

**CHAPTER 8:**

**AIR DEFENSE AIRSPACE MANAGEMENT CELL**

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**804 AIRSPACE MANAGEMENT PROCEDURES**

## The BCT ADAM Cell manages airspace over the BDE AO. The BCT Aviation Officer coordinates the actions of the ADAM Cell and ensures that Airspace Management activities are integrated with the BCT staff sections and higher echelons. The ADAM Cell maintains a relationship with higher AC2 elements and with supporting Air Traffic Services elements. There are several systems organic to ADAM Cell which help facilitate Airspace Management; TAIS, ADSI, AMDWS, TOCNET, Transverse. There are several responsibilities involved in Airspace Management as shown below.

* 1. Coordinates and integrates the use of Airspace by BCT airspace users.
  2. Coordinates, de-conflicts, and forwards Airspace Control Measures requests to higher.
  3. Integrate rotary-wing and UAS assets into the BCT airspace.
  4. Maintains and operates all ADAM Cell systems.
  5. Receives and displays Air Control Order and Air Tasking Order.
  6. Provides training to subordinate S3 Air elements. Process AMR’s lift and attack from our subordinate BN’s and submit to DIV.
  7. Process Raven missions from subordinate BN’s and submit them to DIV via TAIS.
  8. Processes TUAS’s from our UAS operators and send them to DIV via TAIS.
  9. De-conflicts all missions that will be going on in the Warrior AO for day to day operations; Air Mission Request (AMR), RAVEN, SOF, TUAS, Fires, ADA by using TAIS.
  10. Activate pre-planned fires ROZ’s by communicating to ATC personnel.
  11. Monitor and deconflict our ROZ’s with UAS’s and other aircraft.
  12. Receive air clearance from appropriate controlling agency for control detonations within the BDE AO.
  13. Report End of Mission for Raven, Control Detonations, and Fire Missions.
  14. Receive air clearance from the various ATC personnel for Immediate Fires missions that are not in preplanned ROZ’s.
  15. Receive and process Fire ROZ’s from FSE AFATDS to the ADAM Cell TAIS.
  16. De-conflict all air mission requests (AMR) with all Air Control Measures (ACM) (i.e. RAVEN, SOF, TUAS, Fires, and ADA) within the BCT AO.
* Coordination/Integration of Airspace:
  1. Airspace Control Measure Requests:
* BAE elements forward ACMRs to higher NLT 72 hours prior to the start of the ACO cycle. (This SOP will use 72 hrs. Exact times for ACO/ATO Planning is Theater dependent)
* The requests must be de-conflicted at the BCT level on TAIS before submittal.
* The requests must be sent up to higher via the TAIS, and the request form by email.
* Any requests that fall below the 72 hour deadline must be submitted as an immediate air request.
* All requests must contain an ACMR (airspace control measure request) and a power point graphics slide on a 1:250,000 falcon-view map (not imagery).
* Immediate airspace requests, necessary for unplanned use of the airspace, are possible but only if the mission is truly unplanned or target of opportunity (immediate airspace request). Procedures on submitting Immediate Airspace Requests are found later in this chapter.
  1. Immediate Fires Missions
* Immediate fires missions are un-planned immediate artillery fire missions against enemy indirect fires. The airspace for these fires must be cleared.
* Depending on the max ordinance altitude of the round, location of the point of origin (POO) of the enemy indirect fires (IDF) and point of impact (POI) or target dictates the time required to return fire.
* Various agencies must be contacted to clear the airspace; AF Control and Reporting Center (CRC), Radar Approach Control (RADAR CONTROL), and the controlling agency for aircraft below the coordinating altitude (CA). The majority of all fires will go above the CA and therefore must be cleared by RADAR CONTROL and the CRC via keypads. RADAR CONTROL because they have control of the commercial and non-tactical military aircraft; CRC because they control the tactical military aircraft.
* Air Traffic Control agencies control their defined airspace below the CA via zones.
* The Immediate fire mission request comes to us from the FSE.
* They are required to provide at a minimum the following information: POO, POI, Key Pad/s (to include the quadrant/s), max ordinance altitude and Zones).
* The information is typed in to the appropriate agencies Transverse rooms.
* Each agency clears the airspace
* ADAM states “Airspace clear!”
* FSE fires the mission.
* We then inform those same agencies when the mission has ended.
  1. Immediate Fire Mission Procedures
* Enter the following into both the ATC agency that controls above the CA and the agency that controls below the CA. The following is a format used of information provided by the FSE and given to appropriate ATC agencies.

