International

ISO 7176-21

Wheelchairs —

Part 21: Requirements and test methods for electromagnetic compatibility of electrically powered wheelchairs and scooters, and battery chargers

Fauteuils roulants —

Partie 21: Exigences et méthodes d'essai pour la compatibilité des fauteuils roulants électriques et scooters motorisés

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This document was prepared by Technical Committee ISO/TC 173, *Assistive products*, Subcommittee SC 1, *Wheelchairs*.

This third edition cancels and replaces the second edition (ISO 7176-21:2009), which has been technically revised.

The main changes are as follows:

— specification of immunity test levels according to the environments of intended use, categorized according to locations that are harmonized with IEC 60601-1-2;

— specification of tests and test levels to improve the safety of electrically powered wheelchairs and scooters, and battery chargers when portable RF communications equipment is used closer to the electrically powered wheelchairs and scooters, and battery chargers (based on the immunity test levels that were specified in IEC 60601-1-2:2014;

— addition of guidance on the maximum permissible change in steering servo position for various sized wheels;

— addition of guidance on determining maximum level of disturbances of actuators for powered wheelchairs and scooters.

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Electrically powered wheelchairs and their battery chargers are meant to operate without introducing significant electromagnetic disturbances into the environment and without significant degradation of operational performance in the presence of electromagnetic disturbances expected in normal use. Wheelchairs are often used near roads and therefore should be immune to radio frequency fields from both static and mobile communications equipment, as well as from other sources of electromagnetic disturbance. Injury can occur in the event of unintentional movement or change in direction of movement of a wheelchair.

This document specifies requirements and test methods for wheelchairs and their battery chargers to minimize the risks associated with their exposure to reasonably foreseeable electromagnetic interference and electrostatic discharge and with their production of electromagnetic fields that can impair the operation of other devices or equipment in their usual environment.

The upper frequency limit and test level for radiated radio frequency immunity requirements are selected according to the environment in which the wheelchair is used and the related risk. Hence the requirements for a wheelchair while it is driving are consistent with its use as a medical device, but the requirements for charging are consistent with use of the wheelchair and charger as domestic electrical equipment.