



## DEPARTMENT OF THE NAVY

NAVAL SURFACE WARFARE CENTER  
DAHLGREN DIVISION  
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DAHLGREN, VIRGINIA 22448-5130

IN REPLY REFER TO

8020

Ser B52/5808

26 Jul 17

From: Commanding Officer, Naval Surface Warfare Center,  
Dahlgren Division

To: AT&T Mobility (Smartlink LLC/T. Miller), Hanover, MD

Subj: HAZARDS OF ELECTROMAGNETIC RADIATION TO ORDNANCE,  
PERSONNEL, AND FUEL ANALYSIS FOR THE INSTALLATION OF  
AT&T MOBILITY 4G LTE EQUIPMENT AT MARINE CORPS BASE  
QUANTICO, VIRGINIA

Ref: (a) NAVSEA OP 3565/NAVAIR 16-1-529, Volume 2, Eighteenth  
Revision of 1 Apr 11  
(b) NAVSEA OP 3565/NAVAIR 16-1-529, Volume 1, Sixth  
Revision of 1 Feb 03  
(c) DoDINST 6055.11 of 19 Aug 09  
(d) Smartlink LLC e-mail memo Mr. J. Pugeda of 3 Apr 17  
(e) NAVCOMPT Form 2276A N0017817SD17021 of 24 May 17

Encl: (1) Antenna Location and Nearest Ordnance Operation Area  
(2) System Specifications and Hazards of Electromagnetic  
Radiation to Ordnance Safe Separation Distances  
(3) System Specifications and Hazards of Electromagnetic  
Radiation to Personnel and Fuel Safe Separation  
Distances  
(4) Radiation Hazard Control Measure  
(5) Distribution List

1. In accordance with references (a) through (c) and as requested by reference (d) and funded by reference (e), a Hazards of Electromagnetic Radiation to Ordnance (HERO), Personnel (HERP), and Fuel (HERF) analysis was performed to assess the impact of installing AT&T Mobility 4G LTE equipment at the Federal Bureau of Investigation Academy, Marine Corps Base (MCB) Quantico, Virginia.

2. Enclosure (1) provides the location of the antenna/transmitter systems being installed with respect to the nearest ordnance operation area. Enclosure (2) provides the system specifications and HERO safe separation distances.

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3. Calculated electromagnetic environments (EMEs) that could be produced by these systems indicate that the power and antenna placement of the systems are such that the distance and radiation angle with respect to ordnance locations preclude the need for HERO emission control (EMCON). Therefore, no HERO EMCON changes are required.

4. Enclosure (3) provides the system specifications and HERP/HERF safe separation distances. However, calculated EMEs that could be produced by these systems indicate that the power and antenna placement of these systems are such that the distance with respect to normally occupied areas precludes the need for HERP control measures. Since personnel can obtain access to the cell tower, Type 2 warning signs should be posted at all tower access points notifying personnel to check with command authority before proceeding. Ensure the radiation hazard (RADHAZ) control measure is placed in accordance with the instructions detailed in enclosure (4).

5. The installation of these systems does not present any hazard to any existing fuel handling areas.

6. Based on this analysis, the Naval Surface Warfare Center, Dahlgren Division (NSWCDD), Electromagnetic Environmental Effects (E3) Assessment and Evaluation Branch (B52), recommends that MCB Quantico request RADHAZ (HERO, HERP, and HERF) certification from the Naval Ordnance Safety and Security Activity (NOSSA) (N8) for the equipment described in the preceding paragraphs. Upon receipt of certification from NOSSA (N8), NSWCDD (B52) recommends incorporating enclosure (2) into the installation's HERO Instruction/Bill and enclosure (4) into the installation's RADHAZ HERP/HERF control measures. All updates may be found on the E3 Team Online Knowledge Management System (KMS).

7. The E3 Team Online KMS is an official Department of the Navy web portal that provides access to HERO, HERP, and HERF E3 data; technical reports; and RADHAZ calculation tools. E3 Team Online can be accessed at <https://e3.nswc.navy.mil>. A valid Common Access Card is required for access to this web portal. To request an E3 Team Online account, visit

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<https://www.e3teamonline.org>. Upon receipt of account approval,  
visit <https://e3.nswc.navy.mil> for log-in. Questions regarding  
E3 Team Online content should be directed to  
Mr. Richard Magrogan, NSWCDD (B52), at commercial 540-653-3445  
or DSN 249-3445, or via electronic mail at  
[richard.magrogan@navy.mil](mailto:richard.magrogan@navy.mil). Questions regarding access to  
E3 Team Online should be directed to Ms. Rebecca Payne, AECOM,  
at commercial 540-663-9460 or via electronic mail at  
[rebecca.payne@aecom.com](mailto:rebecca.payne@aecom.com).

8. This project is recommended for HERO/HERP/HERF approval.
9. Enclosure (5) is the distribution list for this letter.
10. If there are any questions or comments, please contact  
Steven Springer (B52) at commercial 540-653-2931 or  
DSN 249-2931, or via electronic mail at  
[steven.p.springer@navy.mil](mailto:steven.p.springer@navy.mil).



RICHARD F. MAGROGAN  
By direction

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ANTENNA LOCATION AND NEAREST ORDNANCE OPERATION AREA

## ANTENNA LOCATION AND NEAREST ORDNANCE OPERATION AREA

Building Number and Building Name	Latitude	Longitude	Antenna Height Above Ground (feet)	HERO Zone of Antenna	Nearest Ordnance Operation Area	HERO Zone of Ordnance Operation Area	Distance to Nearest Ordnance Operation Area (feet/meters)
FBI TOWER (AT&T CELL)	38.528694	-77.431333	84	3	MCB 4 (PRIMARY ROUTE)	3	115/35*

\*Beam touchdown distance is 872 ft/265 m.

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SYSTEM SPECIFICATIONS AND HAZARDS OF ELECTROMAGNETIC RADIATION TO  
ORDNANCE SAFE SEPARATION DISTANCES

## SYSTEM SPECIFICATIONS AND HERO SAFE SEPARATION DISTANCES

Antenna Location	Antenna Nomenclature	Antenna Type	Antenna Gain (dBi)	Transmitter Frequency (MHz)	Transmitter Max. Avg. Power (watts)	Transmitter Type	Separation Distances	
							HERO UNSAFE ORDNANCE (feet/meters)	HERO SUSCEPTIBLE ORDNANCE (feet/meters)
FBI TOWER (AT&T CELL)	ALCATEL LUCENT 3JR52703AAAA	PANEL	17.5	1930-1990	60.0	ALCATEL-LUCENT 1900MHZ B25 RRH (2X60)	86/26	22/7
FBI TOWER (AT&T CELL)	ALCATEL LUCENT 3JR52703AAAA	PANEL	17.5	700-800	80.0	ALCATEL LUCENT RRH2X40 07L AT	275/84	69/21
FBI TOWER (AT&T CELL)	KATHREIN 80010866K	PANEL	18.4	2300-2690	100.0	ALCATEL LUCENT RRH4X25 B30	104/32	26/8
FBI TOWER (AT&T CELL)	KATHREIN 80010692V01	PANEL	16.9	1710-2200	180.0	ALCATEL LUCENT 4X45 B66A	158/48	39/12

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SYSTEM SPECIFICATIONS AND HAZARDS OF ELECTROMAGNETIC RADIATION TO  
PERSONNEL AND FUEL SAFE SEPARATION DISTANCES

## SYSTEM SPECIFICATIONS AND HERP/HERF SAFE SEPARATION DISTANCES

Antenna Location	Antenna Nomenclature	Antenna Type	Antenna Gain (dBi)	Transmitter Frequency (MHz)	Transmitter Max. Avg. Power (watts)	Transmitter Type	Separation Distances		Control Measures
							Controlled HERP (feet/meters)	HERF (feet/meters)	
FBI TOWER (AT&T CELL)	ALCATEL LUCENT 3JR52703AAAA	PANEL	17.50	1930-1990	60.0	ALCATEL-LUCENT 1900 MHZ B25 RRH (2X60)	6.6/2	9.8/3	FBI TOWER-1
FBI TOWER (AT&T CELL)	ALCATEL LUCENT 3JR52703AAAA	PANEL	17.50	700-800	80.0	ALCATEL LUCENT RRH2X40 07L AT	13/3.9	9.8/3	FBI TOWER-1
FBI TOWER (AT&T CELL)	KATHREIN 80010866K	PANEL	18.40	2300-2690	100.0	ALCATEL LUCENT RRH4X25 B30	8.9/2.7	9.8/3	FBI TOWER-1
FBI TOWER (AT&T CELL)	KATHREIN 80010692V01	PANEL	16.90	1710-2200	180.0	ALCATEL LUCENT 4X45 B66A	11/3.5	9.8/3	FBI TOWER-1

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RADIATION HAZARD CONTROL MEASURE

### RADHAZ CONTROL MEASURE

ITEM	BUILDING	SOURCE	CONTROL MEASURE	QTY	INSTALLATION METHOD
FBI TOWER-1	FBI TOWER - AT&T CELL	VARIOUS	TYPE 2 SIGN(S)	A/R	POST SIGN(S) AT EYE-LEVEL AT TOWER ACCESS POINTS.

A/R = As Required

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DISTRIBUTION LIST

DISTRIBUTION LIST FOR HERO, HERP, AND HERF ANALYSIS FOR THE  
INSTALLATION OF AT&T MOBILITY 4G LTE EQUIPMENT AT MCB QUANTICO, VA

**Primary Recipient:**

**PLA:** AT&T MOBILITY INC (Smartlink LLC/T. Miller)

**E-Mail:** timothy.miller@smartlinkllc.com

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