Immediate Fire Mission-

* + - Keypads (i.e. 88AS4NW)
    - Zones (i.e. ZN 300,301)
    - Max Ordinance (i.e. Surface to 10K)
* Wait for appropriate ATC agency to clear airspace (CRC, AC2/ATC below coordinating altitude (CA).
* Notify FSE when air is clear (from all ATC agencies).
* Log all proceedings on Staff Duty Log.
* When FSE gives you End of mission notify appropriate ATC agencies of EOM of Immediate Fire Missions.
  1. Clearance of Fires Battle Drill

|  |  |
| --- | --- |
| Event | Responsibility |
| ”Attention in the TOC : Clearance of fires » | FSO |
| Announce grid, target description and unit reporting information | FSO |
| The following elements verify that all subordinate units are clear / not clear from the announced grid and announce in order “clear / not clear” to the00m FSO (regardless of weapon system, a standard 600m radius from friendly units will be used to determine safe firing conditions).  Maneuver (including scouts / LRSD)  Subordinate Fire Support Elements  IEW  Psychological operations team  Logistical units (FSB / ALOC)  Sapper teams / engineer equipment  ADA teams  Aviation assets  CAS assets  CDS / HD / Airland aircraft  CA / COB  Final clearance is obtained by the BDE FSE from the BN TF FSE responsible for the area in which fires are to be delivered. Clearance will be obtained on the BDE FSC net. | OPS SGT  FSE  MICO  PSYOPS REP  OPS SGT  ARE  ADA CO  RAVN  ALO  BAE  CA |
| Determine what attack asset is to be employed | FSO / Battle Captain |
| If attack helicopters or CAS are the primary attack assets, notify all ADA teams of the flight path of the aircraft and that they will be conducting air to ground engagements with a vicinity grid | ADA CO |
| If CAS is to be used consider the possibility of SEAD | FSO |
| Divert all aircraft on a flight path near the firing azimuth | BAE |
| Check situation map and post grid of enemy target | W2 |
| Determine from enemy order of battle template what other units might be associated with the target and where they might be located | W2 |
| Assign elements to conduct BDA | Battle Captain |
| Receive BDA reports | Battle Captain |
| Annotate enemy losses | W2 |
| Determine if another attack is necessary | CDR / W3 / FSO |

* 1. Counter-Fire ROZ
* Counter-fire ROZs are utilized to return immediate fires on the enemy without going through immediate fires procedures.
* The ROZs are depicted on the ACO and are accessible to all units. Approximately thirty minutes before a ROZ’s active time, we notify all appropriate affected airspace agencies of the ROZ going active/hot and request clearance of the keypad/s and zones.
* This is to ensure all airspace users are maintaining SA of ROZ status and to prevent possible damage to commercial aircraft.
* Once activated the controlling artillery units fire once target acquisition is confirmed.
* Controlling agencies may fly aircraft through the ROZs after coordination has been made with the ADAM Cell.
* Rotary Wing aircraft operating below the CA check-in with the ROZ controlling unit’s TOC and receive permission to transit through the ROZ.
  1. Planned ROZ
* These ROZs are planned based on target analysis done by the FSE cell.
* The data determines the time and size of the ROZ and the location of the gun to the target determine the height (maximum ordinance altitude plus 500ft).
* BCT FSE designs ROZ packets for submittal.
* Fire packets use three specific and adjoining ROZ’s:
* The position area hazard (PAH) or gun location ROZ
* The Fires ROZ.
* The target area hazard (TAH) or target location ROZ.
* The illustration below is an example of the volume of airspace the Fires ROZ, PAH ROZ, and TAH ROZ encompass.
  1. The PAH and TAH ROZ
* The ROZ for the round will affect key pads because it is normally above the CA. For example: one PAH would be surface (SFC) to 1500 ft.
* The Fires ROZ for the round would start at 1500 ft and go to the max ordinance altitude plus 500ft (max ord 7500ft so ROZ height is 8000 ft).
* Finally the TAH is from SFC to 1500 ft.
* The three are joined together.
* This facilitates not having to clear the zones from SFC to 1500 ft under the flight of the round and enables rotary winged aircraft to transition between the PAH and TAH.
* Due to commercial and military aircraft air routes, any ROZ that goes above 15,000 ft requires the ACMR be submitted to the Battlefield Coordination Detachment (BCD) 72 hours before the ACO cycle.
* See illustration on next page.



