25th Division Artillery

Certification Redbook

May 2015

DEPARTMENT OF THE ARMY
HEADQUARTERS, 25TH INFANTRY DIVISION AND US ARMY HAWAII
SCHOFIELD BARRACKS, HI 96857-6000

REPLY TO ATTENTION OF:

APVG-CG

17 April 2015

MEMORANDUM FOR RECORD

SUBJECT: Division Redbook

1. Congratulations, you are a leader in the Tropic Lightning Division. As a leader in this Division, you have the distinction of serving in the only Division in the Army assigned to Geographic Combatant Command, the United States Pacific Command (USPACOM). The unique mission set of the Division requires we possess capable, flexible, agile, and ready Fires Support at all times. You can expect to be challenged while assigned to this Division. As a recipient of the Division Redbook, you have the privilege of being responsible for maintaining training readiness, developing leaders, and mastering the required core skills at your respective level.

2. To assist you in your responsibilities as a leader, the 25th Division Artillery (DIVARTY) developed the Division Redbook to standardize all fires training across the Division. The intent of the Division Redbook is to provide you, the leader, common standards for the training, certification, and qualification of all Fire Support assets under your command or supervision. The common standards outlined in the Redbook will free commanders and leaders from having to determine and describe standards for training, allowing them to devote more energy to training itself. The common standards in the Redbook will also allow commanders to provide a more clear intent to subordinates and enable a more accurate training assessment. The common standards will also enable commanders at all levels to conduct seamless cross attachment of all fire support assets, knowing they share common practices and standards.

3. To accomplish our mission, everyone Soldier and Leader must be focused and engaged. It is your leadership, teamwork, and training readiness that defines the Tropic Lightning Division as a **Reliable**, **Credible**, and **Disciplined** expeditionary force **Ready to Fight Tonight.**

CHARLES A. FLYNN
Major General, USA
Commanding

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 25TH INFANTRY DIVISION ARTILLERY (DIVARTY)
130 GRIMES STREET
SCHOFIELD BARRACKS, HI 96857-6000

REPLY TO
ATTENTION OF:

APVG-DI-CO

6 April 2015

MEMORANDUM FOR RECORD

SUBJECT: 25th Division Artillery (DIVARTY) Certification Redbook

1. References:
   a. TC 3.09.8, Field Artillery Gunnery, Nov 2013.
   b. FM 3-09, Field Artillery Operations and Fire Support, Sep 2014 (draft).
   c. ADRP 3-09, Fires, Aug 2012.
   d. ADP 3-09, Fires, Aug 2012.
   e. ATP 3-09.32, JFIRE: Multi-Service Tactics, Techniques, and Procedures for the Joint Application of Firepower Nov 2012.

2. The 25th Division Artillery (DIVARTY) Certification Redbook serves as a guideline for the training and certification of all 13-series personnel assigned to 25th Infantry Division. The responsibility to train, equip, and certify fire supporters, howitzer, fire direction center, and radar sections as well as survey teams rests with commanders; this document is not intended to override that responsibility.

3. Certification programs are essential to the incorporation of common standard operating procedures across the Division. The intent is to standardize operating procedures, thus enabling units to meet individual training or deployment tasks.

4. The proponent for this document is the 25th DIVARTY S3. Users are encouraged to submit comments and suggested improvements through the DIVARTY S3 Shop.

TROPIC THUNDER!!

CHRISTOPHER J. CARDONI
COL, FA
Commanding

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25th DIVARTY

CERTIFICATION REDBOOK

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25th Division Artillery (DIVARTY) Certification Program

The purpose of the 25th Division (DIVARTY) Certification Program is to establish certification standards for individuals, sections and leaders within the 25th Division Artillery. The purpose of the certification program is to ensure each individual demonstrates and maintains proficiencies and core competencies and can safely perform live fire duties in training and combat environment.

REFERENCES

TC 3.09.8 (Field Artillery Gunnery November 2013)
FM 6-50. Tactics, Techniques and Procedures for the Field Artillery Cannon Battery. December 23, 1996.
FM 3-09.12/ MCRP 3-16.1A. Tactics, Techniques and Procedures for Field Artillery Target Acquisitions. 21 June 2002.
FM 6-2 Tactics, Techniques and Procedures for Field Artillery Survey. 21 September 1993.
FM 3-09.15. *Tactics, Techniques, and Procedures for Field Artillery Meteorology*. 25 October 2007.
TB 11-7025-355-10 CENTAUR Version BC11.

DA PAM 350-38 and TC 3-09.8 provide training strategies and guidelines for training, certification and qualification of Field Artillery units. All units subordinate to 25TH Division Artillery (DIVARTY) will establish certification programs IAW TC 3-09.8.

The Field Artillery certification process is detailed. Specific requirements, tasks, conditions and standards for each individual and section level certification are outline in TC 3-09.8. 25TH DIVARTY does reserve the right to make additions to the DIVARTY certification program if it enhances the training and combative effectiveness of 25TH DIVARTY's unique mission.

This standardization is a directive and must occur as specified or as close as possible to the instructions pertained. Commanders will ensure that all officers and non commissioned officers are familiar with and adhere to the standards established,

Certification is a semi-annual requirement unless otherwise specified. Certification consists of the completion of Tables I-V in TC 3-09.8 under the direction of unit commanders and the evaluation of the Battalion Master Gunner/ Battalion Fire Control Sergeant. Specific Standardization Memorandums lists requirements, tasks, conditions and standards for specific individuals and all section level certification requirements.

New Section leaders will certify with their crews through Table V NLT 30 days after assuming their duties. This includes Howitzer sections, FDC sections, FIST sections, Radar sections and Survey sections.

Decertified sections (Howitzer sections, FDC sections, FIST sections, Radar sections) must go through a retraining period administered by the Platoon Sergeant (gun sections), BN Fire Direction Officer/NCO (FDC), Counter-Fire Officer or SR Radar NCO (radar sections) within 5 days. At the completion of the retraining period, the effected battery will forward a memorandum to their battalion chain of command stating that the required retraining has been conducted at the appropriate level. Based upon the recommendation of the battery commander, the decertified section is eligible for re-certification. The following are reasons for decertification:

- Not achieving the minimum score on a required evaluation based on BN CDR Guidance.

- A firing incident

- At the discretion of the Battalion Chain of Command.

Certification is critical to the training strategy of the 25th Division Artillery and Battalions within the 25th Infantry Division.

This program will prepare units for DRB, CTC and/or deployments. Each phase consists of a training portion and certification portion. The chapters attached to this document prescribe exactly what those standards are for each 13 series MOS.

External evaluations must be conducted by personnel outside of the battalion being certified. External evaluation only certifies that the certification standards were in accordance to the 25th DIVARTY Red Book.

RESPONSIBILITIES

The DIVARTY Headquarters has overall responsibility for the Certification Program. The DIVARTY establishes standards and monitors the execution of the program by battalions. Additionally, the DIVARTY acts as a "Quality Control" element by sampling training and readiness as described above.

- DIVARTY will establish a certification panel consisting of the FA BN MGs, BN S3s, and Operations SGM. The purpose of the panel is to meet quarterly and discus field artillery training opportunities, and synchronize external evaluators for upcoming section certifications. This meeting will also update current section certifications, and ensure that DIVARTY certification information is accurate.

- DIVARTY will establish the certification requirements and endorsement of the external evaluators for dry and live fire certifications. The external evaluators will consist of the FA BN MG, and PSG when a MG is unavailable.

- FA Battalions are responsible for the certification of their units IAW Artillery certification SOP. This certification must address Artillery certification, Artillery Safety, Manual safety Digital Safety, and Schofield Barracks specific artillery Safety requirements. These requirements are outlined in the Artillery Certification Standardization SOP, Artillery Safety SOP, and Schofield Barracks Safety Regulation and the TC 3-09.8.

- FA Battalions will maintain written records of safety certifications to include maintaining the most recent copy of the completed and graded exam for each safety certified Soldier. Command Inspections will include this as an item for inspection.

- Battalion Commander's will:

    - Be responsible for administering the test or assign a designated representative.

    - Ensure newly assigned Officers complete the safety test prior to assuming their duties.
    - Ensure all newly assigned NCO's complete the safety test prior to assuming their duties.

  - Keep or designate a representative to keep written records of safety personnel to include maintaining the most recent copy of the completed and graded exam for each safety certified Soldier.
  - Ensure only safety certified personnel are allowed to fire any Indirect Fire weapon system.
  - Ensure that all artillery firing within the battalion is conducted safely IAW regulations.
  - Ensure that no one performs live fire duties until the certification standards are met.

- Battery Commander's will:

  - Follow all safety procedures outlined in AR 385-63, and Schofield Barracks Post Range regulations.
  - Ensure live fire safety procedures are complied within the unit.
  - Ensure that all safety requirements are met before authorizing the battery to fire in each new position.
  - Ensure that all required personnel are command safety certified.

- DIVARTY S3 will:

  - Supervise and implement the safety certification program.
  - Conduct quality control inspections or other validating events to ensure that all training is being conducted to standards.

25th Division Artillery (DIVARTY) Key Leader Certification

The purpose of the 25th DIVARTY Key Leader Certification is to provide a means of evaluating key leaders on critical individual tasks that is essential to the mission success of the Division. To sustain perishable skills, assess standards of precision, allow new skills to be developed, reinforce existing standards, and to train the trainer.

REFERENCES

FM 6-50, The Field Artillery Cannon Battery, DEC 96.
TM 9-1025-215-10, Howitzer, Medium, Towed, 155mm, M777A2, Nov 14.
TM 9-1015-260-10, Howitzer Light Towed, M119A3 Nov 14.
TM 9-6675-262-10, Aiming Circle, M2 and M2A2, Dec 13.
TM 9-6675-347-13&P, Gun Laying and Positioning System (GLPS), May 04.
TM 11-5825-291-13, Precision Lightweight GPS Receiver (DAGR), Apr 01.
ARTEP 6-037-30-MTP, FA Cannon (Consolidated) Firing Battery, Apr 01.
DIVARTY Red Book.

This evaluation will be given to all newly assigned cannon battery key leaders (BCs, Platoon Leaders, Platoon Sergeants and GSGs; additionally, Battery FDOs will complete the certification at the discretion of the Battalion Commander. Certification will be completed within 30 days of assuming that duty position. It will be conducted semi annually after that, and administrated at Battalion level. Individuals must receive a "GO" on all tasks for a green rating. A red rating requires training and retesting on only those tasks a "NO GO" was received in, within 5 days. If a "GO" is not achieved within 5 days, individuals who receive a red rating will be trained and retested on the entire certification within 30 days.

If a time is associated with a specific task and the time has exceeded the standard a “NO GO” will be awarded regardless of receiving all go’s in the performance measures. The complete evaluation consists of 26 tasks.

