

the Regency



KLIPSCH LICENSED FOLDED HORN ENCLOSURE
with complementary speaker systems

Provides "built-in" corner; can be used in corner or against flat wall

Designed for 15" coaxial speakers, or separate 2-way and 3-way systems . . . without need for modification

One full octave of added bass guaranteed over any commercially available bass reflex enclosure

10 to 15 db more efficient than conventional enclosures; laboratory flatness ± 5 db to 30 cps

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Archiv Michael Otto*



DIMENSIONS:
28 $\frac{3}{4}$ " high, 33 $\frac{1}{2}$ " wide, 19" deep
WEIGHT: Net, 65 lbs.; Shipping, 78 lbs.
PRICE: (cabinet only):
MAHOGANY, List, \$200.00; Audio-ophile Net, \$120.00,
BLONDE, List, \$215.00; Audio-ophile Net, \$129.00.

Superlatively styled in low-boy motif, gracefully accented by a solid antique brushed brass grille, the Regency is appealing as a design of excellence and enduring beauty. Adaptable to the living room, study or den, the exquisite veneers are hand-rubbed to a mirror finish on every exposed surface. The Regency is available in rich mahogany or smart lustrous Korina blonde.

A Klipsch-licensed folded corner horn with integrally built-in "corner," the Regency can be employed in the corner for augmented bass response or against the wall of the room away from the corner for flat response (± 5 db to 30 cps). In the Regency, the vital cavity behind the cone baffle exploits the unique, patented Klipsch feature of resonating the back-load with the frontal air load to increase bass efficiency through a broad 4-octave pass-band acoustic circuit.

Electro-Voice

Buchanan, Michigan

Export: 13 E. 40th St., New York 16, U.S.A. Cables: Arlab

The role of the Regency in a high-fidelity audio system

Recognizing the maxim which dictates that the quality of a music reproducing system is proportionate to its size, ELECTRO-VOICE physicists and engineers have, through unique design, hidden the bulk of the acoustic system of the Regency. *The very walls of the living room* have been employed as an extension of this compact and beautiful reproducer. The result is a performance so vibrant and vital that the first listening purveys an utterly new emotional experience.

Principle of operation. Scientifically correct propagation of the first 3 octaves, or those frequencies included between 16 and 128 cycles per second, requires that the cone of the low-frequency driver be loaded with a column of air of relatively huge dimensions. For instance, the smooth reproduction of a 50-cycle tone requires that the cross-sectional area at the mouth of this column be $\frac{1}{4}$ wavelength of this frequency, or 80 inches. At 30 cycles this dimension is *111 inches!* It is quite apparent that a structure capable of housing a horn shape of this large size precludes its use in a living room.

Several years ago Paul W. Klipsch invented the exponential folded corner horn, which employed the walls of the room as an extension of a horn throat cleverly concealed in a furniture housing. This effectively permitted extended bass range reproduction in a room of reasonable dimensions for the first time.

Bass Drivers. But one thing more was necessary. Although the bass range was extended, efficiencies were low—only $\frac{1}{8}$ to $\frac{1}{4}$ of the necessary power for achieving musical balance with reasonable economy of amplifier power and equalization. Accordingly, ELECTRO-VOICE scientists participated with Paul W. Klipsch in the development of super-low resonant bass drivers: The unique high compliance, or capacitive factor of these units is designed to match the mass, or inductance of the air in a carefully-calculated chamber immediately in back of the cone. The combination results in a very broad 4-octave pass-band circuit. This circuit becomes acoustically resonant when the Regency is coupled to the room air load by placement in a corner. An advantage of this discovery is the unequalled damping of the driver cone. The large resistive airload prevents voice coil override with attendant non-linear distortion, holds the voice-coil efficiently in the region of most dense gap-flux and *permits better than a 50% higher power rating on the driver!*

Through these means the Regency delivers phenomenally wide-range bass, virtually perfect, peak-free and 100% full power. It generates extended bass tones at the necessary full level of efficiency with purity never attained before commercially in the living room. It performs this without the characteristic peaks and null points of narrow range, "one-note" bass-reflex enclosures.

model SP-15 recommended coaxial driver

Reproduction so clear, so vibrant that the illusion of "presence" pervades the room . . . yours with the Model SP-15 coaxial loudspeaker. This large 15-inch speaker is capable of receiving and transmitting the tremendous energy from the lower portion of the audible spectrum. A mechanical crossover, operating at the sixth octave directs the sensitive high-frequency pulses of the treble register to the smaller RADAX high-frequency propagator. Radax generates and distributes the highest four octaves without loss of level. By dividing the spectrum between two specially designed coaxial diaphragms, the Radax Principle assures music in flawless proportion and balance throughout the entire listening area.