* **ROZ Activation/Deactivation Procedures:** The following describes how to activate preplanned ROZ’s in the CRC, RADAR CONTROL, and local airspace controlling agency below the CA. Depending on AO; this can be accomplished over Radio, Chat, or by phone.
  1. CRC Room via Transverse
* BCTADAM- HOT ROZ WARR40R, SFC-19K, KP 88AS5 NW, 88AS4 NW/NE, 0800Z-1500Z
* BCTADAM- ROZ WARR40R HOT!!!!!!
* Radar Control- id wr40 CLR
* CRC- RGR CLR.
  + BCT ADAM- copy
  + BCT ADAM -HOT ROZ WARR32R, SFC-12K, KP 88AS4 NW, 88AR6 NE, 0800Z-1500Z
  + BCT ADAM- ROZ WARIOR32 HOT!!!!!!
  + CRC- ID CLR
  + RADAR CONTROL- RGR CLR
  + BCT ADAM- copy
  + When ROZ goes cold- Going COLD- ROZ WARR32/40
  1. ATC below CA Room
* BCT ADAM- HOT ROZ WARIOR 32, SFC-12K, ZONE 300, 0830Z-1600Z
* ATC- all clear, LE
* BCT ADAM- copy
* BCT ADAM- ROZ WARIOR32 HOT!!!!!!
* ATC- all clear, LE
* BCT ADAM- HOT ROZ WARIOR 40, SFC-19K, ZONES 4,6S, 0900Z-1600Z
* ATC- clear RH
* BCT ADAM - ROZ WARIOR40 HOT!!!!!!
* ATC- RGR
* When ROZ goes cold- TYPE- Going COLD- ROZ WARR32/40.
  1. SUAS
* Small unmanned aerial vehicles (SUASs) or Ravens have become a critical tool for the ground commanders to accomplish their missions.
* ACMRs are due to CORPS 72 hours before the ACO cycle begins (0600L/0300Z). (Times are Theater Dependent)
* The planning cycle for Ravens is 18 to 24 hours.
* Operating channel for Raven. (BAE is assigning channels to BN sectors so all missions launched from: W sector will use channel 1, X sector channel 2, Y sector channel 3, and Z sector channel 1. BSTB and BSB Channel 4. Units must indicate if they need more than one channel in order to do two raven missions in close proximity within the same AO. The final channel is determined by DIV and must be confirmed on the DIV Raven tracker prior to mission execution**.**
* BAE is required to submit Raven ROZ requests (ACMRs) via TAIS to Division NLT 1200L/1500Z the day prior to mission execution.
* AVN BDE then retrieves the document from the BN LNO via **DACT tool**/**Warhorse Portal**/**SIPR email** and displays the graphics at their daily planning meeting.
* CAB then emails Division a “Raven Conflict Summary” for final Raven mission approvals.
* Division contacts the affected BCTs and de-conflicts the Raven and Rotary Wing missions.
* Once de-conflicted, the missions are posted on the DIV website on a Raven Tracker Spread Sheet.
* Some Raven missions do not make this planning cycle and must be requested via Immediate Airspace Alerts.
* Instructions on how to process SUAS requests are found in the Airspace Management Systems Chapter.
* Mission request procedures are covered in the ADAM CELL TOC & AIRSPACE MANAGEMENT SOP.
* All immediate Raven missions use the Immediate Airspace Alert outlined below.
  1. IMMEDIATE AIRSPACE ALERTS (IAA)
* Immediate airspace alerts are any airspace requests that are not submitted in time to make the ACO cycle.
* CORPS requires ACMRs to be submitted to them 48 hours out.
* The raven planning cycle is 18 to 24 hours. Ravens are the exception to the rule. Any raven mission that doesn’t get submitted in time to make the daily CAB mission planning meeting will be sent out as an immediate airspace alert.
* The requesting BCT sends a word document with all pertinent information (requesting unit, time, location, altitude, call-sign, frequency, etc…) via email to Division.
* Division QCs the document and then forwards the email to CORPS.
* CORPS disseminates the immediate airspace alert document to every airspace element in theater via email and Transverse in the V CORPS chat room. The controlling BCT TOC has the responsibility to notify all airspace users, to include transiting aircraft, of the raven ROZ/mission.
* This is one reason why it is very important for rotary winged aircraft to check-in with the BCT once they enter their airspace.
  1. **Format for an Immediate Airspace Request**:
* Line 1 – Your unit
* Line 2 – Raven SUAS
* Line 3 – The Zones that your flight will penetrate, the launch point grid, and a quick description of the area that you will use. Note: A circle ROZ around the launch point is the simplest plan since there is less room for error when passed up to division; however, do not use this if it affects a zone that you are not going to fly in.
* Line 4 – Time period that you are requesting in Date Time Group ZULU time format.
* Line 5 – Brief explanation that gives justification for the immediate airspace request.
* Line 6 – Point of contact with phone number, e-mail (if available), Callsign, and Frequency. This should be the person who is in direct contact with the Raven Operators during the mission
* See Immediate Airspace Alert example on following page.

