

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 communicating human voice. Human conversation typically occurs within the range of 40-60 dB SPL at a frequency range of about 20 Hz to 20 kHz. [1] To ensure the transduced signal accurately represents the source sound, the microphone should strive for unity-gain response in the frequency range of interest.

A variety of techniques exist for the transduction of sound. Of the various types, condenser and dynamic microphones are the most common. [2] Dynamic microphones tend to have an upper frequency-response limit of 16 kHz before attenuation. This makes them less suitable for voice compared with condenser microphones. [3]

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.

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