United States
Consumer Product Safety Commission

MEETING LOG

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

FY 23 OP PLAN ENTRY: Wearables

DATE OF MEETING: 09/13/2023

LOCATION OF MEETING: Virtual

CPSC STAFF FILING MEETING LOG: Stephen Harsanyi (ESHF)

FILING DATE: 09/15/2023

CPSC ATTENDEE(S): Treye Thomas (EXHR) and Stephen Harsanyi (ESHF)

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

Summary of Meeting:
Members of the Technical Committee (TC) for the UL 8400, *Standard for Safety, Virtual Reality, Augmented Reality and Mixed Reality Technology Equipment,* met in three consecutive task groups. The task groups pertain to the following topics for immersive technologies: skin compatibility, safety and warning instructions, and functional safety.

1. Skin Compatibility: CPSC staff presented recommendations for addressing skin compatibility concerns. Staff encouraged the task group to consider the following points, among others: a wider range of potential chemical exposures, novel products (*e.g.,* haptic suits and odor cartridges), and commonly recognized sources for disinfection (*e.g.,* UL 62368-1, the CPSC Federal Hazardous Substances Act, the Chronic Hazard Guidelines, and the Registration, Evaluation, Authorization and Restriction of Chemicals). Staff reviewed the Environmental Protection Agency's disinfection guidelines and explained the differences between sanitizers and disinfectants. Staff also raised concerns regarding the use of UV for disinfection, such as degradation of soft materials and limited efficacy. Other task group members stated that the proposed requirements are unnecessary (too stringent) for UL 8400 and that it should be left to the manufacturers to decide adequate cleaning procedures for their products because of the variability in use cases and the manufacturers' tolerance for risk. One member opined that, in general, cleaning instructions provided with products are centered on preventing damage to the product, as well as the cleaning agents lingering on the product. Another member supported staff's concerns for UV disinfection and recommended excluding it from approved cleaning agents/methods. Staff explained that one recall involving VR HMDs resulted in serious allergic reactions that grew worse several days after exposure. Staff emphasized concerns for chemical and biological exposure, such as associated with sweat and degradation of materials. Lastly, staff recommended that the risk assessment for skin compatibility should be mandatory rather than recommended, and that the related informative annex should be normative (required). The other task group members did not comment on these final recommendations, but agreed

that manufacturers should address the skin compatibility concerns relevant to their recommended cleaning procedures. The other task group members suggested that adding a section on biological hazards and cleaning should be proposed to the entire TC.

2. Safety and Warning Instructions: One member recommended removing language from the standard that he felt was obvious, redundant, and/or misleading. Among these changes, he recommended removing from the body of the standard the majority of the required safety messages that are already included in the related annex. CPSC staff raised concern that the safety messages would then be recommended rather than required, as the related annex is merely informative, and that this would lead to a reduction in safety. One member requested that the risk assessment must consider detrimental aftereffects from use of immersive technologies, such as harm to visual functioning; this point is currently just a recommendation, rather than requirement, in UL 8400 as it is stated in the informative annex. One member recommended that the section headed “vulnerable age groups” should instead be headed “vulnerable groups.” CPSC staff supported these requests. One member recommended removing the requirement that manufacturers must specify an age limit of 12 years or an older age (dependent on the risk assessment), and to modify the language of the age-related warning. He requested that manufacturers be able to determine appropriate ages under 12. CPSC staff and another member explained that the other requirements in the standard, such as pertaining biomechanical stress and visual development, do not adequately address use by children, especially those under 12.

3. Functional Safety: The task group chair proposed changing the section name from “functional safety” to “safety analysis.” He proposed several changes intended to make the requirements more inclusive for a wider variety of products and uses, and to harmonize UL 8400 with similar standards. He recommended adding an informative annex with examples for how to apply the applicable requirements in the specified related standards to immersive technologies. He also clarified requirements for remote patch management to better address how software updates can impact the safety of immersive technologies.

Next Steps:
The task groups will continue to work on their respective sections to improve the safety and clarity of UL 8400. The task groups plan to reconvene on Wednesday, September 27, 2023, from 11 AM to 12:30PM, ET. Other UL 8400 task groups (pertaining to age requirements, general requirements, IEC 62368 alignment, transmittance, and biomechanical stress) plan to convene on Wednesday, September 20, 2023, from 11 AM to 1:00 PM, ET. All of the abovementioned task groups plan to continue meeting bi-weekly until the next full TC meeting scheduled for Thursday, November 2, 2023, from 9 AM to 11 AM, ET.