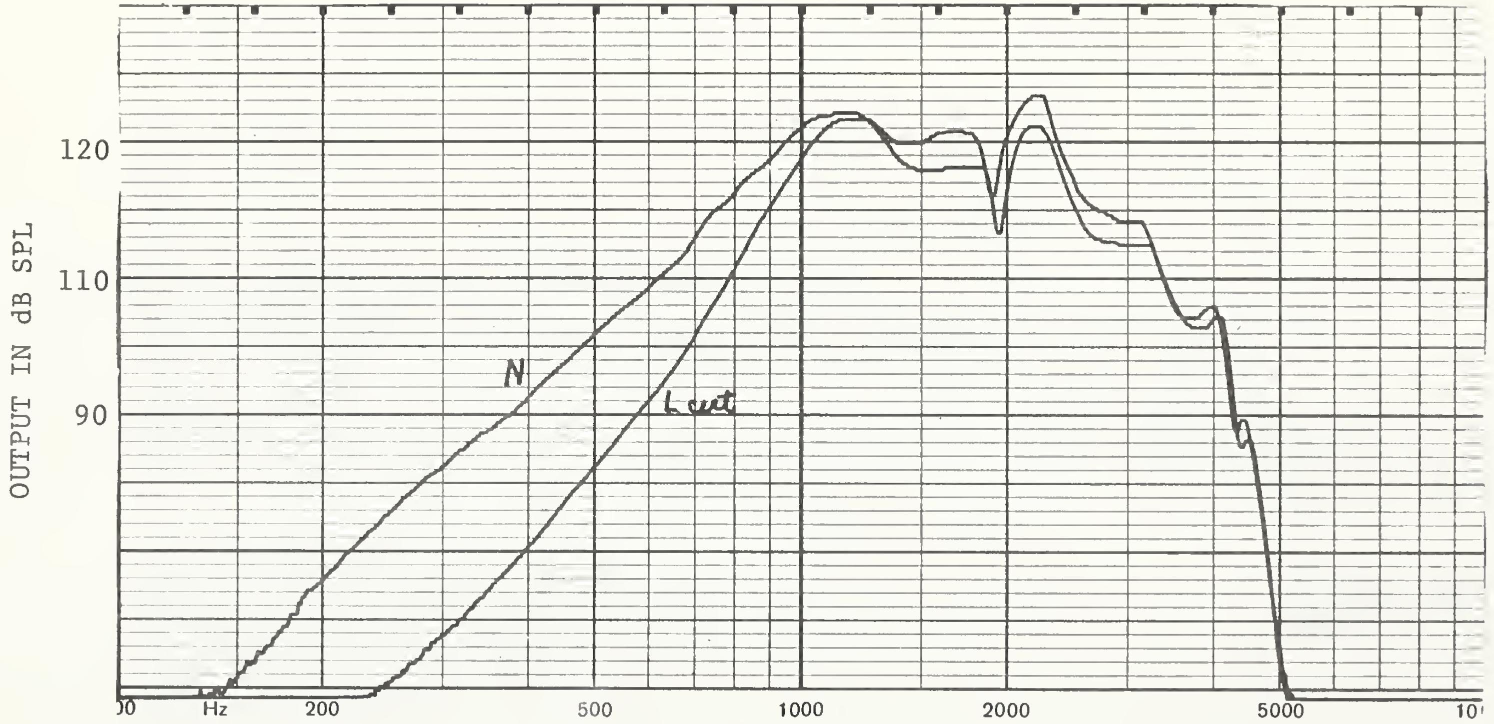
Gain at 1000 Hz (R2 setting): 45 dB



Frequency response curves of the Dahlberg HF 1250 at the following tone control settings:

Full low response - external screwdriver adjustment to 2 o'clock
Low frequency cut - external screwdriver adjustment to 10 o'clock

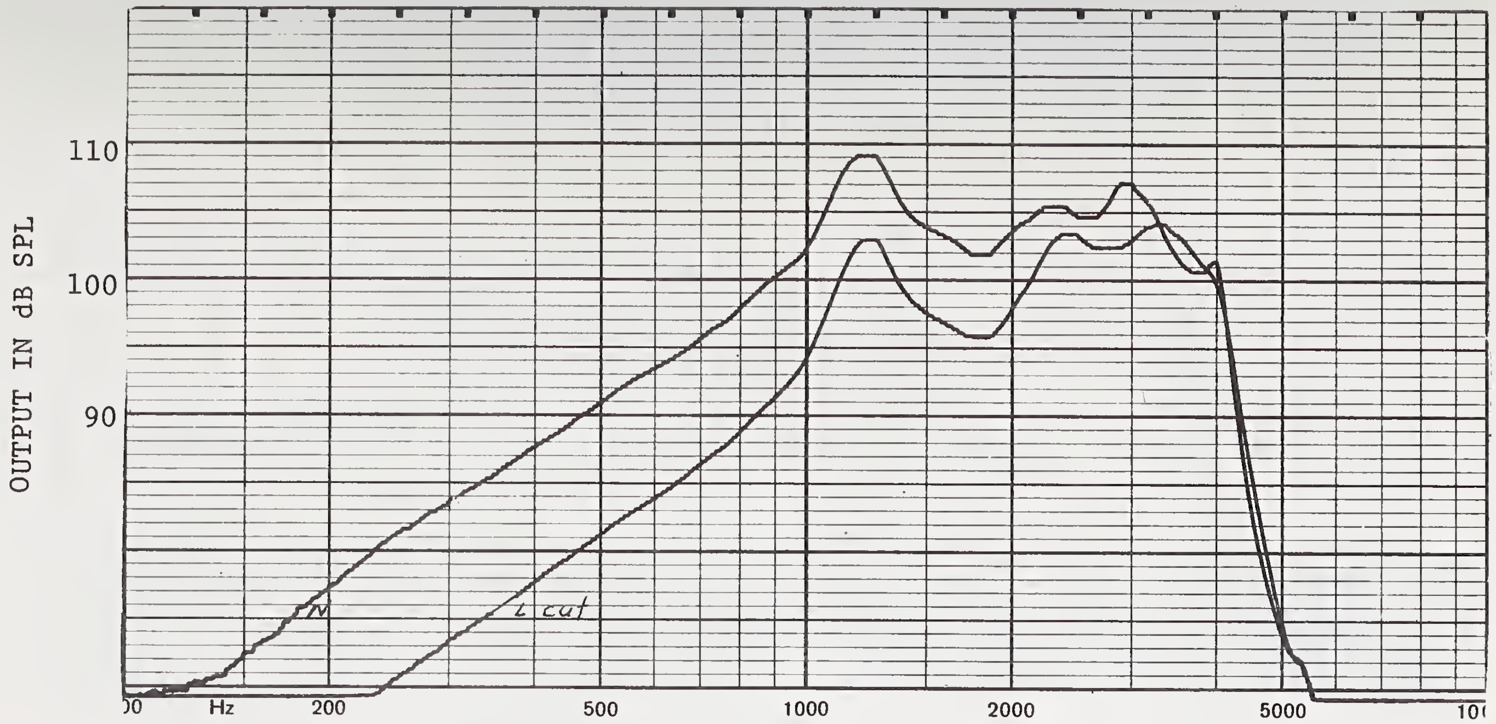
Gain at 1000 Hz (full low response): 61 dB



Frequency response curves of the Dahlberg HG 1250 #HG66AE at the following tone control settings:

Normal - external screwdriver adjustment rotated clockwise to 2 o'clock
Low Frequency Cut - external screwdriver adjustment rotated clockwise to 10 o'clock

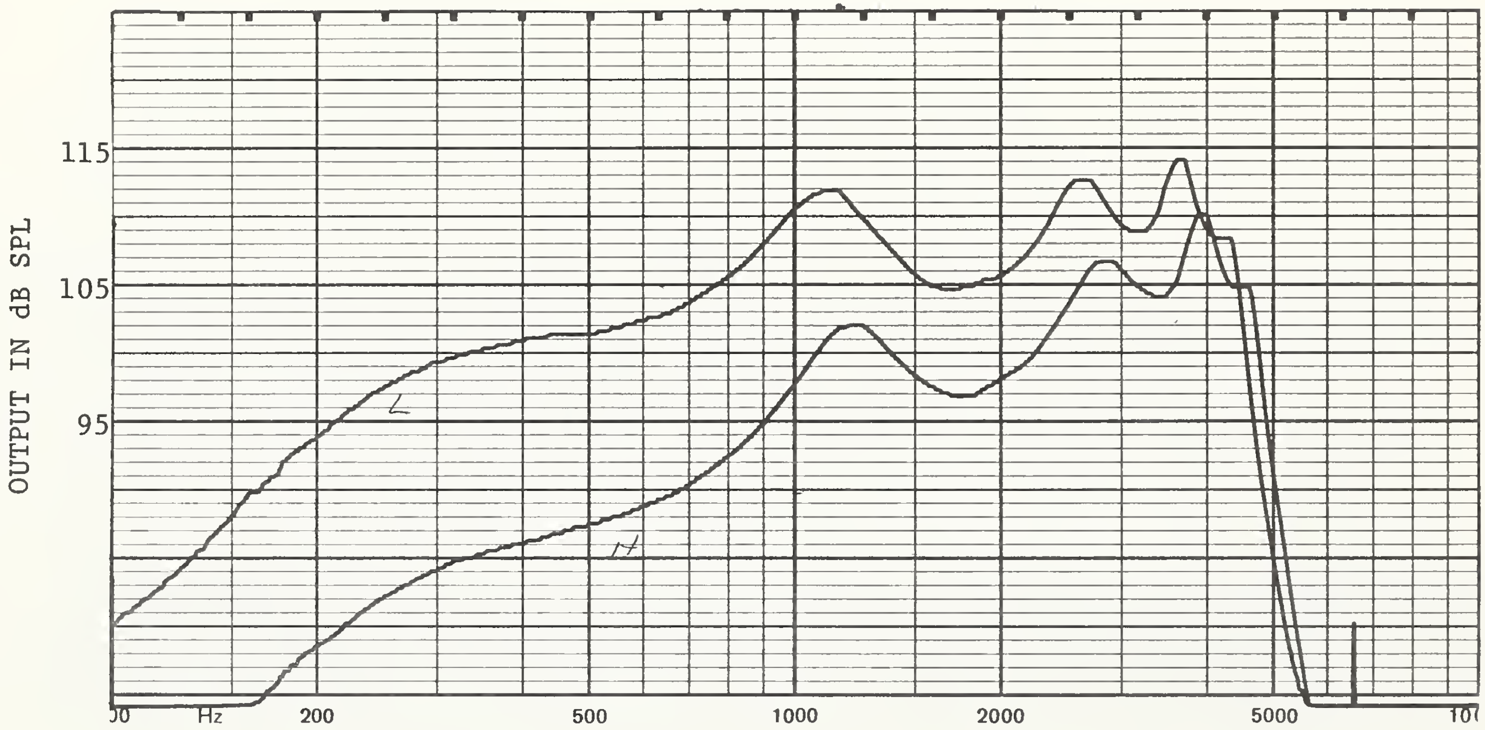
Gain at 1000 Hz (N setting): 61 dB



Frequency response curves of the Dahlberg JC 1254 #JC39AR at the following tone control settings:

Normal - external screwdriver adjustment rotated clockwise to 2 o'clock
Low Frequency Cut - external screwdriver adjustment rotated clockwise to 10 o'clock

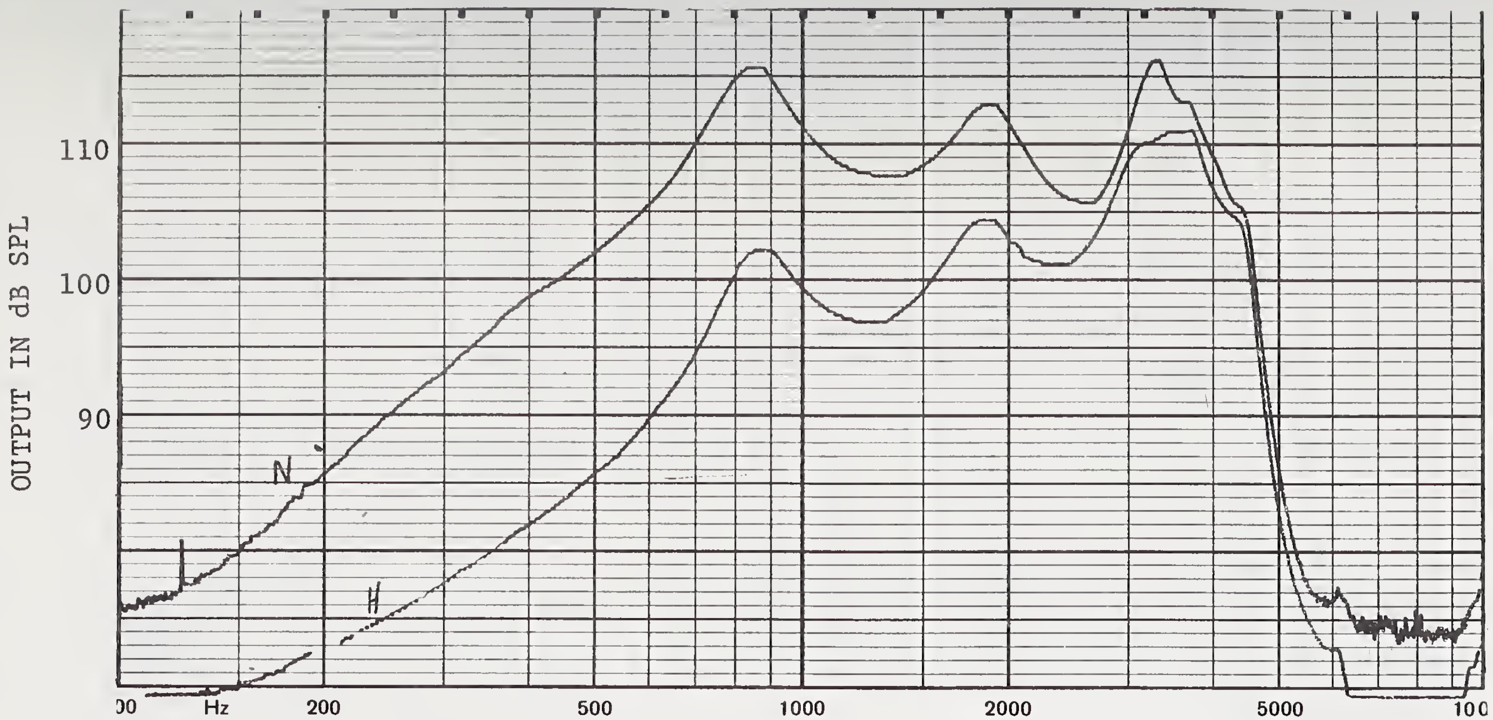
Gain at 1000 Hz (N setting): 42 dB



Frequency response curves of the Lehr Optica 6 #4300538 at the following tone control settings:

L - external screwdriver adjustment to L setting
H - external screwdriver adjustment to H setting

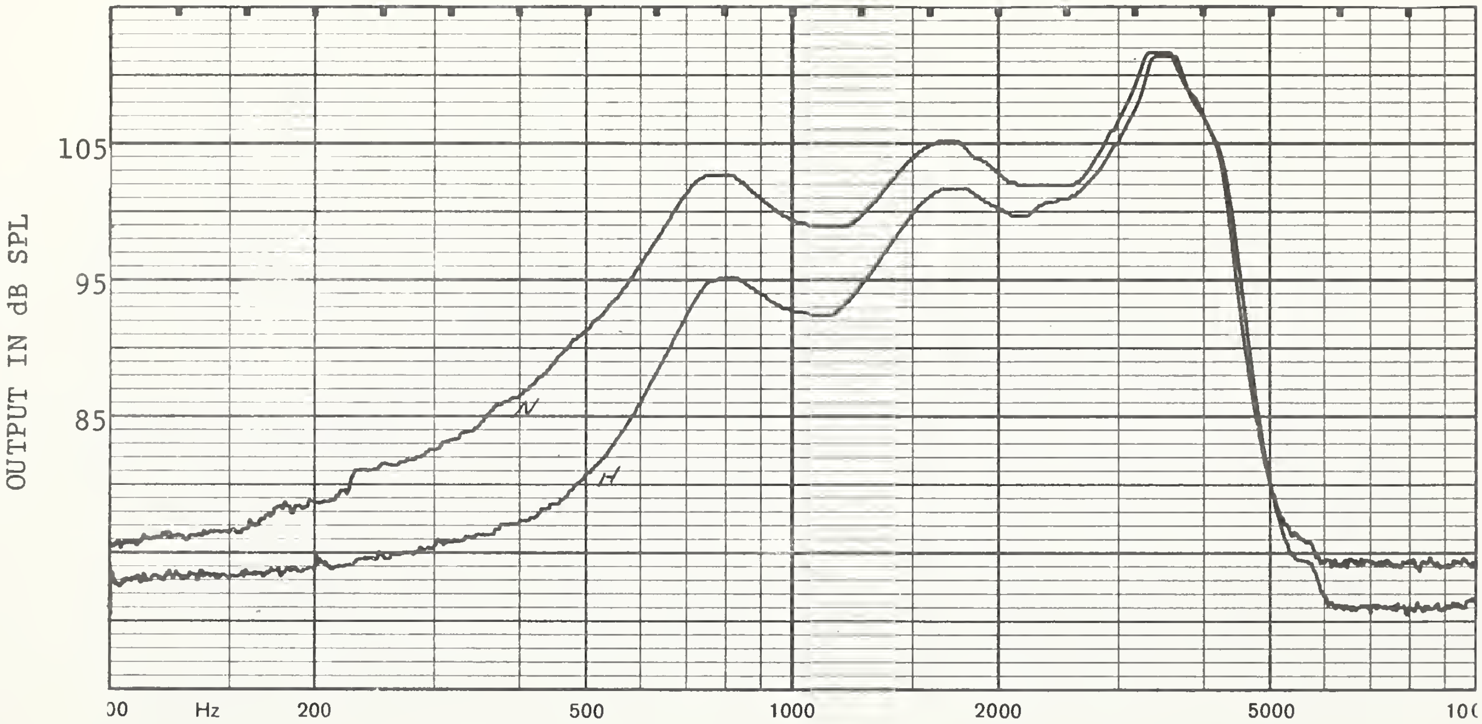
Gain at 1000 Hz (L setting): 50 dB



Frequency response curves of the Norelco 8274 #25010 at the following tone control settings:

N - external screwdriver adjustment to N setting
H - external screwdriver adjustment to H setting

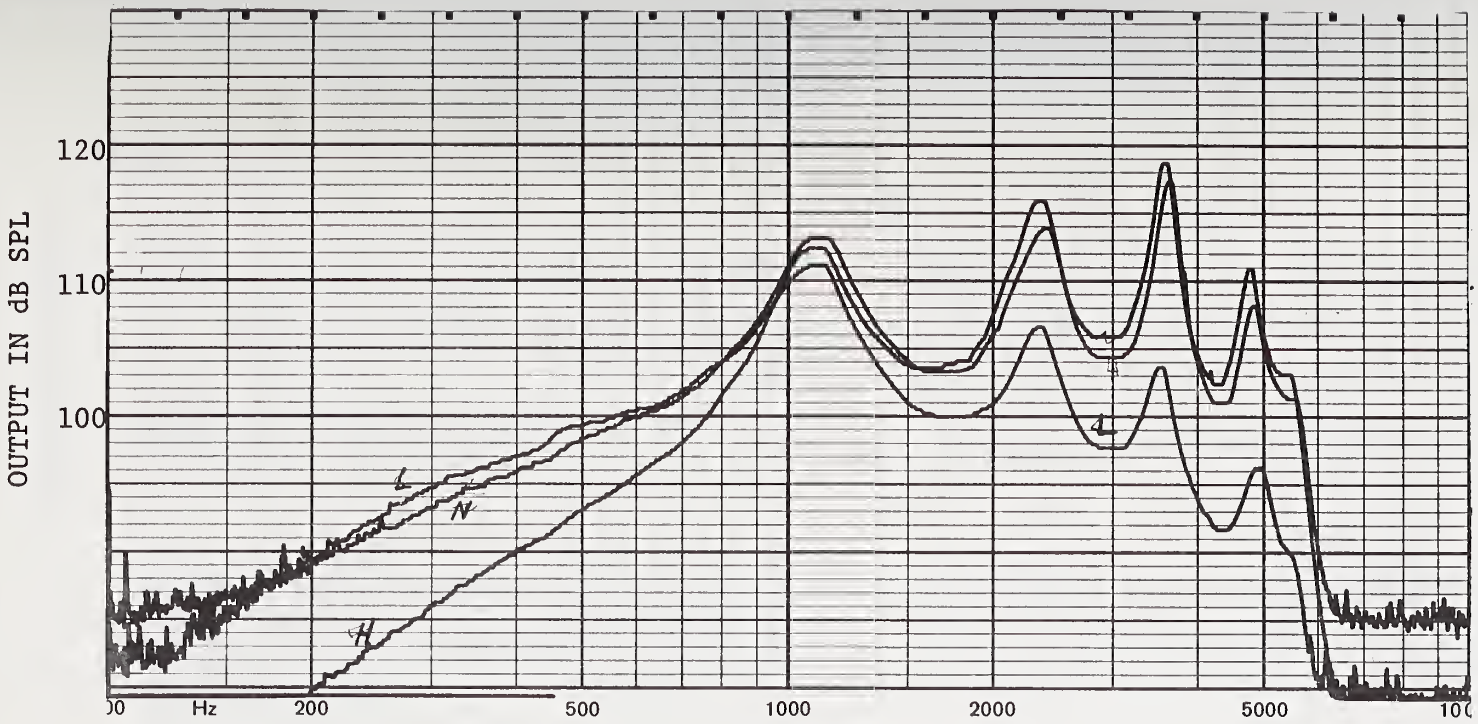
Gain at 1000 Hz (N setting): 51 dB



Frequency response curves of the Norelco 8288 #85023 at the following tone control settings:

N - external screwdriver adjustment to N setting
H - external screwdriver adjustment to H setting

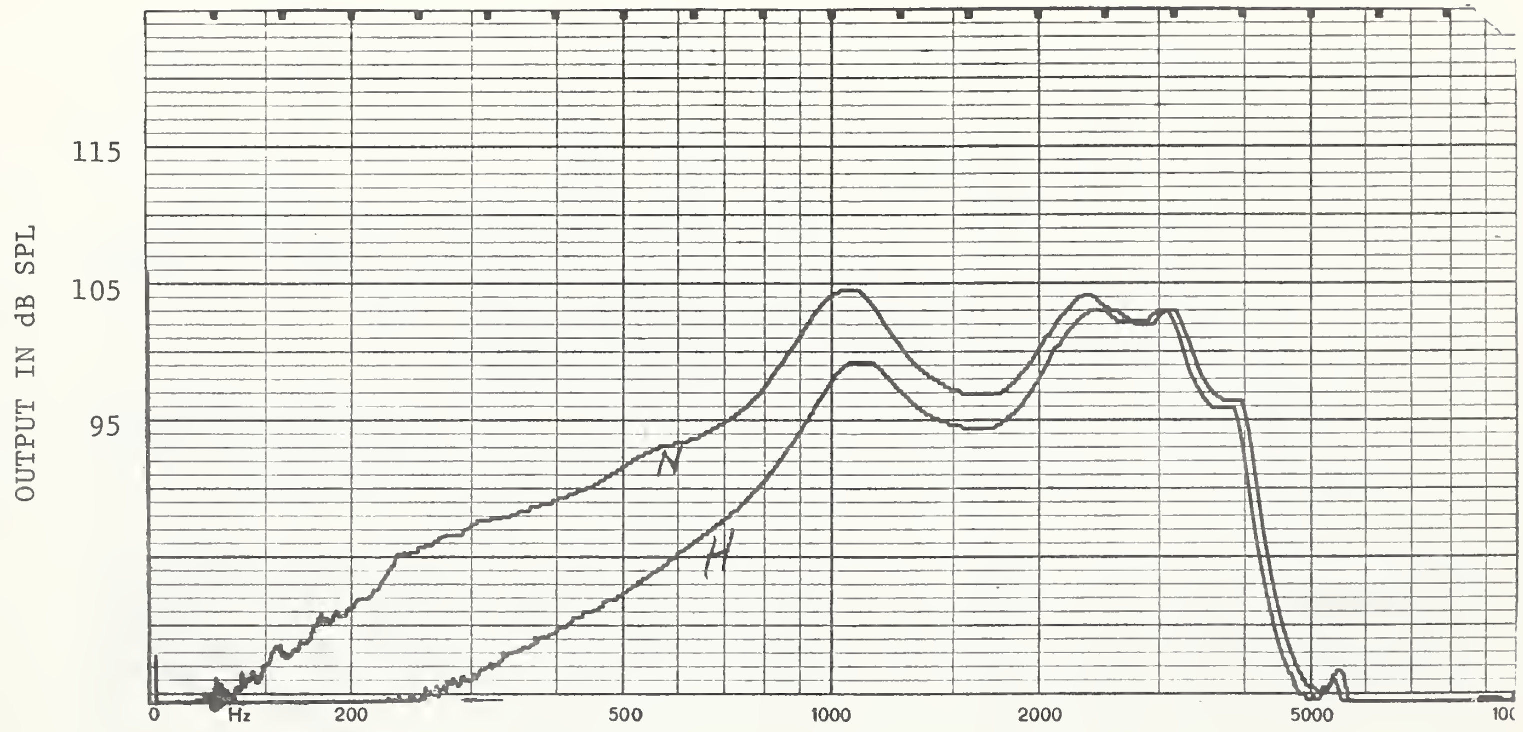
Gain at 1000 Hz (N setting): 39 dB



Frequency response curves of the Oticon E11V #23002 at the following tone control settings:

L - external screwdriver adjustment to L setting
N - external screwdriver adjustment to N setting
H - external screwdriver adjustment to H setting

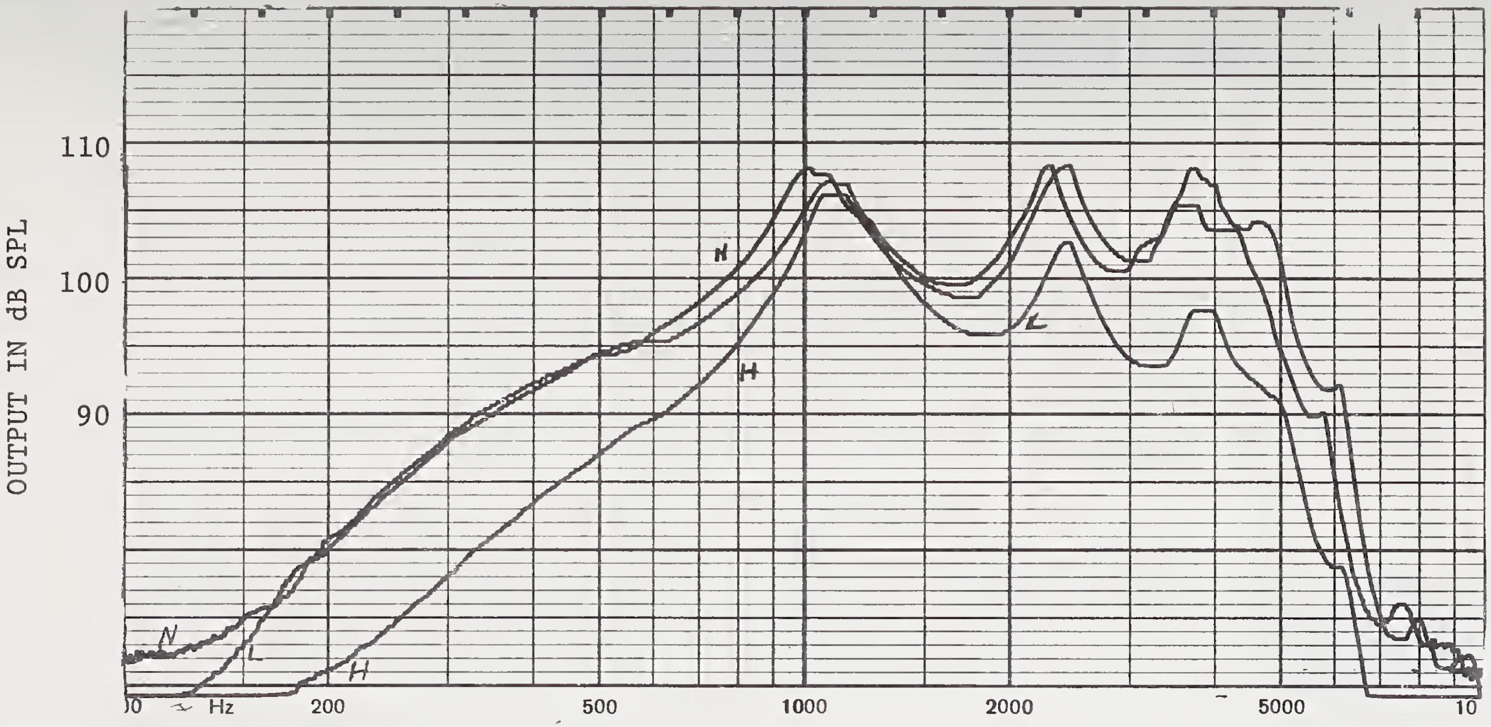
Gain at 1000 Hz (N setting): 51 dB



Frequency response curves of the Oticon E16U #4108529 at the following tone control settings:

N - external screwdriver adjustment turned fully clockwise
H - external screwdriver adjustment two turns counterclockwise

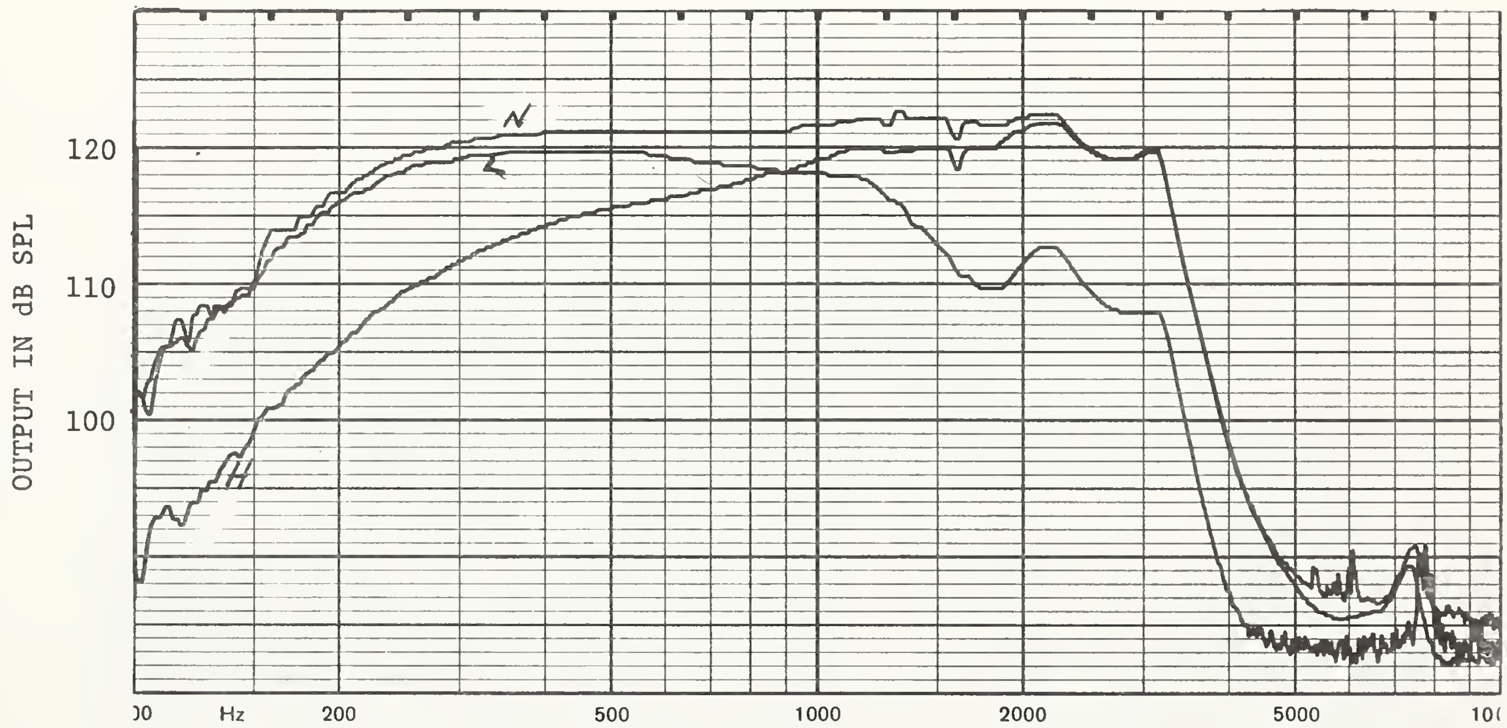
Gain at 1000 Hz (N setting): 44 dB



Frequency response curves of the Oticon S11V #13314 at the following tone control settings:

L - external screwdriver adjustment to L setting
N - external screwdriver adjustment to N setting
H - external screwdriver adjustment to H setting

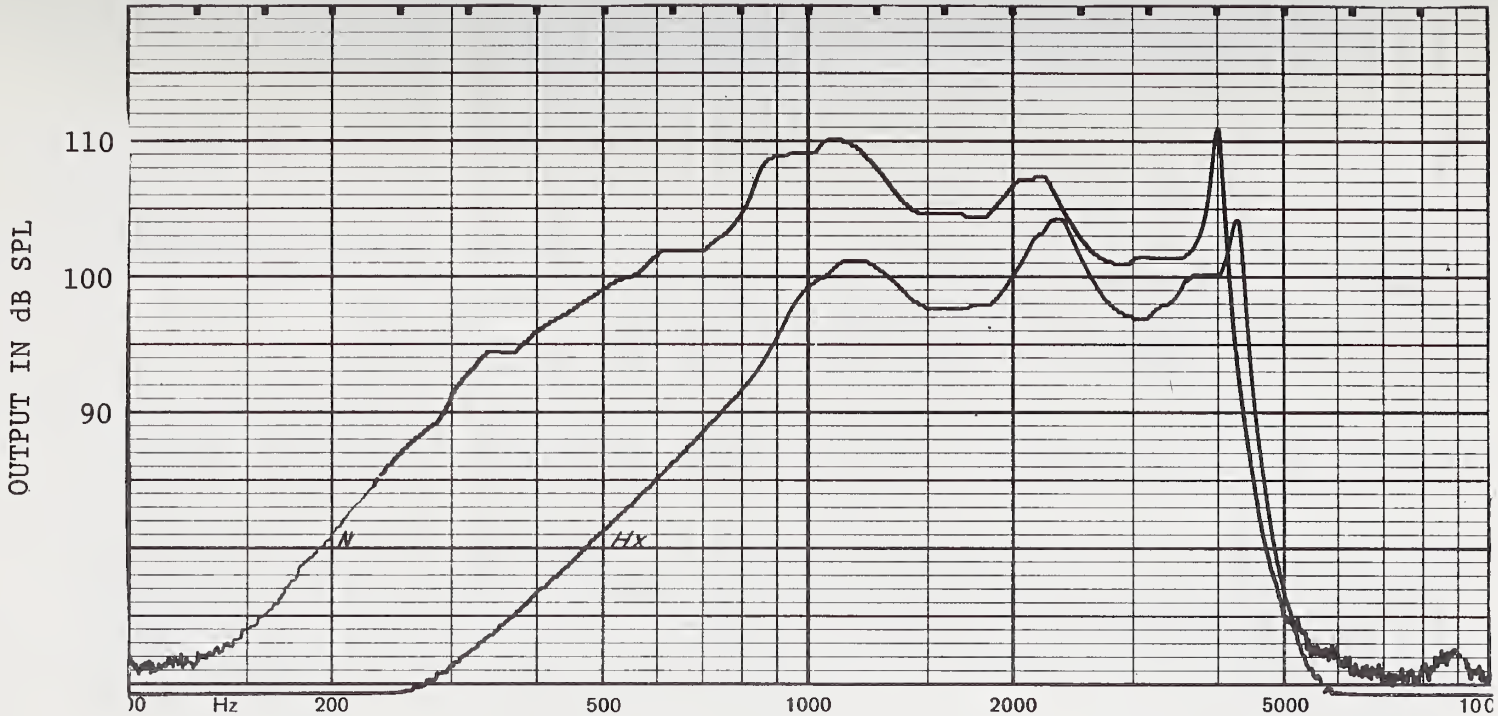
Gain at 1000 Hz (L setting): 48 dB



Frequency response curves of the Oticon 375 PPX #143890 with CDF-8 receiver at the following tone control settings:

L - external screwdriver adjustment to L setting
N - external screwdriver adjustment to N setting
H - external screwdriver adjustment to H setting

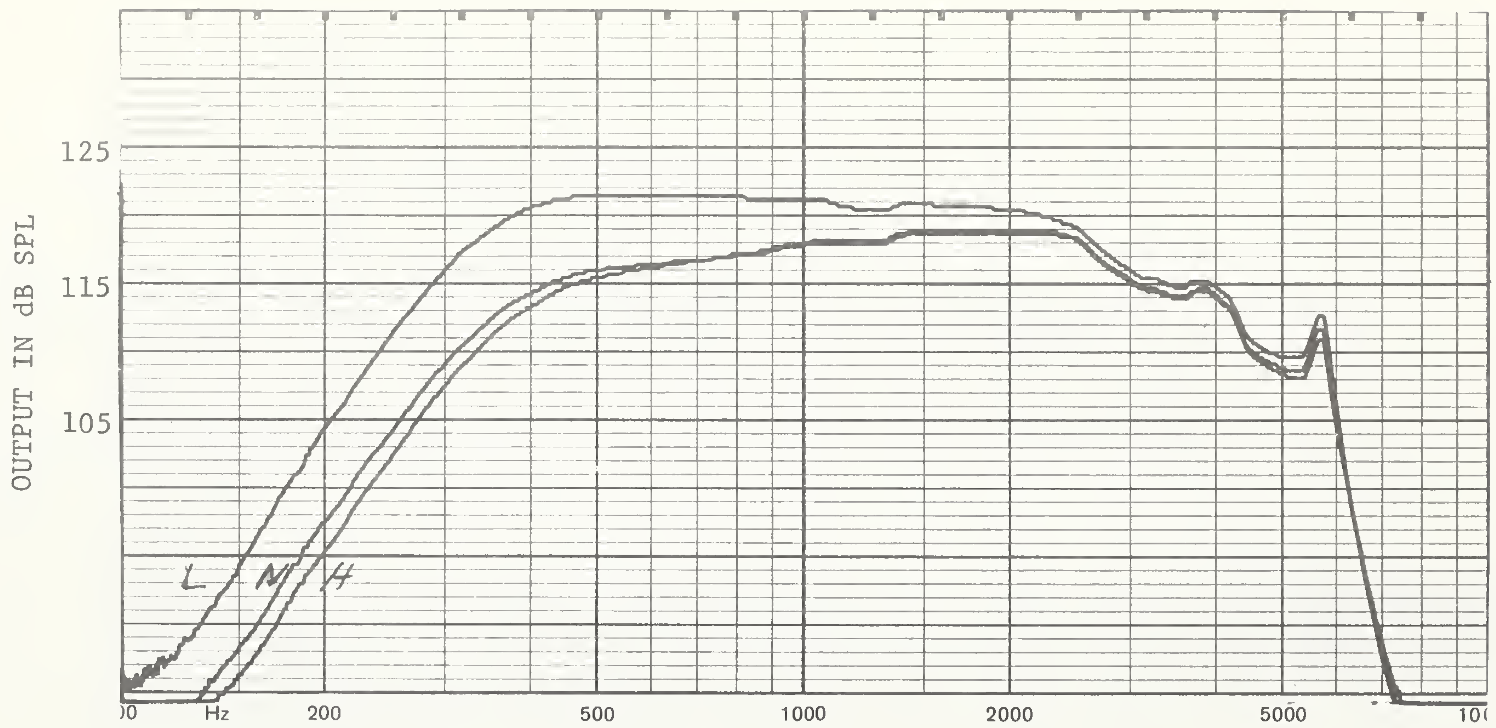
Gain at 1000 Hz (N setting): 61 dB



Frequency response curves of the Qualitone TSPNB #9331 at the following tone control settings:

N - external switch to N setting
Hx - external switch to Hx setting

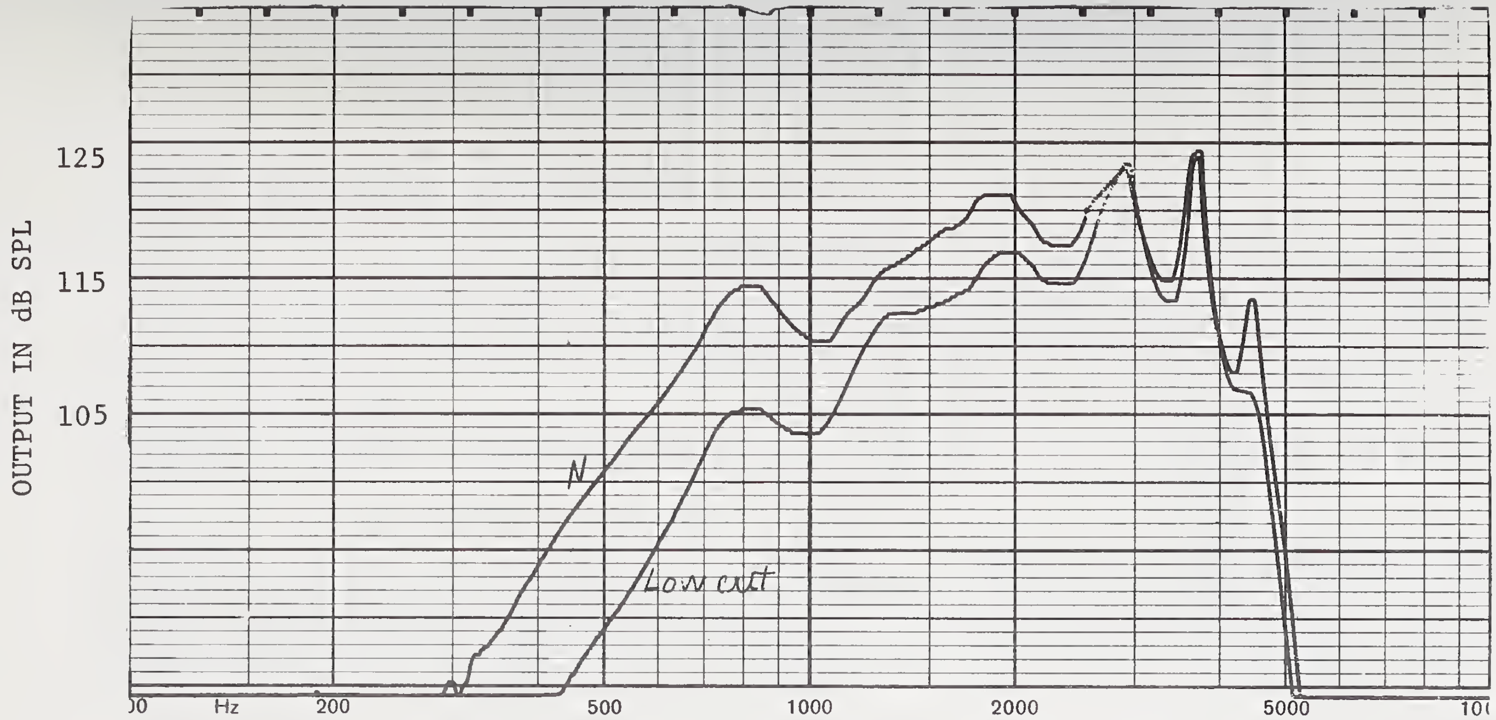
Gain at 1000 Hz (N setting): 49 dB



Frequency response curves of the Phonic Ear 527 LW #104458 with AT 16W receiver at the following tone control settings:

L - internal screwdriver adjustment to L setting
N - internal screwdriver adjustment to N setting
H - internal screwdriver adjustment to H setting

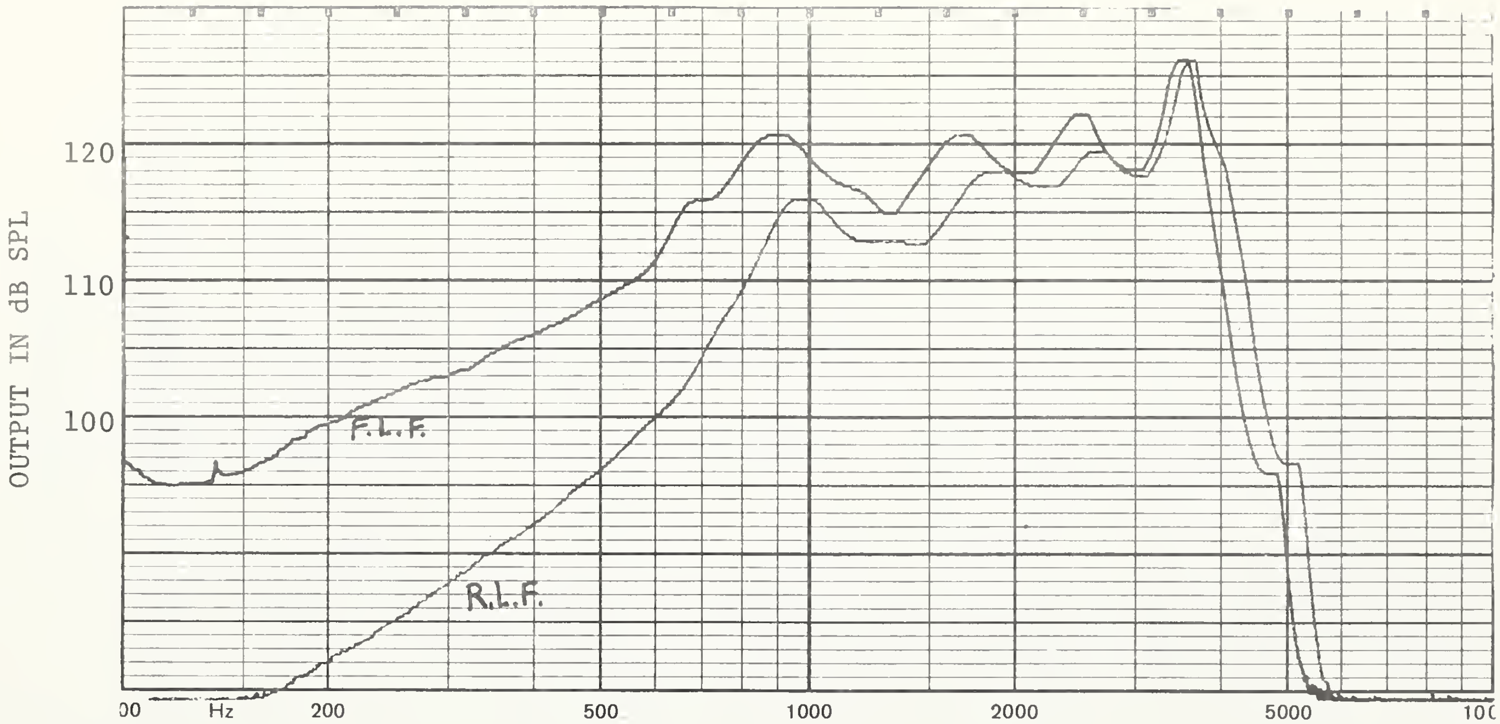
Gain at 1000 Hz (L setting): 61 dB



Frequency response curves of the Radioear 1040 #14155 at the following tone control settings:

Normal - internal screwdriver adjustment rotated one full counterclockwise turn
Maximum Low Frequency Cut - internal screwdriver adjustment rotated three full clockwise turns

Gain at 1000 Hz (N setting): 50 dB

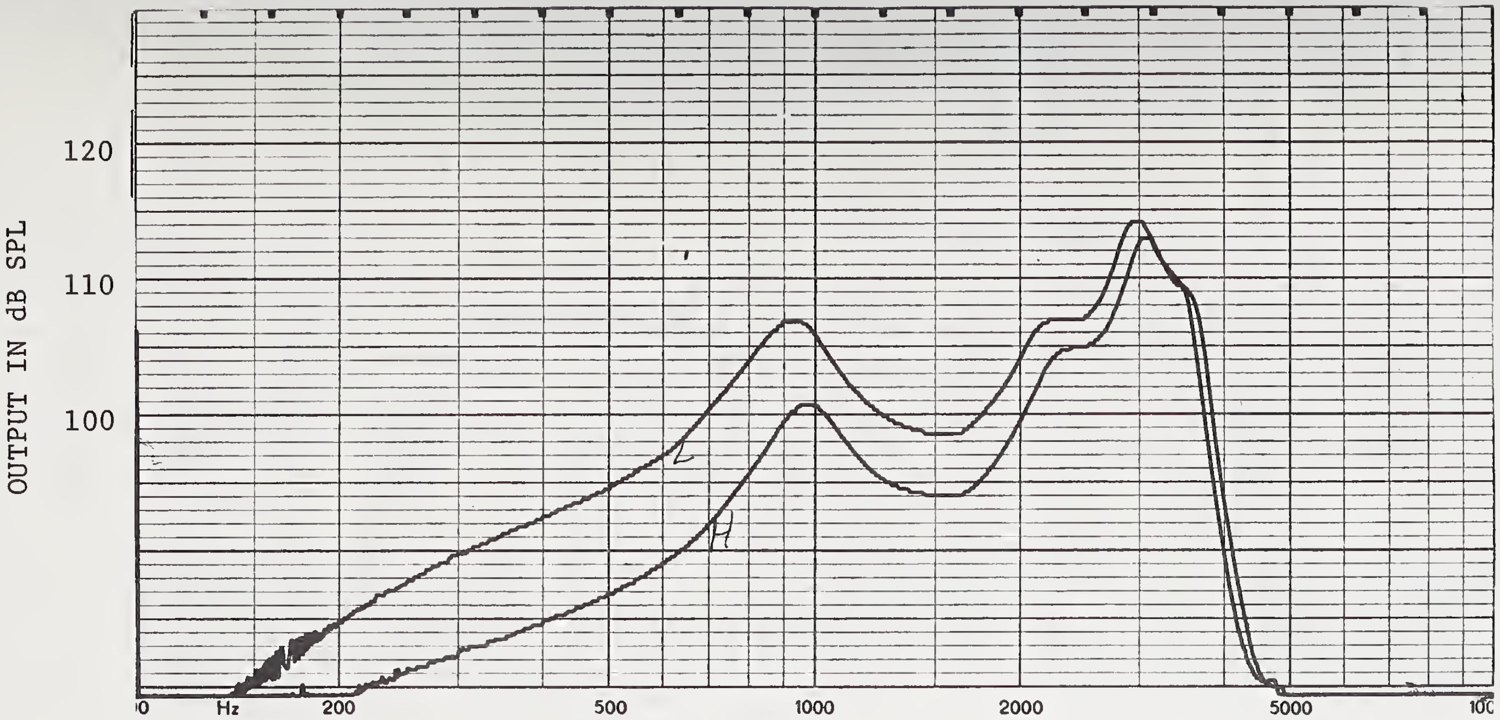


Frequency response curves of the Radioear 1050 #8114 at the following tone control settings:

Full Low Frequency Response - internal screwdriver adjustment turned fully clockwise (screw "in")

Reduced Low Frequency Response - internal screwdriver adjustment turned counter-clockwise until a slight resistance is felt (screw "out")

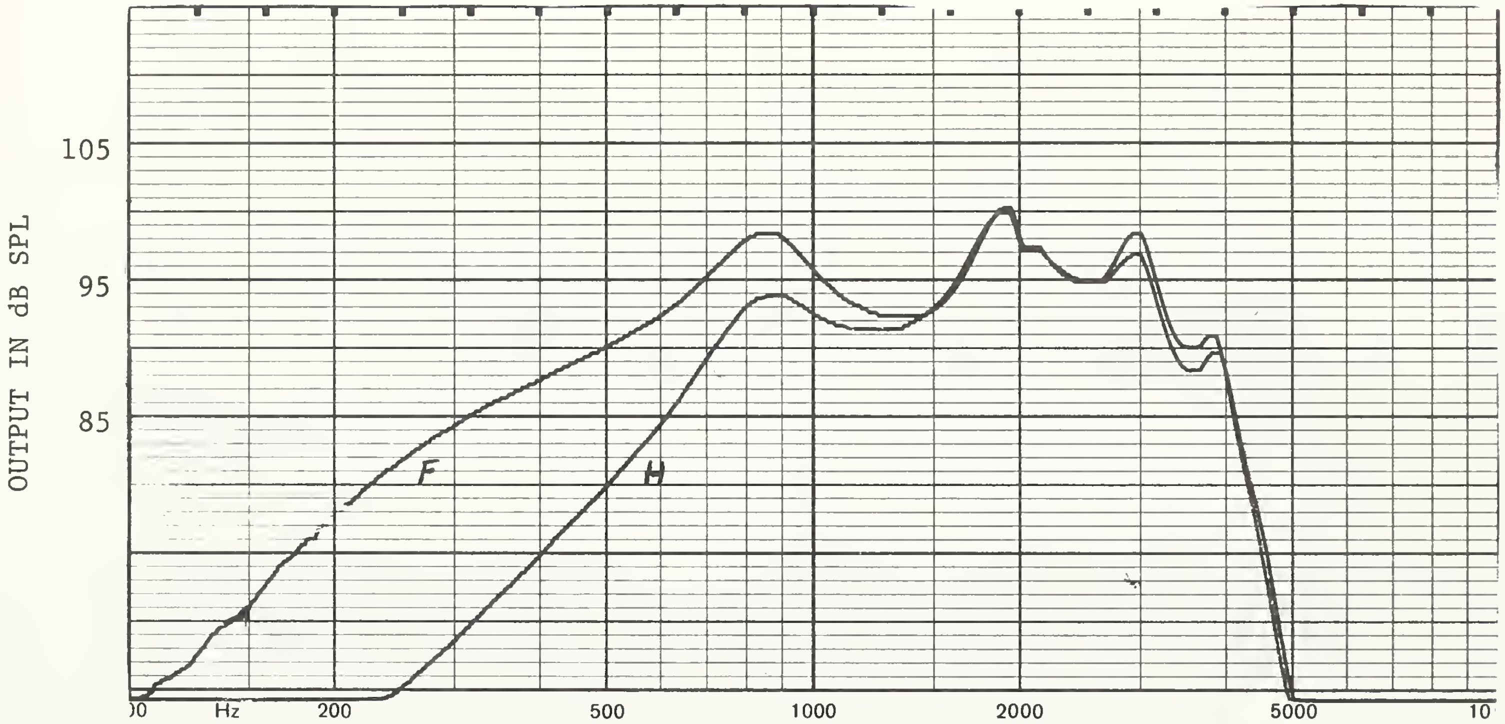
Gain at 1000 Hz (Full Low Frequency): 58 dB



Frequency response curves of the Rexton 4112 #15972 at the following tone control settings:

L - external screwdriver adjustment to L setting
H - external screwdriver adjustment to H setting

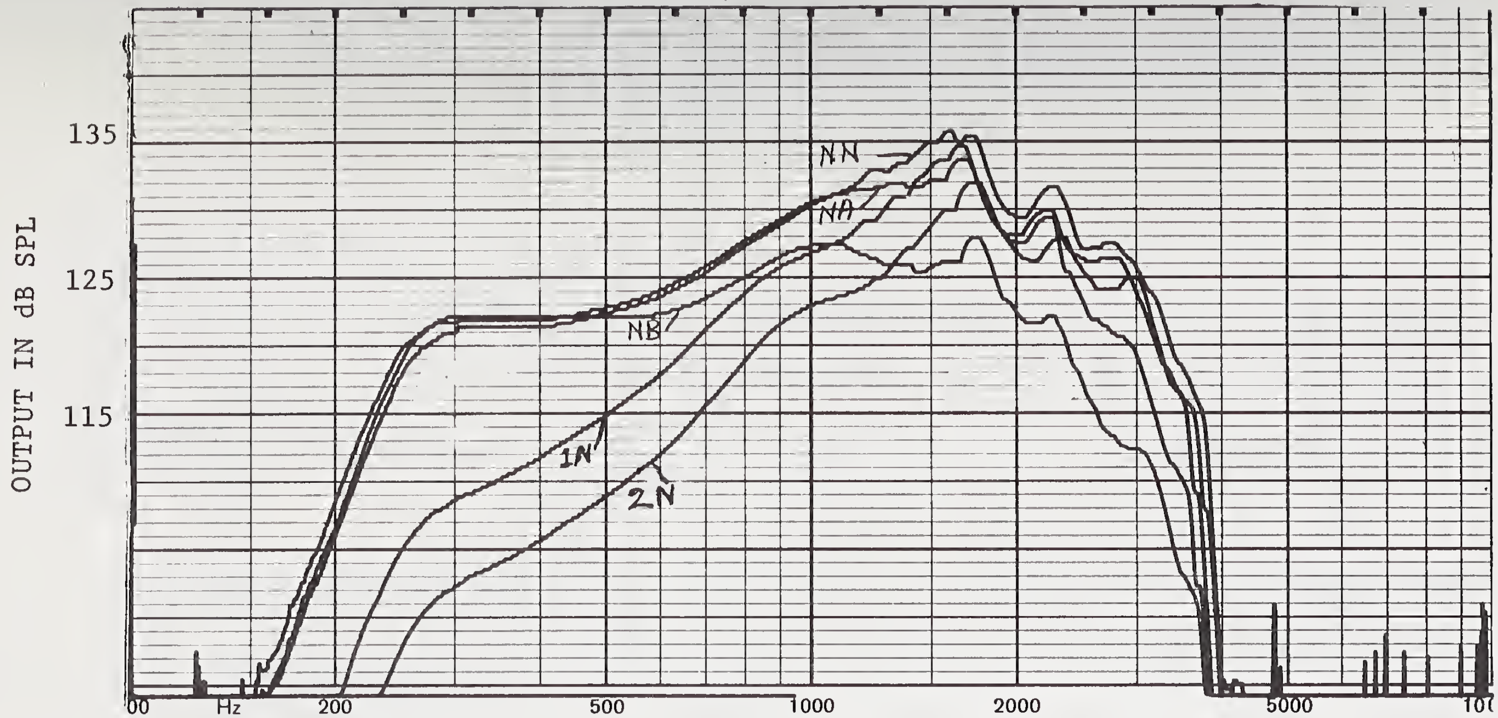
Gain at 1000 Hz (L setting): 46 dB



Frequency response curves of the Siemens 28 E-MP-HF #158469-158207 at the following tone control settings:

F - internal screwdriver adjustment rotated fully clockwise
H - internal screwdriver adjustment rotated fully counterclockwise

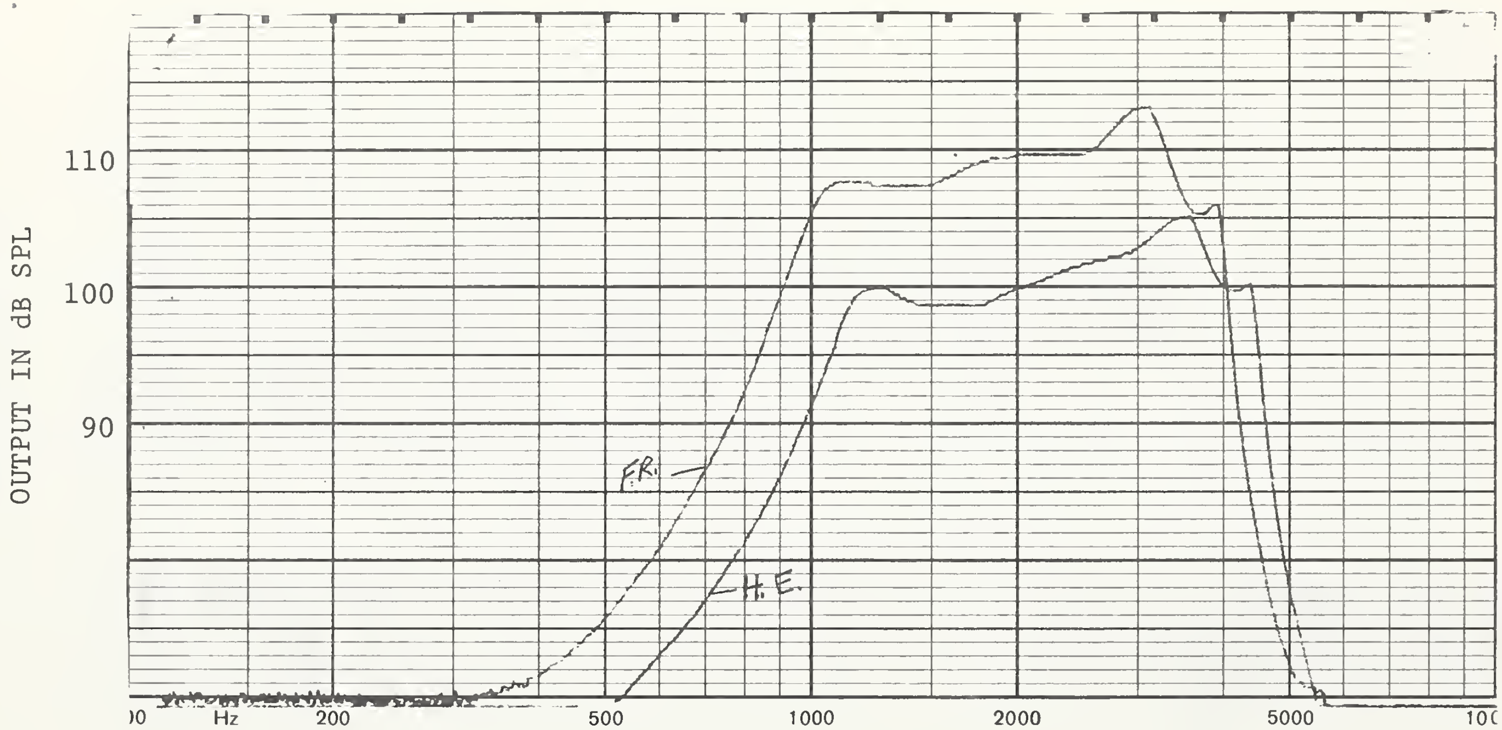
Gain at 1000 Hz (F setting): 37 dB



Frequency response curves of the Sonotone 670 BX #B6428 with 4121 RD receiver at the following tone control settings:

Full Response - internal tone switch to NN setting
Low Frequency Emphasis - internal tone switch to NA setting
Low Frequency Emphasis - internal tone switch to NB setting
High Frequency Emphasis - internal tone switch to N1 setting
High Frequency Emphasis - internal tone switch to N2 setting

Gain at 1000 Hz (NN setting): 71 dB

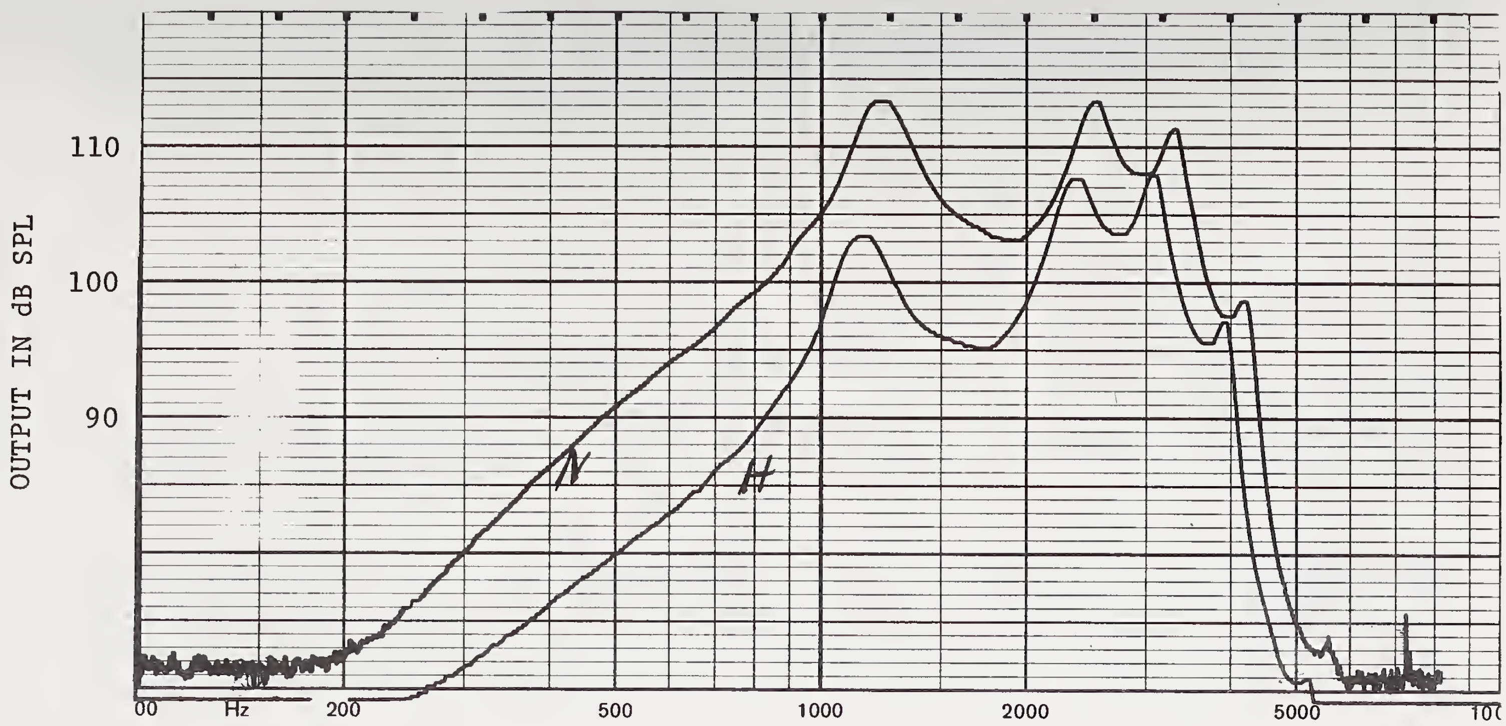


Frequency response curves of the Telex 331H #2363 at the following tone control settings:

Full Response - external screwdriver adjustment rotated one full turn counter-clockwise

High Emphasis - external screwdriver adjustment rotated one full turn clockwise

Gain at 1000 Hz (full response): 46 dB

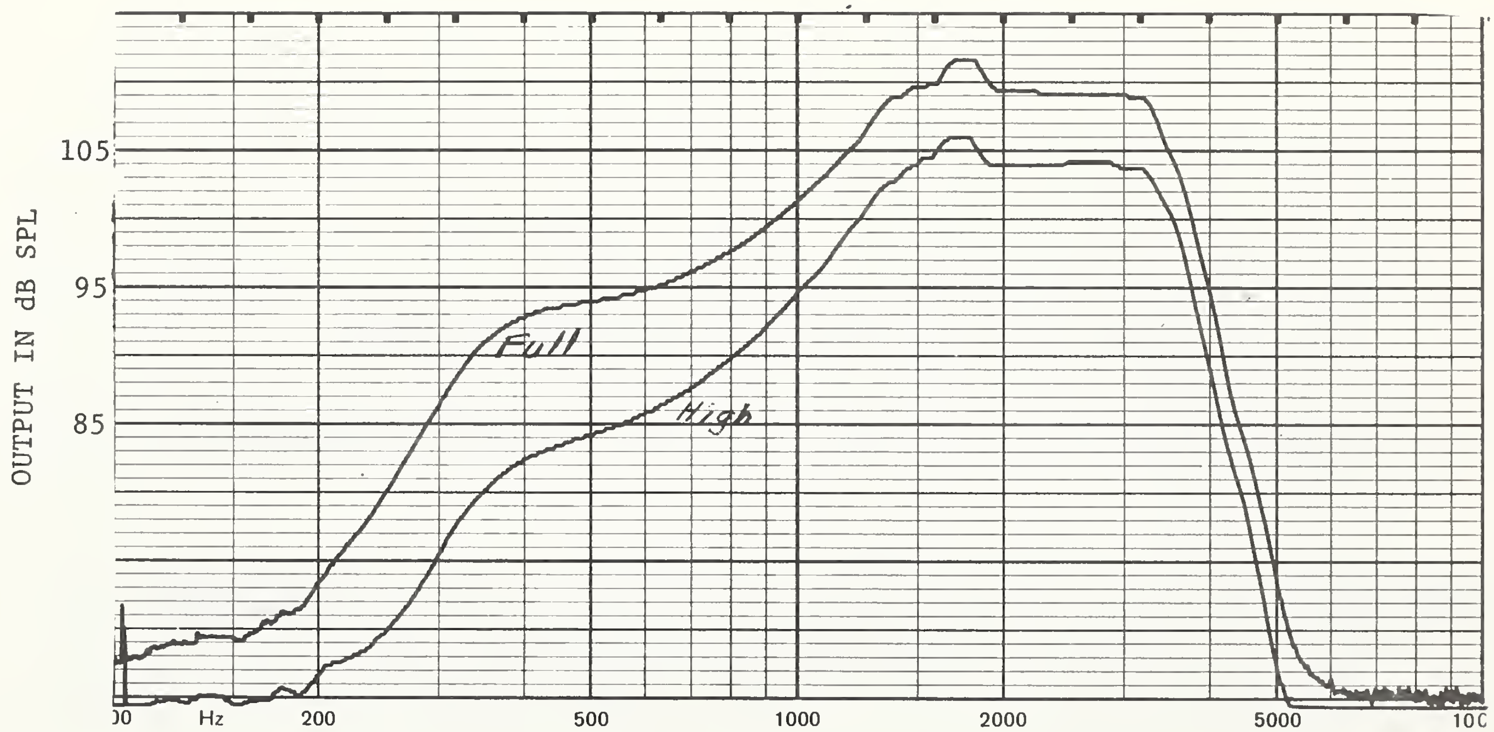


Frequency response curves of the Telex Model 400 Telecros #0172 at the following tone control settings:

Normal - tone control wheel on microphone side rotated towards the rear, turned on slightly to activate microphone

Low Frequency Cut - tone control wheel on microphone side rotated fully forward

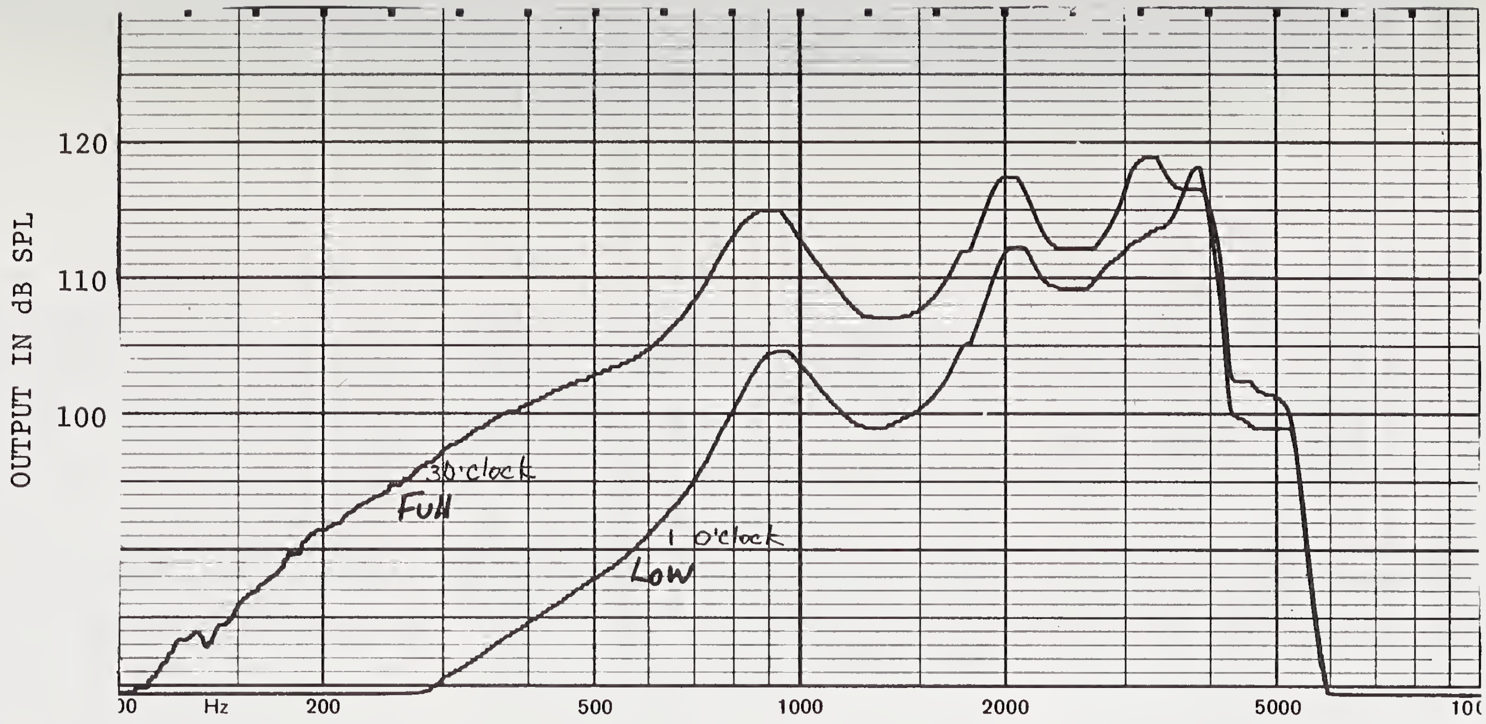
Gain at 1000 Hz (N setting): 45 dB



Frequency response curves of the Zenith Award #8546395 with 510 NP receiver at the following tone control settings:

Full - external dial, with markings on back of aid
High - external dial, with markings on back of aid

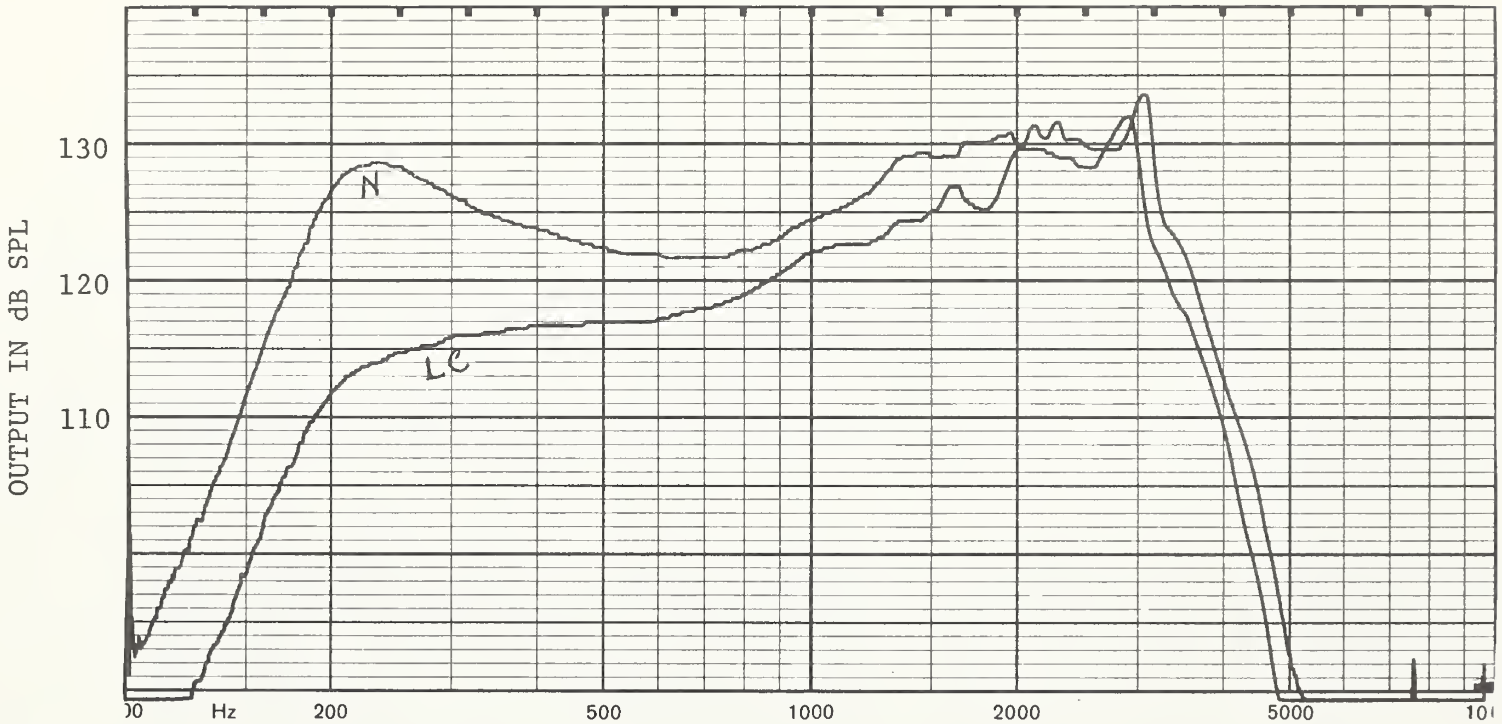
Gain at 1000 Hz (Full setting): 41 dB



Frequency response curves of the Zenith Pacemaker EP II #UW 812 at the following tone control settings:

Full Response - external screwdriver adjustment turned clockwise to 3 o'clock
Low Frequency Response - external screwdriver adjustment turned counterclockwise to 1 o'clock

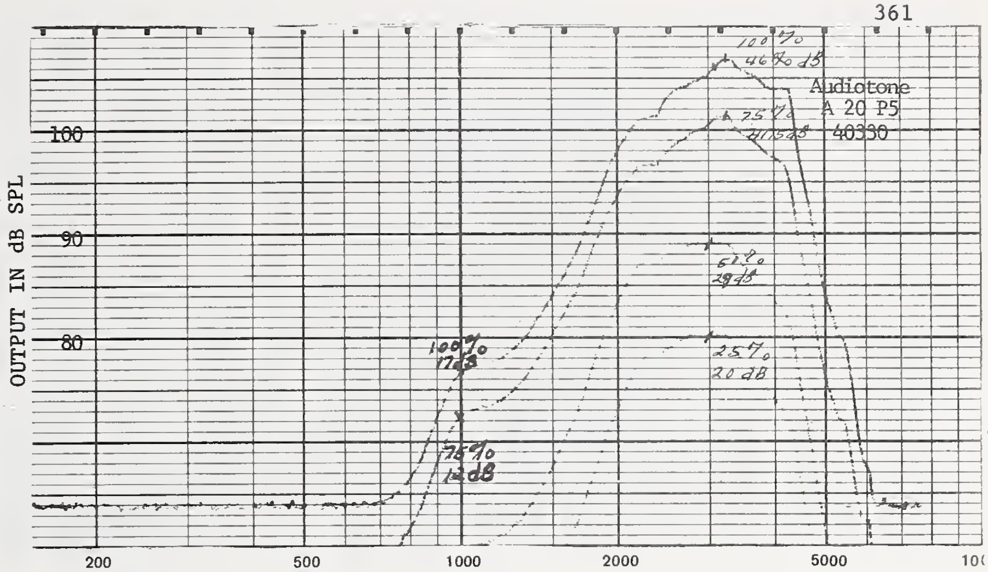
Gain at 1000 Hz (full response): 53 dB



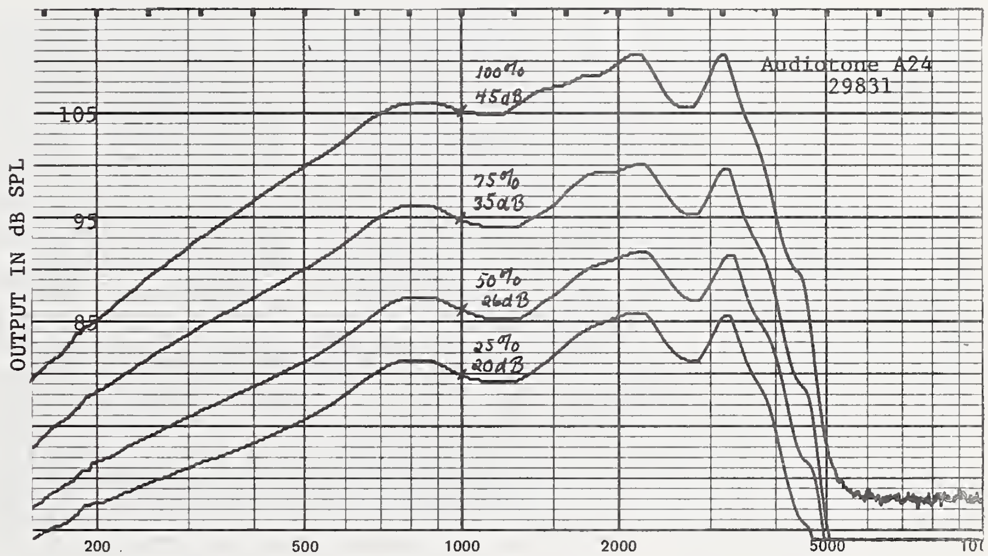
Frequency response curves of the Zenith Vocalizer III #30502 with Y-5 548016 receiver at the following tone control settings:

LC - internal screwdriver adjustment to LC setting
N - internal screwdriver adjustment to N setting

