

The International Engineering and Management Team (IEMT)

The IEMT was the first engineering body constituted within the SKA project. It grew out of resolutions of the International SKA Steering Committee in 2000, at meetings held at Jodrell Bank Observatory in the UK. The first IEMT Chair was Peter Hall, then of CSIRO in Sydney, Australia. Other members included S. Ananthakrishnan (India), D. Kant (Europe), R. Nan (China), P. Napier (USA), R. Spencer (Europe), R. Thompson (USA), and B. Veidt (Canada).

Much of the IEMT work was focused on enabling and reviewing the first “end-to-end” concept descriptions of the SKA. These descriptions, contained in SKA Memos 17-23, were the first attempt at complete system descriptions and common costings. The IEMT reviews of the concepts, and the subsequent update papers, underlined the great commonality in all SKA concepts and the need for “hybrid” solutions if the SKA was to perform to specification at both high and low frequencies. Memos 27 and 41 contain particularly significant IEMT reviews and reports, with the shape of the SKA as we now know it emerging from the analyses.

The Engineering Working Group (EWG)

With the appointment of the first SKA International Project Engineer in 2004, an expanded international Engineering Working Group (EWG) was formed as the successor to the original International Engineering and Management Team (IEMT). The EWG was chaired first by Peter Hall as IPE in the period 2004-8, then by Peter Dewdney in the years following, until gradually replaced by the International SKA Project Office team in the SKA Preparatory Study Phase. The EWG was key to the refinement of SKA concepts, particularly the development of a system view of the telescope and, in conjunction with the Science Working Group, the setting of initial SKA specifications. With the arrival of real instruments (such as the Allen Telescope Array and LOFAR) as SKA pathfinders, the EWG also undertook reviews of these telescopes, channeling many insights to the SKA project. A variety of significant SKA memos were published, starting with Memo 55 and including Memo 91 – the first system review of the SKA. Early in the EWG existence the Group was central to the publication of the engineering “red book”, entitled *The Square Kilometre Array: An Engineering Perspective*.

Late-phase EWG membership is listed in the table below. With the huge mandate of the Group, a number of specialist Task Forces were formed under the chairs listed. Like the Science Working Group, the EWG success was due largely to the enormous amount of coordinated, voluntary effort from individuals around the world.

S. Ananthakrishnan National Centre for Radio Astronomy India	Albert Jan Boonstra ASTRON The Netherlands	Tim Cornwell Australia Telescope National Facility Australia
Larry D'Addario JPL USA	Peter Dewdney (Chair) SKA Program Development Office	David DeBoer Australia Telescope National Facility Australia
John Dreher SETI Institute USA	Steve Ellingson Virginia Tech USA	Andrew Faulkner (vice-chair) University of Cambridge UK
Peter Hall Curtin University Australia	Jasper Horrell SKA MeerKAT project South Africa	Dion Kant ASTRON The Netherlands
Anita Loots SKA South Africa South Africa	Rendong Nan National Astronomical Observatories China	John O'Sullivan Australia Telescope National Facility Australia
Neil Roddis SPDO	Ralph Spencer University of Manchester and Jodrell Bank Observatory UK	Richard Thompson Retired (formerly National Radio Astronomy Observatory) USA
Bruce Veidt Dominion Radio Astrophysical Observatory Canada	Sander Weinreb Caltech University / JPL USA	

Task forces

> Power Investigation

Chair: Peter Hall

> Antennas

Chair: Neil Roddis

> RF Systems

Chair: Bruce Veidt

> System Engineering

Chair: Dick Thompson

> Signal transmission

Chair: Ralph Spencer

> Signal processing

Chair: Albert-Jan Boonstra

> RFI mitigation

Joint chairs: Steve Ellingson and Frank Briggs

> Computing

Chair: Jasper Horrell

> Industrial liaison

Chair: Peter Hall

> Calibration and Imaging

Chair: Tim Cornwell