



MEETING LOG

SUBJECT: UL 8400 Technical Committee Meeting on Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) Technology Equipment

FY 24 OP PLAN ENTRY: Wearables

DATE OF MEETING: 10/9/2024

LOCATION OF MEETING: Virtual

CPSC STAFF FILING MEETING LOG: Stephen Harsanyi (ESHF)

FILING DATE: 10/16/2024

CPSC ATTENDEE(S): Jacqueline Campbell (EXHR), John Gordon (HSTR), Stephen Harsanyi (ESHF), and Suad Wanna-Nakamura (HSPP)

NON-CPSC ATTENDEE(S): Contact ULSE for attendee list.

Summary of Meeting:

The Technical Committee (TC) for UL 8400, *Standard for Safety, Virtual Reality, Augmented Reality, and Mixed Reality Technology Equipment*, convened to discuss: (1) ULSE's Gender Responsive Standards Initiative, and (2) CPSC's incident data associated with immersive technology.

- (1) *ULSE's Gender Responsive Standards Initiative.* Two attendees presented research, incident data, and technical opinions regarding the relationship between biological sex, gender, and virtual reality (VR) head-mounted displays (HMDs). The attendees asserted that sex and gender are not represented well in research on VR devices, and that the existing research shows meaningful differences between sexes and genders and their experience with VR. For example, the attendees stated that research shows that participants self-identifying as females typically have higher rates of visually-induced motion sickness and other discomfort (particularly oculomotor issues and disorientation). Other members vocalized health and safety considerations between biological males and biological females using immersive technologies, such as pertaining to the risk for neck injury and other biomechanical stress.
- (2) *CPSC Incident Data.* CPSC staff discussed immersive technology incident data from two databases: the National Electronic Injury Surveillance System (NEISS)¹ and the Consumer Product Safety Risk

¹ The NEISS data come from a representative probability sample of about 100 hospitals in the U.S. and its territories



Management System (CPSRMS).² Staff provided an overview of the types of complaints and injuries reported and the ages of the victims involved. Staff explained that the incident data demonstrate the importance of the following: addressing use of immersive technologies by children under 12 years of age, developing the biomechanical stress requirements in UL 8400 to better address neck injuries for vulnerable populations (such as children, women, and elderly), and strengthening the collision mitigation measures to reduce the likelihood and severity of collisions and falls. Regarding the latter, staff recommended incorporating object detection requirements. Staff also encouraged the TC to continue to develop the requirements for biocompatibility, such as to address the risk of inhaling toxic compounds. Additionally, staff referred to a July 2021 recall (21-768)³ associated with removable foam facial interfaces for a VR HMD. Staff explained that, at the time of the recall announcement, the Firm was aware of approximately 5,716 reports of skin irritation, 45 of which required medical attention. Furthermore, staff explained that the allergic reactions sometimes worsened days following exposure, eventually requiring medical intervention.

Next Steps:

ULSE is currently recirculating a proposed second edition of UL 8400 with comments due on October 28, 2024. The TC will continue to work on the standard and plans to schedule continued task group work on biocompatibility. The TC chair agreed with staff's other concerns (mentioned above), and staff anticipates continued development of those requirements as well.

² CPSRMS is the epidemiological database that houses all anecdotal reports of incidents received by CPSC, "external cause"-based death certificates purchased by CPSC, all in-depth investigations of these anecdotal reports, as well as investigations of select NEISS injuries. Examples of documents in CPSRMS include the following: hotline reports, Internet reports, news reports, medical examiner's reports, death certificates, retailer/manufacture reports, and documents sent by state/local authorities, among others.

³ See CPSC Recall 21-768: <https://www.cpsc.gov/Recalls/2021/Facebook-Technologies-Recalls-Removable-Foam-Facial-Interfaces-for-Oculus-Quest-2-Virtual-Reality-Headsets-Due-to-Skin-Irritation-Hazard-Recall-Alert>.