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Take Active Air Defense Measures (Battlefield Function 16) as Accomplished by a Heavy Brigade with a Subordinate Air Defense Artillery Battery. Volume 2: Assessment Package

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BDM Federal, Inc.

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14. ABSTRACT *(Maximum 200 words)*:

The purpose of the overall research program was to document the synchronization required by command and control tasks performed within the armored brigade, to include combat support and combat service support units. The immediate application of the documentation was to support developers of staff training in two related projects: Battle Staff Training System and Staff Group Trainer. The documentation was also intended to assist with the planning and execution of collective training.

The documentation approach was to apply function analysis (FA) techniques for battlefield functions (BFs) in the Command and Control battlefield operating system. Thirteen FAs were developed for the brigade headquarters and four supporting units: direct support field artillery battalion, engineer battalion, forward support battalion, and air defense artillery (ADA) battery. The FAs were revised through a formative evaluation process that included internal review and successive external reviews by combat training centers, proponent agencies, and a review council representing potential users of the FAs. The final products include the FAs, a user's guide, and assessment packages for the BFs. This report provides the assessment package for the supporting ADA battery.

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FOREWORD

One of the goals for the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to facilitate the development of training strategies that will serve the needs of the combined arms team today and into the 21st century. The indispensable foundations, the cornerstones, for meeting this goal are solid information and data bases. One such base is a set of comprehensive descriptions of how soldiers accomplish their missions. Many task descriptions have been developed where the focus is on activities within a particular Battlefield Operating System (BOS); these are often further narrowed to one BOS element within one echelon. What have been lacking are function analyses along with task descriptions that have a broader BOS perspective; one which focuses not only on intra-BOS relationships, but also the relationships of that BOS with other BOSs in accomplishing the overall mission. It is this latter perspective which is needed, for example, to define training requirements and strategies for combined arms operations.

The assessment procedures described in this report are based on a function analysis resulting from one of three efforts conducted under the ARI project, "Innovative Tools and Techniques for Brigade and Below Staff Training (ITTBBST)." The work in this part of ITTBBST is the fifth in a series of ARI projects directed at analyzing the vertical and horizontal synchronization required by combined arms operations. All of the projects have analyzed functions, previously labeled "critical combat functions (CCFs)" and now labeled "battlefield functions (BFs)." The previous projects analyzed: all BFs performed by a heavy battalion task force; a sample of seven BFs performed by an armored brigade; and the integration of fire support BFs as performed by an armored brigade and at echelons higher than brigade. The research in this project analyzed BFs in the Command and Control BOS. Separate coordinated analyses of these BFs were performed for the armored brigade headquarters and four types of supporting units, one of which is the Air Defense Artillery Battery.

The analyses developed in the project have been used in the development of staff training in related projects within the ITTBBST program. In addition, U.S. Army Training and Doctrine Command (TRADOC) representatives have identified a variety of applications by TRADOC training and other developers as well as potentials for collective training management.

ZITA M. SIMUTIS
Technical Director

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This assessment package is based on the battlefield function analysis presented in "Take Active Air Defense Measures (Battlefield Function 16) as Accomplished by a Heavy Brigade with a Subordinate Air Defense Artillery Battery, Volume 1". That analysis benefited from considerable dedicated effort on the part of many persons. The efforts of a few of these many persons are specifically and gratefully acknowledged here. An especially key person was MG (Ret) Lon E. Maggart, Commanding General of the U.S. Army Armor Center (USAARMC). Prior to and during the conduct of this effort, he contributed greatly to definition of training needs and concepts in support of Force XXI. He saw that battlefield functional analyses could provide a valuable foundation for Force XXI training development efforts; hence, MG (Ret) Maggart strongly backed these efforts.

COL G. Patrick Ritter and LTC Marvin K. Decker, acting in accordance and agreement with MG (Ret) Maggart's vision, vigorously pursued battlefield function analysis efforts and persevered in ensuring their application to Force XXI training developments. COL Ritter, Director of Directorate of Training Development and Doctrine at USAARMC, and LTC Decker, Chief of the Directorate of Training and Development Doctrine's (DTDD) Force XXI Training Program (FXXITP) office, ensured implementation of necessary actions, and the participation of military subject matter experts and potential users of function analysis products as needed to assure quality outcomes.

Among many participants in performing the analyses themselves, and validating their integrity and validity, were members of the Combined Arms and Tactics Department at the U.S. Army Air Defense Artillery School (USAADAS), DTDD at USAARMC, and Operations Group at the National Training Center. Final recommendations and approval of these analyses were provided by proponents and users constituting the Force XXI Review Council. Members of the Review Council included: COL G. Patrick Ritter and LTC Marvin K. Decker, USAARMC; LTC James R. Harrison, U.S. Army Armor School (USAARMS); LTC Larry Newman, USAADAS; LTC David M. Annen, U.S. Army Field Artillery School; COL Philip Federle, U.S. Army Engineer School; LTC Roger F. Murtie, National Training Center; LTC Gilbert Pearsall, Joint Readiness Training Center; COL Roger W. Jones, TRADOC Program Integration Office-Army Battle Command System; and COL Robert J. Fulcher, 29th Infantry Regiment.

The research for and preparation of this report benefited immeasurably from the assistance provided by members of the U.S. Army Research Institute. Specifically, the authors would like to acknowledge Dr. Kathy Quinkert for her continual support and guidance. As Contracting Officer's Representative, she interfaced with the FXXITP and the Army audience continually in providing program intent. Additionally, Ms. Dorothy Finley is acknowledged for serving as a peer reviewer for the product. She offered constructive comments that have improved both the content and style of the report. Also, special recognition is given to Ms. May Throne, a Consortium Research Fellow from the University of Louisville assigned to Fort Knox, and Ms. Lori Cracknell. Their never ending efforts to assist in the formal production of this report will not soon be forgotten.

TAKE ACTIVE AIR DEFENSE MEASURES (BATTLEFIELD FUNCTION 16) AS ACCOMPLISHED BY A HEAVY BRIGADE WITH A SUBORDINATE AIR DEFENSE ARTILLERY BATTERY VOLUME 2: ASSESSMENT PACKAGE

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INTRODUCTION

The results of the Army Research Institute's examination of battlefield functions (BFs) relevant to a brigade combat team's combined arms operations are in a series of two volume sets. These sets cover brigade headquarters and the supporting units of air defense artillery battery, engineer battalion, field artillery battalion, and forward support battalion. Volume 1, Function Analysis, identifies and describes information and tasks necessary to accomplish the function. The analysis is targeted at planning and conducting collective training. Volume 2 provides an Assessment Package. It implements an assessment approach that identifies the purpose of the unit's action in relation to the function. This provides a basis for appraising the performance of the function and the outcomes resulting from it. The assessment package is intended to support the conduct of a training event, such as a field training exercise (FTX) or command post exercise (CPX). The package assists assessment planning, data collection, and using the collected data in the conduct of after action reviews (AARs). The materials assume skilled observers who can quickly identify when a unit is performing especially well or not, and, if not, the nature of the problem. Nothing in the Assessment Package can substitute for that expertise. The package adds value to two aspects of assessment. First, consistency in the assessment of multiple observers is facilitated through the consideration of the same outcomes and tasks. Second, efficiency in the assessment and AAR process is enhanced.

This assessment package is for the air defense artillery battery. It is organized to allow a commander or other observer to consider performance at several levels associated with increasingly focused questions:

- Did the unit achieve the purpose of the BF (e.g., for BF 19, to provide leadership, direction, command, and control during preparation for the battle)?

- If the purpose was not achieved, which outcomes did not occur? (e.g., Did subordinate leaders demonstrate an understanding of the critical elements of their own mission and mission essential tasks, the brigade mission, and the brigade commander's intent?)

- If an outcome did not occur or if performance was exemplary, what components of the outcome (e.g., backbriefs, rehearsals) or clusters of tasks (e.g., rehearsal tasks related to level of participation, priority of tasks, and realism) were notable strengths or weaknesses?

The tools provided in this Assessment Package include:

- Worksheet: This provides a means to record brief answers to each of above three questions.

- Assessment Strategy and Assessment Scale: The Strategy section advises where assessment personnel should be stationed to both observe performance, and review incoming information and outgoing products. The Assessment Scale can be used to assign evaluative ratings to both observations and products.

- Outcome Assessment Observations and Diagnosis Aids: These forms guide observers in making their evaluative ratings and then in further specifying, or diagnosing, any weakness in the observed performance.

- Product Review Measures of Effectiveness: These forms provide a means for collecting information regarding each of the products. They identify the products to be reviewed, which items to evaluate, and the information to be recorded.

Planning Assessment

The Assessment Strategy tool, briefly noted above, lists all outcomes that could be addressed, suggests where observers should be located, and specifies activities and products to be observed. The strategy helps commanders decide which outcomes should be addressed, guides the estimate of the number of observers and types of enemy forces required, and identifies the relevant assessment tools in the package (e.g., measures of effectiveness, outcome assessment guides, and diagnostic aids).

Conducting AARs

In assessing the training and organizing the AAR, the commander or observer progresses through three decisions. The first decision is whether the function was accomplished and if it should be addressed in the AAR. This decision is typically based on whether the unit accomplished the purpose of the function and the outcomes that support the purpose. The next level of choice is the selection of function outcomes that are appropriate for the AAR. This analysis is supported by objective measures in the Assessment Package's tables and a framework for systematic expert judgment concerning performance related to the outcome. The third level of selection concerns the specific behavior related to the outcome that was pivotal to the unit's success or failure. This selection is aided by data collected in accordance with the observation and product review guides for each component. In complex outcomes, the performance requirements are broken into components to help the commander or other observers focus their attention. In all cases, related tasks and supporting tasks are summarized to describe behavior required to achieve the outcome. Two types of measures help provide the desired consistency and efficiency.

Outcome Assessment Guides. These guides usually require the commander or observer to be present to watch the unit's actions and judge the results. Tasks and supporting tasks associated with each outcome are grouped into likely strengths or weaknesses. The guides are supported by diagnostic aids tied to the function analysis in Volume 1. The diagnostic aids list the tasks and supporting tasks that apply to the outcome components and task summaries.

Product Measures of Effectiveness. These measures help anchor the assessment with objective data. The tables associated with the measures of effectiveness should be completed for each event that covers the relevant outcomes. Over time, the measures will provide a context for showing how performance compares with other units or with previous performance by the subject unit. Many of the measures can be completed based on products, so the commander or observer does not have to view the performance. There should, however, be a mechanism in place to collect and process the information before the AAR.

WORKSHEET

MISSION_____
DATE _____
UNIT _____

Briefly state the armored brigade and ADA battalion commanders' intents for this mission.

Armored brigade commander's intent:
ADA battalion commander's intent:

PURPOSE OF THE BATTLEFIELD FUNCTION (BF): To preserve the brigade's freedom of maneuver and protect critical brigade assets by nullifying or reducing the effectiveness of low-level hostile third dimensional threat through active air defense.

Did the brigade achieve its purpose? (Circle one:) Yes No

Did the Air Defense Artillery (ADA) battery make the contribution needed to achieve the purpose? (Circle one:) Yes No

WORKSHEET (Continued)

If the performance exceeded the standard, please describe any techniques of superior performance. These are techniques that you believe should be cited in the after action review (AAR) and, perhaps, relayed through lessons learned agencies to be shared with the rest of the Army.

Outcome	Achieved?	Notes
OUTCOME 1: Complete, concise, feasible, suitable, acceptable, and tactically sound orders for air defense are issued by the brigade headquarters and the supporting ADA battery.	Y N	
OUTCOME 2: The brigade plan for air defense and the ADA battery's operations order (OPORD) and fragmentary orders (FRAGOs) are received and understood by key participants.	Y N	
OUTCOME 3: Brigade air defense assets that are prepared to conduct the brigade air defense mission in accordance with the brigade commander's concept and intent.	Y N	

Outcome	Achieved?	Notes
OUTCOME 4: Brigade assets attack and defeat enemy air without hindering or restricting friendly air activity.	Y N	

ASSESSMENT STRATEGY

Locations to observe unit performance and aspects of that performance relevant to assessment are suggested for each outcome. The suggested locations and focus/focuses are not meant to be an exhaustive or all inclusive list.

Outcome	Location and Focus of Assessment
OUTCOME 1: Complete, concise, feasible, suitable, acceptable, and tactically sound orders for air defense are issued by the brigade headquarters and the supporting ADA battery.	**Emphasis on the AD aspects of the brigade orders process** (Use Bde 18 Assessment Package) **and the ADA battery orders process.** (Use Tables 1, 2, 4, and 5) • With Bde Cdr, ADO/ADALO, S3, Executive Officer (XO), and other members of the staff to observe planning process, verify doctrinal correctness of the AD annex. (Use Bde 18 Assessment Package) With brigade XO and staff to observe copies of OPORD sections being produced. (Use Bde 18 Assessment Package) • With ADA battery commander to observe planning process, verify doctrinal correctness of the ADA battery OPORD.

Outcome	Location and Focus of Assessment
OUTCOME 2: The brigade plan for air defense and the ADA battery's OPORD and fragmentary orders (FRAGOs) are received and understood by key participants.	**Emphasis on dissemination of plan (via the orders process), and ensuring that plan is understood.** (Use Tables 1, 3, 6, 7, and 8) • At brigade OPORD briefing to observe that the OPORD, graphics, AD Annex and accompanying overlays are received by all units IAW tactical standing operating procedures (TSOP). (Use Bde 18 Assessment Package) • At brigade OPORD briefing to observe briefback of AD tasks. (Use Bde 18 Assessment Package) • At brigade OPORD briefing to observe that AD priorities and issues are clarified by the brigade commander and ADO. (Use Bde 18 Assessment Package) • With the ADA battery commander to assess completion of battery WARNOs and OPORD. • At ADA battery OPORD briefing to observe platoon leaders' briefbacks.

