

IEEE ComSoc Society Radio Communications Committee (RCC)

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Vice-Chair: Jemin Lee
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Minutes for the meeting held on December 12, 2019 IEEE Globecom 2019, Waikoloa, HI, USA

1. Introduction

The Committee Vice-Chair Jemin Lee opened the Radio Communications Committee (RCC) meeting at 12:00 pm. There were 18 members present (2 members attended the meeting remotely), and a list of participants is attached at the end of these minutes together with some photos. The Vice-Chair first presented the agenda:

1. Welcome
2. Approval of Agenda
3. Approval of ICC'19 RCC Meeting Minutes (available on the website)
4. Report on Conference/Workshop activities
5. Standardization Activities
6. New Business Items
7. Invited talk: Dr. Andreas Molisch "Channel Measurements for Beyond 5G: Faster, higher, denser"
8. Next RCC Meeting
9. Adjourn

2. Approval of the Agenda

The agenda was approved.

3. Approval of IEEE ICC 2019 RCC Meeting Minutes

The minutes (circulated via RCC website) were approved.

4. Report on Conference/Workshops activities

Reports on the RCC sponsored conferences/workshops are available in the slides downloadable from the RCC website. Conferences/workshops and corresponding RCC representatives are listed below (see slides for details):

- **ICC 2019:** Julian Cheng (WC)
- **GLOBECOM 2019:** Enrico Paolini (CT), Fauzi Bader (CR)
- **ICC 2020:** Mark Flanagan (CT), Yuan Shen (WC)
- **GLOBECOM 2020:** Julian Cheng (CR-AI), Marco Chiani (CT), Jemin Lee (SPC), Dania Marabissi (SPC)
- **ICC 2021:** Norman Beaulieu (WC), Hesham Elsayy (MWN)

5. Report on Standard Activities

ComSoc Standards Board Technical Committee Liaisons Report

The RCC representative, *Dr. George Chrisikos*, prepared slides to report on standards activity. The ComSoc Standards Board (SB) objective is the discussion of IEEE/ComSoc standards development projects, new standardization initiatives, procedures, operational issues, and in partnership with the IEEE-SA Standards Board.

IEEE Communications Society (ComSoc) Standards Development Board (SDB)

- **Approved standards:**
 - IEEE 661-1979: IEEE Standard Method for Determining Objective Loudness Ratings of Telephone Connections
 - IEEE 1902.1-2009: IEEE Standard for Long Wavelength Wireless Network Protocol
 - IEEE 1329-2010: IEEE Standard Method for Measuring Transmission Performance of Speakerphones
 - IEEE 269-2010: IEEE Standard Methods for Measuring Transmission Performance of Analog and Digital Telephone Sets, Handsets, and Headsets
 - IEEE 269a-2012: IEEE Standard Methods for Measuring Transmission Performance of Analog and Digital Telephone Sets, Handsets, and Headsets – Amendment 1
 - IEEE 1652-2016: IEEE Standard for Translating Head and Torso Simulator Measurements from Eardrum to Other Acoustic Reference Points
- **Active projects:**
 - P269: Standard for Measuring Electroacoustic Performance of Communication Devices
 - P2784: Guide for the Technology and Process Framework for Planning a Smart City

Dynamic Spectrum Access Networks Standards Committee (DySPAN-SC)

- **Approved standards:**
 - IEEE 1900.1-2008: IEEE Standard Definitions and Concepts for Dynamic Spectrum Access: Terminology Relating to Emerging Wireless Networks, System Functionality, and Spectrum Management
 - IEEE 1900.2-2008: IEEE Recommended Practice for the Analysis of In-Band and Adjacent Band Interference and Coexistence Between Radio Systems
 - IEEE 1900.4-2009: IEEE Standard for Architectural Building Blocks Enabling Network-Device Distributed Decision Making for Optimized Radio Resource Usage in Heterogeneous Wireless Access Networks

