# *AIRSPACE CONTROL*

MULTI-SERVICE
TACTICS,
TECHNIQUES, AND
PROCEDURES FOR
AIRSPACE CONTROL

FM 3-52.1
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*US Army Training and Doctrine Command*

*Curtis E. LeMay Center for Doctrine and Education*

## FOREWORD

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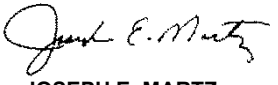

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# PREFACE

**1. Purpose**

This multi-Service tactics, techniques, and procedures (MTTP) publication facilitates multi-Service coordination, integration, and regulation of airspace during exercises and operations where more than one Service shares airspace for operational use.

**2. Scope**

This MTTP publication is a tactical-level document to synchronize and integrate airspace command and control functions and serves as a single source reference for planners and commanders at all levels. It synchronizes airspace control roles and responsibilities within the campaign plan while unifying individual Service doctrine and TTP for airspace control planning and execution. In addition, it provides planning, assignment, execution, and transition procedures to address specific complex and unique airspace coordinating measures. This publication also outlines enabling information and communications interfaces necessary to establish integrated airspace control.

**3. Applicability**

This MTTP publication applies to the operating forces of the Army and Air Force. The focus of the publication is at the tactical level, but it has application for warfighters at all levels. The target audience for this publication includes commanders, staffs, warfighters, and agencies at all levels within the joint force.

**4. Implementation Plan**

Participating Service command offices of primary responsibility (OPRs) will review this publication, validate the information and, where appropriate, reference and incorporate it in Service manuals, regulations, and curricula as follows:

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**5. User Information**

a. TRADOC and the Curtis E. Lemay Center for Doctrine Development and Education (LeMay Center) developed this publication with the joint participation of the approving Service commands. TRADOC and the LeMay Center will review and update this publication as necessary.

b. This publication reflects current joint and Service doctrine, command and control (C2) organizations, facilities, personnel, responsibilities, and procedures. Changes in Service protocol appropriately reflected in joint and Service publications will likewise be incorporated in revisions to this document.

c. We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to—

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# AIRSPACE CONTROL MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR AIRSPACE CONTROL

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# EXECUTIVE SUMMARY

## AIRSPACE CONTROL
## Multi-Service Tactics, Techniques, and Procedures for Airspace Control

This publication establishes tactics, techniques, and procedures for the tactical synchronization and integration of airspace necessary for combat operations within the operational environment. With the proliferation and concentration of airspace users, this publication outlines airspace control authorities, establishes airspace planning considerations, outlines the steps for the immediate execution of airspace in support of operations, and defines airspace measures necessary for a specific, finite period to support a specific military objective.

### Chapter I Airspace Overview

Chapter I provides the tactical imperative, which shifts the focus of airspace operations from the deconfliction of airspace to integration and synchronization of airspace users that is established by the joint force commander. Additionally, this chapter lists the doctrinal command relationship necessary for airspace integration to support all joint components.

### Chapter II Authorities

Chapter II provides the key airspace authorities within each component and the critical documents used to exercise airspace integration among the operational commanders.

### Chapter III Planning Considerations

Chapter III provides airspace planning considerations throughout the military operational phases from shaping through enabling civil authorities.

### Chapter IV Real-time Coordination of Airspace

Chapter IV provides the “who” of the Service components and the “how” for real-time coordination of airspace and fires during joint operations.

### Chapter V Complex Airspace

Chapter V provides for the coordination and operation of complex airspace necessary to support specific military objectives.

### Appendices

The appendices discuss risk in the operational environment, airspace coordinating measures, fires coordination, examples of complex airspace, and examples of airspace control checklists, which could be used as models for tactical units during military operations.

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# Chapter I
## Airspace Overview

### 1. Introduction

a. Combat operations require effective airspace control in the combat zone. The proliferation of unmanned aircraft systems (UASs) and the fielding of indirect fire platforms capable of higher altitudes and greater ranges create additional demands and complexities on the airspace control process. In addition to military airspace users, current and future operational environments may include civilian airliners, nongovernmental organizations (NGOs), and relief agencies, especially during stability operations. These increased user demands require an integrated airspace control system to enable mission accomplishment and minimize risk.

b. Integration and synchronization of all airspace users is required to establish the unity of effort necessary for effective combat operations. Historically, the primary method of airspace control and deconfliction has been to reserve airspace for each user and then ensure they remained within their assigned airspace. This method is time consuming and not responsive enough to support current dynamic operations, forcing commanders to accept risk for airspace users, operations, or both. With the proliferation of airspace users in a congested space, there may not be enough airspace to effectively divide, separate, or partition areas for deconflicted operations.

### 2. Establishing Airspace Control

a. Joint Publication (JP) 3-52, *Joint Doctrine for Airspace Control in a Combat Zone*, defines **airspace control in the combat zone** as "a process used to increase combat effectiveness by promoting the safe, efficient, and flexible use of airspace. Airspace control is provided to reduce the risk of friendly fire, enhance air defense operations, and permit greater flexibility of operations."

b. Airspace control procedures within the joint operations area (JOA) are approved by the joint force commander (JFC) and are derived entirely from the JFC's authority. Commanders should adhere to JFC guidance on airspace coordinating measures (ACMs) so as not to exceed the JFC's acceptable level of risk. Effective airspace control should maximize combat effectiveness without unduly restricting combat operations. In accordance with the JFC's guidance (i.e., airspace control plan [ACP]), ***airspace control agencies direct the maneuver of aircraft and integrate fires*** for the best use of assigned airspace. "***Airspace control does not infringe on the authority vested in commanders to approve, disapprove, or deny combat operations***." (JP 3-52)

c. Airspace is inherently joint. Any action taken by an airspace user may impact other airspace users. The airspace control authority (ACA) delegates authority to control airspace to elements of the theater air ground system (TAGS). The ACA establishes an airspace control system (ACS) responsive to

the needs of the JFC and integrated with the host nation (HN). "The ACS is an arrangement of those organizations, personnel, policies, procedures, and facilities required to perform airspace control functions. Airspace control should be executed through a responsive theater/tactical air control system capable of real time control that includes surface and airborne assets, as necessary (e.g., CRC and AWACS). The ACS requires timely exchange of information through reliable, secure, and interoperable communications networks. Elements of the ACS may have dual-roles as DCA assets (e.g., a CRC can be a SADC)." (JP 3-01)

d. The definition of coordinating altitude in JP 3-52 is "a procedural airspace control method to separate fixed- and rotary-wing aircraft by determining an altitude below which fixed-wing aircraft will normally not fly and above which rotary-wing aircraft normally will not fly." Current Operation Iraqi Freedom (OIF)/Operation Enduring Freedom (OEF) operations use the term **"coordinating altitude" as the vertical limit between airspace controlling agencies** [i.e., the top of Army controlled airspace and the bottom of control and reporting center (CRC) controlled airspace]. The current theater usage is outside the JP 3-52 doctrinal definition.

e. The use of ACMs (e.g., high-density airspace control zone [HIDACZ], restricted operations zone [ROZ] usages or sectors) to employ lateral, horizontal, and vertical limits between airspace controlling agencies should be the preferred method of assigning airspace control responsibilities.

**3. Command Relationships for Airspace Control**

a. The JFC may designate a joint force air component commander (JFACC), an ACA, and an area air defense commander (AADC). The responsibilities of the JFACC, ACA, and AADC are interrelated and are normally assigned to one individual to unite joint air operations with joint airspace control and joint air defense in support of the JFC's campaign. They may be assigned to two or more individuals when the situation dictates. If the JFC decides not to assign the JFACC, ACA, and AADC to one individual, then close coordination between all three positions is essential for mission accomplishment. Designating one component commander as JFACC, AADC, and ACA often simplifies the coordination required to develop and execute fully integrated joint air operations.

b. Joint doctrine establishes priority of airspace use to the supported commander, in accordance with JFC priorities. Often, the priority of airspace use is blurred when multiple supported commanders require access to the same airspace for different missions. The area of operations (AO) commander is normally the supported commander for operations in his assigned AO; however, the JFACC is normally the supported commander for counterair, which includes defensive counterair (DCA) over the land component AO. Other commanders (i.e., special operations) frequently have JFC priority for operations without respect to the boundaries of an AO. These conflicting priorities and requirements often lead to confusion that is not an airspace control specific problem but rather a joint C2 problem.

c. The JFACC/ACA/AADC uses the air operations center (AOC) to publish airspace control procedures and requirements. The primary products for airspace control are the ACP, air tasking order (ATO) and its associated special instructions (SPINS), airspace control order (ACO), air defense plan (ADP), and air operations directive (AOD). When these documents are created and modified, Army forces (ARFOR) must participate in the process to ensure Army priorities are addressed in all of these products. In most cases, the ARFOR commander's liaison to the AOC is the battlefield coordination detachment (BCD). After the AOC develops the ACP, it is approved by the JFC and becomes directive. Army echelons incorporate ACP guidance and integrate the ACO, ADP, SPINS, AOD, and ATO via operations orders (OPORDs) and associated annexes.

d. Effective airspace control in the combat zone requires interoperable equipment and an understanding of Service and joint doctrine. Familiarity with procedures through joint exercises and training can enhance airspace control operations within the JOA. Standardized airspace procedures rely upon an effective mix of identification and control measures. A common airspace control structure facilitates accurate and timely coordination of airspace operations between friendly forces. Identification requirements for airspace control should be integrated with those for air defense. Procedures and terminology need to be compatible, mutually supporting, and interoperable to ensure commonality of procedures for airspace users and control agencies.

e. Airspace control agencies should work out procedural agreements and establish required communication links with each other to ensure effective coordination. Airspace control can be achieved through both procedural and positive control methods. Procedural control is a method that relies on a combination of previously agreed procedures and orders, while positive control relies on positive identification, tracking, and direction of a user by an agency. **Procedural control provides the basic design for an airspace control system while positive control employs greater technological capabilities to increase the efficiency, safety, and effectiveness of airspace control**. Airspace control procedures provide maximum flexibility through an effective mix of positive and procedural control measures.

f. Procedural control relies on common procedures, designated airspace, and instructions promulgated by a control agency to deconflict and activate airspace. Procedural control uses a common area reference system, points, routes, and standard procedures that are promulgated via an ACO or aeronautical document to deconflict air operations. Procedural control is employed in airspace by defined volume and time using ACMs or weapons control status. For example, procedural control can be executed by defining a corridor with a specified altitude and/or time for an aircraft to pass each waypoint along a course. The procedures deconflict the corridor and aircraft from other airspace users. When appropriate communications exist, an

airspace control agency can provide procedural control instructions in real time to increase operational flexibility for airspace users.

g. Positive control relies on surveillance, accurate identification, and effective communications between a designated airspace control agency and the airspace user. It is normally conducted by agencies equipped with radar; identification, friend or foe (IFF) interrogators and receivers; beacons; track processing computers; digital data links; and communications equipment. The minimum requirements for surveillance, identification, and communications equipment will vary in each theater, but are likely to be driven by a combination of military and civil aviation regulations and the level of fidelity or risk the JFC is willing to accept. Positive control requires the means to locate and identify airspace users in real time and the ability to maintain continuous communications with them for required control instructions. Positive control procedures must include instructions on transition to procedural control if positive control systems are degraded or become unavailable and take into account differences between civil and military communications and surveillance systems.

h. There is a continuum of efficiency, risk, and level of effort (resources required) between procedural and positive control. Uncontrolled airspace exerts a small drain on resources, but may increase risk. Standing airspace procedures, such as a restricted operations zone (ROZ) incrementally increase control and resources required while reducing risk. As the density of aircraft and fires involved in combat operations increases, commanders can decrease risk and increase the safety and effectiveness of airspace control by assigning control of the airspace [e.g., a high-density airspace control zone (HIDACZ)] under a control agency/element. This airspace control can be positive, procedural, or a combination of both.

i. The ACS should provide situational awareness and the capability to respond to evolving enemy situations and friendly air operations. Timely integration of sensor data and networked inputs between airspace control agencies and C2 nodes to develop a common operational picture (COP) provides crucial situational awareness for airspace agencies, users, and command decision authorities.

**4. Summary**

Airspace management and control procedures enhance effective and efficient airspace operations in support of JFC objectives. All joint force components have legitimate mission requirements for airspace that should be integrated and/or coordinated within the airspace control system. Airspace control is required to prevent friendly force fratricide, enhance air defense operations, facilitate fire support, and maximize the effectiveness of operations conducted from and through the air to accomplish JFC mission objectives. When planning joint air operations, planners must consider integrating airspace requirements from the outset.

# Chapter II
## Airspace Authorities

### 1. Geographic Combatant Commanders (GCCs)

a. Combatant commanders and other JFCs exercise sufficient airspace authority to conduct joint operations, achieve military objectives, and to employ combat forces effectively. The ACA must design an ACS that is responsive to the needs of the joint force, and integrates airspace with HN, coalition partners, and OGA requirements. Airspace may be granted by sovereign nations via international agreements or seized by force from enemy nations during combat operations. If a GCC establishes a subordinate joint task force, he/she may delegate ACA, within that area of responsibility (AOR), to the subordinate JFC or retain it at the theater level. This should be clearly specified in the establishing directive. Unless clearly stated otherwise, this publication assumes that ***JFCs have authority to control airspace within their AORs***.

**Airspace Control Document**

b. Airspace Control Plan. The ACP is developed by the ACA, in conjunction with other components, to detail the broad policies and procedures for airspace control within the JOA. The ACP should include transitions between phases or the ACP should be updated as phase transitions occur. The ACP is signed by the JFC and becomes the JFC's airspace policies and procedures. Some of the major components of the ACP include:

(1) Description of the operational area within which airspace applies.

(2) List of current existing capabilities within the AOR/JOA to provide airspace control.

(3) Description and duties of the ACA, each airspace user (to include requirements for liaisons to and coordination with the ACA), and elements used in airspace control system.

(4) Description of the interface between ACA, AADC, and fires elements with procedures for deconflicting air defense and operational requirements.

(5) Description of interface with the Federal Aviation Administration (FAA), HN air traffic control (ATC) system and / or International Civil Aviation Organization (ICAO).

(6) Description of the interface between US and multinational forces to coordinate and deconflict airspace requirements.

(7) Plans to provide for continuity of airspace control operations under degraded conditions.

(8) Description of the airspace control procedures for the joint force including requesting, approving, modifying, and promulgating procedures.

(9) Description of IFF/ selective identification feature (SIF) procedures.

**2. Joint Force Air Component Commander (JFACC)**

a. The JFACC is a functional component commander, designated by the JFC. The JFACC exercises tactical control of air forces made available for tasking in accordance with the JFC's direction. The JFACC is normally designated as the ACA and AADC.

**Airspace Control Documents**

b. Joint Air Operations Plan (JAOP). The JAOP is the JFACC's plan for integrating and coordinating joint air operations that include tasked forces, message format, suspense for planning and execution phases, and rules of engagement (ROE). The JAOP translates JFACC tasking from the JFC into an air strategy and establishes the JFACC's objectives. The JAOP accomplishes the following:

(1) Integrates the efforts of joint air and space capabilities and forces.

(2) Identifies desired end state objectives and tasks to be achieved through air operations.

(3) Identifies measures or indicators of success, used to determine whether air operations are meeting assigned objectives.

(4) Accounts for current and potential adversary offensive and defensive courses of action.

(5) Incorporates space capabilities into the JAOP.

(6) Synchronizes the phasing of air and space operations with the JFC's operation or campaign plan:

(a) The first phase normally will involve counter-air operations to attain and maintain the required degree of air superiority to accomplish other joint actions.

(b) Offensive air operations may begin in conjunction with the initial counterair operations or be delayed until the requisite air superiority is achieved to reduce losses and attain greater freedom of action.

(7) Specifies what capabilities and forces are required to achieve joint air objectives.

c. Air Operations Directive (AOD). The AOD is an air component document similar to a fragmentary order (FRAGORD). The daily AOD gives planners the priority of effort, operational constraints, and any other specific guidance governing the planning / execution of air and space operations during a particular ATO period. Airspace personnel should review the AOD to gain an overall view of what airspace requirements the ATO development created and to understand daily priorities for airspace deconfliction. In addition, the AOD may have specific guidance references for the airspace (i.e., plan for high value airborne asset retrograde procedures due to threat). The AOD translates the JFACC'S JAOP into guidance for the planning and execution of a specific ATO.

The AOD is developed within the AOC's Strategy Division by the strategy guidance team and is distributed via theater battle management core system (TBMCS) and on the air component network, typically SECRET Internet Protocol Router Network (SIPRNET). The AOD, while not authoritative for Army forces, should be read and understood by AC2 personnel to understand the JFACC airspace priorities and guidance.

d. Air Tasking Order (ATO). The ATO is the "operation order" or mission assignment for all aircraft missions available for JFACC tasking. Other component air missions that appear on the ATO are not under control of the JFACC, but their presence on the ATO provides visibility to assist overall coordination and deconfliction. This daily document shows all missions operating in theater and aircrews must ensure they are on this daily mission tasking prior to flight.

e. Special Instructions (SPINS). In some theaters, numerous airspace procedures and airspace usages are published in the SPINS. The SPINS carry a section that lists the airspace procedures. Other SPINS sections such as tanker procedures or cruise missile procedures also address airspace procedures within those particular sections. The SPINS may include ROE and combat identification criteria for air defense along with any additional guidance/directives/information that weapons system operators and/or aircrews will require such as: HN restrictions, base defense zone (BDZ) procedures, and special weapons systems control procedures (e.g., unmanned aircraft (UA) or cruise missiles). SPINS are published as baseline SPINS, weekly SPINS, and daily SPINS.

f. Operations Task Link (OPTASKLINK). The OPTASKLINK details specifics of the data link architecture. The joint interface control officer (JICO) monitors the data link nets to ensure transfer and display of critical air defense information. When directed, the JICO will transmit, via data link, engagement commands and air defense warning changes to linked agencies. The JICO coordinates the development of the OPTASKLINK message and manages all tactical data link (TDL) interfaces to create a consolidated air picture.

g. Tactical Operational Data (TACOPDAT). The TACOPDAT lays down the tasking for air defense assets to include locations and C2 alignments of USAF and USA air and ground based air defense systems. The JICO coordinates the development of the TACOPDAT message and manages all TDL interfaces to create a consolidated air picture.

**3. Airspace Control Authority (ACA)**

a. The component commander designated as the ACA assumes overall responsibility for the operation of the airspace control system in the JOA. The ACA develops broad policies and procedures for airspace control and the coordination required among units within the operational area. When approved by the JFC, these policies and procedures are promulgated via the JFC's ACP.

b. A key responsibility of the ACA is to provide an effective and adaptive airspace control system to meet contingency situations and to necessitate the rapid employment of forces in support of the JFC mission. Matters on which the ACA is unable to obtain agreement are referred to the JFC for resolution. A summary of the key ACA responsibilities is provided below:

(1) Identify and coordinate airspace access required for the JFC's mission.

(2) Provide effective and timely integration of the airspace control system with that of the HN, coordinating and deconflicting airspace user requirements to include conduct of operations in support of normal air commerce operators as governed by HN and ICAO guidance.

(3) Delegate control of specific airspace for a commander to accomplish a specified mission or facilitate decentralized execution in accordance with the ACP (e.g., amphibious objective area [AOA] or air defense sector).

**Airspace Control Document**

c. Airspace Control Order (ACO). The ACO is developed after component commanders consolidate, deconflict, and forward their airspace requests to the ACA for further consolidation with other theater-wide inputs. Typically, the combat plans division of the AOC develops and promulgates the ACO. The ACO implements specific ACMs for specific time periods. The ACO activates and deactivates procedural control measures, and updates positive control procedures. The ACO is normally published as a stand-alone document, but it may be published as part of the ATO SPINS.

**4. Area Air Defense Commander (AADC)**

a. The AADC is responsible for DCA, which doctrinally includes both air and missile threats. The AADC must identify those volumes of airspace and control measures, airspace management systems, and procedures that support DCA operations, and ensure they are incorporated into the theater air ground system (TAGS). The AADC may also designate regional or sector air defense commanders to allow for ease of C2 in airspace based on the size and scope of the mission/operation.

**Airspace Control Document**

b. Area Air Defense Plan (AADP). This plan implements JOA wide DCA priorities, authorities, procedures, and tasks. Defensive counterair forces execute the AADP to protect assets on the defended asset list, other critical assets, friendly forces, and civilian population centers in accordance with JFC guidance. Some of the major components of the AADP include:

(1) A layered and/or overlapping defense to allow for multiple engagement opportunities.

(2) Information operations (IO) strategies for counterair.

(3) Detailed weapons control and engagement procedures and authorities integral to a joint counterair operation.

(4) Specific ACMs required to accomplish the mission.

(5) All surface-to-air capabilities assigned, attached, and supporting.

(6) Provisions for protection of high value airborne assets.

(7) Guidance on electronic warfare to disrupt or destroy guidance systems.

The integration of air defense in the ACP is critical. The location of specific types of air defense operations and specific procedures for the identification of aircraft are critical to a viable ACP. The AADP needs to be written with detailed engagement procedures that are consistent with the ACP and operations in the combat zone. Drafters of the AADP must be cognizant of the capabilities and limitations of fielded equipment employed by the joint/combined forces. Airspace control and area air defense operations need to be capable of functioning in a degraded C2 environment.

**5. Commander, Air Force Forces (COMAFFOR)**

a. The COMAFFOR normally exercises operational control over Air Force forces assigned or attached to a JTF. The USAF theater air control system (TACS) is an organic Air Force system used to conduct C2 of Air Force forces (AFFOR). The senior node of the USAF TACS is the AOC. If the JFC decides not to organize functionally, the COMAFFOR may still be designated as the ACA, AADC, or both. If the JFC does not organize functionally, Service components should still consider exchanging liaison elements at the appropriate command level.

b. If the COMAFFOR is designated as the JFACC, the AOC will become a joint or combined AOC (JAOC or CAOC) and the USAF TACS with the airspace control elements of other Services will combine to form the TAGS in accordance with JFC direction.

**6. Air Operations Center (AOC)**

a. The Air Force air and space operations center is the senior element of the TACS and is where centralized planning, direction, control, and coordination of air and space operations occur. If the COMAFFOR is designated as the JFACC, other components and coalition partners provide personnel to the AOC for coordinating and deconflicting the operations of their forces. In this case, the Air Force air and space operations center becomes a joint or combined AOC (JAOC or CAOC.)

b. The AOC has five divisions (strategy; combat plans; combat operations; intelligence, surveillance, and reconnaissance (ISR); and air mobility), as well as multiple support/specialty teams. Each division integrates numerous disciplines in a cross-functional team approach for planning and execution. The combat plans division is primarily responsible for developing the daily ACO leveraging airspace control expertise, which may be resident in all divisions. The operations division is responsible for immediate changes during execution, unless delegated to another TACS/TAGS element.

