

## Assessment of the Occupancy's Effect on Speech Intelligibility in Al-Madinah Holy Mosque

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**Abstract :** This research investigates the acoustical characteristics of Al-Madinah Holy Mosque. Extensive field measurements were conducted in different locations of Al-Madinah Holy Mosque to characterize its acoustic characteristics. The acoustical characteristics are usually evaluated by the use of objective parameters in unoccupied rooms due to practical considerations. However, under normal conditions, the room occupancy can vary such characteristics due to the effect of the additional sound absorption present in the room or by the change in signal-to-noise ratio. Based on the acoustic measurements carried out in Al-Madinah Holy Mosque with and without occupancy, and the analysis of such measurements, the existence of acoustical deficiencies has been confirmed.

**Keywords :** Al-Madinah Holy Mosque, mosque acoustics, speech intelligibility, worship sound

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