 

IEEE P802.21 Media Independent Handover Services

Minutes of the IEEE P802.21 Working Group (DCN 21-17-0042-00)

Session #81 Meeting, Berlin, Germany

Chair: Subir Das

Vice Chair: Hyeong-Ho Lee

# Day 1 PM1 (1:30pm-3:30pm), July 10, 2017: Room Cannes (Lobby Level)

## IEEE 802.21 WG Opening Plenary: Meeting is called to order at 1:30pm by Subir Das, Chair of IEEE 802.21 WG with opening notes

## July, 2017 Meeting Agenda (DCN: 21-17-0028-00-0000-session-81-agenda)

### Agenda bashing:

#### Agenda was approved without any objection.

## IEEE 802.21 Session #81 Opening Plenary Notes (21-17-0035-00-0000)

### Meeting logistics: Meeting room except Day 2 PM2: Room Cannes (Lobby Level).

**Meeting room on Day 2 PM2: 30212 (2nd level).**

### <http://mentor.ieee.org/802.21/documents>

### Attendance procedures, logistics, breaks

### Duty to inform slides 1-4, etc.

### Request to make Intellectual Property declaration

#### No one declared any patent claims in this session

### LMSC Chair’s Guidelines on Commercialism at meetings

## Working Group Status

### 802.21m and 802.21.1 projects were completed, and both standards were published in April 2017

#### IEEE Std 802.21-2017 was published on April 28, 2017.

#### IEEE Std 802.21.1-2017 was published on April 7, 2017.

### IEEE 802.21-2017/Cor1 PAR was approved on June, 2017 and WG Letter Ballot (LB#12) was started on June 15, 2017.

#### WG Letter Ballot will finish on July 14, 2017.

### ISO/IEC JTC1/SC6 ballots for IEEE Std 802.21-2017 and IEEE Std 802.21.1-2017.

#### 60-day pre-ballots finished on July 10, 2017

### Remaining Work

#### ISO/IEC SC6/JTC1 60-day pre-ballot results

#### Approval: Canada, Japan, Korea, UK, USA

#### Disapproval: China

#### Abstain: Other national bodies

#### A response to China NB comments will be prepared.

#### IEEE 802.21-2017/Cor1 WG Letter Ballot Results

#### The result will be announced in July 14, 2017.

#### Sponsor ballot group formation process has been initiated.

#### The P802.21 WG chair will request either conditional or unconditional approval for forwarding the draft to Sponsor Ballot in July IEEE 802 EC closing Plenary meeting.

## Working Group Objectives for July meeting

### Work on

#### Presentation on Network requirement on AR/VR

#### Discussion on IEEE P3333.3 Liaison Letter

#### The results of ISO/IEC SC6/JTC1 60-day pre-ballot

#### The results of IEEE 802.21/Cor1 WG Letter ballot

#### Sponsor Ballot request for IEEE 802.21-2017/Cor1

## Session #80 minutes (DCN: 21-17-0025-00-0000) and Teleconference minutes (DCN: 21-17-0026-00-0000) were approved without any objections.

## WG Chair presented a tutorial on the IEEE 802.21 technology for new attendees.

## Certificate of Appreciation for IEEE P802.21m and IEEE P802.21.1 were awarded to the officers and the major contributors.

## Meeting adjourned at 3:40pm

# DAY 2 AM2 (10:30am-12:30pm), PM2 (4:00pm-6:00pm), July 11, 2017: Room Cannes (Lobby Level) and 30212 (2nd Level)

## Meeting is called to order at 10:30am by Subir Das, Chair of IEEE 802.21 WG

## Discussion on Network Requirement for HMD based VR Service

#### Sangkwon Peter Jeong presented “Network Requirement for HMD based VR Service” (DCN 21-17-0030-00-0000).

#### Wireless HMD based VR content service would require 18 Gbps data transfer rate without data compression. It would require 1 Gbps data transfer rate even if data compression is applied.

#### Data transfer rate is important requirement. Other requirements are latency and fps.

#### The P802.21 WG chair encourages to improve the contribution by adding following sections.

#### Requirement for purely VR service.

#### Available technology for the requirements.

#### Gap analysis to satisfy the requirements.

## Discussion on Network Requirement according to compression CODEC for 4K UHD Service

#### HyeonWoo Nam presented “Network Requirement according to compression CODEC for 4K UHD Service” (DCN: 21-17-0032-0000 and DCN: 21-17-0034-0000).

#### Available compression codecs for 4K contents are introduced.

#### H.264 cannot provide 90 fps which is a recommended fps for VR contents service.

#### H.265 may be sufficient for VR contents service.

#### Handover may cause an encoding problem and decoding problem.

#### The P802.21 WG members discussed following topics.

#### What is an issue caused by handover?

#### Link speeds between networks before and after handover may be different. It may cause a VR motion sickness.

#### What is a use case that handover is required.

#### The data transfer rate decreases when number of nodes increases that are using the same access point for a wireless VR content service, load balancing by a handover could be one of the possible solutions.

