Condenser Microphone

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***Abstract*—For the application of voice recording, a simple and cheap condenser-microphone design is considered. Analysis of theoretical characteristics such as sensitivity, dynamic range, and signal-to-noise ratio is presented. In conclusion, quantitative measurements from a working prototype are corroborated with the theoretical analysis and compared against desired performance characteristics.**

***Keywords*—Capacitive, Condenser, Microphone.**

I. Introduction

THE transduction of sound into an electrical signal using a microphone is naturally useful for conveying the human voice. Human conversation typically occurs within the range of 40-60 dB SPL. When converting human speech into an electrical signal, to ensure the output accurately represents the source, the microphone should strive for unity-gain response in the frequency range of interest.

A variety of devices exist for transducing sound. Of commercially viable designs, condenser and dynamic microphones are the most common.[1] It is not unusual for condenser microphones to have an upper 20 kHz frequency limit whereas dynamic microphones tend to have a 16 kHz limit.[2] This makes a condenser microphone preferable for applications involving voice.

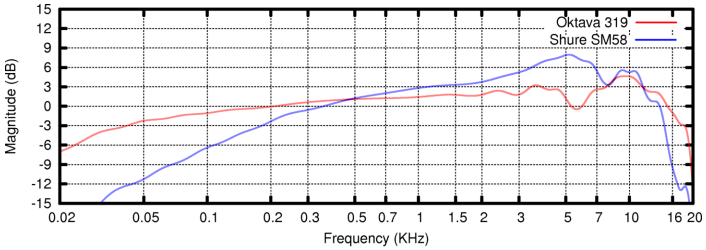

Fig. 1: *Oktava MK-319 condenser microphone[3] and Shure SM58 dynamic microphone[4] frequency responses*

II. Sensor Structure and Measurement Principle

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III. Conclusion

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Appendix A
Proof of the First Zonklar Equation

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Appendix B

Appendix two text goes here.

Acknowledgment

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References

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