**7. Control and Reporting Center (CRC)/Airborne Warning and Control System (AWACS)**

a. The CRC and airborne elements (Joint Surveillance Target Attack Radar System [JSTARS] and AWACS aircraft) of the TACS provide air battle management and airspace control to joint air forces and airspace users throughout their sectors. Although the capabilities of these systems are different, they are generally able to locate, identify, and communicate among aircraft within their areas. The CRC is deployable but fixed, while the AWACS has mobility and longer range, which allows flexibility in assignment. These systems are not certified to provide ATC services, but typically coordinate closely with ATC facilities, which share the airspace in their sectors.

b. Some airspace control responsibilities may be delegated to the CRC/AWACS, for example: the authority to establish a restricted operations area (ROA) in response to immediate requests and the authority to coordinate directly with airspace users (e.g., brigade combat teams (BCTs) or divisions) to make real-time airspace changes. Other airspace control authorities may be retained at the AOC level.

c. In general, delegation of airspace control to the lowest appropriate level produces the most responsive execution of the ACP. The ACA, when developing the ACP, will consider a variety of factors when determining what authorities to delegate to lower levels. These include the workload of the CRC/AWACS, the density of air traffic within a given sector, and the JFC's acceptable level of risk. For example, in a highly dense area of air traffic where the JFC's tolerance for risk is very low (e.g., near a civil airfield), the ACA might seek to limit the number of real-time change requests and may require changes to be coordinated via the Army division and AOC. Conversely, if the JFC requires a highly responsive airspace control system in a certain area, airspace control should be delegated to a lower level (e.g., BCT and CRC) to reduce the response time and the ACA may need to adjust the configuration of the TACS to support the JFC's requirements.

**8. Air Support Operations Center (ASOC) / Joint Surveillance Target Attack Radar System (JSTARS)**

a. Air Support Operations Center (ASOC). The ASOC is the principal Air Force C2 node for integrating air power into Army land operations. As a subordinate element of the JAOC, the ASOC is responsible for the direction and control of air operations directly supporting the Army land operation. It processes and coordinates air missions requiring integration with other supporting arms and ground forces. The ASOC is usually collocated with the senior Army tactical echelon, and coordinates operations with the permanently aligned tactical air control party (TACP), Army fires cell airspace C2 element, and the JAOC. The ASOC has five primary functions:

(1) Manages CAS assets within the supported ground commander's AO

(2) Processes CAS air support requests and controls the flow of CAS aircraft

(3) Deconflicts airspace coordinating measures and fire support coordination measures with aircraft

(4) Assigns and directs attack aircraft, when authorized, to the joint terminal attack controllers (JTACs)

(5) Manages the Air Force air request net with its specific tactical air direction net frequencies. Additionally, the ASOC may also coordinate in other mission areas, to include air interdiction (AI), ISR, suppression of enemy air defenses (SEAD), and personnel recovery operations (PRO).

b. The E-8 JSTARS aircraft is an airborne battle management and C2 platform that supports targeting by conducting ground surveillance to develop enemy location for rapid interdiction and retargeting of enemy ground forces. The JSTARS can also function in a limited capacity as a backup ASOC to assign or divert sorties onto more lucrative targets while coordinating with TACP, Army C2 centers, and the AOC. JSTARS normally utilizes procedural control for close coordination with AWACS and CRC to ensure appropriate coordination of airspace.

**9. Tactical Air Control Party (TACP)**

A TACP is the principal Air Force liaison element aligned with Army maneuver units from battalion through corps. For airspace management, TACPs integrate with fires cells and the Army airspace command and control (AC2) cells. TACPs assist ground maneuver units in the planning and coordinating of fire support coordination measures (FSCMs) and ACMs needed to integrate air and ground operations. TACPs assist the ASOC and joint terminal attack controllers (JTAC) for tactical control of CAS and forward air controller (airborne) (FAC [A]) aircraft transiting from the ASOC contact point to the JTAC contact point.

**10. Joint Force Land Component Commander (JFLCC)**

The JFLCC is the functional land force commander, designated by the JFC. Within the Army, the JFLCC headquarters (HQ) can be at the theater, corps, or division level.

**11. Army Forces (ARFOR) Commander**

The ARFOR commander is the component commander of Army forces provided to the JFC and JFLCC. The ARFOR HQ could be designated at the theater, corps, or division level. The theater Army's AC2 element is responsible for integrating Army airspace requirements into the theater's deliberate and contingency plans. The ARFOR's AC2 element provides Army input into the ACO, as well as the SPINS. The ARFOR also ensures that JFC's guidance for airspace use and risk is integrated into the Army AC2 annexes. This should be done in collaboration with the JFACC's development of the AOD to ensure that airspace personnel from both functional components receive coordinated

guidance. The interface between the JFACC and the ARFOR is accomplished through the BCD.

**12. Corps/Division Airspace Command and Control (AC2) Element**

Note: For simplicity, the term division applies to corps or division and the term BCT applies to BCT or multifunctional brigade.

a. The corps or division AC2 element can perform all AC2 tasks required for a tactical or operational headquarters. The division AC2 element can operate under a higher Army HQ or function as the ARFOR airspace staff. The division AC2 element can perform all functions of a joint force land component or joint task force (JTF) airspace element and has the digital compatibility to interface with USMC and coalition automation systems. The AC2 element does not have the capability to function as an ACA. If the division is a JTF or JFLCC HQ, the division AC2 element will work directly with the BCD to interface with the JFACC/ACA. Corps/division AC2 responsibilities include:

(1) Division AC2 remains responsible for AC2 over the entire division AO, regardless of whether the AO has been further subdivided into BCT AOs.

(2) When a division divides part of its AO to a BCT some AC2 responsibilities may be delegated to the BCT.

(3) Division AC2 is responsible for portions of the division's AO unassigned to BCTs.

(4) Division AC2 is also responsible for integrating joint, multinational, and non-military airspace users over the entire division AO both in planning and in execution.

(5) If the division has an unusually large AO, or if the division AO is non-contiguous, the division can delegate AC2 responsibilities to the BCTs, but this may require augmentation of additional AC2 personnel to the BCT.

**Airspace Control Document**

b. Operations Order (OPORD). Division airspace control information is contained within the division AC2 annex of the OPORD. This document contains not only Army specific AC2 information but should contain airspace control information from the ACP, ACO, SPINS, and any relevant AOD information to ensure unity of effort in airspace control operations throughout the theater.

**13. Brigade Combat Team (BCT)**

All of the multifunctional BCT/brigades (except sustainment) have an organic air defense airspace management (ADAM)/brigade aviation element (BAE). This staff element is composed of air defense artillery (ADA) and aviation personnel and performs the AC2 integration function for the brigade in addition to its air and missile defense and aviation functions. While other members of the brigade staff are key AC2 members (fires cell, air liaison officer (ALO)/TACP, UA operators),

the ADAM/BAE is the AC2 integrator for the S-3, Operations. BCT AC2 responsibilities include:

(1) The authority that a BCT controlling an AO has over Army airspace users is the same as the BCT's authority over ground units transiting its AO.

(2) BCTs have authority over all Army airspace users in their AO, as well as CAS aircraft in support of BCT operations.

(3) All Army airspace users transiting a BCT AO are expected to coordinate with the BCT responsible for the AO they are transiting.

(4) Division will only integrate Army airspace use between BCTs if adjudication between BCTs is necessary.

(5) For certain situations, it may be necessary to request approval for a BCT to control a volume of airspace such as a HIDACZ. However, if a BCT is to control airspace for an extended period, the ADAM/BAE should be augmented with additional air control assets from the combat aviation brigade air traffic service company.

(6) Several multifunctional brigades do not routinely control AOs but conduct operations throughout the division AO (fires brigade, combat aviation brigade, battlefield surveillance brigade). These brigades will normally coordinate their airspace use with the BCTs whose AO they will transit (or with division AC2 for portions of the division AO unassigned to a BCT).

(7) When these brigades are tasked by division to execute a mission (e.g. interdiction attack, strike, ISR,) that affects airspace use by other brigades, the brigade conducting the operation is the lead AC2 planner. The division AC2 element provides planning and airspace integration support to the brigade ADAM ensuring that the division airspace plan is adjusted to take into account the brigade commander's priorities and concept of the operation.

**14. Component Liaisons**

a. Battlefield Coordination Detachment. The BCD is the ARFOR component liaison to the AOC; the BCD is neither an operational commander nor a staff. The BCD responsibilities include:

(1) Coordinate Army requests for air support and JFACC requests for support from ground units.

(2) Coordinate air defense, theater missile defense (TMD), and airspace requirements with the AOC and the land force air defense headquarters.

(3) Provide information on friendly and enemy ground order of battle and assist in interpreting this information.

(4) Coordinate all changes that affect the current ATO and changes in the land forces' current operations, objectives, priorities, nominated targets, and FSCMs.

(5) Provide the AOC with the Army commander's intent, guidance, objectives, priorities for air support, FSCMs, and planned concept of operations.

b. Air Component Coordination Element (ACCE). The ACCE is the JFACC's component liaison to the JFC/JTF commander or component commander headquarters. The ACCE's responsibilities include:

(1) Facilitate interaction between the respective component staffs. Normally, has no authority to direct or execute operations.

(2) ACCE may include plans, operations, intelligence, airspace management, logistics, space, and air mobility expertise.

(3) If JFC authorizes, ACCE may represent the JFACC to the HN during enabling civil authority phase of military operations as the direct JFACC liaison on air operations.

# Chapter III
## Planning Considerations

### 1. Planning, Implementation, and Execution

a. Successful planning, implementation, and execution of airspace control requires the JFC, JFACC, ACA, AADC, and component commanders to accomplish specific actions. Airspace control is not static, and airspace control planning will change with each phase as identified in JP 5-0, *Joint Operation Planning*. Components must be involved in initial ACP planning and remain involved as conditions change during each phase of the conflict. Regulation of the airspace control function should be decentralized to the maximum extent possible.

b. Joint airspace control must accomplish the following:

(1) Maximize combat capability of friendly forces.

(2) Minimize restrictions on friendly combat operations, both surface and air.

(3) Maximize commonality while retaining individual component protocol.

(4) Minimize fratricide.

c. The following paragraphs list the planning actions, which should occur during each joint phase of an operation. This publication recognizes that operations can be in more than one joint phase at any point in time and that operations may not start or remain sequential.

### 2. Phase 0 – Shape

a. Coordination with the HN, regional authorities, and ICAO.

(1) The HN retains airspace control authority and the joint forces primarily use existing international or HN aeronautical information publications for airspace procedures or guidelines. Airspace and navigation services are the sovereign right and responsibility of the HN.

(2) Although the JFC may choose not to designate a standing ACA during this phase, the JFC should appoint an executive agent, normally the JFACC, for airspace management, ATC, and issues with navigation aids in the JOA. The joint force maritime component commander (JFMCC) normally retains authority for airspace procedures applicable to fleet air operations over international waters within the operational area and advises the JFC's executive agent as appropriate. In the absence of an ACA, the JFC's executive agent may be delegated the authority for developing joint force airspace requirements in coordination with the other Service components, DOD, interagency, international, and HN authorities as appropriate.

b. Normal / Routine Military Airspace Considerations.

(1) In addition to ensuring continuation of routine DOD flight operations during the shaping phase, joint force airspace planners establish effective

relationships with key regional airspace authorities, develop specific airspace control plans in preparation for future operations, and build airspace planning expertise. Regular DOD or joint force interaction with HN authorities and participation in regional airspace conferences help establish relationships with the HN for quick resolution of issues and effective coordination of airspace requirements.

(2) Development of ACPs should be as thorough as possible and include airspace control considerations from peacetime to combat operations, which allow for rapid and flexible transitions into follow-on phases for a variety of possible contingencies. Additionally the ACP should integrate civil air traffic, airspace, and air defense capabilities. Primary planning considerations include identification of airspace required for joint force operations and a proposed coordination process for obtaining that airspace. Joint operational planning should consider procedures to transfer airspace control authority from the HN to the ACA; rerouting of airways; ACA responsibilities to continuity of civil aviation operations; and HN notification for ACA areas of control through notices to airmen (NOTAMs) or aeronautical information publication (AIP) entries.

**3. Phase I – Deter**

a. General Considerations.

(1) ATC/airspace elements or their liaisons must be involved from the outset in planning and executing ATC and airspace management. They ensure that airspace requirements are coordinated and approved by the proper agencies.

(2) Planning should consider the establishment of an ATC cell to liaise with the current HN infrastructure. Establishing relationships with key HN and neighboring nation's ATC and establishing an aircraft diplomatic clearance process (e.g., for US Embassy personnel) should be accomplished as early as possible during the planning process. Critical issues to be covered during planning include:

(a) Identify key personnel and obtain their contact information.

(b) Identify existing agreements (e.g., AIPs, site surveys).

(c) Identify rules/regulations and existing international, multilateral, or bilateral agreements/arrangements that govern operations (i.e., ICAO, FAA, regional organization, or HNs). For planning purposes, this type of information may be located in the DOD 4500.54-G, *Department of Defense Foreign Clearance Guide* (https://www.fcg.pentagon.mil).

(d) Establish requirements to integrate liaison officers (LNOs), equipment, processes, and functions.

(e) Establish a process to terminate peacetime flying/ATC and begin combat operations/combat airspace. Ensure that relationships are established with the air attaché or AFFOR ATC/airspace manager.

(f) Identify critical airfields capable of supporting wartime and sustainment operations.

b. Considerations for Combined Civil-military Operations.

(1) Determine current infrastructure that supports both civil and military combat operations.

(2) Determine the ACA (i.e., JFACC, HN, or a combination). If airspace control authority is retained by civil authorities, determine who is coordinating military efforts.

(3) Planning should recognize the requirement to sustain and support civil aviation as soon as possible.

(4) The integration plan must consider the following:

(a) Available personnel and equipment, including those of coalition partners.

(b) Certification standards for controllers and equipment.

(c) Protection of airspace, including FSCMs, airways, terminals, and inter-theater / intra-theater procedures.

(d) Information flow to all airspace users.

(e) Ability to continue combat operations as necessary.

(f) Notification of airspace use to outside agencies.

(g) Working with the HN to produce AIPs.

(h) Existing rules, regulations, and agreements/arrangements that govern operations.

c. JFACC/AADC/ACA Planning and Products. The plans, orders, and directives must be continually updated as conditions change in the JOA (e.g., initially combat operations may be limited to military airspace users, however, in later phases civil, HN, and NGO airspace users would be allowed into the JOA).

- ADP
- ACP
- ACO
- AOD
- Army OPORD AC2 Annexes
- ATO/SPINS

d. Airspace Control Planning for Transition from Peace to War:

(1) Identification of all airspace users.

(2) Airspace control for conventional support of special operations forces (SOF).

(3) Joint and component UAS planning.

(4) Airspace control for sequential operations.

(5) Airspace control for simultaneous operations.

(6) Joint/coalition agreements on TACS/Army air-ground system (AAGS) construct/architecture in preparation for Phase II. These agreements may affect time-phased force and deployment data (TPFDD) priorities/flow in the initial stages of the operations.

(7) Planning for ground based TACS/AAGS end state in Phase III/IV. Ensure the logistical planning for follow on TACS/AAGS system architecture is accomplished to enable the necessary sequencing of assets.

(8) Types of control to be used (positive, procedural, combination of both).

(9) Common theater wide reference systems to be used (e.g., GARS, CGRS).

(10) ASOC/joint air coordination element (JACE) movement sequencing and placement during follow-on phases.

(11) CRC movement sequencing and placement during follow-on phases.

(12) Integration and location of Army sensors (includes ADA and ATC radars) to include self reporting systems during each phase.

(13) Theater-wide communications architecture.

(14) Communication procedures

(15) Data Networks

(16) C2 / internet tactical chat procedures.

(17) Identify the complex airspace areas which may require a higher level of control and integration due to airspace/fires density (may require real time procedural or positive control).

(18) Airspace control integration with JOA-wide fires.

(19) Plan for deconfliction of ACMs with fires in phase (fires in critical ACMs, such as tanker tracks and JSTARS orbits, should be deconflicted in initial planning to the maximum extent possible).

(20) Agreement on theater-wide FSCMs (e.g., kill box, fire support coordination line [FSCL] placement).

e. Airspace Control Planning for Transition from War to Peace.

(1) Infrastructure Availability. Determine what airways, HN navigational aids, airfields, certified ATC personnel, and ATC facilities are available.

(2) Rules and Regulations. Determine what rules and regulations (i.e., ICAO/FAA, HN) will be used to certify and authorize air traffic controllers to work air traffic in the HN and what standards apply.

(3) End State. Consider the JFC's goals and end state during the transition.

(a) Coordinate with the HN Ministry of Transportation or equivalent.

(b) Determine requirements to establish an end state.

(c) Establish processes, groups, and structures to fulfill requirements. In OIF, a combined airspace planning group (including HN, FAA, ICAO, and DOD members) was chartered to do this function.

(d) Strategically place ATC/airspace LNOs within HN aviation/ATC/airspace organizations.

(e) Ensure that letters of procedure, AIPs, flight information publications, and terminal instrument procedures are established, updated, and coordinated with sovereign nation(s) as required. Further, ensure that this information is provided to US Embassy personnel in affected HNs and to the promulgators of DOD 4500.54-G, *Department of Defense Foreign Clearance Guide*, at https://fcg@pentagon.af.mil.

**4. Phase II – Seize Initiative Planning Considerations**

a. Determine the airspace control arrangement when the JFACC is the supported commander for strategic attack, counterair, suppression of enemy air defenses (SEAD), and AI.

b. Determine the integration of joint fires when the trajectories fall outside or cross airspace control boundaries.

(1) Tomahawk Land Attack Missile (TLAM).

(2) Army fires to include:

(a) Army Tactical Missile System (ATACMS).

(b) Multiple Launch Rocket System (MLRS).

(c) Cannons.

(d) Mortars.

(3) Conventional air launched cruise missiles (CALCMs).

(4) SOF AC2.

(5) UAS.

(6) Other joint forces.

(7) SOF.

(8) Other governmental agencies (OGAs).

c. Operations with and without ASOC/JACE including transitions.

d. Operations with and without CRC including transitions.

e. Integration of AADC and theater air and missile defense (TAMD).

f. Integrate post hostility planning.

g. Authorities for real time execution in the following mission areas:

(1) DCA.

(2) Time sensitive targets.

(3) High-payoff targets.

(4) Combat search and rescue (CSAR).

(5) Personnel recovery.

(6) Troops in contact.

(7) AI.

(8) Counterfire.

h. AOD priorities for pre and post air superiority:

(1) Airborne early warning mission priorities.

(2) CRC mission priorities.

(3) ISR mission priorities.

i. Transition plan between control agencies when JFLCC becomes supported commander.

(1) JFLCC requirements included in the ACP.

(2) Integration of fixed/rotary/UA.

(3) Integration of SOF air in JFLCC AO.

(4) Placement of ASOC/CRC/JACE.

(5) Use of airborne C2 [AWACS/JSTARS, FAC(A)] for real time control.

(6) Integration of brigade combat team ADAM/BAE.

j. JFLCC post hostility airspace control planning and potential utilization of captured equipment and personnel in post hostilities.

k. TACS changes to support a moving JFLCC. Initial movement of ground based TACS.

l. Authorities and procedures for real time execution in JFLCC AO:

(1) DCA.

(2) Time sensitive targets.

(3) High-payoff targets.

(4) CSAR.

(5) Personnel recovery.

(6) Troops in contact.

(7) AI.

m. ACP/ACO integration/deconfliction for:

(1) Fires

(2) CAS

(3) UAS

(4) Joint air attack team (JAAT)

(5) ISR

(6) AI

n. Determine if there will be a coordinating altitude. Will the coordination be for fixed-wing/rotary-wing safety, fires, or both?

o. Integration of ASOC with fires cell.

p. Airspace control nodes and authorities for special missions:

(1) Joint pickup zone (PZ)/ landing zone (LZ) operations.

(2) Airbase opening.

(3) Joint airborne and air assault operations.

q. Risk.

r. Theater-wide communications architecture:

(1) Communications.

(2) Data networks.

(3) C2/internet chat procedures.

**5. Phase III – Dominate Planning Considerations**

a. Determine if any unassigned airspace areas are within the JFLCC AO.

b. Procedures and ATC considerations for forward operating bases (FOB)/airfields.

c. ATC functions at captured airfields.

d. ADA integration behind the forward line of own troops (FLOT).

e. UAS integration.

f. Update authorities in ACP.

g. Update integration of airborne C2 elements with ASOC.

h. Integration of airspace control element and fires cell with ASOC.

i. Placement of CRC/ADA radar coverage.

j. Creation of airspace control for complex areas (e.g., HIDACZ, airport traffic areas).

k. AO-wide communications for airspace users.

l. Integration of AADC and TAMD.

m. Post hostility airspace control actions.

n. AOD priorities for post air superiority. Airborne C2/CRC level of effort transition from JFACC to JFLCC support during campaign phasing.

o. Termination/modification of interdiction ROE and/or transition to theater-wide CAS procedures.

p. Update FAC(A) and strike coordination and reconnaissance coordinator (SCARC) procedures.

q. Airspace control elements/airspace and authorities for special missions.

(1) Joint PZ/LZ operations.

(2) Airbase opening.

(3) Joint airborne and air assault operations.

r. DCA requirements.

s. HIDACZ/sector requirements.

t. Theater-wide communications architecture.

(1) Communications.

(2) Data networks.

(3) C2/internet chat procedures.

**6. Phase IV – Stabilize Planning Considerations**

a. Establish airspace control requirements. The JFACC could be required to perform roles traditionally associated with a HN aviation authority which may include the development of aeronautical information (e.g., instrument procedures, publications, NOTAMs), civil flight planning procedures, certification of procedures, aviation safety investigation, training of HN/contract personnel, or operation of airspace infrastructure systems.

b. Determine the area and method of airspace control requirements (e.g., positive control, procedural control).

c. Sectors/HIDACZ/coordinating altitude/routes.

d. Define authorities in ACP.

e. JFACC/ACA updates ACP/AOD if required.

f. Locations of TACS/AAGS elements.

g. CRC/ASOC/JACE/ATC locations.

h. Location of ATC elements.

(1) HN capabilities.

(2) Neighboring country considerations.

(3) Communications.

(4) Radar coverage.

(5) Airfields and FOBs.

