Measurement of Absolute Flux Density for Meter-Wavelength Calibration Sources

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With increasing interest in long wavelengths, there is increasing need for accurate estimates of the flux density and spectrum of candidate calibration sources; in particular for the four brightest members of the "A Team": Cyg A, Cas A, Tau A, and Vir A. However the accuracy to which the flux density of these sources is known is very poor in this frequency range. Currently, the best possible estimates typically require log-linear extrapolation from narrowband measurements at other frequencies having uncertainty on the order of 10%, using a spectral index which itself is not accurately known. A further problem is the certainty that the spectral index itself is a function of frequency in this wavelength regime, so the log-linear approximation contributes significant error. The resulting total uncertainty is therefore much larger than the uncertainty in the original measurement. Ironically, the new instruments which are creating the need for this information are poorly suited to make the necessary measurements. Instead, these measurements are best performed using a small number of very simple dipoles. In this talk, we describe our project to precisely measure the flux density of A Team sources below 88 MHz, including a description of the instrumentation and results to date.