



Call for Special Session Papers

PIMRC 2018 Special Session SS3: Electromagnetic Exposure in 5G Networks

Date: Monday, Tuesday or Wednesday, September 10-12 (depending on overall schedule).

Special Session Organiser(s): Claudia Carciofi, Fondazione Ugo Bordoni; Samuela Persia, Fondazione Ugo Bordoni; Simona Valbonesi, Fondazione Ugo Bordoni

Motivation and Background

As the next generation of mobile communications technologies ('5G') is being developed, regulators are once again faced with new challenges posed by the innovative 5G radio access networks, including EMF exposure and the related health effects.

The International Telecommunication Union (ITU) has recently started addressing the regulatory issues on EMF exposure in 5G networks. Moreover, the International Electrotechnical Commission (IEC) is currently working on exposure assessment methods for TDD systems and massive MIMO smart antennas.

The ICNIRP guidelines represent the basis for the regulatory frameworks on EMF exposure limits. Some countries adopted more restrictive exposure limits with respect to the ICNIRP guidelines, and this could hamper the introduction and the development of new broadband wireless networks.

Current legislations on EMF exposure limits are based on the received amount of non-ionising radiation due to radio frequency emissions. The methodology to calculate the received exposure is based on the assumption of a predictable radiation pattern from the transmitting antenna. The active antennas in the 5G mobile networks will be very different from those in the current 4G systems; as a consequence the assumptions used in current models and numerical simulations to assess the electromagnetic exposure could be not suitable for 5G systems.

In principle, 5G radio access networks will be specifically designed to minimize transmitter power by using new advanced radio and core network architectures able to minimise transmission and induce lower EMF levels. In addition 5G will use massive MIMO and smart antennas allowing the optimisation of coverage while minimising power consumption: required data are transmitted only in the direction of the user and this should be duly considered in exposure assessment.

The Special Session will be focussed on technical and regulatory innovative topics on 5G electromagnetic exposures and will address existing EMF exposure models to invite enhancements for their application to 5G networks, as well as explore necessary improvements to the exposure measurement methodology towards timely 5G deployments.

Topics of interest include, but are not limited to:

EMF Policy - regulatory challenges for 5G	EMF Test Framework for 5G	5G exposure assessment methodologies
5G MIMO - smart antennas EMF exposure	5G EMF field measurements	5G EMF assessment above 6 GHz
Regulatory aspects and 5G deployment	5G EMF numerical simulations	Exposure models enhancements

Submission Guidelines

Prospective authors are invited to submit technical papers of their previously unpublished work. Accepted special session papers will be part of the Conference Proceedings and will be uploaded to IEEE Xplore. Papers should be submitted via EDAS; the links are available at <http://pimrc2018.ieee-pimrc.org> under "Authors". Papers should follow the same Author guidelines of the general symposium, which are available at <http://pimrc2018.ieee-pimrc.org/authors/submission-guidelines/>.

Key Dates

Paper submission:	May 18, 2018
Acceptance notification:	June 15, 2018
Final paper due:	June 29, 2018