- Written Safety Test
- Standard Gunners Test
- Perform PMCS on M2 Aiming Circle, Tripod and Inventory BII
- Set up/Level/Recover the Aiming Circle
- Declinate the Aiming Circle
- Lay the Howitzer with M2 Aiming Circle/ Grid Azimuth Method
- Lay the Howitzer with M2 Aiming Circle/ Orienting Angle Method
- Lay the Howitzer / Howitzer Backlay Method
- Lay the Howitzer / Aiming Point Deflection Method
- Lay the Howitzer / M2 Compass Method
- Measure Azimuth to a Known Point (Verify Survey)
- Measure the Orienting Angle with M2 Aiming Circle
- Measure the Vertical Angle with M2 Aiming Circle
- Distance Measuring (Measure Subtense) with M2 Aiming Circle
- Establish the Azimuth of the Orienting Line using Directional / Graphic Traverse
- Establish the Azimuth of the Orienting Line using Simultaneous Observation (Flank Station) with M2 Aiming Circle
- Establish the Azimuth of the Orienting Line using Simultaneous Observation (Master Station) with M2 Aiming Circle
- Establish the Azimuth of the Orienting Line using Polaris Kochab
- Initialize/ Perform Self Test and Navigate using the DAGR
- Perform PMCS on GLPS, Tripod, and Inventory BII

- Set up/Manually Level / Recover GLPS
- Precision Level / Configure/ Test GLPS
- Operate GLPS - Positioning
- Operate GLPS - Gun Laying
- Perform Field Verification on GLPS
- Conduct Cannon Key Leader Howitzer Checks

EQUIPMENT CHECKLIST FOR CANNON KEY LEADER CERTIFICATION

Individual Equipment Required:

- X M2A2 Aiming Circle with P2 Reticle
- X M24 Tripod
- 1 X Accessory Case with all required items (i.e. Plumb Bob).
- Schofield Barracks map.
- M2 Compass.
- Protractor.
- AN/PSN-11 DAGR
- 1 X M67 GLPS with Tripod
- DA Form 2404s
- TM 9-6675-262-10 (M2 Aiming Circle)
- FM 6-50
- TM 9-1025-215-10 (M777A2)
- TM 9-1015-260-10 (M119A3)
- TM 9-6675-347-13&P (GLPS)
- 1x Aiming post (EOL Stake)

Section Equipment Required

- 1X M777A2 Howitzer or 1 X M119A3
- 1X FMTV (Prime Mover) or 1 X HMMWV
- Complete BII to set-up a Standard Howitzer Position

NOTE: Soldiers will be tested on equipment that is organic to his unit

CANNON KEY LEADER CERTIFICATION SCORESHEET

NAME: RANK: POSITION:

BATTALION: BATTERY: SECTION: DATE:

TASK		GO	NO-GO
1.	Written Safety Test		
2.	Standard Gunners Test		
3.	Perform PMCS on M2 Aiming Circle, Tripod and Inventory BII		
4a.	Set up/Level the Aiming Circle		
4b.	Recover the Aiming Circle		
5.	Declinate the Aiming Circle		
6.	Lay the Howitzer / with M2 Aiming Circle/ Grid Azimuth Method		
7.	Lay the Howitzer / with M2 Aiming Circle/ Orienting Angle Method		
8.	Lay the Howitzer / Howitzer Backlay Method		
9.	Lay the Howitzer / Aiming Point Deflection Method		
10.	Lay the Howitzer / M2 Compass Method		
11.	Measure an Azimuth to a Known Point (Verify Survey)		
12a.	Measure the Orienting Angle with M2 Aiming Circle (with survey)		
12b.	Measure the Orienting Angle with M2 Aiming Circle (without survey)		
13.	Measure the Vertical Angle with M2 Aiming Circle		
14.	Distance Measuring (Measure Subtense) with M2 Aiming Circle		
15.	Establish the Azimuth of the Orienting Line using Directional/ Graphic Traverse		
16.	Establish the Azimuth of the Orienting Line using Simultaneous Observation (Flank Station)		
17.	Establish the Azimuth of the Orienting Line using Simultaneous Observation (Master Station)		
18.	Establish the Azimuth of the Orienting Line using Polaris Kochab		
19.	Initialize/Perform Self Test and Navigate using the DAGR		
20.	Perform PMCS on GLPS, Tripod, Inventory BII **(If equipment is available)**		
21.	Set Up/ Manually Level / Recover GLPS		
22.	Precision Level / Configure/ Test GLPS		
23.	Operate GLPS – Positioning		
24.	Operate GLPS – Gun Laying		
25.	Perform Field Verification on GLPS		
26a.	Conduct Cannon Key Leader Howitzer Checks (M777A2)		
26b.	Conduct Cannon Key Leader Howitzer Checks (M119A3)		

Cannon Key Leader Certification Task, Conditions, and Standards

TASK 1: WRITTEN SAFETY TEST			
CONDITIONS: IAW TMs, FMs, and the DIVARTY Red Book			
STANDARDS: Take and pass the Written Safety Test with 100% score.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Did the Individual arrive with all required test materials?		
2.	Did Individual achieve100% on the test?		
3.	If Individual did not achieve 100%, did the individual correct the questions that were incorrect in order to receive 100%?		

TASK 2: STANDARD GUNNERS TEST			
CONDITIONS: Artillery Gunners Test standards IAW with the TC 3-09.8			
STANDARDS: You must take and pass the Gunners Test.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Did the Individual arrive in correct uniform?		
2.	Did Individual achieve a minimum qualification score?		
3.	If individual is a 13A and did not achieve a minimum qualification score, did the individual receive a “GO” for performance measures on all tasks?		

TASK 3: PERFORM PMCS ON M2 AIMING CIRCLE, TRIPOD AND INVENTORY BII			
CONDITIONS: You will provide all unit assigned Aiming Circles, Tripods and BII to be inspected, DA Form 2404, TM 9-6675-262-10 and all necessary cleaning equipment.			
STANDARDS: Perform PMCS on all Aiming Circles, Tripods and BII, IAW TM 9-1290-262-10 and identify any equipment missing or NOT READY / AVAILABLE.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Declination Constant done within last 30 days?		
2.	All components are present and accounted for?		
3.	Properly fills out heading of DA Form 2404?		
4.	Clean exposed surfaces of optical elements with lens tissue?		
5.	Check that the base plate cover pivots freely?		
6.	Check for looseness or binding in azimuth, orienting and elevation knobs?		
7.	Check for loose or damaged knobs?		
8.	Turn azimuth knob until azimuth scale reads zero. Check that azimuth micrometer scale also reads zero and that the circular level bubble and main housing tube level bubble remains centered while the aiming circle is rotated through 6400 mils?		
9.	Turn elevation knob until elevation scale reads zero. Check that elevation micrometer scale also reads zero and that elbow telescope tube level bubble is centered?		
10.	Check that tripod legs are not cracked or broken and do not bind. Check that accessory case is complete?		
11.	Check cover properly attaches to and seats on the aiming circle		

	base plate?		
12.	Check that bracket light and hand light illuminate?		
13.	Check that bracket light can be dimmed with rheostat?		
14.	Check no leakage/corrosion on batteries/ or inside the instrument light tube?		
15.	Properly record all deficiencies on DA Form 2404?		

TASK 4a: SET UP AND LEVEL / RECOVER THE AIMING CIRCLE			
CONDITIONS: You will be given a complete M2A2 Aiming Circle in the stowed position, an Orienting Station (ORSTA), or another known point, and the direction of the howitzer to be laid.			
STANDARDS: Set up and level the Aiming Circle within 3 minutes and recover the Aiming Circle within 2 minutes IAW FM 6-50.			
TASK 4A: Set up and Level the Aiming Circle			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Unstrap the legs of the Tripod, loosen the leg clamp thumbscrews and extend the legs to the desired length, tighten the leg clamp screws. Place the Tripod over the point to be occupied; one leg should be pointing in direction of sighting with the night lighting device next to your left leg?		
2.	Attach the Plumb Bob to the hook under the instrument-fixing screw assembly. The Plumb Bob should be within a one-inch radius of the station marker. Firmly embed the Tripod legs, make sure the Tripod head is approximately level when the legs are embedded. Then remove the Tripod head cover?		
3.	Pull back the spring-loaded head cover on the base of the Aiming Circle; place the Aiming Circle on the Tripod. Screw the instrument fixing screw assembly into the baseplate. Center the Plumb Bob over the Orienting Station by moving the baseplate of the Aiming Circle?		
4.	Tighten the instrument-fixing screw assembly into the baseplate of the Aiming Circle. Remove the Aiming Circle head cover and hang it on the Tripod head cover or a leg clamp thumbscrew to prevent damage?		
5.	Level the Aiming Circle by loosening the leveling screws approximately halfway. Rotate the head of the Aiming Circle until the circular leveling vial is centered over the leveling screw and the notation pad?		
6.	Using the thumb and forefinger of each hand, turn the other two leveling screws in opposite directions. When the bubble moves on the line with the fisheye, center the bubble by using only the third leveling vial?		
7.	Rotate the head over each of the other two screws. If more than half the bubble moves out of the center ring, relevel the instrument.		
8.	Completes Task 4A within 3 minutes?		

TASK 4b: RECOVER THE AIMING CIRCLE			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Recover the Aiming Circle by elevating the telescope to 300 mils. Ensure the magnetic needle is locked?		
2.	Cover the tubular leveling vials. Ensure the caps of the orienting knobs are closed?		
3.	Place the azimuth knob over the notation pad. Turn the leveling screws counterclockwise until the screws are to their lower stops, then loosen each leveling screw knob ¼ turn?		
4.	Place the carrying case cover over the Aiming Circle and latch the cover locks. Unscrew the instrument-fixing screw and remove the instrument from the Tripod.		
5.	Replace the Tripod head cover. Retract and collapse the Tripod legs and tighten the thumbscrews. Strap the Tripod legs together?		
6.	Completes Task 4B within 2 minutes?		

TASK 5: DECLINATE THE AIMING CIRCLE			
CONDITIONS: Given an Aiming Circle set up and leveled over a Declination Station, and in a field location with known azimuths to at least two azimuth markers.			
STANDARDS: Declinate the Aiming Circle IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	With the upper motion (recording), set the known azimuth to the azimuth marker?		
2.	With the lower motion, sight on the azimuth marker that corresponds to the azimuth set with the upper motion?		
3.	Release the magnetic needle. With the upper motion float and center the magnetic needle?		
4.	Read the declination constant directly from the scales to the nearest 0.5 mils?		
5.	Using a second azimuth, repeat the above steps?		
6.	Compare the two declination constants determined. If they agree within +/- 2 mils, determine the mean?		
7.	Record the mean, date and the initials of the individual performing the declination on the notation pad?		
8.	Were standards of precision followed?		

Note: Use artillery round off; Round to the nearest whole even number.

Example 2245.5 =2246

If a second, azimuth marker is not available, use the 1st azimuth marker again.

TASK 6: LAY THE HOWITZER WITH M2 AIMING CIRCLE/ GRID AZIMUTH METHOD.			
CONDITIONS: Given a properly declinated Aiming Circle set up, a howitzer, communications and the necessary assistants. The howitzer is #1 and your AOF is _____.			
STANDARDS: Lay the howitzer to 0 mils using proper lay commands IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Determine the Instrument Reading to be placed on the instrument by subtracting the Azimuth of Fire from the Declination Constant of the Aiming Circle?		
2.	Place this value on the upper motion?		
3.	Center the magnetic needle using the lower motion?		
4.	Sight on the howitzer pantel using the upper motion?		
5.	Lay the howitzer using proper commands IAW FM 6-50?		

TASK 7: LAY THE HOWITZER WITH M2 AIMING CIRCLE/ ORIENTING ANGLE METHOD			
CONDITIONS: Given an Aiming Circle set up and leveled over the Orienting Station, an azimuth to a properly marked EOL, an Azimuth of Fire, a howitzer in firing position, necessary assistants, and communication with the howitzer. Your AOF is _____.			
STANDARDS: Lay the howitzer to zero mils IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Compute the Orienting Angle by subtracting the Azimuth of Fire from the azimuth of the Orienting Line?		
2.	Set the Orienting Angle with the upper motion?		
3.	Sight on the EOL using the lower motion?		
4.	Sight on the howitzer pantel using the upper motion?		
5.	Lay the howitzer using proper commands IAW FM 6-50?		

TASK 8: LAY THE HOWITZER / HOWITZER BACK-LAY METHOD			
CONDITIONS: Given a properly declinated Aiming Circle in the stowed position, a howitzer, an Azimuth of Fire, communications, and the necessary assistants.			
STANDARDS: Lay the howitzer to 0 mils IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Set up the Aiming Circle where it can be seen by the gun?		
2.	Level the fish eye bubble?		
3.	Command the gunner to REFER to the Aiming Circle?		
4.	Place the Referred Deflection on the Aiming Circle with the upper motion?		
5.	Sight on the pantel of the howitzer with the lower motion?		
6.	Give proper commands to lay the remainder of the platoon?		
7.	Were standards of precision followed IAW FM 6-50?		

