

P1918.1.1

Submitter Email: eckehard.steinbach@tum.de

Type of Project: New IEEE Standard

PAR Request Date: 27-Jul-2016

PAR Approval Date: 22-Sep-2016

PAR Expiration Date: 31-Dec-2020

Status: PAR for a New IEEE Standard

1.1 Project Number: P1918.1.1

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Haptic Codecs for the Tactile Internet

3.1 Working Group: Tactile Internet (COM/SDB/TI)

Contact Information for Working Group Chair

Name: Oliver Holland

Email Address: oliver.holland@ieee.org

Phone: +44 20 7848 1916

Contact Information for Working Group Vice-Chair

None

3.2 Sponsoring Society and Committee: IEEE Communications Society/Standards Development Board (COM/SDB)

Contact Information for Sponsor Chair

Name: Mehmet Ulema

Email Address: m.ulema@ieee.org

Phone: +1 732 957-0924

Contact Information for Standards Representative

Name: Mehmet Ulema

Email Address: m.ulema@ieee.org

Phone: +1 732 957-0924

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 07/2018

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 02/2019

5.1 Approximate number of people expected to be actively involved in the development of this project: 15

5.2 Scope: This standard defines haptic codecs for the Tactile Internet (TI). These codecs address TI application scenarios where the human is in the loop (i.e. teleoperation or remote touch applications) as well as scenarios that rely on machine remote control. The standard defines (perceptual) data reduction algorithms and schemes for both closed-loop (kinesthetic information exchange) and open-loop (tactile information exchange) communication. These codecs are designed such that they can be combined with stabilizing control and local communication architectures for time-delayed teleoperation. Further, the standard also specifies mechanisms and protocols for the exchange of the capabilities (e.g. workspace, the number of degrees of freedom, amplitude range, temporal and spatial resolution, etc.) of the haptic devices.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: This standard provides haptic codecs for the Tactile Internet enabling the interoperability of different haptic (kinesthetic and tactile) input and output devices. Such interoperability is necessary to achieve necessary market scale in the realization of Tactile Internet technologies, devices and applications.

5.5 Need for the Project: Tactile Internet applications require standardized haptic codecs that enable interoperability among multiple haptic interfaces. For closed-loop communication, the codecs need to be jointly designed with the control and local communications architecture required for time-delayed teleoperation. For open-loop communication, although the exchange of tactile information is less time critical, it is nevertheless essential to standardize codecs for the emerging tactile sensing and feedback devices (e.g. tactile displays, tactile gloves, etc.).

5.6 Stakeholders for the Standard: Manufacturers of haptic input and output devices, tele-X application providers (tele-surgery, tele-training, tele-rehabilitation, tele-mining, tele-robotics, etc.), and the gaming industry.

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

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

8.1 Additional Explanatory Notes: