

IEEE COMMUNICATIONS SOCIETY
Radio Communications Committee (RCC)

IEEE GLOBECOM 2023
Kuala Lumpur, Malaysia

December 19, 2023 – Virtual
9:00 AM EST - 2:00 PM GMT - 10:00 PM CST

Chair: Julian Cheng
Vice Chair: Enrico Paolini
Secretary: Mark Flanagan

Agenda

1. Welcome
2. Approval of Agenda
3. General Information about RCC
4. Approval of ICC'23 RCC Meeting Minutes (available on the website)
5. Conferment of 2023 IEEE ComSoc RCC Technical Recognition Award
6. Report on RCC Special Interest Groups (SIGs)
7. Report on Conference/Workshop/Standardization Activities
8. Report on ComSoc Student Competition
9. Report on RCC Activities
10. Next RCC Meeting
11. Adjourn

RCC Mission

The IEEE Communications Society's Radio Communications Committee (RCC) is primarily interested in physical layer wireless communications. Its areas of interest include engineering aspects of **communication and localization systems, equipment, and operation with involvement in standardization, spectrum, and regulatory efforts**. Technologies considered span point-to-point, point-to-multipoint, multipoint-to-multipoint, mobile radio access, and adaptive diversity systems. The RCC sponsors and promotes technical publications, conferences, symposia, workshops, tutorials, and other related activities on the aforementioned aspects. The committee also assumes the proactive duty to nominate suitable candidates for Communications Society and IEEE awards, propose distinguished lecturer candidates, and endorse deserving candidates for the election to IEEE Senior Member and Fellow grade.



RCC – General Information

- **RCC Meetings**
 - Twice per year at ICC and Globecom
 - Open to all ComSoc members

- **Becoming an RCC Member**
 - Just subscribe to RCC mailing list:
<https://rc.committees.comsoc.org/mailling-list/>
 - Current members: >1200

- **Becoming an *Active* RCC Member**
 - Need to attend **at least 2 of 5 prior RCC meetings at ICC/Globecom**
 - Need to provide **significant service to RCC**: past Officer of the TC; TC representative for IEEE ComSoc flagship conferences (ICC and Globecom); and recipients of TC award.

RCC Officers (2023-2024)

○ **Chair: Julian Cheng**

- University of British Columbia (UBC)
- Email: julian.cheng@ubc.ca



○ **Vice-Chair: Enrico Paolini**

- University of Bologna
- Email: e.paolini@unibo.it



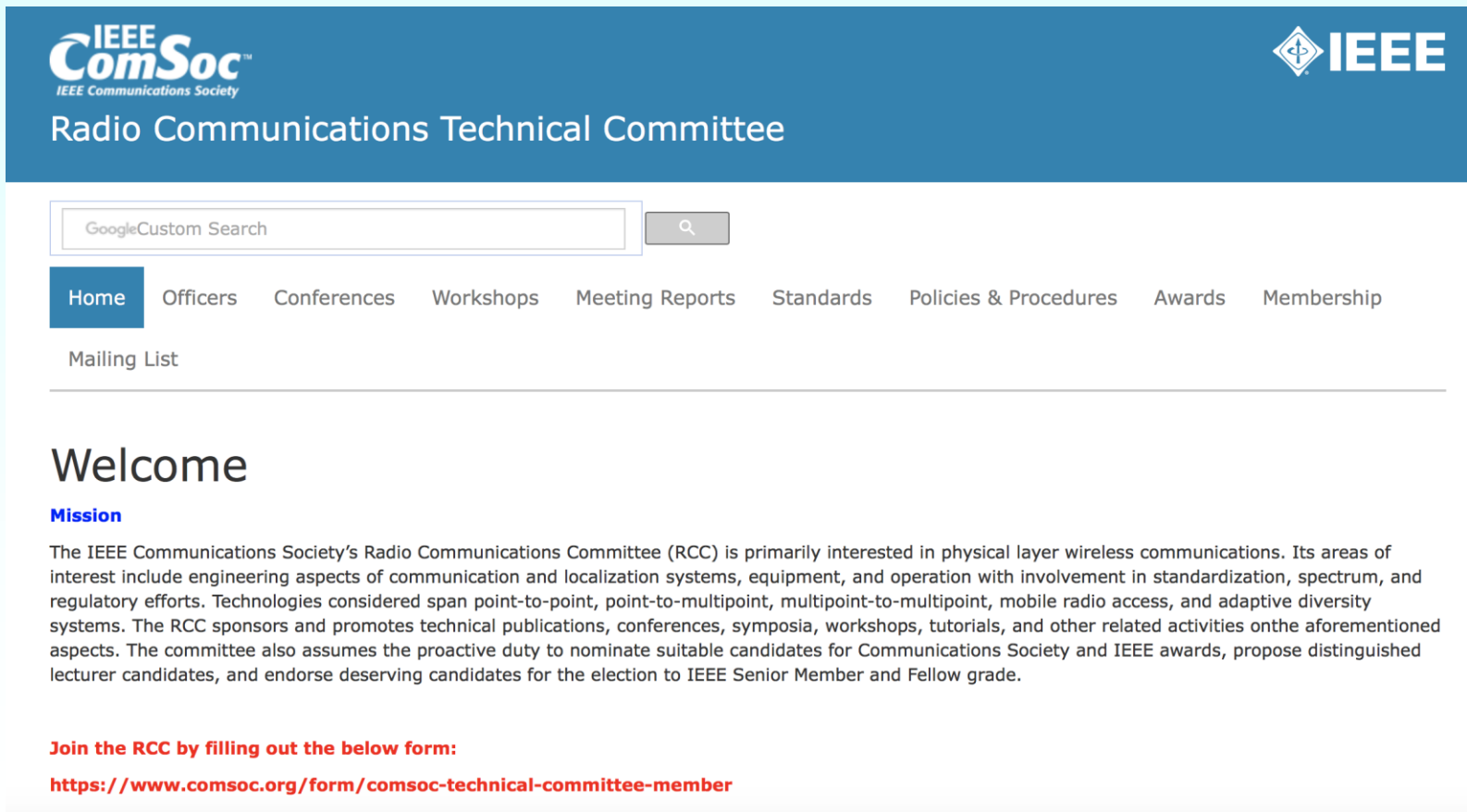
○ **Secretary: Mark Flanagan**

- University College Dublin
- Email: mark.flanagan@ieee.org



Approval of ICC 2023 RCC Meeting Minutes

available at <http://rc.committees.comsoc.org>



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Radio Communications Technical Committee

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Mailing List

Welcome

Mission

The IEEE Communications Society's Radio Communications Committee (RCC) is primarily interested in physical layer wireless communications. Its areas of interest include engineering aspects of communication and localization systems, equipment, and operation with involvement in standardization, spectrum, and regulatory efforts. Technologies considered span point-to-point, point-to-multipoint, multipoint-to-multipoint, mobile radio access, and adaptive diversity systems. The RCC sponsors and promotes technical publications, conferences, symposia, workshops, tutorials, and other related activities on the aforementioned aspects. The committee also assumes the proactive duty to nominate suitable candidates for Communications Society and IEEE awards, propose distinguished lecturer candidates, and endorse deserving candidates for the election to IEEE Senior Member and Fellow grade.