Power or efficiency is many times that of conventional one-way speaker units . . . actual *acoustic* power is seven to eight times higher! The heavy speaker frame is accurately machined and polished for improved voice coil operation and extended, trouble-free life. The E-V Model SP-15 coaxial loudspeaker will provide full range sound reproduction for churches, school auditoriums and highest quality public address installations . . . specifications exceed those of the Research Council of the Academy of Motion Picture and Sciences for theaters up to 750 seat capacity.

LIST PRICE, \$130.00, Audio-ophile Net, \$78.00.



SPECIFICATIONS: MODEL SP-15
FREQUENCY RESPONSE RANGE: 30 to 13,000 cps \pm 6 db in Regency Enclosure. **SHORT DURATION PEAK-POWER INPUT:** 35 watts. **INPUT IMPEDANCE:** 16 ohms \pm 40 percent with amplifiers employing feed-back. **BASS CONE RESONANCE:** 41 cps. **TREBLE CONE RESONANCE:** 250 cps. **RADAX CROSSOVER FREQUENCY:** 3000 cps. **FIELD EXCITATION:** 5 $\frac{1}{4}$ lb Alnico V Magnet. **MAGNET STRUCTURE WEIGHT:** 27 lbs. **FEATURES:** Bass and treble cones are specially treated for moisture and fungus protection. Cones are compliance damped to prevent frame reflections from reinforcing or cancelling certain frequencies. Speaker pot structure finished in iridescent maroon hammertone. **BINDING POSTS:** Positive, marked red; negative, marked black for forward motion of cone with dry coil applied. **DIMENSIONS:** 15 $\frac{1}{8}$ " diameter, 8 $\frac{7}{8}$ " depth behind mounting panel, 13 $\frac{1}{2}$ " baffle opening. **WEIGHT, NET:** 34 $\frac{1}{2}$ lbs; **SHIPPING:** 44 lbs.

the Regency II

SEPARATE 2-WAY AUDIO REPRODUCING SYSTEM



When the music lover first hears the E-V Regency II Reproducing System, he is delighted to discover its breadth of response range . . . literally *feeling* the physical impact of timpani and tuba. Yet, he is instantly aware that this tremendous bass capacity is balanced by sparkling, brilliant reproduction of the delicate treble tones of the highest audible registers. A second hearing discloses that this is but an introduction to the Regency II's superb performance. He hears a cleanliness of reproduction that lends third dimensional quality to the music . . . heightening the illusion of *presence*.

And then listening carefully for favorite musical passages, he learns how the Regency II handles difficult flights of orchestral fancy with a distortion-free fidelity quite unlike that experienced before. Then he appreciates why music *lives* when recreated by this remarkable sound reproducing system.

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REGENCY II SEPARATE 2-WAY SYSTEM

Incorporates the Model 114-A separate 2-way system package completely installed, wired and tested in the Regency enclosure ready for operation. Dimensions, 28 $\frac{1}{4}$ " high, 33 $\frac{1}{2}$ " wide, 19" deep. Weight: Net, 112 lbs, Shipping, 125 lbs.

LIST PRICE in Mahogany Regency, \$517.00, Audio-ophile Net, \$310.20

LIST PRICE in Blonde Regency, \$532.00, Audio-ophile Net, \$319.20

model 114-A separate 2-way loudspeaker system



The Model 114-A system is an acoustically balanced sound generating component for the Regency II. It is an equally fine driver unit for custom installations in walls or "built-in" cabinets, or for existing enclosures. The individual components of the Model 114-A system are available separately, also.

To recreate the synthesis of the original music, a speaker system must reproduce all the original frequencies with a minimum of harmonic, intermodulation and transient distortion. This requires a sound generation system which divides the reproduced spectrum between disparate drivers by crossover networks of the lowest possible frequency.

