

Transmission of vibration from motorcycle handlebar to the hand

ABSTRACT

Vibration transmitted to the hand from motorcycle handlebar can cause discomfort and health issues to the motorcycle rider. The objective of this paper was to investigate the severity of vibration transmitted to the hand from motorcycle handlebar. The engine capacity of the motorcycle was 100cc. Vibration was recorded at the motorcycle handlebar at two engine speeds representing the speed of 10km/h and 20km/h. The total magnitudes of vibrations (weighted W_h) transmitted to the hand from motorcycle handlebar were between 2 and 6.42m/s². Increasing the speed of the motorcycle engine decreased the vibration magnitude transmitted to the hand. The level of vibration exposure can be greater than the Daily Action Limit Value set by the European Directive 2002/44/EC if the motorcycle is used for more than 4.15 hours per day at the speed of 10km/h.

Keyword: Human vibration; Hand-arm vibration; Motorcycle; Handlebar; Hands