

Curriculum Vitae

Personal information

First name / Surname

Riccardo Suman

Address

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Contacts

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Work experience

Dates

April 2015 – present

Occupation or position held

Senior RAN Engineering, Vodafone Networks, Engineering

Main activities and responsibilities

- Subject matter expert on antennas, Massive MIMO, test plans, and features -including ability to write requirements / test plans
- Technical management of antennas including testing and acceptance at Group level.
- Management of Electro Magnetic fields (EMF) compliance assessment (guidelines on calculation and measurements).
- Part of the "Skylon" teams (creation of Vantage Towers) in 2018-2020 for the Technical Due Diligence.
- Experience working with Radio Frequency (RF) such as testing and troubleshooting
- Python experience for automation.
- Build in-house code based (Python) Data Science capability to monitor the transmitted power from cell in order to comply with the Electro Magnetic fields (EMF) limits
- Developed in Python a dashboard to detect antennas performance. The entire code is used for antenna technical selection in RFP
- Build in-house code in Python to calculate the safety Electro Magnetic fields (EMF) regions of a site. The code is used for the Electro Magnetic fields (EMF) sites compliancy in Vodafone

Dates

September 2012 – March 2015

Occupation or position held

Mobile Access Senior RAN Engineering, South Europe

Main activities and responsibilities

Within the Network Engineering / Mobile Access team of the Southern Europe Region (including Italy, Greece, Romania, Spain, Portugal, Albania and Malta), responsible of acceptance on new antenna models, passives, repeaters and DAS. Design and engineering of all dedicated radio coverage solutions (including radio and optical repeaters, passive equipment) and special projects (e.g. High-Speed Train radio coverage). Management of the electromagnetic fields (EMF) compliance assessment (guidelines on calculation and measurements).

Name and address of employer

Vodafone, Ivrea (TO), Italy

Type of business or sector	Telecommunication, Mobile Operator
Dates	November 2011 – August 2012
Occupation or position held	Senior RAN Engineering
Main activities and responsibilities	Within the Network Engineering / Radio Access Network (RAN) team in Vodafone Italy I followed the hardware functional specifications and guidelines for GSM/UMTS/LTE base stations, repeaters, ensuring technical innovation and evolution, and driving vendor selection activities and new wireless systems developments.
Name and address of employer	Vodafone Italy, Ivrea (TO), Italy
Type of business or sector	Telecommunication, Mobile Operator
Dates	January 1997 – October 2011
Occupation or position held	RF Engineering
Main activities and responsibilities	In the Radio Frequency head-quarter, development of guidelines on antenna systems and KPIs performance.
Name and address of employer	Omnitel Pronto Italia, Ivrea (TO), Italy
Type of business or sector	Telecommunication, Mobile Operator
Awards and Recognitions	
Dates	September 2018
Award	Awarded Vodafone Expert in the field of antennas, one of the highest steps of the professional path of Technical Leadership through Vodafone Technology: recognized in Vodafone as one of the leading experts in the antenna and 5G NR Massive MIMO.
Main publications (English language)	<p>"How to Characterize Power Lock Systems for Limiting Exposure to Electromagnetic Radiation Generated by 5G MaMIMO Systems", Sara Adda, Tommaso Aureli, Stefano Coltellacci, Stefano D'Elia, Daniele Franci, Enrico Grillo, Nicola Pasquino, Settimio Pavoncello, Riccardo Suman, Mattia Vaccarone, IEEE, 2022 IEEE International Workshop on Metrology for Living Environment (MetroLivEn) May 2022 (https://ieeexplore.ieee.org/document/9826911)</p> <p>"Methodology based on Vector and Scalar Measurement of Traffic Channel Power Levels to Assess Maximum Exposure to Electromagnetic Radiation generated by 5G NR Systems", Sara Adda, Tommaso Aureli, Sergio Bastonero, Stefano D'Elia, Daniele Franci, Enrico Grillo, Marco Donald Migliore, Nicola Pasquino, Settimio Pavoncello, Fulvio Schettino, Andrea Schiavoni, Renato Scotti, Riccardo Suman, Mattia Vaccarone, IEEE Access, vol 10, pp: 12125 – 12136, Jan 2022 (https://ieeexplore.ieee.org/document/9690179)</p> <p>"New Paradigm in 5G Maximum Power Extrapolation for Human Exposure Assessment: Forcing gNB Traffic Toward the Measurement Equipment", Marco Donald Migliore, Daniele Franci, Settimio Pavoncello, Enrico Grillo, Tommaso Aureli, Sara Adda, Riccardo Suman, Stefano D'Elia, Fulvio Schettino, IEEE Access, vol. 9, pp. 101946-101958, July 2021 (https://ieeexplore.ieee.org/document/9465804)</p> <p>"A Methodology to Characterize Power Control Systems for Limiting Exposure to Electromagnetic Fields Generated by Massive MIMO Antennas", Sara Adda, Tommaso Aureli, Stefano Coltellacci, Stefano D'Elia, Daniele Franci, Enrico Grillo, Nicola Pasquino, Settimio Pavoncello, Riccardo Suman, Mattia Vaccarone, IEEE Access, vol. 8, pp. 171956-171967, September 2020 (https://ieeexplore.ieee.org/document/9200351)</p>

