

APPENDIX B. FIRE SUPPORT COORDINATING MEASURES

Fire support coordinating measures (FSCMs) enhance the expeditious attack of targets and provide safeguards for friendly forces. Their use is governed by the tactical situation. FSCMs fall into two broad categories: permissive and restrictive. Some maneuver control measures also affect fire support coordination. FSCMs are recommended by the FSC and established by the commander. FSCMs are graphically shown as a black line or lines (solid or dashed). All measures are labeled with the title or abbreviated title of the measure followed by the establishing headquarters (in parentheses). The significance of identifying the establishing headquarters is that it designates the area where the FSCM applies. For example, a coordinated fire line (CFL) established by a battalion is effective within that battalion's zone of action. The effects do not extend beyond the battalion's zone. When a date-time group is used, the time zone must be shown. FSCMs can be effective immediately, at a scheduled time or on-call.

PERMISSIVE FSCMS

These measures authorize the attack of targets without clearance from the ground commander if certain circumstances are met.

Coordinated Fire Line

The CFL is a line beyond which conventional surface fire support means; e.g., mortars, field artillery, and NSFS ships may fire at any time within the zone of the establishing headquarters without additional coordination. See figure B-1.

The CFL expedites the attack of targets beyond the CFL without coordination with the ground commander in whose zone of action targets are located. It also provides the ground commander with an area within his zone

where his forces can operate in safety from uncoordinated friendly surface delivered indirect fires.

Maneuver battalion commanders are responsible for selecting or approving a recommended CFL location for their zone of action or sector of defense, while supporting artillery commanders and artillery liaison officers at every echelon should make appropriate recommendations concerning its location. The location of the battalion's CFL is forwarded to the infantry regiment through both infantry and artillery fire support coordination channels, where it is approved, consolidated, and forwarded to division level as appropriate. A consolidated CFL may be established for the GCE as a whole, but this is not always practical.

The selected location of the CFL at all echelons is based on such factors as the scheme of maneuver, patrol plans, locations of security forces, and the troop safety desires of the ground commander. There is no requirement for the CFL to be placed on identifiable terrain. However, additional considerations are the limits of ground observation, the location of the initial objectives in the offense, and the requirement for maximum flexibility in both maneuver and the delivery of supporting fires.

Graphic portrayal of the location of the CFL is shown on maps, charts, and overlays by a dashed black line with the letters CFL followed by the establishing headquarters in parentheses above the line and the effective date-time group below the line. The FSCC of the establishing commander disseminates the location of the CFL to the fire support coordination agencies of subordinate, adjacent, and higher headquarters, as required. It is further disseminated to each level of command, to include the establishing command, and all concerned fire support agencies.

Fire Support Coordination Line

The fire support coordination line (FSCL) is an FSCM that delineates the coordination requirements for the attack of surface targets. It is established by the appropriate land or amphibious commander within his boundaries in consultation with superior, subordinate, supporting, and affected commanders. An FSCL is not a boundary and does not divide an AO. The FSCL applies to all fires of

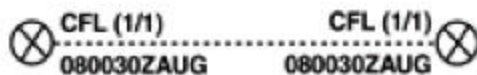


Figure B-1. Coordinated Fire Line.

air, land, and sea-based weapon systems using any type of ammunition against surface targets. Forces attacking targets beyond an FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide, both in the air and on the ground. See figure B-2.



Figure B-2. Fire Support Coordination Line.

In exceptional circumstances, the inability to conduct this coordination will not preclude the attack of targets beyond the FSCL. However, failure to do so may increase the risk of fratricide and could waste limited resources. When targets are attacked beyond the FSCL, supporting elements must ensure that these attacks do not produce adverse effects on, or to the rear of the line. Short of the FSCL, all air-to-ground and surface-to-surface attack operations are controlled by the appropriate land or amphibious force commander. Establishment of the FSCL must be coordinated with all affected commanders in order to avoid fratricide.

The primary purpose of the FSCL is to facilitate the expeditious attack of targets of opportunity beyond the coordinating measure. It provides a measure for coordination between ground elements and supporting forces without endangering friendly troops in the air or on the ground or requiring additional coordination with the establishing headquarters. The FSCL—

- Facilitates attack of surface targets beyond it.
- Provides ground commanders with sufficient control of aircraft short of it to ensure troop safety.
- Maximizes employment of weapons where they are most efficient, and provides aviation commanders, air control agencies, and pilots with enough information to identify where control or coordination is required before aircraft can attack ground targets.

In amphibious operations, the FSCL is normally established by the MAGTF commander after coordination with the navy amphibious commander. When air forces external to the ATF are supporting the amphibious operation, the MAGTF commander coordinates with the supporting forces in conjunction with the navy amphibious commander. When Marine Corps forces operate independently on land, the FSCL is established by the MAGTF commander. In joint or combined operations, the FSCL may be established by headquarters above the MAGTF. Before establishment, consultation should be made with appropriate ground and aviation elements.

The FSCL should follow well defined terrain features easily identifiable from the air. Positioning of the FSCL must consider the tactical situation. This should include the scheme of maneuver or plan of defense, weather, terrain, type and source of aircraft, and overall flexibility of maneuver and fire support. A key factor is the range of the land or amphibious commander's organic weapon systems.

The FSCL is disseminated by the establishing MAGTF commander to the FSCCs of subordinate, adjacent, and higher headquarters, as required. It is further disseminated at each level of command, including the establishing command, to all concerned fire support agencies, such as the DASC, TACC, FDC, SACC, and NSFS ships. Changes to the FSCL require notification of all affected forces within the AO and must allow sufficient time for these elements to incorporate the FSCL change. Generally, 6 hours is adequate to coordinate a change.

FSCL location is graphically portrayed on fire support maps, charts, and overlays by a solid black line with the letters FSCL followed by the establishing headquarters in parentheses above the line and effective date-time group below the line. See figure B-3 on page B-3.