TASK 9: LAY THE HOWITZER / AIMING POINT DEFLECTION METHOD			
CONDITIONS: Given a Distant Aiming Point, a compass, a map of the area, a protractor, a howitzer, communications, the necessary assistants, and a center of platoon grid and direction to a DAP.			
STANDARDS: Correctly lay the howitzer using a DAP IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Determine the azimuth from the center of the platoon to the DAP?		
2.	Derive the Back-Azimuth of Fire by adding or subtracting 3200 mils to or from the Azimuth of Fire?		
3.	Compute a Deflection by subtracting the Back-Azimuth of Fire from the azimuth to the Aiming Point?		
4.	Lay the howitzer using proper commands and procedures?		
5.	Were standards of precision followed IAW FM 6-50?		

TASK 10: LAY THE HOWITZER / M2 COMPASS METHOD			
CONDITIONS: Given a properly declinated M2 Compass, a howitzer, communications and the necessary assistants.			
STANDARDS: Lay the howitzer to an accuracy of 20 mils IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Place M2 Compass on stable object (tripod)?		
2.	Sight in on the howitzer pantel?		
3.	Subtract the Azimuth of Fire from the Measured Azimuth?		
4.	Announce the resulting deflection to the howitzer using proper commands?		
5.	Were standards of precision followed IAW FM 6-50?		

TASK 11: MEASURE AN AZIMUTH TO A KNOWN POINT (Verify Survey)			
CONDITIONS: Given a properly declinated Aiming Circle set up over the Orienting Station and the direction to an EOL.			
STANDARDS: Verify the orienting angle established by survey within +/- 10 mils of the azimuth to the EOL using the Grid Azimuth Method.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Place the Declination Constant on the upper motion?		
2.	Float and center the needle on the lower motion?		
3.	Sight on the EOL using the upper motion?		
4.	Read the azimuth. It should be within +/- 10 mils of the azimuth to the EOL?		
5.	If outside the 10 mil tolerance, takes corrective action?		
6.	Were standards of precision followed IAW FM 6-50?		

TASK 12a: MEASURE THE ORIENTING ANGLE WITH M2 AIMING CIRCLE (WITH SURVEY CONTROL)			
CONDITIONS: Given an Aiming Circle set up over a designated Orienting Station (ORSTA), a command to REFER prior to the End of Mission, a howitzer set up, and an assistant. Your time starts on the last digit of Referred Deflection from the gunner.			
Time Standard 1 minute.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Gives the proper command that causes the gunner to REFER?		
2.	Set off the announced deflection on the upper motion of the Aiming Circle?		
3.	Sight in on the pantel of the howitzer with the lower motion?		
4.	With the upper motion sight on the End of the Orienting Line and Measure the Orienting Angle?		
5.	Adds 6400 to OL (if required) if smaller than OA (IR) then subtract the OA from the azimuth of the Orienting Line?		
6.	Complete the task within one minute?		
7.	Were standards of precision followed IAW FM 6-50?		

TASK 12b: MEASURE THE ORIENTING ANGLE WITH M2 AIMING CIRCLE (WITHOUT SURVEY CONTROL)			
CONDITIONS: Given an Aiming Circle set up over a designated Orienting Station (ORSTA), a command to REFER prior to the End of Mission, a howitzer set up, and an assistant. Your time starts on the last digit of Referred Deflection from the gunner.			
Time Standard 1 minute.			
STANDARDS: Measure and report the Orienting Angle to the Fire Direction Center.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Gives the proper command that causes the gunner to REFER?		
2.	Set off the announced deflection on the upper motion of the Aiming Circle?		
3.	Sight in on the pantel of the howitzer with the lower motion?		
4.	With the upper motion floats and center the magnetic needle		
5.	Adds 6400 to the declination constant DC (if required) then subtract the instrument reading (IR) from the DC		
6.	Complete the task within one minute?		
7.	Were standards of precision followed IAW FM 6-50?		

TASK 13: MEASURE THE VERTICAL ANGLE WITH M2 AIMING CIRCLE			
CONDITIONS: You will be given an Aiming Circle set up and leveled over an OS, a howitzer, and an assistant.			
STANDARDS: Measure the Vertical Angle IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Center the upper tubular leveling vial using the elevation knob and determines a +/- correction factor?		
2.	Elevate or depress the telescope to align the horizontal cross hair of the Aiming Circle on the chest of the gun guide?		

3.	Read and record the value on the elevation micrometer scales to the nearest 1mils?		
4.	Subtract the correction factor from the reading obtained in step three and compute correct vertical angle?		

TASK 14: DISTANCE MEASURING (MEASURE SUBTENSE) WITH M2 AIMING CIRCLE			
CONDITIONS: You will be given an Aiming Circle set up and leveled over an OS, a howitzer, and an assistant.			
STANDARDS: Measure the Subtense IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Sight in on item to be measured, measure the horizontal clockwise angle from end to end and record measured angle?		
2.	Do Step1 twice and mean the angle?		
3.	Enter the appropriate table in FM 6-50 and convert angle to Distance in meters?		

TASK 15: ESTABLISH THE AZIMUTH OF THE ORIENTING LINE (OL) USING DIRECTIONAL / GRAPHIC TRAVERSE.			
CONDITIONS: Given an Aiming Circle set up and leveled over a start point, an azimuth marker, an aiming post to mark each station, a map of your AO, a pencil, paper and two assistants. You may use a computation worksheet. The azimuth to the rear station is _____. The grid to your location is _____and the altitude is _____.			
STANDARDS: Transfer the azimuth from one point to another and establish the azimuth to the Orienting Line (OL) IAW FM 6-50. Establish the grid to the new forward station IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
Directional Traverse			
1.	With the upper motion set 0.0 on the Aiming Circle?		
2.	With the lower motion sight on the known reference (rear station)?		
3.	With the upper motion measure the angle to the unknown point (Forward Station). Read the first reading to the nearest 0.5 mils and record it?		
4.	With the first reading still on the scales, sights again using the lower motion on the known reference point (Rear Station)?		
5.	With the upper motion, again measure the angle to the Forward Station. Read this second reading to the nearest 0.5 mils and record it?		
6.	Divide the second reading by two to determine the mean angle. The mean angle must agree with the first reading within 0.5 mils?		
7.	Computation correct within +/- .5 mils?		
8.	Add the mean angle to the Azimuth to the EOL. If reading exceeds 6400 subtract 6400. This reading is the Azimuth to the forward station.		
9.	Determine back azimuth by adding or subtracting 3200. The azimuth computed is from the forward station to the location of the current ORSTA.		

10.	Were standards of precision followed IAW FM 6-50?		
Graphic Traverse			
1.	Follow procedures for directional traverse to compute the azimuth for the first leg of the traverse?		
2.	Determine distance to the forward station with subtense or another accepted method?		
3.	Scale the azimuth and distance on a map, establish grid to FWD station		

TASK 16: ESTABLISH THE AZIMUTH OF THE ORIENTING LINE (OL) USING SIMULTANEOUS OBSERVATION. (Flank Station Only)			
CONDITIONS: Given an Aiming Circle set up and leveled with an optical filter or night lighting device installed, a designated celestial body, a master station, aiming post, and an assistant. Both the flank and master stations will track using right, left, or center of the reticle pattern.			
STANDARDS: Establish the Azimuth of the Orienting Line (OL) and ensure that the check angle and the reading on the Aiming Circle agrees, within +/- 2 mils.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	With the upper motion set 0.0 on the Aiming Circle?		
2.	Contact the Master Station and report that you are ready to observe?		
3.	With the lower motion, sight on and track the celestial body until the Master Station announces TIP?		
4.	Depress the Aiming Circle and place the (minimum of 30 meters) EOL along the Aiming Circle Line of Sight (center mass). Record the azimuth that is announced by the Master Station?		
5.	Contact the Master Station and report that you are ready to observe?		
6.	With the upper motion track the celestial body until the Master Station announces TIP?		
7.	Copy the check angle from the Master Station. If the angles are within +/- 2 mils of each other. The process is considered valid?		

TASK 17: ESTABLISH THE AZIMUTH OF THE ORIENTING LINE (OL) USING SIMULTANEOUS OBSERVATION. (Master Station Only)			
CONDITIONS: Given an Aiming Circle set up and leveled with an optical filter or night lighting device installed, a designated celestial body, and an azimuth to the EOL, and an assistant. Both the Flank and Master Stations will track using the center of the reticle pattern.			
STANDARDS: Orient Flank Station with an Azimuth to an EOL and ensure that the Check Angle agrees within +/- 2 mils.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Set the known azimuth valve on the Instrument Scale (upper recording scale) and sight on the known point or azimuth marker with the lower (non-recording) scale?		
2.	Using the upper motion identify and sight on the predetermined celestial object?		

3.	Using the upper motion, track the celestial body and announce TIP?		
4.	Read the azimuth to the celestial object from the horizontal scale, and announce it to the Flank Station(s)?		
5.	Using the upper motion identify and sight on the predetermined celestial object?		
6.	Using the upper motion, track the celestial body and announce TIP?		
7.	Determine the clockwise angle (Check Angle) between the first and second azimuths. Announce the Check Angle to the Flank Station(s)?		

TASK 18: ESTABLISH THE AZIMUTH OF THE ORIENTING LINE (OL) USING POLARIS-KOCHAB METHOD.			
CONDITIONS: Given an Aiming Circle set up and leveled over a selected point with a night lighting device installed, a local 1:50,000 scale map, an aiming post with a night light, an assistant and FM 6-50.			
STANDARDS: Establish the azimuth to the Orienting Line (OL) and determine the Grid Azimuth from the selected point to the EOL within +/- 2 mils IAW FM 6-50.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Using the upper motion set 0.0 on the azimuth scale?		
2.	Place the vertical cross hair of the instrument on Kochab by using the lower motion and Elevation Micrometer Knob?		
3.	Turn the Azimuth Micrometer Knob (upper motion) clockwise until the vertical cross hair is centered on Polaris?		
4.	Read the value on the azimuth scale to the nearest mil?		
5.	Depress the telescope to ground level. Emplace an aiming post at least 30 meters from the Aiming Circle?		
6.	Enter the appropriate table on the left side with the value of the upper motion of the Aiming Circle?		
7.	From the intersection of the measured angle from Kochab to Polaris on the appropriate graph in FM 6-50, read the True Azimuth to Polaris from the bottom of the table. Interpolate for odd numbered values (Table 5-3)?		
8.	Determine the Grid Convergence (the angle between True North and Grid North) in mils from the map sheet for the areas of operation (21 mils)?		
9.	Convert the True Azimuth to Grid Azimuth using RALS (right add, left subtract)?		
10.	Were standards of precision followed?		

TASK 19: INITIALIZE/PERFORM SELF TEST, AND NAVIGATE USING THE DAGR.			
CONDITIONS: Given a DAGR and map, turn on, initialize, perform a self test, and determine an azimuth and distance to a known destination.			
STANDARDS: Enter waypoints in the DAGR and determine an azimuth and distance to a known point.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Turn on by pressing the ON/BRT key, verify self-test complete?		
2.	Once test is complete, process through entering appropriate data (Grid Zone Designator, Grid/Degree, continuous operation, averaging mode/ FOM for GLPS operations, etc.)?		
3.	Enter current waypoint (coordinate must be accurate to +/-100 meters)?		
4.	Enter waypoint of destination?		
5.	Determine the azimuth and distance to destination?		

TASK 20: PERFORM PMCS ON GLPS, TRIPOD, AND INVENTORY BII			
CONDITIONS: You will provide a GLPS with Tripod and BII to be inspected, DA Form 2404 or 5988E, TM 9-6675-347-13&P and all necessary cleaning equipment.			
STANDARDS: Inventory and Perform PMCS on GLPS, Tripod and BII, IAW TM 9-6675-347-13&P and identify any equipment missing or NOT READY / AVAILABLE.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	All components are present and accounted for?		
2.	Properly fills out heading of DA Form 2404?		
3.	Perform PMCS IAW Table 2-1 of TM 9-6675-347-13&P?		
4.	References Chapter 3 TM 9-6675-347-13&P for troubleshooting and field verification if required?		
5.	Properly record all deficiencies on DA Form 2404?		