Join the RCC by filling out the below form:

<https://www.comsoc.org/form/comsoc-technical-committee-member>

2023 IEEE ComSoc RCC Technical Recognition Award

The Radio Communications Committee (RCC) Technical Recognition Award aims to promote radio communications research and development activities in both the academic and industrial community. This award is established as part of the RCC activities in which research and development takes place in areas related to radio communications. **The award recognizes members of the IEEE Communications Society (ComSoc) who have made outstanding contributions to the technological advancement of radio communications.**

Award Committee:

- Emil Björnson
- Octavia A. Dobre (Chair)
- Pooi Yuen Kam
- Santiago Mazuelas
- Enrico Paolini

Conferment of

**2023 IEEE ComSoc RCC Technical
Recognition Award**

Andrea Conti

*for outstanding contributions to network
localization and navigation*



Special Interest Groups (SIGs) in RCC

(SIG Websites: <https://rc.committees.comsoc.org/sig>)

- **Wireless Localization.** **Officers:** Stefania Bartoletti (Chair), Anna Guerra
- **Propagation Channels for 5G and Beyond.** **Officers:** Dajana Cassioli (Chair), Leyre Azpilicueta, Aniruddha Chandra
- **Integration of Sensing and Communications.** **Officers:** Tingting Zhang (Chair), Pan Cao, Qingqing Wu
- **Terahertz Communications.** **Officers:** Josep Jornet (Chair), Chong Han, Hina Tabassum, Gianni Pasolini
- **Beyond Diagonal Reconfigurable Intelligent Surfaces.** **Officers:** Bruno Clerckx (Chair), Ross Murch, Arman Shojaeifard, Marco Di Renzo, Eduard Jorswieck, Matteo Nerini

SIG: Wireless Localization

- Committees:
 - Chair: [Stefania Bartoletti](#), University of Rome – Tor Vergata & CNIT
stefania.bartoletti@uniroma2.it
 - Vice-chairs: [Anna Guerra](#), IEIT-CNR and CNIT
- Goal:
 - 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.
- Main Activities:
 - Organization of Workshops and Conferences
 - Coordination of Joint Publications, Special Issues
 - Selection and Advertisement of IEEE Best Readings

Please contact Chair and Vice-chairs for your participation!

Check our updated website: <https://sites.google.com/view/ieee-comsoc-rcc-sig-wloc>

SIG: Wireless Localization

3rd Workshop on Synergies of Communication, Localization, and Sensing towards 6G

IEEE ICC 2024, Denver, CO, USA

- June 09-13 2024 // Denver, CO, USA
- Website: <https://icc2024.ieee-icc.org/workshop/ws-05-3rd-workshop-synergies-communication-localization-and-sensing-towards-6g>
- Last version:
 - ICC in Rome, 31 submissions, 40% acceptance rate
- Deadline: 20 January 2024
- Co-Chairs:
 - Henk Wymeersch, Chalmers University of Technology, Sweden, henkw@chalmers.se
 - Harpreet Dhillon, Virginia Tech, USA, hdhillon@vt.edu
 - Stefania Bartoletti, CNR and CNIT, Italy, stefania.bartoletti@cnit.it
 - Liesbet Van der Perre, KU Leuven, Belgium, liesbet.vanderperre@kuleuven.be
 - George C. Alexandropoulos, National and Kapodistrian University of Athens, Greece, alexandg@di.uoa.gr

SIG: Wireless Localization

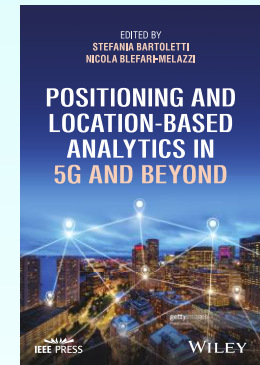
2nd Workshop on Near-field Communications, Localization, and Sensing Denver, CO, USA

- June 09-13 2024 // Denver, CO, USA
- Website: <https://icc2024.ieee-icc.org/workshop/ws-13-2nd-workshop-near-field-communications-localization-and-sensing>
- Deadline: 20 January 2024
- Past versions:
 - ICC in Rome, 17 submissions, 58% acceptance rate
- Co-Chairs:
 - Haiyang Zhang, Nanjing University of Posts and Telecommunications, China
 - Anna Guerra, CNIT, National Research Council of Italy, Italy
 - Francesco Guidi, National Research Council of Italy, Italy
 - Nir Shlezinger, Ben-Gurion University, Israel
 - Yuanwei Liu, Queen Mary University of London
 - George C. Alexandropoulos, National and Kapodistrian University of Athens, Greece

SIG: Wireless Localization

Wiley-IEEE Book: “Positioning and Location-based Analytics in 5G and Beyond”

- Published: <https://www.wiley.com/en-us/Positioning+and+Location+based+Analytics+in+5G+and+Beyond-p-9781119911456>
- Several RCC and SIG members authoring and editing
- Initiative of the European Project LOCUS



Updating the Best Readings on Network Localization and Navigation

< Email template in your mailbox >

Editorial members:

- Santiago Mazuelas (BCAM)
- Yuan Shen (Tsinghua University)

SIG: Propagation Channels for 5G and Beyond

- **Committee**

- Chair: [Dajana Cassioli](#) (University of L'Aquila, dajana.cassioli@univaq.it)
- Vice-chair: [Leyre Azpilicueta](#) (UPNA, leyre.azpilicueta@unavarra.es)
- Secretary: [Aniruddha Chandra](#) (NITD, aniruddha.chandra@ieee.org)



Website <https://sites.google.com/view/ieee-comsoc-rcc-sig-prop5g>

Mailing List <https://listserv.ieee.org/cgi-bin/wa?SUBED1=SIG-PROP-5G>

SIG: Propagation Channels for 5G and Beyond

Technical Panel on IEEE Future of Wireless Channel Model Standards IEEE ICC 2023, May 30, Rome, Italy

- **Website** <https://icc2023.ieee-icc.org/program/technical-panel-sessions#panel2>
- Organizers:
 - Andreas F. Molisch
 - Dajana Cassioli
 - Leyre Azpilicueta
- Panelists:
 - Leszek Raschkowski
 - Chong Han
 - Chris R. Anderson
 - Taro Eichler
 - Tarun Chawla

Highlight

The SIG discusses pathways toward the definition of a common framework for standardization efforts in wireless channel modeling with five experts who are representatives of different stakeholders, i.e., standardization bodies, measurement equipment suppliers, planning tools companies, and academia.

