

FIELD EXPEDIENT EMP MITIGATION TECHNIQUES AND PLANNING CONSIDERATIONS

1. Develop SOP's to provide for immediate actions to restore communications. In the absence of electronic communications, messenger and pyrotechnics can be used.
2. The keys to the maintenance of effective communications are: planning for outages, proper maintenance of equipment, austerity and redundancy.
3. Use ultra high frequency (UHF) and super high frequency (SHF) communications equipment in preference to VHF equipment whenever possible.
4. Avoid the use of broadband radios. Radios operating below UHF are particularly sensitive to EMP.
5. Shut down and protect unneeded and redundant radio systems. This will protect all radios that are not essential from the possibility of EMP.
6. When possible, use antennas that have small radiating elements. The smaller the radiating elements, the less susceptible to EMP.
7. Keep cable and wire runs as short as possible. The wire will act as an EMP conductor.
8. Keep cable runs as straight as possible--AVOID LOOPS. Loops will pick up more EMP than straight runs.
9. Keep cables and wire on the ground where practical. Elevating cables and wires will increase the EMP generated voltages and currents.
10. Use shielded twisted pair cables where options in use of cable exist. Twisted pair cables pick up significantly less EMP than unshielded cable.
11. Shielding is effective for EMP. Sensitive communications equipment can be protected from EMP if properly shielded in metal containers.
12. An effective EMP shield requires that all openings be closed with metal covers.
13. Maintain your EMP shields and shelters. Ensure all doors and access panels are kept closed.
14. Electrically bond cable entry panels to the metallic shelters and shields.
15. Keep exterior grounds short and of low impedance.
16. Establish good exterior grounds when possible.
17. Use a common ground for equipment. For large communications systems usually found at regiment and above use a tree system.
18. Ensure all antenna guy lines are properly insulated.
19. Avoid the use of commercial sources of power. Commercial power systems are very susceptible to EMP.
20. Keep a supply of critical spares.