

IEEE Standard for Head-Mounted Display (HMD)-Based Virtual Reality (VR) Sickness Reduction Technology

IEEE Computer Society

Developed by the
Standard Activities Board

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IEEE Standard for Head-Mounted Display (HMD)-Based Virtual Reality (VR) Sickness Reduction Technology

Developed by the

Standard Activities Board
of the
IEEE Computer Society

Approved 24 September 2020

IEEE SA Standards Board

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Abstract: Head-mounted display-based virtual reality sickness-reducing technology is defined.

Keywords: best practices for VR content design, measurement for motion-to-photon latency, network constraint for virtual reality (VR) sickness, VR sickness, VR sickness assessment, VR sickness assessment framework, VR sickness level

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Introduction

This introduction is not part of IEEE Std 3079™-2020, IEEE Standard for Head-Mounted Display (HMD)-Based Virtual Reality (VR) Sickness Reduction Technology.

This standard defines the HMD-based VR sickness reducing technology.

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IEEE Standard for Head-Mounted Display (HMD)-Based Virtual Reality (VR) Sickness Reduction Technology

1. Overview

1.1 Scope

This standard defines the technical requirements that can reduce or control the VR sickness caused by the HMD-based VR content service. Hence, the VR content service mentioned in this document is considered HMD-based VR content service by default unless otherwise mentioned. The requirements cover the followings:

- Content design for VR sickness reduction
- The framework for VR sickness assessment
- The measurement and the network requirements related to motion-to-photon latency for VR sickness reduction

1.2 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals *is required to*).^{1, 2}

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should* equals *is recommended that*).

The word *may* is used to indicate a course of action permissible within the limits of the standard (*may* equals *is permitted to*).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (*can* equals *is able to*).

¹The use of the word *must* is deprecated and cannot be used when stating mandatory requirements; *must* is used only to describe unavoidable situations.

²The use of *will* is deprecated and cannot be used when stating mandatory requirements; *will* is only used in statements of fact.