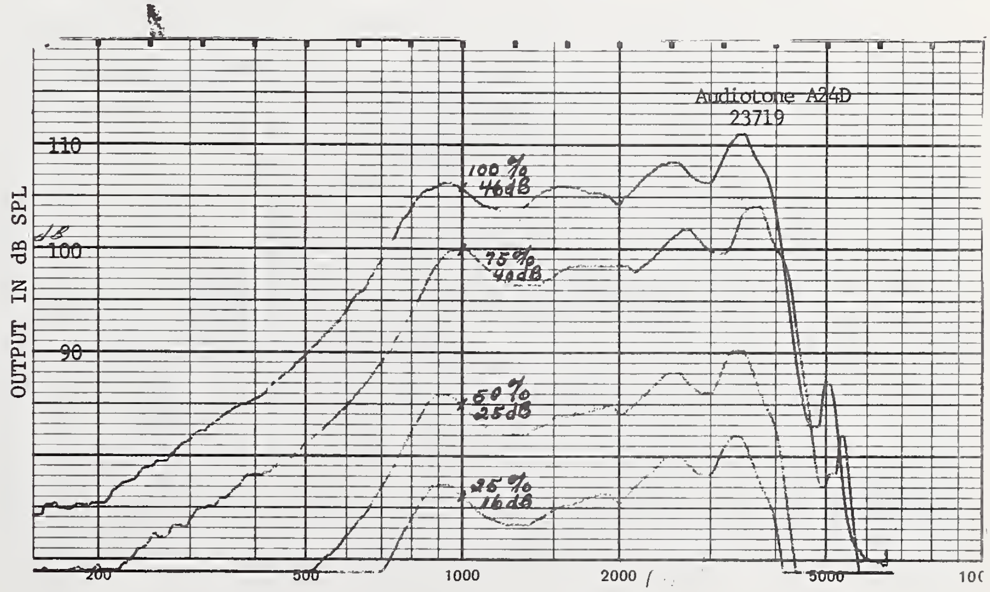
Gain at 1000 Hz (N setting): 64 dB



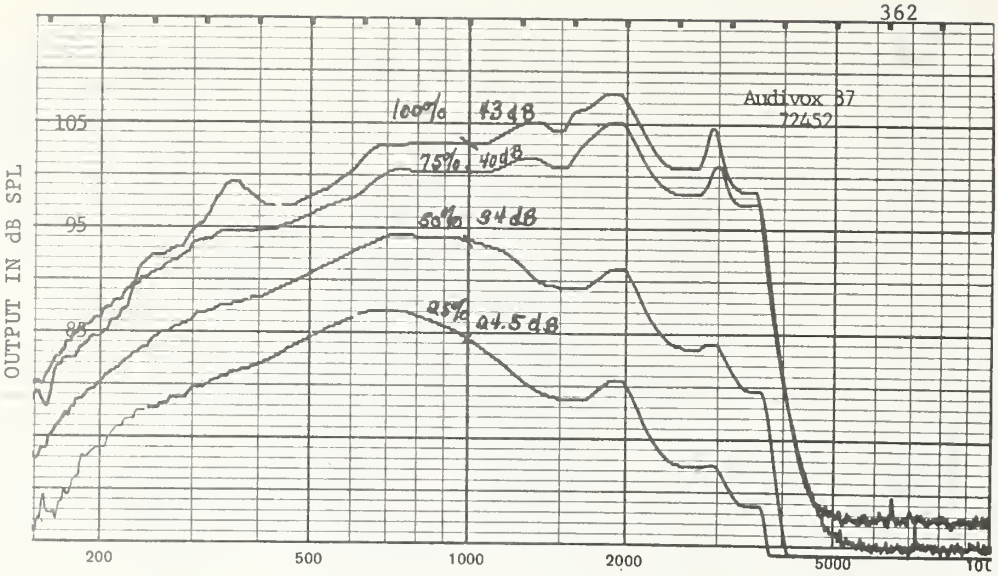
Audiotone
A 20 P5
40330
100%
46% dB
75%
41.5dB
50%
29dB
25%
20 dB
100%
17dB
75%
12dB
OUTPUT IN dB SPL
100
90
80
200
500
1000
2000
5000



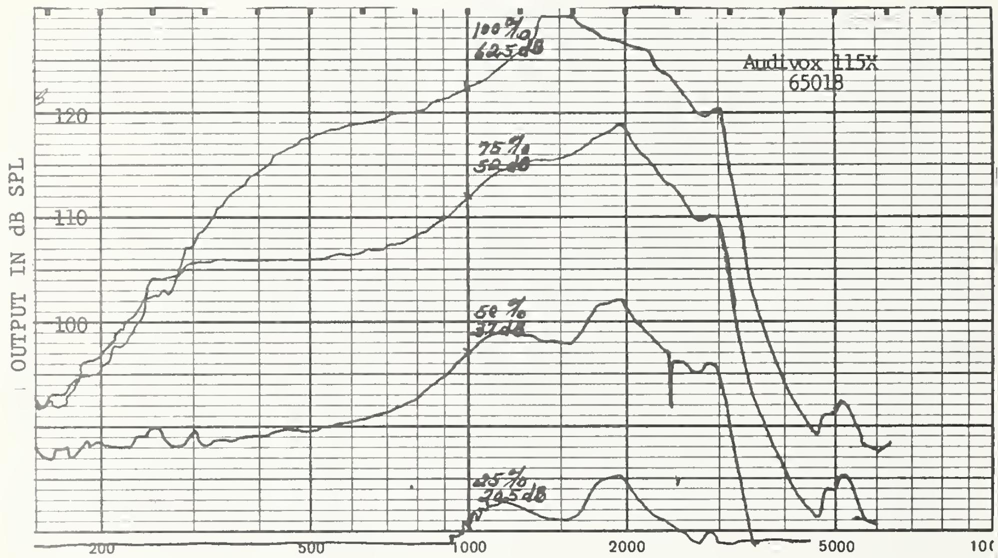
Audiotone A24
29831
100%
45dB
75%
35dB
50%
26dB
25%
20dB
OUTPUT IN dB SPL
105
95
85
200
500
1000
2000
5000



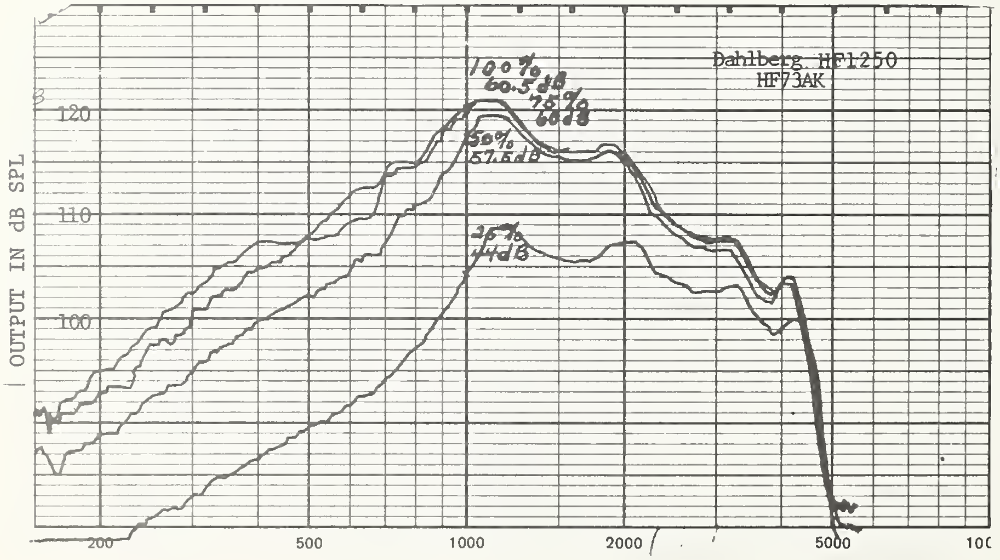
Audiotone A24D
23719
100%
46dB
75%
40dB
50%
25dB
25%
16dB
OUTPUT IN dB SPL
110
100
90
200
500
1000
2000
5000



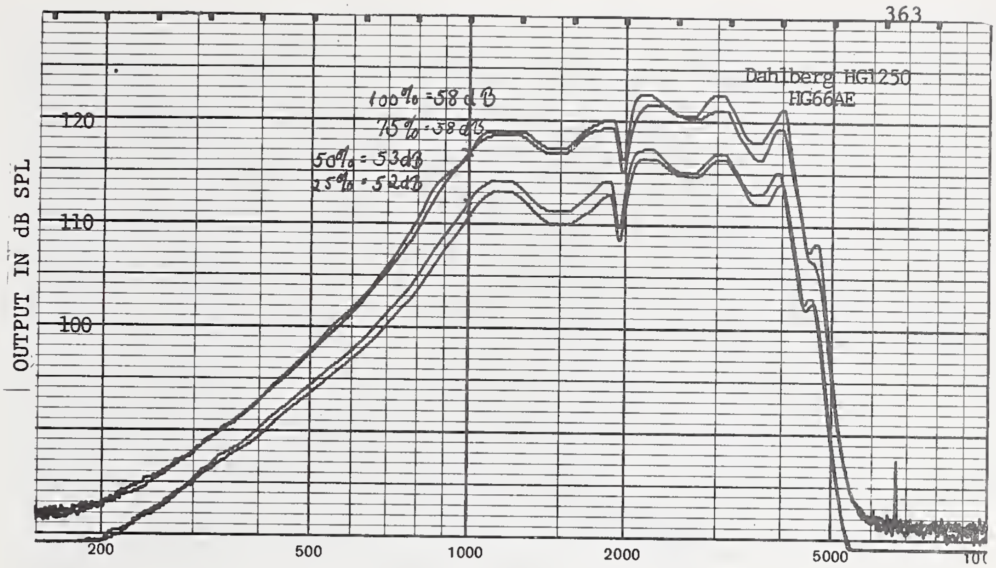
Audivox 37
72452
100% 43 dB
75% 40 dB
50% 34 dB
25% 24.5 dB
OUTPUT IN dB SPL
105
95
85
200
500
1000
2000
5000

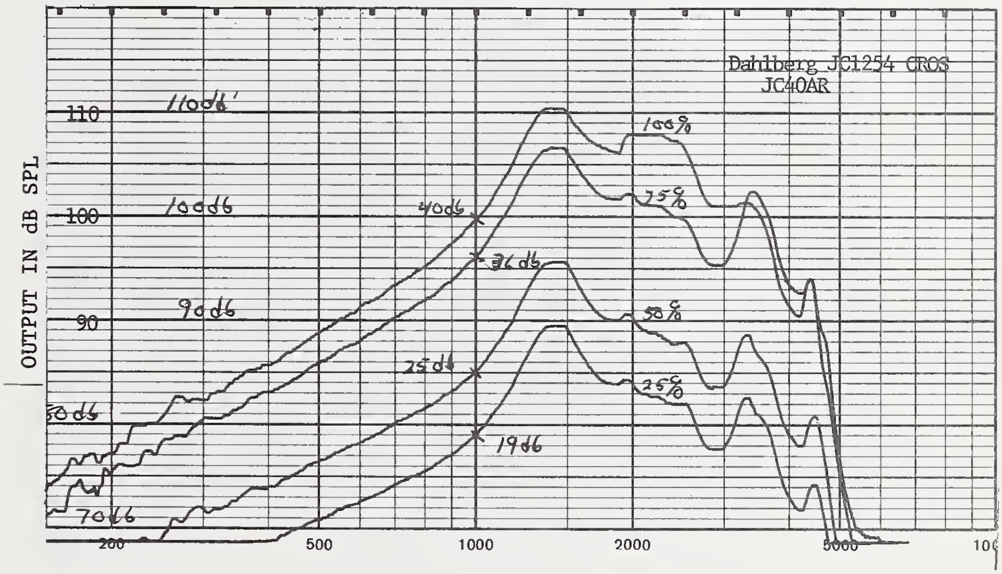


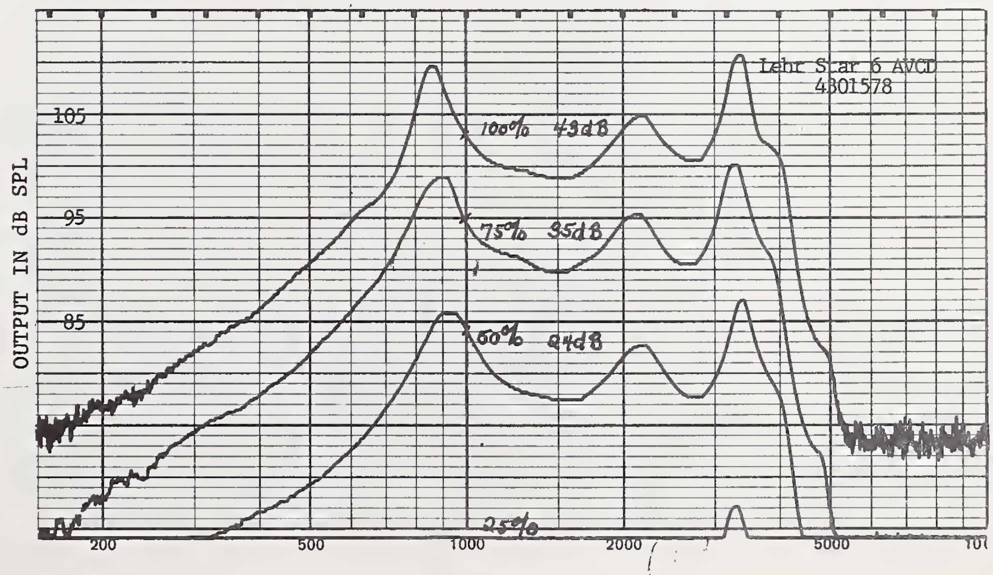
Audivox 115X
65018
100% 62.5 dB
75% 52 dB
50% 37 dB
25% 26.5 dB
OUTPUT IN dB SPL
120
110
100
200
500
1000
2000
5000

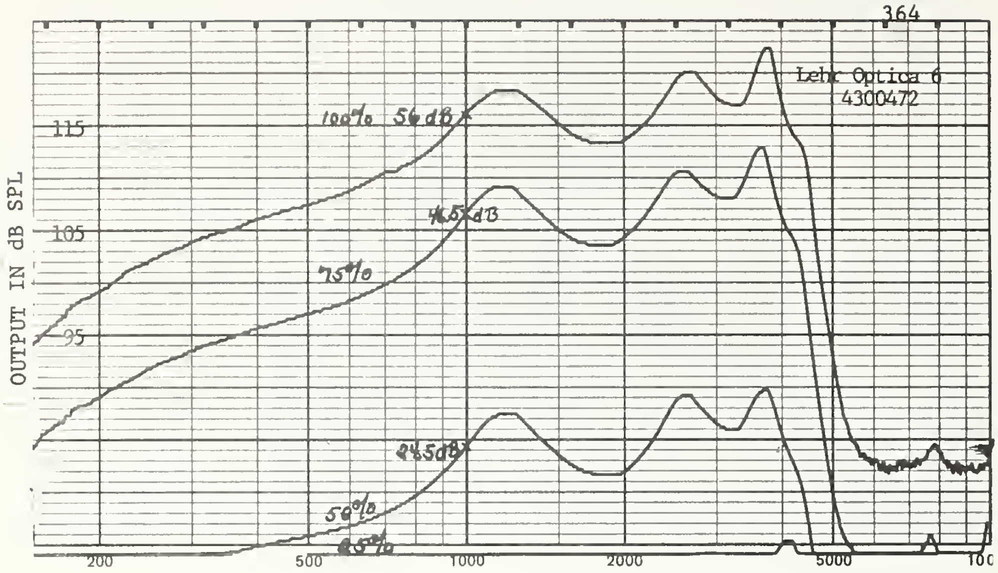


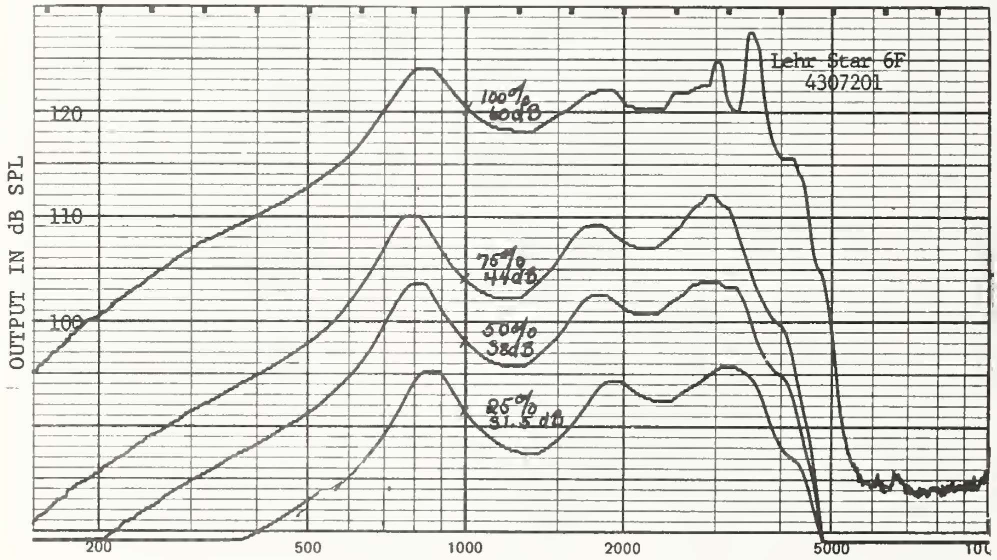
Dahlberg HF1250
HF73AK
100% 60.5 dB
75% 60 dB
50% 57.5 dB
25% 44 dB
OUTPUT IN dB SPL
120
110
100
200
500
1000
2000
5000

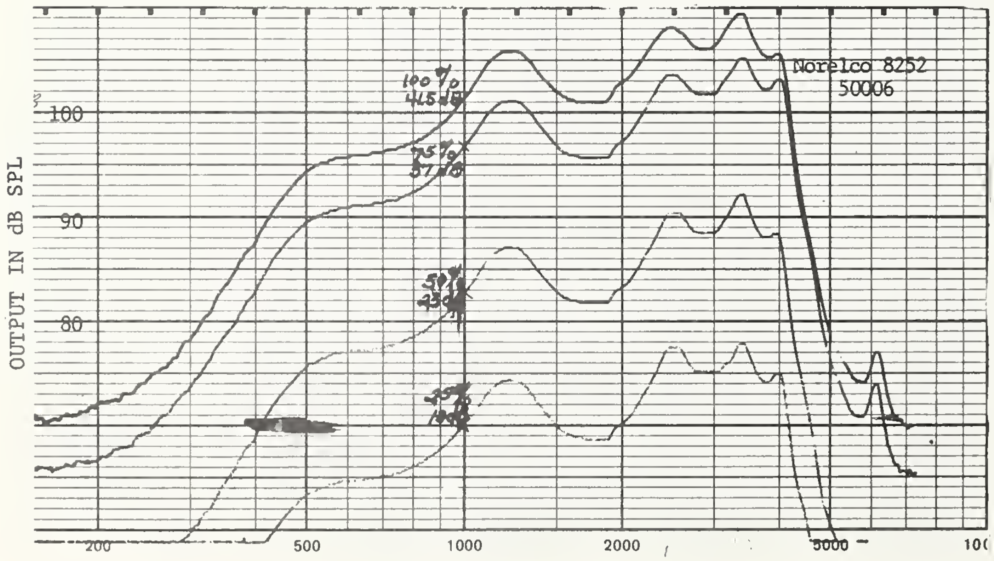

Dahlberg HG1250
HG66AE
100% = 58 dB
75% = 58 dB
50% = 53 dB
25% = 52 dB
OUTPUT IN dB SPL
120
110
100
200
500
1000
2000
5000

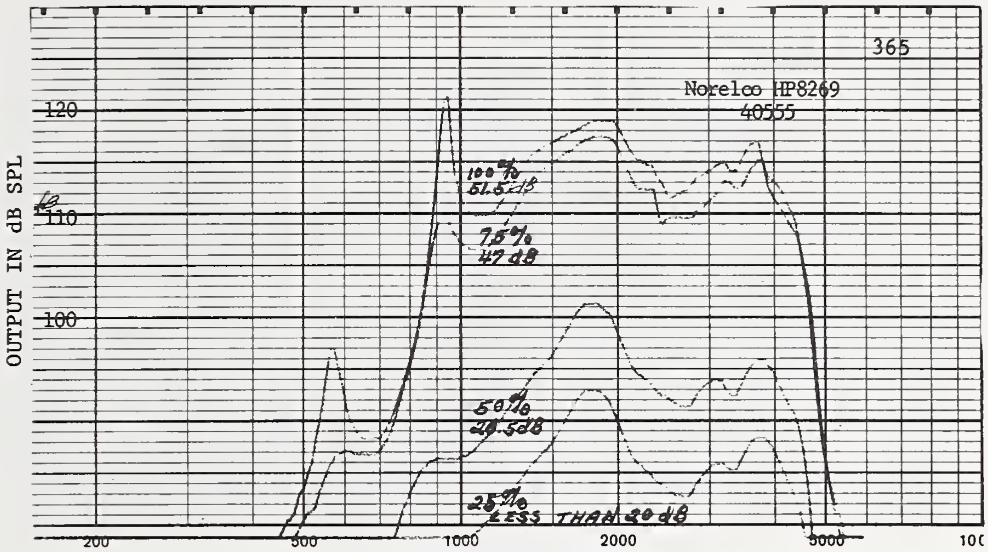

Dahlberg JC1254 CROS
JC40AR
110 db
100 db
90 db
80 db
70 db
40 db
36 db
25 db
19 db
100%
75%
50%
25%
OUTPUT IN dB SPL
110
100
90
200
500
1000
2000
5000