**IMMEDIATE AIRSPACE ALERT**

**Note: Corps AC2 will post the Immediate Airspace Alert on mIRC Channel #FLTFOLLOW**

**WHO:** 1 Bn, 1-52 Inf

1

# WHAT: Raven SUAS

2

# WHERE: ZONE 86, 87, 88, SFC-500 FT AGL

3

Launch point 38S MB 1900 9500 Circle ROZ 2km radius from launch point

**WHEN:  080830ZAPR06-080915ZAPR06**

4

**WHY:  Counter Mortar ISR for Fire Base Courage**

5

# POC:  CPT Courageous (242-xxxx)

6

# [Bob.Courageous @hqs.222.1bct.army.smil.mil](mailto:Courageous.Bob@hqs.222.1bct.army.smil.mil)

# CALLSIGN:  Courage Raven FH 123

**Immediate Airspace Alert**

* 1. TUAS
* Tactical unmanned aerial vehicles, specifically Shadows, are constantly in the war fight. They are used at the Division and Brigade level for everything and need to be able to transition over the battle field without many restrictions.
* They currently operate above the CA and are “procedurally controlled” by the CRC inside of key pads at assigned altitudes.
* ROZs can be used to further restrict them. For instance, the CRC may not want to place two Shadows in the same key pad so ROZ’s are established to de-conflict the TUASs in this case or separate by altitude.
* The Airspace Control Plan states TUAS’s will be procedurally controlled by ROZs but the SPINS states they are to be controlled by assigning key pads.
* Instructions on how to process TUAS requests are found in the Airspace Management Systems Chapter.
  1. Controlled Detonations
* Controlled detonations (CONDET) are planned detonations conducted by EOD and or various units.
* These detonations are utilized to destroy IEDs, CACHE sites and or any enemy equipment deemed necessary to be destroyed via explosive devices.
* These planned events are cleared by zones through the ATC controlling under the CA. The requesting unit sends the grid coordinate through the channels to the ADAM Cell. The ADAM cell then mIRCs the agency that controls that zone.
* The controlling agency announces the planned CONDET over the radio to clear all rotary wing aircraft away from the CONDET area and reports clear.
* The all clear is given to the unit over IWS.
* The RTO at each level announces the time of the planned detonation inside their TOCs. This gives units SA of the impending explosion in their area.
* The units must also notify the RTO when the mission is complete.
* The RTO passes this information to the ADAM Cell who then notifies the agency that cleared the zone of end of mission (EOM).
* The following describes how to conduct air clearance for Controlled Detonations.
  1. Communicate with Air Controlling Agency under the Coordinating Altitude (CA).
* GET REQUEST FROM RTO
* BCT ADAM- cont det zone 84, 57w MB 242 961
* ATC - clear
* RTO- gives you end of mission for controlled detonation
* BCT ADAM- EOM cont DET zones 84 and 57w
* ATC - RGR
  1. ROZ Violation
* Upon receipt of a violation of a BCT ROZ do the following:
  + Hook air track on ADSI to get track number and call sign.
  + Contact the ATC for specific altitude and notify them of violation
  + Log into the DA Form 1594 (staff-duty log) with specifics of the violation
  + Contact Division and notify them of violation.
* **Airspace Coordination Measure Naming Convention**
  + - * All ACMs (Airspace Coordination Measures) will be Named IAW this SOP (EX: I-BWARR### or BWARR05B) - ### applies to the number allocations as shown in the ACM Naming Convention Matrix below with the final digit reserved for a letter.
      * For Fires ROZs the final digit will designate the sub-part of the ACM (Ex: I-BWARR30A, I-BWARR30B, etc.)
      * For TUAS ACMs use all 3 digits as per the numbering listed above.
      * If no subparts to an ACM or , simply insert "A" as the third # (Ex: I-BSUMT56A = Raven ROZ)
      * Only BCT FSE and BAE can assign ACM names and ##s