Outcome	Location and Focus of Assessment
OUTCOME 3: Brigade air defense assets that are prepared to conduct the brigade air defense mission in accordance with the brigade commander's concept and intent.	**Emphasis is on the preparedness of both maneuver unit AD and ADA assets to execute the brigade AD plan.** (Use Tables 1, 8, and 9, and use Bde 19 Assessment Package) • With TFs, DS FA Bn, and ADA platoons to monitor receipt of air defense guidance, priorities, and requirements in initial WARNOs and OPORDs and in subsequent refinements. • With ADA assets to observe impact of refinements on preparation time. • With maneuver units, artillery battalion, and FSB to assess readiness for CAFAD and SAFAD. • With ADA platoons and sections to assess positioning, equipment and personnel readiness for AD. • With ADA battery command post and platoons to monitor continuity of command, control, communications, and intelligence (C3I).

OUTCOME 4: Brigade assets attack and defeat enemy air without hindering or restricting friendly air activity.	**Emphasis is on AD execution by brigade maneuver elements and ADA assets.** (Use Table 1 and Bde 20 Assessment Package)
	• With the ADA battery headquarters and ADA platoons to observe actions of ADA assets to:
	  • Assess AD execution.
	  • Determine the quality of the brigade AD plan and the ADA battery OPORD.
	• On the ground with brigade units to assess effects of enemy air and effectiveness of CAFAD and SAFAD.
	• With air liaison officer (ALO) and aviation liaison officer (AVLO) to assess effects of friendly AD fires on friendly air assets.

ASSESSMENT SCALE

Whenever the unit's performance must be rated with respect to an outcome, or component of an outcome, the rating should be on the scale Adequate, Marginal, Not Adequate, defined below. Whenever these ratings are required, the outcome (or component) will be framed in a box with the rating scale, as in this example:

OUTCOME 1: Complete, concise, feasible, suitable, acceptable, and tactically sound orders for air defense are issued by the brigade headquarters and the supporting ADA battery.	Adequate	Marginal	Not Adequate

In each case, circle the appropriate rating, using the scale below for guidance:

Adequate	**Marginal**	**Not Adequate**
The unit can successfully achieve the outcome to standard. Outcome is achieved with no significant shortcomings.	The unit can successfully achieve the outcome with some shortcomings.	The unit cannot achieve the outcome to standard.

Two sub-sections are included with each Outcome's section to assist in the selection of an appropriate rating. These sub-sections should be used if the observer requires more information upon which to base a rating or requires precision to focus planning for training:

1) The first sub-section consists of assessment statements which orient the observer on observable performances related to the tasks contributing to achieving the Outcome. The assessment statements were derived by incorporating the substance of several tasks.
2) The second sub-section entitled Diagnostic Aid lists the tasks and subtasks supporting that particular Outcome. The diagnostic aid permits selection of specific tasks to facilitate planning future training.

Where appropriate due to complexity, some Outcomes have been divided into outcome components which are assessed separately.

OUTCOME ASSESSMENT OBSERVATIONS AND DIAGNOSIS

OUTCOME 1 ASSESSMENT

OUTCOME 1: Complete, concise, feasible, suitable, acceptable, and tactically sound orders for air defense are issued by the brigade headquarters and the supporting ADA battery.

Component A: Brigade plan for AD is complete, suitable, feasible, and acceptable.	Adequate	Marginal	Not Adequate

(See Tables 1 2, 4, and 5)

Use Assessment Package for Bde 18 complemented by the following information to assess Component A.

- ADALO and the ADA battery commander provide the AD input for Bde OPORD (paragraph 3a.3), which reflects:
  - Brigade's commander's intent and priorities for AD.
  - ADA support for operation.
    - -- Task organization.
    - -- Priorities of coverage.
    - -- Special AD considerations.
  - Use of CAFAD and SAFAD.
  - Active and passive air defense measures for all brigade units.
  - Early warning procedures.

Component B: ADA battery OPORD and FRAGOs are complete, suitable, feasible, and acceptable.	Adequate	Marginal	Not Adequate

- Plans and orders are:
  - Suitable.
  - Feasible.
  - Acceptable.
  - Complete.

OUTCOME 1 DIAGNOSTIC AID

OUTCOME 1: Complete, concise, feasible, suitable, acceptable, and tactically sound orders for air defense are issued by the brigade headquarters and the supporting ADA battery.

Task Elements

Component A: Brigade plan for AD is complete, suitable, feasible, and acceptable.

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [Field Manual (FM) 71-3; FM 44-64; Army Training and Evaluation Program (ARTEP) 44-177-30 Mission Training Plan (MTP)]

1a. The battery XO establishes the battery TOC. [FM 71-3, pp. 3-16]

1a4 The battery TOC acquires, evaluates, and communicates information for air defense operations during planning. [Author Note (AN)]

a) Receives information from brigade headquarters.
   (1) Initial mission guidance.
   (2) Area of brigade operations and location of brigade assets.
   (3) Available A2C2 (e.g., Army aviation and close air support (CAS) flight routes; unmanned aerial vehicle activity (UAV)) and intelligence information.
   (4) Other information as provided in the brigade TSOP.

b) Receives air defense-relevant information from the ADA battalion.
   (1) Additional mission guidance.
   (2) Air threat intelligence.
   (3) ADWs, ADWCS, and LADW.
   (4) Other air defense-relevant information as provided in the battalion TSOP.

c) Receives information and reports from subordinate elements.
   (1) Tactical situation.
   (2) Personnel status.
   (3) Equipment status.
   (4) Supply status.
   (5) Other information as required in the battery TSOP.

d) Processes and evaluates information.
   (1) Uses FAADSC3I presentation boxes and/or engagement operations (EO) and force operations (FO) map and status boards to display the following information: [Soldier's Training Publication (STP) 44-14II-Military Qualification Standards (MQS), Task 01-0401.31-0002]
      (a) Tactical situation.
      (b) Airspace coordination orders, graphics/overlays, and intelligence information to include third dimension (air) intelligence preparation of the battlefield (IPB).
      (c) Personnel status.
      (d) Maintenance and logistical status.
      (e) NBC alerts.
      (f) Air defense weapon and sensor status and locations.
      (g) ADW, ADWCS, and LADW.
   (2) Reviews information for required actions during planning, preparation, and execution phases.

e) Communicates information.
   (1) Provides information and reports to the brigade and the ADA battalion as needed and as required by TSOPs.
   (2) Coordinates information with the brigade staff as part of the integrated brigade TOC.
   (3) Provides all relevant air defense and ground tactical information to subordinate units.

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.** [FM 44-64; AN; Field Note (FN)-National Training Center (NTC) Observer-Controllers (OCs)]

2a. The ADALO receives the following parts of the division order from the brigade S3: [AN]

2a1 Base order (5 paragraphs).

2a2 Task organization.

2a3 Enemy situation.

2a4 ADA annex.

2a5 A2C2 annex.

2a6 Intelligence annex and IPB of the third dimension. [FN-NTC OCs]

2b. The ADALO initiates the air defense estimate. [FM 44-64; AN; FN-NTC OCs]

2c. The battery commander or battery XO receives WARNOs from the ADA battalion and from the brigade (when issued following the brigade mission analysis). [FM 71-123]

3. **The air defense liaison officer conducts mission analysis with the brigade staff.** [FM 71-123; FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 34-130]

3a. The ADALO identifies the mission and intent of the corps and division commanders. [FM 71-123, p. 1-12]

3b. The ADALO identifies specified, implied, and essential tasks for the ADA battery. [FM 71-123, pp. 1-12]

3c. The ADALO determines limitations and restrictions. [FM 101-5; AN]

3d. The ADALO determines critical facts and assumptions. [FM 101-5; AN]

3e. The ADALO determines A2C2 information. [FM 71-3; AN]

3e1 Friendly air flight paths.

3e2 Friendly unmanned aerial vehicle (UAV) launch points, times, and routes.

3f. The ADALO conducts the air IPB analysis in conjunction with the brigade S2. [ARTEP 44-177-30-MTP, 44-5-2231]

3f1 The ADALO receives the initial terrain and threat analysis from the brigade S2.

3f2 The ADALO, with brigade S2, expands the IPB into the third dimension. [FN-NTC OCs; FM 34-130, pp. 4-1, 4-2]

a) Defines the air defense battlefield environment:
   (1) Enemy (fixed-wing, rotary-wing, UAV, cruise missiles [CM], and tactical ballistic missiles [TBM]).
   (2) Enemy tactics.
   (3) Locations of launch platforms (UAVs/CMs/TBMs).
   (4) Locations of enemy airfields.
   (5) Locations of forward arming and refuel points (FARP).
   (6) Locations of aids to navigation.
   (7) Range capabilities of enemy aircraft.
   (8) Altitude capabilities of enemy aircraft.
   (9) Range capabilities of enemy UAVs, CMs, and TBMs.
   (10) Flight profiles of enemy UAVs, CMs, and TBMs.

b) Describes the battlefield effects:
   (1) Probable target installations or areas.
   (2) Likely air avenues of approach.
   (3) Likely drop zones (DZs), landing zones (LZs), or pickup zones (PZs).
   (4) Likely standoff orbits.
   (5) Line of sight from proposed air defense weapon locations.
   (6) Terrain masking.
   (7) Effects of weather on air operations.
   (8) Expected attack times based on weather and light data, and patterns of enemy activity.
   (9) Known and planned obstacles.

c) Evaluates the threat:
   (1) Flight tactics.
   (2) Ordnance types and availability.
   (3) Ordnance delivery techniques.
   (4) Technical capabilities of aircraft.
   (5) Target selection priorities.
   (6) Air strike allocation procedures.
   (7) Command, control, and communications (C3) procedures and techniques.
   (8) Navigation capabilities.
   (9) Past activity in division sector, patterns.
   (10) Capabilities to counter friendly air defense assets.

d) Determines enemy course of action (COA) based on:
   (1) Likely location of enemy FARPs.
   (2) Likely timing of air strikes or air assault.
   (3) Likely targets and objectives.
   (4) Likely air corridors and air avenues of approach.
   (5) Enemy flight profiles and strike packages.
   (6) Possible enemy reaction to positioning of friendly air defense assets.

e) Identifies target area of interest (TAI) for attack by fire support. [FM 44-64]
   (1) Enemy forward air control points and UAV ground control assets.
   (2) Anticipated locations which enemy helicopters might use for terrain masking to enable movement and attack (forward alighting areas).
   (3) Enemy aviation headquarters.
   (4) Enemy aids to aviation.
   (5) Rural airstrips.
   (6) Possible air assault LZs, DZs, or PZs.
   (7) Enemy FARPs.
   (8) Enemy tactical air or helicopter forward operational bases.

f) Coordinates with Bde fire support officer (FSO) and fire support element (FSE) for targeting of air defense relevant TAI with artillery fire. [FM 44-64]

g) Coordinates with Bde S2 for information about enemy ground COA that might impact on positioning ADA battery elements.

3g. The ADALO conducts time analysis.

3g1 Planning timeline that includes such items as:
   a) Issue WARNO.
   b) Prepare air defense estimate.
   c) Develop COAs.
   d) Disseminate COA decision.
   e) Prepare input for brigade OPORD.

3g2 Operational timeline that includes such items as:
- a) Participation in OPORD brief.
- b) Participation in brigade rehearsal.
- c) Movement.
- d) Mission execution time.

3h. The ADALO participates in the mission analysis brief. [FM 71-3; ARTEP 44-177-30-MTP]

3h1 The ADALO briefs the friendly ADA situation. [AN]
- a) The ADA battery task organization, unit strength, and positions.
- b) ADA specified, implied, and essential tasks.
- c) Assumptions related to air defense.
- d) HIMAD coverage for the brigade.
- e) Division A2C2 information relating to brigade mission.
- f) Division air defense information impacting on brigade air defense operations.

3h2 The ADALO supports the brigade S2 brief about enemy air. [AN]

3h3 The ADALO receives from the brigade commander: [FM 71-3, p. 3-3]
- a) The brigade restated mission.
- b) The brigade essential tasks.
- c) The brigade commander's priority for air defense coverage. [ARTEP 44-177-30-MTP, Task 44-4-2201/1]

4. **The air defense liaison officer provides air defense information to the brigade S3 as input for the brigade warning order.** [FM 44-64; AN]

4a. The ADALO provides information to the brigade S3 which includes:

4a1 Enemy air threat strength, composition, and capabilities.

4a2 Task organization of friendly supporting air defense assets.

4a3 Current ADW/LADW and ADWCS.

4a4 Early warning procedures.

4a5 Other information that could affect air defense operations.

4b. The ADALO and the ADA battery commander provide other assistance in the development and issuance of brigade WARNO, as necessary. [FM 44-64; AN]

5. **The air defense liaison officer and the air defense artillery battery commander receive initial planning guidance from the brigade commander.** [FM 101-5, Chap 4, p 4-15; FM 44-64]

5a. The ADALO and the ADA battery commander are present at the commander's guidance briefing. [AN]

5b. The ADALO receives, in conjunction with the brigade staff: [AN]

5b1 Enemy COAs that would impact air defense.

5b2 The restated mission of the maneuver brigade.

5b3 Division and brigade commanders' intents.

5b4 The concept of air defense operations.

5b5 Air defense aspects, requirements, and involvement in corps or division deception plan.

5b6 Priorities of air defense coverage.

5b7 Time plans:
a) Brigade staff planning timeline.
b) Initial operational timeline.

5b8 The type of brigade order to be issued.

