



DEPARTMENT OF THE ARMY
US ARMY INSTITUTE OF PUBLIC HEALTH
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MARYLAND 21010-5403

4 SEP 2013

MCHB-IP-OHH

MEMORANDUM FOR Directorate for Safety (AMSEL-SF/Mr. Michael Baldwin),
Communications-Electronics Command, 3200 Raritan Avenue, Aberdeen Proving
Ground, Maryland 21005-1850

SUBJECT: Health Hazard Assessment Report (RCS MED-388) No. S.0011592-13,
AN/TSC-198 Tactical Terminal Control System, 16 July 2013

1. REFERENCES. The enclosure contains a list of references used in this Health Hazard Assessment Report (HHAR).
2. PURPOSE. To determine the potential health hazards associated with the AN/TSC-198 Tactical Terminal Control System (TTCS) in support of a system modification and fielding.
3. AUTHORITY. The Army's Health Hazard Assessment (HHA) Program is an Army Medical Department initiative in cooperation with and in support of the Army acquisition process. The primary objective of the Program is to identify, assess, and make recommendations to eliminate or control health hazards associated with the life cycle management of weapons platforms, munitions, equipment, clothing, training devices, and other materiel systems. The proponent of the HHA Program is The Surgeon General (TSG) of the Army; however, TSG has designated the Army Institute of Public Health (AIPH) as the Lead Agent. The HHA Program provides support to materiel acquisition programs to ensure compliance with the requirements contained in references 1 through 6.
4. BACKGROUND (references 7 and 8). The TTCS is a highly mobile air traffic facility used to provide air traffic services (ATS) at remote landing zones, drop zones, and temporary helicopter operating areas. It is capable of ground-to-air communications between aircraft, as well as ground-to-ground communications with other ATS. The TTCS enables air traffic controllers to effectively communicate with aircraft on a 24-hour operational basis. The TTCS is currently undergoing a system modification to an

Distribution authorized to U.S. Government Agencies only; protection of privileged information evaluating another command: Jul 13. Requests for this document must be referred to the Directorate for Safety (AMSEL-SF), Communications-Electronics Command, 3200 Raritan Avenue, Aberdeen Proving Ground, Maryland 21005-1850.

Health Hazard Assessment Report: 500A

MCHB-IP-OHH

SUBJECT: Health Hazard Assessment Report (RCS MED-388) No. S.0011592-13, AN/TSC-198 Tactical Terminal Control System, 16 July 2013

up-armor M1165A1 High Mobility Multi-purpose Wheeled Vehicle (HMMWV) and Universal Rack that contains the air traffic control equipment. The Universal Rack is located in the rear of the HMMWV. Radio transmitters will be replaced/upgraded due to obsolescence and the Universal Rack will be upgraded to a more modular design. The current MEP 802 5 Kilowatt (K) Tactical Quiet Generator (TQG) will also be upgraded to a lighter, quieter MEP 831 3K TQG. The generator and miscellaneous system equipment are located on a small trailer that is towed behind the HMMWV.

5. ASSESSMENT AND CONCLUSIONS.

a. Based on a review of the HHA request and supporting documentation found in references 7 through 10, we have determined that acoustic energy: steady-state noise (MEP 831 3K TQG) and radio frequency radiation (RFR) are potential health hazards associated with the use and maintenance of the TTCS.

(1) Acoustic Energy: Steady-state Noise (MEP 831 3K TQG). The potential source of high steady-state noise associated with the TTCS is the MEP 831 3K TQG. A previous HHAR was completed on the MEP 831 3K TQG in May 1999 (reference 11). The following risk assessment codes (RAC) and recommendation provided in reference 11 remain valid and apply to the use of the MEP 831 3K TQG on the TTCS:

(a) A RAC of Medium (hazard severity (HS) 2, hazard probability (HP) D) is assigned. A residual RAC of Low (hazard severity (HS) 4, hazard probability (HP) E) is assigned for compliance with the following recommendation:

(b) Wear hearing protection at all times when performing service checks or maintenance operations with the diesel engine running and the service cover open.

