P3333.3 (New)

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Type of Project: New IEEE Standard

PAR Request Date: 10-Aug-2016
PAR Approval Date:
PAR Expiration Date:
Status: Unapproved PAR, PAR for a New IEEE Standard

1.1 Project Number:P3333.3
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title:
HMD based 3D Content Motion Sickness Reducing Technology

3.1 Working Group: Working Group of Technology for 3D Sickness protection based on HMD (C/SAB/P3333.3_WG)
Contact Information for Working Group Chair
Name: Dongil Seo
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None
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3.2 Sponsoring Society and Committee: IEEE Computer Society/Standards Activities Board (C/SAB)
Contact Information for Sponsor Chair
Name:
Email Address:
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Contact Information for Standards Representative
Name:
Email Address:
Phone:

4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: Dec / 2016
4.3 Projected Completion Date for Submittal to RevCom: Oct / 2018

5.1 Approximate number of people expected to be actively involved in the development of this project: 40

5.2 Scope: This standard is setting a technical guidance to resolve VR sickness caused by the visual mechanism set by the HMD based 3D content motion sickness through the study of:

visual response to the focal distortion
visual response to the lens materials
visual response to the lens refraction ratio
visual response to the frame rate

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: This document will not include a Purpose clause

5.5 Need for the Project: HMD based 3D content is being used in various fields such as games, medical, education and art through Mixed Reality (VR and AR included) technology. However, a motion sickness, known as a 3D sickness and considered as one of the most critical problems, has not been resolved even though it is highly utilized.
Major companies from various regions such as the United States, Europe, Japan, China and Taiwan are releasing many devices and commercializing them but the industrial expansion will reach its limit if this 3D sickness problem is not resolved.
To overcome this limit, we are suggesting a minimum guideline as a standard by studying some of the 3D sickness originating factors such as focal distortion, lens materials, lese refraction and frame rates per second.
Moreover, our attempt to resolve this 3D sickness problem will facilitate the development of HMD based 3D content and will influence the 3D content developers, service providers, HMD manufacturers, HMD based content service providers and 3D display panel manufacturers very positively in developing a healthy ecosystem.
Therefore, a standard to reduce the motion sickness caused by HMD based 3D content needs to be established in order to protect the user's health and safety and develop the ecosystem.

5.6 Stakeholders for Standards: 3D Content, **3D Games**, **3D Display Content**, **3D Educational Content**, **3D Movie Producers, 3D Monitors**, **3D Display Panel and 3D Device Manufacturers**;
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Intellectual Property
6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No
6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

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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

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8.1Additional Explanatory Notes (Item Number and Explanation):
In order to support this research, we need to collaborate with many International Experts. Technically, we also need a working group and a project related to this group. This project will be a technical sponsor that determines the importance of this technology standard problem. This project will be available world-wide so many industrial circles and academia are expected to participate.
In Korea, HMD based 3D content developers consider this 3D sickness as a serious problem and many research projects are being conducted to resolve this. Also, it is known that many global companies are conducting the same research.
When WG starts, this will open to everyone. We will encourage many companies related to MR, VR service as well as many R&D centers from academia to participate and expect them to join this project.
The main objective for this standard is to establish a minimum guideline that can create an environment for users to use the HMD based MR, VR service 3D content safely.
The variables this standard include focal distortion, lens materials, lens refraction and FPS. Also, the project will provide the minimum guideline for these variables.