SESSION 2

Federal Road Profile Model Generation Based on Road Scanner Data
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In Malaysia, the application of Mechanistic-Empirical approach in pavement design guide is still in early stage of introduction and many more researches able to improve it. One of the task needs is generating road profile model to evaluate the dynamic axle loads from vehicles. Therefore, this study aims to generate a few models of road profiles based on the real road profile data called reference road profiles model using mathematical method. The reference road profiles data are a measurement of new paved federal road in Malaysia. A profile of two sections of roads (300 meters length each) measured by road scanner were determined from Malaysia Public Work Institute (IKRAM).The Profile Viewing and Analysis software (ProVAL) was used to filter unwanted wavelength, visualize the measured road profile data and obtain road profile International Roughness Index (IRI). While Matrix Laboratory software (MATLAB) was used to generate road profile based on Dodds and Robson Power Spectral Density (PSD) approximation equation. The calibration between generated and reference road profiles were examined by correlation coefficient value. From the results, all generated road profiles that have correlation coefficient range between $-1 < \rho < -0.7$ or $0.7 < \rho < 1$, gives different IRI values with the reference road profile. However, the differences in IRI values are small or less than 5% and it is acceptable. Therefore, all 56 models of generated road profiles are applicable for long term pavement performance. A road profiles model that produce same roughness as the measured profile is mostly applicable for long term pavement performance.

Road profiles, International Roughness Index, Profile Viewing and Analysis Software (ProVal), Power spectral density