(6) Navigational aids and airfield approach procedures.

i. Integrate with AOC.

j. Integrate with ground commander command elements.

k. ACA transitions from airborne to ground-based TACS/AAGS.

l. Coordinate fires in the presence of civil air.

m. Integrate UAS in the presence of ICAO/civil air.

n. DCA requirements.

o. Establish AOR wide distribution of joint airspace control information.

p. Determine requirements and plan for Coalition, HN, contract, and civil users'. ACA creates procedures to integrate military and civil airspace.

q. Re-establish HN airspace control capability.

**7. Phase V – Enable Civil Authority Planning Considerations**

a. Complete transition of ATC to HN:

(1) Determine if the joint force continues to maintain portions of airspace control system/airspace in support of combat operations during this transition.

(2) Access the availability of infrastructure (e.g., available airways, HN operational navigational aids, airfields, certified ATC personnel, and ATC facilities).

(3) Determine rules and regulations (i.e., ICAO/FAA, HN, military) that will be used to certify and authorize air traffic controllers to work air traffic in the HN.

(4) Provide ATC/airspace LNOs with HN aviation/ATC/airspace authorities.

(5) Ensure that letters of procedure, aviation/flight information publications, and terminal instrument procedures are established, updated, and coordinated with HN.

b. Dual or combined CRCs.

c. Coalition considerations.

**8. Post Hostility Airspace Control**

a. Build an integrated/joint/coalition/interagency plan across all phases to create an HN airspace control capability.

b. Identify the HN air/ground system in place post hostility.

(1) Location, bases, places.

(2) Identify who operates the system (i.e., civilian system, civilian/military system, or military system).

c. US/coalition/HN:

(1) Determine who will train HN ATC personnel.

(2) Determine who will train and certify HN technicians.

(3) Determine the source and funding for HN equipment.

(4) Identify the phase when HN ATC will be operational.

(5) Identify the portions of the former enemy airspace control system that can be used.

(6) Identify the former enemy personnel, units, and groups that can be trusted to participate in airspace structure development.

(7) Determine the critical airspace control infrastructure that should be safeguarded during phases II/III/IV.

(8) Determine the transition date for when the HN is capable of its own airspace control operation.

(9) Determine the units/organizations tasks that must be complete during each phase to enable HN success.

# Chapter IV
## Real-time Coordination of Airspace

### 1. Airspace Users

Regardless of the success of advanced airspace planning, there will always remain a requirement for immediate, real-time coordination of airspace to support the evolving tactical battle. The following list identifies the facilities and the systems required to support real-time coordination of airspace within the US Army and US Air Force.

a. Army - Field Artillery / Rotary-wing Aircraft / Army UAS
   (1) Coordination Facilities
      (a) BCD
      (b) AC2 (Division or higher)
      (c) ADAM/BAE Cell (BCT)
      (d) Fires Cell
   (2) Coordination Systems
      (a) Advanced Field Artillery Tactical Data Systems (AFATDS)
      (b) Tactical Airspace Integration System (TAIS)

b. Army - Mortars
   (1) Coordination Facilities
      (a) Fire Support Officer (FSO)
      (b) Battalion HQ
      (c) Individual Company HQ
   (2) Coordination Systems
      (a) Mortar Ballistic Computer (MBC). The MBC is a handheld, lightweight, battery-powered computer that is used for automated computations, digital communications, and display of mortar-related information, which is then relayed to the gun line.
      (b) AFATDS. While some infantry units have AFATDS for coordinating mortars, AFATDS will NOT check mortar trajectory.

c. Naval Surface Fire Support/Tomahawk Land Attack Missile
   (1) Coordination Facilities
      (a) Supporting Arms Coordination Center (SACC)
      (b) Tactical Air Control Center (TACC)

(2) Coordination Systems
(a) AFATDS
(b) TBMCS

d. Air Force - Fixed-wing / Rotary-wing Aircraft / Air Force UAS.
(1) Coordination Facilities
(a) AOC
(b) CRC / AWACS
(c) ASOC / JSTARS
(d) TACP
(e) ATC
(2) Coordination Systems
(a) Tactical internet chat
(b) TBMCS
(c) TACP

e. SOF - Fixed-wing / Rotary-wing Aircraft / UAS
(1) Coordination Facilities
(a) Joint special operations air component (JSOAC)
(b) Special operations command and control element (SOCCE)
(c) Special operations liaison element (SOLE)
(d) JACE
(2) Coordination Systems
(a) AFATDS
(b) TBMCS
(c) Tactical internet chat

f. Host Nation / Civilian / NGO / OGA - Civil Air / Rotary-wing Aircraft / UAS
(1) Coordination Facilities
(a) ATC (i.e., FAA / ICAO)
(2) Coordination Systems
(a) Air traffic system
(b) ICAO

**2. Fires Coordination Between Airspace Users.**

a. Coordination of mortars and aircraft.

(1) Mortars are by their nature decentralized from traditional fires coordination and used as an infantry weapon that fills the immediate need for their commanders. Consequently, not all mortars will be coordinated using AFATDS.

(2) Infantry officers are trained and practice basic deconfliction vice integration of mortars with aircraft. If the infantry commander is aware that aircraft are in the area, he will hold his mortar fire until those aircraft are clear.

b. Coordination of Army rotary-wing aircraft and fires.

(1) AC2 personnel will enter the required airspace coordination area – FSCM data into the TAIS.

(2) The airspace coordination area data will be sent electronically to the fire support coordinator (FSCOORD) and automatically entered into AFATDS.

(3) When fire missions are planned or requested, AFATDS will automatically check the trajectory of the rounds against active ACMs. If the trajectory intersects, AFATDS will alert the operator before firing the mission. The operator may choose a different attack option; one that does not violate any airspace measures.

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Note: AFATDS will check the trajectories of rounds for conflicts with ACMs, but only for:

- ACO ACMs built using a corridor shape

or the following ACMs entered directly into AFATDS

- airspace coordination area
- air corridors
- minimum risk routes (MRRs)
- standard use Army flight routes (SAAFRs)

Appendix B lists all the ACMs that are compatible with AFATDS, TAIS, and TBMCS

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c. Coordination of Army UAS with fires.

The UAS section will inform the ADAM/BAE cell of the launch and intended search location of the UA.

(1) When fire missions are planned or requested, the FSO will coordinate with the ADAM/BAE to ensure that the UA is not in conflict with the fires trajectory.

(2) When a conflict is identified, the fires cell and ADAM/BAE will resolve it by delaying the fire mission or moving the UA. If the mission is urgent, the chief of operations (CHOPS) may accept the risk.

d. Coordination of aircraft with fires outside Army controlled airspace.

(1) In the normal planning process:

(a) The BCD or ASOC will provide ACO information to the corps / division fires cell for input into AFATDS.

(b) AFATDS will distribute airspace information throughout the fire support system.

(2) In dynamic situations:

(a) The TACP will provide airspace coordination area information to the fires cell and ADAM/BAE cell.

(b) If time permits, the airspace coordination area information will be entered into AFATDS.

(3) When fire missions are planned or requested, AFATDS will automatically check the trajectory of the rounds against active ACMs. If the trajectory intersects, AFATDS will alert the operator before firing the mission. The operator may choose a different attack option; one that does not violate any airspace measures.

(a) When time does not permit, the ADAM/BAE, fires cell, and TACP will deconflict operations by time, lateral, or altitude separation.

(b) Coordinate with CRC or ATC as required.

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Note: AFATDS will check the trajectories of rounds for conflicts with ACMs, but only for:

- ACO ACMs built using a corridor shape

or the following ACMs entered directly into AFATDS

- airspace coordination area
- air corridors
- minimum risk routes (MRRs)
- standard use Army flight routes (SAAFRs)

Appendix B lists all the ACMs that are compatible with AFATDS, TAIS, and TBMCS

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e. CAS coordination.

(1) Outside Army controlled airspace.

(a) After take-off, CRC activates airspace for the CAS mission. CRC will push aircraft to the ASOC / TACP / JTAC.

(b) CAS complete, JTAC pushes aircraft back to ASOC or CRC. CRC deactivates airspace and coordinates return to base (RTB).

(2) Inside Army controlled airspace.

(a) After take-off, CRC activates airspace for the CAS mission. CRC will push aircraft to TACP / JTAC.

(b) JTAC coordinates airspace with Army fires cell and ADAM/BAE.

(c) CAS complete, JTAC pushes aircraft back to ASOC or CRC. CRC deactivates airspace and coordinates return to base.

f. Close combat attack (CCA). Army rotary-wing inside Army-controlled airspace.

(a) Prior to departure, helicopter checks in with BCT aviation operations (Avn Ops).

(b) BCT Avn Ops provides airspace clearance and instructions to the aircraft.

(c) BCT Avn Ops provides mission updates to ADAM/BAE.

(d) ADAM/BAE provides mission information to division AC2 element.

(e) ADAM/BAE deconflicts airspace with fires cell for fires and S-2 for UAS.

g. SOF Operations.

(a) JSOAC contacts CRC / AWACS and identifies required airspace to activate SOF ROZ and the participating aircraft for the SOF ROZ.

(b) CRC / AWACS clears all non-participating aircraft from SOF ROZ.

(c) Non-participating aircraft may gain entry with SOF permission through the CRC / AWACS.

(d) JSOAC notifies division AC2 cell of SOF ROZ.

(e) Division AC2 clears SOF ROZ of Army aircraft inside Army controlled airspace.

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# Chapter V
## Complex Airspace

### 1. Introduction

a. General.

(1) To achieve a specific tactical objective, there will be occasions that require synchronization of multiple airspace users from more than one Service or functional component in a dense and constrained operational area. If the airspace synchronization requires a near constant coordination among users, for a finite period, this operation may require focused airspace measures to accomplish the mission.

(2) For the purposes of this publication, complex airspace can be described as airspace simultaneously used by two or more components, requiring near constant coordination among airspace users to synchronize force employment for a common objective. Complex airspace normally is extraordinary in nature for a specific, finite period of time and space.

b. Common Reference System. A common reference system among airspace users is a fundamental requirement for airspace control. For emergent and immediate execution, this common reference system must be simple, widely distributed, and integrated within the various platforms and weapons systems. A common reference system is also an operational level means to "digitize" the operational environment and provide a two-dimensional construct from which three-dimensional control and coordination measures can be constructed.

(1) Description. Normally a reference system involves dividing the AOR into grids. The grid cell that results from this division is further subdivided into sub-sections called keypads similar to a telephone keypad, and/or quadrants. How the reference system subdivides is dependent on the system and may be confusing since reference systems use common terms (e.g., keypads and quadrants).

(2) Types. Reference systems use a grid origin and intersections of latitude and longitude to produce grids of approximately 30min by 30min. This grid system is a simple, universal identifier recognizable by each component and their associated C2 and attack assets. Latitude and longitude coordinate references easily define cells since they are common and exist on most military operational graphs and charts.

(a) Global Area Reference System (GARS). GARS is the standardized area reference system across Department of Defense. It is based on lines of longitude (LONG) and latitude (LAT), to provide an integrated common frame of reference for joint force situational awareness to facilitate air-to-ground coordination, deconfliction, integration, and synchronization. This area reference system provides a common

language between the components and simplifies communications. The point of origin for this system is 90 degrees south and 180 degrees east/west. The areas described by GARS are coincident with even numbered WGS-84 degree and minute lines. GARS airspace is divided into cells, further divided into quadrants, and subdivided into keypads.

(b) Common Geographic Reference System (CGRS). The CGRS system predates GARS and may still be in use. CGRS uses a theater determined origin/starting point vice the global point that GARS uses. CGRS airspace is divided into cells, further divided into nine keypads, and may be subdivided into quadrants.

(3) Considerations.

(a) Since GARS and CGRS use common terms (i.e., keypads and quadrants), there is a risk of confusion since these common terms have different meanings in the individual reference systems. As an example, a CGRS cell (~30nm x 30nm) is divided into keypads (~10nm x 10nm), which may be further subdivided into quadrants (~5nm x 5nm), while a GARS cell (~30nm x 30nm) is divided first into quadrants (~15nm x 15nm) then into keypads (~5nm x 5nm). The risk in confusion is that a GARS keypad is ~5nm x 5nm while a CGRS keypad is ~10nm x 10nm.

(b) The ACP should define the theater-specific area reference system in use, as well as procedures for definition and activation of airspace dimensions. Even using the global system of GARS, procedures and authority for activating GARS airspace will vary from theater to theater, based on the needs and intent of the JFC. The type of system used is less important than ensuring all components use the same reference system and procedures.

**2. High-Density Airspace Control Zone (HIDACZ)**

a. Description. HIDACZ is an area in which there is a concentrated employment of numerous and varied weapons or airspace users. A HIDACZ has defined dimensions that usually coincide with geographical features or navigational aids. Access to or air defense weapons status within a HIDACZ is normally approved by the appropriate commander.

b. Uses. HIDACZ allows ground / Marine air-ground task force commanders to regulate a volume of airspace separate from users not involved with ongoing operations. It regulates use of the airspace because of the large volume and density of fires supporting the operations within the described geographic area.

c. Considerations. The volume of air traffic demands careful coordination to limit the potential conflict among aircraft needed for mission essential

operations within the HIDACZ and other airspace users. When establishing a HIDACZ, consider the following:

(1) Procedures for expeditious movement of aircraft into and out of the HIDACZ.

(2) Coordination of fire support, as well as air defense weapons control orders or status within and in the vicinity of the HIDACZ.

(3) Location of enemy forces inside and within close proximity to the HIDACZ.

(4) Establishment of MRRs into and out of the HIDACZ and to the target area.

(5) Air traffic advisory as required. Procedures and systems also must be considered for ATC service during instrument meteorological conditions.

d. Establishment. The operational commander nominates the HIDACZ in accordance with the procedures established within the ACP.

e. Basic requirements.

(1) A single command authority.

(2) Command authority is integrated with the AADC.

(3) Command authority has communications with all users (inability to communicate with command authority prevents entry into HIDACZ).

(4) Command authority has command and control over all airspace users to include fires using positive, procedural, or a combination of control.

(5) HIDACZ must be defined in time (e.g., established from 0001Z, 18 Dec to 2359Z, 18 Jan) with adequate user space.

(6) HIDACZ must be published in the ACO.

f. Planning.

(1) Requirements and HIDACZ coordination/request procedures/ approval procedures will be published in the ACP. See table 1 for an example of request procedures for a HIDACZ.

(2) All HIDACZs will be published in the ACO to ensure dissemination.

(3) Indirect fires will be planned and coordinated with the fire cells.

(4) HIDACZ airspace will be returned to the ACA when not required to support ground operations.

(5) Airspace users (manned, unmanned, and fires) may be deconflicted procedurally, both laterally and vertically, using keypads of the theater reference system within the HIDACZ.

(6) HIDACZ entry/exit procedures will include entry and exit points at established altitudes.

**Table 1. Example of Land Component Request for HIDACZ**

| | |
|---|---|
| A. Name of HIDACZ | |
| B. HIDACZ Commander | |
| C. HIDACZ Control Agency | Pri:<br>(Ex: AWACS)<br>Sec:<br>(Ex: Div TOC) |
| D. Frequencies | (UHF/VHF/FM, include coord freq of other tasked orgs as req'd, e.g., ASOC.) |
| E. Internet Chat Procedures | (Identify method of CHAT, i.e. rooms, authentication, procedures to allow access.) |
| F. Time HIDACZ Window | |
| G. Geographical Description | (If fixed wing air is supporting, recommend min 20 x 20 nm area.) |
| H. Vertical Description | (MSL and AGL) |
| I. Entry & Exit Procedures | |
| J. Reference System | (Grid/lat-long/GARS/CGRS/Urban Area Ref System) |
| K. Reference Points | (Cont Pts, entry/exit pts, hold pts, bullseye, BPs, RPs, HAs, FARPs, FOBs, LZs, Phase lines) |
| L. Helo Altitudes | |

| Table 1. Example of Land Component Request for HIDACZ | |
|---|---|
| M. Control Type | (Procedural, positive, or both) |
| N. FW A/C Hold Alts | (May limit # of FW aircraft in the HIDACZ due to maneuver airspace.) |
| O. Planned Max Altitude of Fires | |
| P. LZ/PZ Control Zones | (Freqs/call signs/procedures, if reqd.) |
| Q. Radio Out Procedures FW/RW | (e.g., lost link UA) |
| R. JTAC Procedures | (Freq/call sign/procedures by exception.) |
| S. Air Defense Procedures | (DCA procedures within HIDACZ.) |
| T. FSCMs | |
| U. ACMs | |
| V. Adjacent Coordination Agencies | (Coord w/ adjacent units, e.g., ATS/NGO/civil/coalition.) |
| W. SOF Coordination | (As req for integration w/in HIDACZ.) |
| Notes: Component commanders may open a HIDACZ to provide real time control of a volume of high-density airspace. At a minimum, the commander will provide the information listed in this table to the ACA a minimum of 48 hours prior to the operation to enable joint and Army aircrews and C2 elements time to become familiar with the procedures and deconflict non-participating operations. | |

***Example of HIDACZ during Operation Iraqi Freedom – Spring 2008***

The BCT ADAM/BAE cell controlled a HIDACZ up to the coordinating altitude with the assistance of the division Air Information Center (AIC), the division AC2 cell, and the CRC. The BCT, Division AC2 Cell, and division AIC all shared the same common air picture. This allowed the AIC to control all airspace users not specifically supporting the ongoing operations. Standard air routes were established through the HIDACZ to allow routine traffic (lift, resupply, etc.) to continue support to BCT units and FOBs. The AIC controlled this traffic in accordance with BCT priorities, allowing the BCT ADAM/BAE to focus strictly on aircraft in direct support of current operations. The remainder of the HIDACZ was controlled by the BCT ADAM/BAE to allow complete freedom of maneuver for Air Weapons Teams, UAS, and other direct support air assets. In order to control airspace above the HIDACZ, the CRC established a ROZ and controlled entry, exit, and positioning of aircraft based on constant real time coordination with the supported BCT. The Division AC2 Cell assisted the BCT ADAM/BAE by acting as an intermediary with the CRC, the AIC, and the Division FSCOORD. The BCT established priorities and required positioning of aircraft. This information was passed to the AIC and to the CRC through the Division AC2 Cell. From this information, the CRC and AIC controlled all airspace users in the HIDACZ and ROZ in accordance with BCT priorities. Although the true HIDACZ only occurred below the coordinating altitude, this innovative integration of different ACMs proved effective in very high density airspace.

**3. Joint Special Operations Area (JSOA)**

a. Definition. A restricted area of land, sea, and airspace assigned by a joint force commander to the commander of a joint special operations force to conduct special operations activities. (JP 3-0)

b. Uses. The scope and duration of the special operations forces' mission, friendly and hostile situation, and politico-military considerations all influence the number, composition, and sequencing of SOF deployed into a JSOA. It may be limited in size to accommodate a discrete direct action mission or may be extensive enough to allow a continuing broad range of unconventional warfare operations.

c. Considerations. JSOAs are normally exclusive to special operations and are not integrated with other airspace users. JSOAs are normally used to separate operational forces and actions.

**4. Restricted Operations Areas (ROA)**

a. Definition. A ROA is airspace of defined dimensions designated by the airspace control authority, in response to specific operational situations/

requirements within which the operation of one or more airspace users is restricted (JP 3-52).

Note: The terms ROZ and ROA have become synonymous for defining a volume of airspace set aside for specific operational missions or requirements. These zones/areas restrict some or all airspace users until termination of the mission.

b. Uses.

(1) Preplanned ROZ/ROA. A ROZ or ROA is the prescribed ACM for airspace planners to facilitate operations. A ROZ or ROA is used for artillery, mortar, naval surface fire support, UA operating areas, aerial refueling, concentrated interdiction areas, areas of CSAR, SOF operating areas, and areas that the AADC has declared "weapons free." Commonly used for drop zones, landing zones, search and rescue (SAR) areas, UA launch and recovery sites, UA mission areas, surface-to-surface missile launch sites, missile flight paths (if necessary), and predicted missile munitions impact locations, and special electronics mission aircraft orbits. ROA can adversely affect air defense operations; therefore, air defense missions generally have priority over ROAs.

(2) Immediate ROZ/ROA.

(a) Ideally, all ROAs would be preplanned and included in the published ACO. However, during high intensity operations, there is often a requirement to establish immediate measures that restrict the use of airspace. The pace of operations could preclude the established procedures for requesting and/or establishing an ROA for an immediate operation. In these instances, the ACP and SPINS must establish pre-planned procedures for establishing immediate ROZ/ROA.

(b) One example of an immediate ROA/ROZ procedure is that followed in OIF/OEF and categorized as troops in contact (TIC) ROZ. This process proved to be highly effective and efficient in the rapid employment of kinetic weapons against enemy indirect fire systems during OIF operations in Sadr City. Before the implementation of the TIC ROZ, CAS, or fires in support of TIC were often delayed until the CRC could clear airspace needed for the mission. TIC ROZ procedures as delineated in the ACP and the AC2 Annex to the Corps OPORD significantly decreased CAS response times.

(c) Immediately upon identification of a TIC circumstance, the JTAC requests CAS and sends the TIC ROZ request via tactical chat to all affected agencies (Division ALO, AC2, FSCOORD, CRC, RAPCON, ATC/Tower, etc) as identified in the ACP. Each airspace controlling agency then cleared the affected airspace using specified altitudes and a radius from the TIC location. The published procedures establish standard dimensions for the TIC ROZ, negating the requirement to

pass large amounts of unique data each occurrence. Aircraft below the coordinating altitude are cleared by the ADAM/BAE or division AC2 cell, while aircraft above the coordinating altitude are cleared by CRC. When the TIC ROZ overlaps other controlling agencies' airspace, these agencies clear airspace users from the airspace within the ROZ. Once all aircraft are cleared, each agency responds back via tactical chat that the area is cleared.

(3) SOF ROZ/ROA. While SOF ROZs can be preplanned, they are normally activated with minimum prior notice and typically have priority over surrounding operations due to daily AOD priority list. Planning for SOF ROZ will occur via SOF channels and submitted to AOC. Upon implementation, a SOF ROZ is coordinated with CRC / AWACS and surrounding airspace control/ATC agencies and typically controlled by a JTAC. A SOF ROZ technique for ease of use is to standardize the ROZ dimension, as an example the lower level, surface-2,999 ft AGL in a 2 nm radius, and an upper level 3,000 ft – 14,000 ft AGL in a 3 nm radius. ROZ dimensions are minimum required to encompass operations while minimizing impact on non-users.

c. Considerations. A ROZ and ROA are not recognized volumes of airspace that restrict the application of fires. Automated ground fire computations (e.g., AFATDS) do not recognize these volumes of airspace as conflicts to fire solutions. If the airspace planner desires automated ground fire computations to restrict fires, planners must build an airspace coordination area with the same dimensional data as the ROZ, within the automated ground fire systems to restrict the use of fires within these airspace volumes.

