Foreword

Traditionally, the term "ultra-wideband" (UWB) has been associated with terms such as impulse, carrier-free, baseband, time-domain, non-sinusoidal, orthogonal function and large-relative-bandwidth radio/radar. The basic feature of UWB systems is the occupancy of an extremely wide operating bandwidth, compared to conventional radios, due to their use of impulse signals. Since the late 1960s, UWB technology has been developed mainly for radio and radar systems, in particular, for government and military applications.

However, in order to use UWB technology to benefit commercial markets and concurrently protect against possible interference between UWB systems and other existing electronic systems, since 2002, several countries released the spectra of below 900 MHz and 3.1–10.6 GHz bands for the unlicensed use of UWB systems. Unlicensed commercial applications include imaging systems and vehicular radar systems, as well as communication and measurement systems. The regulated emission from UWB systems is an effective isotropic radiated power (EIRP) of less than −41.3 dBm/MHz. More importantly, UWB technology is no longer limited to impulse systems.

Such commercial UWB systems have inevitably raised unique design challenges for antennas. A great deal of effort in research and development has been expended in order to achieve the desired broadband characteristics in terms of impedance matching, group delay and radiation properties, as well as other practical requirements such as low cost and miniaturised size.

This book, *Ultrawideband Antennas*: *Design and Applications* authored by Daniel Valderas and his colleagues Xiaodong Chen, Cong Ling, Juan Ignacio Sancho and David Puente, is a timely collection of the latest progress in the antenna designs, not only for UWB, but also for broadband applications. This group is comprised of co-authors from diverse perspectives, each of whom has been very active in, and greatly contributed to, this area. Besides conventional ways to design and optimise broadband antennae, the book also addresses a systematic

design process to fit specific requirements in a unique way. Therefore, if you are interested in the forefront of broadband antenna technology, this book definitely will be a welcome addition to your library.

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