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A Comparison of Power Output Conical, Hyperbolic and Exponential Trumpets

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rotate simply about one end. At any particular instant it rotates about some point which may be situated anywhere along its length. However, about whatever single point the arm may be rotating, such rotation can be resolved into two simultaneous rotations about the two ends. Therefore for purposes of analysis we may consider that the tracer arm rotates only about the ends, and we may express the area in terms of that rotation, as already stated.

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A COMPARISON OF POWER OUTPUT OF CONICAL, HYPERBOLIC AND EXPONENTIAL TRUMPETS

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(ABSTRACT)

These measurements are presented as illustrative of the advances that have been made in the measurement of acoustic power. They refer of course to single cases, but they are of interest in showing the actual fluctuations of both components of impedance and of the power output in the three types of trumpets stated in the title.

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THE THEORY OF THE TWO-WAY QUINCKE TUBE

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(ABSTRACT)

The long known Quincke two-way tube has been assumed to eliminate transmission by interference only at a frequency corresponding to a difference of path of one-half wave length. The author has derived the theory of the action and finds that the ratio of transmitted to incident energy is

$$[4 \sin (\alpha_2 + \alpha)/2 \times \cos (\alpha_2 - \alpha_3)/2]^2 \times [1 - 2 \cos (\alpha_2 + \alpha_3) + \cos (\alpha_2 - \alpha_3)]^2 + 4 \sin^2 (\alpha_2 + \alpha_3)]^{-1}$$

This shows that the conditions of zero transmission are $\alpha_2 - \alpha_3 = (2n + 1)\,\pi$, where n is an integer, which has long been known, and $(\alpha_2 + \alpha_3) = 2n\,\pi$, if $(\alpha_2 - \alpha_3) = 2n_1\,\pi$ where n_1 is an integer. Since $(\alpha_2 + \alpha_3) > (\alpha_2 - \alpha_3)$, it is seen that, in general, these new minima of transmission are much more numerous than