Battlefield Coordination Line

A battlefield coordination line (BCL) is a fire support coordinating measure, established based on METT-T, which facilitates the expeditious attack of surface targets

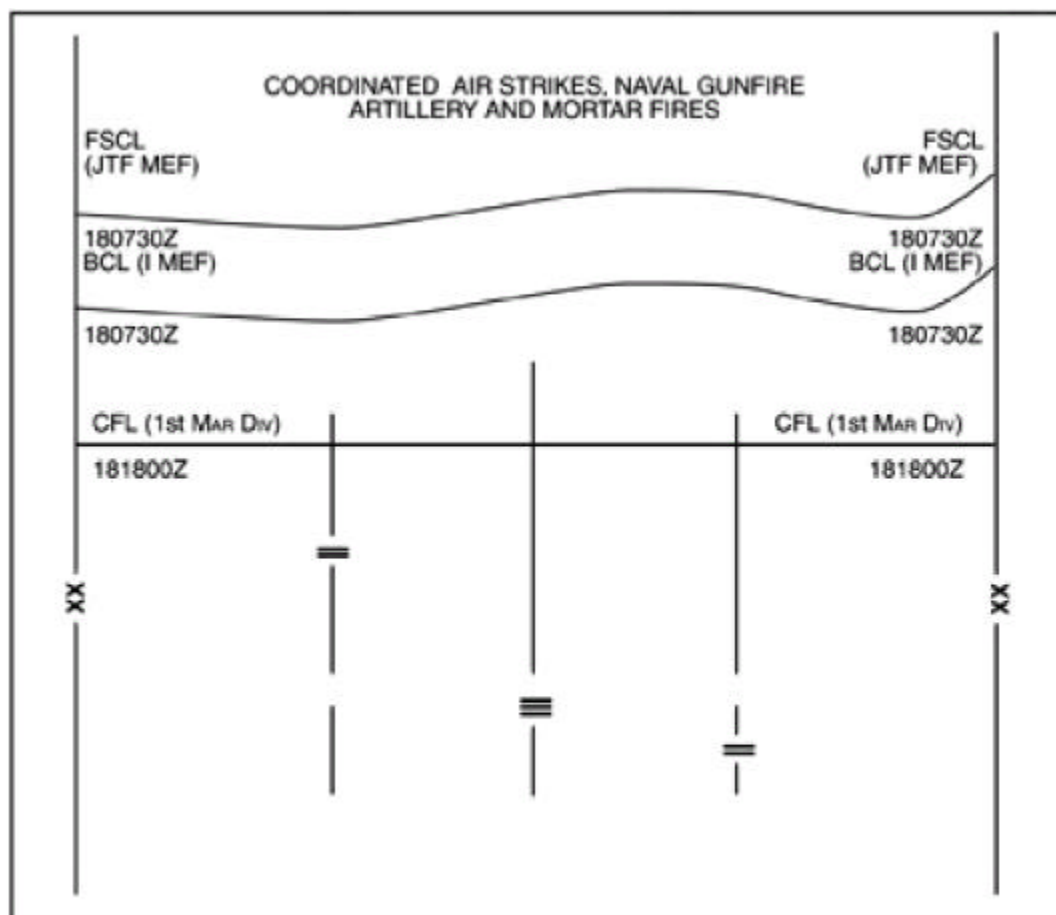


Figure B-3. Example of Permissive FSCM.

of opportunity between the measure and the FSCL. When established, the primary purpose is to allow MAGTF aviation to attack surface targets without approval of a GCE commander in whose area the targets may be located. To facilitate air-delivered fires and deconflict air and surface fires, an airspace coordination area (ACA) will always overlie the area between the BCL and the FSCL. Ground commanders may strike any targets beyond the BCL and short of the FSCL with artillery and/or rockets without coordination as long as those fires deconflict with the established ACA overhead. This includes targets in an adjacent ground commander's zone that falls within the BCL-FSCL area.

The BCL is an exclusive Marine Corps FSCM, similar to an FSCL, which facilitates the expeditious attack of targets with surface indirect fires and aviation fires between this measure and the FSCL. See figure B-4. Normally, Marine units prefer placing the FSCL close to the FEBA so that organic indirect fires can range most targets short

of the FSCL and organic air assets have maximum freedom to engage targets beyond the FSCL.

However, since in many operations the FSCL is controlled by the CINC or JTF commander, the FSCL may be placed at a significantly greater distance than the maximum range of Marine Corps indirect fire assets. This gives the enemy a sanctuary, between the maximum range of indirect fire supporting arms and the FSCL, in which aviation assets cannot freely engage without coordination and GCE assets are unable to influence. The BCL was thus developed as a supplemental measure that



Figure B-4. Battlefield Coordination Line.

may or may not be used. A key factor is the range and positioning of GCE organic weapon systems and the positioning of the FSCL. If the FSCL is placed such that a sanctuary exists between the range of Marine artillery and the FSCL, the MAGTF commander can use this internal coordinating measure to facilitate the attack of targets within this area.

The BCL allows MAGTF fire support assets to attack surface targets without further coordination with the GCE commander in whose area the targets may be located. Marine aviation may strike any target beyond the BCL and short of the FSCL without further coordination, including targets in an adjacent Marine commander's zone between the BCL and FSCL. Before firing, the ground commander should coordinate with the ACE (DASC) if surface delivered fires will violate ACAs associated with the BCL.

The MAGTF commander establishes the BCL. The BCL should follow well defined terrain features easily identifiable from the air. The positioning of the BCL must consider the tactical situation. This should include the scheme of maneuver or plan of defense, weather, terrain, type and source of aircraft, and overall flexibility of maneuver and fire support.

The BCL is disseminated by the establishing MAGTF commander to the FSCCs of subordinate, adjacent, and higher headquarters, as required. It is further disseminated at each level of command, including the establishing command, to all concerned fire support agencies such as the DASC, TACC, FDC, SACC, and NSFS ships.

BCL location is graphically portrayed on fire support maps, charts, and overlays by a solid black line with the letters "BCL" followed by the establishing headquarters in parentheses above the line and effective date-time group below the line. BCL is not currently supported by automated systems for depiction.

Free-Fire Area

The free-fire area (FFA) is a specific designated area into which any weapon system may fire without additional coordination with the establishing headquarters.

FFAs expedite fire and facilitate jettisoning of CAS munitions if an aircraft is unable to drop on a target.

FFAs may be established only by the military or civilian commander with jurisdiction over the area (usually division or higher). An FFA request must be forwarded to the appropriate approving official through the MAGTF commander.

Preferably, the FFA should be easily identifiable from the air, but it may be designated by grid coordinates, GPS coordinates or latitude and longitude.

The force commander disseminates the FFA including the effective dates and times of the FFA to all subordinate units.

The FFA is enclosed by a black line with the words Free-Fire Area or the letters FFA written inside the circumscribed area. The establishing headquarters may be identified as part of the graphic portrayal. See figure B-5.

