|  |  |
| --- | --- |
| Project | **HMD based 3D Content Motion Sickness Reducing Technology**<<http://sites.ieee.org/sagroups-3079/> **>** |
| Title | **Propose to new PAR of the ‘Motion to Photon (MTP) Latency in Virtual Environments’** |
| DCN | **3079-20-0003-01-0000** |
| Date Submitted | **February 2, 2020** |
| Source(s) | **Lim, Hyun Kyoon** hlim@kriss.re.kr **(KRISS)****Choi, Dong Soo** soochoi@dau.ac.kr **(Dong-A University)** |
| Re: |  |
| Abstract | This document contains a proposal to create an IG (interest group) formation on the appropriate guide lines for the ‘Motion to Photon (MTP) Latency in Virtual Environments (VE)’ to reduce the cybersickness of user wearing HMD.  |
| Purpose | Virtual reality (VR) is already being applied in various fields and the number of users is also increasing regardless of age or gender. Some users are complaining of cybersickness when they experience the VR wearing head mounted device (HMD). However, it is hard to find a standard for reducing cybersickness in VR field. Therefore, the purpose is to present appropriate guide lines that are useful for applying to VR contents including screen motion parameters.  |
| Notice | This document is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein. |
| Release | The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE’s name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE’s sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that IEEE 802.21 may make this contribution public. |
| Patent Policy | The contributor is familiar with IEEE patent policy, as stated in [Section 6 of the IEEE-SA Standards Board bylaws](http://standards.ieee.org/guides/opman/sect6.html#6.3) <[http://standards.ieee.org/guides/bylaws/sect6-7.html#6](http://127.0.0.1:4664/cache?event_id=757737&schema_id=1&s=5X0vID10lu_E6yrIkWkNd4Wz2H8&q=hancock)> and in *Understanding Patent Issues During IEEE Standards Development* <http://standards.ieee.org/board/pat/faq.pdf> |

**PAR for a New IEEE Standard**

# Section 1

* 1. **Assigned Project Number**:

P3079.1

* 1. **Type of Document: *Standard, Recommended Practice, or Guide***

Standard

* 1. **Life Cycle: *Full Use or Trial Use***

Full Use.

# Section 2

**2.1 Project Title:**

Motion to Photon (MTP) Latency in Virtual Environments

# Section 3

**3.1 Working Group: Human Factor for Immersive Content**

**3.2 Sponsoring Society and Committee:** C/SAB

[A listing of Sponsor P&Ps and Sponsor Scopes is available at <https://development.standards.ieee.org/pub/view-sponsor-pnps>]

**3.3 Joint Sponsor:** (chosen from drop down menu)

If you are not adding a joint sponsor to this project, you may leave this field blank.

# Section 4

**4.1 Sponsor Balloting Information: *Individual or Entity***

Individual

**4.2 Expected Date of Submission of Draft to the IEEE-SA for Initial Sponsor Ballot**

**Month: Dec. Year: 2021**

**4.3 Projected Completion Date for Submittal to RevCom**

**Month: Oct. Year: 2022**

# Section 5

**5.1 Approximate number of people expected to be actively involved in the development of this project:**

30

* 1. **Scope of the proposed standard:**

This standard is intended to provide a standard guide line for virtual reality content aimed of providing database to reduce cybersickness cause by the motion to photon (MTP) latency in Virtual Environments. The scope of this standard includes specific requirements of contents and test methods. Among various features that are affecting the cybersickness, MTP related features are majorly collected and suggested in this standard.

* Content feature: speeds of scenes, resolution, fidelity, etc.
* Hardware feature: display types, rendering modes, head tracking methods, field of view, flicker, etc.
* Human factors: age, gender, prior experience, cybersickness susceptibility, duration, etc.

**5.3 Is the completion of this standard contingent upon the completion of another standard? No**

**5.4 Will this document contain a Purpose clause? No**

**5.5 Need for the project:**

Virtual reality has been introduced already for many years and heavily used in the various fields as well as video games. The users are getting increased regardless of age, gender, and cybersickness susceptibility even in hospitals to explain the strategy of their disease treatment process. Nevertheless, it is hard to find a standard for reducing cybersickness in VR field. Good guide lines regarding VR contents including screen motion parameters (rotation, motion axes, zoom in, zoom out speed, display range, etc.) would be useful to content developers to reduce cybersickness.

**5.6 Stakeholders for the standard:**

VR Content Designers, Developers, and Providers, Manufacturers, Constructors, Real-Estate Dealers, Medical Equipment Provider, Travel Businessman, etc.

# Section 6

**6.1 Intellectual Property:**

**A. Is the Sponsor aware of any copyright permissions needed for this project? *No***

**B. Is the Sponsor aware of possible registration activity related to this project? *No***

# Section 7

**7.1 Are there other standards or projects with a similar scope? *No***

**7.2 Joint Development - Is it the intent to develop this document jointly with another organization? *No***

**7.3 International Standards Activities**

**A. Adoptions - Is there potential for this standard to be adopted by another organization? *No***

**B. Harmonization - Are you aware of another organization that may be interested in portions of this document in their standardization development efforts? No**

**7.4 Does the sponsor foresee a longer term need for testing and/or certification services to assure conformity to the standard? *Yes***

**Additionally, is it anticipated that testing methodologies will be specified in the standard to assure consistency in evaluating conformance to the criteria specified in the standard? *No***

# Section 8

**8.1 Additional Explanatory Notes:**

**8.2 IEEE Code of Ethics**

**I acknowledge that I have read and I understand the** [**IEEE Code of Ethics**](http://www.ieee.org/portal/pages/iportals/aboutus/ethics/code.html)

**I agree to conduct myself in a manner that adheres to the IEEE Code of Ethics when engaged in official IEEE business.**