

Stand on the Antennas & Propagation Standards

Abstract

Few people among the AP-S community are aware about the standards that have already been developed by the AP-S Standards Committee. The terminology standards (Std. 211 & Std. 145) are important documents which ensure that the right terms are employed in technical papers and reports. Std. 149, Std. 1502 & Std. 1720 are useful when performing antenna and radar cross-section measurements. The objective of the short course is to raise awareness about these documents and the AP-S standards activities.

Graphical abstract



Recommended prerequisites

No specific requirement is required but it is expected that the participant has at least an undergraduate degree in engineering.

Learning objectives

After the course the participant will be able to use the right terminologies in papers (e.g. frequent misuse of the term "return loss" is observed).

Become familiar with antenna measurement systems.

Course outline

Includes printed copies of the antennas & propagation terminology standards:

1. Std. 145-2013: IEEE Standard for Definitions of Terms for Antennas (\$74)
2. Std. 211-2018: IEEE Standard Definitions of Terms for Radio Wave Propagation (\$78).

Printed copies of Std.145-2013 (IEEE Standard for Definitions of Terms for Antennas) & Std. 211-2018 (IEEE Standard Definitions of Terms for Radio Wave Propagation) will be distributed to the participants. The short course is limited to maximum 15 participants on a first come first serve basis.

Outline

1. Vikass Monebhurrun: Introduction to Standards, Std. 145 and Std. 211 on terms and definitions
2. Vince Rodriguez: Std. 149 on Antenna Measurements
3. Lars Foged: Std.1720 on Near Field Measurements

Instructor 1 – Biography



Dr. Vikass Monebhurrun (SM'07) received the PhD degree in 1994 and the Habilitation à Diriger des Recherches in 2010 from Université Pierre et Marie Curie and Université Paris-Sud, respectively. His research contributed to the international standardization committees of CENELEC, IEC, and IEEE. He is author and co-author of more than hundred peer-reviewed international conference and journal papers and five book chapters. He is an active contributor to the international standardization committees of IEC 62209, IEC 62232, IEC/IEEE 62704 and IEEE1528. He serves as Associate-Editor for the IEEE Antennas and Propagation Magazine since 2015 and Transactions since 2016, and Editor of the IoP Conference Series: Materials Science and Engineering since 2013 He is the founder of the IEEE RADIO international conference and he served as General Chair for all seven editions since 2012. He is the Chair of the international committees of IEC/IEEE 62704-3 since 2010 and IEEE Antennas and Propagation Standards since 2015. He was recipient of the URSI YSA in 1996 and the IEEE Ulrich L. Rohde Humanitarian Technical Field Project Award in 2018. He received the IEEE-SA International Joint Working Group Chair Award in 2017, the IEC 1906 Award in 2018 and the IEEE-SA International Award in 2019.

Instructor 2 – Biography



Mr. Lars Foged (M'91–SM'00) received his B.S. from Aarhus Teknikum, Denmark in 1988 and M.S. in Electrical Engineering from California Institute of Technology, USA in 1990. He was a “graduate trainee” of the European Space Agency, ESTEC and in the following ten years, designed communication and navigation antennas in the satellite industry. He led the antenna design effort on the recently launched GALILEO space segment and performed the multi-physics design of shaped reflectors for the EUTELSAT W satellites, still serving European users. Following his passion to rationalize the multi-disciplinary antenna design process, including measurements and simulations, he joined MVG (formerly SATIMO) in 2001 and founded the Italian branch office. In MVG, he initiated close collaborations with universities and research institutions on measurements with focus on antennas and techniques for analysis/post-processing. He has held different technical leadership positions in MVG and is currently the Scientific Director of the Microwave Vision Group, and Associate Director of Microwave Vision Italy. He has authored or co-

authored more than 200 journal and conference papers on antenna design and measurement topics and received the “Best Technical Paper Award” from AMTA in 2013. He has contributed to five books and standards, and holds four patents.

Instructor 3 - Biography



Dr. Vince Rodriguez (SM 2006) attended The University of Mississippi (Ole Miss), in Oxford, Mississippi, where he obtained his B.S.E.E. in 1994. Following graduation Dr. Rodriguez joined the department of Electrical Engineering at Ole Miss as a research assistant. During that period he earned his M.S. and Ph.D. (both degrees on Engineering Science with emphasis in Electromagnetics) in 1996 and 1999 respectively. After a short period as visiting professor at the Department of Electrical Engineering and Computer Science at Texas A&M University-Kingsville, Dr. Rodriguez joined EMC Test Systems (now ETS-Lindgren) as an RF and Electromagnetics engineer in June 2000. In November 2014 Dr. Rodriguez joined MI Technologies (now NSI-MI Technologies) as a Senior Applications Engineer. In this position Dr. Rodriguez works on the design of antenna, RCS, and radome measurement systems. During his tenure at NSI-MI Dr. Rodriguez was involved in designing several Antenna and RCS anechoic ranges for near to far field,

Compact Range and far field measurements. In 2017 Dr. Rodriguez was promoted to staff engineer positioning him as the resident expert at NSI-MI of RF absorber and indoor antenna ranges. He is the author of more than fifty publications including journal and conference papers and book chapters.

Key bibliography

1. Std. 145-2013: IEEE Standard for Definitions of Terms for Antennas.
2. Std. 211-2018: IEEE Standard Definitions of Terms for Radio Wave Propagation.
3. Std. 149-1979: IEEE Standard Test Procedures for Antennas
4. Std. 1502-2007: IEEE Recommended Practice for Radar Cross-Section Test Procedures
5. Std. 1720-2012: IEEE Recommended Practice for Near-Field Antenna Measurements
6. Trevor S. Bird, “Definition and misuse of return loss,” IEEE Antennas and Propagation Magazine, Vol. 51, No. 2, April 2009, pp. 166-167.
7. IEEE Standard Dictionary of Electrical and Electronics Terms, Sixth Edition, Std. 100-1996.
8. Vikass Monebhurrun, “Revision of IEEE Antennas and Propagation Society Standards 149, 211, and 1502,” IEEE Antennas and Propagation Magazine, Vol. 58, No. 3, June 2016, pp. 104 & 113.