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14. ABSTRACT
The purpose of this Test Operations Procedure (TOP) is to provide general guidance for identifying and evaluating potential hazards associated with operating and testing of Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance, and Electronic Warfare systems.

15. SUBJECT TERMS
Integrated Process (IP)

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US ARMY DEVELOPMENTAL TEST COMMAND
TEST OPERATIONS PROCEDURE

*Test Operations Procedure 6-2-507 10 March 2009
DTIC AD No.: ADA503075

SAFETY AND HEALTH EVALUATION – COMMAND, CONTROL, COMMUNICATION, COMPUTERS, INTELLIGENCE, SURVEILLANCE, RECONNAISSANCE, AND ELECTRONIC WARFARE EQUIPMENT

* This TOP supersedes TOP 6-2-507, dated 15 June 1981.

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1. SCOPE.

1.1 Purpose.

The purpose of this Test Operations Procedure (TOP) is to provide general guidance for identifying and evaluating potential hazards associated with operating and testing of Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance, and Electronic Warfare systems.

1.2 Terms and Conditions.

Due to the variety of test situations and equipment evaluated, some of the information in this document may not apply. A complete evaluation is based upon physical examination and testing, review of documentation, and observations made by all participants during the test. The goal is to determine if the unit is safe to test, transport, operate (including foreseeable misuses), and maintain. Additionally, is it safe for the environment during manufacture, use, and disposal.

1.3 Limitations.

Safety release recommendations are specifically scoped and designed to determine how equipment may be safely operated by specific Soldiers for a specific test or training event. The recommendation takes into consideration the test or training plan and makes recommendations as to what must be done to safely operate the equipment by Soldiers during the planned event. Safety confirmation recommendations will provide a risk assessment for use of the equipment by Soldiers based on residual hazards that exist in the system. Unlike a safety release recommendation, a safety confirmation recommendation must consider that the equipment will be used by any properly trained Soldier for any event.

2. FACILITIES AND INSTRUMENTATION.

2.1 Facilities.

No specific facilities are required; however, for certain measurements, such as noise levels and radio frequencies (RF), the measurements must be made where there are no reflections or interference from nearby facilities or structures.

2.2 Instrumentation.

The following instrumentation, may or may not be used in performing safety evaluations, depending on the test item. The accuracy required is listed with each instrument:

a. Voltmeter , ± 0.1% of reading, AC and DC , from 30 to 500 volts.

b. RF field meter, ±0.5 mW/cm^2 from 1 to 10 mW/cm^2.

c. Surface thermometer, ±0.5°F, from 0 to 160 °F.

e. Sound level meter, ±1dBA, from 65 to 85 dBA.

f. Carbon monoxide monitor, ± 10%, of reading, from 35 ppm to 400 ppm.

g. Trailer tongue weight gauge, ± 5% full scale deflection.

3. REQUIRED TEST CONDITIONS.

3.1 Preliminary Safety Review and Documentation Preparation.

a. Write the safety subtest for the detailed test plan for all Developmental Tests (DT) conducted by the US Army Electronic Proving Ground (EPG). For test items where the only input is safety, a test report is not required and therefore a safety subtest is not required. The safety release recommendation and safety confirmation recommendation will serve as the test report. A test plan (not a detailed test plan) is required at the creation of the test project. If safety is the only input, the test plan will address only safety issues.

b. For a regular DT, the material developer is required to provide a safety assessment report, operator manuals, and maintenance manuals. The safety assessment report should be reviewed before the start of the test. It will list the health hazards identified by the material developer. If the system transmits RF and does not meet the low-power exclusions of Institute of Electrical and Electronics Engineers (IEEE) C95.11[1**] or 47 Code of Federal Regulations (CFR) 2.10912[2], a Health Hazard Assessment from the US Army Center for Health Promotion and Preventative Medicine (CHPPM) is required. For example, RF transmitting equipment is tested for Hazards of Electromagnetic Radiation to Personnel (HERP) at EPG's Electromagnetic Environmental Effects (E3) facility, and that information is forwarded to CHPPM for the health hazard assessment. Obviously, if EPG is gathering the data for the health hazard assessment, it will come here for testing without the health hazard assessment. If the system includes a class 3 or 4 laser, a health hazard assessment from CHPPM is required. It is the responsibility of the developer (or test sponsor) to coordinate with CHPPM.

c. Review the system support package, instructional material, technical manuals and schematics.

d. Ensure that a suitable test site and/or test facilities are surveyed for conducting DT. Assist the test officer in developing the composite risk management (CRM) for the test. Ensure the CRM is done before giving the final approval for testing at the Test Readiness Review (TRR).

e. Schedule an initial inspection of the test item with the test officer. The initial safety inspection shall be conducted before start of test. The applicable questions listed in the Safety Checklist (Appendix A) will be used as a guide during evaluation. As necessary, amend the CRM to ensure safe testing. Discuss safety related problems with the test officer. Perform follow-up inspections as required.

[**] Superscript numbers correspond to those in Appendix D, References.

f. Determine which subcomponents are commercial off-the-shelf (COTS) or Government off-the-shelf (GOTS). Verify that COTS have an Underwriters Laboratory, Incorporated® (UL®) listing (or comparable). For COTS, verify that the future Soldier user will operate the subcomponent the same as a consumer would operate the subcomponent. Verify that the Soldier will maintain the COTS the same as a consumer would maintain the subcomponent. If the Soldier does not perform internal COTS maintenance, it does not have to be evaluated for internal maintenance hazards.

g. GOTS has already been evaluated for operator's and maintainer's safety. However, if there is a change in what the equipment is being used for, how it is operated, or how it is maintained, it may need to be reevaluated.

h. Although many C4 systems will consist of a collection of apparently safe COTS and GOTS products, it is essential to examine and test the integration of the products for potential hazards. Examples include mounting bracket, rack, and fixture adequacy; routing and size of cabling, power sufficiency and circuit protection to include ground fault circuit interrupter; maintenance procedures for removal and replacement of awkward or heavy equipment, grounding and bonding of equipment to avoid shock, protection of and adequacy of equipment to the weather environment exposed, adequacy of lighting, adequacy of environmental control systems, appropriate use of warning and caution labels, and potential hazards of equipment due to operation in an electromagnetic environment, etc.

3.2 Tester Training and Familiarization.

a. Ensure the required new equipment training is conducted by the developer or contractor.

b. Conduct a pretest briefing to all test participants. The briefing shall include the hazards identified in the CRM. The briefing may also include range safety issues, especially if the test involves contractors using EPG ranges.

3.3 Maintenance Safety.

Only maintenance actions performed by t he future Soldier user need to be evaluated. A review of the maintenance allocation chart would be ideal but is rarely available. A basic understanding of the maintenance concept is necessary to completely evaluate the equipment. Describe the maintenance concept in the system description of the safety release recommendations and safety confirmation recommendations.

4. TEST CONTROLS.

4.1 Test Item Configuration.

DT items are tested in the configuration and condition in which they are expected to be deployed and operated by the user troops. For a different test category, the test item may not be in its final configuration. For a proof of concept test, the test item may be far from the final configuration.

4.2 Procedures for Accumulating Data.

The results of the initial safety inspection, hazard analysis of all test results, interviews, and operator reports of unsafe conditions will be used as methods of accumulating data.

4.3 Personnel.

The test officer will participate in data accumulation and the safety engineer will analyze the data using the risk assessment procedures described in Military Standard (MIL-STD)-882D[3].

4.4 Risk Assessment.

MIL-STD-882D, Appendix A, contains definitions for hazard severity and hazard probability. It also has a risk assessment matrix example for determining the overall risk of a hazard. Some developmental programs have their own specific risk assessment matrix, which may be provided in the safety assessment report. If such a matrix is provided, it will be used instead of the matrix in MIL-STD-882D.

4.5 Hazards.

4.5.1 General Hazards.

a. Specific safety and health evaluation subtest will be designed to evaluate all safety and health criteria.

b. Perform an initial evaluation of the potential hazards on the system under test (SUT), using the checklist in appendix A as a guide, prior to operating the test item.

c. Perform additional safety examinations as appropriate. Determine if the safety of the system is (or would be) degraded by wear and tear during the other test phases (reliability, endurance, etc.).

d. Make continuous observations during test operations conducted to evaluate performance and reliability factors, and identify potential hazards to personnel and equipment not included in the special tests of the equipment under "worst case" conditions. The safety engineer shall review the adequacy of all design features intended to eliminate or minimize potential hazards.

e. Hazard analysis and risk assessment are conducted in conjunction with the acquisition of results from the safety test, safety inspections, operator comments, a review of technical manuals, safety-related observations, and results from other subtests. The hazards that are identified are evaluated using the techniques described in MIL-STD-882D.

4.5.2 Electrical and Electronic Hazards.

a. Examine all support material provided. Determine the electrical hazards present that may be encountered by the Soldier operator or maintainer. Ensure that these hazards are clearly indicated and the appropriate precautions and instructions are provided.

b. The test item shall be thoroughly inspected for safety during the initial safety inspection and during all phases of testing and evaluation. Comments and observations from test personnel should be obtained.

4.5.3 Mechanical Hazards.

a. Carefully examine all support material.

b. Perform a thorough test item safety inspection and observe the item throughout all testing and evaluation phases. Evaluate comments from the other test support personnel.

5. DATA REQUIRED.

a. Test item nomenclature, serial number, manufacturer, and identification of, and, any addition to, the equipment or shelter in which the test item is mounted.

b. If the test item is a commercial item, record the UL® (or comparable) listing.

c. Record the instrumentation nomenclature, inventory control number, and date of last calibration of equipment used during the evaluation.

d. Photographs of the test item.

e. List the hazards identified during the safety inspection by the safety engineer, and any hazards identified by other test participants at any time during the test. List also any mitigation taken for safe conduct of the test.

6. PRESENTATION OF DATA.

The results will be presented as a safety release recommendation, safety confirmation recommendation, or safety subtest. For a safety release recommendation, the hazards do not have to be assigned an overall risk. Include recommendations for the operational testers to test the item safely. The safety confirmation recommendation and safety subtest is an articulation of the risks to the using Soldiers, and will include the overall risk assessment for each hazard, including the risk posed by hazards not completely evaluated (e.g., an RF transmitter that has not had the required CHPPM evaluation).

6.1 Narrative Description of Test Results.

Sufficient narrative description will be included on each condition to provide background information to be used on the analysis of test results.

6.2 Analysis.

Each hazardous condition will be assessed a hazard severity and hazard probability as outlined in MIL-STD-882D, and assigned an overall risk based on the risk assessment matrix in MIL-STD-882D, or the safety assessment report.

APPENDIX A. SYSTEM SAFETY CHECKLISTS.

IDENTIFICATION OF INSPECTED SYSTEM	
ADSS No:	
Nomenclature:	
Contractor:	
Date of Inspection:	
Location of Inspection:	
Inspector:	
Inspector's Organization:	

ITEM	VERIFY	REMARKS
ELECTRICAL		
1. Are all terminals, conductors, etc., capable of supplying greater than 25 amperes, protected against accidental short circuit by tools, removable conductive panels and assemblies, etc.?		
2. Are all high voltage circuits (>500 V) and capacitors (>30V or >20 joules) reliably and automatically discharged to less than 30 volts/20 joules within 2 seconds after power is removed?		
3. Are all test points, required to be measured by maintainers, limited to less than 300 V (between test points and/or accessible dead metal/ground)?		
4. If voltage dividers are used to reduce test point potentials, are two resistors used between the test point and/or neutral (not ground)?		
5. Where test points voltages are to be measured through hole in protective barriers, is the maximum voltage labeled?		
6. Is sufficient space provided between live parts and/or dead metal parts to prevent arcing?		
7. Are parts and components suitable affixed to prevent loosening or rotation that could lead to shorting or arcing?		
8. If a tool is required to make adjustments while the equipment is powered, is spacing and insulation adequate to prevent contact with energized parts by the tool?		
9. Have connectors, used for multiple electric circuits/voltages, been selected to preclude mis-mating?		
10. Has the use of similar configuration connectors in close proximity been avoided?		
11. Are plugs and receptacles coded and marked to clearly indicate mating connectors where those of similar configuration are in close proximity?		
12. Are plugs and receptacles designed to preclude electrical shock and burn while being disconnected?		
13. Are male plugs de-energized when disconnected?		
14. Is the operator protected from potential arcing if accidentally disconnecting RF power cables?		

