

PROFIL KUALITAS AKUSTIK AREA AUDIENS DI AUDITORIUM

oleh

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INTISARI

Pertimbangan kualitas akustik dari gedung serbaguna harus menjadi perhatian terutama bagi audiens. Audiens harus memperhatikan kualitas akustik di tempat kursi penonton yang dipilih. Penelitian ini, melakukan pengambilan data objektif dan penilaian subjektif di auditorium dengan kapasitas menengah yaitu Auditorium Driyarkara, Yogyakarta. Pengambilan data *Room Impulse Response* (RIR), dilakukan secara monaural pada 16 titik untuk melihat distribusi parameter G, EDT dan C80 berdasarkan ISO 3382-1:2009. Sinyal RIR dikonvolusikan dengan rekaman instrumen musik di *anechoic chamber* untuk kemudian dijadikan stimulus akustik dalam penilaian subjektif. Hasil penilaian subjektif kemudian menghasilkan 8 posisi kursi esensial yang selanjutnya dilakukan pengukuran secara binaural. Hasilnya terdapat 3 zona akustik di area audiens dengan nilai parameter G, EDT, C50, C80, D50, Ts, IACC, TR, dan BR berturut-turut memiliki rentang (-8,91 – 1,07) dB, (1,12 – 1,52) s, (-0,11-5,05) dB, (-3,70 – 2,03) dB, (31,00 – 60,71), (62,75 – 106,50) ms, (0,43 – 0,82) s, (0,67 – 0,96), dan (0,81 – 2,80). Sedangkan nilai JND yang teridentifikasi responden hanya terjadi pada parameter G sebesar 2,26 dB, Ts sebesar 17,5 ms, TR sebesar 0,2, BR sebesar 0,03, dan D50 sebesar 16,68 atau 0,17.

Kata Kunci: Akustik Ruang, Impuls Respon, Gedung Pertunjukan

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**OBJECTIVE AND SUBJECTIVE ACOUSTICS MEASUREMENT OF
SEATING AREAS IN MEDIUM AUDITORIUM**

by

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ABSTRACT

Several consideration of the acoustical quality of a multi-purpose hall should be taken into account and therefore, the audiences must be fully aware of the acoustical consequences in deciding their seating positions. In this research, objective measurement and subjective assessment in the medium capacity, Driyarkara multi-purpose hall, has been investigated. Room impulse responses (RIR) were taken for several monaural parameter distribution including G, EDT, C50, and C80 at 16 positions referring to ISO 3382-1:2009. The signals were convolved with anechoic sound of musical instruments to reproduce acoustic stimuli for subjects to listen. Stimuli data is reduced to 8 measurement' positions, which indicated the noticeable difference. These were generated to reproduce binaural sounds for further subjective assessment. The distribution of binaural parameters were observed in 250 Hz, 1 kHz, and 4 kHz to obtain JND (Just Noticeable Difference). The result reveal that this hall contains 3 different acoustic zones with the range of acoustics parameters of G: -8.91 dB – 1.07 dB, EDT: 1.12 s – 1.52 s, C50: -0.11 dB – 5.05 dB, C80: -3.70 dB – 2.03 dB, D50: 31.00 – 60.71, Ts: 62.75 ms – 106.50 ms, IACC: 0.43 s – 0.82 s, Treble Ratio: 0.67 – 0.96 and Bass Ratio: 0.81 – 2.80. Furthermore, this result correlates with the JND value for G: 2.26 dB, Ts: 17.5 ms, Treble ratio: 0.2, Bass Ratio: 0.03 and D50: 16.67.

Keywords: *Architectural Acoustics, Impulse Response, Concert Hall*

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