#### When a node uses wireless VR content service in a bullet train, a handover between access points is definitely required.

#### What is essential part of the compressed contents delivered via network?

#### All fragmented data is needed for decoding. Movie Header is important to reconstruct the packet

## Discussion on Bandwidth and Latency Requirements for Virtual Reality

* + - * + Sangkwon Peter Jeong presented “Bandwidth and Latency Requirements for Virtual Reality” (DCN: 21-17-0033-0000).

Quality requirements announced by Technicolor, Oct. 2016 was introduced. It is high level requirements, so some of the requirements cannot be satisfied by the current technologies.

Required bitrate based on the experimental result by Eun-Seok Ryu (Gachon University) was presented.

## Invitation for IEEE P3333.3 Network TG

#### Dongil Dillon Seo presented “Invitation for IEEE P3333.3 Network TG” (DCN: 21-17-0029-0000).

#### Schedule and agenda of next P3333.3 meeting was introduced.

#### WG members discussed next step.

#### It was proposed to create an Interest Group in IEEE 802.21 WG, the purpose of which will be to investigate and understand the issues related to networking aspect of VR HMD based 3D Content Motion Sickness.

#### The P802.21 WG chair suggested to make a white paper for requirements of wireless VR service targeting the November meeting.

## Meeting adjourned at 06:00pm

# DAY 3 AM2 (10:30am-12:30pm), PM1 (1:30pm-3:30pm), July 12, 2017: Room Cannes (Lobby Level)

## Meeting is called to order at 10:30am by Subir Das, Chair of IEEE 802.21 WG

## Discussion on ISO/IEC JTC1/SC6 60-day Pre-ballot results

#### The P802.21 WG Chair reported the result.

#### 60-day pre-ballots for IEEE 802.21-2017 is passed. (Yes/No/Abstain = 5/1/12)

#### 60-day pre-ballots for IEEE 802.21.1-2017 is passed. (Yes/No/Abstain = 5/1/12)

#### Only negative vote was from China NB with the usual comment on IEEE 802.1X-2010.

#### The P802.21 WG members reviewed “Response to ISO/IEC JTC1/SC6 comments” (DCN: 21-17-0036-00-0000).

* + - * + **WG Motions (Full details are available in 21-17-0039-00-0000)**: Motion to authorize the P802.21 WG Chair to obtain IEEE 802 EC approval to forward the comment responses in < https://mentor.ieee.org/802.21/dcn/17/21-17-0036-00-0000-response-to-iso-iec-jtc1-sc6-comments.docx > to ISO/IEC JTC1/SC6, as the reply letter to the comments received on the recent 60 day ballots on IEEE Std 802.21-2017 and IEEE Std 802.21.1-2017

#### Motion passed (7/0/0)

## Discussion on the liaison letter from IEEE P3333.3.

#### Sangkwon Peter Jeong was assigned a liaison person between IEEE P3333.3 WG and IEEEE P802.21 WG.

#### Dillon Seo presented “Liaison-letter-to-IEEE-802-21” (DCN: 21-17-0021-00-0000).

#### Discussions on next step.

#### Requirements and gaps for network aspect of HMD based VR service should be clear.

#### The P802.21 WG chair proposed to make a white paper by November 2017. The P802.21 WG chair plans on providing a table of contents of the white paper.

#### The P802.21 WG members will review a response for the liaison letter in AM2 session on July 13th.

## Meeting adjourned at 03:00pm

# Day 4 AM2 (10:30am-12:30pm), July 13, 2017: Room Cannes (Lobby Level)

## 802.21 WG Closing Plenary: Meeting is called to order at 10:40am by Subir Das, Chair of IEEE 802.21WG

## WG reviewed Response to P3333.3 Liaison Letter from IEEE 802.21 WG (DCN: 21-17-0038-00-0000).

## IEEE 802.21 Session #81 Closing Plenary Report (DCN: 21-17-0039-00-0000)

## Work Update

#### Met with ISO/IEC JTC1/SC6 and developed the response to ISO/IEC JTC1/SC6 comments for EC approval.

#### <https://mentor.ieee.org/802.21/dcn/17/21-17-0037-00-0000-ec-consent-agenda-for-july-plenary.pptx>

#### Presentation on P3333.3 activities

#### <https://mentor.ieee.org/802.21/dcn/17/21-17-0030-00-0000-network-requirement-for-hmd-based-vr-service.docx>

#### <https://mentor.ieee.org/802.21/dcn/17/21-17-0032-00-0000-network-requirement-according-to-compression-codec-for-4k-uhd-service.docx>

#### <https://mentor.ieee.org/802.21/dcn/17/21-17-0034-00-0000-presentation-of-network-requirement-according-to-compression-codec-for-4k-uhd-service.pptx>

#### <https://mentor.ieee.org/802.21/dcn/17/21-17-0033-00-0000-bandwidth-and-latency-requirements-for-virtual-reality.pptx>

#### Discussed IEEE P3333.3 liaison letter and prepared the response

#### <https://mentor.ieee.org/802.21/dcn/17/21-17-0038-00-0000-response-to-ieee-p3333-3-liaison-letter.docx>

#### Report on ECHONet Lite

* + None

## Discussion on conditional/unconditional approval for Sponsor ballot

#### The IEEE P802.21-2017/Cor1 D01 shall be updated to resolve MEC review comments from IEEE-SA editor before initiating the sponsor ballot.

