

OFFICE OF SCIENTIFIC RESEARCH
AND
DEVELOPMENT
NATIONAL DEFENSE RESEARCH COMMITTEE
DIVISION 17 SECTION 3

RESPONSE CHARACTERISTICS
OF
INTERPHONE EQUIPMENT
NUMBER 3

INCLUDING INFORMATION ON
PROPOSED STANDARD TEST METHODS FOR
HEADSET RECEIVERS AND MICROPHONES

REPORT OF
MARCH 1, 1943
L. L. BERANEK, DIRECTOR

Submitted by
HARVARD UNIVERSITY
RESEARCH ON SOUND CONTROL
CRUFT LABORATORY, CAMBRIDGE, MASS.

OSRD No. 1095

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III. Variation of Voltage-Frequency Response of Carbon Microphones as a Function of Load Resistance and Carbon Current.

Typical data on the variation of response of four different types of carbon microphones are shown on pages 76-R-1 and 77-R-1, for three different carbon currents. It is seen that the microphones become more sensitive with increasing carbon current (about 5 db as the short circuit current is increased from 30 to 80 ma. with a load resistor of 100 ohms) and that the response curve retains its shape. This indicates that data may be taken at any carbon current and corrected by a constant factor to get the response curve at any other carbon current.

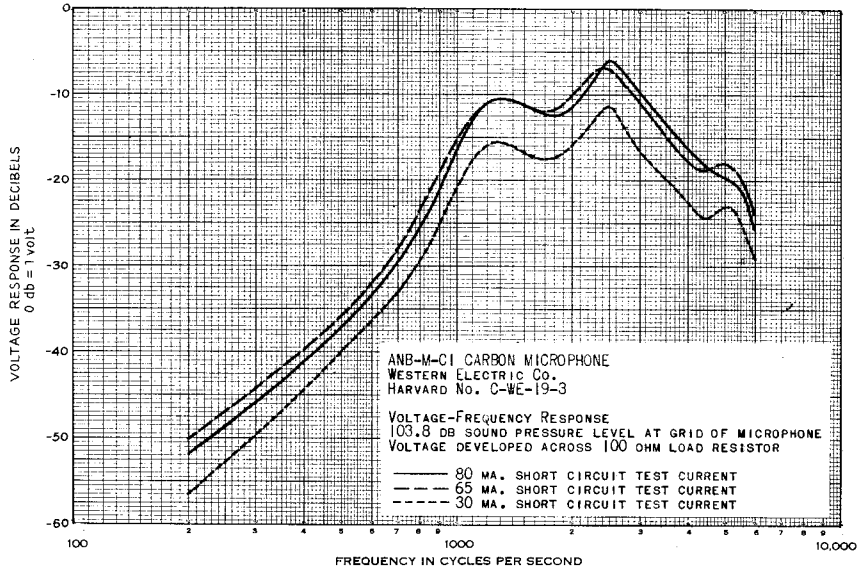
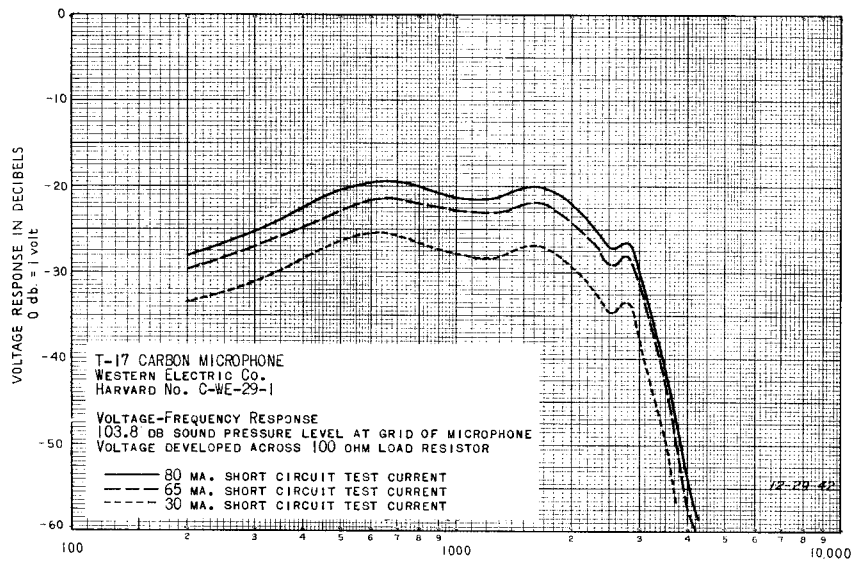
For any given microphone there is an optimum carbon current which yields the lowest "burning" (button current) noise. This may or may not be critical for any particular design. There is some indication that the RS-38A data are slightly more repeatable when taken with a lower carbon button current.

Typical data on the variation of response of four different types of microphone for three different load resistors are shown on pages 78-R-1 and 79-R-1. It is seen that the curves retain their shape as the load resistor is changed and that the output increases roughly 3 db each time the load resistor is doubled in the 50 to 200 ohm load resistor range.

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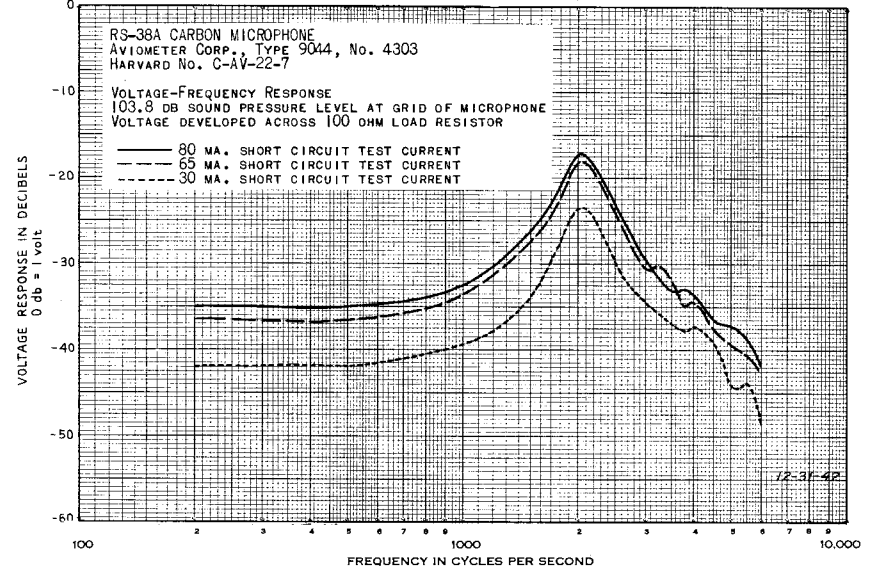
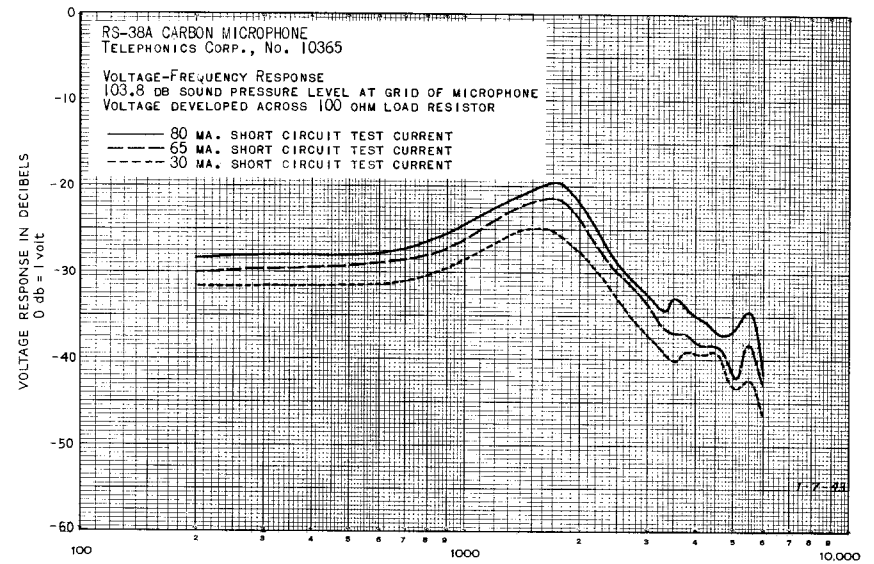
75-R-1



