



Strategy and Synergy for Security



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Society for Electronic Transactions and Security (SETS), Chennai
ACM Chennai Professional Chapter
IEEE Computer Society Madras Chapter and
The Institution of Electronics and Telecommunication Engineers, New Delhi

Jointly organising
Special Talk on

Wireless Network Planning and Performance Analysis for 5G

by

Dr. C. J. Reddy, Fellow IEEE

Vice President - Business Development, Electromagnetics, Altair

Abstract:

5G (5th Generation) of mobile networks is a significant upgrade of today's 4G LTE networks. 5G is being designed to meet the very large growth in data and connectivity and the internet of things (IoT) with billions of connected devices, and tomorrow's innovations. 5G spectrum is evolving to cater to various segments with low band spanning from 600MHz to 2.7GHz, mid-band from 3.3 GHz to 7GHz and the millimeter wave (mmWave) band from 24GHz to 39GHz with possibility of adding 64GHz to 86GHz range. In addition, Massive Multiple-Input Multiple-Output (MIMO) is a key component of 5G. The existing technologies like LTE and LTE-Advanced already use MIMO, where the base station and the mobile device have more than one antenna. Base stations with Massive MIMO employ antenna arrays that combine spatial multiplexing with the use of beamforming towards the mobile devices. During this talk, we show how advanced electromagnetic (EM) simulation tools can help in 5G antenna array design for mobile device and base station, and subsequent analysis of radio coverage and channel statistics including the antenna effects. This allows the requirements to be derived and met for the 5G antennas, as well as strategies to be devised for the 5G network deployment, including the 3.5 GHz frequency bands for area-wide high data rate services and the 26-28 GHz bands for high-capacity hotspots.

About Speaker



Dr. C.J. Reddy is Vice President, Business Development-Electromagnetics for Americas at Altair Engineering, Inc. (www.altair.com). Dr. Reddy received his B.Tech. degree in Electronics and Communication Engineering (ECE) from Regional Engineering College, Warangal, India, M.Tech. and Ph.D. degrees in Electrical Engineering from Indian Institute of Technology, Kharagpur, India. He worked as Scientific Office at SAMEER (Society for Microwave Electronics Engineering and

Research), Mumbai during 1987-1991. Dr. Reddy was awarded the Natural Sciences and Engineering Research Council (NSERC) of Canada Visiting Fellowship to work at Communications Research Center in Ottawa during 1991-1993 and was awarded the US National Research Council (NRC) Resident Research Associateship in 1993 to work at NASA Langley Research Center in Hampton, Virginia. While conducting research at NASA Langley, he developed various computational codes for electromagnetics and received a Certificate of Recognition from NASA for development of a hybrid Finite Element Method/Method of Moments/Geometrical Theory of Diffraction code for cavity backed aperture antenna analysis. Dr. Reddy was the President of Applied EM, Inc (2000-2017) where he led several Phase I and Phase II SBIR projects for the DoD and NASA. He was also the President of EM Software & Systems (USA) Inc (2002-2014) and led the marketing of the EM Simulation tool, Feko in North America. EM Software & Systems (USA) Inc was acquired by Altair in 2014.

Dr. Reddy is a Fellow of IEEE, Fellow of ACES (Applied Computational Electromagnetics Society) and Fellow of AMTA (Antenna Measurement Techniques Association). Dr. Reddy served on ACES Board of Directors from 2006 to 2012 and again from 2015 to 2018. Dr. Reddy was awarded Distinguished Alumni Professional Achievement Award by his alma mater, National Institute of Technology (NIT), Warangal, India in 2015. He published 37 journal papers, 77 conference papers and 18 NASA Technical Reports to date. Dr. Reddy is a co-author of the book, "Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software," published in June 2014 by SciTech Publishing (now part of IET). Dr. Reddy is serving as an Associate Editor for the newly introduced, IEEE Open Journal of Antennas of Propagation. He is appointed by IEEE Board of Directors to the position of IEEE Fellow Committee Member for the term 2020-2021. Dr. Reddy is elected as a member of AMTA Board of Directors for a three-year term starting Jan 2020 and is the Technical Coordinator for AMTA 2020 Conference.

Date: 30th September 2020

Time: 5.30 p.m. to 7.00 p.m.

Duration: 1 Hour 30 Minutes

INSTRUCTIONS

Webinar Link: We will share the link for the webinar through the email for registered participants.

Note: Scientist/ Working Professionals/ Faculty / Research Scholars may attend the above said webinar

All are requested to register through the following link for the above webinar (No Registration Fee)

Registration Link: <https://forms.gle/ycwGTjJY9iSvpjJu6>

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