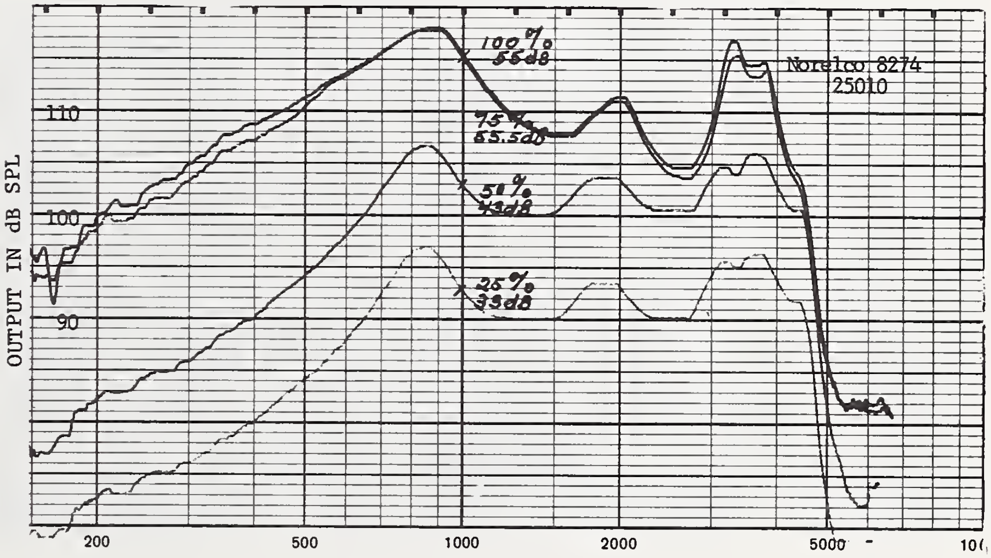

Lehr Star 6 AVCD
4301578
100% 43 dB
75% 35 dB
50% 24 dB
25%
OUTPUT IN dB SPL
105
95
85
200
500
1000
2000
5000

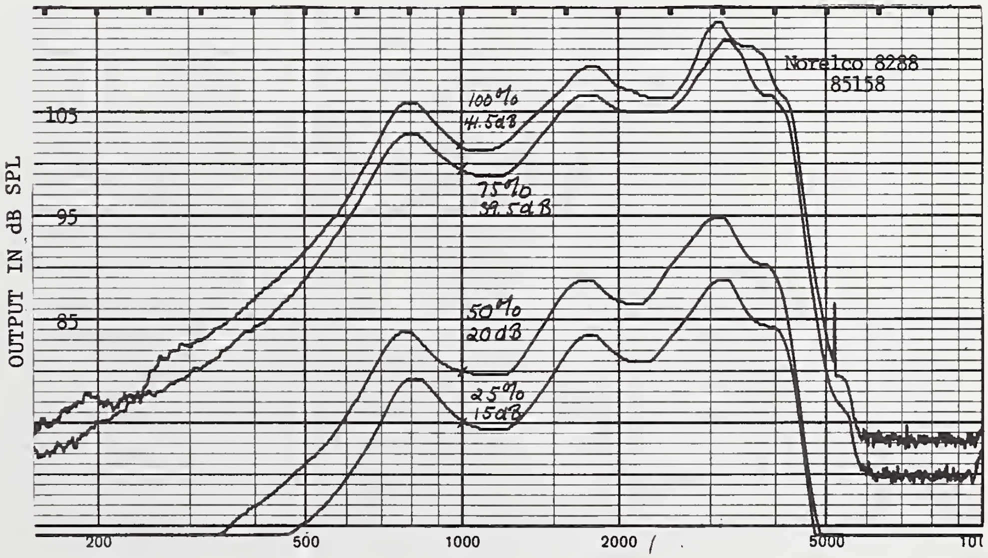

Lehr Optica 6
4300472
100% 56 dB
46.5 dB
75%
24.5 dB
50%
25%
OUTPUT IN dB SPL
115
105
95
200
500
1000
2000
5000

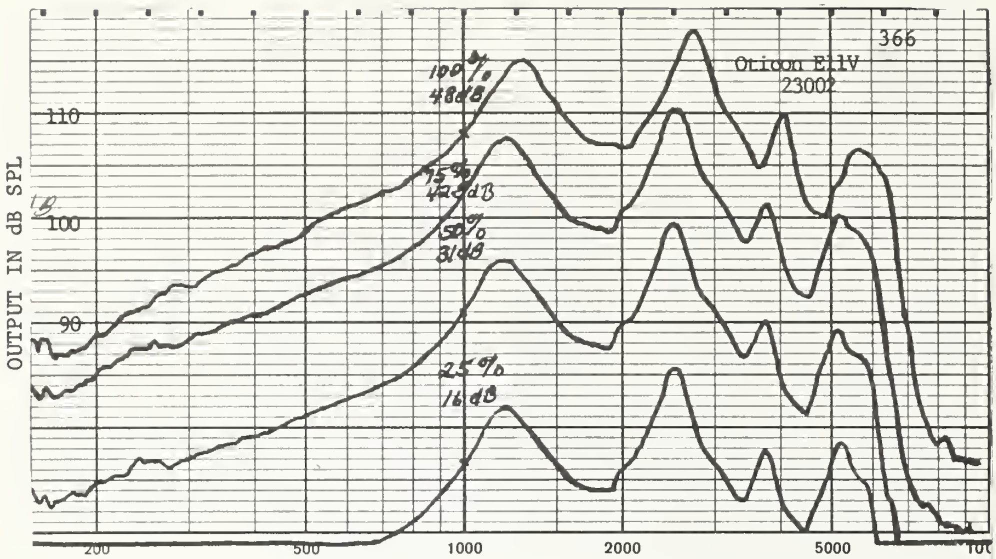

Lehr Star 6F
4307201
100% 60 dB
75% 44 dB
50% 38 dB
25% 31.5 dB
OUTPUT IN dB SPL
120
110
100
200
500
1000
2000
5000

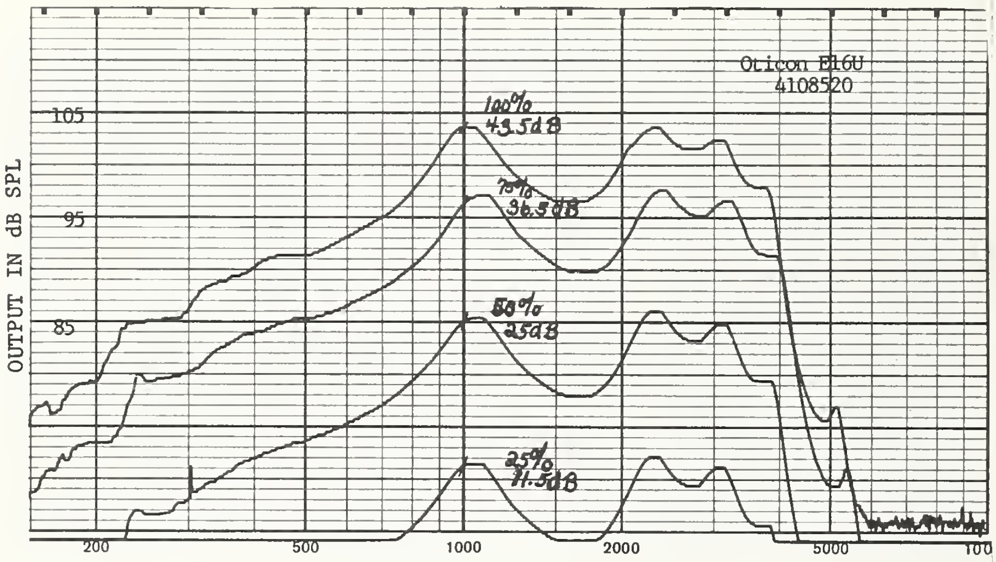

Norelco 8252
50006
100% 41.5 dB
75% 37 dB
OUTPUT IN dB SPL
100
90
80
200
500
1000
2000
5000

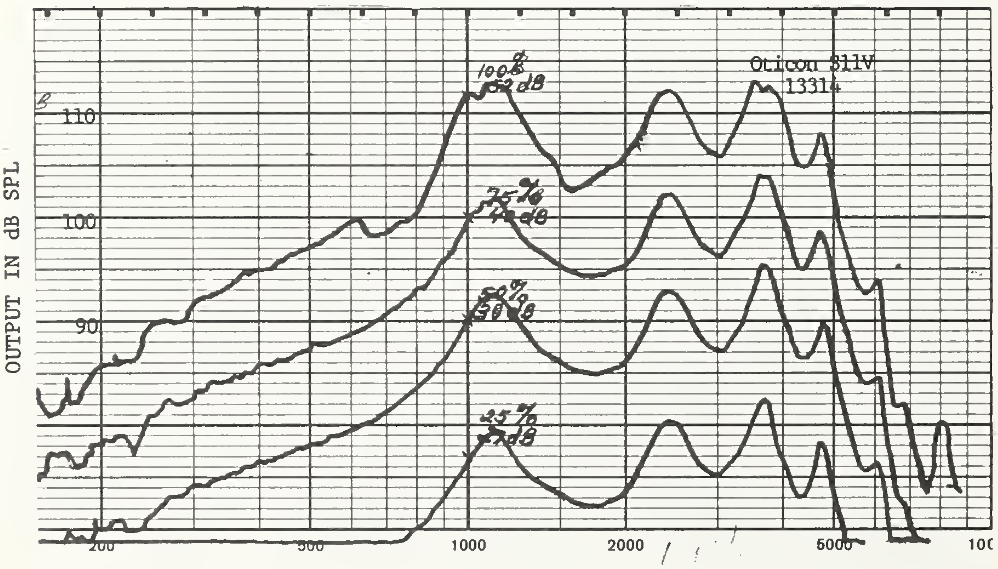

Norelco HP8269
40555
OUTPUT IN dB SPL
120
110
100
100%
51.5 dB
75%
47 dB
50%
20.5dB
25%
LESS THAN 20 dB
200
500
1000
2000
5000

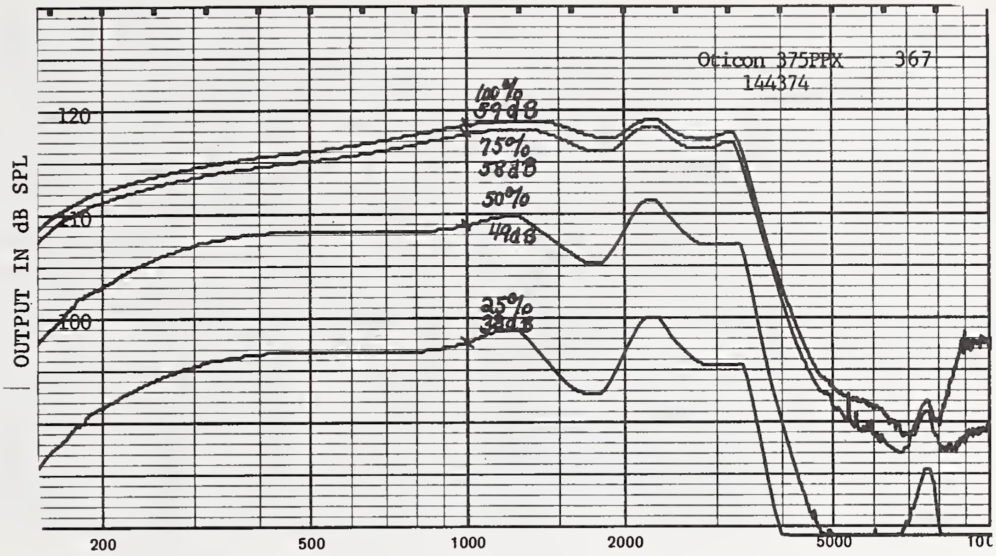

Norelco 8274
25010
OUTPUT IN dB SPL
110
100
90
100%
55dB
75%
55.5dB
50%
43dB
25%
33dB
200
500
1000
2000
5000

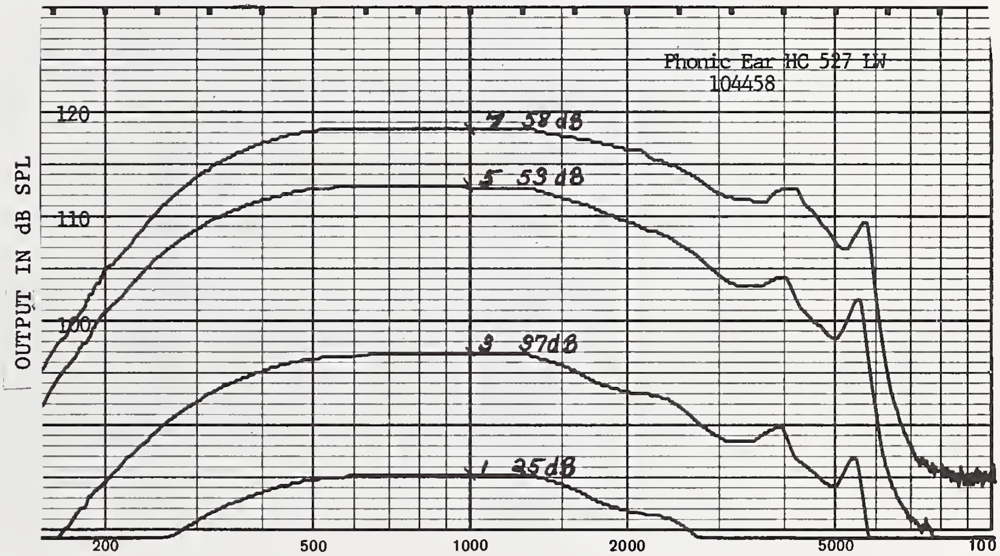

Norelco 8288
85158
OUTPUT IN dB SPL
105
95
85
100%
41.5dB
75%
39.5dB
50%
20dB
25%
15dB
200
500
1000
2000
5000

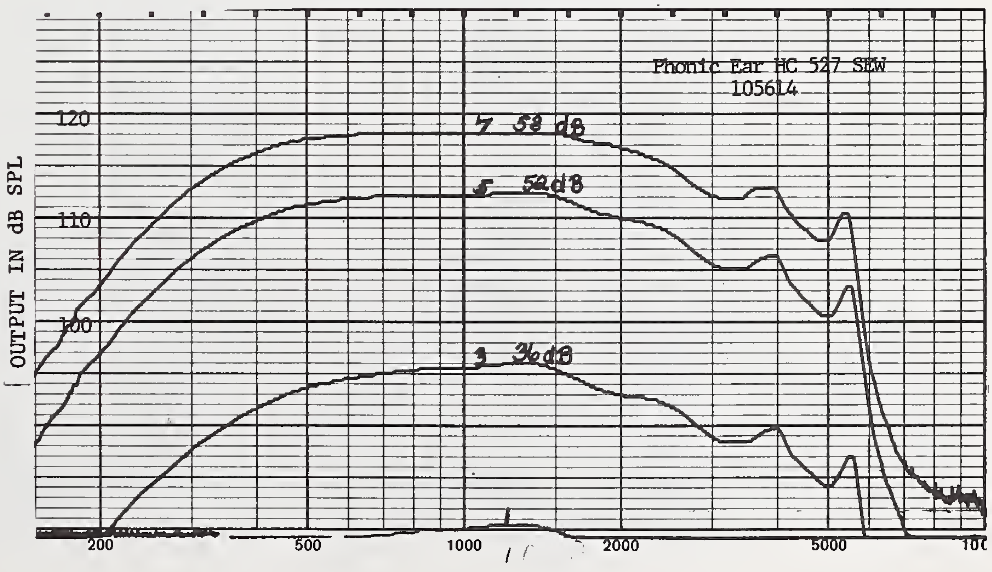

Oticon E11V
23002
OUTPUT IN dB SPL
110
100
90
100%
48dB
75%
42dB
50%
31dB
25%
16dB
200
500
1000
2000
5000

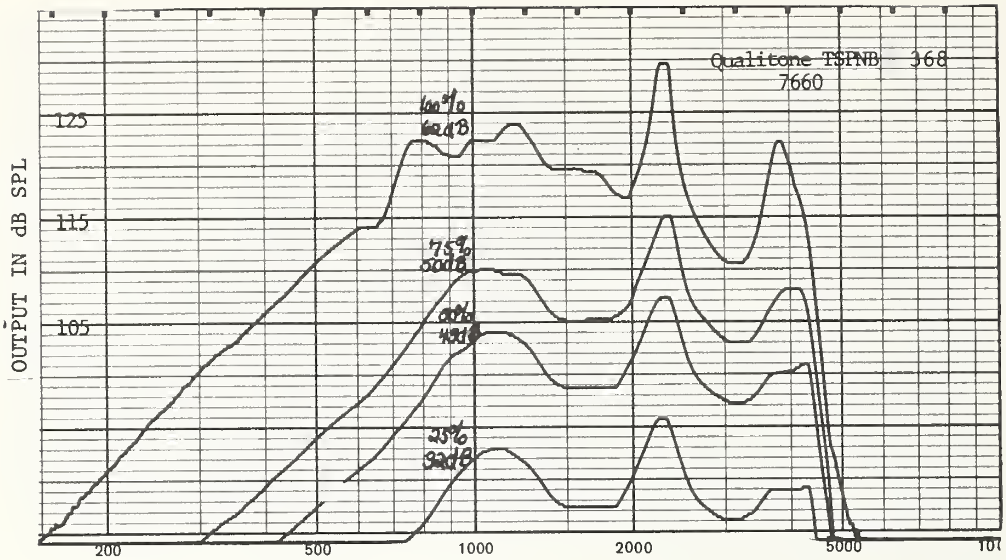

Oticon E16U
4108520
OUTPUT IN dB SPL
105
95
85
100%
43.5dB
75%
36.5dB
50%
25dB
25%
11.5dB
200
500
1000
2000
5000

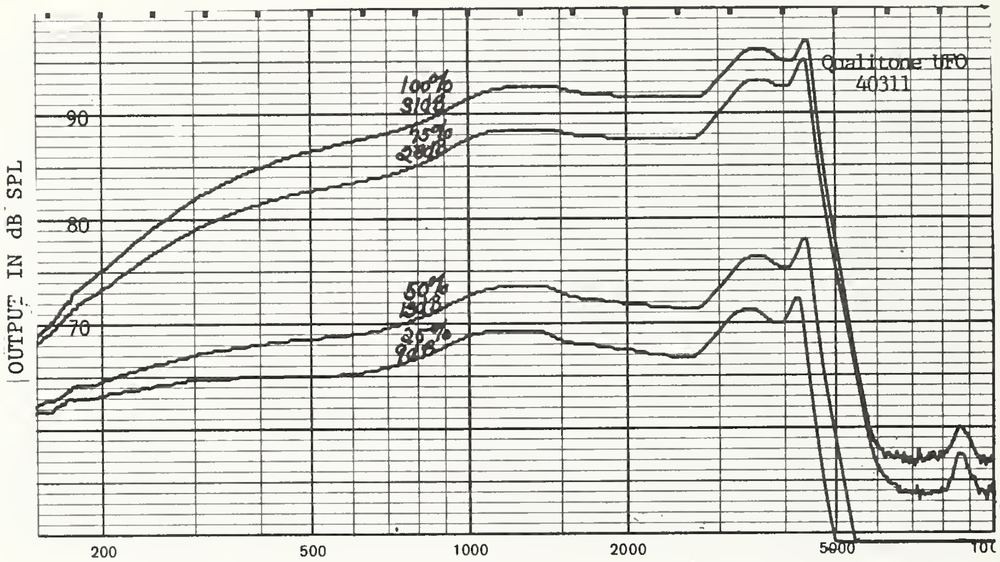

Oticon S11V
13314
OUTPUT IN dB SPL
110
100
90
100%
52dB
75%
47dB
50%
38dB
25%
27dB
200
500
1000
2000
5000

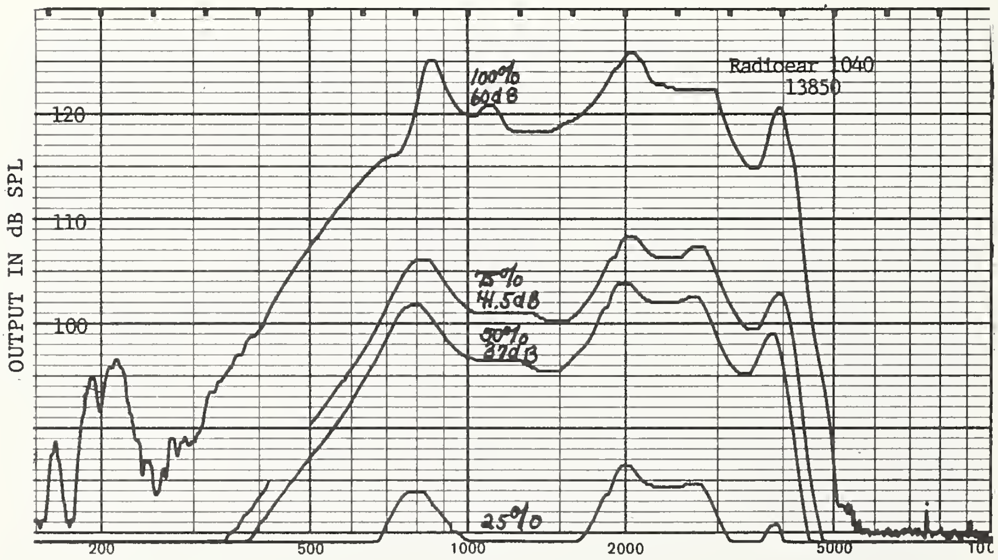

Oticon 375PPX
144374
100%
59dB
75%
58dB
50%
49dB
25%
OUTPUT IN dB SPL
120
110
100
200
500
1000
2000
5000