5b9 The type of rehearsal to conduct and air defense requirements for participation.

5b10 The type of planning process used to develop the order.

5b11 Commander's critical information requirements (CCIR) applicable to air defense.

5c. The ADALO and the ADA battery commander participate in the confirmation brief, if directed. [FM 101-5 p 4-15 and 4-16]

6. **The air defense liaison officer prepares paragraphs 1 and 2 of the air defense estimate.** [FM 101-5, p. C-12; ARTEP 71-3 MTP, Task 71-3-60001/2; FM 44-100, App B]

6a. The mission of the ADA battery.

6b. The situation, to include:

6b1 Considerations affecting possible COAs:

a) Brigade operations to be supported.

b) Characteristics of the area of operations.

(1) Weather.

(2) Terrain.

(3) Environmental aspects (e.g., dense air pollution).

c) Enemy air situation.

(1) Disposition.

(2) Composition.

(3) Strength.

(4) Recent and present significant activities.

(5) Peculiarities and weaknesses.

(6) Capabilities.

(7) Doctrinal employment of assets.

(8) Other enemy considerations (e.g., use of smoke to limit visibility).

d) Situation of organic ADA assets.

(1) Current air defense mission, priorities, and tactical situation.

(2) Supporting relationships of battery, platoons, and subordinate air defense sections.

(3) Task organization.
  (a) Locations.
  (b) Strength and crew manning capabilities.
  (c) Availability and operational status of air defense weapon and sensor systems.
  (d) Organic weapon system capabilities of brigade subordinate units to include effective engagement range, weapons platforms (e.g., M2, M113, etc.), and basic load and ammunition status.
(4) Types of air defense actions required in the area of operations (e.g., river crossing, choke point, obstacle, etc.).
(5) Anticipated difficulties in providing air defense to support the mission (e.g., impact of enemy employment of NBC).

6c. Special considerations:

6c1 CAFAD, which includes direct and indirect fires, SAFAD, and SHORAD capabilities.

6c2 Key passive air defense measures.

6c3 ADA control measures (ADW/ADWCS/LADW).

6c4 Early warning systems status.

6c5 A2C2 information relevant to current and planned air defense operations:
a) Standard-use Army aircraft flight routes.
b) High density airspace control zone.
c) Weapons free zone.

7. **The air defense liaison officer participates in the brigade's course of action development.** [ARTEP 44-177-30-MTP; ARTEP 71-3-MTP; FM 44-64]

7a. The ADALO receives COAs under consideration from the brigade S3. [AN]

7b. The ADALO prepares an air defense COA to support each brigade COA. [ARTEP 44-177-30-MTP, Task 44-4-2201/3]

7b1 The ADALO bases air defense asset employment on doctrinal guidelines: [FM 44-64, p. 2-3]

a) Mutual support.
b) Overlapping fires.
c) Balanced fires.
d) Weighted coverage.
e) Early engagement.
f) Defense in depth.

7b2 The ADALO integrates brigade air defense capable assets (CAFAD, which includes direct and indirect fires, and SAFAD) in overall air defense plan. [AN; FN-NTC OCs]

7b3 The ADA battery commander performs risk management analysis for each COA. [ARTEP 44-177-30-MTP, Task 44-2-R326]

7c. The ADALO develops an early warning plan to support each brigade COA. [ARTEP 44-177-30-MTP, Task 44-5-2232/2, 3]

7d. The ADALO identifies critical air defense events to be included on the brigade synchronization matrix. [AN]

8. **The air defense liaison officer participates in the brigade course of action analysis.** [FM 101-5, p. 4-28; FM 44-64; ARTEP 44-177-30-MTP]

8a. The ADALO participates in the brigade staff's war-gaming process with the brigade staff with concentration on: [FM 101-5] [AN]

8a1 The commander's air defense priorities.

8a2 Anticipated enemy air actions during battle phases and counters to these threats.

8a3 Available capabilities and use of CAFAD to augment ADA assets.

8a4 Requirements for effective early warning.

8b. The ADALO war-games each COA considering: [AN]

8b1 The brigade commander's priority of coverage. [ARTEP 44-177-30-MTP, Task 44-4-2201/1]

8b2 The brigade commander's overall intent. [FM 71-3, p. 3-3]

8b3 Employment guidelines of mutual support, overlapping fires, balanced fires, weighted coverage, early engagement, and defense in depth. [FM 44-64, p. 2-3]

8b4 Mobility requirements for movement and repositioning of air defense assets.

8b5 Survivability requirements for personnel and equipment.

8b6 Resupply requirements to include prestock of ammunition and emergency resupply.

8b7 Fire support for air defense area of interest.

8b8 Required support for suppression of enemy air defenses (SEAD) operations.

8b9 Changes in air defense command and support relationships.

8b10 A2C2 effects on each COA. [FM 44-64, p. H-4]

8b11 Actions necessary to preclude hindering or restricting friendly air operations.

9. **The air defense liaison officer compares courses of action with the brigade staff.** [ARTEP 71-3-MTP; Task 71-3-3001/3a; FM 101-5, p. 4-32]

9a. The ADALO prepares a COA decision matrix for air defense and recommends the brigade COA that can best be supported by ADA assets. [FM 101-5, p. 4-32]

9b. The ADALO participates and provides air defense input into the COA decision brief. [ARTEP 71-3-MTP; Task 71-3-3001/3a]

10. **The air defense liaison officer receives the course of action decision from the brigade commander.** [ARTEP 71-3-MTP, Task 71-3-3002]

10a. The ADALO is present and focuses on key elements of the decision which are most relevant to air defense:

10a1 The finalized commander's intent for air defense employment.

10a2 The concept of the operation as applied to air defense.

10a3 Specific command and support relationships for subordinate air defense units.

10a4 The main effort and how ADA support will be most effective.

10a5 Identification of brigade assets critical to mission accomplishment, i.e., brigade commander's priorities.

10a6 Where the brigade commander is willing to accept risk.

10b. The ADALO coordinates with other staff officers and receives input and assistance from the ADA battery commander to develop and prepare the air defense plan to support the COA selected. [AN]

10c. The ADALO provides the selected brigade COA and war-gaming notes to the ADA battery commander to facilitate parallel planning. [AN]

11. **The air defense liaison officer and the air defense artillery battery commander prepare the air defense relevant sections of the brigade order.** [ARTEP 71-3-MTP, Task 71-3-6001/3; FM 44-64]

11a. The ADALO and the ADA battery commander provide input for paragraph 3a3. (counter-air operations) to the base order: [AN]

11a1 The brigade commander's intent for air defense.

11a2 ADA support of concept of the operation.
- a) Task organization.
- b) Priorities of coverage.
- c) Special air defense considerations.

11a3 Passive air defense considerations and measures to be employed.

11a4 Early warning procedures.

11b. The ADALO refines the ADA plan based on the brigade commander's guidance. [AN]

11c. The ADALO/ADA battery commander prepares the ADA annex to the brigade order: [AN; FN-NTC OCs]

11c1 Situation:
- a) Enemy aircraft types, number, and capabilities.
- b) Location and mission of HIMAD assets that affect the brigade sector.
- c) Location and mission of other friendly SHORAD assets that could affect the brigade sector.

11c2 The mission of the ADA battery.

11c3 The execution of the ADA mission by phase.
- a) Command and support relationships of ADA platoons and sections.
- b) Tasks to be performed by subordinate units.
- c) The scheme of air defense coverage of the brigade mission.
- d) Special instructions or conditions that affect the air defense plan.
- e) ROE.
- f) CAS.
- g) Artillery coordination for air defense relevant (e.g., threat UAV launching points) TAIs.
- h) Engineer coordination for construction of positions and improvement of mobility.

11c4 Service and support.
- a) The support plan for the battery and subordinate units.
- b) Ammunition resupply points.
- c) Casualty collection points.
- d) NBC decontamination points.

11c5 Command and signal.

a) Signal.

(1) Early warning frequency.

(2) SOI edition in effect.

(3) Special code words.

(4) Identification, friend, or foe code in use.

(5) Current ADW/ADWCS/LADW.

b) Command.

(1) Locations of brigade, ADA battalion, and battery TOCs.

(2) The location of the battery CP.

(3) The location of the battery commander.

11d. The ADALO provides air defense input to the brigade S3 for review and inclusion in the brigade OPORD. [AN; FN]

11e. The ADALO participates with brigade S3 Air, ALO, AVLO, and FSO in development of A2C2 annex of OPORD. [FM 44-64, p. H-4]

Component B: ADA battery OPORD and FRAGOs are complete, suitable, feasible, and acceptable.

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [FM 71-3; FM 44-64; ARTEP 44-177-30 MTP]

1a. The battery XO establishes the battery TOC. [FM 71-3, pp. 3-16]

1a4 The battery TOC acquires, evaluates, and communicates information for air defense operations. [AN]

a) Receives information from brigade headquarters.

(1) Initial mission guidance.

(2) Area of brigade operations and location of brigade assets.

(3) Available A2C2 (e.g., Army aviation and CAS flight routes; UAV) and intelligence information.

(4) Other information as provided in the brigade TSOP.

b) Receives air defense-relevant information from the ADA battalion.
   (1) Additional mission guidance.
   (2) Air threat intelligence.
   (3) ADWs, ADWCS, and LADW.
   (4) Other air defense-relevant information as provided in the battalion TSOP.

c) Receives information and reports from subordinate elements.
   (1) Tactical situation.
   (2) Personnel status.
   (3) Equipment status.
   (4) Supply status.
   (5) Other information as required in the battery TSOP.

d) Processes and evaluates information.
   (1) Uses map and status boards to display the following information: [STP 44-14II-MQS, Task 01-0401.31-0002]
      (a) Tactical situation.
      (b) Airspace coordination orders, graphics/overlays, and intelligence information to include third dimension (air) IPB.
      (c) Personnel status.
      (d) Maintenance and logistical status.
      (e) NBC alerts.
      (f) Air defense weapon and sensor status and locations.
      (g) ADW, ADWCS, and LADW.
   (2) Reviews information for required actions during planning, preparation, and execution phases.

e) Communicates information.
   (1) Provides information and reports to the brigade and the ADA battalion as needed and as required by TSOPs.
   (2) Coordinates information with the brigade staff as part of the integrated brigade TOC.
   (3) Provides all relevant air defense and ground tactical information to subordinate units.

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.** [FM 44-64; AN; FN-NTC OCs]

2a. The ADALO receives the following parts of the division order from the brigade S3: [AN]

2a1 Base order (5 paragraphs).

2a2 Task organization.

2a3 Enemy situation.

2a4 ADA annex.

2a5 A2C2 annex.

2a6 Intelligence annex and IPB of the third dimension. [FN-NTC OCs]

2b. The ADALO initiates the air defense estimate. [FM 44-64; AN; FN-NTC OCs]

2c. The battery commander or battery XO receives WARNOs from the ADA battalion and from the brigade (when issued following the brigade mission analysis). [FM 71-123]

3. **The air defense liaison officer conducts mission analysis with the brigade staff.** [FM 71-123; FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 34-130]

3a. The ADALO identifies the mission and intent of the corps and division commanders. [FM 71-123, p. 1-12]

3b. The ADALO identifies specified, implied, and essential tasks for the ADA battery. [FM 71-123, pp. 1-12]

3c. The ADALO determines limitations and restrictions. [FM 101-5; AN]

3d. The ADALO determines critical facts and assumptions. [FM 101-5; AN]

3e. The ADALO determines A2C2 information. [FM 71-3; AN]

3e1 Friendly air flight paths.

3e2 Friendly UAV launch points, times, and routes.

3f. The ADALO conducts the air IPB analysis in conjunction with the brigade S2. [ARTEP 44-177-30-MTP, 44-5-2231]

3f2 The ADALO, with brigade S2, expands the IPB into the third dimension. [FN-NTC OCs; FM 34-130, pp. 4-1, 4-2]

g) Coordinates with Bde S2 for information about enemy ground COA that might impact on positioning ADA battery elements.

10. **The air defense liaison officer receives the course of action decision from the brigade commander.** [ARTEP 71-3-MTP, Task 71-3-3002]

10c. The ADALO provides the selected brigade COA and war-gaming notes to the ADA battery commander to facilitate parallel planning. [AN]

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

13b. The ADA battery receives OPORDs from the brigade and the ADA battalion. [FM 101-5; FM 71-123]

13b1 The battery commander or battery XO receives the OPORD from the ADA battalion; areas of interest: [FM 71-123]

a) Division mission.
b) ADA battalion mission.
c) ADA task organization.
d) Enemy air situation.
e) ADA battalion commander's intent.
f) Tasks to subordinate units.
g) ADA battalion DSM.

13b2 The battery commander or battery XO receives the brigade OPORD and reviews information acquired during his and ADALO's participation in the brigade orders process. Focus is on key elements relevant to AD: [AN; FN-NTC OCs]

a) Base order (5 paragraphs).
b) Task organization.
c) Enemy situation.
d) Operational overlay.
e) ADA annex.
f) Third dimension IPB.
g) A2C2 annex.

13c. The battery commander prepares and issues an ADA battery WARNO that contains: [ARTEP 44-177-30-MTP, Task 44-4-2201/2]

13c1 The overall situation, to include:
- a) Enemy units' strength, composition, and capabilities.
- b) Friendly situation, to include higher echelon status, if known.
- c) Presence of friendly supporting air defense assets.

13c2 The brigade's mission.

13c3 The tentative task organization.

13c4 A description of the general area of operation.

13c5 ADW, ADWCS, and LADW.

13c6 MOPP status.

13c7 The time of the mission.

13c8 Other mission or planning details that would assist subordinate units in mission planning.

13c9 The anticipated time and place for battery OPORD issue.

13d. The ADA battery commander creates a decision support template (DST) in developing an initial plan. [ARTEP 44-177-30-MTP, Task 44-4-2201/4 FM 44-64]

13d1 The ADA battery commander considers:
- a) The brigade commander's intent and priorities.
- b) The ADA battalion commander's intent and priorities.
- c) Available ADA assets in the brigade's sector.
- d) Enemy's air COAs.

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13d2 The ADA battery commander reviews the third dimension IPB for the brigade. [ARTEP 44-177-30-MTP, Task 44-5-2231]

13d3 The ADA battery commander makes a tentative plan that:

a) Supports the brigade scheme of maneuver.
b) Supports the brigade and ADA battalion commanders' intents.
c) Incorporates early warning. [ARTEP 44-177-30-MTP, Task 44-5-2032]
   (1) Has a plan for retransmitting early warning messages over command nets.
   (2) Early warning supports the main effort and the brigade commander's intent.
   (3) Concentrates early warning resources on choke points and templated enemy rotary wing ambush sites.
   (4) Enhances ground-based sensor survivability during movement to contact and hasty attacks.
d) Considers the effects of:
   (1) Terrain.
   (2) Weather.
   (3) Battlefield conditions:
      (a) Obstacles.
      (b) NBC effects.
e) Plan is suitable, feasible, and acceptable:
   (1) Suitability:
      (a) Plan will accomplish the mission.
      (b) Plan complies with Bde and ADA Battalion (Bn) commanders' intents.
   (2) Feasibility:
      (a) Time to execute the plan as designed.
         1 Duration of events.
         2 Time and distance factors for movement.
      (b) Positions required to provide coverage are available.
   (3) Acceptability:
      (a) Mission success is not at significant risk of failure.
      (b) Hazards to soldiers, equipment, and supplies are within acceptable limits.
f) Directs actions to minimize identified risks to troops and equipment. [ARTEP 44-177-30-MTP, Task 71-2-C326]
   (1) Risks or safety hazards are identified by the battery commander.
   (2) Risks and safety hazards are evaluated by battery commander.
   (3) The battery commander and subordinate leaders eliminate or reduce risks and safety hazards.
   (4) Safety procedures are enforced at all levels.

13e. The ADA battery commander conducts a reconnaissance of the operational area. [ARTEP 44-177-30-MTP, Task 44-5-2005]

13e1 The ADA battery commander studies:
- a) The operational area map.
- b) The operations graphics overlay.
- c) The ground and air IPB.

13e2 The ADA battery commander selects tentative locations or routes in which to deploy subordinate units.

13e3 If time and battlefield conditions permit, the ADA battery commander conducts reconnaissance to confirm the validity and feasibility of the ADA plan.

13f. The ADA battery commander/ADALO coordinates land space management and unit movement requirements with the brigade XO. [AN]

13g. The ADA battery commander finalizes his plan. [ARTEP 44-177-30-MTP, Task 44-4-2201/5]

13g1 The ADA battery commander refines his initial plan as necessary based on:
- a) Changes to enemy situation.
- b) Reconnaissance of the operational area.
- c) Changes to battery or brigade missions.
- d) Changes in available ADA assets.

13g2 The ADA battery commander writes the ADA battery OPORD which contains: [ARTEP 44-177-30-MTP, Task 44-4-2201/5]
- a) Situation:
  - (1) Enemy forces.
    - (a) Enemy air order of battle (units and location).
    - (b) Air threat (aircraft types, number, and capabilities).
    - (c) Air avenues of approach.
    - (d) Terrain and weather constraints that indicate enemy selection of particular weapons platform.
    - (e) Additional threat data, (e.g., airfield locations, loiter times, turnaround times, sortie rates, etc.)
  - (2) Friendly forces.
    - (a) Mission and location of ADA battalion.
    - (b) Mission and location of adjacent HIMAD and SHORAD units.

(3) Attachments and detachments.
(a) Air defense elements attached from the battalion or from other units to include sensors, maintenance, and communications sections.
(b) Organic elements detached to the battalion or other units.

b) Execution of ADA mission.
(1) Concept/scheme of air defense operations by phase to include intent, objectives, and priorities.
(2) Tasks to subordinate air defense units.
(3) Command and support relationship of subordinate units.
(4) Special instructions that affect the air defense plan.
(a) ADW, ADWCS, and LADW.
(b) Hostile criteria.
(c) Rules of engagement.
(d) Passive air defense measures.
(e) CAFAD and SAFAD.
(f) Early warning (e.g., method and format for passing air threat information to brigade and battery elements).

c) Service and support.
(1) Support plan for battery and subordinate units.
(a) Resupply procedures (e.g., the logistics package), identifying the relationships and responsibilities for execution.
(b) Maintenance procedures, identifying the relationships and responsibilities for execution.
(2) Ammunition resupply points.
(3) Casualty collection points.
(4) NBC decontamination points.
(5) Plan for constructing survivability positions.

d) Command and signal.
(1) Signal.
(a) Early warning frequency.
(b) SOI edition in effect.
(c) Special code words.
(2) Command.
(a) Location of the brigade TOC.
(b) Location of the battery CP.
(c) Location of the battery commander.

13g3 The ADA battery commander completes the DSM. [FM 44-64; AN; FN-USAADAS]

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.** [FM 44-64; AN]

16c. The ADA battery commander conducts hasty planning to develop and issue a FRAGO directing changes to the battery plan when changes to mission, enemy, terrain, troops, and time available (METT-T) render the current plan inappropriate. [FN-NTC OCs]

16c2 The ADA battery commander conducts a hasty planning process.

16c3 The ADA battery commander issues a FRAGO with changes.

OUTCOME 2 ASSESSMENT

OUTCOME 2: The brigade plan for air defense and the ADA battery's OPORD and FRAGOs are received and understood by key participants.	Adequate	Marginal	Not Adequate

(Use Tables 1, 3, 6, 7, and 8)

Use Assessment Package for Bde 18 to complement assessment measures listed below.

- Brigade order is received by all key personnel. (Use Assessment Package for Bde 18 to assess distribution and receipt of brigade elements.)
- ADA battery key personnel receive battery OPORD/FRAGOs.
- Brigade personnel demonstrate understanding of AD aspects of Bde OPORD through briefbacks, rehearsals, and actions. (Use Assessment Packages for Bde 18 and Bde 19 to assess demonstration of understanding.)
- ADA personnel demonstrate understanding of ADA battery OPORD and FRAGOs through briefbacks, rehearsals, and actions.

OUTCOME 2 DIAGNOSTIC AID

OUTCOME 2: The brigade plan for air defense and the ADA battery's OPORD and FRAGOs are received and understood by key participants.

Task Elements

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.** [FM 44-64; AN; FN-NTC OCs]

2d. The ADALO/battery commander issues an initial WARNO to battery subordinate units alerting them of upcoming mission with as much information as possible. [FM 71-123; FN-NTC OCs]

12. **The air defense liaison officer/air defense artillery battery commander participates in the brigade orders brief.** [ARTEP 71-3-MTP, Task 71-3-3002; FM 101-5, Chap 4; FM 44-64]

12a. The air defense liaison officer (ADALO)/ADA battery commander briefs the friendly ADA portion of the brigade order, to include:

12a1 Task organization. [ARTEP 71-3-MTP, Task 3002]

12a2 HIMAD coverage. [AN]

12a3 Overall ADA plan. [ARTEP 71-3-MTP, Task 3002]

12b. The ADALO/ADA battery commander emphasizes the use of passive and active air defense for all brigade units. [FM 101-5, Chap 4]

12c. The ADALO/ADA battery commander reviews principles of active air defense with both combined arms and small arms in brigade units. [FM 44-64, p. C-13]

12c1 Destroy the threat.

12c2 Force the threat away from friendly positions.

12c3 Force the threat to fly higher, thereby making the threat more vulnerable to destruction by friendly air or ADA.

12c4 Spoil the hostile pilots' aim as they engage friendly forces.

12c5 Engage with high volume of fire.

12d. The ADALO/ADA battery commander reviews air defense control procedures (ADWCS, ADW, and LADW) and how changes are initiated.

12e. The ADALO/ADA battery commander answers questions pertaining to the air defense plan to ensure that the plan for air defense operations is understood by all key participants. [FM 101-5, Chap 4]

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

13c. The battery commander prepares and issues an ADA battery WARNO that contains: [ARTEP 44-177-30-MTP, Task 44-4-2201/2]

13c1 The overall situation, to include:
- a) Enemy units' strength, composition, and capabilities.
- b) Friendly situation, to include higher echelon status, if known.
- c) Presence of friendly supporting air defense assets.

13c2 The brigade's mission.

13c3 The tentative task organization.

13c4 A description of the general area of operation.

13c5 ADW, ADWCS, and LADW.

13c6 MOPP status.

13c7 The time of the mission.

13c8 Other mission or planning details that would assist subordinate units in mission planning.

13c9 The anticipated time and place for battery OPORD issue.

13h. The battery commander issues the ADA battery OPORD and DSM. [ARTEP 44-177-30-MTP, Task 44-4-2201/6; AN; FN-USAADAS]

13h1 The battery commander briefs platoon leaders and battery CP personnel.

13h2 The battery commander conducts a confirmation brief to ensure that the OPORD or FRAGO is clearly understood.

13h3 The battery commander ensures that the platoons have maps of the operational area.

13h4 The battery commander conducts a confirmation brief to ensure that platoon leaders understand the division, brigade, battalion, and battery commander's intents.

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.** [ARTEP 44-177-30-MTP; FM 71-3; FM 44-64]

14b. The ADA battery continues air defense in support of the brigade and concurrently prepares for conducting air defense operations to support the new mission. [AN; FN-NTC OCs]

14b3 The ADA battery conducts operations security (OPSEC). [AN]

b) Battery leaders confirm to the battery commander their understanding of OPSEC requirements and their accomplishment of OPSEC briefs to subordinate personnel.

14c. The ADALO/battery commander and the ADA battery conduct rehearsals. [FM 71-3; FN-NTC OCs]

14c1 The ADALO/battery commander participates in the brigade rehearsal. [FM 71-3, pp. 3-27, 28]

a) Briefs the TFs and other battalion commanders on ADA actions and locations on the battlefield.
   (1) DS air defense assets units with supported TFs.
   (2) General support (GS) air defense units in the brigade area.
   (3) High altitude air defense unit coverage of the brigade area.

b) Ensures that air defense coverage is synchronized to apply maximum combat power when and where desired.

c) Reviews and receives verbal confirmations from TF commanders that verify their understanding of the correct employment of all main gun and SAFAD.

d) Reviews and receives verbal confirmation from TF commanders that verify their understanding of ADW, ADWCS, and LADW and TSOP control procedures which initiate or trigger changes. [FM 44-64, pp. 2-34, 2-35]

e) Answers any questions pertaining to air defense.

f) Records and implements changes to the plan.
   (1) Determines changes to be implemented.
   (2) Issues a FRAGO containing the changes to all subordinate elements.
   (3) Conducts a confirmation brief by subordinate leaders to verify changes are understood.

g) Deconflicts any A2C2 issues impacting air defense. [FM 44-64, p. H-4]

14c2 The ADA battery conducts an air defense rehearsal. [FM 71-3, pp. 3-27, 28]

a) Includes all the key leaders in the battery (determined by the commander).

b) Directed and led by the battery commander.

c) Conducted on:
   (1) A sand table or terrain model (preferred method).
   (2) The battery command net if all key players have proper maps and overlays.

d) Usually follows a logical sequence; refers to the DSM: [FN-USAADAS]
   (1) Roll call (ensures that all key participants are present).
   (2) Orientation of terrain model or map to actual ground.
   (3) Briefing of the timeline.
   (4) Designation of a recorder.
   (5) Reading of the mission statement.
   (6) Briefing of the current enemy situation.
   (7) Key leaders brief locations and situation at start time.

(8) Time sequence is portrayed; all elements brief their actions in sequence; items addressed include:
  (a) Actions to attack enemy air.
  (b) Actions to preclude hindering or restricting friendly air activity.
  (c) Location and movement route to alternate positions.
  (d) Actions to reestablish communications and receipt of early warning information.
  (e) Actions in an NBC environment.
  (f) Treatment and evacuation of wounded.
  (g) Any other mission peculiar actions required.
(9) Enemy ground and air actions are portrayed.
(10) Situation and actions at each decision point (DP) are described; criteria for decisions to change the plan are determined for each DP.
(11) Key combat service (CS) and combat service support (CSS) actions are scheduled at the appropriate times in sequence.
(12) At the termination, recorder restates recommended changes, required coordination, or needed clarifications identified during the rehearsal.
(13) The termination of the rehearsal occurs when the commander is satisfied that objectives are met.
(14) The commander directs necessary changes and addresses principal concerns.
(15) Additional coordination actions deemed necessary based on rehearsal are initiated.

14c3 ADA DS platoons participate in TFs' rehearsals.
a) Confirm actions expected/required by TF commanders.
b) Adjust TF air defense relevant plans and orders as required.
c) Notify the battery commander and the battery CP about changes and adjustments to plans and orders.
d) Conduct platoon rehearsal.
  (1) Conducted by platoon leaders.
  (2) Confirm actions expected and required by battery commander.
  (3) Adjust the battery air defense plan and orders as required.
  (4) Disseminate changes throughout the battery and to affected brigade elements.

14c4 ADA GS platoons conduct rehearsals.
- a) Conducted by platoon leaders.
- b) Confirm actions expected and required by battery commander.
- c) Adjust the battery air defense plan and orders as required.
- d) Disseminate changes throughout the battery and to affected brigade elements.

