

References Applicable to Station-Level Calibration

Steve Ellingson*

July 17, 2008

1 Summary

This is a list of references possibly applicable to LWA station-level calibration.

References

- [1] R.L. Balsano, A Search for Radio Emission Coincident with Gamma-Ray Bursts, Ph.D. Thesis, Princeton University, 1999. (Section 2.3 addresses calibration)
- [2] O. Besson, S. Kraut, and L.L. Scharf, "Detection of an Unknown Rank-One Component in White Noise," *IEEE Trans. on Signal Processing*, Vol. 54, No. 7, July 2006, pp. 2935–39.
- [3] J.D. Bowman, *Probing the Epoch of Reionization with Redshifted 21 cm HI Emission*, Ph.D. Thesis, Massachusetts Institute of Technology, 2007. (Section 5.2 addresses calibration issues.)
- [4] A.-J. Boonstra and A.-J. van der Veen, "Gain Calibration Methods for Radio Telescope Arrays," *IEEE Trans. Signal Processing*, Vol. 51, No. 1, January 2003, pp. 25–38.
- [5] A.-J. Boonstra and A.-J. van der Veen, "Dual Polarization Gain Estimation for Radio Telescope Arrays," *Proc. IEEE Int'l Conf. on Acoustics, Speech, and Signal Processing (ICASSP)*, April 2003.
- [6] A.-J. Boonstra, *Radio Frequency Interference Mitigation in Radio Astronomy*, Ph.D. Thesis, T.U. Delft, 2005. (Chapters 8 and 9 address gain and polarization calibration respectively.)
- [7] G.A. Cohn and J.D. Sahr, "Meteor Radar Interferometry Using Comparisons to NEC Antenna Array Simulations," Technical Report, University of Washington Department of Electrical Engineering Radar Remote Sensing Laboratory, <http://sababa.caltech.edu/research/Cohn.Sahr-2006.pdf>
- [8] E.F. Campos, W. Hocking, and F. Fabry, "Precipitation Measurement using VHF Wind-Profiler Radars: A Multifaceted Approach to Calibrate Radar Antenna and Receiver Chain," *Radio Science*, Vol. 42, RS4008, 2007, doi:10.1029/2006RS003508.
- [9] M.J. Gans, "Channel Capacity Between Antenna Arrays – Part I: Sky Noise Dominates," *IEEE Trans. Communications*, Vol. 54, No. 9, September 2006, pp. 1586–92.
- [10] M.J. Gans, "Channel Capacity Between Antenna Arrays – Part II: Amplifier Noise Dominates," *IEEE Trans. Communications*, Vol. 54, No. 11, November 2006, pp. 1983–92.
- [11] D.A. Holdsworth, "Angle of Arrival Estimation for All-Sky Interferometric Meteor Radar Systems," *Radio Science*, Vol. 40, RS6010, 2005, doi:10.1029/2005RS003245.

*Bradley Dept. of Electrical & Computer Engineering, 302 Whittemore Hall, Virginia Polytechnic Institute & State University, Blacksburg VA 24061 USA. E-mail: ellingson@vt.edu

- [12] V.R. Latorre, "The Phase Stability of VHF Signals Reflected from Meteor Trails," *IEEE Trans. Antennas & Propagation*, July 1965, pp. 546–50.
- [13] T. Li, A. Ekpenyong, and Y.-F. Huang, "Source Localization and Tracking Using Distributed Asynchronous Sensors," *IEEE Trans. Signal Processing*, Vol. 54, No. 10, October 2006, pp. 3991–4003.
- [14] S. Nehls *et al.*, "Amplitude Calibration of a Digital Radio Antenna Array for Measuring Cosmic Ray Air Showers," Feb 28, 2008, astro-ph/0802.4151v1.
- [15] K. Niinuma *et al.*, "Receiver Gain Calibration for Radio Observations at the Waseda Nasu Pulsar Observatory," *Pub. Astron. Soc. Pac.*, 119, 112, January 2007.
- [16] M. Pesavento and A.B. Gershman, "Maximum-Likelihood Direction-of-Arrival Estimation in the Presence of Unknown Nonuniform Noise," *IEEE Trans. Signal Processing*, Vol. 39, No. 7, July 2001, pp. 1310–24.
- [17] A.E.E. Rogers, P. Pratap, E. Kratzenberg, M. A. Diaz, "Calibration of Active Antenna Arrays Using a Sky Brightness Model," *Radio Science*, Vol. 39, RS2023, 2004. doi:10.1029/2003RS003016.
- [18] S. van der Tol, B.D. Jeffs, and A.-J. van der Veen, "Self-Calibration for the LOFAR Radio Astronomical Array," *IEEE Trans. Signal Processing*, Vol. 55, No. 9, September 2007, pp. 4497–4510.