R and D in Advanced Cellular Base - station Antennas

Joint Electrical Institutions Sydney - Engineers Australia, IEEE, IET

ENGINEERS AUSTRALIA

DATE & TIME

Thursday, May 28, 2015
5:30 pm for 6:00 pm start

VENUE

Engineers Australia Harricks Auditorium
Ground Floor, 8 Thomas Street,
Chatswood NSW 2067

COST

EA, IET, IEEE Members – Free
Students – Free
Non-members - $30

CPD

Eligible for 1.5 Continuing Professional Development hours.

RSVP

REGISTER ONLINE

HOSTED BY

Joint Electrical Institutions Sydney

ENGINEERS AUSTRALIA Sydney Division

IEEE

IET The Knowledge Network

Presentation by Dr Bevan Jones,

Formerly Technical Director, CEO and Co-Founder of Argus Technologies

The arrival of 4G LTE cellular systems has placed many new demands on cellular base station antennas and these are proving to be major challenges for designers. Techniques used in the design of earlier antennas in many cases are inadequate. Modern LTE systems often share antennas between operators, leading to requirements for ultra-wide bandwidths and high power-handling capability. The MIMO techniques used require multiple side-by-side arrays with independently adjustable beam down tilts of a number of arrays all with dual polarization, achieved with interlaced elements sharing the same space within the antenna structure.

Interaction between the co-located high and low band arrays is a major design issue. Despite the complexity of such antennas they are required to have low levels and high stability of passive intermodulation (PIM). Another difficult design issue is avoidance of ‘squint’, the tendency of the antenna beam to slew sideways when electrical down tilt is applied.

Bevan will discuss approaches to obtaining a good solution to the many conflicting requirements and his experience in the R&D of such antennas in Argus Technologies, a company specialising in basestation antennas that he helped to found some twenty years ago. Some 90% of Argus’s sales now consist of this type of advanced antennas.

R & D on Advanced Cellular Base-station Antennas

Joint Electrical Institutions Sydney - EA, IEEE, IET

SPEAKER BIOGRAPHY

Bevan Jones attended the University of Sydney where he received a BSc - BE with first class honours in 1970 and a PhD in Electrical Engineering with a thesis on synthesis radio telescope antennas for Radio Astronomy in 1974. After teaching for two years at the University of Wollongong, he worked as a post-doctoral Fellow at the *Max-Planck-Institut für Radioastronomie* in Bonn, Germany between 1974 and 1979 on the design of a millimeter wavelength radiotelescope.
He returned to Australia in 1979 to work for Interscan on a project to develop a microwave aircraft landing system. Between 1980 and 1982 he led a group of twelve Australian engineers working on this project in the USA with a joint venture partner.
Between 1983 and 1994 he was technical director of Interscan Australia Pty Ltd, a government funded R&D company and led the development of many antenna-based products including the microwave landing system (MLS), a C-band phased array precision approach system, an electronically scanned TACAN navigation beacon, a large vertical aperture secondary surveillance radar antenna and an advanced S-band multi-beam phased array primary radar antenna. He was also responsible for the development of the Interscan cellular basestation antenna with adjustable electrical beamtilt in 1992-3 in a collaboration with Telstra at the time when the original AMPS system was being rolled out.
After failing to convince owners of Interscan of the business case for pursuing cellular basestation antennas, he, together with two partners established Argus Technologies (Australia) in 1994 and served as Managing Director for ten years and then as Technical Director. The company has specialised solely on the design and manufacture of cellular basestation antennas. The company set up a second manufacturing facility in Guangzhou, China in 2001 and later established an R&D capability there. Since its inception, Argus has brought a number of innovations to market and has become a major international supplier of cellular antennas.

Three years ago, the company was sold to CommScope making it the largest supplier of basestation antennas. At the time of the sale, Argus's turnover was around $100M.
A year ago, Bevan retired from full-time work and since then has done a number of consulting jobs.

Bevan Jones is author of a number of articles in technical journals and patents and has undertaken consulting on antennas and electromagnetics for a number of companies including Raytheon and British Aerospace and has taught specialist courses on these topics at universities.

For further information, contact Trevor Blackburn

Email: t.blackburn@unsw.edu.au

Event Hosted by: Joint Electrical Institutions Sydney - Engineers Australia. IEEE, IET