TASK 21: SET UP/ MANUALLY LEVEL/ MARCH ORDER GLPS.			
CONDITIONS: You will provide a GLPS with Tripod and the location of the gun line.			
STANDARDS: Set up and manually level GLPS IAW TM 9-6675-347-13&P. After performance of Tasks 23-25, march order the GLPS IAW TM 9-6675-347-13&P.			
Task 21a: SET UP/ MANUALLY LEVEL GLPS			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Select location of OS. (Line Of Sight with all guns)		
2.	Set up and level		
3.	Mount North Seeking Gyroscope.		
4.	Mount Theodolite.		
5.	Mount Battery.		
6.	Mount DAGR and DAGR interface cable.		
7.	Level System Manually.		
8.	Continue to TASK 24		

Task 21b: MARCH ORDER GLPS			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Turn GLPS off by pressing ON/OFF on key pad.		
2.	Remove Target rod.		
3.	Remove DAGR and DAGR interface cable.		
4.	Remove Theodolite and place in container; secure latches on container.		
5.	Remove North Seeking Gyroscope and place in container; secure		

	latches on container.		
6.	Recover Tripod.		

TASK 22: PRECISION LEVEL/ CONFIGURE/ TEST GLPS.			
CONDITIONS: You will provide a GLPS set up and manually leveled.			
STANDARDS: Precision level and configure GLPS IAW TM 9-6675-347-13&P for the current area of operations. Manually Test GLPS system and components (Testing/BITE) IAW TM 9-6675-347-13&P.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
Precision Level GLPS			
1.	Turn ON GLPS.		
2.	Review Start up Screen and Battery System Check Screen.		
3.	Press ENTER for LEVELING Screen		
4.	Press RIGHT CURSOR KEY or ENTER to Select YES.		
5.	Use the perpendicular leveling screw until the upper field is within tolerance.		
6.	Use the parallel leveling screws until the lower field is within tolerance.		
7.	Press ENTER to Continue.		
Configuration			
1.	Select CONFIGURATION.		
2.	Configure Rangefinder illumination.		
3.	Configure Theodolite contrast.		
4.	Configure for Hemisphere.		
5.	Press CE to return to MAIN MENU.		
Testing/ BITE			
1.	Select TESTING / BITE.		
2.	Conduct Battery and System Tests.		
3.	Press CE to return to MAIN MENU.		

TASK 23: OPERATE GLPS POSITIONING and ORIENTATION.			
CONDITIONS: You will provide a GLPS set up and leveled. **Start at GLPS Screen.**			
STANDARDS: Establish Position and Orient GLPS IAW TM 9-6675-347-13&P for the current area of operations.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
GPS Position Option			
1.	Select GPS POSITION.		
2.	Verify display grid on DAGR.		
3.	Press ENTER for ORIENTATION screen.		
4.	Select RUN GYRO method for North Seeking Gyroscope Orientation.		
	OR		
5.	Select KNOWN AZIMUTH method (if available).		
Input Position Option			
1.	Select INPUT POSITION.		
2.	Enter Easting, Northing, and Altitude (H) of known position.		
3.	Select RUN GYRO to orient GLPS.		
Back Polar Plot			
1.	Select Back Polar Plot.		
2.	Select INPUT REF PNT and enter grid and altitude to known location.		

3.	Align optics on known point. (Press ENTER)		
4.	Determine Range to known point with Rangefinder. (Press ENTER).		
5.	Press CE to return to MAIN MENU.		

TASK 24: OPERATE GLPS GUN LAYING.			
CONDITIONS: You will provide a GLPS set up and leveled. **Start at GLPS Screen.**			
STANDARDS: Orient all howitzers for direction, determine howitzer location, and store data for future use with GLPS IAW TM 9-6675-347-13&P for the current area of operations.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
Lay by Deflection			
1.	Select LAY BY DEFLECTION.		
2.	Input Azimuth of Fire. (Press ENTER)		
3.	Sight on selected howitzer pantel. (Press ENTER)		
4.	Press ENTER to compute and display howitzer location data.		
5.	Press ENTER to go to STORE COORD.		
6.	Store data as appropriate gun number		
7.	Press CE to return to GUN LAYING menu.		
Lay by Azimuth			
1.	Select LAY BY AZIMUTH.		
2.	Sight on forward station.		
3.	Press ENTER to measure direction, VA, and range.		
4.	Press ENTER to display coordinates.		
5.	Press ENTER to go to STORE COORD.		
6.	Store data as appropriate gun number		
7.	Press CE to return to GUN LAYING menu.		

TASK 25: PERFORM FIELD VERIFICATION ON GLPS			
CONDITIONS: You will provide a GLPS set up and leveled over an OS.			
STANDARDS: Perform Field Verification on GLPS IAW Paragraph 3-2 of TM 9-6675-347-13&P.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Determine if verification is required.		
2.	Set up for verification by PARA 3-2.2, TM 9-6675-347-13&P		
3.	Perform Verification procedures by PARA 3-2.5, TM 9-6675-347		
4.	If GLPS is not in tolerance, turn into Depot for maintenance.		
5.	If OS is not available or OS data is bad, perform Field Expedient method of verification by PARA 3-2.3 and 3-2.4 of TM 9-6675-347-13&P.		

TASK 26a: CONDUCT CANNON KEY LEADER HOWITZER CHECKS (M777A2)			
CONDITIONS: Given at least one properly emplaced M777A2 howitzer with all BII and an assistant. Primary and Alternate Aiming References will be established. All pertinent data will be recorded on the Gunner's Reference Card. Fire Command Standards have been issued.			
STANDARDS: Inspect the howitzer position IAW the DIVARTY Cannon Key Leader Howitzer Checklist supported by the FM 6-50, and TM. Identify all deficiencies and report them to the evaluator.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Azimuth of Fire verified with an M2 Compass		
2.	Lay of the howitzer +/- 10 mils center of traverse.		
3.	Verify Howitzer Grid Location Is Safe With DAGR +/- 10 M		

4.	Parameter cards match information input into chief section display.		
5.	Collimator will be emplaced approximately 9 to 12 meters to the rear of the sight. Legs sandbagged. Cover between legs with open end away from the tube. Zero mils displacement (check sight picture). Azimuth properly recorded on the gunner's reference card.		
6.	Aiming post zero mils displacement. Azimuth properly recorded on the gunner's reference card. Emplaced at an azimuth at least 1600 mils different from the collimator. Poles equal distance.		
7.	DAP selected and described on the gunner's reference card. Azimuth properly recorded.		
8.	Boresight verified using M154. Performs comparison test if necessary.		
9.	Verify Min and Max QE. Recorded on Gunners Reference Card and then reported to FDC**.**		
10.	FDC fire order standards, Priority Targets and positions corrections properly recorded on the gunner's reference card.		
11.	Range cards properly filled out for howitzer and crew served weapons. Dead space covered by howitzer crew served weapons.		
12.	Trail arm locking plungers in position.		
13.	Spades dug in at least three inches.		
14.	Bore clear.		
15.	Witness Marks Aligned (PFM And Breech).		
16.	Ensure howitzer has five points of contact.		
17.	Oil index pin flush.		
18.	Wheels in the down position and locked.		
19.	Muzzle brake key and bolts present and laced.		
20.	Voice and Digital communications established with FDC.		
21.	Piece status site data sent to FDC.		
22.	Ammunition segregated by type, lot, weight and fuze. Fuse properly mated to projectile. Ammunition protected from sun and weather. WP rounds stored on its base. Proper accountability maintained (DA Form 4513)		
23.	Ammo properly prepared (6 rounds on ready rack).		
24.	Powder thermometer properly placed in canister and marked with white engineer tape.		
25.	Powder can 20 meters to the rear of net door. **(Only emplaced when firing legacy charges i.e. WB,GB).**		
26.	Firing positions support battery defense plan. Sufficient two or three man positions for all section members.		
27.	Camouflage net properly emplaced: windshields Covered with door windows down.		
28.	All sensitive items accounted for.		
29.	Training material present to include: FM 6-50, DIVARTY Redbook, and applicable TMs.		
30.	Section knows location route to alternate and supplementary positions.		
31.	PMCS performed on howitzer, LMTV's, weapons, NVGs and commo gear IAW –10 manuals		

TASK 26b: CONDUCT CANNON KEY LEADER HOWITZER CHECKS (M119A3)			
CONDITIONS: You will be provided a M119A3 howitzer with all BII, laid on an azimuth of fire. Primary and alternate aiming references will be established. All data pertaining to the gunner's reference card will be recorded on the gunner's reference card.			
STANDARDS: Inspect the howitzer position IAW the DIVARTY Cannon Key Leader Howitzer Checklist supported by the FM 6-50, and TM. Identify all deficiencies and report them to the evaluator.			
PERFORMANCE MEASURES		**GO**	**NO-GO**
1.	Ensure Azimuth of Fire has been verified using a M2 compass.		
2.	Firing platform emplaced with front stays, clamped and at least one rear stay tight. Detachable spade attached.		
3.	Parameter cards match information input into chief section display.		
4.	Verify Howitzer Grid Location Is Safe With DAGR +/- 10 M		
5.	Correction counter on panoramic telescope and M187A2 mount are zeroed.		
6.	Collimator 4-15 meters from the piece at deflection 2400-2800 mils. Legs sandbagged. Cover between legs with open end away from the tube. Zero mils displacement (check sight picture). Azimuth properly recorded on the gunner's reference card.		
7.	Verify the lay of the piece. Refer to the aiming circle with the howitzer on primary reference. Deflection counter should read 3200. Azimuth properly recorded on the gunner's reference card.		
8.	Lay of the howitzer +/- 10 mils center of traverse.		
9.	Direct fire Telescope mounted.		
10.	Lay of howitzer, checked with safety circle or a safe howitzer to a tolerance of +/- 2 mils.		
11.	Aiming post zero mils displacement. Azimuth properly recorded on the gunner's reference card. Emplaced at an azimuth at least 1600 mils different from the collimator. Poles equal distance.		
12.	DAP selected and described on the gunner's reference card. Azimuth properly recorded.		
13.	FDC fire order standards, Priority Targets and positions corrections properly recorded on the gunner's reference card.		
14.	Boresight verified using M140 Alignment device .Performs comparison test if necessary.		
15.	Pre-fire checks performed IAW –10.		
16.	Piece status site data sent to FDC.		
17.	Ammunition segregated by type, lot, weight and fuze. properly mated to projectile. Ammunition protected from sun and weather. WP rounds stored on its base. Proper accountability maintained (DA Form 4513)		
18.	Powder thermometer properly placed in canister and marked with X. Fiber stored with bulk of ammunition.		
19.	Powder pit dug 20 meters to the rear of net door.		
20.	Range cards properly filled out for howitzer and crew served weapons. Dead space covered by crew served weapons.		
21.	Firing positions support battery defense plan. Sufficient two or three man positions for all section members.		
22.	Camouflage net properly emplaced: windshields covered.		
23.	Voice and Digital communications established with FDC.		
24.	Section knows location of and route to alternate and supplementary positions.		
25.	PMCS performed on howitzer. HMMWV's, weapons, NVGs and		

	commo gear IAW –10 manuals.		
26.	All sensitive items accounted for.		
27.	Safety "T" present and safety stakes emplaced if degraded.		
28.	Training material present to include: FM 6-50, DIVARTY Red Book, and applicable TMs.		

FDC Key Leader's Certification

FDC Leader's Certification

INTRODUCTION: The FDC's Leader's Certification will be administered to all 13A leadership within the battery, as well as the Fire Direction Chief and AFATDS operator. At the discretion of the commander, the operator's test can also be administered to selected members of the section. The operator's test should be conducted at the battalion level by evaluators who have been certified by the Master Gunner. All tasks must be accomplished with GO ratings to be considered qualified.