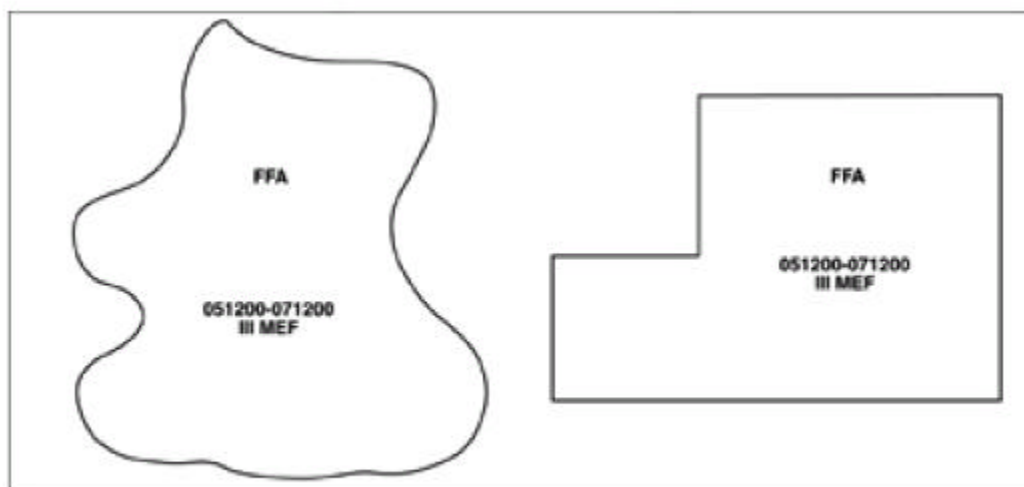


Figure B-5. Free-Fire Area.

RESTRICTIVE FSCMS

Restrictive FSCMs restrict the use of supporting arms.

Restrictive Fire Line

An RFL is a line established between converging friendly forces (one or both may be moving) that prohibits fires, or effects from fires, across the line without coordination with the affected force. It prevents fratricide between converging friendly forces.

The common commander of the converging forces establishes the RFL. He may delegate establishing authority to the senior commander of the two converging forces or to the commander of the maneuvering force in a linkup operation between a moving and a stationary force.

To provide for recognition, the RFL should be located on identifiable terrain. In linkup operations, the RFL is moved as close as possible to the stationary force to allow maximum freedom of action for the maneuver and fire support of the linkup force.

The FSCC of the establishing commander disseminates the location of the RFL to the fire support coordination agencies of subordinate, adjacent, and higher headquarters, as required. It is further disseminated to each level of command, to include the establishing command and all concerned fire support agencies.

The location of the RFL is graphically portrayed by a solid black line with the letters RFL followed by the name of the establishing headquarters above the line. The effective date-time group is written below the line. See figure B-6.

No-Fire Area

An NFA is an area where no fires or effects of fires are allowed. Two exceptions are when establishing headquarters approves fires temporarily within the NFA on a mission basis, and when the enemy force within the NFA engages a friendly force, the commander may engage the enemy to defend his force.

See figure B-7 on page B-6 for an example of an NFA.

The NFA prohibits fires or their effects in the area, normally to protect civilians or cultural areas.

Typically, the Navy amphibious commander/MAGTF commander or MEF establishes an NFA. On arrival of military forces, the force commander coordinates the location of an NFA with local authorities.

Normally an NFA is on recognizable terrain, but its location may also be expressed by grid coordinates or by radius in meters from a center point.

The establishing commander disseminates the NFA to all units of the force.

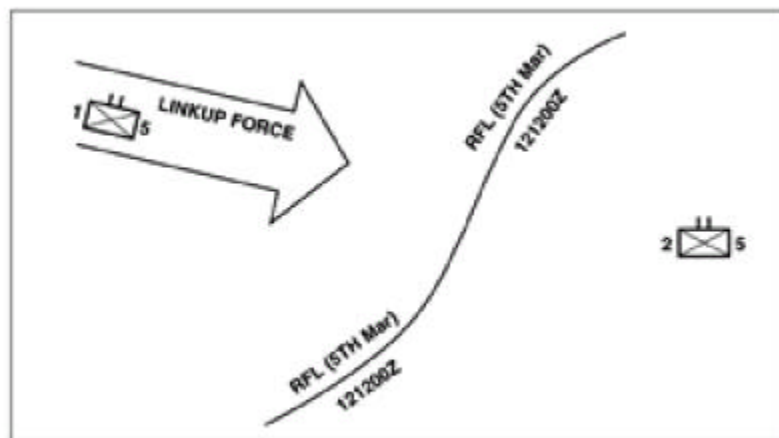


Figure B-6. Restrictive Fire Line.

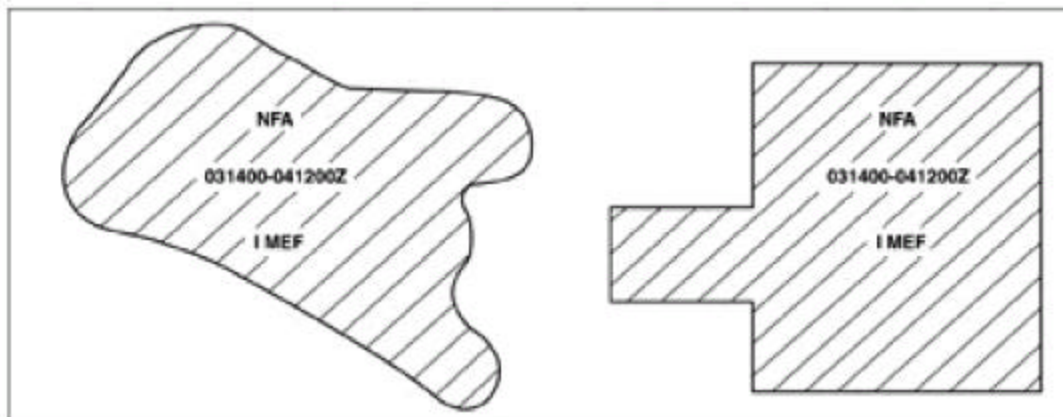


Figure B-7. No-Fire Area.

An NFA is graphically portrayed as an area outlined with a solid black line with black diagonal lines inside. The letters NFA are written inside the circumscribed area, along with the effective date-time group for commencement and termination. The area should also be identified by the designation of the headquarters that established the area.

Restrictive Fire Area

An RFA is an area in which specific restrictions are imposed and into which fires that exceed those restrictions will not be delivered without prior coordination with the establishing headquarters.

The RFA regulates fires into an area according to the stated restrictions. This means that fires or certain types of ordnance; e.g., ICM or WP, can be controlled where friendly forces are or will be located.

An RFA may be established by any ground unit commander within his own zone; however, it is not normally established below battalion level. When RFAs are used to protect a forward unit from friendly fires; e.g., reconnaissance team, the RFA size should be large enough to allow the maneuver of the unit but not so large as to needlessly restrict fire support in other areas. To facilitate rapidly changing maneuver areas, on-call RFAs may be used. Dimensions, location, and restrictions of the on-call RFA are prearranged. The RFA is activated and deactivated when requested by the maneuvering unit or scheduled by time or event.

An RFA may be on recognizable terrain, expressed by grid coordinates or by radius from a point.