## WG Motions (Full details are available in 21-17-0039-00-0000)

##### Move to authorize the P802.21 WG Chair to make a motion to the IEEE 802 Executive Committee for unconditional or conditional approval to forward the IEEE P802.21-2017/Cor1 Draft (D01/D02) for Sponsor Ballot. (7/0/0)

##### Move to authorize the P802.21 WG Chair to send the liaison letter response to IEEE P3333.3 (granting editorial license) (7/0/0)

##### Move to authorize the P802.21 WG Chair to obtain IEEE 802 EC approval to forward the comment responses (DCN: 21-17-0036-00-0000) to ISO/IEC JTC1/SC6, as responses to the comments received on the recent 60 day ballots on IEEE Std 802.21-2017 and IEEE Std 802.21.1-2017. (7/0/0)

## Teleconferences

#### Monday, August 21, 2017, 7:00-8:00 am, US EDT

#### Thursday, August 31, 2017, 9:00-10:00 pm, US EDT

## Future Sessions – 2017

### Interim: September 10-15, 2017, Hilton Waikoloa Village, Kona, HI, USA

* + Co-located with all 802 wireless groups

### Plenary: November 5-10, 2017, Caribe Hotel and Convention Center, Orlando, FL, USA

* + Co-located with all 802 groups

## September 2017 Interim Meeting Logistics

### IEEE 802 Wireless Interim Meeting, September 11-15, 2017

* + Meeting Venue: Hilton Waikoloa Village, 69-425 Beach Drive, Waikoloa, Hawaii, USA
  + Event Information & Registration: http://802world.org/wireless/
  + Early Registration and Hotel Reservation Deadline July 28, 2017

### Registration Fees and Deadlines

* + Early Registration
    - $US 650.00 for attendees staying at the Hilton Waikoloa (3 Night Minimum)
    - $US 950.00 for all others (including local attendees not staying at the group hotel)
    - Deadline: 6:00 PM Pacific Time, Friday, July 28, 2017
  + Standard Registration
    - $US 850.00 for attendees staying at the Hilton Waikoloa (3 Night Minimum)
    - $US 1150.00 for all others (including local attendees not staying at the group hotel)
    - Deadline: 6:00 PM Pacific Time, Friday, September 1, 2017
  + Late/On-site Registration
    - $US 1050.00 for attendees staying at the Hilton Waikoloa (3 Night Minimum)
    - $US 1350.00 for all others (including local attendees not staying at the group hotel)
  + Refund Deadlines
    - Full Refund: 6:00 PM Pacific Time Friday July 28, 2017
    - $US 150.00 Cancellation Fee: 6:00 PM Pacific Time September 1, 2017
    - No Refund: After 6:00 PM Pacific Time Friday September 1, 2017

### IEEE 802 Hotel Room Rate

* + $US 175.00/Night (plus applicable taxes)
  + Single/Double Occupancy Run of House Rooms, Internet access included.
  + Cancellation Policy: No Penalty if cancelled by 6:00 PM Hawaii Time on the day prior to scheduled arrival.
  + Cut Off Date - 6:00 PM Hawaii Time, Friday August 11, 2017

## Future Sessions – 2018

### Interim: January 15-20, 2018, Hotel Irvine, Los Angeles, CA, USA

* + Co-located with all 802 groups

### Plenary: March 04-09, 2018, Hyatt Regency O’Hare, Rosemont, Illinois, USA

* + Co-located with all 802 groups

### Interim: May 06-11, 2018, Marriott, Warsaw (TBC), Poland

* + Co-located with all wireless groups

### Plenary: July 8-13, 2018, Manchester Grand Hyatt, San Diego, CA, USA

* + Co-located with all 802 groups

### Interim: September 09-14, 2018, Hilton Waikoloa Village, Kona, HI, USA, 802 Wireless Interim Session.

* + Co-located with all 802 wireless groups

### Plenary: November 11-16, 2017, Marriott Marquis Queen’s Park, Bangkok, Thailand

* + Co-located with all 802 groups

## The meeting was adjourned at 12:05am

# Attendance

|  |  |
| --- | --- |
| Das Subir | Vencore Labs |
| Goldberg Jonathan | IEEE-SA Manager |
| Hanatani Yoshikazu | Toshiba Corporation |
| Jeong Jinho | Flexcoa |
| Jeong Sangkwon Peter | JoyFun Inc. |
| Lee Hyeong-Ho | ETRI |
| Nam Hyeonwoo | Dongduk Women’s University |
| Seo Dongil Dillon | VoleR Creative |
| Sewankambo Kaggwa Irene | Uganda Communications Commission |
| Shimizu Yusuke | Panasonic Corporation |
| Takazoe Tomoki | Panasonic Corporation |