	<p>"A Theoretical and Experimental Investigation on the Measurement of the Electromagnetic Field Level Radiated by 5G Base Stations", Sara Adda, Tommaso Aureli, Stefano D'Elia, Daniele Franci, Enrico Grillo, Marco Donald Migliore, Settimio Pavoncello, Fulvio Schettino, Riccardo Suman, IEEE Access, vol. 8, pp. 101448 – 101463, May 2020 (https://ieeexplore.ieee.org/document/9103530)</p> <p>"EMF evaluations for future networks based on Massive MIMO", Samuela Persia, Claudia Carciofi, Stefano D'Elia, Riccardo Suman, IEEE 29th Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Bologna, Italy, September 9th-12th 2018, Proceedings (https://ieeexplore.ieee.org/document/8580893)</p> <p>"Signaling-based radio optimization in WCDMA networks", Riccardo Guerzoni; Paolo Zanier; Riccardo Suman; Fabio DiSarno, 2007 IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, Proceedings (https://ieeexplore.ieee.org/abstract/document/4351744)</p>
<p>Main publications (Italian language)</p>	<p>"Il 5G e l'aggiornamento della normativa tecnica nazionale e internazionale sui campi elettromagnetici", S. D'Elia, R. Suman, Dossier Ambiente n. 136, trimestrale dell'Associazione Ambiente & Lavoro, IV trimestre 2021, ISSN 1825-5396.</p> <p>"Caratterizzazione delle emissioni di un'antenna posizionata sotto il piano stradale", S. Adda, L. Anglesio, G. d'Amore, S. D'Elia, R. Suman, Atti del Convegno Nazionale AIRP "Sorgenti di radiazioni: dai modelli alle misure", Salerno, 8-10 novembre 2017.</p> <p>"Evidenze sperimentali sul coefficiente di riduzione della potenza previsto dal D.Lgs 179/12 e dalla guida CEI 211-7/E", S. D'Elia, R. Suman, Atti del XXXVII Convegno Nazionale AIRP "Le radiazioni: valori, conoscenza scientifica e aspetti operativi", Aosta, 15-17 ottobre 2014.</p> <p>"Misura dell'esposizione umana a campi elettromagnetici da segnali LTE: l'applicazione dell'appendice E alla norma CEI 211-7", S. Adda, L. Anglesio, G. d'Amore, S. D'Elia, R. Suman, Atti del XXXVII Convegno Nazionale AIRP "Le radiazioni: valori, conoscenza scientifica e aspetti operativi", Aosta, 15-17 ottobre 2014.</p> <p>"Evoluzione della normativa sui campi elettromagnetici", S. D'Elia, R. Suman & M. Zangani, Rivista dell'AEIT (Associazione Elettrotecnica Italiana), n. 3, marzo 2014</p>
<p>Standard activities</p> <p>Dates</p> <p>Principal subjects covered</p> <p>Dates</p> <p>Principal subjects covered</p> <p>Name and type of organisation</p>	<p>2012-present</p> <p>Since 2012, member of the Working Group "Mobile Base Stations and IoT" ("Stazioni Radio Base e IoT") within the EMF Committee (Technical Committee 106) of the Italian Electro Technical Committee (CEI, Comitato Elettrotecnico Italiano).</p> <p>Italian delegate in several IEC meetings and working groups.</p> <p>2016-present</p> <p>nce 2016, member of the NGMN Base Station Antennas Working Group</p> <p>CEI, Comitato Elettrotecnico Italiano (National standard body) IEC, International Electro Technical Committee NGMN, Next Generation Mobile Networks Alliance</p>

Other teaching activities, seminars and congress speeches

AIRP, Italian Association of Radiation Protection, 61st Course of the AIRP Scuola Superiore di Radioprotezione "Carlo Polvani", Online, 28th January, speech on "Introduzione al segnale 4G: caratteristiche tecniche e modalità di valutazione dell'esposizione"

SNPA, Sistema Nazionale per la Protezione dell'Ambiente, Seminar "Procedure autorizzative degli impianti di telefonia mobile 5G", Rome, 28th November 2019, speech on "Attività di standardizzazione sul 5G di CEI e IEC"

FUB, -Fondazione Bordini, "Verso i nuovi sistemi per le comunicazioni 5G Aspetti tecnologici e ambientali", 20 June 2018, speech "La rilevazione dei nuovi segnali - aspetti teorici e pratici"

AIRP, Italian Association of Radiation Protection, 51st Course of the AIRP Scuola Superiore di Radioprotezione "Carlo Polvani", Calci (Pisa), 5th November 2015, speech on "Le nuove modalità di misura e di valutazione dell'esposizione per il confronto con i limiti: l'Appendice E della Guida CEI con particolare riferimento ai segnali LTE"

AIRP, Italian Association of Radiation Protection (associated to the IRPA, International Radiation Protection Association), XXXVII Convegno Nazionale di Radioprotezione, 15-17 ottobre 2014 (Aosta), 16th October 2014, speech on "Evidenze sperimentali sul coefficiente di riduzione della potenza previsto dal D.Lgs 179/12 e dalla guida CEI 211-7/E"

Licenses & Certifications

Advance Your Skills in Python
Linkedin
Issued Nov 2021 – No Expiration Date

Advance Your Python Skills for Data Science
Linkedin
Issued Mar 2022 - No Expiration Date

Python for Data Science Essential Training Part 1 & Part 2
Linkedin
Issue Feb 2022 – No Expiration Date

Education and training

Dates	October-1996
Title of qualification awarded	Diploma Universitario in Ingegneria Elettronica e Informatica-Automatica presso il Politecnico di Torino
Principal subjects covered	Specialized in telecommunications, Graduation Thesis on the evaluation of space diversity and polarization techniques in antenna systems through measurements, supervised by Professor Valerio Zingarelli.
Name and type of organisation	Politecnico di Torino
Award	Scholarship issued by the Polytechnic of Turin
Dates	1993
Title of qualification awarded	Perito Elettronico
Name and type of organisation	I.T.I.S. Camillo Olivetti, Ivrea