FDC Leader's Certification Tasks

Task Number	Subject
061-280-5005	Compute Manual Safety
061-300-5304	Compute Safety Using CENTAUR data
061-300-5305	Verify CENTAUR Initialization Data
061-280-5005	Compute Manual Muzzle Velocity Variation (MVV)

LEADER'S CERTIFICATION TASK	
061-280-5005	**Compute Manual Safety**

TEST PLANNING TIME: Administrative time: 5 minutes, Test time: 20 minutes Total time: 25 minutes

CONDTIONS: Given a requirement to compute safety, an Executive Officer's (XO's) report, range safety card (if required), range regulation, appropriate Tabular Firing Table (TFT), Graphical Firing Table (GFT), Graphical Site Table (GST), FM 6-40, Table C addendum, map of operational area, and ST 6-50-20.

STANDARDS: Compute safety limits, without error, IAW with procedures outlined in FM 6-40.

EVALUATION PREPERATION: Ensure that the equipment is available, serviceable, and ready for use.

Use the reference and the evaluation guide to score the Soldier's performance. BRIEF SOLDIER: Tell the Soldier what is required IAW the task conditions and standards.

INSTRUCTIONS TO THE SOLDIER: You are currently located at your new battery position area and need to

construct a safety diagram manually. Do you understand the requirements of this test? Do you have any questions? You may begin.

PERFORMANCE MEASURES

EVALUATION CHECKLIST		**GO**	**NO-GO**
1.	Constructed the basic safety diagram.		
2.	Computed low angle safety data.		
3.	Updated the safety data after determining a GFT setting.		
4.	Computed high angle safety.		
5.	Identified the elements of computation of minimum QE.		
6.	Computed manual minimum QE.		
7.	Computed minimum QE using the Rapid Fire Tables (RFT).		
8.	Determined intervening crest.		

061-300-5304	**Compute Safety Data Using Centaur**

TEST PLANNING TIME: Administrative time: 5 minutes Test time: 10 minutes Total time: 15 minutes

CONDITIONS Given a requirement to compute safety data with the CENTAUR, range safety card (if required), XO's report, range regulations, and TB 11-7025-355-10.

STANDARDS Compute Safety Limit without Error

EVALUATION PREPERATION: Ensure that the equipment is available, serviceable, and ready for use.

Use the reference and the evaluation guide to score the Soldier's performance. BRIEF SOLDIER: Tell the Soldier what is required IAW the task conditions and standards.

INSTRUCTIONS TO THE SOLDIER: You are currently located at your new battery position area. You have just received the XO's report. You must enter the required information and compute safety data for your new location. Do you understand the requirements of this test? Do you have any questions? You may begin..

PERFORMANCE MEASURES

EVALUATION CHECKLIST		**GO**	**NO-GO**
1.	Input safety area.		
	a. Fire point information.		
	b. Dog Leg Information.		
2.	Input safety "T" data.		
3	Calculated initial safety data.		
4	Updated safety data (as required).		

061-300-5305	**Verify CENTAUR INITIALIZATION DATA**

TEST PLANNING TIME: Administrative time: 5 minutes Test time: 5 minutes Total time: 10 minutes

CONDITIONS Given an initialized CENTAUR, map information, unit information, Muzzle Velocity Variation

(MVV) information, weapon information, meteorological (MET) data, target data, and TB 11-7025-355-10.

STANDARDS Verify Centaur Initialization Data, without error

EVALUATION PREPERATION: Ensure that the equipment is available, serviceable, and ready for use.

Use the reference and the evaluation guide to score the Soldier's pearformance. BRIEF SOLDIER: Tell the Soldier what is required IAW the task conditions and standards

INSTRUCTIONS TO THE SOLDIER: You are currently located at your new battery position area and need to

You must verify the required information and ensure the initialization data is accurate for this location. Do you understand the requirements of this test? Do you have any questions? You may begin.

PERFORMANCE MEASURES

EVALUATION CHECKLIST	**GO**	**NO-**

			GO
1.	Verified map mod.		
2.	Verified fire unit data.		
3.	Verified MVV data.		
4.	Verified MET data.		
5.	Verified target information		

061-280-5006	**Compute Manual Muzzle Velocity Variation**

TEST PLANNING TIME: Administrative time: 5 minutes Test time:20 minutes Total time: 25 minutes

CONDITIONS Given velocity meter readouts, Tabular Firing Table (TFT), Muzzle Velocity Correction Table (MVCT-1), DA Form 4982-1-R (M90 Velocimeter Worksheet), DA Form 4982-R (Muzzle Velocity Record), starting and ending powder temperature, projectile square weight, and FM 6-40. Some iterations of this task should be performed in MOPP.

STANDARDS Compute muzzle velocity variation, without error, IAW procedures outlined in FM 6-40.

EVALUATION PREPERATION: Ensure that the equipment is available, serviceable, and ready for use. Use the reference and the evaluation guide to score the Soldier's pearformance. BRIEF SOLDIER: Tell the Soldier what is required IAW the task conditions and standards

INSTRUCTIONS TO THE SOLDIER: You are currently located at your new battery position area and Your AFATDS has been activated and you need to input the most recent history MVVs recorded. Do you understand the requirements of this test? Do you have any questions? You may begin.

PERFORMANCE MEASURES

EVALUATION CHECKLIST		**GO**	**NO-GO**
1.	Determined Surface Danger Zone (SDZ).		
2.	Developed Safety T.		
3.	Determined Launcher Danger Area (Area F).		
4.	Determined Noise Hazard Area (NHA).		
5.	Completed the SDZ diagram.		
6.	Determined intervening crest		

Ch 3 13F	
Section 3a	**Fire Support Certification Program**

PREFACE

25ID Fire Support Tables provides Commanders, Fire Support Officers (FSO), and Fire Support NCOs (FSNCOs) a standardized method of training and qualifying the fire support (FS) personnel assigned to the 25th Infantry Division. This appendix includes training and qualification standards for all Fire Support Teams (FIST), Combat Observation and Lasing Teams (PWT), Joint Fires Observers (JFO), and Fires Support Elements (FSE).

Summary. This Standing Operating Procedure (SOP) prescribes procedures, outlines requirement and delineates responsibilities for the standardization of 25th certification for Fire Supporters. Commanders will ensure that all officers and noncommissioned officers are familiar and adhere to the standards established in this SOP. This document supersedes all previous documents regarding the subjects contained therein.

Applicability. This SOP applies to all 25th ID units and Soldiers and any unit or Soldier executing Fire Support operations in any theater of operations control by this command.

Proponent and Exception Authority. The proponent of this SOP is the 25th DIVARTY. 25th DIVARTY is the approval authority for changes to this document.

Suggested Improvements. Users can send comments and suggested improvements via e-mail to the DIVARTY 13F Master Gunner using DA Form 2028 (Recommended Change to Publications and Blank Forms).

Fire Support Training and Certification

The purpose of the 25th DIVARTY Certification Program is to provide specific guidance for the conduct of Fire Support Certification for all Company and Platoon level Fire Support personnel assigned to the 25th Infantry Division. This memorandum establishes the baseline standard for training and evaluation to ensure proficiency and knowledge for fire support principals and equipment. Commanders are authorized to enhance their certification programs, but must ensure they meet the requirements outlined in this standardization memorandum.

REFERENCES

FM 1-02, Operational Terms and Symbols, 21 Sep 04.
TC 3-09.8, FA Tables, Chapter 3, Fire Support Tables, and Appendix D Time and Accuracy Standards, Nov 2013.
FM 3-09.12, (Final Draft) Field Artillery Target Acquisition 2011.
dATTP 3-09.30, (Revised Final Draft v3), Observed Fire, 13 Apr 11.
FM 3-09.31, (Final Draft) Fire Support Training for the Brigade Combat Team Commander, 4 Oct 2010.
FM 3-09.32, Multi-Service TTP for the Joint Application of Firepower (JFIRE) Dec 2007
FM 3-09.42 (Revised Final Draft v2) Fire Support for the Brigade Combat Team, 29 May 2009.
FM 3-25.26 Map Reading and Land Navigation.
JP 3-09, Doctrine for Joint Fire Support, 30 Jun 2010.
JP 3-09.1, Joint Tactics, Techniques, and Procedures for Laser Designation Operations, 28 May 98.
JP 3-09.3, Joint Tactics, Techniques, and Procedures for Close Air Support (CAS), 8 Jul 09.

Responsibilities

The DIVARTY Commander or Deputy Fire Support Coordinator (FSCOORD) (when delegated) will exercise the staff responsibility for the development of the Fire Support Training Program.

The DIVARTY Commander or designated representative prepares and disseminates approved Fire Support Tasks for all components of the training program. All written tests shall be reviewed and validated semi-annually by the DIVARTY 13F Master Gunner and Division FSNCO.

The DIVARTY 13F Master Gunner will ensure that certification records are maintained at the BDE and BN FSE level. The Division Fires Cell will maintain a consolidated roster, by name and position, of certification completion status. Records will be available for the DIVARTY 13F Master Gunner to view, as required.

FA Battalion Commanders must establish a program to train, certify, and sustain fire support proficiency in accordance with TC 3-09.8. All fire support personal will complete ASPT (Artillery Skills Proficiency Test) prior to conducting FIST (Fire Support Team) Certification. Records for ASPT completion will be maintained at BN FSE. (TC 3-09.8)

Training Philosophy

The Fire Support Mission Essential Task List (METL) is the basis for the Fire Support training program. This program consists of the minimum Fire Support (Individual and Collective Tasks), Fire Support Certification, Live Fire Exercise (LFX), and Digital Sustainment Training (DST). Training to standard in these four categories, fire support leaders ensure their elements can perform at a basic proficiency level. Training minimums ensure fire supporters maintain proficiency. Live fire training exercises validate certification and training standards.

Commanders should utilize live fire exercises during planned Field Training Exercises (FTX) and Combined Arms Live Fire Exercises (CALFEX) as the capstone event and as the principal validation of the fire support training program. Each round a battalion expends should be planned to train Cannoneers, Mortarmen, Fire Direction Personnel, Fire Supporters and Joint Fires Observers (JFO) if applicable.

Call For Fire Trainer and other simulators are tools to be used for Certification when live fire is limited. DIVARTY Commander will be approving authority for simulator use. When simulators are used, evaluations will be conducted by the same individuals who are responsible for training and evaluation in the field and to the same evaluation standards.

The Fire Support Certification program is used to ensure that personnel assigned to fire support positions are qualified to perform their duties. In order to validate proficiency fire supporters must certify every six months.

Certification

The five components of the fire support certification are:

(1) **Written Test:** Three different skill level written tests are administered to fire support personnel based upon the duty position the individual is assigned. Testing one skill level above may be administered when FSNCO or FSO coordinate with testing personal. Soldier must test and achieve 80% for position assigned prior to testing higher. To be certified, individuals must score a minimum of 80%. Following completion of the 80% standard, all written test will be corrected to 100%. Utilization of the reference manuals is authorized only when correcting the test from 80% to 100% to ensure complete understanding of the question.

TASK: Complete a 50 question written test.

CONDITIONS: Classroom environment, written test corresponding to the individual's duty position. Forty-five (45) minutes will be given to complete the test.

STANDARDS: Each Soldier must score at least 80 points to receive a "GO" and then correct the test to 100%.

(2) **Recognition of Combat Vehicles (ROC-V):** Equipment recognition evaluates the soldiers' ability to recognize combat equipment and vehicles, which may be encountered on the battlefield. The FA BN Commander must determine the appropriate threat vehicles and equipment based on the proposed mission. To be certified, individuals must score a minimum of 80% on the test.

TASK: Correctly identify vehicles or weapon system slides or identification cards.

CONDITIONS: This task will be conducted in a classroom or field environment.

STANDARDS: 15 seconds will be given to identify each slide or visual aid. Soldiers will be given no more than 30 slides. Each Soldier must score at least 80 points to receive a "GO".