An RFA is disseminated by the establishing commander to the fire support coordination agencies of subordinate, adjacent, and higher headquarters, as required. It is further disseminated to each level of command, including the establishing command, and to all concerned fire support agencies.

An RFA is portrayed by a solid black line defining the area with the letters RFA, the designation of the unit establishing the area, any special instructions, and the effective date-time group written inside the area. See figure B-8.

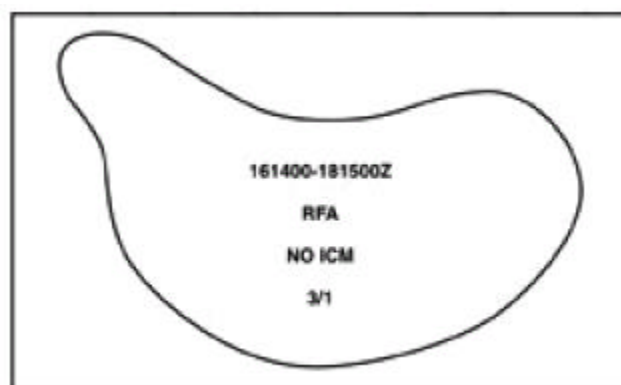


Figure B-8. Restrictive Fire Area.

Airspace Coordination Area

An ACA is 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 1-02).

Formal ACAs require detailed planning. More often, informal ACAs are established using time, lateral or altitude separation between surface- and air-delivered weapon effects. ACAs can vary from physically defined areas to the various methods of separation. Physical areas can include routes (control point to IP, HA to BP) or areas (over the target, IP, BP). See figure B-9.

The ACA ensures aircrew safety and effective use of indirect supporting surface fires by deconfliction of time and space.

The commander of the unit requesting air support also requests ACAs based on the recommendations of his FSC. Formal ACAs are established by the airspace control authority and can be scheduled, on-call (on order) or immediate. Scheduled ACAs will state the time they are to be effective; e.g., 181400Z to 181405Z.

The ACA may be referred to by a code name; e.g., BO-ZO or it may take some other form such as the MCFSS identification; e.g., AC15MR (ACA 1, 5th Mar), or the target number or grid coordinates of the target. A code

name is the easiest to use, particularly for scheduled and on-call ACAs. An immediate ACA may or may not have a code name. The target number or a set of grid coordinates associated with the air support mission facilitates the dissemination of an immediate ACA.

A control point is a position marked by a buoy, boat, aircraft, electronic device, conspicuous terrain feature, or other identifiable object which is given a name or number and used as an aid to navigation or control of ships, boats, or aircraft. (excerpt from JP 1-02) During planning, control points are selected and named throughout the area. As necessary, these control points are designated as initial points (IPs), contact points, exit points (EPs) penetration control points (PCPs), etc. Control points can be used in the establishment and promulgation of ACAs. When this is done, the names of the control points are substituted for grid coordinates. For example, ACA BO-ZO, altitude 50 to 400 feet, Rose to Jones, width 500 meters, effective 281400Z to 281410Z. If all units do not have the aviation control points, they must be transcribed into grids. See figure B-10 on page B-8.

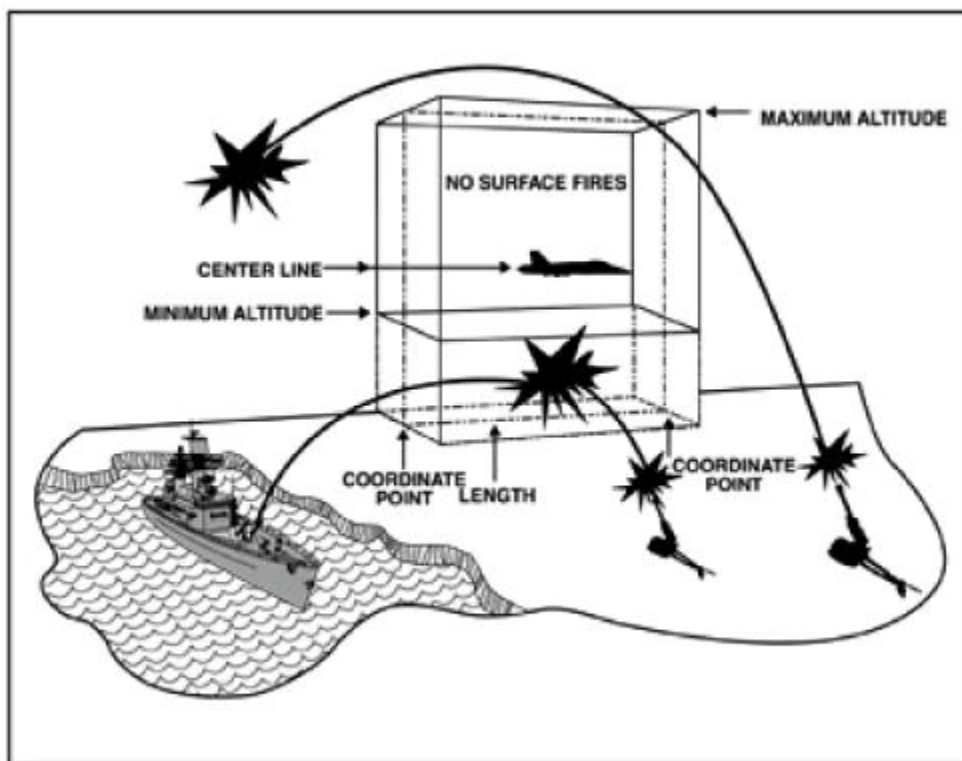


Figure B-9. Formal ACA.

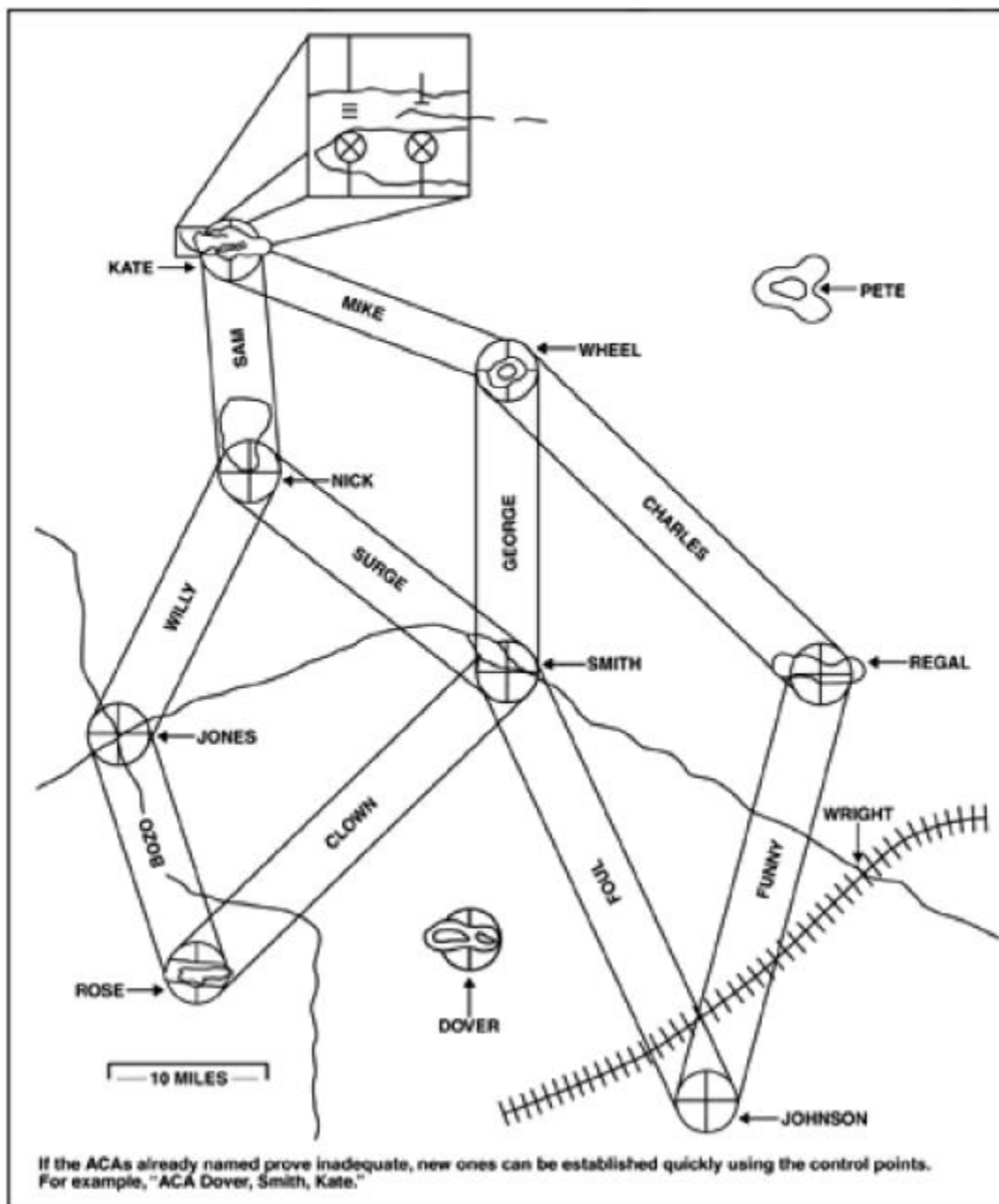


Figure B-10. ACA Based on Control Points.

Control points are often used to facilitate the establishment of ACAs for aircraft operating in those rear areas where their flight paths can conflict with artillery and naval gunfire rounds. Routes used frequently can be left in effect. Routes used occasionally (on-call) can be given code names and activated as required; e.g., activate ACA CLOWN 281400Z to 281410Z. When aircraft must follow unanticipated routes, they can be directed to proceed by a series of control points. These control points can be promulgated as the ACA; i.e., an immediate ACA.

Helicopter approach and retirement lanes may also be designated as ACAs for the period they are actually in use by helicopters. Likewise, holding areas and attack positions for rotary wing CAS may be designated as ACAs.

ACAs for aircraft operating within the envelope of enemy antiaircraft weapons present special problems. While the aircraft are operating outside of these envelopes, they can follow straight, predictable paths.

However, when they are within the envelopes, aircraft usually need freedom to maneuver. Thus, ACAs for aircraft operating in the vicinity of enemy antiaircraft weapons will usually contain long narrow boxes of airspace which avoids these envelopes or large volumes of airspace within these envelopes.

Figure B-11 shows what the ACA in a high threat area might look like. In this case, the ACA near the target is a large cylinder. Within the cylinder, the attacking aircraft has the space required to evade enemy antiaircraft weapons. It is important to note that the shape and size of that ACA within the antiaircraft envelope changes with threat and tactics. The size and shape will depend on the maneuvers of the aircraft, and that will depend on the type of aircraft and the required tactics to counter the threat. The air officer in the FSCC must keep abreast of evolving aviation tactics so the size and shape of ACAs can be determined to complement these tactics.

The ACA may be located above the target area; e.g., a rectangular box or cylinder, along the route of the aircraft; e.g., a corridor, or a combination.

The ACA's shape is determined by the path of the aircraft and the need to provide protection from friendly fires. Some ACAs are rectangular cubes; i.e., boxes of airspace. Other shapes may be required. Dimensions of an ACA can be published in any form

that provides the supporting arms agencies with enough information to plan their fires around the aircraft's flight path. For a rectangular ACA, the description may include the ACA's name, minimum and maximum altitudes, length (by grid coordinate points), width (total, bi-sected by the centerline), and the effective DTG. Altitude is feet above mean sea level unless otherwise stated. Altitude may be above ground level when the desire is to restrict the aircraft to relatively low altitudes above the ground; i.e., 500 feet and below. Above ground level may be particularly useful for helicopters. The vertical space between the ground and the top (or base) of an ACA based on mean sea level or above ground level differs significantly. See figure B-12 on page B-10.

ACA dimensions can also be established as SOP or according to a particular threat so that only the points where the ACA are based, effective time, and name need be published. ACA size and shape are dictated by the following:

- Type of aircraft. Generally, the higher the speed of the aircraft, the more room it needs to maneuver.
- Type of ordnance. Certain types of ordnance affect both route to target and turning radius of the attack aircraft. This in turn would affect the ACA. The FSC must work closely with the AirO in this regard.

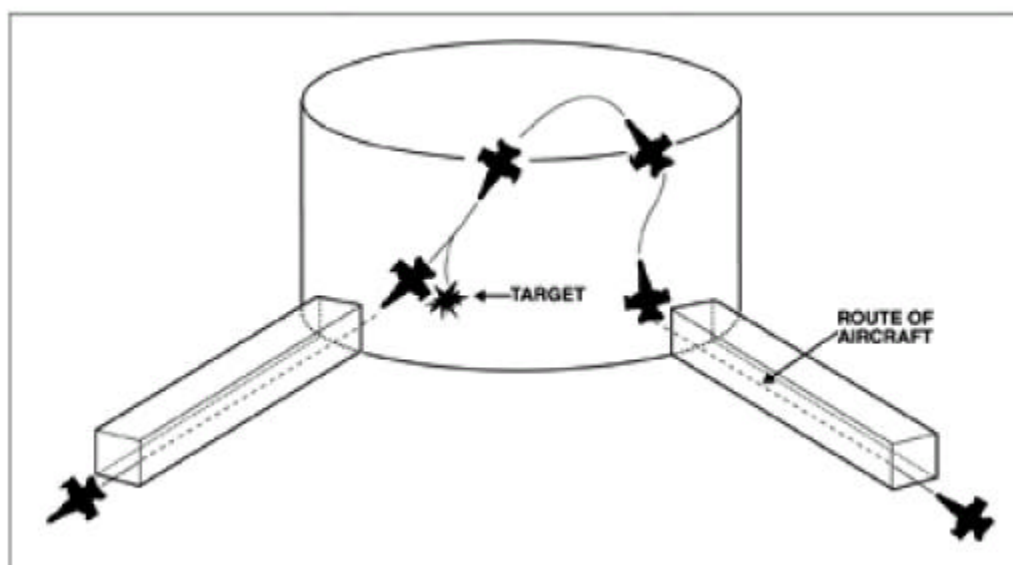


Figure B-11. ACA Based on Route of Aircraft.

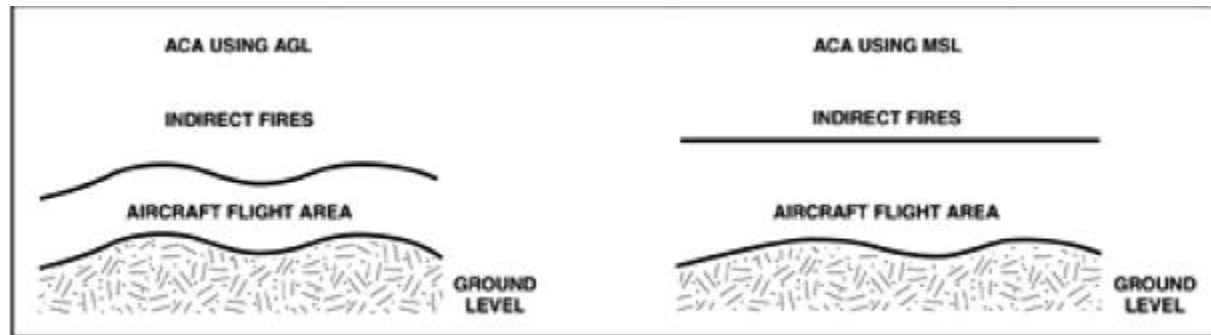


Figure B-12. ACAs Using MSL and AGL.

- Air defense threat. The threat often dictates the type of ACA employed in an operation. Within the enemy air defense envelope, aircraft need room for evasive maneuver. The most dangerous threat is an integrated air defense system (IADS) with long range radars and missiles, which force aircraft to approach the target area at low altitude, integrated with mobile weapons; e.g., ZSU 23-4, in the immediate proximity of the target. To meet this threat, the attack aircraft use a low level pop-up technique. A simpler situation exists when either the enemy has no long range threat or that threat has been neutralized. In that case, the preferred attack aircraft tactics may be to remain at high altitude throughout the attack profile.
- Degrees of restriction. ACAs can vary in their degree of restriction on aircraft maneuver or surface-to-surface fires. Guidance for how restrictive immediate or informal ACAs should be is part of the fire support planning and coordination process. Examples include establishing—
 - ACAs that allow aircraft maximum freedom of movement. Such large ACAs are the most restrictive of surface-to-surface fires. They should be kept in effect for the shortest period possible.
 - ACAs that encompass the aircraft's possible route and restrict aircraft by directions on the JTAR or 9-line brief such as offsets. Such instructions can result in a much smaller ACA than would otherwise be possible. However, when fixed-wing aircraft maneuver in such a manner as they do when executing low level, pop-up delivery, they cannot follow a precise track. Aircraft doing such maneuvers can easily move a quarter mile left or right of the intended path. Again, the effectiveness of such ACAs can be in-

creased by keeping them in effect for the shortest possible time.

- All ACAs 1,000 meters above the max ordinate for current low angle surface-to-surface fires.
- ACAs above or below surface trajectories when aircraft routes or final attack cones cross gun target lines. (Use firing table charts and add VI. Specify charge and method [angle of fire].) In this way, CAS and surface-to-surface fires can attack different targets simultaneously.

Scheduled and on-call ACAs are usually disseminated by the GCE and/or MAGTF FFCC as appropriate in a written document such as an overlay. Immediate ACAs are usually disseminated by the FSCC of the organization requesting the air mission. Scheduled and on-call air support requests are usually submitted 18 to 24 hours before the mission. During this period the ACAs associated with these missions are collected by the GCE or MAGTF FFCC, reviewed, adjusted, and disseminated to the required agencies. ACA dimensions can also be established as SOP or according to a particular threat so that only the points on which the ACA are based, effective time, and name need be published.

A formal ACA is shown as an area enclosed by a solid black line. Data includes the letters ACA, the name, the originating headquarters, minimum and maximum altitude, and effective times. See figure B-13.

ACA BOZO, 1st MarDiv
Min Alt: 300 feet (MSL) Max Alt: 1,500 feet (MSL)
Effective: 031000-131015 OCT 00

Figure B-13. Map Symbol for Formal ACA.

Restricted Operations Zone

A ROZ is not an FSCM. It is an airspace coordination measure and an area of defined dimensions within which the operation of one or more airspace users is restricted. See figure B-14. Examples are the platoon air hazard (PAH) and target air hazard (TAH) used with ATACMS units and in the future NGF ships firing extended range guided munitions (ERGMs) and land attack standard missiles (LASMs).

The ROZ restricts aircraft from defined areas to prevent fratricide. PAHs and TAHs aid in the deconfliction of airspace for ATACMS units by restricting aircraft from the airspace directly surrounding both the launch and impact area.

Since they are airspace coordination measures, ROZs are established by the airspace control authority. A PAH or TAH has no implications for indirect fires, but is submitted by the FSCC, or in the future the SACC, through the DASC to the TACC, or TACC-afloat. ROZs can be preplanned with stated DTG duration or on-call activation/deactivation, or impromptu with temporary (mission) duration.

A PAH or TAH ROZ can be located anywhere an ATACMS unit or target exists. The ROZ is identified as a radius from a point with an associated altitude. The PAH is computed by the ATACMS fire direction system based on trajectory and exit altitude. Radii vary from 3 kilometers to 5 kilometers. The TAH is also computed by the

fire direction system but is based on entry altitude and missile trajectory, typically 1 to 10 kilometers. Altitudes for both ROZs vary from 5,000 to 15,000 meters.

ROZs are disseminated by the airspace control authority to aircraft and MACCS. Recommended PAHs and TAHs are computed by the firing unit and forwarded to the TACC via the FSCC and DASC.

ROZs are not portrayed on fire support coordination maps. PAHs and TAHs can be portrayed by a solid black line defining the area with the letters PAH or TAH, the altitude, the firing unit, and effective DTG.

Zone of Fire

A zone of fire is an area into which a designated ground unit or fire support ship delivers, or is prepared to deliver, fire support. Fire may or may not be observed (JP 1-02). Units and ships assigned zones of fire are responsible for attacking known targets and targets of opportunity according to their mission and the guidance of the supported commander.

Zones of fire in amphibious operations divide land into zones of fire. These zones are assigned to fire support ships and units as a means to coordinate their efforts with each other and with the scheme of maneuver of the supported ground unit. The unit or ship should be located so that it can best support the actions of the supported unit.

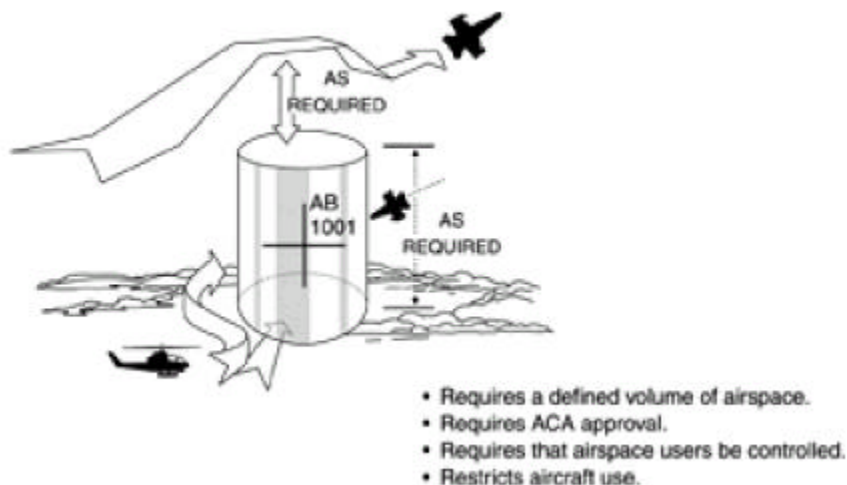


Figure B-14. Restricted Operations Zone.

The commander of the naval task force providing naval surface support establishes and assigns zones of fire for the forces. The zone of fire for the artillery battalion or a ship assigned a mission of direct support normally corresponds to the AO of the supported unit. The zone of fire for an artillery unit or a ship assigned a mission of general support should be within the boundaries of the supported unit. When used in conjunction with naval surface fires, the size and shape of the zone of fire will depend on the terrain, the visibility, and boundaries of the supported unit.

Zones of fire are disseminated in the MAGTF OPORD. NSFS and artillery units incorporate their appropriate zones of fire into their fire plans.

Zones of fire are depicted as an area bounded by a solid black line and labeled ZF-1, ZF-2, or by MCFSS naming convention; e.g., ZO12MD (Zone 1, 2d MarDiv).

OTHER CONTROL MEASURES

Some control measures, although not fire support coordinating measures, play a role in fire support planning and coordination.

Boundaries

A boundary is a maneuver control measure. Boundaries designate the geographical limits of the AO of a unit. Within their own boundaries, unless otherwise restricted, units may execute fire and maneuver without close coordination with neighboring units unless otherwise restricted. Normally units do not fire across boundaries unless the fires are coordinated with the adjacent unit or the fires are beyond a fire support coordinating measure; e.g., CFL. These restrictions apply to all types of ammunition and to their effects. When such fires as smoke and illumination affect an adjacent unit, coordination with that unit is required. This does not preclude a commander from deciding, in certain situations, that his subordinate units may fire across boundaries at positively identified enemy units without coordinating for that specific target. This will only apply to direct fires and observed fires delivered by supporting arms. It also can only be applied to boundaries which that commander has established; e.g., a battalion commander can only apply this exception to his own companies' boundaries.

The area affected by a certain fire support coordinating measure, such as the CFL or FSCL, depends on the zone of action of the headquarters establishing the measure. For instance, as depicted in figure B-15, if

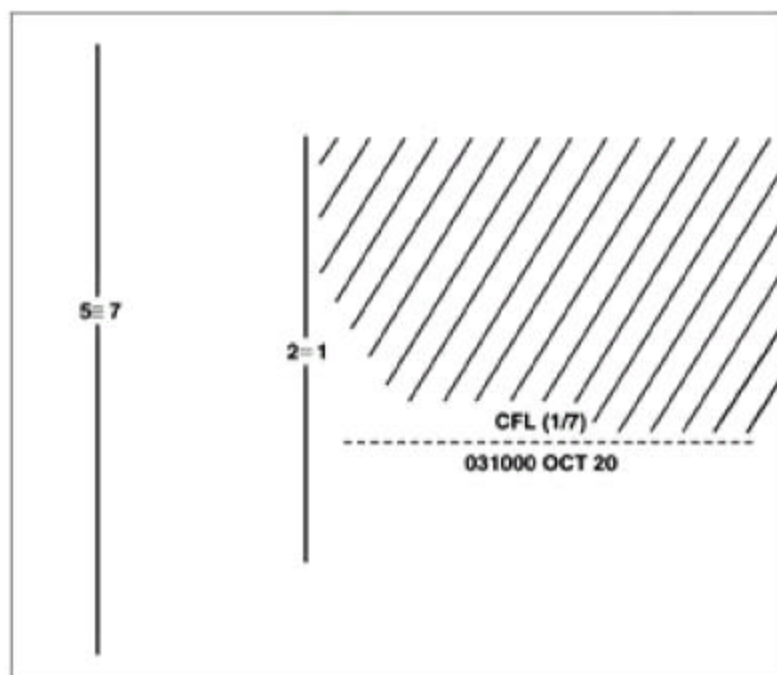


Figure B-15. CFL Established by Battalion.

the establishing headquarters is 1/7, the zone affected by the CFL is that of 1/7 (indicated by single diagonal lines). If the CFL was established by the 7th Mar (see fig. B-16), the affected area would include the zones of the subordinate battalions (consolidated by the regiment) as well as that of the regiment.

Phase Lines

A phase line is a maneuver control measure used by land forces for control and coordination of military operations. It is usually on recognizable terrain extending across the zone of action. Units normally report crossing phase lines and they can be used to identify limits of advance, control fires, or define an AO. The purpose of each phase line and any actions required by forces affected by the phase line is specified by the using unit.

Amphibious Objective Area

The AOA is 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)

Fire Support Area and/or Fire Support Station

A fire support area (FSA) is an appropriate maneuver area assigned to fire support ships from which to deliver gunfire support of an amphibious operation. A fire support station (FSS) is an exact location at sea within a FSA from which a fire support ship delivers fire. (JP 1-02). This designation stations ships within boat lanes of the assaulting force or where maneuvering room is restricted by other considerations.

