

Near Field Electro-Magnetic Standard

Naval aircraft must be tested for their ability to safely operate in intense electromagnetic fields. Intense fields can be experienced routinely when flying near a strong source such as carrier radar and high power radio transmitters, or they might be generated by electronic warfare systems. The Metrology R&D Program is developing a Electro-Magnetic Near Field Standard probe that can be placed next to the aircraft to accurately calibrate E and H field strengths and phases during EMI/EMC testing. The near field E and H standard will operate over a 60 dB dynamic range, with its sensitivity varying from approximately 10 V/m at the low end of 10 kHz, to approximately 10 mV/m at the high end of 100 MHz. Communication and power between the standard and remote instrumentation depends on fiber optic connections. This eliminates the problems found in older systems that used wired connections, and found noise induced in the transmitted signal due to the wires acting as antennas in the test E&H fields. The system being developed by NIST, Boulder will be deployed to NWACAD PAX River in late FY01.

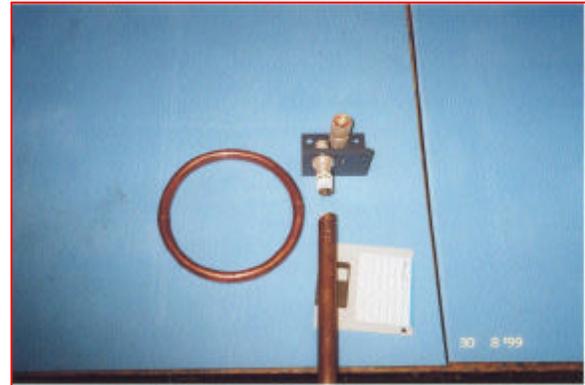


Figure 1
Antenna standard with internal electronics



Figure 2
Remote Instrumentation Package