(2) Radio Frequency Radiation. The potential sources of RFR associated with the TTCS are the Harris AN/PRC-117G Wideband Multiband Multi-mission Radio and the Harris AN/PRC-150 High Frequency Radio. Previous HHARs were completed on these two RFR sources (references 12 and 13). The following RACs and recommendations provided in references 12 and 13 remain valid and apply to any of the listed RFR sources that will be used on the TTCS:

(a) Harris AN/PRC-117G Wideband Multiband Multi-mission Radio. A RAC of Low (HS 4, HP C) is assigned. A residual RAC of Low (HS 4, HP D) is assigned for compliance with the following recommendations:

MCHB-IP-OHH

SUBJECT: Health Hazard Assessment Report (RCS MED-388) No. S.0011592-13,
AN/TSC-198 Tactical Terminal Control System, 16 July 2013

i. Instruct personnel to observe an RFR control distance of 35 centimeters (cm) in front of the directional satellite communication (SATCOM) antennas of the AN/PRC-117G radio when transmitting.

ii. Post RFR warning signs on or near the directional SATCOM antennas of the AN/PRC-117G radio stating to maintain a distance of 35 cm from the antennas.

iii. Instruct personnel to avoid physical contact with any bare metal/wire surfaces of the antennas for the AN/PRC-117G radio when transmitting.

iv. Attach RFR warning labels on or near the bases of the antennas for the AN/PRC-117G radio with a caution message alerting personnel to the potential for RFR shock/burn with physical contact.

v. Include the above recommendations in the system technical manuals.

(b) Harris AN/PRC-150 High Frequency Radio. A RAC of Medium (HS 3, HP C) is assigned. A residual RAC of Medium ((HS 3, HP E) is assigned for compliance with the following recommendations:

i. Post a warning in user and maintenance manuals advising personnel to observe a 1 meter (m) RFR control distance from the antennas of the ANNRC-104(V)6 150-Watt (W) vehicular radio.

ii. Post a warning in user and maintenance manuals advising personnel to observe a 2.5 m RFR control distance from the antenna of the ANITRC-210(V)3 400 W base station.

iii. Post the standard RFR warning sign at the base of the antenna and/or nearby where the antenna is located for the 400 W radios. The message on the warning sign should direct personnel to maintain a 2.5 m distance from the antenna and warn about the potential for RFR shock/burn.

iv. Ensure that the high voltage insulator shield for the transmission line connectors/antenna ports on the RF-382A-15 antenna coupler is properly installed before turning on the transmitter unit.

v. During repair and maintenance of the transmitter, specify the use of a dummy load/closed-loop test set instead of an antenna whenever possible.

MCHB-IP-OHH

SUBJECT: Health Hazard Assessment Report (RCS MED-388) No. S.0011592-13,
AN/TSC-198 Tactical Terminal Control System, 16 July 2013

vi. Include adequate warning messages for these radios and antennas in all technical manuals, field manuals, or standing operating procedures.

b. No additional HHA action is required by your program; however, modifications to the item or use scenario may result in the requirement for an updated HHAR. Data requirements, health effects, medical criteria, and references specific to the types of health hazards assessed by the HHA Program may be found at the following website: <http://phc.amedd.army.mil/topics/workplacehealth/hha/Pages/default.aspx>.

c. This memorandum will serve as your HHAR. Provide this HHAR to System Safety, Manpower and Personnel Integration and Environment, Safety, and Occupational Health coordinators. Use the HHAR to update the Programmatic Environment, Safety, and Occupational Health Evaluation and Safety and Health Data Sheets.

6. POINT OF CONTACT. Direct inquiries regarding the HHAR to the HHA Project Officer, Mr. Robert Ehmann, at commercial 410-436-2925, DSN 584-2925, or e-mail: robert.j.ehmann.civ@mail.mil. The AIPH Nonionizing Radiation Program (Mr. Bryan Kobe) contributed to this HHAR.

