

Report of Subcommittee on Human Vibration

to

CAA Standards Committee

September 19, 2016

The subcommittee is harmonized with the Canadian Mirror Committee on ISO/TC 108/SC 4 "Human Exposure to Mechanical Vibration and Shock", and operates in parallel with TSC 4 "Occupational Vibration Control" of the CSA Technical Committee on Occupational Hearing Conservation S304. The subcommittee continues to direct its efforts in support of the development of international standards. In this role, members of the subcommittee serve as Convenors of two Working Groups (WG5 - Biodynamic Modeling, and WG8 - Vibrotactile Perception). The most recent meeting of ISO/TC 108/SC 4 was held in September, 2016. Progress on documents of interest to this committee is summarized below.

- 1) As previously reported, the basic standard on whole-body vibration (ISO 2631-1) is being revised with the goals of updating guidance and removing inconsistencies in the current document. The process is expected to take several years.
- 2) A Draft Technical Report (TR) containing a new frequency weighting for predicting the onset of vibration-induced white finger (DTR 18570 Mechanical vibration - Measurement and evaluation of human exposure to hand-transmitted vibration - Supplementary method for assessing the risk of vascular injury) has been approved for publication as a Technical Report.
- 3) An important amendment is being prepared for the anti-vibration glove standard (ISO 10819 Mechanical vibration and shock - Hand-arm vibration - Measurement and evaluation of the vibration transmissibility of gloves at the palm of the hand). The amendment will require anti-vibration gloves to comply with the provisions of EN 388, which contains general requirements for gloves (e.g., resistance to cuts), and will specify more clearly the maximum allowable gap between vibration-reducing materials attached to the palm and thumb. It is recommended that ISO 10819, together with the future amendment, be included in our omnibus standard.

The proposed addition to the Omnibus Standard is then as follows

ISO 10819:2013 Mechanical vibration and shock - Hand-arm vibration - Measurement and evaluation of the vibration transmissibility of gloves at the palm of the hand

This international standard specifies procedures for measuring the transmission of vibration to the palm of the hand when wearing gloves containing vibration-reducing materials in a controlled laboratory environment. Gloves that meet the requirements of this International Standard may be classified as anti-vibration gloves and will reduce hand-transmitted vibration at frequencies above 150 Hz. The vibration attenuation of a glove in use may differ from that measured according to the standard and can result in positive and negative health effects. Positive health effects are associated with gloves that reduce finger tingling and numbness as well as keeping the hands warm and dry. Negative health effects may be associated with gloves that require increased hand grip to control a vibrating hand-held machine or impede manipulative dexterity. An amendment to the standard considers other glove properties necessary to reduce health and safety risks in work environments, as well as the maximum allowable gap between vibration-reducing materials attached to the palm and thumb. It should be noted that glove transmissibility is measured at the palm of the hand and not at the fingers where there is evidence of vibration-induced pathology.

In related work, the Canadian Standards Association has commenced the process to adopt without modification three ISO standards:

ISO 5349-1:2001 Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration — Part 1: General requirements,

ISO 5349-2:2001 Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration — Part 2: Practical guidance for measurement at the workplace, as amended,

ISO 10819:2013 Mechanical vibration and shock — Hand-arm vibration — Method for the measurement and evaluation of the vibration transmissibility of gloves at the palm of the hand, and has requested advice on the suitability of adopting:

ISO 2631-1:1997 Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 1: General requirements, and

ISO 2631-2:2003 Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 2: Vibration in buildings (1 Hz to 80 Hz).

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