14c5 Changes to the plan are recorded and implemented by the battery commander.
- a) Determines what changes need to be implemented.
- b) Issues a FRAGO to all subordinate elements.
- c) Conducts a confirmation brief to confirm that changes are understood.
- d) Provides relevant information to the ADALO for inclusion in refinement of the brigade OPORD.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.** [ARTEP 71-3-MTP, Task 71-3-6001/1; FM 44-64]

15c. Brigade CPs direct actions and communicate air defense information: [FM 44-64; AN]

15c1 Issue a FRAGO (if applicable) and refine brigade OPORD products.

15c2 Issue changes and update status to ADWs and ADWCS.

15c3 Rebroadcast early warning information and messages.

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.** [FM 44-64; AN]

16c. The ADA battery commander conducts hasty planning to develop and issue a FRAGO directing changes to the battery plan when changes to METT-T render the current plan inappropriate. [FN-NTC OCs]

16c1 The ADA battery commander/battery CP issues a WARNO to alert subordinate elements when the plan changes.

16c2 The ADA battery commander conducts a hasty planning process.

16c3 The ADA battery commander issues a FRAGO with changes.

16c4 Subordinate elements, the brigade main CP, and the ADA battalion CP receive FRAGOs.

OUTCOME 3 ASSESSMENT

OUTCOME 3: Brigade air defense assets that are prepared to conduct the brigade air defense mission in accordance with the brigade commander's concept and intent	Adequate	Marginal	Not Adequate

(Use Tables 1, 8, and 9)

Use Assessment Package for Bde 19 to complement measures listed below.

- ADA platoons are adequately task organized to support the brigade commander's intent.
- ADA platoons have sufficient means to execute the brigade commander's intent.
- ADA commander weights air defense coverage according to the commander's intent and priorities.
- ADA platoons are positioned and ready to execute air defense.
- All brigade units employ active and passive air defense measures.
- All brigade units rehearse CAFAD and SAFAD.

OUTCOME 3 DIAGNOSTIC AID

OUTCOME 3: Brigade air defense assets that are prepared to conduct the brigade air defense mission in accordance with the brigade commander's concept and intent.

Tasks Elements

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [FM 71-3; FM 44-64; ARTEP 44-177-30 MTP]

1a. The battery XO establishes the battery TOC. [FM 71-3, pp. 3-16]

1a1 The battery TOC deploys with the brigade TOC.
- a) The battery XO or TOC noncommissioned officer (NCO) coordinates with the: [AN]
  - (1) Brigade HHC commander for route and convoy information.
  - (2) Brigade signal officer (Bde SO) for communications-electronic operating instructions and specific communications instructions not included in the TSOP.
  - (3) Brigade S3 sergeant major (SGM) for security procedures and responsibilities during convoy and CP setup.
  - (4) Brigade headquarters and headquarters company (HHC) first sergeant (1SG) for food, ammunition, and other supplies.
- b) The battery XO or TOC NCO ensures that the ADA TOC is integrated into the brigade TOC convoy. [AN]

1a2 The battery TOC is integrated into the brigade TOC. [AN]
- a) The battery TOC is included in the brigade TOC layout in accordance with the brigade TOC standing operating procedures (SOP).
- b) The battery TOC establishes a work area in accordance with the supported brigade TOC SOP.
- c) The battery TOC personnel are integrated into the brigade TOC operating shifts.

1a3 The battery TOC establishes and maintains communications on the following nets: [ARTEP 44-177-30-MTP, Tasks 11-4-C302, 44-5-2232]

a) Division early warning. [ARTEP 44-177-30-MTP, Task 44-5-2232]
b) Brigade command. [ARTEP 44-177-30-MTP, Task 44-5-2232]
c) ADA battalion command. [FM 44-64]
d) Battery command. [FM 44-64]
e) ADA battalion administrative/logistics (A/L) (if applicable). [FM 44-64]
f) ADA platoon nets (as appropriate). [AN]
g) Supported units' command nets (as appropriate). [AN]

1a4 The battery TOC acquires, evaluates, and communicates information for air defense operations during planning. [AN]

a) Receives information from brigade headquarters.
    (1) Initial mission guidance.
    (2) Area of brigade operations and location of brigade assets.
    (3) Available A2C2 (e.g., Army aviation and CAS flight routes; UAV activity) and intelligence information.
    (4) Other information as provided in the brigade TSOP.
b) Receives air defense-relevant information from the ADA battalion.
    (1) Additional mission guidance.
    (2) Air threat intelligence.
    (3) ADWs, ADWCS, and LADW.
    (4) Other air defense-relevant information as provided in the battalion TSOP.
c) Receives information and reports from subordinate elements.
    (1) Tactical situation.
    (2) Personnel status.
    (3) Equipment status.
    (4) Supply status.
    (5) Other information as required in the battery TSOP.

d) Processes and evaluates information.
   (1) Uses map and status boards to display the following information: [STP 44-14II-MQS, Task 01-0401.31-0002]
      (a) Tactical situation.
      (b) Airspace coordination orders, graphics/overlays, and intelligence information to include third dimension (air) IPB.
      (c) Personnel status.
      (d) Maintenance and logistical status.
      (e) NBC alerts.
      (f) Air defense weapon and sensor status and locations.
      (g) ADW, ADWCS, and LADW.
   (2) Reviews information for required actions during planning, preparation, and execution phases.

e) Communicates information.
   (1) Provides information and reports to the brigade and the ADA battalion as needed and as required by TSOPs.
   (2) Coordinates information with the brigade staff as part of the integrated brigade TOC.
   (3) Provides all relevant air defense and ground tactical information to subordinate units.

1c. Battery elements prepare for combat. [FM 44-177-30-MTP, Task 44-2-2219]

1c1 First line leaders conduct pre-combat checks in accordance with priorities of work.

1c2 Crews upload ammunition and supplies.

1c3 Platoon leaders and platoon sergeants establish resupply procedures with supporting units.

1c4 The battery establishes a maintenance point for organic vehicles.

1c5 Leaders account for all assigned personnel.

1c6 Leaders brief all personnel on the situation and update them as the situation changes.

1c7 Personnel conduct appropriate measures to maintain OPSEC.

1c8 Leaders employ cover and concealment techniques for personnel and equipment and continue to construct and reinforce protective positions for the CP and weapons.

1c9 The XO and platoon leaders coordinate with the artillery fire support element for preplanned protective and supporting fires.

1c10 First-line leaders monitor communications nets.

1c11 First-line leaders initiate sleep and rest cycles as the situation permits.

1c12 Leaders review TSOPs.

1c13 Leaders conduct rehearsals.

1c14 Crews perform equipment maintenance as needed.

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

13a. The battery TOC continues as an integrated component of the brigade TOC and maintains established communications. [ARTEP 44-177-30-MTP; AN]

13f. The ADA battery commander/ADALO coordinates land space management and unit movement requirements with the brigade XO. [AN]

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.** [ARTEP 44-177-30-MTP; FM 71-3; FM 44-64]

14a. Brigade units prepare for air defense operations. [FM 44-8]

14a1 Employ passive air defense measures.
- a) Attack avoidance measures.
  - (1) Concealment.
  - (2) Camouflage.

b) Damage limiting measures.
   (1) Dispersion of units and weapon systems.
   (2) Protective positions.
   (3) Use of cover.

14a2 Rehearse active air defense measures during unit rehearsals.
   a) Creation of volume of fire using all combined arms direct-fire weapons possible.
   b) Selection of aim point.
      (1) Rotary wing aircraft.
         (a) Crossing - ½ football field in front of nose.
         (b) Hovering or directly at you - slightly above aircraft body.
      (2) Fixed wing aircraft.
         (a) Crossing - 2 football fields in front of nose.
         (b) Overhead - 2 football fields in front of nose.
         (c) Directly at you - slightly above aircraft nose.
   c) Designation of air guards.
   d) Designation of visual and audible alarms. [FM 44-8]
      (1) Red squares (with outline lit at night).
      (2) Unbroken warbling siren for 1 minute.
      (3) Succession of long blasts on vehicle horns, whistles, or other wind instruments in a ratio of 3 to 1 (3 seconds on and 1 second off).
      (4) Vocal "air attack" or corresponding local ADW term.

14b. The ADA battery continues air defense in support of the brigade and concurrently prepares for conducting air defense operations to support the new mission. [AN; FN-NTC OCs]

14b1 The ADA battery conducts supply and maintenance operations.
   a) DS ADA platoons coordinate with their supported unit for supply and maintenance or with the ADA battery as applicable, if performing a GS mission.
      (1) Coordinate with the TF support platoon for CL IV and V.
      (2) Coordinate with the TF battalion S4 for CL II, III, VI, and VII.
      (3) Coordinate with the TF battalion maintenance officer for CL IX and recovery.
      (4) Coordinate with the TF battalion HHC support platoon leader for CL I.
      (5) Coordinate with the TF battalion aid station for CL VIII.

b) The battery headquarters coordinates and conducts supply and maintenance operations for headquarters and GS ADA elements.
   (1) The battery commander/battery XO coordinates with the brigade FSB for CL II, III, IV, VI, VIII, IX.
   (2) The battery XO coordinates with the brigade S4 for CL V and VII.
   (3) The battery XO/1SG coordinates with the brigade HHC 1SG for CL I.

c) The battery XO coordinates with the ADA battalion S4 or as necessary with the division main support battalion for CL IX for Avenger systems, if required.

14b2 Subordinate ADA units coordinate operational and sustainment requirements with their supported units. [AN]

a) Platoon/section leaders participate in the supported unit planning process.

b) Platoon/section leaders provide reports as required by the supported unit TSOPs, e.g., personnel strength and information to the supported unit S1.

c) Platoon/section leaders coordinate with respective TF S3s to ensure that the supported unit includes ADA units in movement orders.

14b3 The ADA battery conducts OPSEC. [AN]

a) Platoon leaders coordinate, establish, and confirm OPSEC requirements with supported units.

b) Battery leaders confirm to the battery commander their understanding of OPSEC requirements and their accomplishment of OPSEC briefs to subordinate personnel.

c) Platoons perform OPSEC measures and provide local security.

14b4 The ADA battery commander provides command presence. [AN]

a) The ADA battery commander visits key locations.
   (1) Inspects preparations.
   (2) Encourages soldiers.
   (3) Makes immediate spot corrections as necessary.
   (4) Recognizes achievement.

b) The ADA battery commander keeps in constant communication with the CP and subordinate leaders.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.** [ARTEP 71-3-MTP, Task 71-3-6001/1; FM 44-64]

15a. Brigade CPs and air defense battery TOC receive air defense information. [AN]

15a1 Division intelligence summaries and spot reports (SPOTREPs).

15a2 Brigade subordinate unit situation reports (SITREPs).

15a3 ADA battery TOC updates to include continual forward area air defense command, control, communications, and intelligence air picture of brigade.

15a4 Early warning net broadcasts.

15a5 Required adjustments to the brigade OPORD based on rehearsals.

15b. Brigade CPs assess impact of air defense information on the brigade OPORD. [AN]

15b1 The brigade S3, in conjunction with the ADALO, reviews input and develops changes to the plan and makes applicable recommendations to the brigade commander.

15b2 The brigade commander directs changes to the OPORD if necessary.

15c. Brigade CPs direct actions and communicate air defense information: [FM 44-64; AN]

15c1 Issue a FRAGO (if applicable) and refine brigade OPORD products.

15c2 Issue changes and update status to ADWs and ADWCS.

15c3 Rebroadcast early warning information and messages.

15d. Brigade subordinate units receive and respond to air defense information. [FM 44-64; AN]

15d1 Modify plans based on brigade FRAGOs and the refined brigade OPORD.

15d2 Retransmit changes to ADWs and ADWCS.

15d3 Rebroadcast early warning information and messages.

15e. The ADA battery CP and the ADA battery commander manage and assess air defense information and maintain C3. [ARTEP 44-177-30-MTP, Task 44-4-2203]

15e1 The ADA battery receives information from:
- a) Brigade.
- b) ADA battalion.
- c) Subordinate units.

15e2 The ADA battery commander evaluates information for: [ARTEP 71-3-MTP, Task 71-3-6001/1]
- a) Changes to guidance, direction, and information.
- b) Desired brigade endstate with what is possible based on the current ADA situation and trends.
- c) Information which confirms or refutes IPB and may affect achieving the brigade commander's intent.
- d) Answers to intelligence queries about enemy air capabilities.
- e) Changes to the friendly air situation.
- f) Adjustments to subordinate unit operations.
- g) Changes to locations and air defense coverage by divisional assets.

15e3 The CP maintains air defense products:
- a) IPB of third dimension.
- b) Air defense graphics with unit locations.
- c) ADW/ADWCS/LADW.
- d) CP personnel maintain a journal of events. [ARTEP 44-177-30-MTP, Task 44-4-2203]

15e4 The ADA battery communicates information:
- a) The CP provides reports as required by brigade and ADA battalion TSOPs.
- b) The CP disseminates information and FRAGOs (if applicable) to subordinate units. [ARTEP 44-177-30-MTP, Task 44-4-2203]

OUTCOME 4 ASSESSMENT

OUTCOME 4: Brigade assets attack and defeat enemy air without hindering or restricting friendly air activity.	Adequate	Marginal	Not Adequate

(Use Table 1)

Use Assessment Package for Bde 20 to complement measures listed below.

- Enemy air is suppressed or destroyed.
- Friendly air defense does not damage or destroy any friendly fixed wing or rotary wing aircraft.
- Friendly air defense does not interfere with maneuver unit mission accomplishment.
- Brigade commander's concept and intent for AD are met.
- Air defense artillery commander and ADALO participate in the brigade A2C2 process.
- Fratricides do not occur.