Model 114-A 800 cps crossover separate 2-way system achieves the finest results possible from live FM, recorded tape or vinylite disc sources. Low, powerful, extended bass is produced by the E-V Model 15W low frequency driver. The Model X8 crossover network restricts low frequencies to the bass driver and directs tones above 800 cps to the Model T-25 high-frequency driver. The treble driver exhausts through the Model 8-HD diffraction horn, which distributes upper octave tones through a solid angle of 180°. Dimensions: of the Model 114-A: 26" high, 32 $\frac{1}{2}$ " wide, 13 $\frac{1}{2}$ " deep. Weight: Net, 47 lbs., Shpg, 87 lbs.

LIST PRICE, \$312.00, Audio-ophile Net, \$187.20.



component specifications, model 114-A system

MODEL 15W LOW-FREQUENCY DRIVER

In the Regency speaker enclosure, the Model 15W low-frequency driver reproduces bass tones down to 16 cps with high efficiency! The high compliance, or acoustical capacitance of the driver, perfectly matches the inductance of the back chamber air mass of the enclosure. This permits the formation of a broadly resonant circuit in conjunction with the frontal air load.

The unusually high compliance of both the outer cone rolls and inner spider of the Model 15W provides a fundamental resonance in free air of 37 cps. This means that the 18 db per octave roll-off, or drop in acoustical output common to all cone or diaphragm type generators, starts at a much lower frequency. The stiff, straight sided 27 oz. cone is extra strong, thus preventing relaxation of the suspension material along its length. This precludes the formation of spurious sum and difference tones, a result of the outer area moving at a slower rate than the central fundamentally excited area. The Model 15W uses the largest Alnico V magnet to be found in any commercially available 15" low-frequency driver, guaranteeing the highest efficiency and freedom from voice coil override. This reduces to a minimum the attendant transient distortion. The Model 15W bass driver is ideal for improving existing speaker systems too. No other 15" low-frequency driver is its equal in efficiency, extended low range, and distortion-free characteristic.

LIST PRICE, \$130.00, Audio-ophile Net, \$78.00.

MODEL T-25 HIGH-FREQUENCY DRIVER

In order to reproduce the rapid and very delicate pulses of the upper octaves, the vibrating or piston member of a high-frequency driver must be light, and thus small. On the other hand, to achieve useable power transfer the diaphragm assembly must be large and consequently heavy. These irreconcilable requirements have limited the high range of driver units in the past: the usual roll-off of a 40 watt 2 1/2 inch diaphragm being 3000 cps, and of a 25 watt 1 1/2 inch diaphragm about 4500 cps. Resonant cavities are frequently introduced to gain augmented response several thousand cycles higher, but with accompanying raggedness in the reproducing characteristic and sharp attenuation, after the resonant peak. Another factor entering into this complicated design problem is the violent phasing-out of the acoustic energy at certain frequencies. This phenomenon transpires when the signal approaches in wavelength twice that of the diameter of the diaphragm. The unfortunate circumstance thus experienced drastically affects listening quality, which demands a rise of between 5 and 10 db in this region (5000 KC).

ELECTRO-VOICE High-Frequency units completely by-pass these seemingly unsurmountable design difficulties! Lewis Hoodwin, a brilliant physicist on the ELECTRO-VOICE engineering staff, has invented the unique loading device for the HF diaphragm, whereby the effect of diaphragm diameter is no longer a factor. The accompanying sketch shows that the usual cavity in the piston region has been eliminated. The



throat of the acoustic system begins *directly at the voice coil where it is joined to the diaphragm*; thus, for the first time, a true scientific exponential flare takes place from the *very origin of the sound source*. This results in the greatest transfer efficiency, and the smoothest, most extended high frequency response available on the market today. The phenolic moulded and cloth impregnated diaphragm has tremendous strength and can be overloaded to the point of voice coil disintegration without fracture. Furthermore, it is not susceptible to the radial splitting and buzzing common to delicate aluminum diaphragms.