- IEEE 1900.4a-2011: IEEE Standard for Architectural Building Blocks Enabling Network-Device Distributed Decision Making for Optimized Radio Resource Usage in Heterogeneous Wireless Access Networks Amendment 1: Architecture and Interfaces for Dynamic Spectrum Access Networks in White Space Frequency Bands
 - IEEE 1900.5-2011: IEEE Standard for Policy Language Requirements and System Architectures for Dynamic Spectrum Access Systems
 - IEEE 1900.6-2011: IEEE Standard for Spectrum Sensing Interfaces and Data Structures for Dynamic Spectrum Access and Other Advanced Radio Communication Systems
 - IEEE 1900.1a-2012: IEEE Standard Definitions and Concepts for Dynamic Spectrum Access: Terminology Relating to Emerging Wireless Networks, System Functionality, and Spectrum Management Amendment 1: Addition of New Terms and Associated Definitions
 - IEEE 1900.4.1-2013: IEEE Standard for Interfaces and Protocols Enabling Distributed Decision Making for Optimized Radio Resource Usage in Heterogeneous Wireless Networks
 - IEEE 1900.6a-2014: IEEE Standard for Spectrum Sensing Interfaces and Data Structures for Dynamic Spectrum Access and Other Advanced Radio Communication Systems – Amendment 1: Procedures, Protocols, and Data Archive Enhanced Interfaces
 - IEEE 1900.6-2011/Cor 1-2015: IEEE Standard for Spectrum Sensing Interfaces and Data Structures for Dynamic Spectrum Access and Other Advanced Radio Communication Systems – Corrigendum 1
 - IEEE 1900.7-2015: IEEE Standard for Radio Interface for White Space Dynamic Spectrum Access Radio Systems Supporting Fixed and Mobile Operation
 - IEEE 1900.5.2-2017: IEEE Approved Draft Standard Method for Modeling Spectrum Consumption
- **Active projects:**
 - P1900.1: Standard Definitions and Concepts for Dynamic Spectrum Access: Terminology Relating to Emerging Wireless Networks, System Functionality, and Spectrum Management
 - P1900.5.1: Standard Policy Language for Dynamic Spectrum Access Systems
 - P1900.6b: Standard for Spectrum Sensing Interfaces and Data Structures for Dynamic Spectrum Access and other Advanced Radio Communication Systems. Spectrum Database Interfaces Amendment.

Power Line Communication Standards Committee (PLC-SC)

- **Approved standards:**
 - IEEE 1775-2010: IEEE Standard for Power Line Communication Equipment – Electromagnetic Compatibility (EMC) Requirements – Testing and Measurement Methods – co-sponsored with the IEEE Power and Energy Society (PES) Power System Communications Committee (PSCC)
 - IEEE 1901-2010: IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications
 - IEEE 1901.2-2013: IEEE Standard for Low Frequency (less than 500 kHz) Narrow Band Power Line Communications for Smart Grid Applications
 - IEEE 1905.1-2013: IEEE Standard for a Convergent Digital Home Network for Heterogeneous Technologies
 - IEEE 2030.5-2013: IEEE Adoption of Smart Energy Profile 2.0 Application Protocol Standard
 - IEEE 1905.1a-2014: IEEE Standard for a Convergent Digital Home Network for Heterogeneous Technologies Amendment 1: Support of New MAC/PHYs and Enhancements
 - IEEE 1909.1-2014: IEEE Recommended Practice for Smart Grid Communications Equipment — Test Methods and Installation Requirements
 - IEEE 1901.2a-2015: IEEE Standard for Low-Frequency (less than 500 kHz) Narrowband Power Line Communications for Smart Grid Applications – Amendment 1.

- **Active projects:**
 - P2030.5: Standard for Smart Energy Profile Application Protocol
 - P1901.1: Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications
 - P1901.1.1: Standard Test Procedures for IEEE 1901.1 Standard for Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications

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 - IEEE 1901.2-2013: IEEE Standard for Low Frequency (less than 500 kHz) Narrow Band Power Line Communications for Smart Grid Applications
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 - IEEE 1905.1a-2014: IEEE Standard for a Convergent Digital Home Network for Heterogeneous Technologies Amendment 1: Support of New MAC/PHYs and Enhancements
 - IEEE 1909.1-2014: IEEE Recommended Practice for Smart Grid Communications Equipment — Test Methods and Installation Requirements
 - IEEE 1901.2a-2015: IEEE Standard for Low-Frequency (less than 500 kHz) Narrowband Power Line Communications for Smart Grid Applications – Amendment 1
- **Active projects:**
 - P2030.5: Standard for Smart Energy Profile Application Protocol
 - P1901.1: Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications
 - P1901.1.1: Standard Test Procedures for IEEE 1901.1 Standard for Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications

Virtualized and Software Defined Networks and Services Standards Committee (NetSoft-SC)