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3-1-43

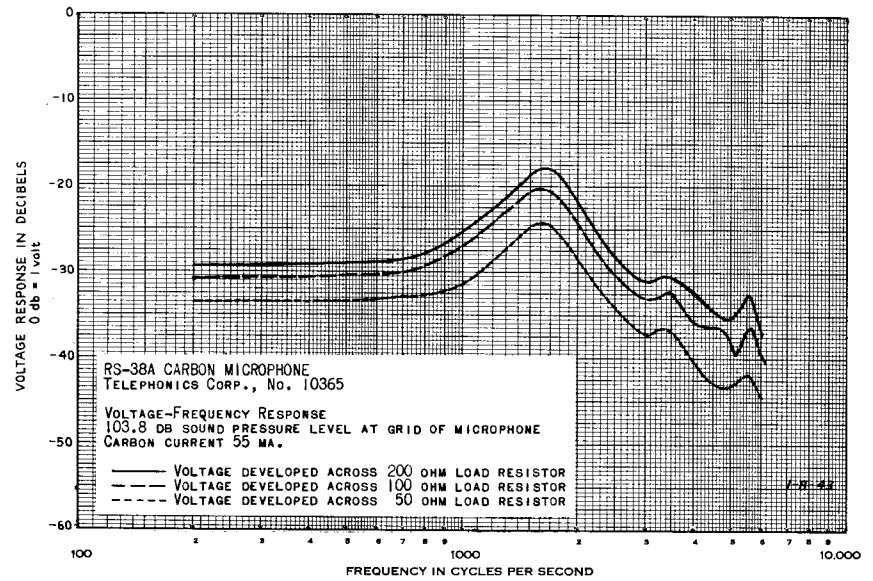
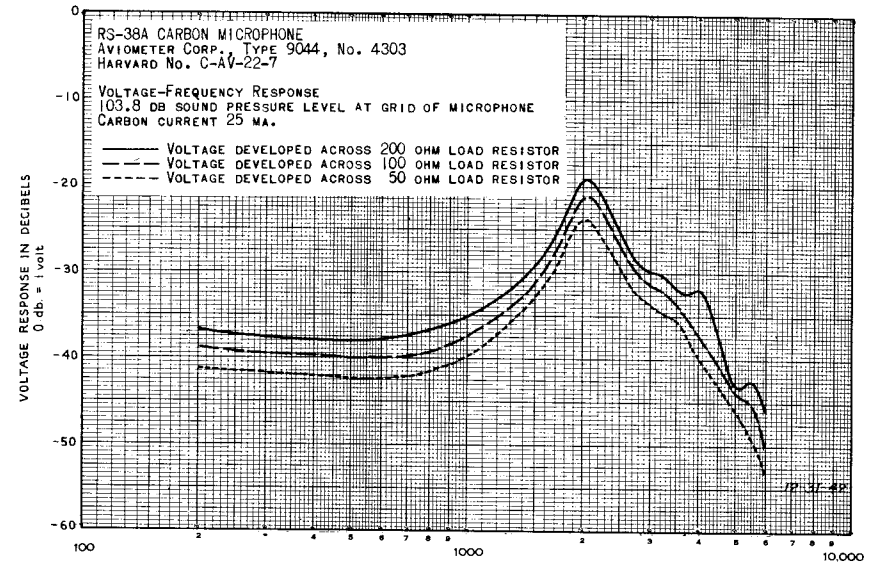
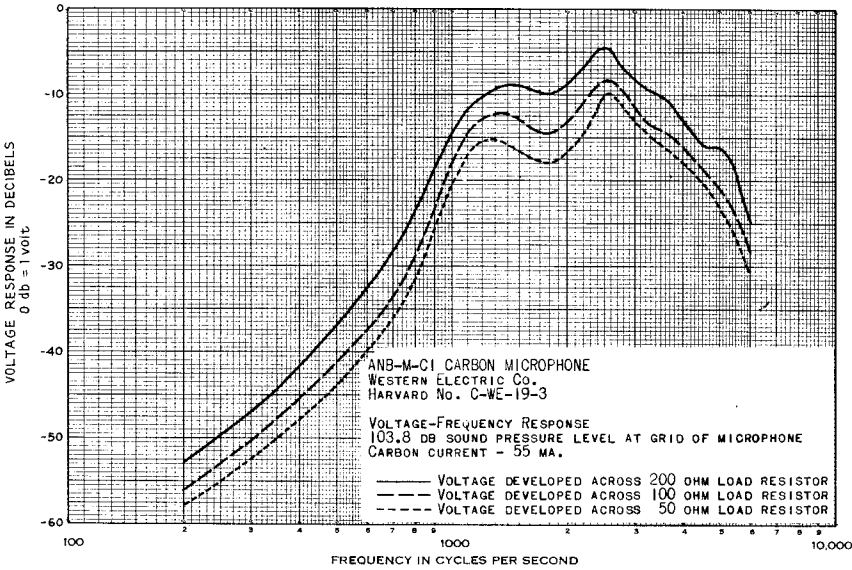
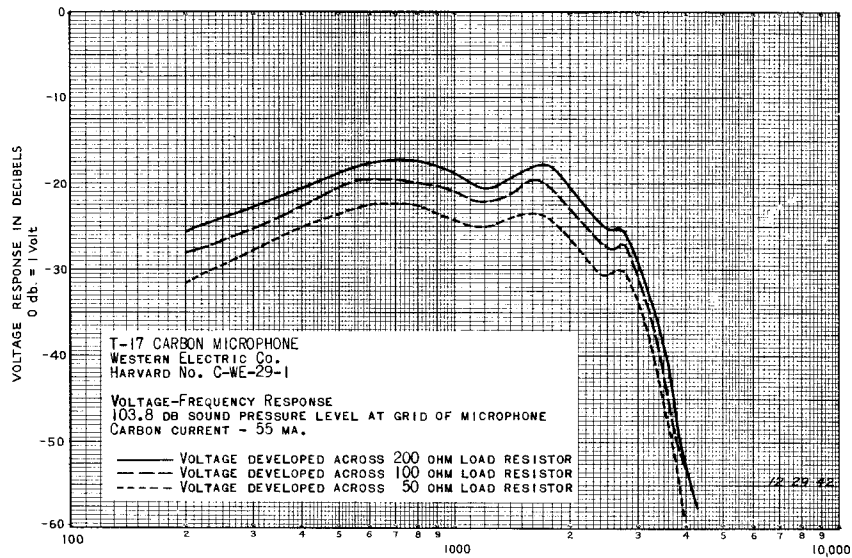
76-R-1



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77-R-1



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78-R-1

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79-R-1