OUTCOME 4 DIAGNOSTIC AID

OUTCOME 4: Brigade assets attack and defeat enemy air without hindering or restricting friendly air activity

Task Elements

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [FM 71-3; FM 44-64; ARTEP 44-177-30 MTP]

1b. The battery commander positions subordinate units to perform active air defense for the brigade during planning. [ARTEP 44-177-30-MTP, Task 44-4-2222]

1b1 The battery commander assigns air defense missions for the subordinate units.
- a) The battery provides protection of brigade assets in accordance with brigade priorities.
- b) Air defense coverage is coordinated with adjacent air defense elements.
- c) Early warning sensors are positioned.

1b2 ADA platoon/section leaders establish coverage within their established sectors.

1b3 ADA fire units establish positions and provide air defense.
- a) Monitor early warning and section/platoon command nets.
- b) Prepare hasty positions.
- c) Provide coverage and respond to enemy air threat in accordance with current ADW, LADW, and ADWCS.
- d) Continue to prepare for further missions.
  - (1) Complete ammunition upload.
  - (2) Verify the load plan and equipment availability.
  - (3) Conduct preventive maintenance checks and services of equipment.
  - (4) Anticipate further guidance.

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

13d. The ADA battery commander creates a DST in developing an initial plan. [ARTEP 44-177-30-MTP, Task 44-4-2201/4 FM 44-64]

13d3 The ADA battery commander makes a tentative plan that:

f) Directs actions to minimize identified risks to troops and equipment. [ARTEP 44-177-30-MTP, Task 71-2-C326]

(4) Safety procedures are enforced at all levels.

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.** [ARTEP 44-177-30-MTP; FM 71-3; FM 44-64]

14b. The ADA battery continues air defense in support of the brigade and concurrently prepares for conducting air defense operations to support the new mission. [AN; FN-NTC OCs]

14b1 The ADA battery conducts supply and maintenance operations.

a) DS ADA platoons coordinate with their supported unit for supply and maintenance or with the ADA battery as applicable, if performing a GS mission.

(1) Coordinate with the TF support platoon for CL IV and V.

(2) Coordinate with the TF battalion S4 for CL II, III, VI, and VII.

(3) Coordinate with the TF battalion maintenance officer for CL IX and recovery.

(4) Coordinate with the TF battalion HHC support platoon leader for CL I.

(5) Coordinate with the TF battalion aid station for CL VIII.

b) The battery headquarters coordinates and conducts supply and maintenance operations for headquarters and GS ADA elements.

(1) The battery commander/battery XO coordinates with the brigade FSB for CL II, III, IV, VI, VIII, IX.

(2) The battery XO coordinates with the brigade S4 for CL V and VII.

(3) The battery XO/1SG coordinates with the brigade HHC 1SG for CL I.

c) The battery XO coordinates with the ADA battalion S4 or as necessary with the division main support battalion for CL IX for Avenger systems, if required.

14b2 Subordinate ADA units coordinate operational and sustainment requirements with their supported units. [AN]

a) Platoon/section leaders participate in the supported unit planning process.

b) Platoon/section leaders provide reports as required by the supported unit TSOPs, e.g., personnel strength and information to the supported unit S1.

c) Platoon/section leaders coordinate with respective TF S3s to ensure that the supported unit includes ADA units in movement orders.

14b3 The ADA battery conducts OPSEC. [AN]

a) Platoon leaders coordinate, establish, and confirm OPSEC requirements with supported units.

b) Battery leaders confirm to the battery commander their understanding of OPSEC requirements and their accomplishment of OPSEC briefs to subordinate personnel.

c) Platoons perform OPSEC measures and provide local security.

14b4 The ADA battery commander provides command presence. [AN]

a) The ADA battery commander visits key locations.

(1) Inspects preparations.

(2) Encourages soldiers.

(3) Makes immediate spot corrections as necessary.

(4) Recognizes achievement.

b) The ADA battery commander keeps in constant communication with the CP and subordinate leaders.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.** [ARTEP 71-3-MTP, Task 71-3-6001/1; FM 44-64]

15a. Brigade CPs and air defense battery TOC receive air defense information. [AN]

15a1 Division intelligence summaries and SPOTREPs.

15a2 Brigade subordinate unit SITREPs.

15a3 ADA battery TOC updates to include continual forward area air defense command, control, communications, and intelligence air picture of brigade.

15a4 Early warning net broadcasts.

15a5 Required adjustments to the brigade OPORD based on rehearsals.

15b. Brigade CPs assess impact of air defense information on the brigade OPORD. [AN]

15b1 The brigade S3, in conjunction with the ADALO, reviews input and develops changes to the plan and makes applicable recommendations to the brigade commander.

15b2 The brigade commander directs changes to the OPORD if necessary.

15c. Brigade CPs direct actions and communicate air defense information: [FM 44-64; AN]

15c1 Issue a FRAGO (if applicable) and refine brigade OPORD products.

15c2 Issue changes and update status to ADWs and ADWCS.

15c3 Rebroadcast early warning information and messages.

15d. Brigade subordinate units receive and respond to air defense information. [FM 44-64; AN]

15d1 Modify plans based on brigade FRAGOs and the refined brigade OPORD.

15d2 Retransmit changes to ADWs and ADWCS.

15d3 Rebroadcast early warning information and messages.

15e. The ADA battery CP and the ADA battery commander manage and assess air defense information and maintain C3. [ARTEP 44-177-30-MTP, Task 44-4-2203]

15e1 The ADA battery receives information from:

a) Brigade.
b) ADA battalion.
c) Subordinate units.

15e2 The ADA battery commander evaluates information for: [ARTEP 71-3-MTP, Task 71-3-6001/1]

a) Changes to guidance, direction, and information.
b) Desired brigade endstate with what is possible based on the current ADA situation and trends.
c) Information which confirms or refutes IPB and may affect achieving the brigade commander's intent.
d) Answers to intelligence queries about enemy air capabilities.
e) Changes to the friendly air situation.
f) Adjustments to subordinate unit operations.
g) Changes to locations and air defense coverage by divisional assets.

15e3 The CP maintains air defense products:

a) IPB of third dimension.
b) Air defense graphics with unit locations.
c) ADW/ADWCS/LADW.
d) CP personnel maintain a journal of events. [ARTEP 44-177-30-MTP, Task 44-4-2203]

15e4 The ADA battery communicates information:

a) The CP provides reports as required by brigade and ADA battalion TSOPs.
b) The CP disseminates information and FRAGOs (if applicable) to subordinate units. [ARTEP 44-177-30-MTP, Task 44-4-2203]

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.** [FM 44-64; AN]

16a. The battery commander directs and leads subordinate forces. [FM 101-5, Chap 1, 4; FM 71-3, Chap 3; Battle Command Techniques and Procedures, Chap 1-4; Battle Command, pp. 10-13, 32-37; ST 101-5; FM 71-3, Chap 3; FM 101-5, Chap 1; Battle Command Techniques and Procedures, Chap 1, 2; ARTEP 44-177-30-MTP]

16a1 The battery commander directs subordinate units by: [AN]

a) Ensuring that subordinate leaders have a clear understanding of his concept and intent.
b) Positioning himself where he can see portions of the battlefield critical to air defense and can provide command and control to subordinate elements.

c) Directing the execution of the battle:
   (1) Intervening when and where necessary.
   (2) Ensuring continuous execution.
d) Maintaining communication on:
   (1) Brigade command net.
   (2) Battery command net.

16a2 The ADA battery commander exercises leadership during the execution of the battle by: [FM 101-5, Chap 1, 4; FM 71-3, Chap 3; Battle Command Techniques and Procedures, Chap 1-4; Battle Command, pp. 10-13, 32-37; ST 101-5; FM 71-3, Chap 3; FM 101-5, Chap 1; Battle Command Techniques and Procedures, Chaps 1, 2]

a) Being professionally competent.
b) Inspiring soldiers with the will to win.
c) Sharing the hardships and dangers of his soldiers.
d) Demonstrating both mental and physical stamina.
e) Displaying physical and moral courage (making the difficult choices and decisions).
f) Issuing timely, clear, and concise guidance and orders to provide the battery subordinate leaders with purpose, direction, and motivation.
g) Maintaining his perspective and focus on the battery mission, regardless of the turmoil surrounding him.
h) Demonstrating flexibility to quickly adjust to rapidly changing situations to accomplish the mission.
i) Visualizing and thinking in dimensions of time and space as to the consequences of actions.
j) Visualizing follow-on battery missions.
k) Providing subordinate leaders with a vision of future operations.
l) Establishing and reinforcing an attitude of teamwork throughout the battery.
m) Fostering and encouraging initiative in subordinate leaders.
n) Delegating authority whenever appropriate.
o) Providing accurate, objective reports to the brigade commander.
p) Getting needed rest.

16a3 The ADA battery commander maintains unit discipline and morale by: [FM 101-5, Chap 1; Battle Command Techniques and Procedures, Chap 4; Battle Command, pp. 10-13]

a) Keeping the soldiers informed of the current situation.
b) Making personal contact with soldiers.
c) Reassuring subordinates in a calm manner.
d) Ensuring that soldiers have the opportunity to rest, eat, and otherwise refit as conditions permit.
e) Acting decisively.
f) Giving precise, simple, and easy-to-understand orders.
g) Checking to see that his orders are carried out.
h) Ensuring that brigade subordinate leaders and other supporting elements cross-talk on the battery command nets to:
   (1) Coordinate actions and activities.
   (2) Exchange information.
   (3) Assist each other as possible.
   (4) Integrate and synchronize activities.
   (5) Prevent fratricide.
   (6) Keep everyone updated on the current situation.
   (7) Allow the battery commander and the battery TOC to anticipate upcoming requirements.
i) Observing subordinate leaders for indications of degradation in performance.
j) Monitoring himself and the subordinate leaders for degradation of leadership ability based upon physical and/or mental stress or exhaustion:
   (1) Self monitoring of own physical and mental state.
   (2) The battery XO/ADALO monitors the battery commander's condition and recommends rest periods.
   (3) Ensuring that subordinate leaders have and execute a rest schedule for themselves and their soldiers.
k) Ensuring that CSS operations that contribute to morale are conducted as conditions permit.
l) Recognizing unit and individual achievement and performance.
m) Using the battery 1SG's assistance in maintenance of unit discipline and morale.

16b. The ADA battery commander maintains situational awareness. [TRADOC Pamphlet (Pam) 11-9, Chap 7 and App D; FN]

16b1 The ADA battery commander continuously updates his estimate based on his assessment of new information:

a) Orders and FRAGOs from the brigade.
b) Changes to METT-T.
c) Information about CAS, Army aviation, and UAV activity.

16b2 The ADA battery commander projects the outcome of the current battle based on his evaluation of the current plan and the overall situation.

16b3 The ADA battery commander adheres to the current plan if there are no significant changes to METT-T.

16c. The ADA battery commander conducts hasty planning to develop and issue a FRAGO directing changes to the battery plan when changes to METT-T render the current plan inappropriate. [FN-NTC OCs]

16c1 The ADA battery commander/battery CP issues a WARNO to alert subordinate elements when the plan changes.

16c2 The ADA battery commander conducts a hasty planning process.

16c3 The ADA battery commander issues a FRAGO with changes.

16c4 Subordinate elements, the brigade main CP, and the ADA battalion CP receive FRAGOs.

17. **The brigade and the air defense artillery battery defend against enemy air attacks.** [FM 71-3; ARTEP 71-2-MTP, Task 7-1-3911; FM 44-64; ARTEP 44-177-30-MTP]

17a. The brigade, brigade subordinate units, and the ADA battery receive and disseminate changes to ADW/LADW and ADWCS from division.

17b. The brigade, brigade subordinate units, and the ADA battery receive early warning. [ARTEP 44-177-30-MTP, Task 44-5-2232]

17b1 The brigade TOC and the battery CP receive early warning from the division early warning net.

17b2 Other brigade units receive an early warning over the brigade command net.

17c. The brigade, brigade subordinate units, and the ADA battery respond to an early warning message. [FM 71-3; ARTEP 44-177-30-MTP]

17c1 The brigade TOC rebroadcasts the early warning message over the brigade command net.

17c2 Other brigade units rebroadcast the early warning over their command nets or other units nets as stated in respective TSOP.

17c3 The ADA battery CP rebroadcasts the early warning over the battery command net.

17c4 Air defense systems prepare to engage enemy aircraft. [ARTEP 44-177-30-MTP]

17c5 Affected brigade combat systems (e.g., Bradley Fighting Vehicles) prepare to use CAFAD to engage aircraft. [FM 71-3, pp. 2-7; FM 44-8]

17c6 Other affected units disperse and employ passive air defense measures. [ARTEP 44-177-30-MTP, Task 44-2-C307]

17d. Brigade elements engage enemy aircraft or related activities (e.g., UAV ground control stations). [FM 44-64; ARTEP 44-177-10-MTP]

17d1 ADA battery direct fires.

17d2 Indirect fires (CAFAD).

17d3 Non ADA direct fires (CAFAD, SAFAD).

17e. Aircraft are engaged when in range of other brigade weapon systems. [ARTEP 71-2-MTP, Task 7-1-3911; FM 44-8]

17f. The ADA battery CP alerts adjacent air defense units of the air threat.

17g. ADA battery elements provide after-action engagement reports.

17h. ADA battery elements provide battlefield damage assessments.

17i. ADA battery elements execute actions to reengage enemy air and sustain air defense operations.

18. **The air defense artillery battery maintains continuous operations.** [FM 44-64; ARTEP 44-177-30-MTP]

18a. The ADA battery supports brigade synchronization by maintaining communications during brigade operations. [ARTEP 44-177-30-MTP; ARTEP 71-3-MTP]

18a1 The battery CP continues to maintain C3 and disseminate information throughout the battle on established nets to include post engagement reports as well as the operational status of personnel and equipment.