SIG: Propagation Channels for 5G and Beyond

- Seminar Series**

RCC TC Special Interest Group
Propagation Channels for 5G and Beyond



Not your grandfather's propagation model: Modern techniques and approaches for beyond 5G wireless systems



Wednesday
August 30

MDT 9 AM
CET 5 PM

REGISTER
(FREE)



Christopher R. Anderson

ITS/ NTIA

62 participants

RCC TC Special Interest Group
Propagation Channels for 5G and Beyond



3D EM Ray-tracing : Predicting accurate channels for 6G and Joint Sensing and Communications



Tuesday
November 07

MDT 9 AM
CET 5 PM

REGISTER
(FREE)



Tarun Chawla

REMCOM

91 participants

Next webinar

January 22

**Chong Han
UM-SJTU**

SIG: Propagation Channels for 5G and Beyond

- **Standardization Activities**

- IEEE P1944 (<https://cpadhoc.standards.comsoc.org/>)

- Standard for Channel Models of Wireless Systems

- SIG: UAV and vehicular channels, Liaison: D. Cassioli

- SIG: Site-specific channel models, Liaison: A. Chandra

- IEEE P2982 (<https://sagroups.ieee.org/2982/>)

- IEEE Recommended Practice for mmWave Channel Sounder Verification

- Liaison: A. Chandra, D. Cassioli

- Identify and correct shortcomings in channel sounder performance and/or post-processing techniques and give confidence that a given set of channel measurement data is suitable for inclusion in a pooled database.

- NextG Channel Model Alliance (A. Molisch)

- Monthly seminar on new use cases and repository for channel-sounding data

SIG: Propagation Channels for 5G and Beyond

- **Planned Activities**

- Webpage for information exchange, pointing to new papers

- Organization of tutorials and lectures

- SIG Tutorial Proposal [APSI/URSI 2024](#)

- Propagation Measurements and Modeling: A Modern Approach for 6G Communications, by Christopher R. Anderson; Dajana Cassioli; Leyre Azpilicueta; Michael Walter (NTIA, USA; University of L'Aquila, Italy; Public University of Navarre, Spain; DLR, Germany)

- Organization of workshops/symposia at ComSoc conferences

- SIG Workshop Proposal [VTC 2024](#)

SIG: Integration of Sensing and Communications (ISC)

- Committees:
 - Chair: **Tingting Zhang** (Harbin Institute of Technology, zhangtt@hit.edu.cn)
 - Vice-chair: **Pan Cao** (University of Hertfordshire, p.cao@herts.ac.uk)
 - Vice-chair: **Qingqing Wu** (Shanghai Jiao Tong University, qingqingwu@sjtu.edu.cn)
- Website: <https://sites.google.com/view/ieee-comsoc-rcc-sig-ilsac/home>
- Motivations:
 - The integrated sensing and communication (ISC) system to realize joint the environment sensing and communication, by sharing the same frequency, time and hardware.
 - Topics: Integration of comm and localization, radar detection and imaging, UWB, mobile network aided sensing, UAV sensing, comm. and control, etc.
 - We are also interested in the industrial collaborations, including the standard contributions, prototype implementations, etc.

Please contact Chair and Vice-chair for your participation!



SIG: Integration of Sensing and Communications (ISC)

- Past activities:
 - Panel discussion and workshop organization in main stream IEEE conferences (WCNC, VTC, etc.)
 - Feature Topics on “Location Awareness for 5G and Beyond” in IEEE Communications Magazine.
 - Special Issue on “Integration of radar sensing, localization and communications (ISLC)” or related areas in several journals.
- Coming activities:
 - Workshops organization in main stream IEEE Conferences.
 - SI on several IEEE Journals.
- Other activities:
 - Maintain the best readings section on our website.
 - Organize ISC related seminars.

SIG: Integration of Sensing and Communications (ISC)

1st International Workshop on Sensing Advances in Wireless Networks (SAWN)

- June 20 - June 23 2023 // Florence, Italy
- Website: <https://events.vtsociety.org/vtc2023-spring/authors/workshop-call-for-papers/w1-1st-international-workshop-on-sensing-advances-in-wireless-networks-sawn/>
 - **Chairs:** Husheng Li (Purdue), Pan Cao(Hertfordshire), Tingting Zhang(HIT), Mythri Hunukumbure (Samsung)
 - **Steering Committee:** Xianggen Xia (University of Delaware), Andreas Molisch (USC) and Moe Win (MIT)
 - **Keynotes:** Prof. Andrea Conti (Ferrara), Dr. Qammer Abbasi (Glasgow), Prof. Aly Fathy (Tennessee),
 - **Panel session:** Future Directions for Advanced Sensing in Research, Standards and Commercialization

SIG: Integration of Sensing and Communications (ISC)

2nd International Workshop on Sensing Advances in Wireless Networks (SAWN)

- Oct 10 – Oct 13 2023 //Hong Kong, China
- Website: <https://events.vtsociety.org/vtc2023-fall/workshops/w2-2nd-international-workshop-on-sensing-advances-in-wireless-networks-sawn/>
 - **Chairs:** Husheng Li (Purdue), Pan Cao(Hertfordshire), Tingting Zhang(HIT), Mythri Hunukumbure (Samsung)
 - **Keynotes:** Prof. Yuan Shen (Tsinghua)

Special Issue "Integrated Communication, Localization and Sensing towards 6G" in Applied Sciences, 2024

- Deadline for manuscript submissions: 31 January 2024
- Website: https://www.mdpi.com/journal/applsci/special_issues/3640048SX6
 - **Chairs:** Tingting Zhang, Jiancun Fan, Qinyu Zhang, Pan Cao

SIG: Integration of Sensing and Communications (ISC)

Workshop on Integrating UAVs into 5G and Beyond IEEE ICC 2023, Rome, Italy

- 28 May - June 01 2023 // Rome, Italy
- Website: <https://icc2023.ieee-icc.org/workshop/ws-14-6th-workshop-integrating-uavs-5g-and-beyond>
- Co-Chairs:
 - David López-Pérez, Huawei R&D, France
 - Qingqing Wu, Shanghai Jiao Tong University, China
 - Jie Xu, The Chinese University of Hong Kong, Shenzhen, China
 - Giovanni Geraci, Universitat Pompeu Fabra, Spain
 - Yong Zeng, Southeast University, China

SIG: Integration of Sensing and Communications (ISC)

Special issue on "Advanced Aerial Mobility " in IEEE Open Journal on Vehicular Technology, 2023