# Appendix A
## Risk and the Operational Environment

Commanders at every echelon must consciously assess risk of conflicts between airspace users, the consequences of these conflicts, and which consequences or conflicts are acceptable based on the operational environment. Each commander must determine what risks are unacceptable and include this in orders issued to subordinate units. The criteria for risk tolerance will differ at operational and tactical levels, as will the level of detail. This appendix is designed to identify a framework for commanders to issue risk guidance to subordinate organizations and does not attempt to identify all risks, situations, and mitigation techniques that commanders must consider. Once the commanders have agreed to the acceptable risk, this guidance should be published in the ACP and promulgated in the ACO/division orders AC2 annex to ensure widest dissemination. The acceptable risk guidance should be readdressed as the military operations progress through the operational planning phases.

At the strategic and operational level, the conflicts assessed could be as simple as identifying the risk to civilian aircraft posed by military operations. One possible conclusion is that no risk to civilian aviation is acceptable due to potential repercussions in international relations. Some of the potential conflicts that should be addressed at the strategic/operational level include civilian aviation, high value assets, and United Nations operations. See table 2.

Note: Numerical values and approval authorities are notional and are provided for illustration; actual values and approval authorities should be identified based on the operational environment.

**Table 2. Example Strategic/Operational Risk Level**

| Affected Element | Acceptable Risk | When Risk can be Accepted |
|---|---|---|
| Civil Aviation | Not acceptable | None |
| High Value Assets (JSTARS/AWACS/Rivet Joint, etc.) | Extremely Low | Only to prevent CATASTROPHIC consequences. (mass civilian casualties, nuclear event, etc.) |

These conflict types/risks will become more specific at each echelon and will include considerations for operational phasing. Each commander must identify their non-negotiable risks and the conditions under which the risk becomes acceptable.

In addition to non-negotiable risks, (i.e., unacceptable) the JFC must establish baseline risk criteria for airspace users. The criteria should be specific enough to minimize uncertainty and enable execution nodes to make decisions in support of JFC criteria. Some areas for consideration are listed in table 3.

Note: Numerical values and approval authorities are notional and are provided for illustration; actual values and approval authorities should be identified based on the operational environment.

**Table 3. Example JFC Established Baseline Airspace Risk**

| Risk to | Risk from | Acceptable Risk | When to accept risk |
|---|---|---|---|
| Civil Aviation | Any Military System | None | On approval from JFC. |
| Manned Aviation | Indirect Fires | Trajectory no closer than 1,000 ft of rotary-wing and 1 nm of fixed-wing. | 1. Immediate fires in support of troops in contact.<br>AND<br>2. Division commander approval. |
| Manned Aviation | UA | 1 nm lateral and 1,000 ft vertical separation. | 1. Immediate air support to troops in contact.<br>AND<br>2. Manned aircraft pilot accepts responsibility for separation.<br>AND<br>3. Division commander approval. |
| UA | Indirect Fires | Trajectory no closer than 1/2 nm to UA. | BCT commander or above for component asset.<br>OR<br>Division commander or above for joint assets. |

At the tactical levels, commanders must examine each potential conflict and provide additional details specific to his unit. Whereas conflicts between artillery and UA might not be an operational level concern, tactical commanders must assess the criticality of both the UA and the artillery to the mission, how likely a conflict is, and under what conditions this level of risk is acceptable. If individual platforms are low density and extremely critical to the mission (communications relay), the commander may be less likely to assume risk to this asset. However, if the artillery mission is in support of a unit in danger of being over-run, the

commander may place a higher priority on the fire mission and assume the risk to the UA. While not inclusive, an example of one potential method for examining these risks and issuing guidance is shown in table 4.

Note: Numerical values and approval authorities are notional and are provided for illustration; actual values and approval authorities should be identified based on the operational environment.

**Table 4. Example BCT Baseline Airspace Risk**

| Risk to | Risk from | Acceptable Risk | When to accept risk |
|---|---|---|---|
| Civil Aviation | Any Military System | None | On approval from JFC. |
| Manned Aviation | Indirect Fires | Trajectory no closer than 1,000 ft of rotary-wing and 1 nm of fixed-wing. | 1. Immediate fires in support of troops in contact.<br>AND<br>2. BCT CDR approval.<br>WITH<br>3. Aircraft warning to ensure friendly fire is not inadvertently viewed as hostile. |
| Manned Aviation | UAS | 1 nm lateral and 1,000 ft vertical separation. | 1. Immediate air support to troops in contact.<br>AND<br>2. Manned aircraft pilot accepts responsibility for separation.<br>AND<br>3. BCT CDR approval. |
| UAS | Indirect Fires | Trajectory no closer than 1/2 nm to organic UA | 1. Immediate fires in support to troops in contact<br>AND<br>2. BCT commander or above for component asset. |

Additional airspace risks that should be considered at the tactical level are:

1. Indirect Fire to:
   - UA
   - Fighter/Attack Fixed Wing
   - Manned Rotary Wing
   - Tanker/Airlift/Civilian

2. UA flight operations to:
   - UA
   - Fighter/Attack Fixed Wing
   - Manned Rotary Wing
   - Tanker/Airlift/Civilian

3. Fighter/Attack Fixed Wing operations to:
   - UA
   - Fighter/Attack Fixed Wing
   - Manned Rotary Wing
   - Tanker/Airlift/Civilian

4. Manned Rotary Wing operations to:
   - UA
   - Fighter/Attack Fixed Wing
   - Manned Rotary Wing

5. Tanker / Airlift / Civilian operations to:
   - UA
   - Fighter/Attack Fixed Wing
   - Manned Rotary Wing
   - Tanker/Airlift/Civilian

# Appendix B
## ACM & Fire Systems Coordination

### 1. ACM and Fires System Interoperability

a. ACMs are measures employed to facilitate the efficient use of airspace to accomplish missions and simultaneously provide safeguards for friendly forces. (JP 3-52) While ACMs are described in JP 3-52 and other doctrinal / joint standards documents, the implementation of these ACMs using current digital airspace control systems (i.e., machine-to-machine exchange) is defined by the United States Message Text Format (USMTF) 2000 or 2004 standard. USMTF is a set of character-oriented message text formats used in command and control systems for the exchange of information.

b. The difference between the standards has caused confusion at times. In some cases, the name of the ACM differs between joint doctrine and USMTF. An example is the ACM Coordinating Altitude defined in joint doctrine, which is called Coordinating Level in USMTF. In other cases the nature of the control measure changes. For example in JP 1-02 a ROZ is an airspace coordinating measure similar to a ROA. In USMTF 2000/2004, a ROZ is a category (TYPE) with many associated coordinating measures (USAGES) one of which is a ROA. The same situation exists for Special Use Airspace (SUA), which in USMTF is a TYPE, not an ACM. ***In summary, it cannot be overstated the critical importance of clarity in the discussion of ACMs.***

c. Since the language between the various Service C2 systems is USMTF, airspace personnel need to understand how their automation systems use and exchange airspace control measures. Airspace personnel will often have to convert non digital airspace requests using doctrinal definitions which may not be USMTF 2000/20004 terms (such as coordinating altitude or ROZ) into the appropriate digital format. In addition, since some digital systems do not process the entire USMTF set of coordinating measures, airspace personnel must understand the effects of Type, Usage, and Shape selection when translating text to digital measure to ensure that the ACM yields the desired outcome in the operational environment.

d. USMTF 2000/2004 organizes ACMs into a set of broad categories called TYPES. Each type includes a subset of control measures call USAGES. The USMTF TYPES (with abbreviations and number of associated Usages) are:

- Air Defense Area (ADAREA) (12 Usages). An area and the airspace above it within which procedures are established to minimize mutual interference between Air Force and ground based/Army air defense and other operations.
- Air Defense Operations Area (ADOA) (17 Usages). An area and airspace above it within which procedures are established to minimize mutual interference between maritime and amphibious air defense and other operations.

- Air Traffic Control Airspace (ATC) (24 Usages). Airspace of defined dimension within which air traffic control service is provided to IFR and VFR flights in accordance with civil air traffic control regulations.
- Air Corridor/Route (CORRTE) (9 Usages). A bi-directional or directional or restricted air route of travel specified for use by aircraft.
- Procedural (PROC) (16 Usages). An airspace coordinating measures that defines airspace dimensions for enabling other systems (e.g., fire support systems) to discriminate: friendly coordination measures from enemy, employ fires across boundaries, coordinate joint engagement of targets for a particular operation, or to delineate an airspace boundary.
- Reference Point (REFPT) (8 Usages). A point or set of coordinates generally used for control purposes or to indicate a reference position.
- Restrictive Operations Zone (ROZ) (15 Usages). Airspace reserved for specific activities in which the operation of one or more airspace uses is restricted.
- Special Use Airspace (SUA) (10 Usages). Airspace defined for a specific purpose; or to designate airspace in which no flight activity is organized.

e. **Shapes**. The shape tool used in the creation of an ACM, is a critical aspect on whether the ACM can be processed among the C2 systems. TBMCS has 9 shape choices while TAIS only has 8 shape choices. Table 5 lists the shape choices available to the C2 systems.

**Table 5. Airspace Control System Shapes**

| TBMCS | TAIS | Remarks |
|---|---|---|
| Circle | Cylinder | A cylinder is a circle with three dimensions |
| Corridor | Route | Route is the same shape as a Corridor |
| Orbit | Orbit Fan | Fan and Cake are complex Rad-Arcs |
| Rad-Arc | Cake | |
| Poly-Arc | Polyarc | |
| Polygon | Polygon | |
| Track | Track | |
| Line | Line | |
| Point | | TAIS does not have a point shape, rather TAIS uses its Airspace Control Point tool for entering point data |

f. **Usages**. The USMTF Usages are listed in table 6. ACMs are specific usages associated with a specific shape, name, time, and location attributes.

g. **Airspace Control Systems**. The primary airspace management tools of the Services (TBMCS WEB AD and TAIS) will parse, display, and run conflict checks against all USMTF 2000 compatible ACMs. While TAIS can run conflict checks on all USTMF 2000/2004 ACMs, however the default setting for many ACMs is set to not check for conflicts ("conflict check" off - the operator can change the default setting based on SOP or orders). TAIS default settings for ACM conflict checks are noted in the table 6.

**NOTE**: ACMs with a default setting to not perform a conflict check are marked with an *.

h. **Fire Control Systems.** AFATDS is the primary fire control system used by ground forces. AFATDS will parse and convert any USMTF 2000/2004 ACM built using a corridor (route for TAIS) shape into corridor geometry. AFATDS will display the converted ACM and run conflict checks with those geometries. ***AFATDS will not parse ACMs built using a shape other than corridor (route for TAIS) nor will it parse shapes built using serial waypoints as a geo reference. In addition, the AFATDS database only retains the last effective time for an ACM within an ACO.*** If the ACO contains an ACM with multiple start and stop times, AFATDS will only retain the last active period for the ACM.

**2. ACM and Fires Protection.**

a. If protection from fires is not required then any shape can be selected to build the ACM. Many ACMs are not relevant for fires and there is no requirement for AFATDS to process these ACMs. An example would be an air defense action area (ADAA). However, some ACMs are established to provide the airspace user protection from fires (e.g., airspace coordination area). If protection from fires is a significant consideration then a corridor shape should be used to ensure the automated deconfliction process is accomplished.

b. **AFATDS will alert the operator, when an ACM is constructed using a corridor shape, to develop alternative firing solutions if there is a conflict between the initial firing solution and the ACM.** If no alternative firing solution is available, AFATDS will generate a "request coordination" message putting an authorized decision maker in the loop. At this point, the decision to fire or not fire will be a command decision.

c. If the airspace planner requires protection from fires but does not wish to use a corridor (route for TAIS) shape when building a particular ACM (i.e., the shape may not be possible or practical for that ACM), then the airspace planner could build the ACM using any shape and place a second ACM, an airspace coordination area using a corridor shape, over the top of those volumes of airspace that require protection from fires. However, the easiest method is to enter the ACA directly into AFATDS operated by the BCD or the fires cell since

AFATDS will check the trajectories of rounds for conflicts with ACMs entered directly into AFATDS, or ACMs exchanged from other C2 systems built using a corridor shape.

d. The following ACM table (table 6) lists doctrinal terms with their USMTF equivalent, where different. The title line contains the name, abbreviation, the USMTF 2000/2004 type, usage, name, and abbreviation (if different from the common abbreviation). **If the title line does not contain Type and Usage information, then the ACM is not USMTF 2000 compatible.**

## Table 6. ACMs and FSCMs

***Advisory Route (ADVRTE)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A designated route along which air traffic advisory service is available. (JP 3-52) | |

***Aerial Air Refueling Area (AAR) (USMTF Air-to-Air Refueling Area)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions set aside for aerial refueling operations, excluding SOF aerial air refueling missions. (JP 3-52) | AAR tracks are typically set up in a race track configuration. |

***Airborne Command and Control Area (ABC)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions established specifically for airborne platforms conducting battlefield command and control. Generally, it is designed for aircraft such as the Airborne and Warning Control System (AWACS) or the Joint Surveillance Target Attack System (JSTARS). (JP 3-52) | |

***Airborne Early Warning Area (AEW) (USMTF: Airborne Early Warning )*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions established specifically for airborne platforms conducting airborne early warning. Generally, it is designed for aircraft such as the Airborne Warning and Control System, E-2C, and E-3. (JP 3-52) | |

***Air Control Point (ACP)*** ***TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A point defined by latitude and longitude used for navigation, command and control, and communication. A series or matrices of points may be used to designate a route structure such as spider routes (search and rescue routes) or minimum-risk routes. (JP 3-52) | Unmanned aerial vehicle (UAV) routing is normally accomplished through existing air control points. |

## Table 6. ACMs and FSCMs

***Air Corridor (AIRCOR)*** ***TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A restricted air route of travel specified for use by friendly aircraft and established for the purpose of preventing friendly aircraft from being fired on by friendly forces. (JP 3-52) | Air corridor procedures are used to route aviation combat elements between such areas as forward arming and refueling points, holding areas, and battle positions. Altitudes of an air corridor do not exceed the coordinating altitude, if established. If a coordinating altitude has been established, an air corridor is implemented by the using authority. If a coordinating altitude has not been established, an air corridor is established by the airspace control authority at the request of the appropriate ground commander. |

***Air Defense Action Area (ADAA)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | An area and the airspace above it within which friendly aircraft or surface-to-air weapons are normally given precedence in operations except under specified conditions. (JP 3-52) | An ADAA is used for preference of a specific weapon system over another without excluding the other from use under certain operational conditions. From an airspace control perspective, it provides airspace users with the location of air defense areas for mission planning purposes. |

***Air Defense Identification Zone (ADIZ) TYPE : ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | Airspace of defined dimensions within which the ready identification, location, and control of airborne vehicles are required. (JP 3-52) | Associated with nations or areas of operation, the ADIZ is normally the transition between procedural control areas (outside) and the positive control areas (inside). Typically, ADIZ is used for sovereign national boundaries, or in the case of areas of operations, for identification in the rear areas. See flight information publications/ International Civil Aviation Organization for theater-specific ADIZ and associated procedures and limitations. |

***Airspace Control Area (ASCA)*** ***TYPE: SUA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | Airspace that is laterally defined by the boundaries of the operational area, and may be subdivided into airspace control sectors. (JP 3-01) | Airspace control areas are a means of planning or dividing responsibility. Geographically defined, an airspace control area may include political boundaries. |

## Table 6. ACMs and FSCMs

***Air Route (AIRRTE)*** ***TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | The navigable airspace between two points, identified to the extent necessary for the application of flight rules. (JP 1-02) | |

***Airspace Control Sector (ACSS) (USMTF: Airspace Control Subarea/Sector) TYPE: SUA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A sub-element of the airspace control area, established to facilitate the control of the overall area. Airspace control sector boundaries normally coincide with air defense organization subdivision boundaries. Airspace control sectors are designated in accordance with procedures and guidance contained in the airspace control plan in consideration of Service component, host nation, and multinational airspace control capabilities and requirements. See also airspace control area. (JP 3-52) | An airspace control sector provides airspace control of an area by a component or other airspace control-capable entity best able to provide control in that geographic area. An airspace control sector interface with the airspace control system needs to be developed. Airspace control sectors are designated by the ACA in consideration of joint force component, host nation, and multinational airspace control capabilities and requirements. |

***Airspace Coordination Area*** ***TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A three-dimensional block of airspace in a target area, established by the appropriate ground commander, in which friendly aircraft are reasonably safe from friendly surface fires. The airspace coordination area may be formal or informal. (JP 3-09.3) | An airspace coordination area is used primarily in close air support situations for high-volume fire. Friendly aircraft are reasonably free from friendly surface fires, with artillery, helicopters, and fixed winged aircraft given specific lateral or vertical airspace within which to operate. Timely implementation of the area is dependent on the ground situation. Burden of deconfliction rests with the ground commander. It is established by the appropriate ground commander. |

***Air Traffic Service Route (ATSRTE)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A specified route for channeling the flow of traffic as necessary for the provision of air traffic services. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Airway (ARWY)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A control area or portion thereof established in the form of a corridor marked with radio navigational aids. (JP 3-52) | |

***Alert Area (ALERTA)*** ***TYPE: SUA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. (JP 3-52) | |

***Altitude Reservations (ALTRV)*** ***TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A block of altitude reserved for aircraft to transit or loiter. (JP 3-52) | |

***Amphibious Defense Zone (ADZ)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | An area encompassing the amphibious objective area and adjoining airspace as required for the accompanying naval force for the purpose of air defense. (JP 3-52) | An ADZ provides an anti-air warfare area for protection of the amphibious task force. If an amphibious defense zone overlaps other land-based air defense areas, appropriate coordination for responsibilities and boundaries must be conducted. |

***Amphibious Objective Area (AOA)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A geographical area (delineated for command and control purposes in the order initiating the amphibious operation) within which is located the objective(s) to be secured by the amphibious force. This area must be of sufficient size to ensure accomplishment of the amphibious force's mission and must provide sufficient area for conducting necessary sea, air, and land operations. (JP 3-02) | It allows the Commander, Amphibious Task Force, freedom of air operations within the AOA. Coordination with nonorganic aircraft for entry into and exit from the AOA and deconfliction within the AOA with operations just outside the AOA normally requires the continuous, active involvement of the affected commanders and staffs. |

## Table 6. ACMs and FSCMs

***Approach Corridor (APPCOR)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace established for the safe passage of land-based aircraft joining or departing a maritime force. (JP 3-52) | |

***Area Navigation Route (NAVRTE)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An air traffic services route established for the use of aircraft capable of employing area navigation. (JP 3-52) | |

***Base Defense Zone (BDZ)*** ***TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An air defense zone established around an air base and limited to the engagement envelope of short-range air defense weapons systems defending that base. Base defense zones have specific entry, exit, and identification, friend or foe procedures established. (JP 3-52) | A BDZ provides airspace users with location of the engagement zone for the air defense systems defending a base for mission planning purposes. |

***Boundary (BNDRY) (USMTF Only)*** ***TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A line by which AORs between adjacent units and/or formations are defined. For further US implementation guidance, see JIEO circular 9152, item 35. | |

***Buffer Zone (BZ)*** ***TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | Airspace designed specifically to provide separation between various airspace coordinating measures. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Bullseye (BULL) (USMTF: Bulls-Eye)*** ***TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | An established reference point from which the position of an object can be referenced. (JP 3-60) | |

***Carrier Control Zone (CCZONE)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An area activated around a ship operating aircraft, which is not to be entered by friendly aircraft without permission. (JP 3-52) | |

***Class-A Airspace (CLSA)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Generally, airspace from 18,000 feet mean sea level (MSL) up to and including flight level 600, including airspace overlying the waters within 12 nautical miles of the contiguous states and Alaska. VFR operations are not permitted in Class A airspace. (JP 3-52) | |

***Class-B Airspace (CLSB)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Generally, airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. ATC provides separation between all aircraft inside Class B airspace. (JP 3-52) | |

***Class-C Airspace (CLSC)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Generally, airspace from the surface to 4,000 feet above the airport elevation (MSL) surrounding those airports that have an operational control tower are serviced by radar approach control, and that have a certain number of instrument flight rules (IFR) operations or passenger enplanements. ATC provides separation between VFR and IFR inside Class C airspace. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Class-D Airspace (CLSD)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Generally, airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Prior to entering Class D airspace, two-way radio communication must be established and maintained with the ATC facility providing air traffic service. (JP 3-52) | |

***Class-E Airspace (CLSE)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Generally, if the airspace is not class A, B, C, or D and it is controlled airspace, it is class E airspace. Also includes federal airways. (JP 3-52) | |

***Class F Airspace (CLSF)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An airspace in which instrument flight rule and visual flight rule flights are permitted; all participating instrument flight rule flights receive an air traffic advisory service and all flights receive flight information service if requested. (JP 3-52) | |

***Class G Airspace (CLSG)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | Y Checks for conflict ES<br>Checks for conflict<br>Default On | An airspace in which instrument flight rule and visual flight rule flights are permitted; all flights receive flight information service if requested. Other nations may use ICAO or their own definition of Class-G airspace. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Close Air Support Holding Area (CAS) [USMTF: Close Air Support (CAS)]*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace designed for holding orbits and used by rotary- and fixed-wing aircraft which are in close proximity to friendly forces. (JP 3-52) | |

***Combat Air Patrol (CAP)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An anti-air warfare activity conducted in support of air operations. (JP 3-52) | |

***Conditional Routes (CDR)(USMTF: Conditional Route)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A non-permanent air traffic service route or portion thereof, which can be planned and used only under certain conditions. (JP 3-52) | |

***Contact Point (CP)*** ***TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | In air operations, the position at which a mission leader makes radio contact with an air control agency. (JP 3-50) | |

***Control Area (CTA)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A controlled airspace extending upwards from a specified limit above the earth. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Control Zone (CONTZN)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A controlled airspace extending upwards from the surface of the Earth to a specified upper limit. (JP 3-52) | |

***Coordinated Air Defense Area (CADA)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A mutually defined block of airspace between a land-based air commander and a naval commander when their forces are operating in close proximity to one another. (JP 3-52) | |

***Coordinated Fire Line (CFL)*** ***TYPE: PROC*** ***FSCM***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| YES<br>Checks for conflict but does not import from the ACO | Displayed only.<br>This is an FSCM not an ACM. | Displayed only.<br>This is an FSCM not an ACM. | A line beyond which conventional or improved conventional indirect fire means, such as mortars, field artillery, and naval surface fire may fire without additional coordination. For further US implementation guidance, see JIEO circular 9152, item 35 | |