- **Approved standards:**
 - IEEE 1903-2011: IEEE Standard for the Functional Architecture of Next Generation Service Overlay Networks (NGSON)
 - IEEE 1903.1-2017: IEEE Approved Draft Standard for Content Delivery Protocols of Next Generation Service Overlay Network
 - IEEE 1903.2-2017: IEEE Approved Draft Standard for Service Composition Protocols of Next Generation Service Overlay Network (NGSON)
 - IEEE 1903.3-2017: IEEE Approved Draft Standard for Self-Organizing Management Protocols of Next Generation Service Overlay Network
- **Active Projects:**
 - P1913: Software-Defined Quantum Communication
 - P1915.1: Standard for Software Defined Networking and Network Function Virtualization Security

- P1916.1: Standard for Software Defined Networking and Network Function Virtualization Performance
- P1917.1: Standard for Software Defined Networking and Network Function Virtualization Reliability
- P1921.1: Software-Defined Networking (SDN) Bootstrapping Procedures
- P1930.1: Recommended Practice for Software Defined Networking (SDN) based Middleware for Control and Management of Wireless Networks

Green ICT Standards Committee (GreenICT-SC)

- **Active Projects:**

- P1922.1: A method for calculating anticipated emissions caused by virtual machine migration and placement
- P1922.2: A method to calculate near real-time emissions of information and communication technology infrastructure
- P1923.1: Computation of energy efficiency upper bound for apparatus processing communication signal waveforms
- P1924.1: Recommended practice for developing energy efficient power-proportional digital architectures
- P1925.1: Energy Efficient Dynamic Line Rate Transmission System
- P1926.1: A Functional Architecture of Distributed Energy Efficient Big Data Processing
- P1927.1: Services Provided by the Energy-efficient Orchestration and Management of Virtualized Distributed Data Centers Interconnected by a Virtualized Network
- P1928.1: A Mechanism for Energy Efficient Virtual Machine Placement
- P1929.1: An Architectural Framework for Energy Efficient Content Distribution

Mobile Communication Networks Standards Committee (MobiNet-SC)

- **Active Projects:**

- P1914.1: Standard for Packet-based Fronthaul Transport Networks
- P1914.3: Standard for Radio Over Ethernet Encapsulations and Mappings
- P1918.1: Tactile Internet: Application Scenarios, Definitions and Terminology, Architecture, Functions, and Technical Assumptions
- P1918.1.1: Haptic Codecs for the Tactile Internet
- P1920.1: Aerial Communications and Networking Standards
- P1931.1: An Architectural Framework for Real-time Onsite Operations Facilitation (ROOF) for the Internet of Things
- P1932.1: Licensed/Unlicensed Spectrum Interoperability in Wireless Mobile Networks
- P1933.1: Hybrid Automatic Repeat reQuest for High Throughput Applications

Edge, Fog, Cloud Communications with IOT, Big Data Standards Committee (EdgeCloud-SC)

- **Approved standards:**

- IEEE 1906.1-2015: IEEE Recommended Practice for Nanoscale and Molecular Communication Framework
- IEEE 2410-2017: IEEE Standard for Biometrics Open Protocol Standard

- **Active projects**

- P1912: Privacy and Security Architecture for Consumer Wireless Devices
- P1906.1.1: Standard Data Model for Nanoscale Communication Systems
- P1934: OpenFog Reference Architecture for Fog Computing

Access and Core Networks Standards Committee (AccessCore-SC)

- **Approved standards:**

- IEEE 1904.1-Conformance01-2014: IEEE Standard for Conformance Test Procedures for Service Interoperability in Ethernet Passive Optical Networks, IEEE Std 1904.1(TM) Package A
- IEEE 1904.1-Conformance02-2014: IEEE Standard for Conformance Test Procedures for Service Interoperability in Ethernet Passive Optical Networks, IEEE Std 1904.1(TM) Package B
- IEEE 1904.1-Conformance03-2014: IEEE Standard for Conformance Test Procedures for Service Interoperability in Ethernet Passive Optical Networks, IEEE Std 1904.1(TM) Package C
- IEEE 1904.1-2017: IEEE Standard for Service Interoperability in Ethernet Passive Optical Networks (SIEPON)

- **Active projects**

- P1904.2: Management Channel for Customer-Premises Equipment Connected to Ethernet-Based Subscriber Access Networks
- P1911.3: HDBaseT 5Play
- P1910.1: Meshed Tree Bridging with Loop Free Forwarding