Important Dates

- Paper Submission Deadline: 15 May 2023
- Review Notification: 1 July 2023
- Paper Revision Due: 15 August 2023
- Final Decision: 1 October 2023
- Publication: Last quarter of 2023

Guest Editors

- Vuk Marojevic, Mississippi State University, USA
- Qingqing Wu, Shanghai Jiao Tong University, China
- Fatemeh Afghah, Clemson University, USA
- Evgenii Vinogradov, Technology Innovation Institute, UAE

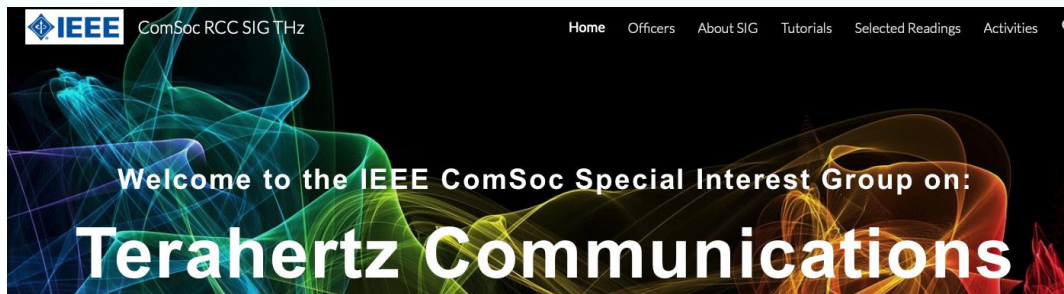
SIG: Terahertz Communications

○ Officers:

- **Chair:** Josep M. Jornet (Northeastern University, USA)
- **Vice-chairs:**
 - Chong Han (Shanghai Jiao Tong University, China)
 - Gianni Pasolini (University of Bologna, Italy)
 - Hina Tabassum (York University, Canada)

○ Established in June 2021

○ Webpage: <https://sites.google.com/view/ieee-comsoc-rcc-sig-thz/home>



Please contact any of the officers or fill the registration form on the website for your participation!

SIG: Terahertz Communications

○ **SIG Goals:**

- To become the unifying forum of discussion for all the aspects relating to THz communications, from device technologies to radio propagation and communication systems design.
- To provide a one-stop-shop for the wireless research community, where to find key resources and pointers to relevant THz materials, helping any researcher to join and contribute to this exciting field.
- To organize convened sessions and workshops as well as special issues in IEEE conferences and journals.
- To promote and support standardization activities on THz communications in 6G and beyond worldwide.

SIG: Terahertz Communications

- **Hosted Seminars (since June 2021, recent activities in blue)**
 - **12th** Seminar (July 19, 2023): “The Right Place for Millimeter and Terahertz Wave Utilization in Beyond 5G/6G,” by **Prof. Iwao Hosako**, National Institute of Information and Communications Technology (NICT), Japan
 - **11th** Seminar (April 11, 2023): “The potential role of THz Communications in future 6G Networks,” by **Prof. Thomas Kürner**, Technische Universität Braunschweig, Germany
 - **10th** Seminar (March 15, 2023): “Security of THz wireless links,” by **Prof. Daniel Mittleman**, Brown University, Providence, RI, USA
 - **9th** Seminar (February 14, 2023): “THz Link Analysis, ICs, Modules, Demonstrations,” by **Prof. Robert M. Weisberg**, Robert N. Taylor Family Endowed Chair in Electrical and Computer Engineering, University of California, Santa Barbara
 - **8th** Seminar (November 10, 2022): “Spectrum Sharing Challenges for Enabling Large Bandwidth Terahertz Communications and Sensing Above 100 GHz in 6G,” by **Prof. Michael J. Marcus & Josep M. Jornet**, Institute for the Wireless Internet of Things, Northeastern University, Boston, USA
 - **7th** Seminar (August 24, 2022): “THz seamless networks for 6G,” by **Prof. Tetsuya Kawanishi**, Waseda University, Japan

A new webinar series for the Spring 2023 semester is going to be shortly announced.

SIG: Terahertz Communications

○ **Knowledge Transfer (since June 2021, recent activities in blue)**

Tutorials/short courses:

- “Terahertz-band Communications: Myth, 6G, or 7G,” tutorial at the IEEE Military Communications Conference (**MILCOM**), in Boston, MA, USA, on November 2, 2023.
- “Multiband RF/Terahertz/Optical Networks for 6G-enabled IoT Applications” at IEEE 9th World Forum on Internet of Things (**WF-IOT**)
- “Terahertz Communications: From the Near Field to Satellite Networks,” **Wire-X Guest Lecture** (4h), at the Advanced Wireless Communications Center (AWCC), University of Electro-Communications in Tokyo, Japan, on August 2023
- “Terahertz Communications: From the Near Field to Satellite Networks,” Lecture @ **Lake Como Summer School** of Advanced Studies on Complex Networks and Telecommunications, July 5-9, 2021
- “Going up to THz bands: channel models, antennas and architectures,” Lecture @ **2023 Joint IEEE SPS-AESS and EURASIP Summer School** on Integrated Sensing and Communication: A Multidisciplinary perspective, Baiona, Spain, June 26-29, 2023
- “Terahertz communications for 6G: How Far Are We?,” Lecture @ **2023 IEEE ComSoc School Series on 6G** Communication and Wireless Technologies, Boston, MA, USA, June 5-9, 2023.

SIG: Terahertz Communications

- **Other Activities (since June 2021, recent activities in blue)**
 - **Special Issues:**
 - Terahertz Communications and Sensing for 6G and Beyond: How Far Are We? IEEE Wireless Communications (Publication: February 2024)
 - Electromagnetic Nanonetworks: From On-chip Communication to Wearable and Implantable Networks, IEEE JSAC (Publication: April 2024)
 - Advanced Signal Processing for Terahertz Communications in 6G and Beyond Networks, Special Issue in IEEE Journal on Selected Topics in Signal Processing (JSTSP), 2022
 - **IEEE ComSoc Best readings on THz Communications**

SIG: Terahertz Communications

- **Other Activities (since June 2021, recent activities in blue)**
 - **Symposia (lead organizer):**
 - SAC Track on Terahertz Communications, IEEE Globecom 2024
 - SAC Track on Terahertz Communications, IEEE Globecom 2023
 - Technical Symposia on Terahertz Communications for Future Networks, IEEE Future Networks World Forum, 2023
 - Fifth IEEE International Workshop on Terahertz Communications (TeraCom), in conjunction with IEEE ICC 2022
 - Sixth IEEE International Workshop on Terahertz Communications (TeraCom), in conjunction with IEEE Globecom 2022
 - **IEEE ComSoc Best readings on THz Communications**