ITEM	VERIFY	REMARKS
15. Are all receptacles marked with their voltage, amperage, phase, and frequency characteristics where these ratings differ from the standard ratings?		
16. Is the wiring and insulation suitable for the intended load and operating voltage?		
17. Is the wiring insulation suitable for the anticipated environment, temperature, and/or possible exposure to fuel, grease, or other chemicals?		
18. Are wires and cables supported, protected, and terminated in a manner that prevents shock and fire?		
19. Is wiring protected when passing through openings, near sharp edges, and near hot surfaces?		
20. Is suitable strain relief provided for conductors and cords at their terminations to prevent stress from transmitting to terminals, splices or internal wiring?		
21. Where the user has access to wiring that carries hazardous voltage/current, does the wiring have a 2nd barrier of protection (jacketed cord, conduit, etc.)		
22. Are single-phase line conductors color coded black, or otherwise clearly indicated?		
23. Are three-phase line conductors color coded black, red, blue, or otherwise clearly identified?		
24. Are neutral/grounded conductors color coded white?		
25. Are insulated grounding wires color coded green or green with yellow stripes?		
26. Is green color coding only used for the grounding conductor?		
27. Is white color coding used only for the grounded conductor?		
28. Are DC power conductors color coded red for positive and black for negative polarity?		
29. Are all equipment non-current-carrying metal ports and surfaces at ground potential when the equipment is powered (excluding self-powered equipment)?		
30. Does self-powered equipment have all external surfaces at the same potential?		
31. Is the path from various equipment points to ground continuous and permanent (hinges and slides not relied upon as the ground path)?		
32. Are the noncurrent-carrying parts of internal components grounded where they can be accessed by maintainers?		
33. Are panels and doors containing meters, circuit breakers, etc., grounded in a reliable manner, whether in a closed or open/removed position (less than 0.1 ohm)?		
34. Does the grounding path have capacity to safely conduct and currents that might be imposed thereon?		

ITEM	VERIFY	REMARKS
35. Is the impedance of the grounding path sufficiently low to limit the potential drop and to allow over-current devices to clear quickly?		
36. Does the grounding path from the equipment to the point to ground have sufficient mechanical strength to minimize accidental grounding disconnection?		
37. Do cables that carry a grounded conductor (neutral) also carry an equipment grounding conductor that terminated in the same manner as the other conductors?		
38. Do power attachment plugs automatically ground equipment?		
39. When the grounded power plug is mated with the receptacle, does the ground pin contact first/break last?		
40. Are noncurrent-carrying metal parts, grounding wires, etc., (except for RF cable shields) not used to complete electrical circuits?		
41. Are the neutral and ground paths connected at only one point, at the power source?		
42. If a neutral-ground bond point is provided at the equipment's secondary supply circuit, is it isolated from the primary power source neutral-ground bond point in order to prevent ground loops?		
43. On transmitting equipment, is a grounding stud provided that permits attachment of a portable shorting rod?		
44. Is a ground stud provided on equipment intended to be interconnected to remote systems via long lengths of signal cables?		
45. Has a test been conducted to verify that the equipment (as well as equipment systems) allows less than 5 milliamps leakage current (3.5 milliamps if the system is powered from a GFCI protected circuit)?		
46. Where equipment has excessive leakage current, are redundant grounding conductors provided?		
47. Is a means provided so that power can be cut off while installing, replacing, or servicing a complete system or any line replaceable unit?		
48. If a main power switch is provided, does it cut off all power to the complete system?		
49. Is the switch located on the front panel and clearly identified?		
50. Are power and control switches selected and located to prevent accidental actuation or stopping of the equipment?		
51. Are switches provided to deactivate mechanical drive units without disconnecting other parts of the equipment?		
52. Is there a power switch located at the equipment which can be controlled remotely?		