(3) **Land Navigation:** The night-day Land Navigation portion of FIST Certification will be conducted in Field Uniform without the use of a GPS device. The course will be conducted using a total of 6 points (500 to 800 meters between points) during a five-hour period. The course will transition from night to day, ensuring that the five hours are distributed evenly between night and day. To receive a "GO," personnel must find a minimum of 5 of the 6 points. Each individual will receive 80 points for finding 5 of 6 and 100 points for finding 6 out of 6 points.

TASK: Navigate dismounted along a cross-country course without a GPS device.

CONDITIONS: Given a 5 hour period transitioning from night to day; navigate to 6 points along a predetermine course. Each Soldier will wear the field uniform.

STANDARDS: Soldiers will have a total of 5 hours during the night/day course to find 6 points. A minimum of 5 out of 6 points must be found in order to receive a "GO".

(4) **Hands-on Test:** Fire Support personnel will be evaluated on their ability to properly operate their assigned equipment. This event is evaluated using the "GO"/"NO GO" (pass/fail) system. Personnel will be evaluated on 10 individual tasks. Personnel will be evaluated using the Tasks, Conditions, and Standards found in TC 3-09.8.

(5) **Observed Fire:** (10 Fire Missions): The OF portion of the FIST Certification will be conducted using Live Fire Exercises. Simulators are authorized when approved by DIVARTY Commander. Grading will be conducted in accordance with the Tasks, Conditions, and Standards provided in TC 3-09.8, Chap. 3. Personnel must receive a "GO" in all ten missions to certify. Any "NO GO" score will be re-tested. See section (b) bullet (6) below for details on retest.

Fire Support Certification Requirements.

(1) Semi-Annual certification will be scheduled as part of ARFORGEN and IAW BCT Training Strategies. This will ensure new personnel and current Fire Support personnel remain proficient in critical individual and collective tasks.

(2) Certification will be conducted *within 90 days of assumption of duty position*, regardless of ARFOGEN cycle, and is valid for six months.

(3) Company FSOs, FSNCOs, and Forward Observers are required to conduct all five components of the FIST Certification.

(4) Fire Support Specialist and RTOs at the Battalion level are required to conduct and pass all tasks of FIST Certification except Observed Fire Procedures. FS SPC and RTO's will be scored as "GO" or "NO GO" and will not affect the overall Company FIST average.

(5) *Individual*. In order to be considered "Green" for certification, each FSO, FSNCO, and FO (regardless of rank) must achieve a "GO" in each component of FIST Certification.

(6) *Fire Support Team*. The team score is an average of the Company FSO, FSNCO, and 3 x FO individual scores. A team must score a minimum of 1140 points from a possible 1650 points and all five team members (FSO, FSNCO, 3 x FOs)

must be certified “Green” for the team to be considered “Green”. The FIST will not be considered “GREEN” until all FS SPC and RTOs of that team are a “GO” at their required skill level task for FIST Certification.

(7) *Retests*. If the written test or land navigation test must be retaken, the Soldier will take the entire component over again. For example, if a Soldier fails to find all points during land navigation test that Soldier will retake the land navigation test. Only hands-on and fire missions may be retested individually (initial and subsequent attempt). All retests will be recorded to identify deficiencies in training trends. If a Soldier fails to achieve a passing score on the second attempt, he will be retrained by his Chain of Command. The Soldier is required to retest *no earlier than 48 hours* and *no later than 30 days*. The Soldier is authorized only one retest and is not allowed to shoot the same fire mission more than twice (initial and subsequent attempt) during the certification. Only the Soldier testing, the evaluator, and system operator are allowed in the testing site. The only exceptions are visitors within the Chain of Command.

(8) A certified Company/Troop FSNCO will serve as evaluator for certifications. The BN FSO/FSNCO is responsible for the certification of personnel within their fire support element. The BDE FSO/FSNCO is overall responsible for the conduct of the certification program.

(9) All tests will be approved by DIVARTY 13F Master Gunner prior to implementation.

Joint Fires Observer (JFO) Currency and Evaluations

JFO qualified Soldiers, are authorized to use the FIST certification fire missions as the JFO semi-annual currency for the six surface-to-surface fire missions to maintain JFO currency.

Training Strategy

INTRODUCTION

The training strategy for the 25th Infantry Division fire support elements of 2nd Stryker Brigade Combat Team (2SBCT), 3rd Infantry Brigade Combat Team (3IBCT), and 25th Combat Aviation Brigade (CAB) is a progressive, Crawl, Walk, Run (C, W, R) strategy that must be integrated into the training plans of 3rd Battalion 7th Field Artillery (3-7 FA) and 2nd Battalion 11th Field Artillery (2-11 FA) and the Maneuver Force. In the 2SBCT, 3IBCT, and 25CAB, the FISTs/PWTs must participate in the crew gunnery training programs of the BCTs as a gate to participation in Direct/Indirect Mounted Gunnery. The 25ID FS Tables provide a methodology to train both observers and Fires Cells and support the events and tasks described in the Combined Arms Training Strategies.

TRAINING WITH FIRE SUPPORT TABLES

Gunnery training programs should be developed that support the commander's Mission Essential Task List (METL), develop, and sustain qualified observer teams and Fires Cells, and provide a means to evaluate, certify, and qualify teams and cells. The FS Tables consist of the Artillery Skills Proficiency Test (ASPT), individual training (Table I), observer team and fires cell collective training (Tables II, III, and IV), and certification and qualification (Tables V and VI).

The 2SBCT, 3IBCT, and 25CAB FSO and 13F Master Gunner(s) must ensure that the FS training program:

- Certifies and qualifies observer teams to support mortar and 3-7 FA and 2-11 FA live fire exercises (LFXs).
- Is integrated with the vehicle crew gunnery program.
- Maintains proficiency and qualification of JFOs (see Tables II and IV).
- Certifies and qualifies Fires Cells to support Company through SBCT/IBCT/CAB collective training exercises.
- Supports the Commander's METL.

The ASPT evaluates the 2SBCT, 3IBCT, and 25CAB FIST/PWT member's ability to execute selected FS related skills. The tasks listed in this chapter provide the unit commander a means to evaluate the FIST member's basic proficiency before LFXs. The ASPT can also be used as a guide for identifying team strengths and weaknesses. The commander, Master Gunner, and senior FSO should use ASPT results when structuring the unit's annual gunnery training program.

REQUIREMENTS

All personnel assigned to 2SBCT, 3IBCT, and 25CAB FIST/PWT will be assessed in the ASPT. FS personnel are required to pass the ASPT prior to FIST qualification. To pass the ASPT, an observer must receive a GO on all stations. If an observer fails a task, he must be retrained and retested on that station until he receives a GO. Appropriate manuals and other references listed for each station must be used to prepare, administer, and evaluate the ASPT.

SAFETY PRECAUTIONS

The commander will incorporate risk assessment in planning all aspects of this training. The unit will conduct a safety briefing for each station in accordance with the unit SOP.

Note. Evaluators must have passed the ASPT within 6 months before the testing.

EVALUATION PROCEDURES

ADMINISTRATIVE PROCESS

Prior to arrival of Soldiers being tested, the evaluator sets up the equipment and materials needed at each test station. Upon arrival to each test station, Soldiers will log in on a roster provided by the evaluator with all materials and equipment displayed, as outlined on this section and in the Test Administrative Guide for that station. The evaluator reads the instructions to the Soldier exactly as written in the guide for each station. The evaluator must use the criterion scoring checklist provided for each task to evaluate each Soldier's performance. As each Soldier finishes or the time limit is up (whichever occurs first), the evaluator annotates the Soldier's performance as either GO or NO-GO, informs him/her of his/her performance on that task, and directs him/her either to the next station or to further training.

ADMINISTRATIVE PROCEDURES FOR SOLDIERS RECEIVING A NO-GO

If a Soldier does not meet the standard indicated on the criterion scoring checklist, he/she receives a NO-GO. The Soldier will receive a back brief from the evaluator of his/her mistakes on that task, and will be advised on what to do to correct them. Soldiers will be retrained and retested IAW the 25th Division Artillery (DIVARTY) Redbook.

EVALUATION CRITERIA

See attached criterion scoring checklist for each task provided in the test station administrative guidance.

PERSONNEL, EQUIPMENT, AND MATERIAL REQUIRED

The personnel, equipment, and material in the following list should be considered for all stations, but their use depends on the task to be trained. Additional items, if required, are listed in the Test Administrative Guide for each particular station.

- Primary evaluator (SSG or above) in charge of administering the test (he may also occupy a test station).
- Station evaluator, SGT or above (one per test station).
- Classroom or training area.
- Stopwatch (one per evaluator).
- Criterion scoring checklist and GO/NO-GO checklist (one per Soldier).
- Desk and chair or clipboard (one per test station).
- Pencils (one per Soldier).
- TC 3-09.8.
- Lensatic compass.
- Binoculars.

PLANNING CONSIDERATIONS

The evaluator tasked to conduct the ASPT should consider the following elements below during his planning:

The ASPT

The evaluator must determine whether the ASPT will be a diagnostic test or record test. A "diagnostic" ASPT identifies the unit's strengths and weaknesses, provides information for the gunnery program, and assesses newly assigned personnel. A "record" ASPT allows a commander to certify proficiency of Soldiers to meet artillery table prerequisites.

Determine the Test Site

Establish a test site that will support the testing of all stations; for example, Station 7, Conduct a Terrain Sketch, requires a clear view of surrounding terrain at ranges representing those of an observation post (OP). Refer to the station conditions for each station to determine what is needed for that station.

Construct a Test Station Diagram

Before rehearsing the test, create a test station diagram. This diagram will facilitate management and control of the test. The ASPT can be conducted using the "round robin" example, as the steps do not need to be done in any specific order in order to accomplish the training. The best methodology to complete the "round robin" would be to break the Soldiers down into three to four man teams (number of personnel dependent), and allow them to begin at different stations. As the Soldier teams complete all the stations, they would be directed to the control station in order to annotate the training and address any deficiencies. This diagram will also aid in briefing Soldiers and evaluators. The diagram should include the following elements: test stations, control station, direction of rotation, movement schedule, concurrent/retrain station, and aid station/warm-up tent, if available. Figure 3-1 depicts an example test station diagram.

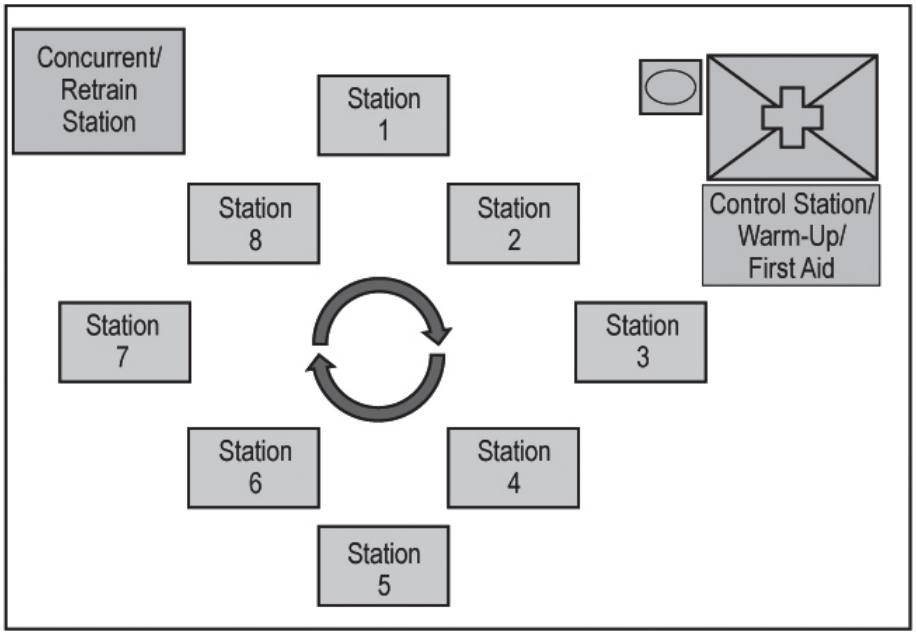

Figure 3-1. Test station diagram

Determine Resources

The evaluator must determine the resources necessary to support the ASPT. He must consider the support of the test site, as well as the training aids required to conduct the test to standard. The evaluator can determine training aids or actual equipment, such as a desktop computer, for recognition of combat

vehicles (ROC-V), BFIST (or other vehicle platforms), and laser range finders (LRFs) by referring to the individual station in this and following chapters. To support the test site, the Non-Commissioned Officer in Charge (NCOIC) must determine the amount of support needed to conduct the test; for example, BFIST with drivers, transportation to and from the test site, tents for warm-up briefings, stopwatches, tables for scoring, chairs, medical support, and Class I support if needed. Once the NCOIC has determined the resources needed, he must coordinate the use of personnel and equipment. This coordination will usually be made through the Master Gunner or battalion S-3.