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| **2 BCT, 4 ID ACM (Airspace Coordination Measure) Naming Convention** | | | | | | | | |
|
|  | **STB** | **1-10** | **3-16** | **204th** | **1-67** | **2-8** | **BCT** | **TUAS** |
| **ACM Names** | **LONS** | **BISO** | **THUN** | **ROUG** | **DEAL** | **TALO** | **WARH** | **MONK** |
|  |  |  |  |  |  |  |  |  |
| **ACM #s For Fires Related ACMs - FSE** | **10-19** | **30-39** | **20-29** | **N/A** | **N/A** | **N/A** | **0-9** | **N/A** |
|  |  |  |  |  |  |  |  |  |
| **ACM #s For Raven or AVN Related ACMs - BAE / ADAM** | **40-49** | **50-59** | **60-69** | **70-79** | **80-89** | **90-99** | **N/A** (BAE will coordinate with FSE for additional #s if needed) | **100-999** |
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**ACM Naming Convention**

**Air/Ground Coordination Check-In Brief**

* Air/Ground Coordination Check-In: The following check-in is to be used by aircraft transiting ground units AO on a mission that does not require ground BN involvement OR as initial contact for aircraft entering a BN’s AO in support of a BN ground mission (ex. – CCA, Coordinated Air/Ground Recon, Air Movement, etc. This is used to ensure mutual situational awareness between air and ground units to assist in clearance of fires, aircraft avoidance of troops-in-contact areas, and AC2 de-confliction.  **All** **Air/Ground calls will be made on either the BN command net. If there is an operation that causes the CMD net to be busy, check in can be made on the BN Fires net.**
  1. Aircraft Responsibilities: Aircraft are required to make the check-in prior to entering the BCT AO and will ensure they call exit prior to departure from the AO. Transiting aircraft will monitor the BCT CMD net for the duration of their transit in that AO to remain aware of any changes to the initially briefed situation. If possible, aircraft are recommended to eavesdrop on the BN Command Net in whose AO they are transiting or operating for situational awareness. Radio traffic should be kept to a minimum, however, any spot reports, downed aircraft calls, or other necessary reports should be made on the BCT CMD net as well as the BN CMD net (time permitting).
  2. BCT / BN Responsibilities: BCT or BN BTL CPT provides the ground-to-air response information. If the BTL CPT delegates the check-in to another staff section (FSE or BAE/S3 Air) that staff section will coordinate with the Chops battle captain to ensure all information passed is current. BTL CPT will receive and process any spot reports, downed aircraft reports, or other information reported by transiting aircraft for immediate action as necessary.
  3. AIR/GROUND CHECK-IN:
* **Aircraft to Ground Unit**
* Call Sign
* Number and Type of Aircraft
* Weapons configurations/munitions
* Current location, mission, route of flight and altitude
* *SHORT* concept of mission (task / purpose)
* **Ground Unit to Aircraft**

1. SITREP on ground unit activity (missions, locations, #/type of vehicles, etc.) as it affects the proposed route of flight or air mission
2. Recent enemy contact (location, activity, etc.)
3. Planned or current UAS missions in the BN AO (ROZ locations, dimensions, and freqs)
4. Changes to BN orders, graphics, or concept within the last 24 hours as it affects the flight route or air mission
5. Requested focus for aircraft (Task & Purpose)\*
6. AC2 considerations (loc. of fires assets, etc.)
7. Signals and marking techniques (enemy and friendly)\*
8. Size and composition of friendly units in the AO\*
9. Frequencies/call-signs of subordinate units for direct coordination\*

\* Asterisk items are briefed only if the aircraft are working for the BN (DS, GS or OPCON); in which case this check-in serves as the initial check-in prior to being pushed down to company level.

* 1. **Example Air/Ground Coordination Check-In (Transiting Aircraft)**

1. Aircraft to Ground BN on BN CMD or Fires Net:

“COURAGE 35 this is DRAGON 21, aircraft check-in to follow – over”

“DRAGON 21 this is COURAGE 35; send it”

“COURAGE 35 this is DRAGON 21, flight of 2 UH-60s entering your AO from the south-west at 300 feet vicinity ACP A51; transiting on an aerial re-supply mission to FOB ANVIL via ACPs A34, A23, A17; will call exiting your AO– over”

“DRAGON 21 this is COURAGE 35 – Roger, stand by for BN SITREP”

* + - Ground BN to Aircraft on BN Fires Net:

“DRAGON 21 this is COURAGE 35, prepare to copy BN SITREP – over”

“COURAGE 35 this is DRAGON 21; send it – over”

“DRAGON 21 this is COURAGE 35, BN is conducting a cordon and search vicinity OBJ SULIYAH – break - Bravo Company reported troops in contact at 1515 local, vicinity OBJ SULIYAH and reported RPG engagements of vehicles – break – Alpha company reported IED on RTE COW vicinity grid GS 12345678 at 1335 local – break - no further enemy activity in sector – break – Alpha company conducting Raven UAS operations vicinity ROZ Green – request dimensions as needed – break - recommend you deviate your flight route to avoid OBJ SULIYAH by 2 km to the south – break – one change to BN graphics in the last 24 hours; add checkpoint 52 at grid GS98765432 – break – BN mortars located at checkpoint 12 – nothing further – over”’

