

MINUTES

MEETING NAME WG-32

MEETING PLACE/DIAL IN Via Zoom

DATE & TIME Thursday 20 January 2021
10:00 – 11:00 US ET

PRESIDING OFFICERS Jonathan J. Halford, Medical University of South Carolina, User Co-Chair
 Andrew Ehrenberg, Nihon Kohden Corporation, Vendor Co-Chair

IFCN SECRETARIAT Wendy Wallace

DICOM SECRETARIAT Carolyn Hull

| Present | First Name | Last Name | Organization | Voting Status |
|---------|------------|--------------------------|--|---------------|
| | Emmanuel | Cordonnier | b<>com | Voting |
| | Kevin | O'Donnell | Canon Medical Research USA, Inc. | Voting |
| | Felix | Rosenow M.D. | DGKN (German Society of Clinical Neurophysiology and Functional Imaging) | Voting |
| Present | Jan | Remi | Ludwig-Maximilians-University of Munich | Voting |
| Present | Ben | Brinkmann | Mayo Clinic | Voting |
| Present | Jonathan | Halford | Medical University of South Carolina | Voting |
| | Carolyn | Hull | MITA | Voting |
| Present | Andrew | Ehrenberg | Nihon Kohden Corporation | Voting |
| | Alan | Huang | Philips | Voting |
| | Wim | Corbijn van Willenswaard | Philips | Alt. Voting |
| | Jeroen | Medema | Philips | Alt. Voting |
| | David | Clunie | PixelMed Publishing | Voting |
| Present | Silvia | Winkler | Sigma Software Solutions | Voting |
| Present | Franz | Fürbass | AIT Austrian Institute of Technology GmbH | Observer |
| Present | Catherine | Lamoureux | Association Innovation and Management, Inc (AIM) | Observer |
| | Carol | Freysinger | Association Innovation and Management, Inc (AIM) | Observer |
| Present | Wendy | Wallace | Association Innovation and Management, Inc (AIM) | Observer |
| | Ana | Alves | CortexXus Inc. | Observer |

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|---------|-----------------|--------------|--|----------|
| | David | Alves | CortexXus Inc. | Observer |
| | Babak | Razavi | CortexXus Inc. | Observer |
| Present | Matt | Stead | Dark Horse Neuro, Inc. | Observer |
| | Ignacio Ramírez | Paulino | Facultad de Ingeniería - Universidad de la República | Observer |
| | Sandor | Benizcky | Filadelfia | Observer |
| | Gardar | Thorvardsson | Kvikna / Stratus EEG | Observer |
| | Richard | Moberg | Moberg Research, Inc. | Observer |
| | Adewole | Oyalowo | Moberg Research, Inc. | Observer |
| Present | Jean | Gotman | Montreal Neurological Institute, McGill University | Observer |
| Present | Casey | Stengel | Neuralynx | Observer |
| | Bill | Antilla | Nihon Kohden Corporation | Observer |
| | Ryuzo | Mase | Nihon Kohden Corporation | Observer |
| | Koichiro | Matsumoto | Nihon Kohden Corporation | Observer |
| | Pedro Fernando | Arizpe Gomez | OFFIS e. V. | Observer |
| | Sébastien | Jodogne | Orthanc Labs | Observer |
| | Andrey | Pirozhenko | Persyst | Observer |
| Present | Shane | Ponzikoff | Persyst | Observer |
| | Uwe | Tronnier | University of Applied Science and CSImed UG | Observer |
| Present | Stefan | Rampp | University Klinikum Erlangen | Observer |
| | Dagmar | Krefting | University Medical Center Göttingen | Observer |
| Present | Marco | | | Observer |
| Present | Gloria | Menegaz | Italy | Observer |
| | Matan | Oppenheim | Zebra Medical Vision | Observer |

1 CALL TO ORDER AND REVIEW OF ANTI-TRUST RULES AND DICOM PATENT POLICY

The meeting was called to order at 10:02 AM. Participants were reminded that the [Guidelines for Conducting NEMA Meetings](#) and Patent Disclosure Policy are in effect and they may be found here: <https://www.dicomstandard.org/patent>.

2 WELCOME/ATTENDANCE/INTRODUCTION

Attendance was taken.

3 REVIEW AND APPROVE AGENDA

The agenda was reviewed and approved.