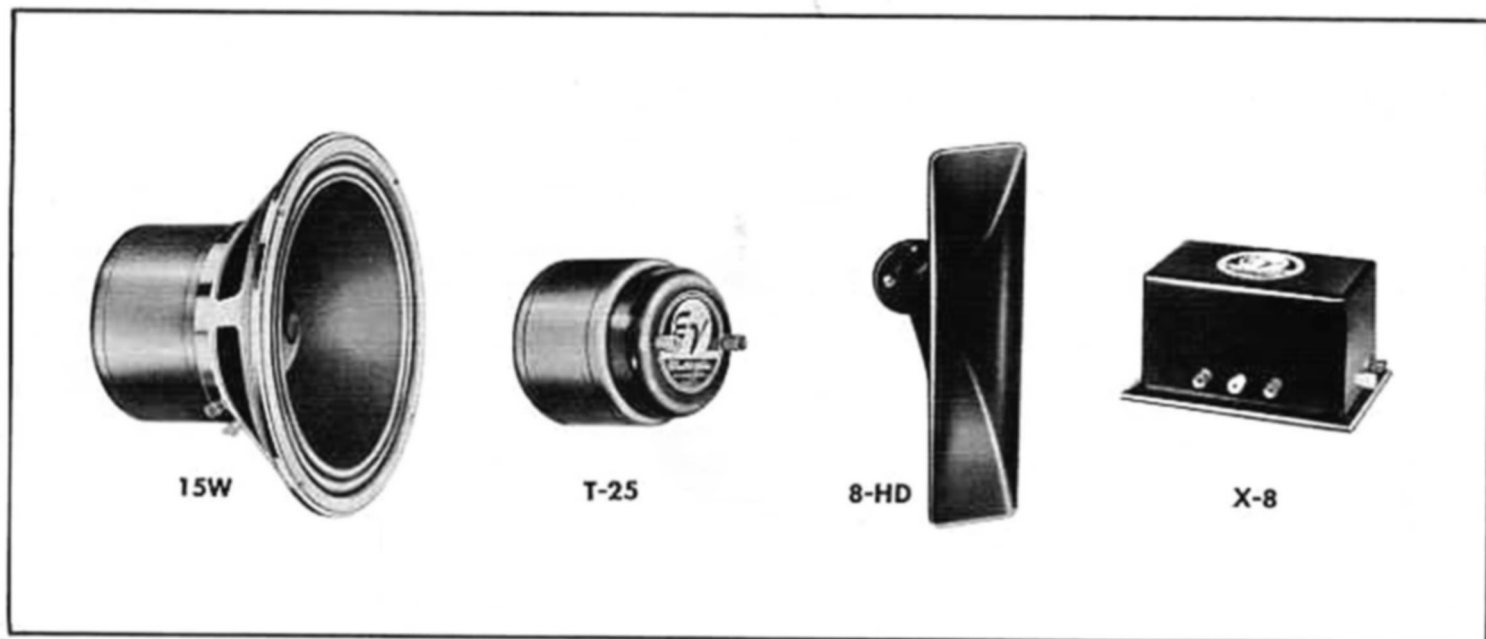
LIST PRICE, \$95.00, Audio-ophile Net, \$57.00

SPECIFICATIONS: MODEL 15W

RTMA SENSITIVITY RATING: 49 db. **RESPONSE RANGE:** To 30 cps \pm 5 db in E-V Regency Enclosure in average size living room; to 35 cps \pm 5 db on flat infinite baffle. **SHORT DURATION PEAK POWER INPUT:** 50 watts in Regency Enclosure; 35 watts on flat baffle. **CONTINUOUS PROGRAM level;** 35 watts. **IMPEDANCE:** 16 ohms at 400 cps. **RESISTANCE:** 11.3 ohms DC. **FREE AIR CONE RESONANCE:** 37 cps. **CONE WEIGHT:** 27 oz; cone moisture and fungi-proofed. **FIELD STRENGTH:** 14,300 lines/sq. cm. **MAGNET WEIGHT:** 5 1/4 lb. Alnico V. **MAGNET STRUCTURE WEIGHT:** 27 lbs. **BINDING POSTS:** Positive, marked red and Negative, marked black for forward motion of cone with dry coil applied. **MOUNTING DIMENSIONS:** four 3/4" holes spaced 90° apart on 14 3/8" circle. **DIMENSIONS:** 15 1/8" diameter, 8 7/8" deep behind mounting panel, 13 1/2" baffle opening. **WEIGHT, NET:** 34 1/2 lbs; **SHIPPING:** 44 lbs.