“DRAGON 21 acknowledges all, deviating route to south via ACPs A34, A56, to A17 – will call exit from AO – over”

“COURAGE 35 this is DRAGON 21 exiting your AO to the north-east vicinity ACP17 – over”

“DRAGON 21 this is COURAGE 35, roger – out”

* + - **Transiting Aircraft Departure**: Aircraft will call the BCT or BN prior to departure from the AO on the CMD or Fires net.
  1. **Air/Ground Coordination Check-In (Direct Support/OPCON Mission)**
     + The format for the Air/Ground Check-In is exactly the same for a dedicated air/ground mission as the transit format, except that the asterisk items are covered, and after the unit SITREP is given, the BTL CPT pushes the aircraft down to the BN or Troop/Company that the aircraft are working for.
     + Aircraft then contact the subordinate element they are working for and give the check-in information again
     + Subordinate unit gives a SITREP and then the air/ground mission commences.
     + Examples of direct support missions include coordinated Air/Ground recon missions, security missions, aerial re-supply to units in the field, etc.
     + In the event of CCA, aircraft and ground units will augment the initial check-in with the CCA Check-In given below.
  2. **EXAMPLE AIR/GROUND CHECK-IN (DS/OPCON MISSION)**

1. Aircraft to Ground BN on BN Fires Net:

“SUMMIT 35 this is DRAGON 16, aircraft check-in to follow – over”

“DRAGON 16 this is SUMMIT 35; send it”

“SUMMIT 35 this is DRAGON 16, flight of 2 OH-58Ds configured rocket/50 cal with 300 rds 50 cal and 7 point detonating rockets per aircraft; entering your AO from the North vicinity ACP 23 enroute direct to NAI A6; altitude 250 feet to conduct route recon of RTE COW in support of TCP at checkpoint 31; over”

“DRAGON 16 this is SUMMIT 35 – Roger, stand by for BN SITREP”

1. Ground BN to Aircraft on BN Fires Net:

“DRAGON 16 this is SUMMIT 35, prepare to copy BN SITREP – over”

“SUMMIT 35 this is DRAGON 16; send it – over”

“DRAGON 16 this is SUMMIT 35, Bravo Company established TCP vicinity Checkpoint 31 at 1500 local - break - identified 1 vehicle transporting 2 AK-47s, vehicle was impounded and occupants secured for further interrogation – break – BSB convoy reported sniper contact on RTE COW at 1627 local 1.2 km northeast of checkpoint 29, negative casualties – break – Charlie Company plans to execute Raven UAS mission vicinity ROZ RED from 1200-1300 local – call for ROZ dimensions if needed – break - add ground checkpoint 32 at grid NA 1234 5678 – break – TCP will re-locate to checkpoint 32 at 1900 local – break – no further changes to graphics or concept – Task for aircraft is to conduct route recon of RTE COW ; Purpose to ID potential IED or sniper engagement areas along RTE and facilitate Bravo Company interdiction of insurgent activity along the route or vicinity of the TCP – break – BN Mortars located at checkpoint 27 oriented north-west – break – Team of two UH-60s transiting BN AO from south-west to north-east – break – Bravo Company vehicles marked with VS-17 panels on vehicle roof and IR chem-lites attached to vehicle antennas – break – contact Bravo Company on Company command net, call sign BULLDOG – break – report all spot reports to both BN and Company direct – over”

“SUMMIT 35 this is DRAGON 16, acknowledge all, contacting BULLDOG on company commend net – will report all spot reports simultaneously on BN and company command nets – out”

* 1. **Air/Ground Coordination Check-In (Close Combat Attack – CCA)**

1. **TYPICAL ATK AVN ENGAGEMENT**
2. In the event that the ground unit is using ATK AVN aircraft for CCA, the following events occur using the handoff procedures outlined below.

* TGT detected, SPOT REPORT sent to higher.
* ATK AVN pushed to BN in contact.
* ATK AVN contacts BN for HANDOFF to sub unit.
* ATK AVN CHECKS IN with unit in contact.
* ATK AVN receives AIR MISSION from unit in contact.
* Ground CDR/PLT LDR marks friendly positions and target location.
* ATK AVN positively identifies friendly positions and target locations.
* Ground CDR/PLT LDR confirms & clears ATK AVN to engage.
* ATK AVN attacks TGT, sends BDA when complete.
* CDR continues mission and releases ATK AVN to next higher when able.
* **Contact/Handoff Procedures**
* ATK AVN INITIAL CONTACT CALL (ATK AVN gives SITREP and requests mission data):

“GHOST 6 this is BANDIT 6 inbound with 2 AH-64s, request SITREP, mission, and clearance authority, over.”