Select Evaluators

Evaluators should be selected as far in advance as possible. This gives the NCOIC time to select the most qualified personnel available and time to coordinate with other units, if necessary; it also allows the evaluator time to prepare. If the FSO/FSNCO must draw on resources from outside his unit, he should request assistance from the Master Gunner. After the evaluators have been selected, the FSNCO will brief them on their duties and responsibilities, the test schedule and location, and the station they will be testing.

Test Evaluators

Evaluators must be technically proficient in performing all tasks to standard. Each evaluator is tested on all test stations.

Conduct a Rehearsal

Because of the size and scope of this test, it must be rehearsed before it is administered. This rehearsal will be conducted at the test site with all evaluators present. The FSNCO ***must*** check each station to ensure that the evaluator is aware of his duties and responsibilities, the station is set up correctly with all training aids and test materials on hand, and testing is conducted in accordance with the Test Administrative Guides.

Conduct the ASPT

Before the testing, the FSNCO ***must*** ensure that the stations are set up and all equipment and training aids are available. He ***must*** also ensure that the Soldiers are briefed on safety and the station locations and that the Soldiers are assigned to the test stations. During testing, the FSNCO ***must*** spot check each station to ensure the task standards are being maintained and the evaluators are maintaining a roster of personnel evaluating and annotating the scorecards correctly.

Conduct the AAR for the ASPT

The Brigade FSO ***must*** conduct an AAR to help the FSNCO understand his actions and interactions during the conduct of the ASPT. The AAR ***must*** be conducted before the unit commander's debrief and should consist of a discussion of the strengths and weaknesses of the training event. This will allow the FSNCO to better prepare the commander's debrief as well as prepare him for the next ASPT.

Prepare Debrief

Once the test is complete; the FSNCO will prepare a brief for the commander informing him of the ASPT results. All 25ID Fires Cells (BDE and BN) will retain test results for training records. Upon completion of the training, evaluators must collect all scorecards prior to releasing Soldiers from test site(s). The evaluators can provide additional information about a Soldier's test performance. After all data is collected, they prepare a summarization of the results. Information from test results must be interpreted to determine the strengths and weaknesses of the unit. At a minimum, this report will contain the following data:

- A roster, by duty position, of each Soldier tested.

- The scores of each Soldier tested.
- The percentage of Soldiers passing the ASPT.
- The percentage of GOs per station.
- The percentage of NO-GOs per station.
- Assessment of tasks receiving NO-GOs, what caused the NO-GOs
- Recommended corrective action

TEST STATIONS

Each station consists of a Test Administrative Guide and criterion scoring checklist as required.

INTEGRATED COMBINED ARMS BATTLE FOCUSED TRAINING

All combat vehicle crew proficiency tests and qualification tables should be integrated with the training and qualification ranges of the supported force when feasible.

TABLE 3-1 (3-09.8). Test Stations

FIST ASPT	
1	Combat Vehicle Skills Proficiency Tests
2	Mission Equipment Package Test Station
3	Mounted Land Navigation Test Station
4	Dismounted Land Navigation Test Station
5	Prepare Laser Range Finder/Designator for Operation Dismounted Mode Test Station
6	Operate Communications Test Station
7	Construct a Terrain Sketch Test Station
8	Recognition of Combat Vehicles Test Station

2SBCT (Specific) Fire Support Tasks

The following tasks are specific for personnel assigned to 2 SBCT. All conditions, standards, and evaluation criteria can be found in chapter 3 of TC 3.09.8.

COMBAT VEHICLE SKILLS PROFICIENCY TEST STATION
STATION 1

PREPARE THE M1131 STRYKER FIRE SUPPORT VEHICLE (FSV) FOR OPERATIONS
061-284-1007

PREPARE THE M1200 ARMORED KNIGHTVEHICLE (AKV) FOR OPERATIONS
061-284-1008

PREPARE THE M707 KNIGHT VEHICLE FOR OPERATIONS
061-284-1009

MOUNTED LAND NAVIGATION TEST STATION TEST ADMINISTRATIVE GUIDE STATION 2 (FIST AND PWT PERSONNEL)

NAVIGATE FROM ONE POINT ON THE GROUND TO ANOTHER POINT WHILE MOUNTED
071-COM-1030

3 IBCT (Specific) Fire Support Tasks

The following tasks are specific for personnel assigned to 3 IBCT. All conditions, standards, and evaluation criteria can be found in chapter 3 of TC 3.09.8.

DISMOUNTED LAND NAVIGATION TEST STATION TEST ADMINISTRATIVE GUIDE
STATION 3 (FIST AND PWT PERSONNEL)

NAVIGATE FROM ONE POINT ON THE GROUND TO ANOTHER POINT WHILE DISMOUNTED
071-329-1006

2SBCT & 3 IBCT Fire Support Tasks

The following tasks are for personnel assigned to 2 SBCT and 3 IBCT. All conditions, standards, and evaluation criteria can be found in chapter 3 of TC 3.09.8.

PREPARE LASER RANGE FINDER/DESIGNATOR FOR OPERATION DISMOUNTED MODE TEST STATION
TEST ADMINISTRATIVE GUIDE STATION 4 (ALL)

PREPARE LASER RANGE FINDER/DESIGNATOR (G/VLLDMELIOS, LLDR) FOR OPERATION DISMOUNTED MODE
061-274-5100, 061-274-5101

OPERATE COMMUNICATIONS TEST STATION TEST ADMINISTRATIVE GUIDE STATION 5 (ALL)

OPERATE SINCGARS ADVANCED SYSTEM IMPROVEMENT PROGRAM (ASIP) WITH VIC-3
061-275-8004

CONSTRUCT A TERRAIN SKETCH TEST STATION TEST ADMINISTRATIVE GUIDE STATION 6 (ALL)

CONSTRUCT A TERRAIN SKETCH
061-283-5002

RECOGNITION OF COMBAT VEHICLES TEST STATION
TEST ADMINISTRATIVE GUIDE
STATION 7 (ALL)

RECOGNITION OF COMBAT VEHICLES

Fire Support Tables

FIRE SUPPORT TABLE I: INDIVIDUAL TASKS

*Chapter 3 of the 3-09.8 gives conditions, standards, and performance measures of all Fire Support Tables.

Skill Level I - Observer Individual Tasks

Task Number	Task Title
061-283-1001	Determine Direction Within the Target Area
061-283-5000	Operate the Pocket-Sized Forward Entry Device
071-COM-1003	Determine a Magnetic Azimuth Using a Lensatic Compass
071-329-1004	Determine the Elevation of a Point on the Ground Using a Military Map
071-329-1009	Convert Azimuths
071-329-1014	Locate an Unknown Point on a Map and on the Ground by Intersection
071-329-1015	Locate an Unknown Point on a Map and on the Ground by Resection
071-510-0001	Determine Azimuth Using a Protractor
071-510-0002	Compute Back Azimuth
071-COM-1011	Orient a Map Using a Lensatic Compass
113-610-2044	Navigate Using the AN/PSN-11
061-276-1012	Install OE-254/GRC Antenna Group
061-355-5100	Prepare a Forward Observer System (FOS) for Operation
061-355-5102	Initialize a FOS Device
061-355-5105	Shut Down the FOS Device
061-283-1002	Locate a Target by Grid Coordinates
061-283-1003	Locate a Target by Polar Plot
061-283-1004	Locate a Target by Shift from a Known Point
061-283-1011	Engage Targets with Indirect Fires
061-283-5002	Construct a Terrain Sketch

Skill Level II - Observer Individual Tasks

Task Number	Task Title
061-284-1017	Engage Targets with a Precision Guided Munition(PGM)
061-284-1000	Control Attack Aviation
061-283-2002	Conduct Final Protective Fires
061-283-2051	Establish an Observation Post
061-283-2104	Conduct a Mortar Registration
061-283-2206	Request Fire on Irregularly Shaped Targets
061-284-1001	Process Platoon Forward Observer Target List
061-284-5006	Engage a Moving Target with Indirect Fire
061-284-1002	Control AC130 Gunship
113-610-2005	Navigate using the Defense Advanced Global Positioning System (GPS) Receiver (DAGR)

Skill Level III - Observer Individual Tasks

Task Number	Task Title
061-355-3001	Supervise the Processing of a Fire Plan Using FOS
061-284-4005	Plan The Employment of Mortars
061-284-4009	Develop an Observation Plan

Digital Training/Proficiency Check List

Fires Cell Individual Tasks (Skill Level I)

Task Number	Task Title
061-284-1011	Post Information on a Situation Map/Overlay
061-274-5101	Operate the AN/PED-1 Lightweight Laser Designator Rangefinder
061-300-5011	Transmit Messages using AFATDS
061-300-5015	Process Target Information Using AFATDS
061-300-5047	Process a Received Fire Support Munitions Restriction

Fires Cell Individual Tasks (Skill Level II)

Task Number	Task Title
061-274-3987	Construct a Laser Range Safety Fan

Fires Cell Individual Tasks (Skill Level III)

Task Number	Task Title
061-284-3032	Process Observer Target List
061-284-1005	Refine Target Location Using Precision Strike Suite for Special Operations Force (PSS-SOF)
061-284-3033	Plan Company Team Fire Support
061-284-3039	Clear Indirect Fires
061-284-3055	Plan for the Employment of Special Munitions
061-284-4014	Produce a Quick Fire Plan

Fires Cell Individual Tasks (Skill Level IV)

Task Number	Task Title
061-284-1006	Perform Collateral Damage Estimate Methodology
061-284-1015	Produce Targets in a Fire Support Element FSE)/Fires Cell (FC)
061-284-1016	Plan a Joint Close Air Support (JCAS) Request
061-284-4006	Coordinate Fire Support
061-284-4008	Conduct Rehearsals – TF and Above
061-284-4036	Produce Targeting Products
061-284-1014	Supervise the Establishment of the Fire Support Element(FSE)/ Fires Cell (FC)
061-284-4012	Coordinate Requests for Naval Surface Fire Support

JOINT FIRES OBSERVER (JFO) ACADEMIC SUSTAINMENT

In addition to the individual tasks listed in FS Table I, all assigned 25ID JFO-qualified personnel are required to sustain their knowledge and proficiency in the academic subject areas presented during initial training by a minimum of 9 hours of academics every 6 months. In accordance with the most recent Memorandum of Agreement (MOA), JFO qualification consists of Table II sustainment tasks, Table II academic requirements, and Table V sustainment training and will be tracked in the Digital Training Management System (DTMS). The 3IBCT and 2SBCT FSNCO should verify that the following training is conducted and recorded in DTMS. All JFO-qualified personnel must be trained concurrently in the following subjects:

JFO Academic Sustainment

No.	Subject	Reference
1	Aircraft Capabilities	JFIRE, FM 3-09.32
2	Aircraft Weapons	JFO Training Web Site
3	Artillery Applications	ATP 3-09.30
4	Brevity Terms/Authentication	ATP 1-02.1
5	Laser/Terminal Guidance Operations	JFIRE, FM 3-09.32, JP 3-09.1

6	AC-130 Capabilities/Employment	JFIRE, FM 3-09.32
7	Threat Air Defense Artillery	FM 3-04.111, JFIRE, FM 3-09.32
8	Inertially Aided Munitions	JFIRE, FM 3-09.32
9	Forward Air Controller Airborne	JFIRE, FM 3-09.32
10	Close Combat Attack	JFIRE, FM 3-09.32
11	CAS Mission Planning	JP 3-09.3, FM 3-09.32
12	Naval Surface Fire Support	JFIRE, FM 3-09.32, ATP 3-09.30
13	Urban CAS JFIRE	FM 3-09.32, ATP 3-09.30
14	Night CAS	FM 3-09.32, ATP 3-09.30
15	JFO/JTAC Integration	JFO Training Web Site
16	GPS Operations Appropriate Equipment	
17	Laser Range Finder Operations	JFIRE, FM 3-09.32, ATP 3-09.30

(Reference 3-56 TC 3-09.8 15 November 2013)

FIRE SUPPORT TABLE II: ESTABLISH OPERATIONS

The tasks in Fire Support Table II include the collective tasks that are required to occupy a new position, establish FS operations, and are prerequisites for successful execution of tasks in subsequent tables. Selecting and occupying the observation point (OP) and positioning the FS vehicle in the maneuver formation are critical tasks that share many of the same requirements. The changing face of the asymmetrical operating environment may have an impact on the use and importance of static OPs, but the tactical considerations in selecting and occupying an OP also apply to the physical location of the observer in a tactical formation. The tasks in Fire Support Table II include establishing operations to most effectively accomplish the FS tasks necessary to support the commander's intent. This training should be conducted as an STX in a field environment. Unit CATS provide guidance to train Fire Support Table II tasks.