FOR THE DIRECTOR:

Encl



DONNA M. DOGANIERO, CIH
Portfolio Director
Occupational Health Sciences

MCHB-IP-OHH

SUBJECT: Health Hazard Assessment Report (RCS MED-388) No. S.0011592-13,
AN/TSC-198 Tactical Terminal Control System, 16 July 2013

CF:

DCS, G-1 (DAPE-MR)

AMC (AMCPE-SG)

FORSCOM (AFMD)

TRADOC (ATFC-O)

AEC (TEAE-IL/IMAE-TT)

HQATEC (CSTE-OPS)

POPM-SA (MCPO-SA)

AMEDDC&S (MCCS-HTP)

ARL (RDRL-HRM/RDRL-SLE-G)

CRC (CSSC-E)

JTAPIC (MCMR-RTB)

MCHB-IP-OHH

SUBJECT: Health Hazard Assessment Report (RCS MED-388) No. S.0011592-13,
AN/TSC-198 Tactical Terminal Control System, 16 July 2013

REFERENCES

1. Army Regulation 40-10, Health Hazard Assessment Program in Support of the Army Acquisition Process, 27 Jul 07.
2. Army Regulation 602-2, Manpower and Personnel Integration (MANPRINT) in the System Acquisition Process, 1 Jun 01.
3. Army Regulation 385-10, The Army Safety Program, 23 Aug 07 (Rapid Action Revision 4 Oct 11).
4. Department of Defense Instruction 5000.02, Operation of the Defense Acquisition System, 8 Dec 08.
5. Army Regulation 70-1, Army Acquisition Policy, 22 Jul 11.
6. Memorandum, Under Secretary of Defense, Acquisition, Technology, and Logistics, 23 Sep 04, subject: Defense Acquisition System Safety.
7. Memorandum, Directorate for Safety, U.S. Army Communications-Electronics Command, AMSEL-SF, undated, subject: Request Health Hazard Assessment for the AN/TSC-198 Tactical Terminal Control System.
8. PowerPoint Presentation, TTCS Up-Armor MWO Brief, Aviation Systems Project Office, Program Executive Office-Aviation, undated.
9. Hazards of Electromagnetic Radiation to Ordnance, Personnel, and Fuel Analysis of the AN/TSC-198 Tactical Terminal Control System Installed on the M1097 High Mobility Multi-Purpose Wheeled Vehicle, Army Test and Evaluation Center, TEDT-RT-ECE, 23 Apr 13.
10. Hazards of Electromagnetic Radiation to Ordnance, Personnel, and Fuel Analysis of the AN/TSC-198 Tactical Terminal Control System Installed on the M1165A1 High Mobility Multi-Purpose Wheeled Vehicle, Army Test and Evaluation Center, TEDT-RT-ECE, 23 Apr 13.
11. Memorandum, U.S. Army Center for Health Promotion and Preventive Medicine, MCHB-TS-OHH, May 99, subject: Updated Health Hazard Assessment Report (RCS MED-388) on the AN/MJQ-42 and -43 (60HZ) Trailer-mounted Power Plants and MEP-831A (60HZ) and -832A (400HZ) Skid-mounted 3K Tactical Quiet Generators, Project No. 69-37-3377-99.

Enclosure

MCHB-IP-OHH

SUBJECT: Health Hazard Assessment Report (RCS MED-388) No. S.0011592-13,
AN/TSC-198 Tactical Terminal Control System, 16 July 2013

12. Memorandum, U.S. Army Public Health Command, MCHB-TS-OHH, 9 Sep 10,
subject: Health Hazard Assessment Report (RCS MED-388) No. 69-MP-0DDM-10,
Falcon III, AN/PRC-117G(V)1(C) Radio System.

13. Memorandum, U.S. Army Institute of Public Health, MCHB-IP-OHH, 19 Jun 13,
subject: Health Hazard Assessment Report (RCS MED-388) No. S.0001848-13,
AN/PRC-150A(C) Advanced Tactical High Frequency Radio.