* HANDOFF (Ground CDR sends mission, SITREP, and designates clearance authority):

“BANDIT 6 this is GHOST 6, SPECTER 6 is in heavy contact, IVO VP 123456, Contact SPECTER 6 this net for Air Mission. SPECTER 6 has Clearance Authority, out.”

* ATK AVN’s CHECK-IN/BRIEFING:

“SPECTER 6 this is Bandit 6 , Inbound with 2 AH-64s, we have 500 rounds of 50 Cal, 14 HE Rockets, and 2 Hellfire , break ,we have 30­ minutes station time, currently 2 minutes out, request AIRMISSION, over.”

“Bandit 6 this is SPECTER 6 , proceed inbound, AIR MISSION follows, prepare to copy.”

* (Ground Commander sends AIRMISSION format below, including complete friendly forces situation/location, enemy forces situation/location, and commander's intent as situation allows.)
* **Air Mission Request Format**
* ID and Warning Order:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Friendly Location / Markings:\_\_\_\_\_\_\_\_\_\_\_\_\_
* TGT location / Description:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Method of Engagement / Control:\_\_\_\_\_\_\_\_\_\_
* Remarks:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + - **AIR MISSION REQUEST PROCEDURES**

1. (ID and Warning Order) “BANDIT 6 this is SPECTER 6, AIR MISSION, OVER.”
2. “SPECTER 6 this is BANDIT 6, SEND IT, OVER.”
3. (Friendly location) “Friendlies located from VP 123543 to VP 129545, flanks marked by IR strobe over.”
4. (TGT Location) VP 112554 or bearing 240 degrees, 800 meters from my location. Infantry in the tree line.
5. (Method of Engagement / Control) (i.e., “.50 cal only”, “when ready,” “at my command,” or “time on target”)
6. (Remarks) “Bandit 6, this is SPECTER 6, confirm TGT with your AIM-1 over.” “SPECTER 6 this is BANDIT 6, my AIM-1 spot is on the TGT at this time.” “BANDIT 6 this is SPECTER 6, good spot cleared to engage.”

(**NOTE:** If designating for a HELLFIRE missile, ATK AVN may ask for spot to confirm laser code match.)

ATK AVN conducts re-attack or recon in support of ground unit until released back to higher HQ or FARP rotation is needed.

**805 Tactical Ballistic Missile (TBM) Early Warning**

**Digital Early Warning**: The ADAM Cell is equipped with digital systems that will allow it to receive TBM launch Point, flight of missile, and impact point.

* The ADSI and AMDWS provide the ADAM Cell with the capabilities to visually display missile flight and share text data of missile location, point of origin and projected point of impact.
* The ADSI will receive this information over the local area network (LAN) or Joint Tactical Terminal (JTT) and forward this information to the AMDWS.
* The AMDWS provides the capability of forwarding TBM information to any attached ADA unit over the ABCS LAN.
* JTT equipped ADAM Cells will receive TBM tracks from the IBS via the JTT radio and display those tracks on the ADSI. The ADSI will forward the tracks to the AMDWS which will publish tracks in the ABCS network for all users.
* Non JTT equipped BCTs will receive TBM tracks via JREAP C to ADSI and an AMDWS feed from adjacent or higher echelon AMDWS.
* All operators will establish chat links on AMDWS and ADSI to share missile information.
* See illustration below for data flow.



**Voice Early Warning**: The ADAM Cell is equipped with radio/chat systems that will allow it to transmit TBM launch Point, flight of missile, and impact point to subordinate units.

* 1BCT will broadcast TBM launches over Radio/Chat.
* Subordinate units will rebroadcast the early warning over their command net until the info has reached the lowest level.
* This EW will be updated throughout the missile flight until missile impact.
* The ADAM cell will use directed early warning when the projected impact area is more defined throughout the flight of the missile.
* Early Warning will be conducted over BCT CMD Net (SINCGARS).
* Voice dissemination matrix will be filled out with specific unit information, see illustration below.