ITEM	VERIFY	REMARKS
53. Can lockout/tagout devices be applied to switches that are relied upon to deactivate power during maintenance?		
54. Is protection provided against accidental contact with the supply side of the main power switch?		
55. Are emergency controls readily accessible and clearly identified?		
56. Where safety interlocks are used, is the interlock actuator recessed or otherwise protected against contact?		
57. Are safety interlock circuits designed to be fail-safe?		
58. Are live parts of safety interlocks protected from contact?		
59. Where bypassable safety interlocks are used, do they automatically reset once the cover or guard is replaced?		
60. Is equipment that is designed to have multiple-input power capabilities, or powered by a generator with multiple-voltage output capabilities, protected from damage when connected to incorrect input power/voltage levels?		
61. Are over current and/or overload protective devices provided for primary circuits?		
62. If the neutral conductors are protected with circuit breakers, are the circuit breakers tied to the load conductor circuit breakers to simultaneously open?		
63. Are multi-pole circuit breakers provided for multi-phase circuitry which will open all phases during a fault in any one?		
64. If circuit breakers are used as on/off switches, have they specifically been designed for that purpose?		
65. Do circuit breakers provide a visual indication when tripped?		
66. Can fuses be removed safely (no exposed live parts) and without the use of tools?		
67. Are fuse holders labeled with fuse replacement types and ratings?		
68. Is surge protection incorporated to protect the user and the equipment?		
MECHANICAL		
69. Are equipment enclosures suitably designed to protect the equipment and personnel when considering the anticipated environment and rough handling?		
70. Are equipment openings and vents sized and located to prevent access to hazardous parts, as well as to prevent objects from falling inside and contacting hazardous parts?		

ITEM	VERIFY	REMARKS
71. Are fasteners and methods of securing doors and peripheral components sufficiently strong to prevent breakaway during normal use?		
72. Are snag hazards due to exposed gears, cams, fans, belts, guy wires, and other moving parts avoided?		
73. Does the equipment enclosure material and any enclosure openings limit fire propagation?		
74. Are switches and other electrical components adequately protected against water entry due to rain or equipment wash down?		
75. Is the equipment designed to provide personnel adequate and safe access (free of obstructions) during installation, operation, and maintenance?		
76. Are "no step" markings provided at necessary locations to prevent injury and equipment damage?		
77. Are self-locking and other fail-safe devices incorporated into expandable and collapsible structures, such as shelters, jacks, masts, and tripods, to prevent accidental or inadvertent collapsing or failure?		
78. Are reliable stops/limits integrated to protect moving parts from damage due to over-extension or by being driven into fixed parts?		
79. Where pins or latches are applied during equipment stowage, transportation or maintenance to secure moveable components (such as motorized antenna dish), is damage prevented if the pins are left in and the drive mechanism activated?		
80. Are doors, drawers and associated hinges, supports, slides, and stops positively locked or otherwise secured to prevent unintended movement when in the open or closed position?		
81. Are telescoping ladders provided with adequate with adequate clearance between rungs/parts to prevent pinch points?		
82. Are hinged brackets and such devices designed and located so that fingers are not exposed to pinch points during adjustments?		
83. Are sharp corners, edges, and projections avoided?		
84. Is the installed equipment free of overhanging edges and corners that may cause injuries?		
85. Are door and cover edges not at eye level when in an open position?		