6. New Business Items

- **RCC P&P Updates**

- Version 10, Alignment with updated ComSoc P&Ps, Oct. 2019

Nominations will be solicited by e-mails from the TC members. All nominations must be sent to the TC Secretary. The applications can be from individual researchers on a self-nomination basis, or nominations by other people or research groups. The nomination should include a concise description of the candidate's accomplishments as related to the TC. **The TC Awards Subcommittee consists of four members including the TC officers (Chair, Vice-Chair, and Secretary) and another TC member nominated by the TC Chair.** The nominations cannot be from the members of the TC Awards Subcommittee. No TC Awards **Subcommittee** members can be nominated while they are in their service. Amongst all received nominated candidates the TC Award **Subcommittee** will make the final decisions for the RCC Outstanding Service Award, RCC Technical Recognition Award, and RCC Early Achievement Award, each year. **The Awards Subcommittee deliberations for each award, and all documents submitted to or created by the Subcommittee shall be strictly confidential. Only the final award recipients shall be openly announced. The TC Chair shall send the Awards Selection Report to the Technical Committees Director for approval. Once the Awards Selection Report has been approved, and only then, the final award recipients may be announced.**

9) Information Dissemination Activities

The TC will maintain an Internet Web page at

<http://www.comsoc.org/socstr/org/operation/techcom/radio.html>.

The Secretary maintains it. This Web page will be accessible from the main ComSoc Web page. Announcements distributed to the TC's membership, **officers and their contact information**, notably meeting agendas and meeting minutes, opportunities for membership participation in TC sponsored activities, as well as election-related issues, will be made available on their Web page. The TC will also provide at least one email exploder as an alternative for timely dissemination of information, and to welcome useful information from others.

- **TC awards procedures**
 - Subcommittee: Award chair + 4 members (at least one current officer, unless CoI); approved in TC meeting
 - Awards are restricted to the scope of the technical committees
 - Award selection report submitted to and approved by TCB director
 - Committee Members name on TC website
 - Terms, 2 years
- **RCC current P&P:** The TC Awards Committee consists of the TC officers (Chair, Vice-Chair, and Secretary) and two other TC members nominated by the TC Chair
- **Award Selection Committee: chaired by a past RCC chair.** The committee also consists of the current RCC officers (Chair, Vice-Chair, and Secretary) plus one additional RCC member nominated by the Award Selection Committee Chair.
- **Emerging Technology Standing Committee**
 - ETI: Full Duplex communications
 - ETI: Machine Learning for Communications (probably being proposed to TC in 2020)
 - New ETI: Aerial Communications (being proposed to TC yesterday)
- **Educational Service Board**
 - 2019 ComSoc Spring school: WCNC 2019 (Morocco), 60 attendees
 - 2019 ComSoc Summer school: Austin TX, Jul 16-19
 - 2019 ComSoc Autumn school: Barcelona, Spain, Nov. 5-9, 2019
 - Plans for 2020: Turkey, UK, Argentina etc.
- **Distinguished Lecturer Selection Committee**
 - Call for nominations to TCs and ETCs: Mid July
 - Nominations due: end of September
 - Evaluation: Oct/Nov 2020
 - Notification: GC 2020
- **Soliciting nominations for 2020 Outstanding Service Award (March 1, 2020)**
- **Soliciting nominations for 2020 Early Achievement Award (March 1, 2020)**
 - Past recipients
2019 Mehdi Bennis “Ultra-Reliable and Low-latency communication in 5G and Beyond”

2018 Santiago Mazuelas “Probabilistic processing of complex data”
2018 Walid Saad "Unmanned Aerial Vehicles for Wireless Networking:
An Overview”

- **ComSoc student competition 2019 results**

The RCC representative for the ComSoc Student Competition "Communications Technology Changing the World" is *Dr. Jemin Lee* (jmnlee@dgist.ac.kr).

FIRST PRIZE

MiNiMAP: Localization and Tracking in a Multistatic Millimeter Wave MIMO Radar Network

MILLER Samuel, Massachusetts Institute of Technology, USA

AirScope: An Indoor Air Quality Monitoring System with Distributed Multi-Robots,

HU Zhiwen, Peking University, China

LICOT: Litter-Information-Centric Ocean of Things

RAHMATI Mehdi, Rutgers University, USA

SECOND PRIZE

Sons- A Smart Outdoor Navigation System for Visually Impaired People

SHIBER Aviad, Technion - Israel Institute of Technology, Israel

<https://www.comsoc.org/education-training/student-competition/student-competition-winners>

- **IEEE 2019 newly elevated Fellows**

- Octavia Dobre, Memorial University
- Rose Hu (Utah State University)

- **Selected Distinguished Lecturers Endorsed by RCC**

- 10 Renewed DLs and 15 New DLs in 2019
- Tony Q. S. Quek, Singapore University of Technology and Design (Renewed)