Radar Zones

Search zones prioritize the search pattern and provide the reaction posture of the radars to best meet the maneuver commander's intent. Each Firefinder radar can store up to nine different zones. There are four different types of zones used with the radar: the critical friendly zone (CFZ), the call-for-fire zone (CFFZ), the artillery target intelligence zone (ATIZ), and the censor zone (CZ).

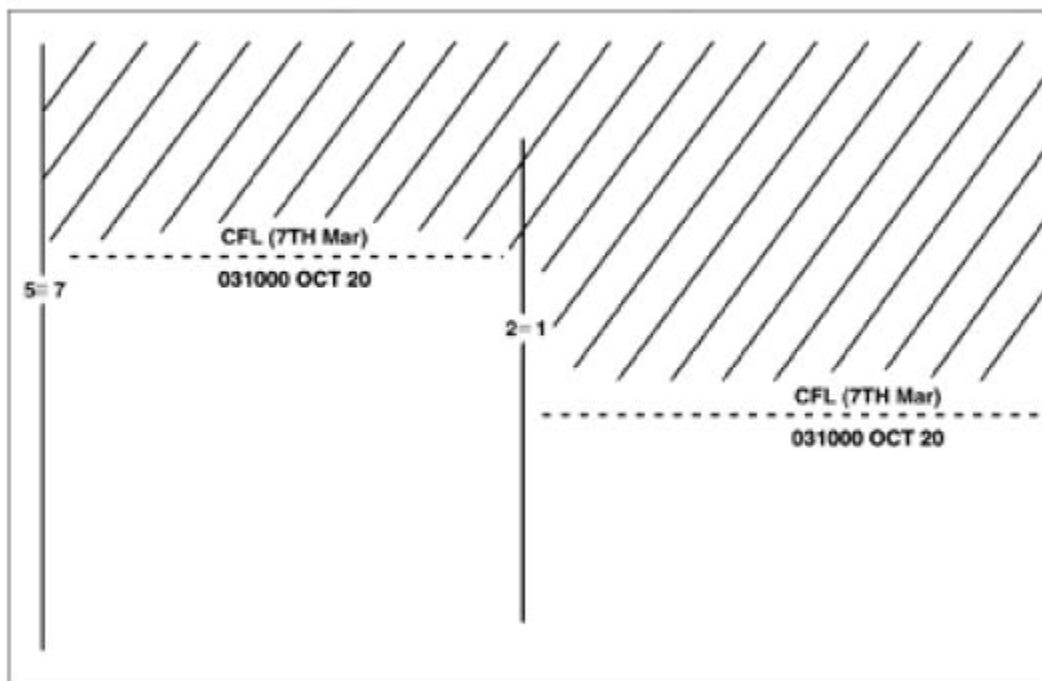


Figure B-16. CFL Established by Regiment.

Critical Friendly Zone

The CFZ designates the highest priority friendly locations of the maneuver commander and provides the most responsive priority of fires from the radars. Cued radars detecting incoming rounds into this zone immediately generate a priority request for fire. FSCs recommend to maneuver commanders positioning of CFZs and their size for best responsiveness. Typical CFZs include maneuver assembly areas, headquarters, FARPs, and other troop concentrations.

Call for Fire Zone

The call-for-fire zone (CFFZ) designates a search area beyond the FLOT that the maneuver commander wants suppressed or neutralized. The CFFZ designation is closely tied to the IPB process. A CFFZ would likely be a suspected enemy artillery position. The CFFZ provides the second most responsive priority for fires from the radar.

Artillery Target Intelligence Zone

The artillery target intelligence zone (ATIZ) enables a maneuver commander to watch an area closely while assigning higher priority to more important areas. Targets identified in this zone will be evaluated for attack as they are received but will not automatically generate a fire mission.

Censor Zone

A censor zone (CZ) designates areas from where the commander does not want to attack targets. The CZ is often used to avoid overlap and duplication.

Common Sensor Boundary

Target duplication between Firefinder radars is likely during combat operations. In addition, the sheer volume of targets being passed from the radars will overwhelm the targeting element, especially if the radars are under

centralized control. An effective method of reducing the duplication of these targets for attack is to establish a common sensor boundary (CSB) for call-for-fire zones. The CSB is a line established by the artillery regimental HQ or force artillery that divides target acquisition (TA) areas of search into close and deep areas for the Q-46 and Q-37, if attached.

The CSB is established by designating a line beyond which no CFFZs for the Q-46 would be established. The Q-37 would not establish any CFFZs short of this line. All radars could process targets generated for attack from their CFFZs through the same or different headquarters. Some targets may still be duplicated. When the radars are used in this way, the maximum range capabilities of the radars are not restricted. The CSB is not a fire support coordinating measure, although the CSB may coincide with a CFL. The CSB is only a tool used by the target acquisition controlling headquarters to maximize effectiveness of radars. In determining CSB placement, consider—

- Range of the attack systems.
- Available attack assets.
- Effective ranges of TA assets.
- The likely enemy indirect fire weapon deployment areas developed through thorough IPB.
- Availability of ammunition or aviation assets.
- When a radar is required to move for survivability, that the CSB may have to be adjusted to ensure optimum radar coverage; e.g., if the Q-46 moves, the Q-37 will have to cover the Q-46 area of responsibility until the Q-46 is in position.

FSCMs AND OTHER CONTROL MEASURES IN AFATDS

Within automated information systems, FSCMs and control measures are referred to as geometries. Figure B-17 shows an example of how those systems depict fire support geometries.

Geometry	Situation: Friendly (F) Enemy (E)	Border Color: Friendly (F) Enemy (E)	Symbol	
			Current	Planned
Air Corridor (must be irregular)	F	F - Blue		
Airspace Coordination Area	F	F - Red		
ATI Zone	F	F - Blue		
Call for Fire Zone	F	F - Blue		
Censor Zone	F	F - Blue		
Critical Friendly Zone	F	F - Blue		
Fire Support Area	F or E	F - Blue E - Red		
Fire Support Station	F	F - Blue		
Forward Arming and Refueling Point	F	F - Blue		
Free-Fire Area	F	F - Blue		
No-Fire Area	F	Black with Red Fill		
Restrictive Fire Area	F	F - Red		
Zone of Responsibility	F	F - Blue		
Boundary Line	F or E	F - Blue E - Red	<u>Second unit name</u> First unit name	<u>Second unit name</u> First unit name
Coordinated Fire Line	F	F - Blue	----- CFL -----	----- CFL -----
Fire Support Coordination Line	F	F - Blue	----- FSCL -----	----- FSCL unit name -----
Restrictive Fire Line	F	F - Red	===== RFL =====	----- RFL -----

Figure B-17. AFTADS Geometries.