18a2 The battery reestablishes C3 operations in the event of CP loss or destruction.

a) The battery administration and logistics operation center (ALOC) continuously monitors the battle:

(1) Maintains communications on the following nets:

(a) Battery command.

(b) Early warning.

(c) Brigade A/L.

(2) Continuously updates operational graphics and the air IPB.

(3) Maintains up-to-date operational status of subordinate units.

b) The battery ALOC assumes C3 of the battery if the TOC is lost or destroyed.

18a3 Succession of command is implemented as stated in the battery OPORD or TSOP.

18b. Risks and safety hazards are continuously assessed and mitigated.

18c. The ADA battery provides air defense during brigade consolidation and reorganization: [ARTEP 44-177-30-MTP, Task 44-4-2203]

18c1 Remaining assets:

a) Positioned to cover major air avenues of approach, or

b) Integrated into the maneuver elements.

18c2 Non-combat effective assets are removed from action and moved to the appropriate processing areas.

18d. The ADA battery reacts to NBC hazards. [ARTEP 44-177-30-MTP]

18d1 The battery headquarters conducts a chemical survey. [ARTEP 44-177-30-MTP, 44-5-R310]

18d2 The battery conducts deliberate decontamination. [ARTEP 44-177-30-MTP, 03-2-C312]

18d3 The battery crosses a chemically contaminated area. [ARTEP 44-177-30-MTP, 03-2-C313]

18d4 The battery crosses a radiologically contaminated area. [ARTEP 44-177-30-MTP, 44-2-R208]

18d5 The battery performs hasty decontamination. [ARTEP 44-177-30-MTP, 03-2-C311]

18d6 The battery prepares for an enemy chemical attack. [ARTEP 44-177-30-MTP, 03-2-C202]

18d7 The battery prepares for an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C206]

18d8 The battery responds to an enemy chemical attack. [ARTEP 44-177-30-MTP, 03-2-C334]

18d9 The battery responds to the initial effects of an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C329]

18d10 The battery responds to the residual effects of an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C328]

18e. The ADA battery commander reorganizes combat effective assets to support follow-on missions. [STP 44-14II-MQS, Task 01-0401.31-0005]

18e1 Conducts CSS operations:

a) Collects battle damage assessment (BDA) from subordinate elements and submits BDA reports to brigade. [ARTEP 44-177-30-MTP, Task 44-4-2211]
b) Prioritizes personnel and equipment replacement.
c) Authorizes controlled substitution of repair parts for weapons systems and equipment regeneration.
d) Supervises maintenance operations and repair and/or recovery of disabled equipment.
e) Requests and executes resupply as necessary. [ARTEP 44-177-30-MTP, Tasks 44-4-2217, 44-4-2218]
f) Supervises care and evacuation of wounded personnel. [ARTEP 44-177-30-MTP, Task 8-2-C316]
g) Conducts graves registration, as required. [ARTEP 44-177-30-MTP, Task 10-5-C318]
h) Supervises the processing of enemy prisoners of war (EPWs).

18e2 Ensures local security for the immediate area.

18e3 Sends necessary reports per the unit TSOP.

a) Reports status of reorganization and preparedness to continue the mission to brigade CP.
b) Reports status of reorganization and preparedness to continue the mission to ADA battalion CP.

PRODUCT REVIEW MEASURES OF EFFECTIVENESS

The following tables examine aspects of planning, preparing, and executing air defense. The first table looks at the degree to which air defense was able to defeat the enemy's intentions. It provides a place to record damage caused by the enemy and the losses to enemy air power. It also provides a place to record losses to friendly aircraft from the brigade's air defense to engage enemy air. Table 2 is about the timeliness of the ADA battery's receipt of orders. Table 3 is the complementary table about the timeliness of ADA battery orders to subordinate units. Table 4 examines the tactical soundness of the brigade air defense (AD) plan. Table 5 is about the quality of the brigade AD Annex and the ADA battery OPORD. Table 6 is about the quality of the ADA battery OPORD briefbacks. Table 7 addresses battery OPORD briefbacks. Table 8 examines the degree to which the entire brigade is prepared to defend against enemy air attacks. Table 9 examines the degree to which the ADA battery is prepared for battle.

Table 1. Effectiveness of air defense.

This table examines the effectiveness of air defense actions in two ways: 1) by examining the impact of enemy air on brigade operations and, 2) by examining the destruction of enemy air assets. List the opposing force (OPFOR) air missions, and for each one, identify the intended targets in the brigade area and summarize the desired effect (from OPFOR commander or S3 equivalent). Circle "Yes" or "No" in the column titled, "Did enemy achieve desired effect?" In the next column, indicate the friendly force losses (combat systems and personnel), then, in the next column, describe any targets that the brigade commander had identified as high priority for ADA protection that the enemy was able to damage. The next columns are about the active AD measures. For each OPFOR air mission, fill in the three columns on enemy aircraft (start strength and losses to ADA, combined arms for air defense (CAFAD), and small arms for air defense (SAFAD)), and the last column on friendly aircraft lost to friendly AD fires.

	Effects of Enemy Air Missions				Effects Of Active Air Defense Measures			
Enemy air mission	**Desired effect of enemy air mission**	**Did enemy achieve desired effect?**	**Friendly losses due to enemy air attack**	**Damage to brigade targets selected for ADA protection**	**Enemy air start strength**	**Enemy aircraft destroyed by ADA**	**Enemy aircraft destroyed by CAFAD/ SAFAD**	**Friendly aircraft destroyed by friendly fires**
Date _____ Time _____ Target _____		Yes No	Combat Systems: Personnel:					
Date _____ Time _____ Target _____		Yes No	Combat Systems: Personnel:					
Date _____ Time _____ Target _____		Yes No	Combat Systems: Personnel:					
Date _____ Time _____ Target _____		Yes No	Combat Systems: Personnel:					
Date _____ Time _____ Target _____		Yes No	Combat Systems: Personnel:					
Date _____ Time _____ Target _____		Yes No	Combat Systems: Personnel:					

Table 2. ADA battery receipt of orders.

This table addresses the timeliness of the ADA battery's receipt of orders from both the ADA battalion and the brigade. This information will assist in measuring the timeliness of the AD battery commander's parallel planning and issuance of the ADA battery OPORD to the AD battery subordinates. Fill in the appropriate dates and times; then circle the appropriate responses.

Date/Time ADA Battery received a copy of the initial warning order (WARNO) from ADA Battalion. Included:	Date: _____ Time: _____
• ADA Battalion commander's intent for division AD battle	Yes No
• Scheme of maneuver	Yes No
• Enemy air strength, composition, and capabilities	Yes No
• Task organization for ADA	Yes No
• Current air defense warning (ADW)/local air defense warning (LADW) and air defense weapons control status (ADWCS)	Yes No
• Early warning procedures	Yes No
• Other relevant/necessary information	Yes No
Date/Time ADA Battery received a copy of the initial WARNO from Brigade. Included:	Date: _____ Time: _____
• Brigade commander's intent	Yes No
• Brigade commander's scheme of maneuver	Yes No
• Enemy air strength, composition, and capabilities	Yes No
• Task organization	Yes No
• Current ADW/LADW and ADWCS	Yes No
• Early warning procedures	Yes No
• Other relevant/necessary information	Yes No
Date/Time designated in division OPORD for Start of Brigade Mission	Date: _____ Time: _____
Date/Time ADA Battery issued the Initial WARNO to Subordinate Units.	Date: _____ Time: _____
Date/Time Brigade issued OPORD	Date: _____ Time: _____
Date./Time ADA Battery received OPORD From Brigade	Date: _____ Time: _____

Table 3. ADA battery commander issues orders to subordinate units.

This table addresses the timeliness of the ADA battery commander issuing orders to the ADA assets. Platoons often are in different locations and must receive all orders and updates prior to execution in order to be positioned correctly. If there is more than one WARNO, write the number of the last WARNO in the space provided at the top of the third column, then fill in the information for that WARNO. If more than two FRAGOs are issued, record the number of the last one in the last column. Indicate the dates and times units received the order. Write "Not Received," if an order was issued but not received by the subordinate unit.

List Dates/Times at which recipient received the following						
Receiving unit (as appropriate)	**WARNO #1**	**WARNO #__**	**OPORD**	**FRAGO #1**	**FRAGO #2**	**Last update prior to execution (line of departure (LD) TIME)**
AVENGER Platoon 1	Date: Time:	Date: Time:	Date: Time:	Date: Time:	Date: Time:	#____ Date: Time:
BRADLEY STINGER FIGHTING VEHICLE (BSFV) Platoon 1	Date: Time:	Date: Time:	Date: Time:	Date: Time:	Date: Time:	#____ Date: Time:
BSFV Platoon 2	Date: Time:	Date: Time:	Date: Time:	Date: Time:	Date: Time:	#____ Date: Time:
HQ Section	Date: Time:	Date: Time:	Date: Time:	Date: Time:	Date: Time:	#____ Date: Time:

Table 4. Tactical soundness of the brigade AD plan.

The brigade AD plan is prepared by the air defense liaison officer (ADALO) and/or the ADA battery commander in conjunction with the brigade staff and published in the AD Annex to the brigade OPORD and in the ADA battery OPORD. (The ADA battery OPORD is addressed in Table 5.) A "suitable" plan is capable of accomplishing the air defense mission within the brigade commander's intent. "Feasible" refers to whether the brigade subordinate units, to include the ADA battery, have sufficient means, resources, and time available to accomplish their air defense missions. An "acceptable" plan subjects the force to no more risk than is necessary to meet the brigade commander's intent. At minimum, the plan, as expressed in both the annex to the brigade OPORD and in the ADA battery OPORD, should address the following areas:

Contents	Suitable?		Feasible?		Acceptable?	
AD command and control procedures • Early warning method and format • Fratricide prevention measures	Yes	No	Yes	No	Yes	No
Brigade commander's priorities for air defense	Yes	No	Yes	No	Yes	No
AD coverage scheme for brigade mission provides for: • Mutual support • Overlapping fires • Balanced fires • Weighted coverage • Early engagement • Defense in depth	Yes	No	Yes	No	Yes	No
AD plan integrates: • ADA unit fires • CAFAD (if appropriate) • SAFAD (if appropriate)	Yes	No	Yes	No	Yes	No
AD tasks for subordinate units • ADA battery and platoons • Brigade maneuver units • Direct support (DS) field artillery (FA) battalion	Yes	No	Yes	No	Yes	No
Support plan Controlled supply rate (CSR) & available supply rate (ASR) Ammunition resupply	Yes	No	Yes	No	Yes	No

Table 5. Quality of the brigade AD Annex and ADA battery OPORD.

The brigade AD annex to the brigade order and the ADA battery OPORD should be complete with all necessary components which describe the brigade AD plan. "Integrated and coordinated" mean that the combined elements of combat power were deconflicted vertically and horizontally to ensure that the elements were brought together in a harmonious order or relationship. The information provided should be accurate and the elements should be integrated and coordinated. (The air defense officer (ADO)/ADA battery commander is instrumental in developing both the brigade AD plan and producing the AD annex to the brigade OPORD.) He then takes the annex and uses it to develop and produce his ADA battery OPORD. This table addresses the contents and quality of both the brigade AD annex and the ADA battery OPORD. The first portion of the table addresses items that are common to both, the second portion addresses ADA battery OPORD specific items, some of which differ from the annex only in their level of detail. Circle the appropriate responses.

Contents	Included?		Complete?		Accurate information?		Integrated and coordinated?	
Administrative Information:								
• Classification	Yes	No	Yes	No	Yes	No	Yes	No
• Heading	Yes	No	Yes	No	Yes	No	Yes	No
• Acknowledgment	Yes	No	Yes	No	Yes	No	Yes	No
• Authentication	Yes	No	Yes	No	Yes	No	Yes	No
• Distribution	Yes	No	Yes	No	Yes	No	Yes	No
Situation:								
• Enemy air capabilities	Yes	No	Yes	No	Yes	No	Yes	No
• Location & mission of HIMAD*	Yes	No	Yes	No	Yes	No	Yes	No
• Locations & missions of other friendly SHORAD*	Yes	No	Yes	No	Yes	No	Yes	No
• ADA task organization	Yes	No	Yes	No	Yes	No	Yes	No
Execution:								
• Brigade commander's priorities for air defense	Yes	No	Yes	No	Yes	No	Yes	No
• AD coverage scheme for the brigade mission	Yes	No	Yes	No	Yes	No	Yes	No
• AD tasks for subordinate units	Yes	No	Yes	No	Yes	No	Yes	No
• ADA battery and platoons and attack ADA sensors	Yes	No	Yes	No	Yes	No	Yes	No
• Brigade maneuver units (if appropriate)	Yes	No	Yes	No	Yes	No	Yes	No
• DS FA battalion (if appropriate)	Yes	No	Yes	No	Yes	No	Yes	No
• Control Measures	Yes	No	Yes	No	Yes	No	Yes	No
• Special Instructions	Yes	No	Yes	No	Yes	No	Yes	No
• Hostile criteria	Yes	No	Yes	No	Yes	No	Yes	No
• Rules of engagement (ROE)	Yes	No	Yes	No	Yes	No	Yes	No

*Note: HIMAD=high to medium altitude air defense; SHORAD=short range air defense

Table 5. (Continued)

