



SPUC EMI Subcommittee Report

South Pole Station is one of the world's preeminent observatories for astronomy and space science research, and all radio transmissions pose a potential threat to these activities. It is the intention of the SPUC EMI Subcommittee to help preserve this quiet electromagnetic environment while also enabling transmission-based experiments to operate and achieve their respective science goals and objectives. A list of suggestions and recommendation resulting from discussions with the science community and at the PI meeting at Raytheon Polar Services Company on 28 June 2005 is given below.

- An EMI web site should be established to inform and educate the South Pole community about all transmitting and receiving operations at the station.
- All transmitters must be installed as far as possible from the Dark Sector or any other EMI sensitive experiment/region.
- All transmitting experiments must present an operation and transmission schedule.
- All new transmitters should expect to initially operate in a half-time-mode for at least one year. This means that transmitters should be off for a period of at least a minute, and on for a similar time interval. This rule should not preclude full-time operation for several days for special events such as solar flares, but such full-time operation should be averaged into a schedule where the transmitter is off at least half the time. Such a transmission schedule will enable sensitive receiving experiments to divide their respective data sets into "transmitter on" and "transmitter off" intervals that have equal statistical weight.
- Full-time operation of transmitters could be approved by the NSF and the scientific community after review of at least one year of half-time operation mode data collection, or during periods when receiving experiments are not performing critical observations, for example during the Austral summer.
- Review, for possible adoption, the International Telecommunications Union's document ITU-R R.A. 769-1 that provides quantitative recommendations about the allowable transmitter power levels at radio Observatories. These allowed maximum transmitter power levels are expected to be significantly lower than the estimated power levels in the Dark Sector while experiments, such as SuperDARN, are transmitting. All experimenters in the Dark Sector are therefore concerned about potential interference.
- An NSF mediated mechanism will be established such that any science group, at any time, could present evidence that another is posing interference/EMI problems. Such evidence might result in reduced operation and/or termination of the experiment.

Compiled by the Subcommittee Chair, Allan T. Weatherwax