[redacted]

OFFICE OF THE SECRETARY OF DEFENSE
1700 DEFENSE PENTAGON
WASHINGTON, DC 20301-1700

OPERATIONAL TEST
AND EVALUATION

OCT 30 2015

The Honorable William M. "Mac" Thornberry
Chairman
Committee on Armed Services
United States House of Representatives
Washington, DC 20515-6035

Dear Mr. Chairman:

(U) I have enclosed the Initial Operational Test and Evaluation (IOT&E) Report with classified annex for the AN/TPQ-53 required by Sections 2399, Title 10, United States Code. In the report I conclude the following:

- (U) The AN/TPQ-53 Counterfire Radar (Q-53) is operationally effective for detecting single-fired rocket, artillery, and mortar munitions. However, the Q-53 is not operationally effective for detecting volley-fired mortar munitions. Q-53 radar met the point of impact requirement for most mortar and artillery missions; point of impact error for rockets is larger than that for mortars and artillery. The radar located the threat firing location point of origin within the required error for most conditions. Accuracy was degraded for volley fired artillery.

- (U) For volley-fired weapons, the Q-53 provided consistent counterfire acquisitions for artillery projectiles while operating in the 90-degree Normal and Short-Range Optimized Mode (SROM) modes. The radar had problems acquiring volley-fired mortars in 360-degree and 90-degree modes and volley-fired artillery in the 360-degree mode.

- (U) The radar will report false targets when no projectiles are in the search area. A false target occurs when the radar determines that a threat weapon is firing, when none is present. The radar may do this when there is nothing known in the air, or the radar may classify an aircraft as a ballistic trajectory.

- (U) The radar is required to characterize detected projectiles as mortar, artillery, or rocket. The radar correctly characterized every single-fired mortar shot as a mortar. It appears that the radar will identify the detected projectile as a mortar unless it receives information suggesting otherwise.

- (U) The Q-53 radar is suitable. The Q-53 radar system demonstrated an operational availability of 0.99 during the IOT&E (0.95 is required by the user), indicating that the radar is operationally suitable and available to support the commander's mission.

[redacted]

[redacted]

- (U) The Q-53 system is survivable. The radar demonstrated improved cybersecurity from IOT&E. The classified annex details the cybersecurity analysis.

(U) Section 2399 provides that the Secretary of Defense may submit separate comments on my report, if he so desires. I have sent copies to him; the Under Secretary of Defense for Acquisition, Technology and Logistics; the Secretary of the Army; the Vice Chairman of the Joint Chiefs of Staff; and the Chairmen and Ranking Members of the Congressional defense committees.

J. Michael Gilmore
Director

Enclosure:
As stated

cc:
The Honorable Adam Smith
Ranking Member

[redacted]

[redacted]

OFFICE OF THE SECRETARY OF DEFENSE
1700 DEFENSE PENTAGON
WASHINGTON, DC 20301-1700

OPERATIONAL TEST
AND EVALUATION

OCT 30 2015

The Honorable Rodney P. Frelinghuysen
Chairman, Subcommittee on Defense
Committee on Appropriations
United States House of Representatives
Washington, DC 20515-6015

Dear Mr. Chairman:

(U) I have enclosed the Initial Operational Test and Evaluation Report with classified annex for the AN/TPQ-53 required by Sections 2399, Title 10, United States Code. In the report I conclude the following:

- (U) The AN/TPQ-53 Counterfire Radar (Q-53) is operationally effective for detecting single-fired rocket, artillery, and mortar munitions. However, the Q-53 is not operationally effective for detecting volley-fired mortar munitions. Q-53 radar met the point of impact requirement for most mortar and artillery missions; point of impact error for rockets is larger than that for mortars and artillery. The radar located the threat firing location point of origin within the required error for most conditions. Accuracy was degraded for volley fired artillery.

- (U) For volley-fired weapons, the Q-53 provided consistent counterfire acquisitions for artillery projectiles while operating in the 90-degree Normal and Short-Range Optimized Mode (SROM) modes. The radar had problems acquiring volley-fired mortars in 360-degree and 90-degree modes and volley-fired artillery in the 360-degree mode.

- (U) The radar will report false targets when no projectiles are in the search area. A false target occurs when the radar determines that a threat weapon is firing, when none is present. The radar may do this when there is nothing known in the air, or the radar may classify an aircraft as a ballistic trajectory.

- (U) The radar is required to characterize detected projectiles as mortar, artillery, or rocket. The radar correctly characterized every single-fired mortar shot as a mortar. It appears that the radar will identify the detected projectile as a mortar unless it receives information suggesting otherwise.

- (U) The Q-53 radar is suitable. The Q-53 radar system demonstrated an operational availability of 0.99 during the IOT&E (0.95 is required by the user), indicating that the radar is operationally suitable and available to support the commander's mission.

[redacted]

[redacted]

- (U) The Q-53 system is survivable. The radar demonstrated improved cybersecurity from IOT&E. The classified annex details the cybersecurity analysis.

(U) Section 2399 provides that the Secretary of Defense may submit separate comments on my report, if he so desires. I have sent copies to him; the Under Secretary of Defense for Acquisition, Technology and Logistics; the Secretary of the Army; the Vice Chairman of the Joint Chiefs of Staff; and the Chairmen and Ranking Members of the Congressional defense committees.

J. Michael Gilmore
Director

Enclosure:
As stated

cc:
The Honorable Peter J. Visclosky
Ranking Member

[redacted]

[redacted]

OFFICE OF THE SECRETARY OF DEFENSE
1700 DEFENSE PENTAGON
WASHINGTON, DC 20301-1700

OPERATIONAL TEST
AND EVALUATION

OCT 3 0 2019

The Honorable John McCain
Chairman
Committee on Armed Services
United States Senate
Washington, DC 20510-6050

Dear Mr. Chairman:

(U) I have enclosed the Initial Operational Test and Evaluation Report with classified annex for the AN/TPQ-53 required by Sections 2399, Title 10, United States Code. In the report I conclude the following:

- (U) The AN/TPQ-53 Counterfire Radar (Q-53) is operationally effective for detecting single-fired rocket, artillery, and mortar munitions. However, the Q-53 is not operationally effective for detecting volley-fired mortar munitions. Q-53 radar met the point of impact requirement for most mortar and artillery missions; point of impact error for rockets is larger than that for mortars and artillery. The radar located the threat firing location point of origin within the required error for most conditions. Accuracy was degraded for volley fired artillery.

- (U) For volley-fired weapons, the Q-53 provided consistent counterfire acquisitions for artillery projectiles while operating in the 90-degree Normal and Short-Range Optimized Mode (SROM) modes. The radar had problems acquiring volley-fired mortars in 360-degree and 90-degree modes and volley-fired artillery in the 360-degree mode.

- (U) The radar will report false targets when no projectiles are in the search area. A false target occurs when the radar determines that a threat weapon is firing, when none is present. The radar may do this when there is nothing known in the air, or the radar may classify an aircraft as a ballistic trajectory.

- (U) The radar is required to characterize detected projectiles as mortar, artillery, or rocket. The radar correctly characterized every single-fired mortar shot as a mortar. It appears that the radar will identify the detected projectile as a mortar unless it receives information suggesting otherwise.

- (U) The Q-53 radar is suitable. The Q-53 radar system demonstrated an operational availability of 0.99 during the IOT&E (0.95 is required by the user), indicating that the radar is operationally suitable and available to support the commander's mission.

[redacted]

[redacted]

- (U) The Q-53 system is survivable. The radar demonstrated improved cybersecurity from IOT&E. The classified annex details the cybersecurity analysis.

(U) Section 2399 provides that the Secretary of Defense may submit separate comments on my report, if he so desires. I have sent copies to him; the Under Secretary of Defense for Acquisition, Technology and Logistics; the Secretary of the Army; the Vice Chairman of the Joint Chiefs of Staff; and the Chairmen and Ranking Members of the Congressional defense committees.

J. Michael Gilmore
Director

Enclosure:
As stated

cc:
The Honorable Jack Reed
Ranking Member

[redacted]

[redacted]

OFFICE OF THE SECRETARY OF DEFENSE
1700 DEFENSE PENTAGON
WASHINGTON, DC 20301-1700

OPERATIONAL TEST
AND EVALUATION

OCT 3 0 2015

The Honorable Thad Cochran
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510-6025

Dear Mr. Chairman:

(U) I have enclosed the Initial Operational Test and Evaluation Report with classified annex for the AN/TPQ-53 required by Sections 2399, Title 10, United States Code. In the report I conclude the following:

- (U) The AN/TPQ-53 Counterfire Radar (Q-53) is operationally effective for detecting single-fired rocket, artillery, and mortar munitions. However, the Q-53 is not operationally effective for detecting volley-fired mortar munitions. Q-53 radar met the point of impact requirement for most mortar and artillery missions; point of impact error for rockets is larger than that for mortars and artillery. The radar located the threat firing location point of origin within the required error for most conditions. Accuracy was degraded for volley fired artillery.

- (U) For volley-fired weapons, the Q-53 provided consistent counterfire acquisitions for artillery projectiles while operating in the 90-degree Normal and Short-Range Optimized Mode (SROM) modes. The radar had problems acquiring volley-fired mortars in 360-degree and 90-degree modes and volley-fired artillery in the 360-degree mode.

- (U) The radar will report false targets when no projectiles are in the search area. A false target occurs when the radar determines that a threat weapon is firing, when none is present. The radar may do this when there is nothing known in the air, or the radar may classify an aircraft as a ballistic trajectory.

- (U) The radar is required to characterize detected projectiles as mortar, artillery, or rocket. The radar correctly characterized every single-fired mortar shot as a mortar. It appears that the radar will identify the detected projectile as a mortar unless it receives information suggesting otherwise.

- (U) The Q-53 radar is suitable. The Q-53 radar system demonstrated an operational availability of 0.99 during the IOT&E (0.95 is required by the user), indicating that the radar is operationally suitable and available to support the commander's mission.

[redacted]

[redacted]

- (U) The Q-53 system is survivable. The radar demonstrated improved cybersecurity from IOT&E. The classified annex details the cybersecurity analysis.

(U) Section 2399 provides that the Secretary of Defense may submit separate comments on my report, if he so desires. I have sent copies to him; the Under Secretary of Defense for Acquisition, Technology and Logistics; the Secretary of the Army; the Vice Chairman of the Joint Chiefs of Staff; and the Chairmen and Ranking Members of the Congressional defense committees.

J. Michael Gilmore
Director

Enclosure:
As stated

cc:
The Honorable Richard J. Durbin
Vice Chairman

[redacted]