SIG: Terahertz Communications

- **Planned Activities (continuing):**
 - Organize invited seminars (every three months)
 - Sponsor external related seminars (on a solicitation basis)
 - Organize workshop or symposia along with mainstream IEEE conferences
 - Sponsor external related workshops (on a solicitation basis)
 - Organize tutorials and panels along with mainstream IEEE conferences
 - Maintain and update the best readings sections

SIG: Beyond Diagonal Reconfigurable Intelligent Surface (BD-RIS)

- Committees:
 - Chair: **Bruno Clerckx**, Imperial College London, U.K., and Silicon Austria Labs (SAL), Austria (b.clerckx@imperial.ac.uk)
 - Vice Chair: **Ross Murch**, The Hong Kong University of Science and Technology, Hong Kong
 - Vice Chair: **Arman Shojaeifard**, InterDigital, U.K.
 - Vice Chair: **Marco Di Renzo**, CentraleSupélec, France
 - Vice Chair: **Eduard A. Jorswieck**, Technical University of Braunschweig, Germany
 - Secretary: **Matteo Nerini**, Imperial College London, U.K.
- Webpage: <https://sites.google.com/view/ieee-comsoc-rcc-sig-bdris>

SIG: Beyond Diagonal Reconfigurable Intelligent Surface (BD-RIS)

- Motivation:
 - Reconfigurable intelligent surface (RIS) is expected to be a key technology for 6G to efficiently enhance wireless communication performance.
 - The literature has so far developed and focused on RIS with a diagonal scattering matrix.
 - This SIG focuses on beyond diagonal RIS (BD-RIS), which is a generalization of conventional RIS whose scattering matrix is not restricted to being diagonal.
- Main Activities:
 - Organization of a Webinar Series
 - Delivery of Talks and Keynotes
 - Delivery of a Tutorial
 - Contribution in Standardization Group
 - Maintenance of the Webpage (including an up-to-date selection of best readings)

Please contact Chair and Vice-chairs for your participation!

SIG: Beyond Diagonal Reconfigurable Intelligent Surface (BD-RIS)

1st BD-RIS Webinar Series

- January – April 2024 // Zoom Meetings
- Website: <https://sites.google.com/view/ieee-comsoc-rcc-sig-bdris/webinar-series>
- Schedule:
 - Prof. Marco Di Renzo - Jan 10, 2024
 - Prof. Eduard A. Jorswieck - Jan 24, 2024
 - Dr. Yijie (Lina) Mao - Feb 07, 2024
 - Prof. Ross Murch - Feb 21, 2024
 - Dr. Arman Shojaeifard - Mar 06, 2024
 - Dr. Shanpu Shen - Mar 20, 2024
 - Prof. Mohammed El-Hajjar - Apr 10, 2024
 - Prof. A. Lee Swindlehurst - Apr 24, 2024

RCC SIG on BD-RIS

BD-RIS Webinar Series 2024

Jan 2024 - Apr 2024

Free and Open to the Public

Prof. Marco Di Renzo CentraleSupélec	Jan 10 12:00 pm UTC
Prof. Eduard A. Jorswieck Technical University of Braunschweig	Jan 24 12:00 pm UTC
Dr. Yijie (Lina) Mao ShanghaiTech University	Feb 07 12:00 pm UTC
Prof. Ross Murch The Hong Kong University of Science and Technology	Feb 21 12:00 pm UTC
Dr. Arman Shojaeifard InterDigital	Mar 06 12:00 pm UTC
Dr. Shanpu Shen University of Liverpool	Mar 20 12:00 pm UTC
Prof. Mohammed El-Hajjar University of Southampton	Apr 10 12:00 pm UTC
Prof. A. Lee Swindlehurst University of California, Irvine	Apr 24 4:00 pm UTC

Link & More Info.

Zoom Link: [Here](#)
Zoom Meeting ID: 922 7298 6094
Passcode: b\$4iZc

For more information, visit:
<https://sites.google.com/view/ieee-comsoc-rcc-sig-bdris>

Time & Duration

Please check the [BD-RIS webinar series webpage](#) for information on the scheduled time of the talks.

50 minutes per talk
10 minutes Q&A

Organizers

Prof. Bruno Clerckx
Imperial College London

Matteo Nerini
Imperial College London

SIG: Beyond Diagonal Reconfigurable Intelligent Surface (BD-RIS)

Talks and Keynotes

- B. Clerckx, "RISs 2.0: Beyond Diagonal Phase Shift Matrices," IEEE Distinguished Lecture, Korea section, Korea University, August 2022.
- B. Clerckx "RISs 2.0: Beyond Diagonal Phase Shift Matrices," TU Graz, Austria, April 2023.
- B. Clerckx "RISs 2.0: Beyond Diagonal Phase Shift Matrices," 6GEM Seminar talk, Germany, April 2023.
- B. Clerckx "Beyond Diagonal Reconfigurable Intelligent Surfaces," COST INTERACT / EURACON Workshop/School – DoCom, June 2023.
- B. Clerckx "RISs 2.0: Beyond Diagonal Phase Shift Matrices," IEEE Communication Theory Workshop, Taiwan, July 2023
- B. Clerckx "RISs 2.0: Beyond Diagonal Phase Shift Matrices," IEEE CAMSAP 2023, Costa Rica, Dec 2023.
- B. Clerckx, "Beyond Diagonal Reconfigurable Intelligent Surfaces: The Next Frontier for Smart Radio Environment," COST INTERACT, Lisbon, Jan 2024.
- A. Zappone, "Active versus Passive RIS for Energy Efficiency," TU Braunschweig, Germany, July 2023.
- M. Di Renzo, "Analysis and Optimization of RISs by Using Multiport Network Theory," SAL Symposium 2023.
- M. Di Renzo, "Analysis and Optimization of RISs by Using Multiport Network Theory," KAUST 6G Summit 2023.
- M. Di Renzo, "Analysis and Optimization of RISs by Using Multiport Network Theory," IEEE COMSOC 6G Technologies for Global Connectivity 2023.
- M. Di Renzo, "Analysis and Optimization of RISs by Using Multiport Network Theory," IEEE 6G Summit Singapore 2023.
- M. Di Renzo, "Analysis and Optimization of RISs by Using Multiport Network Theory," IEEE GLOBECOM Workshop "RIS-Empowered 3CLS" 2023.
- M. Di Renzo, "Towards Wave Domain Wireless Communications," IEEE GLOBECOM - Young Professionals - A View to the Future of Communications, 2023.
- M. Di Renzo, "Towards Wave Domain Wireless Communications," IEEE GLOBECOM - Workshop on Sustainable and Intelligent Green IoT for 6G, 2023.