4 REVIEW MINUTES

The minutes of the 16 December 2021 meeting were reviewed and approved.

5 OLD BUSINESS

- Topic: DICOM WG32 session at the ICCN 2022 September 4-8 in Geneva, Switzerland.
Jon H. - Is there anything needed for the Symposium session at this time?
Catherine L. indicated that a title and chairperson would be helpful.
Jon Halford will serve as the Chairperson and will send a title.

- Topic: Correction Proposal for filtering and montaging
Silvia W. provided an update on the current status for the correction proposal for the filtering and montaging. It was discussed at the last WG-6 meeting in 2nd week of January. The document for waveform filters passed to the next step, which is the voting pack at the March WG-6 meeting. This phase is open for public comment where all members of WG-6 review the correction proposal. WG-32 will be advised if there is further need for discussion and if not, it will go to the letter ballot period. That is a second phase of review. After the letter ballot phase, it becomes final text which means it is an official part of the standard and is incorporated into part of DICOM standard.

- Topic: Supplement for Waveform display update:
Silvia W. reported that there has been little progress as it is just getting started. Stefan Rampp provided some sample montage data which will be helpful to get good understanding and there should be more to report at the next meeting.

6 NEW BUSINESS

- Topic: Integrating components of the MED format into DICOM for the LTM and Intercranial EEG IOD.
Jon screen-shared the document and Matt Stead presented the schematic to group.
See the schematic in the Addendum to WG-32-2021-1-20 minutes.

What is MED? Multiscale Electrophysiology Data format designed for large scale neurophysiology data, long-term recording. Designed to deal with large data sets. Can be stored across multiple volumes if necessary. It is open source and details can be found at www.medformat.org. Has been around for 20 years and Mayo Minnesota stores all its EEG and other neurophysiology data in this format, since it is built for large scale recordings.

Various discussion points followed:

- In DICOM world, rarely do you find anything that is a single file. Wonder if multi-channel approach on the right could be used for everything?

- Working on the assumption that DICOM committee would prefer to approve a single file SOP. It is agreed that that is not practical for files in the terabyte size range.
- Multichannel version on the right would work for any data set. Other version is a preference to try to keep everything in a small number of files.
- Small group discussed how to integrate this into DICOM and how to make some sort of transfer syntax for this MED format. MED is strictly file based, DICOM is not file based at all, just provides on mechanism to also store instances in files. DICOM supports their mechanism to encapsulate it somehow in coded data (could be compressed images or video for example) or could be MED encoded data. Benefits from the MED would be the capability to deal with large recordings and compression and introduce this to Wave Form sub-classes.
- Other significant benefits with MED: the compression is the best and it allows for encryption of data as it is compressed with two different levels which offers data protection can be accessed and controlled separately from the analog data. This opens up the ability to share data for research and a wider use for putting the data up on the cloud for collaboration.

Silvia Winkler proposed to continue the discussion about how to proceed with these special sorts of recordings and whether or not to use compression in next meeting.

- Topic: Austrian Research Projects – Franz Furbass and Silvia Winkler
Franz and Silvia shared slides and information about some Austrian research projects that are underway. *Please see the slides in the Addendum to WG-32-2021-1-20 minutes.*

Relevant information for Working Group 32: Planning to submit an abstract for an oral presentation for DICOM and EEG. For the DICOM EEG implementation that is already in place in Vienna and we are submitting this abstract for the EEC Congress (European Epilepsy Congress) which takes place in July 2022 in Geneva.

Follow up questions and discussion followed. Are there manufacturers interested? Would it be worthwhile to design a campaign to educate manufacturers about it, apart from featuring at upcoming conferences?

These are questions to be discussed at a future meeting.

7 DATE AND TIME OF NEXT MEETINGS

- **Thursday 17 February 2022 10:00-11:00am US ET**
- **Thursday 17 March 2022 10:00-11:00am US ET**
- **Thursday 21 April 2022 10:00-11:00am US ET**

There being no further business, the meeting was adjourned at 11:04 AM.

NEMALINK CODE

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SUBMITTED BY

Wallace, Wendy

SUBMITTED ON

3/2/2022

LEGAL APPROVAL

3/14/2022

UPLOAD LOCATION

Enter upload location.