***Coordinating Altitude (USMTF: Coordination Level [CL])*** ***TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A procedural airspace control method to separate fixed- and rotary-wing aircraft by determining an altitude below which fixed-wing aircraft will normally not fly and above which rotary-wing aircraft normally will not fly. (JP 3-52) | |

***Cross-Border Area (CBA) (USMTF Only)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A temporary segregated area established over international boundaries for specific operational requirements. | |

## Table 6. ACMs and FSCMs

***Crossover Zone (COZ)*** ***TYPE: ADOA & ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | Airspace beyond the missile engagement zone into which fighters may pursue targets to complete interception. (JP 3-52) | |

***Danger Area (DA)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.<br>(JP 1-02) | |

***Deep Battle Synchronization Line (DBSL)*** ***TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | The forward boundary of the land component commanders (LCC) area of operation. The DBSL defines the geographic areas of responsibility of the LCC and air component commander. | DBSL is not an approved joint (JP 1-02), Army (FM 1-02) or USAF (AFDD 1-2) doctrinal control measure. DBSL was developed to meet theater specific requirements. |

***Drop Zone (DZ)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A specific area upon which airborne troops, equipment, or supplies are airdropped. (JP 3-17) | |

***Electronic Combat (EC)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions established specifically for airborne platforms engaging in electronic combat. | |

## Table 6. ACMs and FSCMs

***Entry/Exit Gate (EG)*** ***TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | The point to which an aircraft will be directed to commence the transit inbound/outbound from an airfield or force at sea. (JP 3-52) | |

***Falcon Radials (FRAD)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | Planned magnetic bearings along which aircraft depart or return to aviation-capable ships. (JP 3-52) | Falcon radials provide tracking, control, and assistance to friendly aircraft within the anti-air warfare surveillance area of the battle group. |

***Forward Arming and Refueling Point (FARP)*** ***TYPE: SUA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A point designated by a deployed aviation commander that permits combat aircraft to rapidly refuel and rearm simultaneously. For further US implementation guidance, see JIEO circular 9152, item 56 | |

***Forward Edge of the Battle Area (FEBA)*** ***TYPE: PROC*** ***FSCM***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| YES<br>Checks for conflict but does not import from the ACO | Displayed only.<br>This is an FSCM not an ACM. | Displayed only.<br>This is an FSCM not an ACM. | The foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating, designated to coordinate fire support, the positioning of forces, or the maneuver of units. For further US implementation guidance, see JIEO circular 9152, item 56. | |

## Table 6. ACMs and FSCMs

***Fighter Engagement Zone (FEZ) (Not incorporated in USMTF) TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO | NO | NO | That airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with fighter aircraft. (JP 3-52) | These operations usually take place in airspace above and beyond the engagement ranges of surface based (land and sea), short-range air defense systems, and are an alternative type of engagement operation if the detailed control aspects of joint engagement operations cannot be met. A FEZ normally is used when fighter aircraft have the clear operational advantage over surface-based systems. These advantages could include range, density of fire, rules of engagement, or coordination requirements. From an airspace control perspective, it provides airspace users with location of the engagement zone for fighter aircraft for mission planning purposes. Coordination and flexibility within the combat airspace control system may be a limiting factor. Under FEZ operations, surface-to-air missile systems will not be allowed to fire weapons unless targets are positively identified as hostile and assigned by higher authority, or unless they are firing in self defense. |

***Fire Support Coordination Line (FSCL) TYPE: PROC*** ***FSCM***

| AFATDS | TBMCS | TAIS | Description | Planning Considerations |
|---|---|---|---|---|
| YES<br>Checks for conflict but does not import from the ACO | Displayed only.<br>This is an FSCM not an ACM. | Displayed only.<br>This is an FSCM not an ACM. | Boundary used to coordinate fires of air, ground, or sea weapon systems against surface targets. For further US implementation guidance, see JIEO circular 9152, item 35. | |

***Fire Umbrella (FIRUB)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | The airspace over a naval force at sea within which the fire of ships' anti-aircraft weapons can endanger aircraft, and within which special procedures are established for identification and operation of friendly aircraft. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Fleet Air Defense Identification Zone (FADIZ) (USMTF: Positive Identification Radar Advisory Zone) TYPE:ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | An area within which Navy ships distinguish friendly from hostile aircraft. (JP 3-52) | A FADIZ provides tracking, control, and assistance to friendly aircraft within the anti-air warfare surveillance area of the battle group |

***Flight Information Region (FIR) TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | An airspace of defined dimensions within which flight information service and alerting service are provided. (JP 1-02) | |

***Force Air Coordination Area (FACA) TYPE: SUA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | An area surrounding a force within which air coordination measures are required to prevent mutual interference between all friendly surface and air units and their weapon systems. (JP 3-52) | |

***Forward Line of Own Troops (FLOT) TYPE: PROC FSCM***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning **Considerations** |
|---|---|---|---|---|
| YES<br>Checks for conflict but does not import from the ACO | Displayed only.<br>This is an FSCM not an ACM. | Displayed only.<br>This is an FSCM not an ACM. | A line that indicates the most forward positions of friendly forces in any kind of military operation at a specific time. The FLOT normally identifies the forward location of covering and screening forces. For further US implementation guidance, see JIEO circular 9152, item 56 | The FLOT may be at, beyond, or short of the FEBA. An enemy forward line of own troops indicates the forward-most position of hostile forces. |

## Table 6. ACMs and FSCMs

***Forward Operating Location (FOL) (USMTF Only) TYPE: SUA***

| AFATDS | TBMCS | TAIS | Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An advance position, usually of a temporary nature, from which air or ground units operate. | |

***Free-Fire Area (FFA) TYPE: PROC FSCM***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| YES<br>Checks for conflict but does not import from the ACO | Displayed only.<br>This is an FSCM not an ACM. | Displayed only.<br>This is an FSCM not an ACM. | An area into which any weapon system may fire without additional coordination with the establishing headquarters. Normally, it is established on identifiable terrain by division or higher headquarters. For further US implementation guidance, see JIEO circular 9152, item 35. | |

***Hand-Over Gate (HG) TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | The point at which the control of the aircraft, if radar hand-over is used, changes from one controller to another. (JP 3-52) | |

***High-Altitude Missile Engagement Zone (HIMEZ) TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | In air defense, that airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with high- altitude surface-to-air missiles. (JP 3-52) | HIMEZ normally is used when a high-altitude missile system has a clear operational advantage over using aircraft. These advantages could include range, command and control, rules of engagement, or response time. It provides airspace users with location of the engagement zone of a high-altitude missile system for mission planning purposes. Design of the HIMEZ is contingent on specific weapon system capabilities. |

## Table 6. ACMs and FSCMs

***High-Density Airspace Control Zone (HIDACZ) TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace designated in an airspace control plan or airspace control order, in which there is a concentrated employment of numerous and varied weapons and airspace users. A high density airspace control zone has defined dimensions, which usually coincide with geographical features or navigational aids. Access to a high density airspace control zone is normally controlled by the maneuver commander. The maneuver commander can also direct a more restrictive weapons status within the high density airspace control zone. (JP 3-52) | HIDACZ allows ground commanders to restrict a volume of airspace from users not involved with ongoing operations. It restricts use of the airspace because of the large volume and density of fires supporting the ground operations within the described geographic area. The volume of air traffic demands careful coordination to limit the potential conflict among aircraft needed for mission essential operations within the HIDACZ and other airspace users. When establishing a HIDACZ, consider the following: (1) Minimum-risk routes (MRR) into and out of the HIDACZ and to the target area. (2) Air traffic advisory as required. Procedures and systems also must be considered for air traffic control (ATC) service during instrument meteorological conditions. (3) Procedures for expeditious movement of aircraft into and out of the HIDACZ. (4) Coordination of fire support, as well as air defense weapons control orders or status within and in the vicinity of the HIDACZ. (5) Location of enemy forces inside of and within close proximity to the HIDACZ. HIDACZ is nominated by the ground commander and approved by the ACA. |

***Identification Safety Point (ISP) TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A point at which aircraft, on joining a maritime force, will attempt to establish two-way communications with the surface force and commence identification procedures. (JP 3-52) | |

***Identification Safety Range (ISR) TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | The minimum range to which an aircraft may close to a maritime force without having been positively identified as friendly. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Identification, Friend or Foe Switch Off Line (IFFOFF) (USMTF: IFF Switch Off Line) TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | The line demarking where friendly aircraft stop emitting an IFF signal. (JP 3-52) | |

***IFF Switch On Line (IFFON) TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | The line demarking where friendly aircraft start emitting an IFF signal. (JP 3-52) | |

***Joint Engagement Zone (JEZ) TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | In air defense, that airspace of defined dimensions within which multiple air defense systems (surface-to-air missiles and aircraft) are simultaneously employed to engage air threats. (JP 3-52) | A JEZ provides airspace users with a location for mission planning purposes. JEZs are highly dependent on correct differentiation between friendly, neutral, and enemy aircraft. |

***Joint Operations Area (JOA) TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | Area of land, sea, and airspace, defined by a geographic combatant commander or subordinate unified commander, in which a joint force commander (normally a joint task force commander) conducts military operations to accomplish a specific mission. (JP 3-0) | |

***Joint Special Operations Area (JSOA) ) (Not incorporated in USMTF)***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO | NO | NO | An area of land, sea, and airspace assigned by a JFC to the commander of a joint SOF to conduct special operations activities. It may be limited in size to accommodate a discrete direct action mission or may be extensive enough to allow a continuing broad range of unconventional warfare operations. | JSOA is listed in JP 3-52 but is not defined in the USMTF 2000 or 2004 ACM set. If required to be parsed by airspace systems, the JOA USAGE can be used if properly labeled. |

## Table 6. ACMs and FSCMs

***Landing Zone (LZ)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Any specified zone used for the landing of aircraft. (JP 3-17) | |

***Land Missile Engagement Zone (LMEZ) (USMTF Only) TYPE: ADAREA***

| *AFATDS* | *TBMCS* | *TAIS* | *Definition/Description* | *Planning Considerations* |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | Airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with the surface based air defense system. | |

***Low-Altitude Missile Engagement Zone (LOMEZ) TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | In air defense, that airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with low-to medium- altitude surface-to-air missiles. (JP 3-52) | LOMEZs provide airspace users with the location of the engagement zone of low-altitude missile systems for mission planning purposes. The design of the LOMEZ is contingent on specific weapon system capabilities. |

***Maritime Fighter Engagement Zone (MFEZ) TYPE : ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | The airspace beyond the crossover zone out to limits defined by the officer in tactical command, in which fighters have freedom of action to identify and engage air targets. (JP 3-52) | |

***Maritime Missile Engagement Zone (MMEZ) TYPE : ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A designated airspace in which, under weapons control status "weapons free," ships are automatically cleared to fire at any target which penetrates the zone, unless known to be friendly, adhering to airspace control procedures or unless otherwise directed by the anti-warfare commander. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Marshalling Gate (MG)*** ***TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | The point to which aircraft fly for air traffic control prior to commencing an outbound transit after takeoff or prior to landing. (JP 3-52) | |

***Military Operating Area (MOA) (USMTF: Military Operations Area)*** ***TYPE: SUA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace established outside Class A airspace area to separate or segregate certain non-hazardous military from IFR traffic and to identify for visual flight rules (VFR) traffic where these activities are conducted. (JP 3-52) | |

***Minimum-Risk Route (MRR)*** ***TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A temporary corridor of defined dimensions recommended for use by high-speed, fixed-wing aircraft that presents the minimum known hazards to low-flying aircraft transiting the combat zone. (JP 3-52) | MRRs are used primarily for cross forward line of own troops operations. Close air support aircraft do not usually use MRRs in the vicinity of the target area. MRRs are established based on known threats. |

***Missile Arc (MISARC)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An area of 10-degrees or as large as ordered by the officer in tactical command, centered on the bearing of the target with a range that extends to the maximum range of the surface-to-air missile. (JP 3-52) | |

***No Fire Area (NFA)*** ***TYPE: SUA*** ***FSCM***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| YES<br>Checks for conflict but does not import from the ACO | Displayed only.<br>This is an FSCM not an ACM. | Displayed only.<br>This is an FSCM not an ACM. | An area in which fires or the effects of fires are not allowed without prior clearance from the established headquarters, except when the commander's force must defend against an engaging enemy force within the no fire area. For further US implementation guidance, see JIEO circular 9152, item 35. | |

## Table 6. ACMs and FSCMs

***No Fly Area (NOFLY)*** ***TYPE: SUA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of specific dimensions set aside for a specific purpose in which no aircraft operations are permitted, except as authorized by the appropriate commander and controlling agency. (JP 3-52) | |

***Pickup Zone (PZ)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Aerial Retrieval Area. (JP 3-52) | |

***Prohibited Area (PROHIB)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A specified area within the land areas of a state or its internal waters, archipelagic waters, or territorial sea adjacent thereto over which the flight of aircraft is prohibited. May also refer to land or sea areas to which access is prohibited. (JP 1-02) | |

***Reconnaissance Area (RECCE)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions established specifically for airborne platforms conducting reconnaissance. Generally, it is designed for aircraft such as the SR-71, U-2. (JP 3-52) | |

***Reduced Coordination Area (RCA)(USMTF: Reduced Coordination )*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A portion of defined dimensions within which general air traffic is permitted "off-route" without requiring general air traffic controllers to initiate coordination with operational air traffic controllers. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Restricted Area (RA)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An area (land, sea, or air) in which there are special restrictive measures employed to prevent or minimize interference between friendly forces. (JP 1-02) | |

***Restricted Fire Area (RFA)*** ***TYPE: PROC*** ***FSCM***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| YES<br>Checks for conflict but does not import from the ACO | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An area into which specific restrictions are imposed and into which fires that exceed those restrictions are prohibited without prior coordination. For further US implementation guidance, see JIEO circular 9152, item 35. | |

***Restricted Fire Line (RFL)*** ***TYPE: PROC*** ***FSCM***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| YES<br>Checks for conflict but does not import from the ACO | Displayed only.<br>This is an FSCM not an ACM. | Displayed only.<br>This is an FSCM not an ACM. | A line established between converging forces that prohibits fires or the effects of fires across the line without prior coordination. For further US implementation guidance, see JIEO circular 9152, item 35. | |

***Restricted Operations Area (ROA)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions, designated by the airspace control authority, in response to specific operational situations/requirements within which the operation of one or more airspace users is restricted. (JP 3-52) | A ROA is used to separate and identify areas. For example, artillery, mortar, naval surface fire support, UAV operating areas, aerial refueling, concentrated interdiction areas, areas of combat search and rescue (CSAR), SOF operating areas, and areas which the area air defense commander (AADC) has declared "weapons free." Commonly used for drop zones, landing zones, SAR areas, UAV launch and recovery sites, UAV mission areas, surface-to-surface missile launch sites, missile flight paths (if necessary), and predicted missile munitions impact locations, and special electronics mission aircraft. ROA can adversely affect air defense operations; therefore, air defense missions generally have priority over ROAs. |

## Table 6. ACMs and FSCMs

***Restricted Operating Zone (ROZ) (Not incorporated in USMTF)***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO | NO | NO | Older doctrinal term for restricted airspace. | Replace any request for a ROZ with the most appropriate usage. |

***Return to Force (RTF)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Planned route profiles for use by friendly aircraft returning to an aviation-capable ship. (JP 3-52) | RTF provides a means for easily identifying friendly aircraft. |

***Safe Lane (SL)*** ***TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A bi-directional lane connecting an airbase, landing site and/or base defense zone to adjacent routes/corridors. Safe lanes may also be used to connect adjacent activated routes/corridors. (JP 3-52) | |

***Safe Area For Evasion (SAFE) (USMTF Only)*** ***TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A designated area in hostile territory that offers the evader or escapee a reasonable chance of avoiding capture and of surviving until he can be evacuated. For further U.S. implementation guidance, see JIEO circular 9152, item 61. (JP 3-52) | |

***Safe Sector (SAFES) (USMTF: Safety Sector)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A sector established to route friendly aircraft to maritime forces with minimum risk. (JP 3-52) | |

***Search and Rescue Point (SARDOT)*** ***TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | A reference point used in search and rescue operations. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Ship Control Zone (SCZ)*** ***TYPE: ADOA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An area activated around a ship operating aircraft, which is not to be entered by friendly aircraft without permission, in order to prevent friendly interference. (JP 3-52) | |

***Short-Range Air Defense Engagement Zone (SHORAD)*** ***TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | In air defense, that airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with short range air defense weapons. It may be established within a low- or high-altitude missile engagement zone. (JP 3-52) | A SHORAD is normally established for the local air defense of high-value assets. It provides airspace users with the location of the engagement zone of short-range air defense systems for mission planning purposes. Centralized control of SHORAD may not be possible. |

***Special Corridor (SC)*** ***TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An area established to accommodate the special routing requirements of specific missions. (JP 3-52) | |

***Special Electronic Mission Area (SEMA)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions established specifically for airborne platforms conducting special electronic missions. Generally, it is designed for aircraft such as Compass Call. (JP 3-52) | |

***Special Operations Forces (SOF) (USMTF Only)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions created specifically for special operations forces missions by SOF airspace. | |

## Table 6. ACMs and FSCMs

***Special Use Airspace (SUA) (Not incorporated in USMTF)***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO | NO | NO | A term used to define airspace for a specific purpose. It may also designate airspace in which no flight activity is authorized. (JP 3-52) | Special use airspace is typically applied to BDZs and CAP/orbit areas. It typically is a peacetime term contained in Federal Aviation Administration 7610.4, Special Military Operations. |

***Standard Use Army Aircraft Flight Route (SAAFR) TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Routes established below the coordinating altitude to facilitate the movement of Army aviation assets. Routes are normally located in the corps through brigade rear areas of operation and do not require approval by the airspace control authority. (JP 3-52) | SAAFR is an airspace coordinating measure used by Army assets for administrative and logistic purposes. If altitudes are at or below the coordinating altitude, SAAFRs are implemented by the using authority. If a coordinating altitude has not been established, an air corridor is established by the ACA at the request of the appropriate ground commander. |

***Surface-to-Surface Missile System (SSMS) TYPE: SUA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions designed specifically for Army Tactical Missile System and Tomahawk land-attack missile launch and impact points. (JP 3-52) | Used for sending ATACMS PAH/TAH data. |

***Temporary Minimum Risk Route (TMRR) (USMTF Only) TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A temporary route of defined dimensions recommended for use by high speed fixed-wing aircraft to route them between transit routes or the rear of the forward area and their operations areas. | |

***Temporary Segregated Area (TSA) TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | An airspace of defined dimensions within which activities require the reservation of airspace for the exclusive use of specific users during a determined period of time. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Terminal Control Area (TCA)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A control area or portion thereof normally situated at the confluence of air traffic service routes in the vicinity of one or more major airfields. (JP 1-02) | |

***Terminal Radar Service Area (TRSA)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. (JP 3-52) | |

***Training Area (TRNG)*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions created during contingency for the purpose of training. (JP 3-52) | |

***Transit Corridor (TC)*** ***TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A bi-directional corridor in the rear area. Air traffic services not normally provided.<br>(JP 3-52) | Established to route aircraft through air defenses, in the rear area where appropriate, with minimum risk. Pre-planned TCs will be published in ACPs, as will their horizontal and vertical dimensions. |

***Transit Route (TR)*** ***TYPE: CORRTE***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | A temporary corridor of defined dimensions established in the forward area to minimize the risk to friendly aircraft from friendly air defenses or surface forces. (JP 3-52) | |

## Table 6. ACMs and FSCMs

***Traverse Level (TL)*** ***TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | That vertical displacement above low-level air defense systems, expressed both as a height and an altitude, at which aircraft can cross the area. (JP 1-02) | TLs normally will be used in conjunction with TCs as specified in ACPs. |

***Unmanned Aerial Vehicle (UAV) (USMTF: Unmanned Aerial System [UAS])*** ***TYPE: ROZ***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES<br>Checks for conflict<br>Default On | Airspace of defined dimensions created specifically for UAV operations. Generally, this airspace will consist of the area in which UAV missions are conducted, not en route airspace. (JP 3-52) | |

***Warning Area (WARN)*** ***TYPE: ATC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | Airspace of defined dimensions extending from three nautical miles outward from the coast of the US that contains activity that may be hazardous to nonparticipating aircraft. (JP 3-52) | |

***Weapons Free Zone (WFZ)*** ***TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | YES<br>Checks for conflict | YES*<br>Checks for conflict<br>*Default Off | An air defense zone established for the protection of key assets or facilities, other than air bases, where weapons systems may be fired at any target not positively recognized as friendly. (JP 3-52) | A weapons free zone is normally used for high-value assets defense and in areas with limited command and control authority. This zone provides airspace users with the location of a weapons free area for mission planning purposes. The AADC declares weapons free with the ACA establishing the zone. |

## Table 6. ACMs and FSCMs

### *USMTF 2004 ACMs & FSCMs*

***Ground Area of Responsibility (GNDAOR)* (USMTF 2004 Only) TYPE: PROC***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | NO | YES*<br>Checks for conflict<br>*Default Off | An area of ground within which the responsibility for engagement normally rests with the appropriate ground force commander. | Cannot be submitted to TBMCS or other systems using USMTF 2000. |

***Killbox (KILLBOX)* (USMTF 2004 Only) TYPE: SUA*** ***FSCM & ACM***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | NO | YES<br>Checks for conflict<br>Default On | FSCM Joint Fires Definition: A three-dimensional area used to facilitate the integration of joint fires. (JP 3-09)<br>ACM USMTF Definition: A volume of airspace (sanitized airspace), which is prohibited to friendly aircraft and in which any aircraft is automatically declared hostile and subject to engagement. For further US implementation guidance, see JIEO circular 9152, item 307. | Killboxes in USTMF 2004 are Air Defense Control measures. **They are not the same as the Killbox FSCM used for fires.** As a result, the selection of the USMTF 2004 Killbox ACM may result in unnecessary operator action to resolve checks for fire.<br>Cannot be submitted to TBMCS or other systems using USMTF 2000. |

***Kill Zone (KILLZ)* (USMTF 2004 Only) TYPE: ADAREA***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | NO | YES<br>Checks for conflict<br>Default On | An air defense system area in which friendly fighters may use less restrictive rules of engagement. | Cannot be submitted to TBMCS or other systems using USMTF 2000. |

***Marshall Point (MP)* (USMTF 2004 Only) TYPE: REFPT***

| AFATDS | TBMCS | TAIS | Definition / Description | Planning Considerations |
|---|---|---|---|---|
| NO<br>Only checks for conflict and displays if built using a corridor shape | NO | YES<br>Checks for conflict<br>Default On | A point used to assemble, hold, or organize troops, aircraft, or ships for a mission. | Cannot be submitted to TBMCS or other systems using USMTF 2000. |

# Appendix C
## HIDACZ Plan Examples

NOTE: These examples are notional and based on historical plans. They are provided as examples to show the breadth and depth of detail required to execute a complex HIDACZ operation and reflect theater vice doctrinal terms and procedures.

