Statement of Work for Electric Field Measurement System

Summary Description

The NASA Glenn Research Center requires an electric field measurement system for radiated electric field immunity (susceptibility) testing of development and flight hardware in the Electromagnetic Interference (EMI) Laboratory at Lewis Field. The specifications for the procured electric field measurement system, hereafter, called the E-Field System, are provided below.

1. The E-Field system shall include 2 electric field probes. Each probe shall meet the following specifications:
    a. The probe shall be powered by a rechargeable and replaceable battery.
    b. Each probe shall have a battery charging port.
    c. Battery charger provided with each probe.
    d. Each probe shall have a single carrying case for the probe and probe battery charger.
    e. Each probe shall be capable of operating for a minimum of 4 hours on a full battery charge.
    f. Each probe shall be capable of measurement and reporting of the electric field aligned with 3 orthogonal axes.
    g. Each probe shall be capable of measurement and reporting of the vector sum magnitude of the electric field.
    h. Each probe shall have a frequency response that includes frequencies between 10 kiloHertz and 1 GigaHertz.
    i. Each probe shall have a measurement dynamic range from 2 V/m to 800 V/m.
    j. Each probe shall have a duplex optical fiber interface over 200 micron multimode fiber and FSMA connectors.
    k. The size of the sensor head of each probe shall be less than 3 inches x 3 inches x 3 inches.
2. The E-Field system shall have a probe controller system that meets the following specifications:
    a. The probe controller shall have the interfaces to control at least 4 battery powered ETS-Lindgren electric field probes over duplex optical fiber interface over 200 micron multimode fiber with SMA connectors including the ETS-Lindgren HI-6022, HI-6023, and HI-6053.
    b. The probe controller shall have a 3U height (5.2 inches)

c. The probe controller shall be mountable in a 19 inch rack with provided mounting hardware.
d. The probe controller shall have a front to back depth of less than 14 inches.
e. The probe controller shall be powered by 120 VAC at less than 5 watts consumption in standby mode.
f. The probe controller shall be controllable with an external computer through included GPIB (IEEE-488), ethernet, and USB interfaces on the controller.
g. The probe controller shall have a front panel display that is configurable by front panel controls to display electric field measurements from a single probe, all connected probes, or a subset of connected probes.
h. The probe controller shall accept Standard Commands for Programmable Instruments (SCPI) from an external computer for configuration of the controller or requesting measurement data.