SIG: Beyond Diagonal Reconfigurable Intelligent Surface (BD-RIS)

Tutorial in IEEE ICASSP 2024

- Bruno Clerckx and Marco Di Renzo, “Future Multi-Antenna Signal Processing: Beyond Diagonal Reconfigurable Intelligent Surfaces and Holographic Surfaces,” IEEE ICASSP 2024.
- <https://2024.ieeeicassp.org/>

Contribution in Standardization Group

- Arman Shojaeifard, ETSI GR RIS 002 - V1.1.1 - Reconfigurable Intelligent Surfaces (RIS); Technological challenges, architecture and impact on standardization (Section 5.2.1.1 Impedance-based structures).
- https://www.etsi.org/deliver/etsi_gr/RIS/001_099/002/01.01.01_60/gr_RIS002v010101p.pdf

Conference Reports

- **GC 2023:** Zehui Xiong (M&WN), Giovanni Geraci (WC), Chong Han (SAC–THz)
- **ICC 2024:** Dajana Cassioli (M&WN), Imran Shafique Ansari (WC), Mark Flanagan (WC), Anna Guerra (SPC), Hongjian Sun (CR&AI-EN)
- **GC 2024:** Himal Suraweera (SPC), Yuan Shen (WC), Daniel Benevides da Costa (WC), Josep Jornet (SAC–THz)

GC 2023 – Mobile & Wireless Networks

When: Dec. 04, 2023 – Dec. 08, 2023

Where: Kuala Lumpur, Malaysia

Symposium: Mobile & Wireless Networks

Co-chairs:

Abdallah Shami (The University of Western Ontario, Canada), Abdel-Hamid Taha (Alfaisal University, Saudi Arabia), Miao Pan (University of Houston, USA), Zehui Xiong (Singapore University of Technology and Design, Singapore)

RCC representative: [Zehui Xiong \(zehui_xiong@sutd.edu.sg\)](mailto:zehui_xiong@sutd.edu.sg)

Total Submitted: 267

Avg number of reviews/paper: 3.4

Total Accepted: 105

Acceptance rate: 39.3%

#TPC members: 231

Avg number of reviews/TPC member: 3.94

GC 2023 – Wireless Communications

When: Dec. 04, 2023 – Dec. 08, 2023

Where: Kuala Lumpur, Malaysia

Symposium: Wireless Communications

Co-chairs:

Valeria Loscri (INRIA Lille, France), Chris Anderson (US Naval Academy, USA), Giovanni Geraci (Univ. Pompeu Fabra, Spain), Moayad Aloqaily (Mohamed Bin Zayed University of Artificial Intelligence, UAE), Angela Yingjun Zhang (CUHK, Hong Kong)

RCC representative: [Giovanni Geraci \(giovanni.geraci@upf.edu\)](mailto:giovanni.geraci@upf.edu)

Total Submitted: 285

Avg number of reviews/paper: 3.6

Total Accepted: 110

Acceptance rate: 38.6%

#TPC members: 621

Avg number of reviews/TPC member: 1.7

GC 2023 – SAC-Terahertz Communications

When: Dec. 04, 2023 – Dec. 08, 2023

Where: Kuala Lumpur, Malaysia

Symposium: Selected Areas in Communications - Terahertz Communications

Co-chairs: Chong Han (Shanghai Jiao Tong University, PRC)

RCC representative: Chong Han (chong.han@sjtu.edu.cn)

Total Submitted: 35

Avg number of reviews/paper: 3.43

Total Accepted: 14

Acceptance rate: 40%

#TPC members: 23

Avg number of reviews/TPC member: 5.22

Best paper award from SAC-Terahertz Communications (3 awards from all SACs):

1570910804: Characterizing Sub-THz MIMO Channels in Practice: a Novel Channel Sounder with Absolute Time Reference

Duschia Bodet, Phuc Dinh, Milica Stojanovic, Joerg Widmer, Dimitrios Koutsonikolas, Josep Miquel Jornet

ICC 2024 – Mobile & Wireless Networks

When: *June 09, 2024 – June 13, 2024*

Where: *Denver, CO, USA*

Symposium: Mobile & Wireless Networks

Co-chairs:

Mohammed Atiquzzaman (University of Oklahoma, USA), Dajana Cassioli (University of L'Aquila, Italy), Weixiao Meng (Harbin Institute of Technology, China), Wen Sun (Northwestern Polytechnical University, China)

RCC representative: *Dajana Cassioli* (dajana.cassioli@univaq.it)

Submissions: 173

Target avg number of reviews per TPC member: 4

TPC members: 228 (+ 4 Co-Chairs)

Target avg number of reviews per paper: 4

ICC 2024 – Wireless Communications

When: *June 09, 2024 – June 13, 2024*

Where: *Denver, CO, USA*

Symposium: *Wireless Communications*

Co-chairs:

Virginia Pilloni (University of Cagliari, Italy), Haibo Zhou (Nanjing University, China), Imran Shafique Ansari (University of Glasgow, UK), Mark Flanagan (University College Dublin, Ireland), Gaojie Chen (University of Surrey, UK)

RCC representatives: [Imran Shafique Ansari \(imran.ansari@glasgow.ac.uk\)](mailto:imran.ansari@glasgow.ac.uk)

[Mark Flanagan \(mark.flanagan@ieee.org\)](mailto:mark.flanagan@ieee.org)

Submissions: 237

Target avg number of reviews per TPC member: 4

TPC members: 275

Target avg number of reviews per paper: 4

ICC 2024 – Signal Processing for Communications

When: *June 09, 2024 – June 13, 2024*

Where: *Denver, CO, USA*

Symposium: Signal Processing for Communications

Co-chairs:

*Yanjun Pan (University of Arkansas, USA), Hamid Jafarkhani (University of California Irvine, USA),
Anna Guerra (National Research Council of Italy)*

RCC representative: [Anna Guerra \(anna.guerra@ieiit.cnr.it\)](mailto:anna.guerra@ieiit.cnr.it)

Submissions: 108

Target avg number of reviews per TPC member: 3

TPC members: 161

Target avg number of reviews per paper: 4

ICC 2024 – Cognitive Radio & AI-Enabled Networks

When: *June 09, 2024 – June 13, 2024*

Where: *Denver, CO, USA*

Symposium: Cognitive Radio & AI-Enabled Networks

Co-chairs:

Dola Saha (University at Albany, NY, USA), Hongjian Sun (University of Durham, UK)

RCC representative: *Hongjian Sun* (hongjian.sun@durham.ac.uk)

Submissions: 49

Target avg number of reviews per TPC member: 2 (likely)

TPC members: 148

Target avg number of reviews per paper: 4 (aimed for)

GC 2024 – Signal Processing for Communications

When: *Dec. 08, 2024 – Dec. 12, 2024*

Where: *Cape Town, South Africa*

Symposium: Signal Processing for Communications

Co-chairs:

Zhijin Qin (Tsinghua University, China)