ITEM	VERIFY	REMARKS
86. Does heavy equipment have appropriate weight caution labeling? Does it have sufficient handles for the crew number? Will it be carried by a male only or a mixed gender MOS? (if unknown assume mixed gender) Team Size / Maximum weight, in pounds: Male only / Mixed Gender 1: 82 / 42 2: 164 / 84 3: 225 / 115 4: 287 / 147 5: 348 / 178 6: 410 / 210		
87. Does the equipment's shape and center of gravity allow for easy lifting, carrying and positioning by the proper sized team?		
88. Follow-up to above; is there labeling?		
89. Is the weight capacity of hoists, jacks and other such equipment suitable for the intended load? Is it labeled with the load rating?		
90. Are pressurized systems provided with relief valves to vent in a safe direction and manner?		
91. Are positive means used to prevent mismatching of fittings, couplings, fuel, oil, hydraulic, and pneumatic lines; and mechanical linkages?		
NOISE		
92. Does the item produce noise in excess of 85 dBA? Is there a health hazard assessment?		
93. Does the item produce over 75 dBA where occasional communications are necessary? Could unclear communication result in a hazard, such as for a weapon system?		
94. Does the item produce over 65 dBA where frequent communications are necessary? 95. Could unclear communication result in a hazard, such as for a weapon system?		
TEMPERATURE		
96. Where prolonged contact is required, are surface temperatures less than 49°C for metal, 59°C for glass, and 69°C for wood/plastic at an ambient temperature of 25 °C?		

APPENDIX B. SAFETY RECOMMENDATION FORMATS.

B.1 SAFETY RELEASE RECOMMENDATION FORMAT.

TEDT-EP-OPS

MEMORANDUM FOR Commander, U.S. Army Developmental Test Command (TEDT-TMS/[Test Manager]), 314 Longs Corner Road, Aberdeen Proving Ground, MD 21005-5055

SUBJECT: Recommendation for Safety Release for [system nomenclature]

1. References: [Remove references that are non-applicable. Add as necessary. List the documents provided with the system, such as the operators manual and the safety assessment report]

a. Institute of Electrical and Electronics Engineers Standard C95.1, 16 April 1999, subject: Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

b. 47 Code of Federal Regulations 2.1091, 1 October 2005, subject: Radiofrequency radiation exposure evaluation: mobile devices.

c. MIL-STD-1472F, 23 August 1999, subject: Human Engineering.

d. MIL-STD-882D, 10 February 2000, subject: Standard Practice for System Safety.

e. HMMWV Design Guide 1, US Army Tank Automotive Command, posted to Army Knowledge Website, 18 Apr 2005.

2. Purpose. Identify the test event this recommendation is supporting.

3. System Description. Give the system nomenclature. Indicate what the system does, and how the soldier will use it. Describe the maintenance allocation.

4. Discussion. State the date and location of testing. Summarize the scope of testing. List the raw findings.

5. Conclusions/Recommendations. Analyze the findings that present a hazard. Give conclusions on how they are a hazard, and recommendations for procedures for safe testing, if possible. Provide a recommendation for or against testing. List potential showstoppers for the eventual fielding of the system. For example, it is common to do a Safety Release Recommendation for fast track systems that transmit RF before a Center for Health Promotion and Preventative Medicine Health Hazard Assessment (CHPPM HHA) has been done. A hazard distance can be calculated, and used to "test around" the RF hazard. This calculation may grossly overestimate the RF hazard. The CHPPM HHA is required before fielding, and so that should be stated specifically.

6. The point of contact for this action is [EPG Safety Engineer].

SIGNATURE BLOCK
EPG COMMANDER

B.2 SAFETY CONFIRMATION RECOMMENDATION FORMATION.

TEDT-EP-OPS

MEMORANDUM FOR Commander, U.S. Army Developmental Test Command (TEDT-TMS/[Test Manager]), 314 Longs Corner Road, Aberdeen Proving Ground, MD 21005-5055

SUBJECT: Recommendation for Safety Confirmation for [system nomenclature]

1. References: [remove references that are non-applicable. Add as necessary. List the documents provided with the system, such as the operators manual and the safety assessment report]

a.. Institute of Electrical and Electronics Engineers Standard C95.1, 16 April 1999, subject: Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

b. 47 Code of Federal Regulations 2.1091, 1 October 2005, subject: Radiofrequency radiation exposure evaluation: mobile devices.

c. MIL-STD-1472F, 23 August 1999, subject: Human Engineering.

d. MIL-STD-882D, 10 February 2000, subject: Standard Practice for System Safety.

e. HMMWV Design Guide 1, US Army Tank Automotive Command, posted to Army Knowledge Website, 18 Apr 2005.