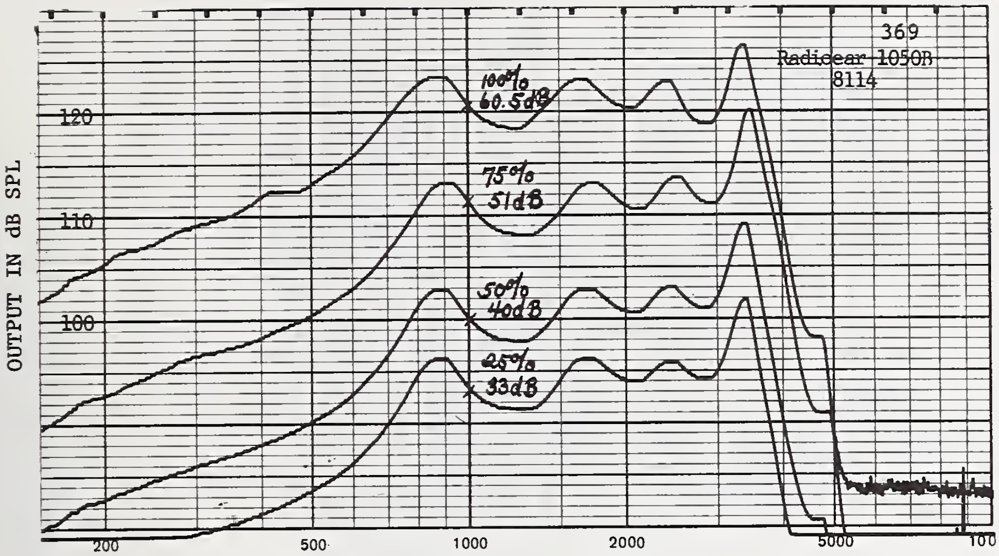

Phonic Ear HC 527 LW
104458
7 58dB
5 53dB
3 37dB
1 25dB
OUTPUT IN dB SPL
120
110
100
200
500
1000
2000
5000

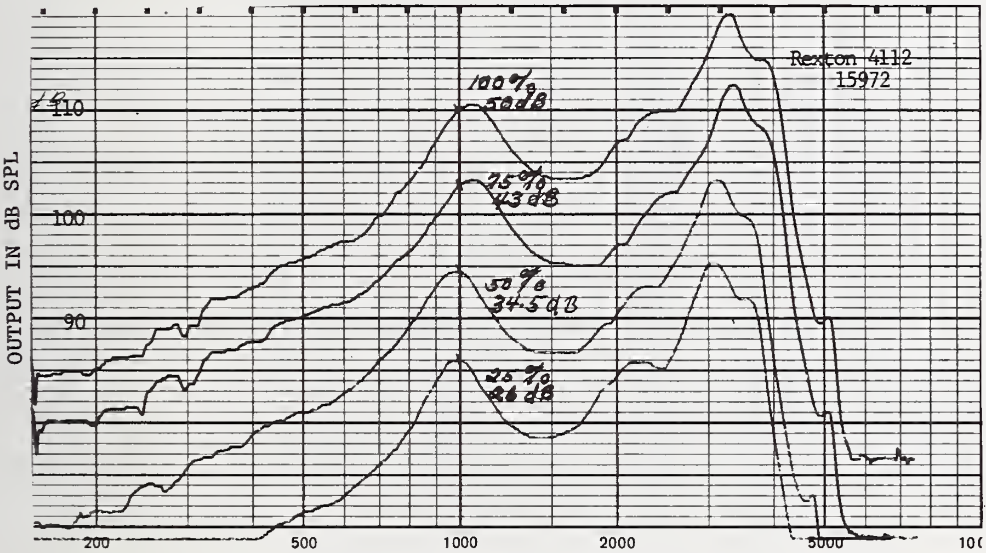

Phonic Ear HC 527 SEW
105614
7 58 dB
5 52dB
3 36dB
1
OUTPUT IN dB SPL
120
110
100
200
500
1000
2000
5000

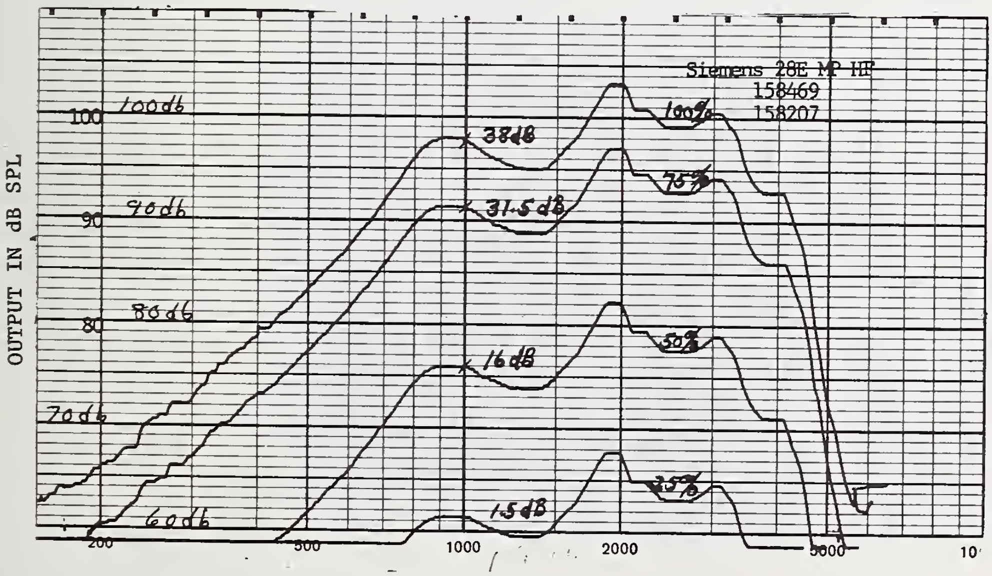

Qualitone TSPNB 368
7660
OUTPUT IN dB SPL
125
115
105
100%
60dB
75%
50dB
50%
43dB
25%
32dB
200
500
1000
2000
5000

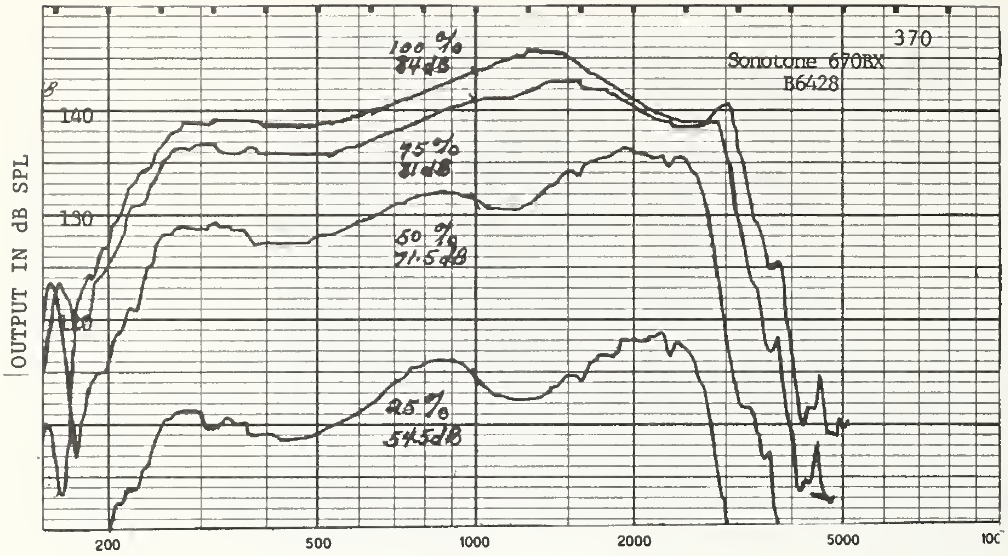

Qualitone UFO
40311
OUTPUT IN dB SPL
90
80
70
100%
31dB
75%
28dB
50%
15dB
25%
9dB
200
500
1000
2000
5000

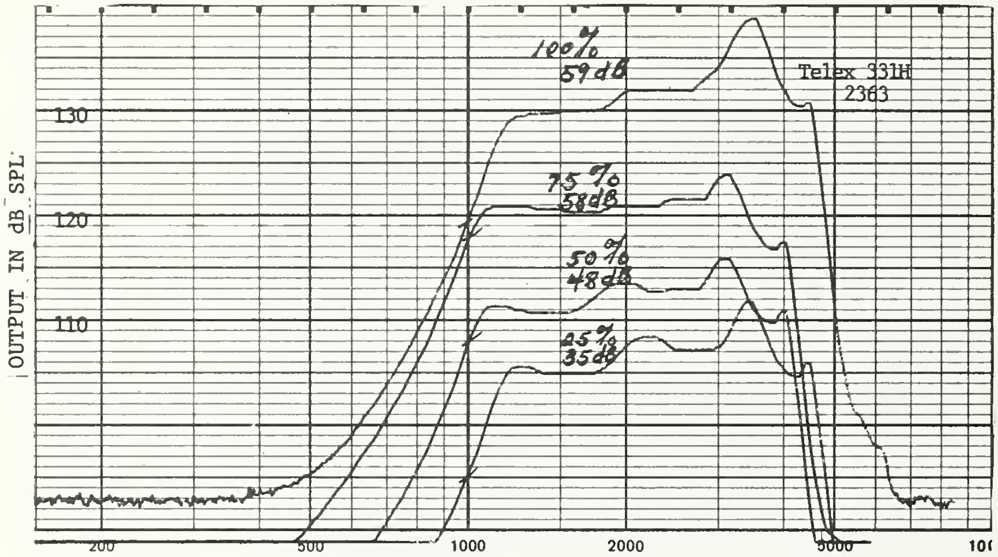

Radioear 1040
13850
OUTPUT IN dB SPL
120
110
100
100%
60dB
75%
41.5dB
50%
37dB
25%
200
500
1000
2000
5000

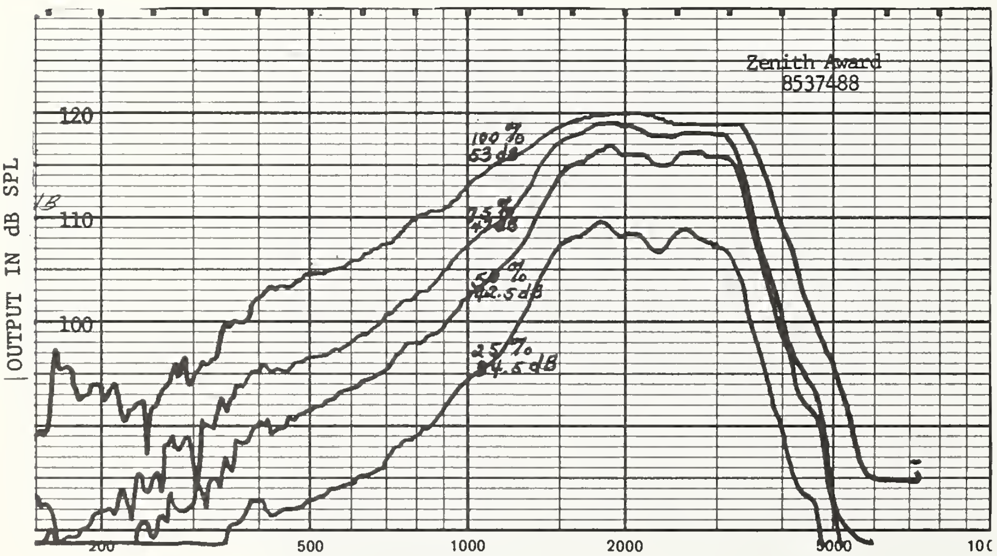

369
Radioear 1050B
8114
OUTPUT IN dB SPL
120
110
100
100%
60.5dB
75%
51dB
50%
40dB
25%
33dB
200
500
1000
2000
5000

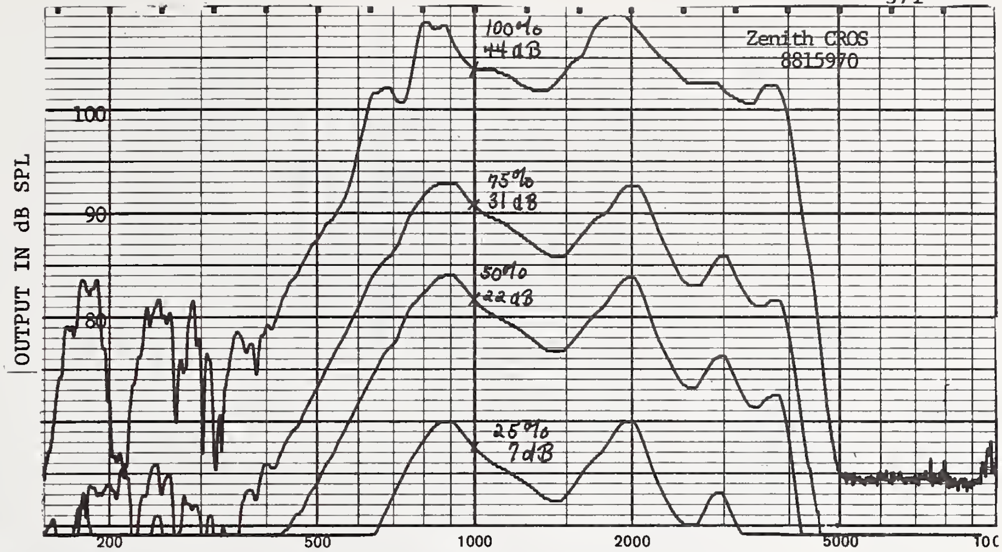

Rexton 4112
15972
OUTPUT IN dB SPL
110
100
90
100%
50dB
75%
43dB
50%
34.5dB
200
500
1000
2000
5000

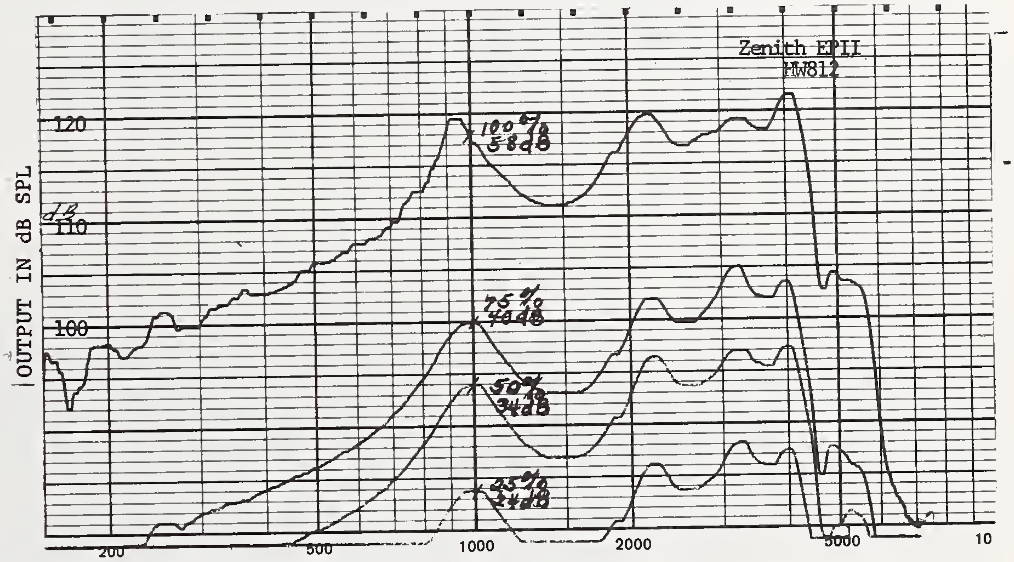

Siemens 28E MP HP
158469
158207
OUTPUT IN dB SPL
100
90
80
100db
90db
80db
70db
60db
38dB
31.5dB
16dB
15dB
100%
75%
50%
25%
200
500
1000
2000
5000

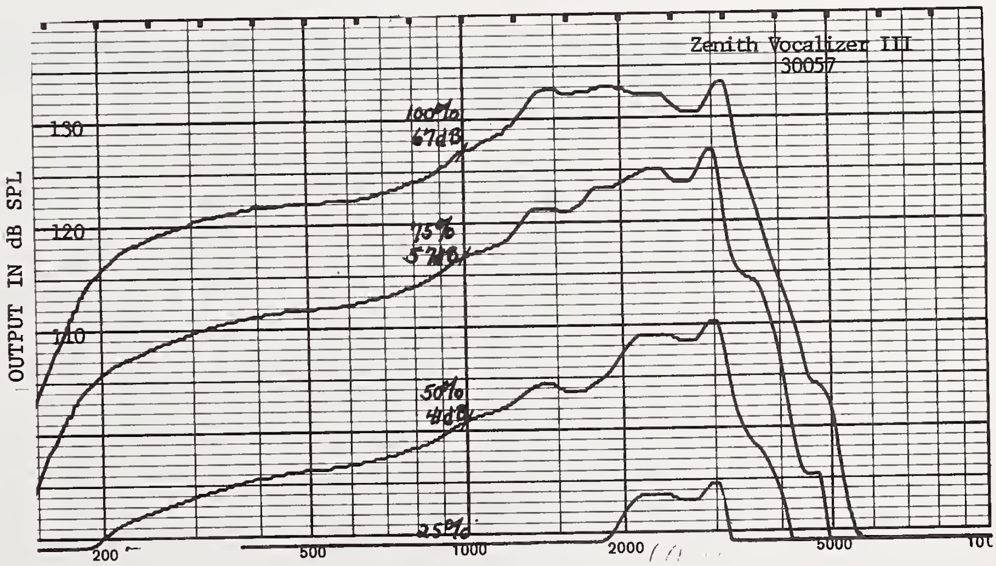

Sonotone 670BX
B6428
OUTPUT IN dB SPL
140
130
120
100 %
84dB
75 %
81dB
50 %
71.5dB
25 %
54.5dB
200
500
1000
2000
5000


Telex 331H
2363
OUTPUT IN dB SPL
130
120
110
100%
59dB
75 %
58dB
50 %
48dB
25 %
35dB
200
500
1000
2000
5000


Zenith Award
8537488
OUTPUT IN dB SPL
120
110
100
100 %
53dB
75 %
47dB
50 %
42.5dB
25 %
34.5dB
200
500
1000
2000
5000


Zenith CROS
8815970
OUTPUT IN dB SPL
100
90
80
100%
44dB
75%
31dB
50%
22dB
25%
7dB
200
500
1000
2000
5000


Zenith EPII
HW812
OUTPUT IN dB SPL
120
110
100
100%
58dB
75%
40dB
50%
34dB
25%
24dB
200
500
1000
2000
5000


Zenith Vocalizer III
30057
OUTPUT IN dB SPL
130
120
110
100%
67dB
75%
50%
25%
200
500
1000
2000
5000

CONTRACT YEAR 1976

AUDIOTONE
A-20 P5

Over-the-Ear
High Pass

SPECIFICATIONS

*Gain	12 dB
*SSPL	125 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated with battery compartment
2. Telephone switch
3. Volume control

Internal: None

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Gain was measured with open earmold using Zwislocki coupler in KEMAR. This procedure necessitated the use of reduced volume control setting.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the six midpoints of the bands of frequencies between 1000 and 2000 Hz.

CONTRACT YEAR 1976

AUDIOTONE
A-24

Over-the-Ear
BICROS

SPECIFICATIONS

*Gain	44 dB
*SSPL	118 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch on volume control side
2. Microphone-telephone switch on opposite side
3. Volume control

BATTERY DATA

Type	M41
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 4 batteries (Requires one battery in side with volume control.)

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

*The reported gain represents the mean gain for three samples of the model measured at 1000 Hz.

CONTRACT YEAR 1976

AUDIOTONE
A-24D

Over-the-Ear
Moderate Power

SPECIFICATIONS

*Gain	45 dB
*SSPL	119 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in battery compartment
2. Volume control
3. Two position tone control
   R2 - normal response
   R4 - high frequency emphasis

BATTERY DATA

Type	M41
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 4 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

AUDIVOX
37

Eyeglass
Mild Power

SPECIFICATIONS

*Gain	41 dB
*SSPL	113 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External: 1. On-off switch incorporated in volume control

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 2 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

AUDIVOX
115X

Over-the-Ear
Strong Power

SPECIFICATIONS

*Gain	59 dB
*SSPL	130 dB
Receiver	F-2
Cords	3" cord - No. 1051-92
	11" cord (for opposite ear fitting)

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in volume control
2. Microphone-Telephone switch

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 6 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

DAHLBERG
HF 1250

Eyeglass
Strong Power

SPECIFICATIONS

*Gain	58 dB
*SSPL	129 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in volume control
2. Three position switch
   M - Microphone
   B - Both
   T - Telephone

**3. Continuously variable compression control (C)(located on inside of temple) between white markings corresponding to 2 o'clock and 10 o'clock positions.
   2 o'clock - minimum compression
   10 o'clock - maximum compression

**4. Continuously variable low frequency response control (L) (located on inside of temple) between white markings corresponding to 2 o'clock and 10 o'clock positions:
   2 o'clock - normal response
   10 o'clock - maximum low frequency cut

**CAUTION: If position indicator is rotated beyond these two extremes, the control must be recalibrated by turning two complete turns counter to the arrow, stopping at 2 o'clock.