Call for nominations 2019 DL, Mid July, 2019

- **New Best Readings proposed by RCC on Localization**

- Editorial members: Michael Buehrer (Virginia Tech), Santiago Mazuelas (Qualcomm Inc.), Yuan Shen (Tsinghua University)
- Sent to the EiC of Best Reading

- **Special Interest Group (SIG): Wireless Localization**

- Committee: Santiago Mazuelas (Chair), Javier Prieto, Stefania Bartoletti

- Technical Scope: The goal of the SIG is to solicit the development of new positioning strategies that leverage the wealth of wireless communication technologies as well as of new location-aware procedures to enhance the efficiency of communication networks.
- Conference/Workshop: 8th Workshop on Advances in Network Localization and Navigation (ANLN) in IEEE ICC 2020, Dublin
- Possible workshop co-located with the PAAMS and related conferences organized next year by the University of L'Aquila and sponsored by the IEEE Systems, Man and Cybernetics and ComSoc Spanish chapters
- **Workshop endorsed by RCC:**
8th Workshop on Advances in Network Localization and Navigation (ANLN)
IEEE ICC 2020
 - June 7 - 11 2020, Dublin, Ireland
 - Website: <http://rc.committees.comsoc.org/workshops>
 - Workshop Co-Chairs:
 - Stefania Bartoletti (stefania.bartoletti@unife.it)
 - Subhro Das (Subhro.Das@ibm.com)
 - Andrea Giorgetti (a.giorgetti@ieee.org)
 - Santiago Mazuelas (smazuelas@bcamath.org)
 - Florian Meyer (fmeyer@mit.edu)
 Submission Deadline: Jan. 20, 2020
- **Special Interest Group (SIG): Propagation channels for 5G and Beyond**
 - Chair: Andy Molisch (USC), calling for volunteers for vice chairs
 - Goals for SIG:
 - Establishment of webpage for information exchange, pointing to new papers
 - Organization of tutorials and lectures
 - Organization of workshops/symposia at ComSoc conference
 - Immediate goals:
 - V2X channels
 - Massive and distributed MIMO channels
 - mmWave and THz: liaison with NIST
 - Call for volunteers:
 - For vice chairs
 - For workshop organizers

7. Conferment of 2019 IEEE ComSoc RCC Technical Recognition Award

The 2019 IEEE Communications Society's RCC Technical Recognition Award was given to Prof. Andreas F. Molisch and Prof. Mérouane Debbah. Only Prof. Andreas F. Molisch was at the meeting to receive the award.



**IEEE COMMUNICATIONS SOCIETY
RADIO COMMUNICATIONS TECHNICAL COMMITTEE**

19T ECR

WR

Presented to

ANDREAS F. MOLISCH

For outstanding contributions to radio channel modeling.



KHALED B. LETAIEF
President 2018-2019

NELSON FONSECA
VP Technical & Educational Activities



**IEEE COMMUNICATIONS SOCIETY
RADIO COMMUNICATIONS TECHNICAL COMMITTEE**

19T ECR

WR

Presented to

MÉROUANE DEBBAH

For outstanding contributions to radio communications.



KHALED B. LETAIEF
President 2018-2019

NELSON FONSECA
VP Technical & Educational Activities

9. RCC Invited Talks:

Dr. Andreas Molisch “Channel Measurements for Beyond 5G: Faster, higher, denser”

10. Next RCC meeting

The next RCC meeting will be scheduled in ICC 2020, Dublin, Ireland

11. Adjourn

The meeting was adjourned at 2:30 pm.

Attendees list

Octavia Dobre	Memorial University, Canada	odobre@mun.ca
Jemin Lee	DGIST, Korea	jmnlee@dgist.ac.kr
Neelesh B. Mehta	Indian Institute of Science, India	nbmeththa@iisc.ac.in
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Julian Cheng	UBC, Canada	julian.cheng@ubc.ca
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Steven Platt	University of Pompev Febra	steven@ieee.org
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Chi-han Lee	National ChiaoTung Univ., TW	chiahan@nctu.edu.tw
Hongchuan Yang	University of Victoria, Canada	hy@uvic.ca
Andy Molisch	USC, USA	molisch@usc.edu
Chenhao Qi	Southeast University, China	qch@seu.edu.cn
Fang Yang	Tsinghua University, China	fangyang@tsinghua.edu
Andrea Conti	Univ. of Bologna, Italy	a.conti@ieee.org
Moe Win	MIT, USA	moewin@mit.edu

Some photos taken during the meeting follow.

