

**PORTABLE GONIOMETER SYSTEM FOR
DIFFUSION MEASUREMENTS**

By

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ABSTRACT

Diffuseness is a key aspect of how a room functions acoustically. One method to test the diffusion characteristics of acoustical surfaces is the goniometer. The goniometer method is able to quantify diffusion independent from absorption. However, due to the amount of space required for the goniometer method, previous goniometer designs have been limited in scale and consume a large amount of time. This research develops the design of an easily deployable goniometer of a 2.5m radius that minimizes the amount of time spent. Until now, there has never been a goniometer of this scale without the use of an anechoic chamber. A goniometer carriage of this radius is created using 8 microphones, covering 20° of the semi-circular array with 2.5° resolution is created for this research, and shown to be successful. A second goniometer carriage of the 16 microphones, covering 36° with 2.25° resolution presented further challenges.