Himal A. Suraweera (University of Peradeniya, Sri Lanka),

RCC representative: *Himal A. Suraweera (himal@ee.pdn.ac.lk)*

Expected number of submissions: 120

Target number of TPC members: 100

GC 2024 – Wireless Communications

When: Dec. 08, 2024 – Dec. 12, 2024

Where: Cape Town, South Africa

Symposium: Wireless Communications

Co-chairs:

Yuan Shen (Tsinghua University, China), Daniel Benevides da Costa, Qiang Ye (Dalhousie University, Canada), Yang Wang (University of Science and Technology of China), Ahmed Eltawil (King Abdullah University of Science and Technology, Saudi Arabia)

RCC representatives: [Yuan Shen \(shenyuan_ee@tsinghua.edu.cn\)](mailto:shenyuan_ee@tsinghua.edu.cn)

[Daniel Benevides da Costa \(danielbcosta@ieee.org\)](mailto:danielbcosta@ieee.org)

Expected number of submissions: 350

Target number of TPC members: 400

GC 2024 – SAC-Terahertz Communications

When: *Dec. 08, 2024 – Dec. 12, 2024*

Where: *Cape Town, South Africa*

Symposium: Selected Areas in Communications - Terahertz Communications

Chair: *Josep M. Jornet (Northeastern University, USA)*

RCC representative: *Josep M. Jornet (j.jornet@northeastern.edu)*

Expected number of submissions: 40

Target number of TPC members: 25

ComSoc Standards Board Technical Committee Liaisons Report

RCC Standard Liaisons Officer: *George Chrisikos (gchrisikos@ieee.org)*

- ComSoc SB Objective:
 - Discussion of IEEE/ComSoc Standards Development Projects
 - New Standardization Initiatives
 - Procedures
 - Operational Issues
 - In partnership with the IEEE-SA Standards Board

IEEE ComSoc Students Competition

RCC representative: *Tingting Zhang*

- Submissions of recent years:
 - There were 72 in 2023 (68 in 2022, 53 in 2021, 54 in 2020, 51 in 2019).
- Sources of 2023:
 - The received projects were from over 20 countries around the world.
- Hot Topics of 2023:
 - AI in Communications: 9 in 72 (AI for farming, AI for channel sensing, AI for academics, AI for Federated Learning).
 - Internet of Things Technology: 8 in 72 (environment monitoring, smart farming, smart city, smart healthcare).
 - Vehicular Technology: 4 in 72 (automation control, intelligent vehicle, intersection coordination).
 - Radio positioning: 4 in 72 (WiFi, UWB, wideband sound, cooperative localization).
 - Communication for Healthcare: 4 in 72.
 - Space communication: 4 in 72

IEEE ComSoc Students Competition

- Process of IEEE Students Competition 2023:
 - Phase 1: The submitted projects were evaluated by 55 committee members in 5 aspects (Social Impact, Technical content, Originality, Practical Applicability and Results, Quality of presentation).
Top 16 projects ranked got a **Honorary Mention**.
 - Phase 2: The 1st and 2nd Prizes winners were voted among the **16 projects** by committee members.
 - **First Prize:** Advancing Passenger Experience & Reliability of Autonomous Buses Through LiFi Technology.
Maitha AlHammadi, Amna Ahmad, Sophia Nicole Jerez, and Aleena Lifiya
University of Dubai, UAE
 - **Second Prize:** HUG Smart Sticker: Enhancing Personalized Intelligent Medication Management for Community-Dwelling Older Adults with an AIoT Intervention.
Yuxing Hao, Zeyu Li
Cornell University, USA

RCC Activities - ComSoc TC Newsletter

- The [IEEE ComSoc Technical Committee Newsletter](#) is a newsletter describing the many activities carried out within ComSoc TCs to acknowledge the hard work of TC members and volunteers
- <https://tc.boards.comsoc.org/tc-newsletter/>
- Co-Editor-in-Chiefs: [Yuanwei Liu](#) and [Ning Zhang](#)
- Second issue: May 2023
- Third issue: September 2023
- RCC contributor: [Enrico Paolini](#)
- If you would like to report an initiative you carried out in the context of the RCC or RCC-SIG, please contact e.paolini@unibo.it

IEEE Communications Society

September 2023

IEEE COMSOC TC NEWSLETTER

IEEE ComSoc Technical Committees: Educate, promote and accelerate the technological advancements in communications and networking



RCC Activities

- ComSoc Technical Co-sponsorship Conference Endorsement
 - Conference should be relevant to the scope of RCC
 - RCC endorses a number of conferences every year
 - Please contact RCC officers for the support of RCC
- IEEE Fellowship Endorsement
 - Please contact RCC officers for the endorsement of RCC
- ComSoc Distinguished Lecturer Program (DLP) Nomination
 - Four RCC members were nominated in October 2023 for the DLP
 - No results have been announced
- GC/ICC Symposia Chair Nomination
 - Call for nomination for ICC 2025 was sent out in Apr. 2023
 - Call for nomination for GC 2025 was sent out in Nov. 2023
 - Self-nomination is allowed. Ranked lists were submitted to GC/ICC TPC Co-Chairs. RCC has no control over who gets picked.

Next RCC Meeting

**The next RCC meeting will be in person at
ICC 2024 in Denver, CO, USA**

**THANK YOU AND
SEE YOU THEN!**

Officers' Contact Details

Chair: Julian Cheng

The University of British Columbia, Canada

<https://engineering.ok.ubc.ca/about/contact/julian-cheng/> <https://eweb/>

E-mail: julian.cheng@ubc.ca

Vice Chair: Enrico Paolini

University of Bologna, Italy

<https://sites.google.com/view/enrico-paolini/>

E-mail: e.paolini@unibo.it

Secretary: Mark Flanagan

University College Dublin, Ireland

<http://eeng.ucd.ie/mark/>

E-mail: mark.flanagan@ieee.org

RCC Website:

<http://rc.committees.comsoc.org>



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:

- P269-2019: Standard for Measuring Electroacoustic Performance of Communication Devices

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 Coex. Between Radio Sysys.
- 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
- IEEE 1900.1-2019: IEEE Standard for Definitions and Concepts for Dynamic Spectrum Access: Terminology Relating to Emerging Wireless Networks, System Functionality, and Spectrum Management
- IEEE 1900.6b-2022: IEEE Standard for Spectrum Sensing Interfaces and Data Structures for Dynamic Spectrum Access and Other Advanced Radio Communication Systems Amendment 2: Spectrum Database Interfaces
- IEEE 1900.5.1-2020: IEEE Standard for Policy Language for Dynamic Spectrum Access Systems

❖ Active projects:

- P1900.2: Revision to IEEE Standard 1900.2-2008
- P1900.5: Revision to IEEE Standard 1900.5-2011P1900.5.1: Standard Policy Language for Dynamic Spectrum Access Systems
- P1900.5.2a: Spectrum Consumption Modelling Schema
- P1900.8: Machine Learning for RF Spectrum Awareness in DSA and Sharing Systems
- P1900.1: Revision to IEEE Standard 1900.1-2019P1900.6b: 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 1905.1-2013: IEEE Standard for a Convergent Digital Home Network for Heterogeneous Technologies
- IEEE 1901.2-2013: IEEE Standard for Low Frequency (less than 500 kHz) Narrow Band Power Line Communications for Smart Grid Applications
- 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
- P1901.1-2018: Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications
- IEEE 2030.5-2018: IEEE Standard for Smart Energy Profile Application Protocol
- IEEE 1901a-2019: IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications — Amendment 1: Enhancement for Internet of Things Applications
- IEEE 2413-2019: Standard for an Architectural Framework for the Internet of Things (IoT)
- IEEE 1901-2020: IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications
- IEEE 1901.1.1-2020: IEEE Standard Test Procedures for IEEE Std 1901.1(TM) for Medium Frequency (less than 15 MHz) Power Line Communications for Smart Grid Applications
- IEEE 1901b-2021: IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications — Amendment 2: Enhancements for Authentication and Authorization
- IEEE 2847-2021: DC Power Transmission and Communication to DC Loads

❖ Active projects:

- P2030.5: Standard for Smart Energy Profile Application Protocol
- P2413.1: Standard for a Reference Architecture for Smart City (RASC)
- IEEE P1901c: Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications – Amendment 3: Enhanced Flexible Channel Wavelet (FCW) physical and media access control layers for use on any media
- IEEE P2893: Flexible Optical Service Unit (OSUFlex) of Optical Transport Network (OTN) in power systems
- IEEE P1547: Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces
- IEEE P1547.10: Recommended Practice for Distributed Energy Resources (DER) Gateway Platforms



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
- IEEE 1930.1-2022: Recommended Practice for Software Defined Networking (SDN) based Middleware for Control and Management of Wireless Networks

❖ Active projects:

- P1913: Software-Defined Quantum Communication
- P1915.1: Standard for Software Defined Networking and Network Function Virtualization Security
- P1938.1: Standard for Software Defined Protocol and Functional Requirements for Improvement of the Signal-to-Noise Ratio (SNR) in Communications Channels
- P1950.1: Standard for Communications Architectural Functional Framework for Smart Cities
- P1951.1: Standard for Discovering and Intent Sharing between Smart City Component Systems
- P2784: Guide for the Technology and Process Framework for Planning a Smart City
- P1952: Resilient Positioning, Navigation, And Timing User Equipment
- P1943.1: Standard for Post-Quantum Network Security

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)

◆ Approved standards:

- 1914.3-2018: IEEE Standard for Radio over Ethernet Encapsulations and Mappings
- 1914.1-2019: IEEE Standard for Packet-based Fronthaul Transport Networks
- IEEE 1920.1-2022: IEEE Trial-Use Standard for Aerial Network Communication

❖ Active projects:

- 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
- P1920.2: Vehicle-to-Vehicle Communications for Unmanned Aircraft Systems
- 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
- P1954: Self-Organizing Spectrum-Agile Unmanned Aerial Vehicles Communications
- P2061: Architecture for Low Mobility Energy Efficient Network for Affordable Broadband Access
- P2872: Standard for Interoperable and Secure Wireless Local Area Network (WLAN) Infrastructure and Architecture
- P2994: Security Assessment Framework for the Internet of Things (IoT) Application Deployments

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
- P1906.1.1-2020: Standard Data Model for Nanoscale Communication Systems
- P1934-2018: OpenFog Reference Architecture for Fog Computing
- IEEE 2410-2017: IEEE Standard for Biometrics Open Protocol Standard

◆ Active projects:

- P1912: Privacy and Security Architecture for Consumer Wireless Devices
- P1934.1: Nomenclature and Taxonomy for Distributing Computing, Communications and Networking along the Things-to-Cloud Continuum
- P1935: Standard for Edge/Fog Manageability and Orchestration
- P1940: Standard Profiles for ISO 8583 Authentication Services



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)
- IEEE 1904.2-2021: IEEE Standard for Control and Management of Virtual Links in Ethernet-based Subscriber Access Networks
- IEEE 1910.1: IEEE Standard for Meshed Tree Bridging with Loop Free Forwarding

◆ Active projects:

- P1904.4: IEEE Standard for Service Interoperability in 25 Gb/s and 50 Gb/s Ethernet Passive Optical Networks
- P1941.1: IEEE Recommended Practice for Internet Grades of Service in Rural Areas
- P1942.1: IEEE Standard for Massive MIMO Architectural Framework

Unmanned Aerial Vehicles Communications Standards Committee(COM/AerCom-SC)

❖ Approved standards:

- IEEE1937.1-2020: Standard of Interface Requirements and Performance Characteristics of Payload Devices in Drones
- IEEE1936.1-2021: Standard for Drone Applications Framework
- IEEE1939.1-2021: Standard for a Framework for Structuring Low Altitude Airspace for Unmanned Aerial Vehicle (UAV) Operations

❖ Active projects:

- P1936.2: Photogrammetric technical requirements of civil light and small UAS for power grid survey and design
- P1937.3: Protocol for the Flight Data Transmission of Civil Unmanned Aerial Vehicle Based on BeiDou Short Message
- P1937.6: Standard for Unmanned Aerial Vehicle Light Detection and Ranging(LiDAR) remote sensing operation
- P1937.7: Standard for the Unmanned Aerial Vehicle polarimetric remote sensing method for earth observation applications
- P1937.8: Functional and Interface Requirements for Unmanned Aerial Vehicles' Cellular Communication Terminals
- P1937.9: Requirements for External Power and Power Management Interfaces for Unmanned Aerial Vehicle
- P1920.1: Aerial Communications and Networking Standards
- P1920.2: Standard for Vehicle to Vehicle Communications for Unmanned Aircraft Systems

ComSoc Co-Sponsored Active Projects

- P2413.1: Standard for a Reference Architecture for Smart City (RASC) – Standards Committee: BOG/CAG/IoT Architecture; Co-sponsoring Committee: COM/PLC
- P1920.2: Standard for Vehicle to Vehicle Communications for Unmanned Aircraft Systems – Standards Committee: VT/ITS/V2V for Unmanned; Co-sponsoring Committee: COM/MobiNet-SC
- P2048: Standard for Metaverse: Terminology, Definitions, and Taxonomy – Standards Committee: CTS/MS/MWG; Co-sponsoring Committees: SSIT/SC, C/SAB, SMC/SC, COM/SDB, EMB/Std Com