Dr. Roy A. Axford, Jr.

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Dr. Axford is Senior Technologist, Wireless Communications at the Space and Naval Warfare (SPAWAR) Systems Center, Pacific (SSC Pacific) in San Diego, California. He serves as a science, technology, and engineering expert to steer the development of wireless communications for the Navy and the Department of Defense. He was promoted to the rank of Senior Technologist in January 2009 and is currently in his 33rd year of federal service.

Dr. Axford began his federal career in October 1980 at the U.S Army Corps of Engineers Construction Engineering Research Lab in Champaign, Illinois, where he worked in electromagnetic compatibility. In January 1983, Dr. Axford transferred to SSC Pacific and joined the submarine laser communications team. He concentrated on submarine optical receivers of various types through 1989. In 1992, Dr. Axford led a new Office of Naval Research (ONR) funded project that examined the use of the ultra-high frequency band for high data rate, line-of-sight, ship-to-ship communications. In 1996, Dr. Axford led a team that performed the first Ka-band satellite communications (SATCOM) demonstration aboard a U.S. Navy warship, the USS PRINCETON (CG 59). This demonstration provided Internet, telephone, and video teleconferencing services to PRINCETON during an operational deployment in the Eastern Pacific. From 1998 to 2003, Dr. Axford led the ONR/Defense Advanced Research Projects Agency sponsored Ultra Small Aperture Terminal Ka-band phased array antenna project. Also from 1998 to 2003, Dr. Axford represented the Navy SATCOM program office on U.S. delegations to International Telecommunication Union Radio communication Bureau (ITU-R) Working Party 4-9S, which dealt with frequency sharing between the Fixed Service (FS) and the Fixed Satellite Service. This work led to the development of ITU-R recommendations that provide guidance for SATCOM earth stations on vessels to share frequencies with the FS without interference. From 2003 to 2008, Dr. Axford led a team that, through factory communications performance testing, uncovered a flaw in the Wideband Global SATCOM (WGS) Block I payload that would have prevented the use of bandwidth efficient modulations on WGS. The flaw was detected in time for it to be remedied before the launch of the first WGS satellite.

Dr. Axford holds the following degrees from the University of Illinois at Urbana-Champaign: Bachelor of Science in Electrical Engineering (1977), Bachelor of Arts in Mathematics (1977), and Master of Science in Electrical Engineering (1980). His MS thesis dealt with atmospheric laser propagation. He also holds a Ph.D. in Electrical Engineering (1995) with a specialization in communications theory and systems from the University of California at San Diego. His Ph.D.

dissertation introduced a method for actively countering a widely used adaptive signal processing algorithm for digital communications signal interception.

Dr. Axford received the Department of the Navy Meritorious Civilian Service Award in 1996. He received SSC Pacific's highest award, the Lauritsen-Bennett Award for excellence in engineering, in 2005. He received the Department of the Navy Top Scientists and Engineers of the Year Award in 2006. Dr. Axford is also the recipient of five SSC Pacific publications awards.

Dr. Axford is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) and a member of the IEEE Communications and Antennas and Propagation Societies. He served as the Technical Chair of the Classified Sessions of the 2008 IEEE Military Communications Conference held in San Diego.

Updated: September 2013