

Fig. 20. Response-frequency characteristics of the LC1A loudspeaker in various phase-inverter cabinets.

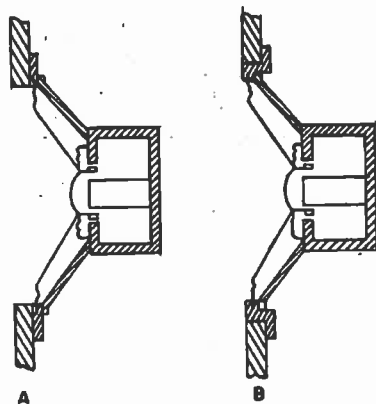


Fig. 21. (A) Direct-radiator loudspeaker mechanism mounted in the conventional manner. (B) Direct-radiator loudspeaker mechanism mounted flush with the front of the cabinet wall.

as that of the drone cone, but the frequency range obtained with the port is narrower. To summarize, these curves show that a wider frequency range with greater output can be obtained with the drone cone type of phase inverter as compared to the port type, the reason being that the losses in the drone cone are less than in the port.

#### Mechanism Mounting Arrangement<sup>6</sup>

The mounting arrangement of the loudspeaker mechanism in the front wall of the cabinet influences the response owing to the resonances of the air cavity in front of the mechanism. In addition, variations in the response are produced by reflections and diffractions from the circular boundary of this cavity. The standard mounting arrangement for loud-

speaker mechanisms which has been used for years is shown in Fig. 21A. Reference to Fig. 21A, indicates that the cabinet wall forms a cavity in front of the loudspeaker. The resonances and antiresonances of this cavity, as well as reflections and diffractions at this wall edge, introduce variations in the response-frequency characteristic as shown in Fig. 22. These variations in response can be reduced by the improved loudspeaker mounting arrangement shown in Fig. 21B. It will be seen that the cavity in front of the loudspeaker mechanism has been materially reduced. The reflecting edge of the cutout in the cabinet wall has been completely eliminated. The abruptness of the edge has also been reduced, which mitigates the diffraction effects due to this edge. The response-frequency characteristic of a loudspeaker mechanism mounted as shown in Fig. 21B is shown

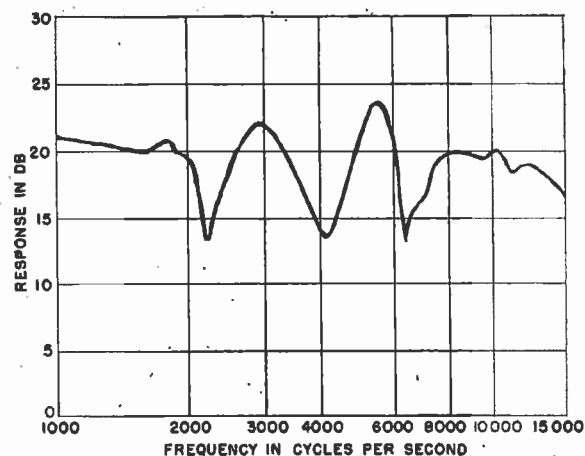


Fig. 22. Response-frequency characteristic of a direct-radiator loudspeaker mechanism mounted as shown in Fig. 21A.

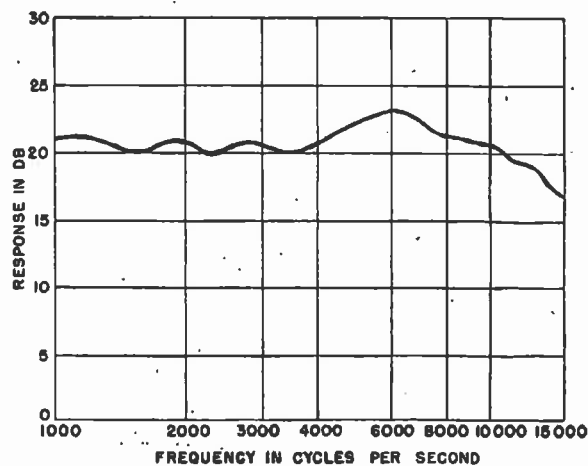


Fig. 23. Response-frequency characteristic of a direct-radiator loudspeaker mechanism mounted as shown in Fig. 21B.

<sup>6</sup>H. F. Olson, *Radio and Television News*, 45, No. 5, p. 53 (1951).