SPECIFICATIONS: MODEL T-25

RTMA SENSITIVITY RATING: 48 db. **RESPONSE RANGE:** to 15,000 cps with efficient response; to 11,000 cps \pm 5 db. **SHORT DURATION PEAK POWER INPUT:** 50 watts above 800 cps. **CONTINUOUS PROGRAM MATERIAL ABOVE 400 CPS:** 20 watts. **IMPEDANCE:** 16 ohms at 400 cps. **RESISTANCE:** 10.5 ohms DC. **DIAPHRAGM DIAMETER:** 1 1/2", diaphragm is phenolic moulded and cloth impregnated for tremendous strength. Not susceptible to radial splitting and buzzing as are delicate aluminum diaphragms. Can be overloaded to point of voice coil disintegration without fracture. **FUNDAMENTAL RESONANCE:** 275 cps. **FIELD STRENGTH:** 1 3/4 lbs. Alnico V magnet. **MOUNTING DIMENSIONS:** Two 5/16-18 tapped holes spaced 180° apart on 2" circle or four 5/16-18 tapped holes spaced 90° apart on 3" circle. **DIMENSIONS:** 5" diameter, 6" deep, 3/8" throat diameter. **WEIGHT, NET:** 11 1/4 lbs; **SHIPPING:** 15 1/2 lbs.



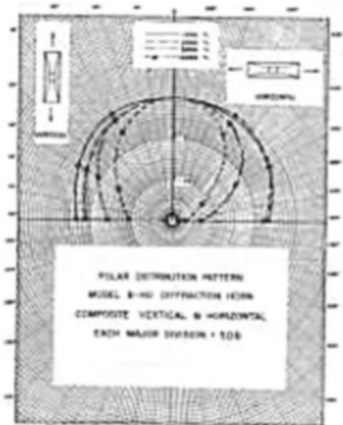
SPECIFICATIONS: MODEL 8-HD

DISPERSION: 180°. **ACTUAL CUTOFF:** 600 cps. **RECOMMENDED CROSS-OVER POINT:** 800 cps; eliminates response disturbances associated with operation too near actual cut-off point. **APPLICATION:** for 25 watt or 10 watt treble drivers. **MOUNTING DIMENSIONS:** two 5/16-18 holes spaced 180° apart on 2" circle. **DIMENSIONS:** 3 1/4" high, 1 1/4" wide, 7 1/4" deep, 3/4" throat opening. **WEIGHT, NET:** 1 1/4 lb.; **SHIPPING:** 2 lbs.

MODEL 8-HD DIFFRACTION HORN

For the first time, the superior high-frequency dispersion characteristics of the Diffraction Principle are available in a compact horn suitable for home high fidelity systems. In order properly to load the driver diaphragm, an exponential horn is required of the proper flare. In addition the high frequencies which would ordinarily beam straight down the axis must be adequately dispersed in order to cover the entire listening area. In the past this dispersion has been meagerly effected by a multiplicity of cells, each pinpointing a spot in the room, usually 8 in number. Each cell intercepts a solid angle of 20° at about 2 KC; at 10 KC this angle is only about 10°. In keeping with the requirements of the discriminating listener, ELECTRO VOICE has developed the Diffraction Principle of high-frequency sound dispersion. The employment of this principle in the Hoodwin horn design effects *better than 180° of dispersion*, sans all pinpointing effects, and does this with more efficiency at all frequencies. The Model 8-HD Horn, in addition, has a wide margin of safety near the recommended crossover frequency of 800 cps; the horn is designed actually with a 600 cps cut-off, thus eliminating the response disturbances associated with operation too near the actual cut-off point. A most important feature of the Hoodwin Horn is the increased efficiency of 3 db, or double that of conventional cellular horns. This is brought about by the elimination of the viscous resistivity of the air engendered by the multiplicity of throats at the driver unit mouth. The horn design uses the new material Fiberglas, noted for its fine acoustic properties and extreme ruggedness.

LIST PRICE, \$27.00, Audio-ophile Net, \$16.20



Electro-Voice high-fidelity components are designed to give the best possible performance with E-V enclosures. Together, they make acoustically balanced audio reproduction systems truly capable of making music live in the home.

SPECIFICATIONS: MODEL X-8

POWER RATING: 60 watts. **IMPEDANCE:** 16 ohms for input, and high and low output. **DIMENSIONS:** 8" long, 5 1/2" wide, 4 1/2" high. **WEIGHT, NET:** 5 lbs; **SHIPPING:** 6 lbs.

MODEL X-8, 800 CPS CROSSOVER NETWORK

Utilizes the standard circuit employed by the motion picture industry, the full m-derived 1/2 section configuration. Restricts low-frequencies to bass driver, and directs high frequencies to treble driver. M is .6. Attenuation is 12 db per octave each side of crossover point, presenting an optimum degree of attenuation with minimum possibility of transient distortion generation. Utilizes air-cored coils to eliminate distortion with varying load and frequency. Q is better than 150. Condensers are paper type with generous overload factor. Insertion loss is less than 1 db. Phase rotation is 270°.