2. Purpose. State the purpose of the recommendation [Acquisition Event, MS Decision, Type Classification, Materiel Release, Urgent Materiel Release, System Modification, Field Use]

3. System Description. Give the system nomenclature. Indicate what the system does, and how the Soldier will use it. Describe the maintenance allocation.

4. Limiting Factors. Discuss test limitations.

5. Assessment. Provide a hazard severity, hazard probability, and overall risk for each identified hazard. Address any hazard identified in a previous safety release recommendation. Add any hazards uncovered during operational testing. Use the matrix in MIL-STD-882 to analyze the hazard, unless the safety assessment report has specified one for the system.

6. Conclusions/Recommendations. Indicate if the system is safe for the intended purpose, whether it is safe with exceptions. Indicate if the system lacks a required CHPPM HHA, and depending on the situation, either recommend a conditional release, or recommend against release, pending the CHPPM report.

7. The point of contact for this action is [EPG Safety Engineer].

SIGNATURE BLOCK
EPG COMMANDER

APPENDIX C. ACRONYMS AND ABBREVIATIONS.

AD	accession
APG	Aberdeen Proving Ground
C4I	command, control, communications, computers, and intelligence
CFR	Code of Federal Regulations
CHPPM	US Army Center for Health Promotion and Preventative Medicine
COTS	commercial off-the-shelf
CRM	composite risk management
DIOR	Directorate for Information on Operations and Reports
DOD	Department of Defense
DT	developmental test
DTC	US Army Developmental Test Command
DTIC	Defense Technical Information Center
E3	Electromagnetic Environmental Effects
EPG	US Army Electronic Proving Ground
GFCI	ground fault circuit interrupter
GOTS	Government off-the-shelf
HERP	Hazards of Electromagnetic Radiation to Personnel
IEEE	Institute of Electrical and Electronics Engineers
IP	Integrated Process
IR	infrared
MIL-STD	Military Standard
No.	number
OMB	Office of Management and Budget
RF	radio frequency
SAR	Satellite Access Request
SUT	system under test
TOP	Test Operations Procedure
TRR	Test Readiness Review
UL®	Underwriters Laboratory, Incorporated®

APPENDIX D. REFERENCES.

1. IEEE C95.1, IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, 16 April 1999.

2. 47 CFR 2.1091, Telecommunication; Radio Frequency Radiation Exposure Evaluation: Mobile Devices, 1 October 2005.

3. MIL-STD-882D, Department of Defense Standard Practice for System Safety, 10 February 2000.

For information only.

a. 47 CFR 2.1093, Telecommunication; Radio Frequency Radiation Exposure Evaluation: Portable Devices, 1 October 2006.

b. MIL-STD-1472F, Human Engineering, 23 August 1999.

c. HMMWV Design Guide 1, US Army Tank Automotive Command, posted to Army Knowledge Website, 18 Apr 2005.

d. MIL-STD-1474D, Noise Limits, 12 February 1997.

e. National Fire Protection Association 70, The National Electric Code, 2008.

f. 29 CFR Part 1910, Occupational Safety and Health Act, January 2008.

Forward comments, recommended changes, or any pertinent data which may be of use in improving this publication to the following address: Test Business Management Division (TEDT-TMB), US Army Developmental Test Command, 314 Longs Corner Road Aberdeen Proving Ground, MD 21005-5055. Technical information may be obtained from the preparing activity: US Army Electronic Proving Ground, Safety, Health and Environmental Office (TEDT-EP-OPS), 2000 Arizona St, Fort Huachuca, AZ 85613. Additional copies can be requested through the following website: http://itops.dtc.army.mil/RequestForDocuments.aspx, or through the Defense Technical Information Center, 8725 John J. Kingman Rd., STE 0944, Fort Belvoir, VA 22060-6218. This document is identified by the accession number (AD No.) printed on the first page.