

Assessment of Runway Micro Texture Using Surface Laser Scanners: An Explorative Study

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Abstract : In this study, the use of a high resolution surface laser scanner to assess the micro texture of runway surfaces was investigated experimentally. Micro texture is one of the important surface components that helps to provide high braking friction between aircraft tires and a wet runway surface. Algorithms to derive different parameters that characterise micro texture was developed. Surface scans with a high resolution laser scanner were conducted on 40 different runway (like) surfaces. For each surface micro texture parameters were calculated from the laser scan data. These results were correlated with results obtained from a British pendulum tester that was used on the same surface. Results obtained with the British pendulum tester are generally considered to be indicative for the micro texture related friction characteristics. The results show that a meaningful correlation can be found between different parameters that characterise micro texture obtained with the laser scanner and the British pendulum tester results. Surface laser scanners are easier to operate and give more consistent results than a British pendulum tester. Therefore for airport operators surface laser scanners can be a useful tool to determine if their runway becomes slippery when wet due to a smooth micro texture.

Keywords : runway friction, micro texture, aircraft braking performance, slippery runways

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