LIST PRICE, \$50.00, Audio-ophile Net, \$30.00

response, impedance efficiency and distortion data

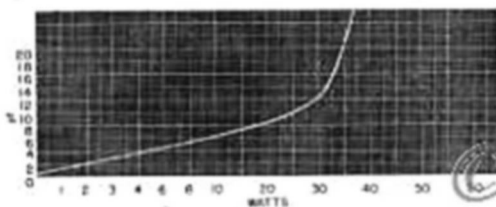
ELECTRO-VOICE is the only speaker manufacturer so far to publish authentic, unretouched, machine-run response curves of its products. The industry in the past has been reluctant to do this because the test conditions influence the character of the results.

Furthermore, it is recognized that the significance of curves leaves considerable to be desired in the subjective evaluation of loudspeaker performance. A satisfactory degree of correlation can be established by careful interpretation, however, and an attempt is made to achieve this correlation in the short notes covering the measurements shown below.

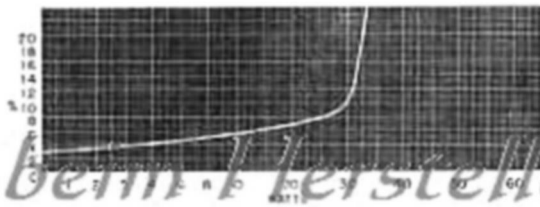
Because the anechoic chamber does not permit the inclusion of the walls of a room, the response curve is a composite of anechoic chamber above 100 cps, and the simulated living room below this point. Observe that a .5 db dip is introduced in the design exactly at 60 cps to reduce the effects of turntable rumble. Augmented response in the "presence" region

3-6 KC is satisfactorily introduced to offset ear insensitivity at room reproducing levels. Sensitivity, or efficiency, is measured by the recommended method established by the Radio and Television Manufacturers' Association.

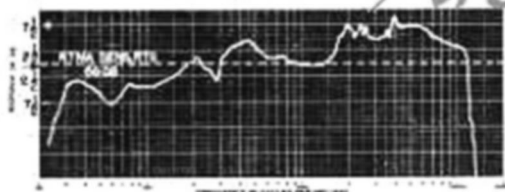
Intermodulation distortion
regency II system



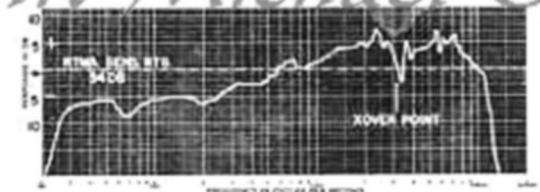
Intermodulation distortion
sp-15 radax



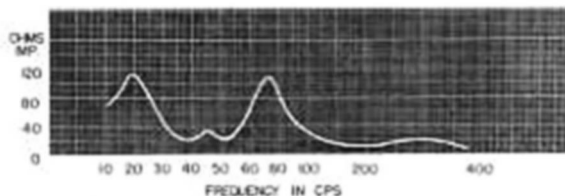
response range
regency II system



response range
sp-15 radax



Impedance of regency
with 15" E-V driver



Qualitative Measurements

An anechoic chamber and standard calibrated microphone were employed in addition to a Model TI-401 signal generator and a Model TI-402 distortion analyzer. For the intermodulation distortion tests a carrier signal of 60 cps was employed modulated by 2, 7 and 12 KC with a ratio of 4:1.

Although the most modern equipment was used in this distortion analysis, its value in measuring distortion products in loudspeaker systems is open to considerable question. For instance, the only available and arbitrary modulating frequencies could be the weakest points in the design distortion-wise, and every other frequency

Quantitative Measurements

An anechoic chamber was employed of the dimension 12' x 12' x 20', with a standard calibrated microphone. Impedance measurements were made in a simulated living room 12' x 14' x 9' using a Ballantyne Voltmeter across the voice coil with 100 ohms in series.

point might be comparatively distortion free; thus a very fine speaker could show up poorly. The converse is also possible. For the arbitrary points shown, the distortion in the Regency II System and SP-15 Radax is unusually low compared with other commercially available quality systems.