**ADAM Cell TBM capable systems:**

1. **Air Defense System Integrator (ADSI)**: The backbone of the ADAM Cell digital warning architecture is the ADSI. The ADSI is a command, control, communication, computer and intelligence (C4I) system for use with a wide range of military and commercial radar, tactical data link, electronic intelligence, and other interfaces. The ADSI provides interoperability with multiple data links (Link 11, 11B, 16, SADL, JREAP A-C, IBS/TBS/TRAP) to provide Joint AMD Situational Awareness and Intelligence data. The MIDS, JTT, and AN/PRC-117 provide communications support to the ADSI.
2. **Air & Missile Defense Workstation (AMDWS):** AMDWS provides AMD Battle Management and Planning for all AMD weapons/sensors and supports Joint, Interagency and Multinational (JIM) interoperability with ABCS, TBMCS, JDP, and coalition AMD forces. The ADAM Cell uses AMDWS to pass track data to other ABCS users and display TBM launches.
3. **FAAD C2 Workstation:** The FAAD C2 workstation provides interoperability with multiple data links (TADIL B/J, LAN J, FDL (EPLRS), FDL (SINCGARS), and LLAPI (Multinational). FAAD C2 also provides the capability to provide Command and Control of AMD augmentation provided by AVENGER, PATRIOT, or Counter-Rockets and Mortars (CRAM). The MIDS, EPLRS and SINCGARS provide communications support to the FAAD C2. The FAAD tool will be most useful with interfacing with sensors that detect cruise missiles.
4. **Joint Tactical Terminal (JTT)**: The JTT/CIBS-M is a family of software reprogrammable radios that provide Army and Joint Service warfighters with tactical intelligence and targeting information by receiving broadcasts from the Integrated Broadcast Service (IBS) networks. The JTT provides the ADAM Cell with Integrated Broadcast Services that provides early warning of TBM threats, warning, and launches to the ADSI for display. The JTT will provide with direct access to the IBS which will ensure the BCT receive this information in real or near real time.
5. **Multifunction Information Distribution System (MIDS)**: ADAM Cell will use MIDS as link to the LINK-16 network when not operating on broadband network. MIDS is a communications, navigation, and identification system intended to support key theater functions such as surveillance, identification, air control, weapons engagement coordination, and direction for all the Services and Allied forces. The system provides jamming resistant, wide-area communications on a Link-16 network among MIDS and Joint Tactical Information Distribution System (JTIDS) equipped platforms. JTIDS/MIDS is the communications component of the Tactical Digital Information Link (TADIL) designated Link-16, and is synonymous with the TADIL J message standard. The JTIDS 2M or MIDS will be the gateway into the Live Radio Frequency (RF) Link-16 Network.
6. See following page for TBM Battle Drill

**TBM EARLY WARNING BATTLE DRILL**

Once the ADAM Cell receives warning of TBM Launch Data / Voice (Div AMD):

1. ADAM will verify Data by voice through Div AMD or vice versa
2. Identify risk area (if **No** risk to units or AOR, continue to monitor, if **Yes** to risk go to (4)
3. ADAM Cell OIC / NCOIC announce Missile Launch Alert (Lightning, Lightning, TBM Alert!)
4. TBM Alert voice/chat messages from BCT (Lightning Report) sent over CMD Net/ IWS to all BCT Units

**TIER II LAUNCH LIGHTING REPORT**

TIME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

LIGHTNING, LIGHTNING SCUD LAUNCH, SCUD LAUNCH

A. ALL STATIONS THIS IS Warrior 90.

B. (SINGLE or MULTIPLE) LAUNCH (ES).

C. FROM: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (NEAREST COUNTRY OF LAUNCH ORIGIN)

D. AREAS AT RISK ARE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_4 Digit Grid\_\_\_\_\_\_\_\_\_\_\_. (AREA AT RISK or NONE)

E. ADAM Personnel will use TBM Zone System to announce location to all Warrior BCT units or by Grid Zone designation.

F. PROJECTED TIME OF IMPACT (TIME) (MINUTES/SECONDS TO IMPACT)

G. I SAY AGAIN, (Repeat all).

H. ADAM Cell will then confirm receipt of warning with all subordinate units. Inform CHOPS/BTL CPT when 100% complete.

I. IF BCT OR AOR IS AT RISK UPDATE TRACK INFO EVERY 30 SECONDS UNTIL IMPACT.

1. Warrior chat message sent over IWS/CPOF to all units every 30 sec until impact. (In case of ADA Unit being attached to the BCT chat messages will also be sent over AMDWS and ADSI as applicable).
2. BCT will notify BDOC to alert camp personnel through Giant Voice network or Sirens.
3. All TOC non-essential personnel will move to their assigned bunker for their section.
4. ADAM Cell will continue to provide updated information on missile location till impact.