EXAMPLE ONE

**1. HIDACZ NIMITZ Airspace Control Plan Example**

AIRSPACE MANAGEMENT – Operation (OP) VIRGINIA CAPES Phase 2

SITUATION

1. **General**. As force levels build, robust airspace management will be accomplished using HIDACZ procedures.
2. **Insertion.** Task Force BG, Task Force T, and Task Force 3 will be given OPS boxes within AO from the start of Phase 2. 12 hours prior to the insertion of Task Force T a HIDACZ will be established. At all times during the OP, the **tactical operations center (TOC) will be the HIDACZ commander and will dynamically and procedurally control HIDACZ NIMITZ and will allocate and control air assets in accordance with the CDR's intent**. Airspace control, above the coordination altitude, will be delegated to AWACS, when on station (AWACS has been requested to be on station 3 hours prior to the insertion). This airspace control plan will be effective from 15 Feb – 29 Feb.

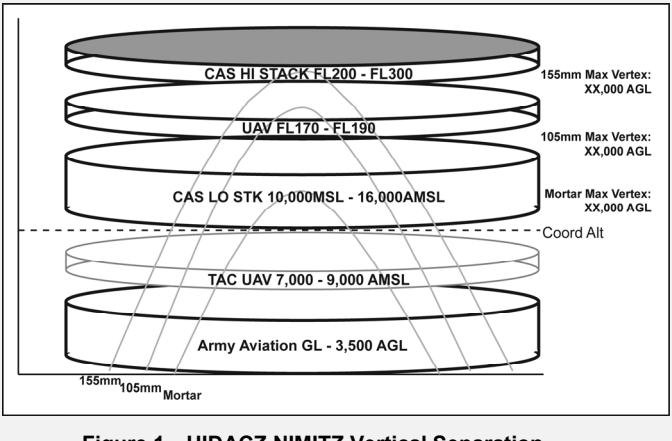


**Figure 1. HIDACZ NIMITZ Vertical Separation**

CAUTION

ALL AIRCREW SHALL BE FAMILIAR AND COMPLY WITH THE PROCEDURES CONTAINED IN THIS PLAN, ASSOCIATED SPINS, AND THE CFACC AIRSPACE CONTROL PLAN. NON- COMPLIANCE POSES GREAT RISK FOR MID-AIR COLLISIONS AND SUBSEQUENT MISSION DEGRADATION. AIRCREW FOUND NOT IN COMPLIANCE MAY BE SUBJECT TO EXPULSION FROM THE HIDACZ.

a. Tactical situations may dictate deviation from this plan by the HIDACZ controller, however, such deviations shall be coordinated w/AWACS, TOC, and CRC as required. If substantive changes are required, they must be forwarded to the CAOC for integration into this plan and dissemination throughout the theater.
b. No more than two flights of 2 fixed-wing CAS assets shall be allowed in the HIDACZ at any time. Deviation from this mandate requires CAOC battle director approval.

AIRSPACE MANAGEMENT (ASM)

PHASE 2

3. ASM CONOPS
a. 12 hrs before the insertion of the RCE T; HIDACZ NIMITZ will be activated HOT.
b. Existing ROZ EAST and WEST will cease to exist once the HIDACZ is established.
c. HIDACZ NIMITZ will be deactivated within 10 days or at operation completion. Following termination of the HIDACZ, the airspace will return to normal operating procedures. Considerations will be made at that time for additional ACMs to be imposed for continuing operations.

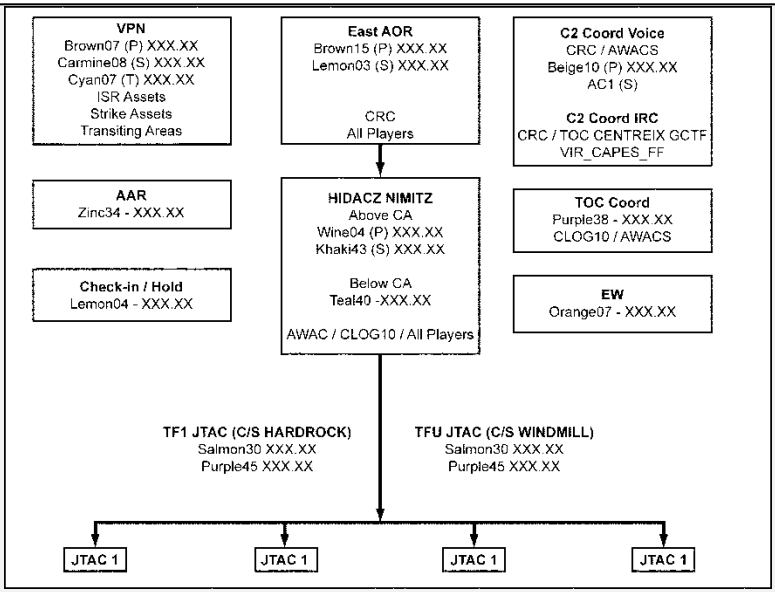


**Figure 2. HIDACZ NIMITZ Comm Plan**

4. Airspace Coordinating Measures
   a. **HIDACZ NIMITZ:** The boundaries contain the following keypads: XXXXX, XXXXX, and XXXX from GL – FL300. The HIDACZ commander is TOC and the HIDACZ controllers will be AWACS or TOC. **All aircrew will monitor the HIDACZ primary control frequency** while in the confines of the HIDACZ.
   b. **BULLSEYE:** The BULLSEYE will be used and is the center of the HIDACZ – L/L. The BULLSEYE will be used as an expeditious way of giving SA to aircraft with respect to other friendly air call signs. This minimizes extraneous comms between air platforms and controlling call signs.
   c. **Hold Area:** The primary hold area for all fixed-wing assets has been established outside the confines of the HIDACZ at PEKO from FL180-FL280. This will be controlled by either AWACS or CRC.
   d. **Air-to-Air Refueling (AAR):** Refueling track, HAPPYHOUR, has been established and is comprised of the following points XXXX. It is a N-S race track and is from FL170 – FL280. The AAR consists of the following: IP XXXX; CP XXXX. This will be controlled by either AWACS or CRC.

e. **Airway:** Airway A123 between DRONE and WAVEY will be closed when the HIDACZ is active. Additionally, the position of the HIDACZ will leave V123 and A456 routes open and keep assets away from high traffic areas.

f. **Coordinating Altitude:** Due to varying terrain, the coordinating altitude within the HIDACZ is 3,500 AGL to a maximum of FL 100 MSL. All aircraft operating at, or above FL100, will remain 1013.2mb/29.92 in. This will ensure that all fixed-wing assets are on the same pressure setting and afford additional flight safety between formations. All aircraft operating below the coordinating altitude will remain on the pressure setting that they have been given and are flying with. ALL AIR ASSETS ARE RESPONSIBLE FOR THEIR OWN TERRAIN AVOIDANCE.

g. **AWACS Stationing:** The AWACS station includes the following kill boxes and keypads: XXAXX, and XXAXX from the coordinating altitude to FL320.

CONCEPT OF CONTROL/C2 COORDINATION

5. **Airspace Hierarchy.** The hierarchy of airspace control within the HIDACZ is as follows:
   a. Primary: AWACS
   b. Secondary: TOC
6. **HIDACZ Controller.** The HIDACZ controller is responsible for managing the airspace within the HIDACZ and allocating operating areas for ALL assets that fly within the HIDACZ.
7. TOC Control.
   a. The TOC will procedurally control the airspace below the coordinating altitude within the HIDACZ and deconflict those assets from kinetics (surface-to-surface/air-to-ground/air-drops) in coordination with the HIDACZ controller.
   b. The TOC maintains control of asset allocation and priority of fires/effects to meet the ground commander intent. The TOC will communicate those priorities to the HIDACZ controller for 3-dimensional integration in the operations area.

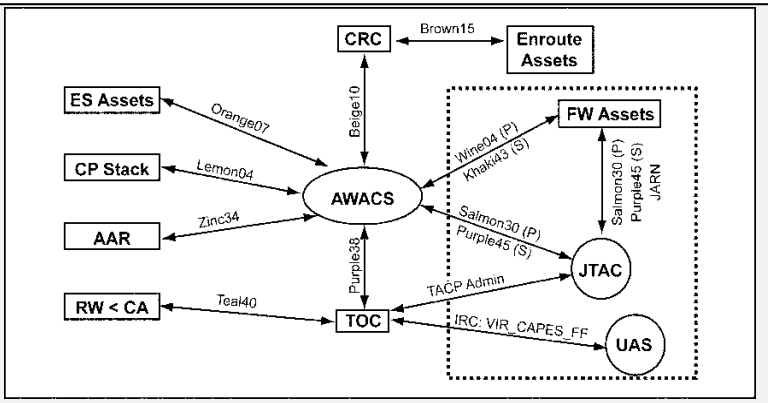


**Figure 3. HIDACZ NIMITZ C2 Depiction w/AWACS**

8. **CGRS**. CGRS keypads will be used to internally deconflict the airspace. In addition to lateral deconfliction, assets will be deconflicted vertically by the appropriate controller. Each type of aircraft has been assigned its own altitude parameter. Additionally the Elb River, that runs north and south, may be used as a visual reference for procedural deconfliction.

FUNCTIONAL ROLES

9. TOC:
   a. Track ground commander's priorities for air assets/friendly locations and communicate those as necessary to the HIDACZ controller.
   b. Set priority of fires (execute ground/CC intent for air support).
   c. Track JTAC priorities with respect to fires.
   d. Allocate air assets in coordination with/HIDACZ controller.
   e. Control those assets below the established coordinating altitude within the HIDACZ when AWACS is on station and controls all assets in the HIDACZ when AWACS is not on station.
   f. Establish a dedicated chat window for C2 coordination for this operation named "VIR_CAPES_FF".

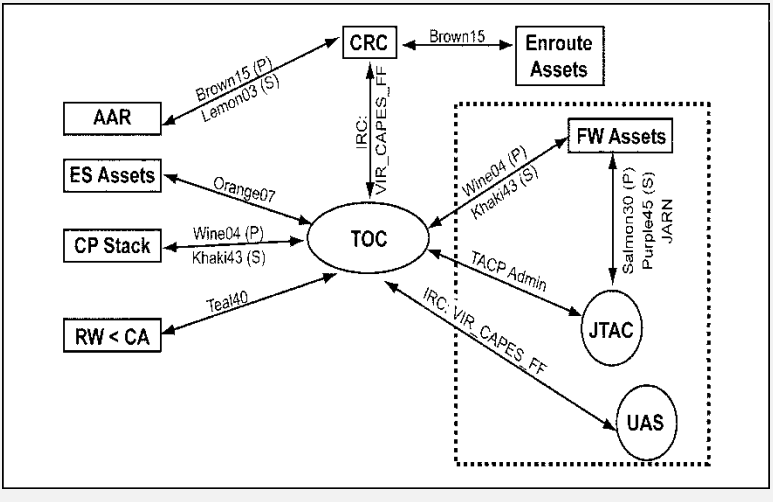


**Figure 4. HIDACZ NIMITZ C2 Depiction w/TOC as Controller**

10. AWACS:
    a. Controls HIDACZ, hold area, and refueling area.
    b. Sole responsibility for deconfliction of aircraft within the HIDACZ above coordinating altitude.
    c. Updates fuel priorities and coordinates with/ASOC, CRC, and CAOC.
    d. Passes aircraft to JTAC when tasked by TOC.
    e. Update TOC on status of a/c (inbound/hold stack).
    f. Pass AO updates to aircraft as required.
    g. Coordinates with/TOC for priority of fires (execute Ground/CC's intent).
    h. Primary airborne relay as required.
    i. Gate keeper for HIDACZ, safety monitor.
    j. Assist TOC with/SA of aircraft below the coordinating altitude as able.
11. CRC:
    a. Controls hold area and AAR when AWACS not on station.
    b. When AWACS not on station, controls flow into/out of HIDACZ as requested by TOC.
    c. When able, receives feedback/tracks airspace control/C2 issues for this OP and passes to CAOC.
12. JTACs [Task Force T, SOF, Other Coalition Force (OCF)]
    a. Must ensure they do not change assigned working area/altitude of aircraft without coordinating through HIDACZ controller.

b. Cannot clear or otherwise imply that an aircraft is clear to deviate their assigned working area/altitude or depart the HIDACZ without approval from the HIDACZ controller.

13. Aircrew
    a. Must not enter the HIDACZ without approval from the HIDACZ controller. (This is applicable to ALL aircraft flying in AO to include all SOF, OCF assets.)
    b. Monitor the HIDACZ primary control frequency at all times while in the HIDACZ to allow for the rapid deconfliction of FIRES and aircraft.
    c. Will obtain clearance out of assigned working block before exiting that block and will check out with HIDACZ controller prior to RTB or AAR. (This is especially critical when the TOC is procedurally controlling the HIDACZ.)
    d. Required to read, understand, and comply with this airspace control plan, SPINS, and all other applicable directive (CFACC ACP, AIP, etc) prior to flying in this operation.
    e. Understand that failure to strictly comply with procedures outlined in this plan presents an unacceptable risk to assets and mission accomplishment.
    f. Pass post mission feedback on issues with C2.
14. CAOC AWACS/CRC LNOs, CPD/COD Airspace
    a. Responsible for monitoring implementation of this plan.
    b. Focal point for any integration/coordinating any changes to this plan.
    c. Focal point for consolidating feedback from all players.
    d. Informing CAOC CCO/DCO of issues identified with airspace control in this OP.

SEQUENCE OF EVENTS:

15. AWACS On Station (coordinating altitude and above)
    a. Aircraft check in with CRC on takeoff/entry in JOA.
    b. CRC reports check-in with AWACS; AWACS provides altitude for aircraft handover and entry to hold area.
    c. CRC controls aircraft in transit.
    d. CRC directs aircraft to required hold altitude and transfers control to AWACS **PRIOR** to aircraft entry of the hold area.
16. Aircraft control passed to AWACS on HIDACZ check-in frequency:
    a. Pass AO updates and fighter to FAC brief info as required.
    b. AWACS notifies TOC aircraft are on station.
    c. Stack aircraft within the hold area as necessary.
    d. As directed by TOC, pushes aircraft to JTAC.
    e. AWACS controls aircraft from HIDACZ to AAR/hold area or coordinates with CRC for return to base.
    f. AWACS updates TOC status of aircraft within the HIDACZ, etc.

AWACS NOT ON STATION

17. TOC as HIDACZ Controller (coordinating altitude and above)
    a. Aircraft checks in with CRC on take-off/entry in JOA.
    b. CRC report checks in with TOC and request required altitude in HIDACZ.

c. Aircraft remains with CRC for transit and hold area entry at required altitude.

18. Aircraft passed to TOC at required altitude/location for entry into HIDACZ.
    a. TOC controller controls the HIDACZ procedurally, establishes stacks/working areas and pushes aircraft to JTAC as required.
    b. TOC coordinates with CRC for aircraft exit of the HIDACZ.
    c. TOC updates CRC on status of aircraft in HIDACZ, etc.
    d. CRC controls aircraft outside HIDACZ to AAR/hold area or return to base.
19. JTAC Coordination
    a. JTAC takes requests from ground/CC.
    b. JTAC sends TOC request.
    c. ALL JTAC requirements coordinated and prioritized through TOC.
    d. TOC assigns priority and passes to HIDACZ controller for asset allocation.
    e. For simultaneous TICs, TOC will prioritize in coordination with HIDACZ controller.
    f. JTAC releases aircraft back to HIDACZ controller for exit of the HIDACZ.
    g. JTAC must not direct aircraft outside assigned working area and altitude before coordination with the HIDACZ controller.
    h. HIDACZ controller sends aircraft to another tasking within the HIDACZ or to CRC to hold, tank, etc.

SPECIAL CONSIDERATIONS

a. Aircraft unable to make contact with AWACS or TOC are to inform CRC immediately, remain outside of the HIDACZ and await further instructions. CRC will inform TOC via internet chat and the C2 coordination frequency.
b. All rotary-wing aircraft that are unable to contact TOC/AWACS are to inform their Task Force HQ and await further instructions. The HQ must contact TOC immediately.

TERRAIN MANAGEMENT (TM)

20. **Terrain Considerations.** Task Force BG, Task Force T, and Task Force 3 are deploying in the CAPE HENRY area. As such, they will be given an area each to operate in. All prior traces will cease to be valid. The area has been divided into 3 OPS Boxes in order to facilitate initial C2.
21. OPS Boxes
    a. **TRUMAN.** AA 12A AA 12345678, following E bank of Elb River to AA 12A AA 12345678, AA 12A AA 12345678.
    b. **STENNIS.** AA 12A AA 12345678, following mountain ridge to AA 12A AA 12345678, AA 12A AA 12345678, AA 12A AA 12345678.
    c. **MIDWAY.** AA 12A AA 12345678, AA 12A AA 12345678, following E bank of Elb River to AA 12A AA 12345678. **Exclusion Zones:** TBN
22. Fire Support Coordination Measures (FSCMs)
    a. **RFLs.** All OPS Boxes boundaries are fixed and subject to cross boundary fire restrictions.

b. **No Fly Area.** Gun position locations will be posted as no fly areas on internet chat throughout the duration of the operation.

23. **Altitude Deconfliction.** Aircraft operating in the HIDACZ will be stacked vertically according to type; the HIDACZ controller, however, will dynamically set altitude blocks.

24. Aviation.

a. All rotary wing are to contact TOC prior to entering the HIDACZ. Aviation Task Forces are responsible for planning routes to/from the HIDACZ and informing TOC. **Additionally, all rotary wing are to contact TOC and obtain clearance prior to entering keypad 12A34.** If unable to contact TOC due to line-of-sight problems, contact AWACS or any available unit TOC and ensure clearance into the HIDACZ and keypad 12A34 prior to entry.

b. **Task Force T Insertion.** An ingress and egress route will be established for the initial insertion and extraction from the HIDACZ.

25. **UAS.** All UAS assets in support of Task Force T must ensure they check into the HIDACZ with TOC in order to ensure their dynamic deconfliction.

a. MUAV. Will deconflict by JTAC, who is to inform TOC of all missions prior to launch.

b. Predator. Check-in with AWACS, when on station, or TOC prior to entering the HIDACZ. Aircraft may be forwarded to a JTAC for detailed tasking control. Predator will maintain connectivity with AWACS and/or TOC on the HIDACZ primary control frequency or the VIR_CAPES_FF internet chat window.

c. TUAV. Check in with TOC prior to entering the HIDACZ. Aircraft may be forwarded to a JTAC for detailed tasking control. Controllers should give considerations to racetracks in the vicinity of likely tasking. Controllers should be aware of all aviation entry/exit points and aviation holds as these may be used to aid deconfliction. The VIR_CAPES_FF window on internet chat will be the primary means of communication.

26. **Guide Multiple Launch Rocket System (GMLRS).** TOC will deconflict all GMLRS fire missions within HIDACZ NIMITZ and is responsible for ensuring that all other assets are outside of the ACM during firing. If the system is required to fire outside of the HIDACZ, TOC will be responsible for clearing the airspace up to the boundary of the HIDACZ and for coordinating the clearing of the airspace beyond the boundary of the HIDACZ via AOC.

27. **Point of Contacts**. All questions, issues, feedback on this plan or its execution should be routed to:

CAOC OPS Airspace
SIPR EMAIL
CENTRIX EMAIL
DSN
Internet chat

NOTE: This example is notional and based on a USMC historical plan. It is provided as an example to show the breadth and depth of detail required to execute a complex HIDACZ operation and may reflect theater vice doctrinal terms and procedures.

EXAMPLE TWO

**2. HIDACZ MAMELUKE Airspace Control Plan Example**

OPERATION TUN TAVERN SPINS dtd XX0422

1. General
   a. Refer to ANNEX F to FRAGO ABC TUN TAVERN dated 22 Apr XX for general airspace management instructions.
   b. Airspace is allocated by means of the ACO in response to ACM REQs.
   c. A comprehensive but simple airspace control plan is essential to maximize operational effectiveness while mitigating the risk of fratricide. These SPINS are to provide additional instructions and information to users of HIDACZ MAMELUKE and participants of TUN TAVERN.
   d. Indirect fire and air will be dynamically deconflicted by the controlling Direct Air Support Center (DASC)/FSCC/JTACS and FSTs as required. HIDACZ MAMELUKE will be established over the AO to facilitate the coordination of air, aviation, ISR and joint fires. This airspace management plan will be in effect from D-2 day until the end of the operation.

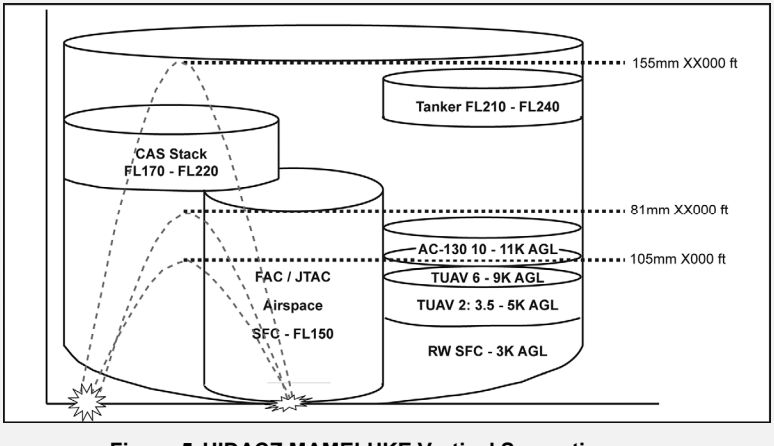


**Figure 5. HIDACZ MAMELUKE Vertical Separation**

2. Coordinating Instructions

a. ASM

i. HIDACZ MAMELUKE will be established ISO OP TUN TAVERN. The HIDACZ is shaped and built primarily around CGRS kill box keypads and will extend from SFC to FL280. The HIDACZ TRP/KEYHOLE is centered on the bridge of I-664 and I-64 north of Norfolk at AB 11X AB123456.

ii. HIDACZ MAMELUKE will be procedurally controlled by the DASC (C/S DASC) who will be collocated with the MEU FSCC and FOB NASA BCP. All aircraft ISO OP TUN TAVERN will be allocated by either MEU AO or by TFH WIDOW TOC and in accordance with CDR's intent. BLOODLUST will control all a/c outside of HIDACZ MAMELUKE and will handover to the DASC at an appropriate altitude for entry to the HIDACZ.

iii. HIDACZ MAMELUKE

(1) HIDACZ MAMELUKE Grids: AB 11X AB123456, AB 11X AB123456, AB 11X AB123456, The latitude/longitude are: XXXXN/XXXXW, XXXXN/XXXXW, and XXXXN/XXXXW. Figure X is a depiction of HIDACZ MAMELUKE.

(2) Indirect fires will be coordinated by the controlling FSCC/FSTs.

(3) The ACMR for HIDACZ has been resubmitted by the MEU AO and will be activated from D-2. All additional requests are to be passed via MEU AO.

(4) When not required, HIDACZ MAMELUKE will be deactivated and the space returned to normal procedures. Additional, ACMs may be requested to support further OPS.

(5) Assets will be deconflicted both vertically and laterally using keypads, kill boxes, and control points. Additionally, obvious physical features may be used as visual references for procedural deconfliction.

(6) Existing ROZs ABLE and BAKER will be activated when HIDACZ MAMELUKE is cold

(7) Entry to HIDACZ will be at the designated entry/exit points. Entry will be at FL200 and exit will be at 14,000 ft AGL.

(8) An LZ control zone will be established on D-4 3 nm around FOB NASA, from SFC to 1,500 ft AGL. The controlling agency is the Marine Air Traffic Control Mobile Team 2 (MMT2). Their call sign is LAND 2 and additional instructions are below.

(9) 105mm artillery is located at FOB NASA and 155mm artillery will be located immediately east of FOB PIER. MGRS locations will be issued SEPCOR and updates provided upon check-in with DASC.

(10) Transition Altitude (TA). The TA for the theater is 14,000 ft AGL. Within the HIDACZ all aircraft operating at, or above, 14,000 ft AMSL will remain on 1013.2 mb/29.92 inches.

(11) The vertical separation matrix is in figure 5.

IN ALL INSTANCES, AIR ASSETS ARE RESPONSIBLE FOR THEIR OWN TERRAIN AVOIDANCE

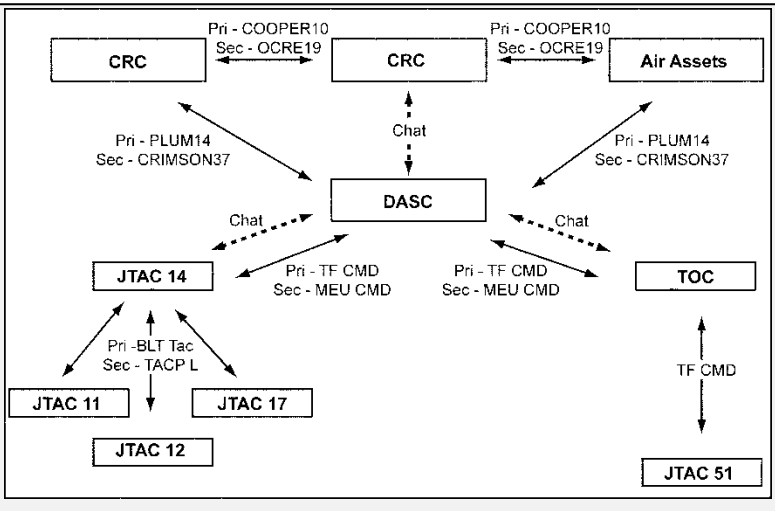


**Figure 6. HIDACZ MAMELUKE Communications Diagram**

iv. Fixed Wing CPs/IPs
(1) Keyhole.
(a) ECHO – Keyhole TRP (AB 11X AB123456).
(b) ALPHA/BRAVO/CHARLIE/DELTA. 10 nm each side of the keyhole.
(2) CAS stack will be established between points C and D from FL170 – 220. CAS stack has been deconflicted vertically and laterally from artillery GTLs.
(3) Entry/Exit CPs:
(a) TOYOTA, AB 11X ABXXXXXX
(b) DODGE, AB 11X AB1XXXXX
(4) Additional CPs:
(a) FORD, AB 11X ABXXXXXXX
(b) FERRARI, AB 11X ABXXXXXXX
(c) LOTUS, AB 11X ABXXXXXXX
v. Rotary Wing BPs/HA. RW BPs are named and centered as follows:
(1) RW BP NEWT - AB 11X ABXXXXXXX
(2) RW BP EEL - AB 11X ABXXXXXXX
(3) RW BP RATTLER - AB 11X ABXXXXXXX
(4) RW BP SERPENT - AB 11X ABXXXXXXX
(5) RW HA WILMA - AB 11X ABXXXXXXX

vi. RW Deconfliction. All aviation is to check in with the DASC who will provide deconfliction, clear routing, and provide tasking.

vii. UAS. Prior to entry of HIDACZ MAMELUKE, the UA controller is to check in with the DASC via fixed wing control frequencies listed in the communications table 11 and/or IRC.

viii. Tanker Track STINK.

(1) Tanker track is separated laterally, entry altitude is FL210 and exit altitude is FL230. Primary tanking altitude is FL220.

(2) Tanker frequency is (P) Lemon26, (S) Gray21.

(3) Tanker track coordinates are: AB 11X ABXXXXXXX, AB 11X ABXXXXXXX, AB 11X ABXXXXXXX, AB 11X ABXXXXXXX.

ix. LZ Control Zone E-Sunbow ACMR, FOB NASA.

(1) The control agency is MMT2. C/S LAND 2:

(P) CHERRY44

(S) CRIMSON17

TACAN channel 92Y "MMT"

(2) Dimensions of the LZ control zone are 3 nm, SFC – 1,500 ft AGL with a center grid AB 11X ABXXXXXXX. Tactical phraseology in accordance with table 8.

(3) Sectors lettered counter clockwise from ENE, A – H.

(4) Left-handed pattern with a No Fly Area 45-135Deg magnetic due to 105mm gun line. Inbound altitude is 500 ft AGL and outbound is 300ft AGL. The arm/dearm heading is 310Deg magnetic.

(5) Lost communication procedures: Overfly AM2 matting south to north at 500 ft, circle FOB counter clockwise for landing upon receipt of appropriate signal. Refer to table 7.

**Table 7. Lost Comm Visual Signals**

| Day Signal (VS-17 Panel) | Night Signal | A/C on Ground | Aircraft in Air |
|---|---|---|---|
| Steady orange | Steady light | Cleared for takeoff | Cleared to land |
| Alt Orange/cerise | Flashing light | | Return for landing |
| Left to right orange | Left to right light | Stop | Give way, continue circling |
| Circle orange | Circle light | | Airport unsafe, do not land |

| Table 8. Tactical Phraseology FOB NASA | |
|---|---|
| **Item** | **CALL WORD** |
| 5 mins out | On Deck |
| Request Fuel & Ordnance | Happy Hour |
| Taken Battle Damage | Tagged |
| Gun Line is Hot | Flames |
| Request Corpsman | Angel |

x. ROZ WINDY, FOB DOG

(1) The control agency is Marine Air Traffic Control Team 1 (MMT1). C/S LAND 1:

(P) ZINC18

(S) TAN17

TACAN channel 29Y "MMT"

(2) Dimensions of the ROZ are 5 nm, SFC – 14,000 ft AGL with a center grid AB 11X ABXXXXXXX. Tactical phraseology in accordance with table 9.

(3) Sectors lettered counter clockwise from N to S, from A to D.

(4) Right-handed pattern with inbound altitude of 500 ft AGL and outbound is 300 ft AGL. The assault landing zone is setup as a day/night AMP-3 runway.

(5) Lost communication procedures: Overfly runway east to west at 500 ft, circle FOB clockwise for landing upon receipt of appropriate signal. Refer to table 7.

| Table 9. Tactical Phraseology FOB DOG | |
|---|---|
| **Item** | **CALL WORD** |
| 5 mins out | United |
| Request Fuel & Ordnance | Arsenal |
| Taken Battle Damage | Derby |
| Gun Line is Hot | Newcastle |
| Request Corpsman | Fulham |

xi. Radio In/Out Sequence.

(1) FIXED-WING: ATC (TOWER) to CRC to DASC to FAC/JTAC

(2) AAR: ATC (TOWER) to CRC to DASC

(3) RW: ATC (TOWER) to CRC to TFH to DASC to JTAC

(4) Aircraft at NASA: MMT (LAND 2) to DASC to JTAC

xii: Radio In/Out (RIO) procedures.

(1) Fixed Wing

(a) Inbound. FL200, RIO prior to entry of HIDACZ MAMELUKE via CPs Dodge or Toyota with C/S, mission #, number & type ac, position, altitude, and status (i.e., up as fragged or with exceptions).

(b) Transiting. State C/S, location and intentions. DASC will provide routing clearance to transit.

(c) Outbound. 14,000 ft AGL, RIO prior to exiting HIDACZ @ CPs Dodge or Toyota. Pass situation update, SALUTE and BHA.

(2) Rotary Wing

(a) Inbound. RIO prior to entry of HIDACZ MAMELUKE with C/S, mission #, number & type ac, position, altitude, and status (i.e., up as fragged or with exceptions). State position in reference to FOB NASA wagon wheel.

(b) Transiting. State C/S, location and intentions. North and east bound aircraft will be at odd altitudes and south and west bound aircraft will be at even altitudes.

(c) Outbound. RIO prior to exiting HIDACZ and pass situation update, SALUTE, BHAS (if applicable).

xiii. JTAC Procedures

(1) Deployed JTACs are to provide DASC with regular situation reports (SITREPs) in order to maintain SA.

(2) JTACs are not to make changes to the ASM nor SPINS without prior authorization (no bird-catching).

xiv. FSCMs. Aircrews are responsible for mission prep with latest FSCMs. Real-time updates will be provided upon check-in with the DASC.

(1) All NFAs and RFAs will be promulgated SEPCOR and updates will be provided by the DASC upon check in.

(2) Key routes, PLs and OPS boxes for the convoy move from LGL to ORF can be found at Annex A – OP TUN TAVERN dtd 22 Apr XX.

(3) PLs can be found on the BM schematic at Appendix 1 to Annex F of the FRAGO.

(4) A spotmap has been produced for usage by all assets taking part in OP TUN TAVERN.

(5) No fire area locations within HIDACZ MAMELUKE are at App 2 to Annex F of FRAGO. All users within the AO should be aware of the NSL.

xv. OPS Boxes. OPS boxes are located within HIDACZ MAMELUKE to support the FPoL of MEU through the AO prior to their deployment to FOB DOG. Additional OPS Boxes are depicted to support the C company objective at OCEANA and both the B and C companies objective following the air assault. Any call sign believing that they may have positive identification of friendly forces within their OPS Box are to immediately pass that information to the DASC and FSCC by the quickest means available.

xvi. Overlays/Schematic. Operational overlays and schematics will be provided via SEPCOR.

b. **C2**.

i. Functional Roles.

(1) TOC

(a) Update the DASC on local air situation.

(b) Pass information from CRC/ASCC and other agencies.

(c) Coordinate HIDACZ activation requests and TIC support.

(2) FSCC

(a) Track friendly locations and ground CDR's priorities for air assets and coordination with the DASC and TACPs for priority fires.

(b) Control, coordinate, and clear fires within the HIDACZ.

(3) DASC

(a) Process immediate air support requests.

(b) Manage terminal control assets.

(c) Integrate air/ aviation with other supporting arms.

(d) Procedurally control the HIDACZ.

(e) Ensure information flow between TOCs, MEU FSCC, and the MEU Aviation Combat Element (ACE).

(4) CRC

(a) Control flow into/out of HIDACZ as requested by TOC.

(b) Control AAR and organize hold outside HIDACZ if required.

(5) Air/Aviation. To ensure the efficient coordination of airspace within HIDACZ, all air/aviation:

(a) Must not enter the HIDACZ without approval from the DASC (this applies to ALL aircraft including SOF assets).

(b) Are to monitor the DASC's HIDACZ control frequency(ies) or the assigned TACP at all times while in the HIDACZ, to allow rapid deconfliction of fires and aircraft.

(c) Are to obtain clearance before changing level or routing and will check out with DASC prior to RTB or AAR.

ii. Launch and divert authorities for MEU assets are in table 10 below.

**Table 10. Delegation of Authority**

| MISSION TYPE | LAUNCH | DIVERT |
|---|---|---|
| OAS (RW) | DASC | DASC |
| OAS (FIXED-WING) | DASC | DASC |
| ASLT SPT | ACE COC | DASC |
| CAS EVAC | DASC | DASC |
| ISR | ACE COC | DASC |

iii. Communications. The primary check in for OP TUN TAVERN is with the MEU DASC on PLUM14, secondary check-in if no comm on primary is with TOC on PLUM37. Following check-in with DASC/TOC aircraft will be pushed to the relevant terminal control. The communications and aviation C2 integration diagrams with JTAC callsigns and frequencies are in figure 6. All communication will be primarily secure. If no communication, secure roll clear as a last resort.

| Table 11. DASC and Terminal Control Communications | | |
|---|---|---|
| **HIDACZ Ops Box** | **C/S** | **Frequencies** |
| DASC (HIDACZ Controller) | DASC | FW: (P) PLUM14<br>(S) CRIMSON37<br>RW: (P) CHERRY33<br>(S) CRIMSON37 |
| MMT2 | LAND 2 | (P) CHERRY44<br>(S) CRIMSON17 |
| MMT1 | LAND 1 | (P) ZINC18<br>(S) TAN17 |
| 2 SCOTS, JTAC | **JTAC 51** | MAUVE31 |
| MEU AO, JTAC | **JTAC 13** | LEMON 32 |
| MEU JTAC | **JTAC 14** | GRAPE 29 |
| A COY(JTAC) | **JTAC 11** | ZINC 20 |
| C COY (JTAC) | **JTAC 12** | KHAKI 19 |
| RECON, MEU (JTAC) | **JTAC 16** | INDIGO 17 |
| TF RAGIN, MEU | **JTAC 17** | INDIGO 17 |

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# Appendix D

## Example Airspace Control Checklists

The following examples of Airspace Control Checklists were gathered from recent operations to present a schematic representation of an airspace control process. The intent with the examples is not to present a specific solution to airspace coordination but rather to show a step-by-step process that could be modeled to clearly lay out to users the airspace control process needed to support a given operations.

In the following examples, steps are identified in order (e.g., 1, 2, 3, etc.), the node (i.e., organization), the cell (i.e., individual within the organization or a separate sub-organization), followed by the input (i.e., trigger event), process to be used, tools to be used in the process, and output. If more than, one organization is involved in an individual step then that is highlighted in the examples by adding decimals to the step number (e.g., 3.1, 3.2). If an individual step of a specific organization has identified sub-steps that is highlighted in the example by sub-dividing the steps (e.g., 2.1.a.1; 2.1.a.2, etc.). Figure 7 illustrates the step numbering sequence used in the examples.

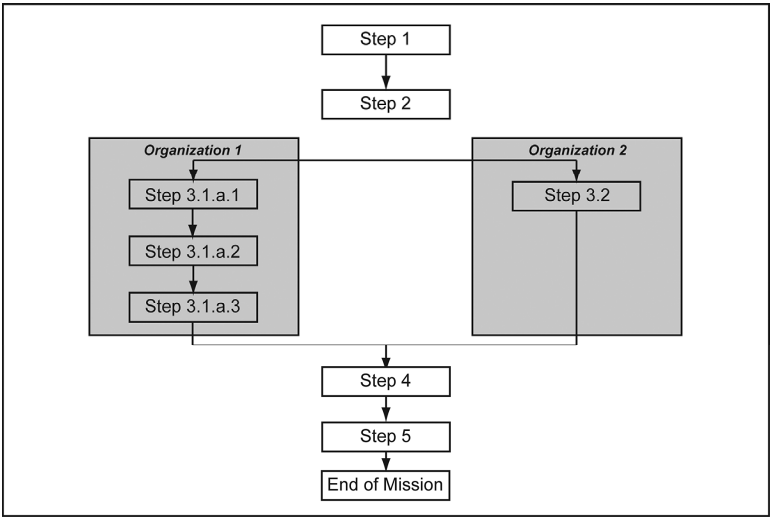


**Figure 7. Step-by-step Explanation**

| DESCRIPTION | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Army Fires** | | | | | | | |
| STEP | NODE | CELL | INPUT | PROCESS | TOOLS USED | OUTPUT | COMMENTS |
| 1 | BCT | FECC | Fire Mission | Announces fire mission data to TOC | voice | Fire mission data | |
| 2 | BCT | ADAM | Fire Mission Data | Assesses fire mission for target location, gun location, and MAXORD, converts to CGRS | TAIS, ADSI, AMDWS | if MAXORD > outside Army airspace then to 2.a<br>If gun-target line passes through Class D airspace, then 2.b<br>Fire mission data assessment (POO, POI, MAXORD using CGRS,Sectors) | |
| 2.a | BCT | ADAM | Fire Mission Data Assessment | Sends fire mission data to CRC | Chat, voice | Fire mission data | |
| 2.a.1 | Tower | | Fire Mission Data Assessment | Receives fire mission data assesment | Chat, voice | Fire mission data assessment | |
| 2.a.2 | CRC | | Fire Mission Data Assessment | Receives fire mission data assesment | BC3, AOC, ATO | Conflicts(goto step 2.a.2.a)<br>If gun-target line passes through Class D airspace, then 2.b<br>POO, POI, MAXORD, Gun Target Line | |
| 2.a.2.a | CRC | | Conflict | Mission Analysis to Resolve Conflict | TAIS, ADSI, AMDWS, | planning data | |
| 2.a.2.b | CRC | | planning data | Develop and select COA | ACO, UAS Tracker | selected COA | |
| 2.a.2.c | CRC | | selected COA | Direct and Control | Chat, voice | order | |
| 2.b | BCT | ADAM | Fire Mission Data Assessment | Sends fire mission data to ATC Tower | Chat (Tower window), voice | Fire mission data | |
| 2.b.1 | Tower | | Fire Mission Data Assessment | Receives fire mission data assesment | Chat, voice | Fire mission data assessment | |
| 2.b.2 | Tower | | Fire Mission Data Assessment | Assessess airspace | Tracking log, visual | Conflicts(goto step 2.b.2.a)<br>Announces fire mission on tower net | |
| 2.b.2.a | Tower | | Conflict | Mission Analysis to Resolve Conflict | | planning data | |
| 2.b.2.b | Tower | | planning data | Develop and select COA | Tracking log, visual | selected COA | |
| 2.b.2.c | Tower | | selected COA | Direct and Control | Chat, voice | order | |
| 3 | BCT | ADAM | Fire Mission Data | Sends fire mission data to AC2 and Avn Opns | Chat, voice | Fire mission data message | |
| 4.1 | BCT | ADAM | Fire Mission Data Assessment | Assesses airspace | TAIS, ADSI, AMDWS, UAS Tracker | Conflicts(goto step 4.a.1)<br>Airspace clearance | |
| 4.2 | DIV | AC2 | Fire Mission Data Assessment | Assesses airspace | TAIS, ADSI, AMDWS, UAS Tracker | Conflicts(goto step 4.a.1)<br>Airspace clearance | |
| 4.3 | Avn | Opns | Fire Mission Data Assessment | Assesses airspace | TAIS, Avn BFT | Conflicts(goto step 4.a.1)<br>Airspace clearance | |
| 4.a.1 | | | Conflict | Mission Analysis to Resolve Conflict | TAIS, ADSI, AMDWS, | planning data | |
| 4.a.2 | | | planning data | Develop and select COA | ACO, UAS Tracker | selected COA | |
| 4.a.3 | | | selected COA | Direct and Control | Chat, voice | order | |
| 5 | BCT | ADAM | Airspace assessment | Monitors and consolidates airspace clearances (e.g., CRC, Tower) | Chat, voice | Airspace clearance | |
| 6 | BCT | FECC | Receives airspace clearance | Releases mission in AFATDS | voice, AFATDS | Fire Mission | |
| 7 | BCT | FECC | Receives airspace clearance | Releases mission in AFATDS | voice, AFATDS | Fire Mission | EOM |

**Figure 8. Example of Army Fires Checklist**

| DESCRIPTION | | | | | | | |
|---|---|---|---|---|---|---|---|
| **CAS outside Army Airspace** | | | | | | | |
| **STEP** | **NODE** | **CELL** | **INPUT** | **PROCESS** | **TOOLS USED** | **OUTPUT** | **COMMENTS** |
| 1 | BCT | FECC | CAS Request | Receives CAS request | Voice, chat, FM | CAS Request | |
| 2 | BCT | JTAC | CAS Request | Assesses for availability | ATO, TBMCS | Available? Yes (GoTo 16.5)<br>Available? No | |
| 3.1 | ASOC | | CAS Request | Monitors CAS request | chat, voice | CAS Request | |
| 3.2 | ALO | | CAS Request | Monitors CAS request | chat, voice | | |
| 4 | ASOC | | CAS Request | Assesses for availability | ATO, TBMCS | Available CAS | |
| 5 | ASOC | | CAS Request | Assess Target location | TBMCS, ATO | Target assessment | |
| 6 | ASOC | | Available CAS, Target | Determines aircraft to task | TBMCS, ATO | Aircraft location, target location | |
| 7 | ASOC | | Aircraft location, target location | Determines airspace requirements | TBMCS, ATO | Conflicts(goto step 7.a.1)<br>Airspace assessment | |
| 7.a.1 | ASOC | | Conflict | Mission Analysis to Resolve Conflict | | planning data | |
| 7.a.2 | ASOC | | Planning data | Develop and select COA | TBMCS, ATO | selected COA | |
| 7.a.3 | ASOC | | Selected COA | Direct and Control | Chat, voice | order | |
| 8 | ASOC | | Flight information | Transmits mission request to CRC | Voice, chat | Mission request | |
| 9 | CRC | Director | Mission request | Assesses airspace requirements | BC3, ATO | Airspace assessment | |
| 10 | CRC | Director | Mission request | Passes mission request to CRC High | voice, chat | Mission request | |
| 11 | CRC | Director | Mission request | Coordinates mission request with TAOC | voice, chat | Mission request | |
| 12.1 | CRC | Director | Mission request | Evaluates CAS request | BC3, ATO | CAS Request | |
| 12.2 | CRC | High | Mission request | Assesses airspace requirements | BC3, ATO | Conflicts(goto step 12.2.a.1)<br>Airspace assessment | |
| 12.2.a.1 | CRC | High | Conflict | Mission Analysis to Resolve Conflict | | planning data | |
| 12.2.a.2 | CRC | High | Planning data | Develop and select COA | BC3, ATO | selected COA | |
| 12.2.a.3 | CRC | High | Selected COA | Direct and Control | Chat, voice | order | |
| 12.3 | TAOC | | Mission data | Assesses airspace and munitions requirements | TBMCS, ATO | Mission request information to DASC | |
| 13 | CRC | Director | Airspace movement plan | Assesses plan | BC3, ATO | Airspace requirements and Mission Data | |
| 14 | DASC | | Mission request information | Assesses airspace and munitions requirements | TBMCS, Frag Tracker | Airspace coordination | Requires Ground Clearance |
| 15 | TAOC | | Airspace coordination information | Receive airspace coordination from DASC | chat, voice | Airspace approval with comms data | |
| 16.1 | RAPCON | ATC | Mission data | Assesses for munition conflicts | Tracking log, TBMCS, radar picture | Airspace munition assessment<br>Conflicts (goto 16.a.1) | |
| 16.2 | CRC | ATC | Mission data | Assesses for munition airspace conflicts | Tracking log, TBMCS, radar picture | Airspace munition assessment<br>Conflicts (goto 16.a.1) | |
| 16.3 | CRC | LOW | Mission data | Assesses for munition airspace conflicts | Tracking log, TBMCS, radar picture | Airspace munition assessment<br>Conflicts (goto 16.a.1) | |
| 16.a.1 | | | Conflict | Mission Analysis to Resolve Conflict | | planning data | |
| 16.a.2 | | | Planning data | Develop and select COA | BC3, ATO | selected COA | |
| 16.a.3 | | | Selected COA | Direct and Control | Chat, voice | order | |
| 16.4 | ASOC | | Airspace approval with comms data | Passes airspace approval with comms data to JTAC | chat, voice | Airspace approval with comms data | |
| 16.5 | JTAC | | Airspace approval with comms data | Passes airspace approval with comms data to ADAM/BAE and FECC | voice, paper | Airspace approval with comms data | |
| 17.1 | CRC | Director | Munitions airspace approval | Assesses for munitions airspace conflicts | ATO, BC3 | Munitions approval | |
| 17.2 | BCT | ADAM | Airspace requirements | Assesses for conflicts | TAIS, AMDWS, ADSI, Tracking logs | Airspace clearance | Requires Ground Clearance |
| 17.3 | DIV | AC2 | Airspace requirements | Assesses for conflicts | TAIS, ADSI, tracking logs | Airspace clearance | |
| 18.1 | JTAC | | Airspace clearances | Consolidates airspace approvals from ASOC/CRC, ADAM, AC2 | chat, voice | Airspace clearance | |
| 18.2 | JTAC | | Munitions airspace approval | Receives munitions airspace approval from ASOC | chat, voice | Munitions approval | |
| 19 | JTAC | | Airspace and munitions approvals | Direct and Control | Voice | Aircraft to ground controller | |
| 20 | Ground controller | | Steel on target | Assesses target damage | Visual | BDA | |
| 21 | JTAC | | BDA | Releases aircraft, airspace | Voice | EOM | |

**Figure 9. Example of CAS Outside of Army Airspace Checklist**

| DESCRIPTION | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Dynamic UA Retask** | | | | | | | |
| STEP | NODE | CELL | INPUT | PROCESS | TOOLS USED | OUTPUT | COMMENTS |
| 1 | AOC | | UAS retasking order | Receive direction for UAS | Chat | Chat message with | |
| 2.1 | CRC | Director | Chat message with retasking order | Receive direction for UAS retasking | Chat | CRC processed order | |
| 2.2 | ASOC | | Chat message with retasking order | Receive direction for UAS retasking | Chat | ASOC processed order | |
| 3 | CRC | | CRC processed order | Assess for airspace conflict | | Conflicts(goto step 3.a.1)<br>CRC airspace assessment | |
| 3.a.1 | CRC | Director | Conflict | Mission Analysis to Resolve Conflict | BC3, ACO, ATO | planning data | |
| 3.a.2 | CRC | Director | planning data | Develop and select COA | BC3, ACO, ATO | selected COA | |
| 3.a.3 | CRC | Director | selected COA | Direct and Control | Chat, voice | order | |
| 4 | CRC | | CRC airspace assessment | Confirms the available airspace | Chat | Airspace assessment | |
| 5 | ASOC | | ASOC processed order | Assess for airspace conflict | | Conflicts(goto step 5.a.1)<br>ASOC airspace assessment | |
| 5.a.1 | ASOC | | Conflict | Mission Analysis to Resolve Conflict | TBMCS, ACO, ATO | planning data | |
| 5.a.2 | ASOC | | planning data | Develop and select COA | TBMCS, ACO, ATO | selected COA | |
| 5.a.3 | ASOC | | selected COA | Direct and Control | Chat, voice | order | |
| 6 | ASOC | | ASOC airspace assessment | Send mission data to JTAC | Chat, voice | Mission data message | |
| 7 | BCT | JTAC | Mission Data | Receive UAS mission data<br>Provide mission data to FECC and ADAM | Chat | Mission data message | |
| 8 | BCT | ADAM | Mission Data | Assess for airspace conflict | TAIS, ADSI, AMDWS, TBMCS | Conflicts(goto step 8.a.1)<br>Airspace route coordinated | |
| 8.a.1 | BCT | ADAM | Conflict | Mission Analysis to Resolve Conflict | TAIS, ADSI, AMDWS, | planning data | |
| 8.a.2 | BCT | ADAM | planning data | Develop and select COA | TBMCS, ACO | selected COA | |
| 8.a.3 | BCT | ADAM | selected COA | Direct and Control | Chat, voice | order | |
| 9 | BCT | JTAC | Airspace route coordinated | Sends airspace assessment to ASOC | Chat, voice | Airspace assessment | |
| 10 | ASOC | | Airspace assessments | Consolidates assessments and forwards to AOC | Chat, voice | ASOC Airspace assessment | |
| 11 | AOC | | ASOC Airspace assessments | Reviews assessment<br>Issues order to UAS | Chat, voice | Order | |
| 12 | UAS | | Order | Moves aircraft as directed | command channels | EOM | |

**Figure 10. Example of Dynamic UA Retask Checklist**

| DESCRIPTION | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Immediate Fires vic Airfield** | | | | | | | |
| STEP | NODE | CELL | INPUT | PROCESS | TOOLS USED | OUTPUT | COMMENTS |
| 1 | BCT | FECC | Fire Mission | Announces fire mission data to TOC | voice | Fire mission data | |
| 2 | BCT | ADAM | Fire Mission Data | Assesses fire mission for target location, gun location, and MAXORD, converts to CGRS | TAIS, ADSI, AMDWS | if MAXORD > CA then to 2.a<br>If gun-target line passes through Class D airspace, then 2.b<br>Fire mission data assessment (POO, POI, MAXORD using CGRS,Sectors) | |
| 2.a | BCT | ADAM | Fire Mission Data Assessment | Sends fire mission data to CRC | Chat, voice | Fire mission data assessment | |
| 2.a.1 | CRC | | Fire Mission Data Assessment | Receives fire mission data assesment | BC3, AOC, ATO | Conflicts(goto step 2.a.2.a)<br>If gun-target line passes through Class D airspace, then 2.b<br>Airspace clearance | |
| 2.a.2.a | CRC | | Conflict | Mission Analysis to Resolve Conflict | TAIS, ADSI, AMDWS, | planning data | |
| 2.a.2.b | CRC | | planning data | Develop and select COA | ACO, UAS Tracker | selected COA | |
| 2.a.2.c | CRC | | selected COA | Direct and Control | Chat, voice | order | |
| 2.b | BCT | ADAM | Fire Mission Data Assessment | Sends fire mission data to ATC Tower | Chat (Tower window), voice | Fire mission data | |
| 2.b.1 | Tower | | Fire Mission Data Assessment | Receives fire mission data assesment | Chat, voice | Fire mission data assessment | |
| 2.b.2 | Tower | | Fire Mission Data Assessment | Assessess airspace | Tracking log, visual | Conflicts(goto step 2.b.2.a)<br>Announces fire mission on tower net | |
| 2.b.2.a | Tower | | Conflict | Mission Analysis to Resolve Conflict | | planning data | |
| 2.b.2.b | Tower | | planning data | Develop and select COA | Tracking log, visual | selected COA | |
| 2.b.2.c | Tower | | selected COA | Direct and Control | Chat, voice | order | |
| 3 | BCT | ADAM | Fire Mission Data Assessment | Assesses airspace | TAIS, ADSI, AMDWS, UAS Tracker | Conflicts(goto step 3.a.1)<br>BCT airspace assessment | |
| 3.a.1 | BCT | ADAM | Conflict | Mission Analysis to Resolve Conflict | TAIS, ADSI, AMDWS, | planning data | |
| 3.a.2 | BCT | ADAM | planning data | Develop and select COA | ACO, UAS Tracker | selected COA | |
| 3.a.3 | BCT | ADAM | selected COA | Direct and Control | Chat, voice | order | |
| 4 | BCT | ADAM | Receives CRC and Tower airspace clearance as required | Collects airspace clearances | Chat, voice | Airspace clearance | |
| 5 | BCT | FECC | Receives airspace clearance | Releases mission in AFATDS | voice, AFATDS | Fire Mission | After receiving ground clearance |
| 6 | Tower | | In-Flight Emergency Call | Assesses for conflicts | Radio, radar | Conflicts(goto 6.a.1)<br>Directs aircraft to land | |
| 6.a.1 | Tower | | Conflict | Mission Analysis to Resolve Conflict | Tracking log, visual | planning data | |
| 6.a.2 | Tower | | planning data | Develop and select COA | | selected COA | |
| 6.a.3 | Tower | | selected COA | Direct and Control | Chat, voice | order | EOM |

**Figure 11. Example of Fires in Vicinity of Airfield Checklist**

| DESCRIPTION | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Immediate ROZ** | | | | | | | |
| STEP | NODE | CELL | INPUT | PROCESS | TOOLS USED | OUTPUT | COMMENTS |
| 1 | CRC | Director | Receives notice of immediate Roz | Receives and disseminates information | Chat, voice | ROZ data | |
| 2.1 | CRC | High | ROZ data | Plot and assess for coflicts | Chat, BC3 | Changes to current missions, ROZ data | |
| 2.2 | CRC | Low | ROZ data | Plot and assess for coflicts | Chat, BC3 | | |
| 2.3 | CRC | UAS-ATC | ROZ data | Plot and assess for coflicts | Chat, BC3 | | |
| 2.4 | CRC | Director | ROZ data | Plot and assess for coflicts | Chat, BC3 | | |
| 2.5 | RAPCON | CENRAP | ROZ data | Plot and assess for coflicts | Chat, Air Picture | | |
| 2.6 | DIV | AC2 | ROZ data | Plot and assess for coflicts | Chat, TAIS | | |
| 2.7 | DIV | FECC | ROZ data | Plot and assess for coflicts | Chat, AFATDS | | |
| 2.8 | DIV | ALO | ROZ data | Plot and assess for coflicts | Chat, TBMCS | | |
| 2.9 | BCT | ADAM | ROZ data | Plot and assess for coflicts | Chat, AFATDS | | |
| 2.10 | BCT | FECC | ROZ data | Plot and assess for coflicts | Chat, AFATDS | | |
| 2.11 | BCT | JTAC | ROZ data | Plot and assess for coflicts | Chat, TBMCS | | |
| 2.12 | Rgt | Fires | ROZ data | Plot and assess for coflicts | Chat, AFATDS | | |
| 2.a.1 | | | Conflict | Mission Analysis to Resolve Conflict | Available SA and planning tools | Mission Data | |
| 2.a.2 | | | Planning data | Develop and select COA | | selected COA | |
| 2.a.3 | | | Selected COA | Direct and Control | Chat, voice | Mission Changes to Avn Unit | |
| 3 | Avn | Opns | MEDEVAC Request Approval | Develop and select COA | TAIS, Chat | Request to transit ROZ | |
| 4 | CRC | Director | Request to transit ROZ | Assesses, requests from ROZ controller | Chat, voice | Approved, then 8 Denied | |
| 5 | CRC | Director | Denial of request | Denies AVN request to transit | Denial | Chat | |
| 6 | Avn | Opns | Denial of request | Develops secondary COA around ROZ | TAIS, Planning tools, Chat | COA | |
| 7.1 | Div | AC2 | Monitors COA, Mission | Assesses airspace for conflict, Maintains SA | TAIS, ADSI, Tracking logs | Airspace clearance | |
| 7.2 | BCT | ADAM | Monitors COA, Mission | Assesses airspace for conflict, Maintains SA | TAIS, ADSI, Tracking logs | Airspace clearance | |
| 7.a.1 | | | Conflict | Mission Analysis to Resolve Conflict | Available SA and planning tools | Mission Data | |
| 7.a.2 | | | Planning data | Develop and select COA | | selected COA | |
| 7.a.3 | | | Selected COA | Direct and Control | Chat, voice | Mission Changes to Avn Unit | |
| 8 | AVN | Opns | Mission Updates | Transmits mission updates | Chat | Mission Updates | EOM |

**Figure 12. Example of Immediate ROZ Checklist**

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# GLOSSARY

| ABBREVIATIONS AND ACRONYMS | |
|---|---|
| **A** | |
| AADC | area air defense commander |
| AADP | area air defense plan |
| AAGS | Army air-ground system |
| AAR | Air-to-air refueling |
| ABC | airborne command and control |
| AC2 | airspace command and control |
| ACA | airspace control authority |
| ACCE | air component coordination element |
| ACE | aviation combat element |
| ACE | aviation combat element |
| ACM | airspace coordinating measure |
| ACO | airspace control order |
| ACP | airspace control plan |
| ACS | airspace control system |
| ADA | air defense artillery |
| ADAA | air defense action area |
| ADAM | air defense airspace management |
| ADIZ | air defense identification zone |
| ADP | air defense plan |
| ADVRTE | advisory route |
| ADZ | amphibious defense zone |
| AEW | airborne early warning |
| AFATDS | Advanced Field Artillery Tactical Data System |
| AFFOR | Air Force forces |
| AFI | Air Force Instruction |
| AFTTP | Air Force tactics, techniques, and procedures |
| AGL | above ground level |
| AI | air interdiction |
| AIC | air information center |
| AIP | aeronautical information publication |
| AIRCOR | air corridor |
| AIRRTE | air route |
| ALERTA | alert area |
| ALO | air liaison officer |
| ALSA | Air Land Sea Application Center |
| ALTRRV | altitude reservation |
| AO | area of operations |

| | |
|---|---|
| AOA | amphibious objective area |
| AOC | air operations center |
| AOD | air operations directive |
| AOR | area of responsibility |
| APPCOR | approach corridor |
| ARFOR | Army forces |
| ARWY | airway |
| ASM | airspace management |
| ASOC | air support operations center |
| ATACMS | Army Tactical Missile System |
| ATC | air traffic control |
| ATO | air tasking order |
| ATS | air traffic system |
| ATSRTE | air traffic service route |
| AVN | aviation |
| AWACS | airborne warning and control system |
| **B** | |
| BAE | brigade aviation element |
| BCD | battlefield coordination detachment |
| BCT | brigade combat team |
| BDZ | base defense zone |
| BNDRY | boundary |
| BULL | bullseye |
| BZ | buffer zone |
| **C** | |
| C2 | command and control |
| CADA | coordinated air defense area |
| CALCM | conventional air launched cruise missile |
| CAOC | combined air operations center |
| CAP | combat air patrol |
| CAS | close air support |
| CBA | cross-border area |
| CCA | close combat attack |
| CCZONE | carrier control zone |
| CDR | commander (JP 1-02); conditional routes (USMTF usage) |
| CFACC | combined force air component commander |
| CFL | coordinated fire line |
| CGRS | common geographic reference system |
| CHOPS | chief of operations |
| CJCSI | Chairman of the Joint Chiefs of Staff instruction |
| CLSA | class A airspace |

| | |
|---|---|
| CLSB | class B airspace |
| CLSC | class C airspace |
| CLSD | class D airspace |
| CLSE | class E airspace |
| CLSF | class F airspace |
| CLSG | class G airspace |
| COA | courses of action |
| COMAFFOR | Commander, Air Force forces |
| CONTZN | control zone |
| COP | common operational picture |
| COZ | crossover zone |
| CP | control point |
| CRC | control and reporting center |
| CSAR | combat search and rescue |
| CTA | control area |
| **D** | |
| DA | danger area |
| DASC | direct air support center |
| DBSL | deep battle synchronization line |
| DCA | defensive counterair |
| DOD | Department of Defense |
| DZ | drop zone |
| **E** | |
| EC | electronic combat |
| EG | entry/exit gate |
| ES | electronic warfare support |
| **F** | |
| FAA | Federal Aviation Administration |
| FAAO | Federal Aviation Administration Order |
| FAC(A) | forward air controller (airborne) |
| FADIZ | fleet air defense identification zone |
| FARP | forward arming and refueling point |
| FEBA | forward edge of the battle area |
| FFA | free-fire area |
| FIR | flight information region |
| FLOT | forward line of own troops |
| FM | field manual |
| FOB | forward operating base |
| FOL | forward operating location |
| FRAD | falcon radial |
| FRAGORD | fragmentary order |
| FSCL | fire support coordination line |

| | |
|---|---|
| FSCM | fire support coordination measures |
| FSCOORD | fire support coordinator |
| FSO | Fire Support Officer |
| ft | feet |
| FW | fixed wing |
| **G** | |
| GARS | global area reference system |
| GCC | geographic combatant commander |
| **H** | |
| HA | holding area |
| HIDACZ | high-density airspace control zone |
| HIMEZ | high-altitude missile engagement zone |
| HN | host nation |
| HQ | headquarters (JP 1-02); hand-over gate (USMTF usage) |
| **I** | |
| ICAO | International Civil Aviation Organization |
| IDN | initial distribution number |
| IFF | identification, friend or foe |
| IFFOFF | IFF switch off line |
| IFFON | IFF switch on line |
| IO | information operations |
| IRC | internet relay chat |
| ISP | identification safety point |
| ISR | intelligence, surveillance, and reconnaissance (JP 1-02); identification safety range (USMTF usage) |
| **J** | |
| JAAT | joint air attack team |
| JACE | joint air coordination element |
| JAOC | joint air operations center |
| JAOP | joint air operations plan |
| JEZ | joint engagement zone |
| JFACC | joint force air component commander |
| JFC | joint force commander |
| JFLCC | joint force land component commander |
| JFMCC | joint force maritime component commander |
| JICO | joint interface control officer |
| JOA | joint operations area |
| JP | joint publication |
| JSOA | joint special operations area |
| JSOAC | joint special operations air component |
| JSOACC | joint special operations air component commander |

| | |
|---|---|
| JSTARS | Joint Surveillance Target Attack Radar System |
| JTAC | joint terminal attack controller |
| JTF | joint task force |
| **L** | |
| LAT | latitude |
| LCC | land component commander |
| LMEZ | land missile engagement zone |
| LNO | liaison officer |
| LONG | longitude |
| LOMEZ | low-altitude missile engagement zone |
| LZ | landing zone |
| **M** | |
| MBC | mortar ballistic computer |
| MFEZ | maritime fighter engagement zone |
| MG | marshalling gate |
| MISARC | missile arc |
| MLRS | multiple launch rocket system |
| MMEZ | maritime missile engagement zone |
| MOA | military operating area |
| MRR | minimum-risk route |
| MSL | mean sea level |
| MTTP | multi-Service tactics, techniques, and procedures |
| **N** | |
| NAVRTE | area navigation route |
| NFA | no fire area |
| NGO | nongovernmental organization |
| NM | nautical mile |
| NOFLY | no fly area |
| NOTAM | notice to airmen |
| **O** | |
| OCF | other coalition forces |
| OEF | Operation Enduring Freedom |
| OGA | other governmental agency |
| OIF | Operation Iraqi Freedom |
| OPORD | operations order |
| OPR | office of primary responsibility |
| OPS | operations |
| OPTASKLINK | operations task link |
| **P** | |
| PROHIB | prohibited area |
| PZ | pickup zone |

| R | |
|---|---|
| RA | restricted area |
| RCA | reduced coordination area |
| RECCE | reconnaissance area |
| RFL | restricted fire line |
| ROA | restricted operations area |
| ROE | rules of engagement |
| ROZ | restricted operations zone |
| RTB | return to base |
| RTF | return to force |
| RW | rotary wing |
| **S** | |
| S-2 | battalion or brigade intelligence staff officer |
| S-3 | battalion or brigade operations staff officer |
| SAAFR | standard use Army aircraft flight route |
| SACC | supporting arms coordination center |
| SAFE | safe area for evacuation |
| SAFES | safe sector |
| SAR | search and rescue |
| SARDOT | search and rescue point |
| SC | special corridor |
| SCARC | strike coordination and reconnaissance coordinator |
| SCZ | ship control zone |
| SEAD | suppression of enemy air defenses |
| SEMA | special electronic mission area |
| SIF | selective identification feature |
| SIPRNET | SECRET Internet Protocol Router Network |
| SITREP | situation report |
| SHORAD | short-range air defense engagement zone |
| SL | safe lane |
| SOCCE | special operations command and control element |
| SOF | special operations forces |
| SOLE | special operations liaison element |
| SPINS | special instruction |
| SSMS | surface-to-surface missile system |
| SUA | special use area |
| **T** | |
| TACC | tactical air control center |
| TACOPDAT | tactical operational data |
| TACP | tactical air control party |
| TACS | theater air control system |
| TAGS | theater air ground system |

| | |
|---|---|
| TAIS | Tactical Airspace Integration System |
| TAMD | theater air and missile defense |
| TBMCS | theater battle management core system |
| TBN | to be notified |
| TC | transit corridor |
| TCA | terminal control area |
| TDL | tactical data link |
| TIC | troops in contact |
| TL | traverse level |
| TLAM | Tomahawk Land Attack Missile |
| TM | terrain management |
| TMD | theater missile defense |
| TMRR | temporary minimum risk route |
| TOC | tactical operations center |
| TPFDD | time-phased force and deployment data |
| TRNA | training area |
| TR | transit route |
| TRADOC | US Army Training and Doctrine Command |
| TRSA | terminal radar service area |
| TSA | temporary segregated area |
| TTP | tactics, techniques, and procedures |
| **U** | |
| UA | unmanned aircraft |
| UAS | unmanned aircraft system |
| UAV | unmanned aerial vehicle |
| US | United States |
| USA | US Army |
| USAF | US Air Force |
| USMC | US Marine Corps |
| USMTF | United States Message Text Format |
| **W** | |
| WARN | warning area |

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