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 6 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

DAHLBERG
HG 1250

Eyeglass
BICROS

SPECIFICATIONS

*Gain 56 dB
*SSPL 128 dB
Receiver Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in volume control
2. Three position microphone-telephone switch
   M - Microphone
   B - Both
   T - Telephone

**3. Continuously variable compression control (C)(located on inside of temple) between white markings corresponding to 2 o'clock and 10 o'clock positions.
   2 o'clock - minimum compression
   10 o'clock - maximum compression

**4. Continuously variable low frequency response control (L) (located on inside of temple) between white markings corresponding to 2 o'clock and 10 o'clock positions:
   2 o'clock - normal response
   10 o'clock - maximum low frequency cut

**CAUTION: If position indicator is rotated beyond these two extremes, the control must be recalibrated by turning two complete turns counter to the arrow, stopping at 2 o'clock.

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 8 batteries
Note: Battery in each temple required; however, battery life in temple with microphone only is estimated at 500 hours.

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

DAHLBERG
JC 1254

Eyeglass
CROS

SPECIFICATIONS

*Gain	46 dB
*SSPL	118 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:

1. On-off switch incorporated in volume control
2. Three position microphone-telephone switch
   M - Microphone
   B - Both
   T - Telephone

**3. Continuously variable compression control (C) (located on underside of temple housing microphone) between white markings corresponding to 2 o'clock and 10 o'clock positions:
   2 o'clock - minimum compression
   10 o'clock - maximum compression

**4. Continuously variable low frequency response control (L) (located on inside of temple) between white markings corresponding to 2 o'clock and 10 o'clock positions:
   2 o'clock - normal response
   10 o'clock - maximum low frequency cut

**CAUTION: If position indicator is rotated beyond these two extremes, the control must be recalibrated by turning two complete turns counter to the arrow, stopping at 2 o'clock.

BATTERY DATA

Type	M13
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 4 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model measured at 2000 Hz.

CONTRACT YEAR 1976

FIDELITY

Eyeglass
Bone Conduction

SPECIFICATIONS

Clinical evaluations indicate that this instrument is most successful when used for mild to moderate conductive hearing losses.

*SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in battery compartment
2. Volume control
3. Microphone-telephone switch

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 2 batteries

*This information was extracted from manufacturer's literature.

CONTRACT YEAR 1976

LEHR
STAR 6 AVCD

Over-the-Ear
Directional

SPECIFICATIONS

*Gain	42 dB
*SSPL	120 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. Three position control
   White Dot - Off
   T - Telephone
   M - Microphone
2. Volume control

Internal:
1. Continuously AVC (marked A in battery compartment)
   Full counterclockwise setting - minimum AVC
   Full clockwise setting - maximum AVC (-8 dB)
2. Continuously variable peak clipping (marked P in the battery compartment)
   Full clockwise setting - minimum peak clipping
   Full counterclockwise setting - maximum peak clipping (-13 dB)

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 2 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

LEHR
STAR 6F

Over-the-Ear
Moderate Power

SPECIFICATIONS

*Gain	55 dB
*SSPL	127 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External: 1. Three position control white Dot - Off
T- Telephone
M- Microphone

2. Volume control

Internal: P. C. (Compression) in battery compartment.
Counter clockwise for full compression.
Clockwise - minimum compression

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

LEHR
Optica 6

Eyeglass
Moderate Power

SPECIFICATIONS

*Gain 47 dB
*SSPL 121 dB
Receiver Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in battery compartment
2. Volume control
3. Three position microphone-telephone switch
   M - Microphone
   T - Telephone
   MT - Both
4. Variable tone control located on underside of temple piece:
   L - Normal
   H - High frequency emphasis

Internal: None

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

NORELCO
HP 8252

Over-the-Ear
Mild Power

SPECIFICATIONS

*Gain	37 dB
*SSPL	111 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. Three position switch
   O - Off
   M - Microphone
   T - Telephone
2. Volume control

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 2 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

NORELCO
HP 8269

Over-the-Ear
High Pass

SPECIFICATIONS

*Gain	31 dB
*SSPL	120 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. Three position switch:
   M - Microphone
   T - Telephone
   O - Off
2. Volume control
3. Three position PC control:
   1 - Minimum sound output
   3 - Medium sound output
   5 - Maximum sound output
4. Continuously adjustable gain control:
   Full counterclockwise setting - minimum gain
   Full clockwise setting - maximum gain.

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response. Gain was measured with open earmold using Zwislocki coupler in KEMAR. This procedure necessitated the use of reduced volume control setting.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the six midpoints of the bands of frequencies between 1000 and 2000 Hz.

CONTRACT YEAR 1976

NORELCO
HP 8274

Over-the-Ear
Compression

SPECIFICATIONS

*Gain	45 dB
*SSPL	117 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. Three position control
   O - Off
   T - Telephone
   M - Microphone
2. Volume Control
3. Tone control
   N - Normal
   H - Low frequency cut
4. Limitation adjustment with three positions
   5 (maximum output).
   3 (approximate 5 dB reduction).
   1 (approximate 10 dB reduction)
5. Compression adjustment
   2 - minimal compression
   4 - moderate compression
   7 - maximum compression
6. Recovery time adjustment
   F - short recovery time
   S - long recovery time

Internal: None

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the Bio-communications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

NORELCO
8288

Over-the-Ear
Directional

SPECIFICATIONS

*Gain 43 dB
*SSPL 115 dB
Receiver Internal

SETTINGS AND ADJUSTMENTS

External:
1. Three position switch
   O - Off
   M - Microphone
   T - Telephone
2. Volume control
3. Tone control - on side of chassis
   N - Normal
   H - High frequency emphasis
4. Continuously adjustable gain control on side of chassis:
   Full counterclockwise setting - minimum gain
   Full clockwise setting - maximum gain

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 2 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

OTICON
E-11-V

Over-the-Ear
Moderate Power

SPECIFICATIONS

*Gain	45 dB
*SSPL	118 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. Three position control
   O - Off
   M - Microphone
   T - Telephone
2. Volume Control
3. Tone Control
   L - Low frequency emphasis
   N - Normal
   H - High frequency emphasis
4. Continuously variable gain/output control from 30 dBHL minimum to 70 dBHL maximum.

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

OTICON
E-16-U

Over-the-Ear
Mild Power

SPECIFICATIONS

*Gain 39 dB
*SSPL 112 dB
Receiver Internal

SETTINGS AND ADJUSTMENTS

External:
1. Three position switch
   O- Off
   M- Microphone
   T- Telephone
2. Volume control
3. Variable tone control located on side of chassis
   Fully clockwise - normal response
   Two complete turns counterclockwise - maximum high frequency response

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 2 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

OTICON
S-11-V

Eyeglass
Moderate Power

SPECIFICATIONS

*Gain	44 dB
*SSPL	118 dB
Receiver	AFM-8

SETTINGS AND ADJUSTMENTS

External:
1. Two position control
   O - Off
   <u>+ - Microphone</u>
2. Volume Control
3. M-T switch located on underside of temple
   <u>M - Microphone</u>
   T - Telephone
4. Tone control located on underside of temple
   H - High frequency emphasis
   <u>N - Normal response</u>
   L - Low frequency emphasis
5. Continuously variable gain/output control from 30 dBHL minimum to <u>70 dBHL</u> maximum (located on underside of temple).

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those <u>Specifications</u> and/or <u>Settings and Adjustments</u> used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

OTICON
375 PPX

On-the-Body
Strong Power

SPECIFICATIONS

*Gain	59 dB
*SSPL	131 dB
Receiver	Air- CFD8
Cords	Oticon 30"

SETTINGS AND ADJUSTMENTS

External:
1. Three position control
   M - Microphone
   T - Telephone
   O - Off
2. Volume control
3. Tone control - located on bottom of aid.
   H - high frequency emphasis
   N - flat frequency response
   L - low frequency emphasis

Internal: None

BATTERY DATA

Type	1015E
Voltage	1.5

Two week supply with 16 hours of hearing aid use per day: 2 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

PHONIC EAR
HC 527 LW

Body
Compression

SPECIFICATIONS

*Gain	62 dB
*MPO	120 dB
Receiver	AT 16 W
Cords	AT 50

SETTINGS AND ADJUSTMENTS

External:
1. Two position on-off switch
   O - Off
   I - On
2. Three position switch
   M - Microphone
   M/T - Microphone-telephone combination
   **Audio - for use with external audio input
3. Continuously variable tone control (remove plug cover)
   L - maximum low frequency emphasis
   N - normal response
   H - maximum high frequency emphasis
4. Continuously variable automatic volume control (AV) (remove plug cover). Varies from 1 to 7. Turn control counterclockwise to position 1. With aid turned on, adjust the AV control to MCL while talking loudly. Increase volume with screwdriver until patient indicates discomfort, then decrease volume slightly. Replace plug cover.

**5. Audio input (on bottom of aid)
**To be used in combination when utilizing external sound source, e.g., radio, TV, etc.

BATTERY DATA

Rechargeable nickel-cadmium cell (aid is supplied with charger).

Charging: The charger may be connected continuously to a 110 volt outlet without damaging it. For recharging, place the aid with cord attached in the pocket and close it. A red light remains on while the aid is charging. Maximum charging time is 18 hours; however, an overnight charge of 12 hours gives approximately 35 hours of use. An overnight charge every two days is recommended.

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

PHONIC EAR (Cont'd)
HC 527 LW

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

PHONIC EAR
HC 527 SEW(H)

Body
Compression

SPECIFICATIONS

*Gain	62 dB
*SSPL	119 dB
Receiver	AT16W
Cords	AT50

SETTINGS AND ADJUSTMENTS

External:

1. Two position on-off switch
   0 - Off
   I - On

2. Continuously variable automatic volume control (AV) (remove plug cover). Varies from 1 to <u>7</u>. Turn control counterclockwise to position 1. With aid turned on, adjust the AV control to MCL while talking loudly. Increase volume with screwdriver until patient indicates discomfort, then decrease volume slightly. Replace plug cover.

3. Audio input (on bottom of aid) (inoperable on this aid). To be used in combination when utilizing external sound source, e.g., radio, TV, etc.

BATTERY DATA: Rechargeable nickel-cadmium cell (aid is supplied with charger).

<u>Charging</u>: The charger may be connected continuously to a 110 volt outlet without damaging it. For recharding, place the aid with cord attached in the pocket and close it. A red light remains on while the aid is charging. Maximum charging time is 18 hours; however, an overnight charge every two days is recommended.

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those <u>Specifications</u> and/or <u>Settings and Adjustments</u> used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

QUALITONE
TSPNB

Eyeglass
BICROS

SPECIFICATIONS

*Gain	58 dB
*SSPL	130 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in battery compartment
2. Volume control
3. Tone control - Telephone switch
   Hx - full low cut position
   N - normal position
   T - telephone

Internal: Output can be cut by 5 dB by removing the screw located on the underside of the aid where it rests on top of the ear.

BATTERY DATA

Type	675
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

QUALITONE
UFO

Over-the-Ear
Mild Power

SPECIFICATIONS

*Gain	31 dB
*SSPL	112 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External: On-off switch incorporated in volume control

BATTERY DATA

Type	M13
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

CONTRACT YEAR 1976

RADIOEAR
1040

Eyeglass
BICROS

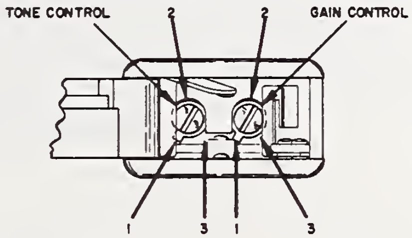
SPECIFICATIONS

*Gain 51 dB
*SSPL 126 dB
Receiver Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in battery compartment
2. Volume control
3. Microphone-telephone switch on top of temple

Internal:
1. Tone Control (rear screw in battery compartment) (see below)
2. Gain Control (forward screw in battery compartment) (see below)



POSITION	TONE CONTROL (LF CUT @ 500Hz)	GAIN CONTROL (GAIN CUT)
1 FULL CCW	0 dB	0 dB
2	– 5 dB	–11 dB
3 FULL CW	–12 dB	–22 dB

Low frequency and gain cuts other than those specified are possible by rotating the adjustment screws to points between the positions indicated above. The tab always remains aligned with the slot.

The instrument is shipped with the tone control at position 1 for maximum LF response and the gain control adjusted for 55 dB HAIC gain.

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model measured at 1000 Hz.

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RADIOEAR
1050

Over-the-Ear
Moderate Power

SPECIFICATIONS

*Gain 54 dB
*SSPL 127 dB
Receiver Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in battery compartment
2. Volume control
3. Microphone-telephone switch

Internal:
1. Tone Control (forward screw in battery compartment)
   In - Full low frequency response
   Out - Reduced low frequency response
2. Output Control (rear screw in battery compartment)
   In - Maximum output
   Out - Reduced output

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

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REXTON
4112

Over-the-Ear
Compression

SPECIFICATIONS

*Gain 35 dB
*SSPL 114 dB
Receiver Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch
2. Volume control
3. Compression adjustment
   N - Normal
   C - Full Compression
4. Frequency response control
   L - Normal response
   H - High frequency emphasis

BATTERY DATA

Type M13
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

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SIEMENS
28 E-MP-HF

Over-the-Ear
CROS

SPECIFICATIONS

*Gain	47 dB
*SSPL	117 dB
Receiver	Internal
Cord	160-160

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in battery compartment
2. Volume control
3. Microphone-telephone switch

Caution: Cord is polarized. A significant reduction in gain occurs if flat portion of plug is not on top.

Internal: Continuously variable tone control (located in battery compartment of receiver side.)
High--maximum high frequency emphasis
Normal--normal frequency response

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 2 batteries
(Requires one battery in each side)

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model measured at 2000 Hz.

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SONOTONE
670 BX

Body
Extra Strong Power

SPECIFICATIONS

*Gain	72 dB
*SSPL	142 dB
Receivers	Air - 4121RD
Cords	Sonotone 600:61 - Interchangeable for air and bone receivers.

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in volume control
2. Three position switch:
   M - Microphone
   MT - Microphone and Telephone
   T - Telephone

Internal: Four triple position switches located in the battery compartment:
1. Mode: F - full gain
   A - AVC
   L - 6-8 dB gain reduction

2. High Emphasis: N - full low response
   1 - additional emphasis above 1200 Hz
   2 - additional emphasis above 2400 Hz

3. Low Emphasis: N - full high response
   A - additional emphasis below 1000 Hz
   B - additional emphasis below 500 Hz

4. Power Limiting: P - full power output
   R - 3 1/2 dB reduction
   S - 7 dB reduction

5. Additional Frequency Response Modifications:
   (Inserts located in battery compartment)
   No insert - full frequency response
   Blue insert - slight low frequency cut
   Red insert - moderate low frequency cut
   White insert - maximum low frequency cut

BATTERY DATA

Type	132
Voltage	2.6

Two week supply with 16 hours of hearing aid use per day: 4 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

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TELEX
331H

Over-the-Ear
High-Pass

SPECIFICATIONS

*Gain	15 dB
*SSPL	119 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in volume control
2. Variable tone control located on top of transmitter:
   Full counterclockwise setting - full range response
   Full clockwise setting - reduction of low frequencies

Internal: None

BATTERY DATA

Type	M13
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB. Gain was measured with open earmold using Zwislocki coupler in KEMAR. This procedure necessitated the use of reduced volume control setting.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the six midpoints of the bands of frequencies between 1000 and 2000 Hz.

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TELEX
Model 400 Telecros

Eyeglass
CROS

SPECIFICATIONS

*Gain 45 dB
*SSPL 117 dB
Receiver Internal
Wireless Cros - the signal is transferred by radio frequency electromagnetic coupling and may be fitted with any frame front.

SETTINGS AND ADJUSTMENTS

External:
1. Receiver side on-off switch incorporated in volume control located on receiver side.
2. Microphone side on-off switch incorporated in continuously variable tone control wheel located on microphone side.
3. Volume control located on receiver side.
4. Continuously variable tone control - located on microphone side. Forward rotation of tone control wheel provides progressively greater low frequency cut.

CAUTION: Tone control must be rotated forward slightly to activate microphone.

Internal: None

BATTERY DATA

Type $76
Voltage 1.5

Two week supply with 16 hours of hearing aid use per day: 4 batteries
Note: Battery in each temple required; however, battery life in temple with microphone only is estimated at 240 hours.

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

*The reported gain represents the mean gain for two samples of the model measured at 1000 Hz.

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ZENITH
AWARD

On-the-body
Mild Power

SPECIFICATIONS

*Gain	41 dB
*SSPL	117 dB
Receiver	N-5

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in volume control
2. Two position tone control
   Full - normal response
   High - high frequency emphasis

Internal: None

BATTERY DATA

Type	"N" cell
Voltage	1.5

Two week supply with 16 hours of hearing aid use per day: 2 batteries

*The indicated data represent the value on the physical measurements made on one sample of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model measured at 1000 Hz.

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ZENITH
CROS

Eyeglass

SPECIFICATIONS

*Gain	29 dB
*SSPL	121 dB
Receiver	Internal

SETTINGS AND ADJUSTMENTS

External:
1. On-off switch incorporated in battery compartment.
2. Volume control

BATTERY DATA

Type	M41
Voltage	1.4

Two week supply with 16 hours of hearing aid use per day: 4 batteries

NOTE: Only one battery in the temple housing the receiver is needed.

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

Gain was measured with open earmold using Zwislock coupler in KEMAR.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

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ZENITH
Pacemaker

Over-the-Ear
Moderate Power

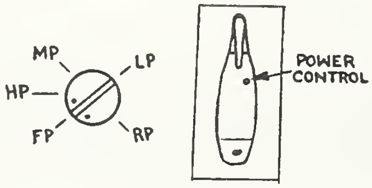
SPECIFICATIONS

*Gain 52 dB
*SSPL 127 dB
Receiver Internal

SETTINGS AND ADJUSTMENTS

External:

1. On-off switch incorporated in battery compartment
2. Volume control
3. Microphone - Telephone switch
4. Tone Control - below T/M switch
   ⊘ - Low Cut
   ⊖ - Normal (CAUTION: Do not attempt to rotate switch beyond these two positive stops.)
5. Continuously variable power control - Full power to 12 dB reduction with no loss of gain (screw on underside of aid). To make any power output changes, first rotate the control (with slip-clutch) at least one full counterclockwise turn to reach the Full Power position (two red dots at about 8 o'clock.)



FP - Full Power
HP - High Power - 3 dB reduction
MP - Medium Power - 6 dB reduction
LP - Low Power - 9 dB reduction
RP - Reduced Power - 12 dB reduction

Internal: None

BATTERY DATA

Type 675
Voltage 1.4

Two week supply with 16 hours of hearing aid use per day: 3 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

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ZENITH
Vocalizer III

Body
Strong Power

SPECIFICATIONS

*Gain	63 dB
*SSPL	135 dB
Receiver	Air - Y5
Cords	Zenith - S88705 (interchangeable for air and bone receivers)

SETTINGS AND ADJUSTMENTS

External:

1. On-off switch incorporated in volume control
2. Microphone - Telephone
   M - Microphone
   MT - Microphone and Telephone
   T - Telephone
3. Variable power control with slip clutch (just above receiver cord receptacle) from full on to 10 dB reduction.
   Full clockwise setting - ⦸ maximum power output
   Full counterclockwise setting - ⊘ minimum power output

Internal: Tone Control switch is located in the battery compartment
N - Normal, LC - Low Cut

BATTERY DATA

Type	401
Voltage	1.5

Two week supply with 16 hours of hearing aid use per day: 4 batteries

*The indicated data represent the mean values on the physical measurements made on samples of this hearing aid model by the National Bureau of Standards and the Biocommunications Laboratory, University of Maryland, according to their cited procedures. Gain and SSPL output are specified with a tolerance of plus or minus 2 dB.

NOTE: Underlined items denote those Specifications and/or Settings and Adjustments used in the physical measurement procedure to obtain the reported statements of gain, SSPL, and frequency response.

*The reported gain represents the mean gain for three samples of the model, computed using the values at the nine midpoints of the bands of frequencies between 500 and 2000 Hz.

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VETERANS ADMINISTRATION
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