

## ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3) & SPECTRUM MANAGEMENT (SM)



### BACKGROUND

The SURVICE Engineering Company is a small business that has been providing the DoD and related customers with high-quality analytical products and services since 1981. Founded specifically to focus on systems survivability, we have grown to specialize in applying a systems engineering approach in support of the design, development, testing, and fielding of air, ground, and sea systems that are safe, survivable, and effective. SURVICE has applied its experience to preserve the operational capabilities of DoD systems with various electromagnetic environmental effects (E3) and spectrum management (SM) requirements.

### E3 & SM CAPABILITIES

SURVICE supports DoD and commercial agencies with all aspects of their E3 and SM life-cycle requirements. This support includes vast experience in inter- and intra-system electromagnetic interference/compatibility (EMI/EMC), shipboard effects, external radio frequency electromagnetic environments

(RFEMEs), lightning effects, electromagnetic radiation hazards (EMRADHAZ), electromagnetic vulnerability (EMV), electrostatic discharge (ESD), and electromagnetic pulse (EMP). We also have a working knowledge of the latest MIL-STD-461, MIL-STD-464, MIL-STD-2169B, and ADS-37A-PRF.

In addition, SURVICE prepares DD1494's and has extensive knowledge in managing the use of the EM spectrum to prevent mutual interference among the users. We understand that the EM spectrum is one of the military's most vital assets, as systems across the DoD require access.

SURVICE also uses its analytical methodologies and extensive test experience to evaluate the effectiveness of vehicle design and enhance the vehicle's ability to function in an E3 environment. An integral part of these capabilities is the design methodology for the test and evaluation (T&E) of composite material structures. We help to ensure that systems retain their mission effectiveness by being both survivable and operationally effective in an E3 spectrum without interference to themselves or other systems.

### EXPERIENCE

SURVICE's full spectrum of E3 capabilities has provided the DoD and other customers with evaluation and design support of various platforms and programs. Notable experience in the E3 T&E of military systems includes the following:

- Stryker E3 Analysis – SURVICE modeled the first Stryker variant, including the enclosure, penetrations, and subsystems with interconnecting cables. The analysis, which reduced the amount of testing on subsequent variants, determined the amount of shielding needed to meet the E3 requirements and compared this value to the actual test results on the system.
- CH-47 Emitter Analysis – SURVICE used external RF test results and compared them to emitter database by frequency and field intensity to determine aircraft vulnerability.
- JLENS Product Office Support – SURVICE served as an integrated part of the test team, providing test planning, contractor data evaluations, document review, and overall coordination for E3 efforts.

Other notable examples of systems supported include JCA, THAAD, UH-60, Air Warrior, C-RAM, UAVs, and LAV.