Contents	Included?		Complete?		Accurate information?		Integrated and coordinated?	
• Passive AD measures	Yes	No	Yes	No	Yes	No	Yes	No
• CAFAD and SAFAD	Yes	No	Yes	No	Yes	No	Yes	No
• Fratricide prevention measures	Yes	No	Yes	No	Yes	No	Yes	No
• Early warning method and format	Yes	No	Yes	No	Yes	No	Yes	No
Combat Service Support (CSS)								
• CSR & ASR	Yes	No	Yes	No	Yes	No	Yes	No
• Ammunition resupply points	Yes	No	Yes	No	Yes	No	Yes	No
• Casualty collection points	Yes	No	Yes	No	Yes	No	Yes	No
Nuclear, biological, and chemical (NBC) decontamination points	Yes	No	Yes	No	Yes	No	Yes	No
Command								
• Location of Brigade (Bde) Tactical Operations Center (TOC)	Yes	No	Yes	No	Yes	No	Yes	No
	Yes	No	Yes	No	Yes	No	Yes	No
• AD command and control procedures	Yes	No	Yes	No	Yes	No	Yes	No
• Location of ADA battery TOC	Yes	No	Yes	No	Yes	No	Yes	No
• Location of ADA battery commander								
Signal	Yes	No	Yes	No	Yes	No	Yes	No
• Early warning frequency	Yes	No	Yes	No	Yes	No	Yes	No
• Signal operations instructions (SOI)	Yes	No	Yes	No	Yes	No	Yes	No
• Special code words	Yes	No	Yes	No	Yes	No	Yes	No
• AD warning	Yes	No	Yes	No	Yes	No	Yes	No
• AD warning control status	Yes	No	Yes	No	Yes	No	Yes	No
• Local AD warning								
Items specific to ADA battery OPORD								
Execution of ADA mission								
• Concept of ADA operations by phase	Yes	No	Yes	No	Yes	No	Yes	No
• Tasks to subordinate ADA units	Yes	No	Yes	No	Yes	No	Yes	No
• Special instructions	Yes	No	Yes	No	Yes	No	Yes	No
• Mission oriented protective posture (MOPP) status	Yes	No	Yes	No	Yes	No	Yes	No
• Time of mission	Yes	No	Yes	No	Yes	No	Yes	No
• Survivability position construction	Yes	No	Yes	No	Yes	No	Yes	No
• Early warning method & format	Yes	No	Yes	No	Yes	No	Yes	No
Combat service and support								
• Resupply procedures; relationships & responsibilities for execution	Yes	No	Yes	No	Yes	No	Yes	No
• Maintenance procedures	Yes	No	Yes	No	Yes	No	Yes	No

Table 5. (Continued)

Contents	Included?		Complete?		Accurate information?		Integrated and coordinated?	
• Ammunition resupply points	Yes	No	Yes	No	Yes	No	Yes	No
• Casualty collection points	Yes	No	Yes	No	Yes	No	Yes	No
• NBC decontamination (decon) points	Yes	No	Yes	No	Yes	No	Yes	No
Command								
• Command and support relationships	Yes	No	Yes	No	Yes	No	Yes	No
• Location of ADA battery command post (CP)	Yes	No	Yes	No	Yes	No	Yes	No
• Location of ADA battery commander	Yes	No	Yes	No	Yes	No	Yes	No
Signal								
• Early warning frequency	Yes	No	Yes	No	Yes	No	Yes	No
• SOI edition in effect	Yes	No	Yes	No	Yes	No	Yes	No
• Special code words	Yes	No	Yes	No	Yes	No	Yes	No
Decision support matrix (DSM)	Yes	No	Yes	No	Yes	No	Yes	No
Overlays as appropriate	Yes	No	Yes	No	Yes	No	Yes	No

Table 6. ADA battery OPORD briefing.

This table examines the quality of the ADA battery OPORD briefing conducted by the ADA battery commander. "Yes" means the particular aspect of the briefing was accomplished in accordance with doctrine. "No" means the aspect was either not done or requires training.

1. When possible the ADA commander personally issued the ADA OPORD.	Yes	No
2. All key individuals were present.	Yes	No
3. The briefing was organized to follow the written ADA OPORD format.	Yes	No
4. ADA battery commander minimized distractions.	Yes	No
5. All personnel present were alert and listening.	Yes	No
6. Engineer commander's presentation was clear and concise.	Yes	No
7. Sketch maps were used to convey the plan.	Yes	No
8. Participants were encouraged to ask questions when necessary.	Yes	No
9. The headquarters section personnel, maintenance/support platoon personnel contributed as required and were able to issue any relevant information.	Yes	No
10. When possible, the order is issued at a site from which participants can view critical terrain.	Yes	No
11. When possible, the site selected for the briefing minimized travel time for key leaders.	Yes	No
12. The site selected was secured and relatively safe.	Yes	No
13. ADA battery commander ensured that all key leaders received a copy of the ADA battery OPORD with all attachments and overlays.	Yes	No
14. Subordinate leaders were provided time, location, and guidance for subsequent brief-backs and rehearsals.	Yes	No

Table 7. Confirmation briefings.

Indicate whether designated personnel were present at the briefing of the OPORD, and whether briefbacks were given by circling the appropriate response. "Adequate" means the individual demonstrated a comprehensive understanding of the brigade mission and the missions for his unit. "Not Adequate" means the individual demonstrated a lack of understanding of either the commander's intent or the mission(s) for his unit. Write down the problem in the space provided if the backbrief was inadequate.

Leaders	Present at the OPORD briefing?	Gave backbrief?	Demonstrated understanding of mission and tasks
ADA Battery (Btry) Commander (Cdr)	Yes No	Yes No	Adequate Not Adequate:
Avenger Platoon	Yes No	Yes No	Adequate Not Adequate:
BSFV Platoon	Yes No	Yes No	Adequate Not Adequate:
Headquarters Section	Yes No	Yes No	Adequate Not Adequate:

Table 8. The brigade is prepared to defend in the third dimension.

This table is concerned with the overall preparation of the brigade to execute air defense. Circle the appropriate response for each unit.

AD Readiness	Maneuver Task Force (TF) A		Maneuver TF B		Maneuver TF C		DS FA Bn		Forward Support Battalion (FSB)		ADA Battery	
ADA elements are positioned to provide air defense in accordance with (IAW) brigade priorities (as relevant)	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• ADO maintains communications:												
• ADA Bn command net												
• Division early warning net												
• Brigade command net	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• Battery command net											Yes	No
• Supported units' command nets (as appropriate)	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• ADA platoon nets (as appropriate)	Yes	No	Yes	No	Yes	No					Yes	No
• ADA platoon leaders maintain communications:											Yes	No
• Supported TF's (unit's) command net												
• ADA platoon net												
• Battery command net												
Brigade units enforce passive measures:												
• Attack avoidance measures (e.g., concealment, camouflage)	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• Damage limiting measures (e.g., dispersion, cover)	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All units have rehearsed and confirmed:												
• Brigade AD priorities	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• Army airspace command and control (A2C2) measures	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• Fratricide prevention measures	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• CAFAD and SAFAD procedures	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
Changes to the brigade OPORD AD annex have been received by all units.	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

Table 9. The ADA battery is prepared for battle.

This table addresses preparation status of ADA battery assets just prior to mission execution, e.g., at LD time. Circle the appropriate response.

Readiness	Main ADA CP		Avenger Platoon		BSFV Platoon		BSFV Platoon		Maintenance Section	
ADA units have relocated IAW OPORD to protect brigade priorities.	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
All air avenues of approach are covered.	Yes	No	Yes	No	Yes	No	Yes	No		
Ammunition upload is completed.	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Commo nets are in operation.	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
ADA units have established communication with their supported units' CP.	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
ADA units have confirmed signal and warning codes.	Yes	No	Yes	No	Yes	No	Yes	No		
ADA units have rehearsed their mission during:										
• Brigade rehearsals	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• ADA battery rehearsal	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• Supported task force rehearsals	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
ADA units have confirmed	Yes	No	Yes	No	Yes	No	Yes	No		
• Brigade AD priorities	Yes	No	Yes	No	Yes	No	Yes	No		
• Current AD warning	Yes	No	Yes	No	Yes	No	Yes	No		
• Current weapons control order	Yes	No	Yes	No	Yes	No	Yes	No		
• Aircraft recognition and fratricide prevention measures	Yes	No	Yes	No	Yes	No	Yes	No		
• Location of adjacent ADA units	Yes	No	Yes	No	Yes	No	Yes	No		

Table 9. (Continued)

Readiness	Main ADA CP		Avenger Platoon		BSFV Platoon		BSFV Platoon		Maintenance Section	
Platoon troop leading procedures (TLP) are complete:										
• Orders are developed and issued	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• Pre-combat inspection (PCI) of personnel	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• PCI of weapons	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• PCI of required supplies and equipment	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• Hasty positions are completed and ready	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
• ADA range cards/fire plans for each position are completed	Yes	No	Yes	No	Yes	No	Yes	No	[redacted]	

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Field Manuals (FMs)

34-130	Intelligence Preparation of the Battlefield, July 1994
44-8	Small Unit Self-Defense Against Air Attack, December 1981
44-64	FAAD Battalion and Battery Operations (Draft), April 1995
44-100	Air Defense Operations, June 1995
71-123	Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force, and Company Team, 30 September 1992
71-3	The Armored and Mechanized Infantry Brigade, January 1996
101-5	Command and Control for Commander's and Staff (Draft), August 1993

Army Training and Evaluation Program (ARTEPs)

44-177-30-MTP	Mission Training Plan for Bradley/Stinger Fighting Vehicle Battery, 29 September 1994
71-2-MTP	Mission Training Plan for The Tank and Mechanized Infantry Battalion Task Force, October 1988
71-3-MTP	Mission Training Plan for The Heavy Brigade Command Group and Staff, 3 October 1988

Soldier Training Publications (STPs)

44-14II-MQS	Military Qualification Standards II, Air Defense Artillery Branch, Company Grade Officer's Manual, 19 June 1991

TRADOC Pamphlets

11-9	Blueprint of the Battlefield, May 1992

Other References

Student Text

101-5	Command and Staff Decision Processes, January 1994

Appendix A

ACRONYMS AND ABBREVIATIONS

1SG	first sergeant
A2C2	Army airspace command and control
AAR	after action review
AD	air defense
ADA	air defense artillery
ADALO	air defense liaison officer
ADO	air defense officer
ADW	air defense warning
ADWCS	air defense weapons control status
A/L	administrative/logistics
ALO	air liaison officer
ALOC	administration and logistics operation center
AN	author note
ARI	U.S. Army Research Institute for the Behavioral and Social Sciences
ARTEP	Army Training and Evaluation Program
ASR	available supply rate
AVLO	aviation liason officer
BDA	battle damage assessment
Bde	brigade

BF	battlefield function
Bn	battalion
BOS	battlefield operating system(s)
BSFV	Bradley Stinger Fighting Vehicle
Btry	battery
C3	command, control, and communications
C3I	command, control, communications, and intelligence
CAFAD	combined arms for air defense
CAS	close air support
CCF	critical combat function
CCIR	commander's critical information requirements
Cdr	commander
CL	Class
CL I	subsistence items
CL II	individual equipment, clothing, tool sets, house keeping supplies
CL III	petroleum, oils, lubricants
CL IV	construction and barrier material
CL V	ammunition
CL VI	personal demand items
CL VII	major end items
CL VIII	medical material
CL IX	repair parts and components

CM	civil-military
COA	course of action
CP	command post
CPX	command post exercise
CS	combat support
CSR	controlled supply rate
CSS	combat service support
decon	decontamination
DP	decision point
DS	direct support
DSM	decision support matrix
DST	decision support template
DTDD	Directorate of Training and Development Doctrine
DZ	drop zone
EPW	enemy prisoner of war
FA	function analysis; field artillery
FARP	forward arming and refuel point
FM	field manual
FN	field note
FRAGO	fragmentary order
FSB	forward support battalion
FSE	fire support element

FSO	fire support officer
FTX	field training exercise
FXXITP	Force XXI Training Program
GS	general support
HHC	headquarters and headquarters company
HIMAD	high to medium altitude air defense
IAW	in accordance with
IPB	intelligence preparation of the battlefield
ITTBBST	Innovative Tools and Techniques for Brigade and Below Staff Training
LADW	local air defense warning
LD	line of departure
LZ	landing zone
METT-T	mission, enemy, terrain, troops, and time available
MOPP	mission oriented protective posture
MQS	military qualification standards
MTP	mission training plan
NBC	nuclear, biological, and chemical
NCO	noncommissioned officer
NTC	National Training Center

OC	observer-controller
OPFOR	opposing force
OPORD	operations order
OPSEC	operations security
Pam	Pamphlet
PCI	pre-combat inspection
PZ	pickup zone
ROE	rules of engagement
S1	Adjutant/Personnel Officer, Brigade and Battalion Staff
S2	Intelligence Officer, Brigade and Battalion Staff
S3	Operations and Training Officer, Brigade and Battalion Staff
S3 Air	Operations and Training Officer - Air Operations, Brigade and Battalion Staff
S4	Supply/Logistics Officer, Brigade and Battalion Staff
SAFAD	small arms for air defense
SEAD	suppression of enemy air defenses
SGM	sergeant major
SHORAD	short range air defense
SITREP	situation report
SO	signal officer
SOI	signal operations instructions

SOP	standing operating procedure
SPOTREP	spot report
STP	soldier's training publication
TAI	target area of interest
TBM	tactical ballistic missile
TF	task force
TLP	troop leading procedures
TOC	tactical operations center
TRADOC	U.S. Army Training and Doctrine Command
TSOP	tactical standing operating procedures
UAV	unmanned aerial vehicle
USAADAS	U.S. Army Air Defense Artillery School
USAARMC	U.S. Army Armor Center
USAARMS	U.S. Army Armor School
WARNO	warning order
XO	executive officer