At the Fires Cell level, a detailed SOP is required to support the seamless integration of the Fires Cell into the command post (CP) of the supported force and to provide guidance on the specific tools to be developed by the Fires Cell. Examples are: Fire Support Execution Matrix (FSEM), FS Intelligence Preparation of the Battlefield (IPB), Target List, Target Synchronization Matrix (TSM), and the Lethal and Non-Lethal Fire
Support Task Matrix. The Fires Cell must establish a Fires Net Plan that includes Primary, Alternate, Contingency, and Emergency Communications Nets. The Fires Cell must also establish and synchronize battle rhythm and targeting with the Air Tasking Order (ATO) cycle.

Table 3-4 (3-09.8). Fire Support Table II – Establish Operations

Observer Tasks		
Task No.	Task Title	Reference
06-5-5049	Establish a Fire Support Team Observation Post	UTL-DTMS
11-2-0302	Establish a Single Channel Voice Radio Net	UTL-DTMS
Fires Cell Tasks		
Task No.	Task Title	Reference
06-5-5082	Establish Fire Support Operations	UTL-DTMS
06-6-5054	Maintain a Fires Cell (FC)	UTL-DTMS

FIRE SUPPORT TABLE III: FIRE PLANNING

The focus of this table is on the FS planning process as an integral part of the MDMP planning conducted by the supported battalion or BCT or as part of troop-leading procedures at the company level. A full understanding of the doctrinal tasks and tools addressed in Table II is a prerequisite for the fire-planning process. To produce an effective, integrated, executable fire plan the Fires Cell must conduct battle drills to develop and gather inputs for the running estimates prior to receipt of a new mission. To assess the capability of the Fires Cell to develop a fully integrated fire plan requires the participation of the Fires Cell as part of the commander's staff in a training event or exercise. The purpose of Table III is to ensure that the Fires Cell is proficient at fires-related tasks prior to participation with the full staff. Fire Support Table III is for Fires Cells only. Task steps and performance measures for some tasks may not apply at the company level.

Table 3-5 (3-09.8). Fire Support Table III – Fire Planning

Observer Tasks		
Task No.	Task Title	Reference
06-1-1055	Conduct Rehearsals(CO/TRP FIST)	UTL-DTMS
06-1-1097	Conduct Rehearsals(BN Fires Cell)	UTL-DTMS
06-5-5048	Process the FIST Fire Plan	UTL-DTMS
06-5-5080	Plan Fires in Support of Maneuver Operations	UTL-DTMS
06-6-1118	Conduct Fire Support Planning	UTL-DTMS
06-6-5074	Analyze Targets	UTL-DTMS
71-8-5114	Establish Target Priorities (Battalion – Corps)	UTL-DTMS

FIRE SUPPORT TABLE IV: EXECUTE FIRES

The tasks in Fire Support Table IV include the conduct of fire missions for FIST/PWT, and the execution of the Fire Support Plan for the Fires Cell. It also includes the tasks that must be performed by the JFO as sustainment training to maintain certification. These tasks should be trained and assessed using available simulation such as the call for fire trainer (CFFT) or simulations. These tasks should be trained using all tactical communications, digital entry devices, and day- and night-vision devices assigned to the section. When Table IV is complete, dismounted fire supporters move to Table VI.

Table 3-6 (3-09.8). Fire Support Table IV – Execute Fires

Observer Tasks		
Task No.	Task Title	Reference
06-5-5046	Conduct FIST/PWT Fire Missions	UTL-DTMS
06-5-5047	Employ Non Field Artillery Fire Support Assets	UTL-DTMS
Fires Cell Tasks		
Task No.	Task Title	Reference
06-1-5002	Execute Fires	DTMS
06-6-6053	Conduct Precision Targeting	DTMS
06-6-5066	Employ Lethal Fires in Support of the BCT	UTL-DTMS
71-8-5146	Perform Battle Damage Assessment (Battalion – Corps)	UTL-DTMS

All fire missions are conducted under Task 06-5-5046, Conduct FIST/PWT Fire Missions, using simulations. Simulation provides an opportunity to plan and conduct missions with munitions that may not be fired live because of safety limitations.

Request and Adjust Area Fire (Voice and Digital)

• Conduct a Registration
• Fire for Effect Missions

JFO SUSTAINMENT TASKS

During every 6-month period (semi-annual), each JFO must complete the number and type events prescribed by the JFO MOA (see following list) to remain qualified. The events begin with the JFO acquiring a target and providing targeting data to the Joint Tactical Air Controller (JTAC) for a Type 2 or 3 close air support (CAS) terminal attack control. If live events are not possible or feasible, the events may be accomplished via simulation if approved by first O6 in the JFO's chain of command. Waivers will be documented and maintained in the JFO training folder. Several events may be completed during one or more of the following scenarios (i.e., surface-to-surface and laser terminal guided operations [TGOs] to engage simultaneous targets during one scenario):

No.	Events
1	Perform two live/simulated laser guided weapon system TGO events.
2	Perform one live/simulated fixed-wing CAS control.
3	Perform one live/simulated night-target marking event using marking devices (i.e., Laser, IR Pointer), conducted at night beyond end of evening nautical twilight (EENT) and prior to beginning morning nautical twilight (BMNT). Laser events in conjunction with TGO in support of CAS controls credit this requirement if conducted between EENT and BMNT.
4	Perform one live/simulated terminal attack control as non-qualified JTAC, individual using Multi-Service Procedures for the Joint Application of Firepower (JFIRE). Supervision by a qualified JTAC is preferred but not required.
5	Perform one live/simulated abort. This task may be accomplished in conjunction with other semi-annual events.
6	Perform six live/simulated surface-to-surface or naval surface call for fire events.
7	Perform one live/simulated AC-130 call for fire.

FIRES CELL EXECUTION TASKS

The Fires Cell execution tasks should be trained and assessed during an STX or staff exercise (STAFFEX). This event should be conducted using interactive simulation that provides realistic cues and responses and requires adjustment and refinement of Annex D, Radar positioning and cueing plan, Counterfire Plan, and drill execution and support of branches and refinements of the original order. A manual scenario using inputs from a Master Scenario Events List (MSEL) if an appropriate simulation is not available may also drive the event. Critical tasks for the company Fires Cell include adjusting trigger events and conducting technical/digital and sensor-to-shooter rehearsals.

FIRE SUPPORT TABLE V: MOUNTED GUNNERY TRAINING PROGRAM

NOTE: This table does not apply to Dismounted Forward Observers.

This table trains the mounted FIST/PWT to integrate indirect and direct fires while on the move. Table

V (Practice) and Table VI (live fire) (Day/Night) should be scheduled together over a 2-day period to reduce orientation and setup time. The objective is to integrate direct and indirect fires to form a team collective effort that trains tactics, techniques, and procedures (TTP) to the task standards required. Table V is applicable only for mounted FIST/PWT and includes as a prerequisite, the requirement to participate in and satisfy the requirements of the Individual and Crew Gunnery Training for Stabilized or Unstabilized platforms in FM 3

20.21 FM 3-22.3 (Stryker Gunnery). The Brigade FSO/Master Gunner in the SBCT will maintain the training status of all FISTs/PWTs and record their participation in the BCT gunnery training programs. Each FIST/PWT must maintain qualification on their assigned vehicle-mounted direct fire system as a gate to proceed to combined Direct/Indirect Fire Qualification. DEVELOPMENT OF EXERCISE

Units determine specific threat target types and engagement distances. Chapters 16 and 17 of FM 320.21, Chapter 10 of FM 3-22.3, and this chapter provide evaluation procedures and standards. Certain guidelines apply to all Mounted tables.

Concept of the Mounted FIST/PWT Tables

Leaders use a “scenario-based training” concept to develop the tables, which they resource based on the unit METL. Each engagement’s tactical scenario includes battlefield awareness, situational awareness, and SOPs. The crew then makes decisions based on this scenario.

Example 1. The FIST crew occupies an OP position behind an infantry company in the defense. The crew is presented with a moving threat vehicle at 1,200 meters, a rocket-propelled grenade (RPG) team at 600 meters, and a T-72 at 4,000 meters. The crew should report the threat vehicle and the RPG team and should initiate a report to the maneuver commander on the T-72. The maneuver commander then makes the tactical decision to request fire on the T-72.

Example 2. The PWT crew has pushed forward with a dismounted scout section and set up an OP. The PWT’s FST is to place fires on the attacking enemy’s tank elements and then engage the direct-fire targets. The PWT crew occupies a turret-defilade position. They are presented with or are engaged by (signature device) an RPG team at 400 meters and a T-72 at 3,000 meters. They should engage the RPG team first, and then initiate a fire mission on the T-72. General Requirements

Mounted Table V is a gate for Mounted Table VI, Integrated Indirect and Direct Fire Qualification. Leaders conduct BFIST qualification in accordance with the guidelines and standards in this chapter and in FM 3-20.21 and FM 3-22.3.

The Brigade FSO develops an OPORD to support the execution of the mission.
The unit Master Gunner coordinates all necessary resources and personnel to support the gunnery exercise and coordinates the schedule with the supported unit’s Bradley fighting vehicle (BFV) tables and crew gunnery training.

The crews or FISTs/PWTs will operate, scan, and laser targets in FIST mode. They will engage direct-fire targets in gun mode. This trains them to maintain their weapons status for their primary mission.

Mounted crews must fire these tables in order to receive proper training on the total vehicle operation. They must train as much as possible to ensure that they can smoothly move from FIST mode to gun mode. They must know how to quickly and accurately reacquire target(s) and engage with the 25 mm or coax.

Leaders conduct live fire collective tasks on the range complex that provides the best available observed-fire targets, maneuver area, and direct-fire targets.

Leaders can conduct crew practice (Table V) and qualification (Table VI) on the same range; however, they use a different target-presentation sequence for each.

When the target array consists of more than two targets, the third target will be on a delay of 15-25 seconds based upon the Commanders training objectives. They require crews to use proper battlefield analysis, situational awareness, and engagement techniques. Targets should represent realistic threat arrays that a crew might encounter on the battlefield. Leaders can include friendly targets to emphasize the importance of fratricide training.

OBSERVER TABLE VI

The qualification table for all FISTs/COLTs is an LFX. The tasks to be evaluated are the collective tasks in Tables II and IV. Because of the resources required to conduct an artillery LFX it is not feasible to qualify every assigned observer on every type of METL-related fire mission or to conduct live fire training for the sole purpose of FIST qualification. The evaluation of FIST must be conducted as multi-echelon training during Fires Battalion platoon and battery training and qualification and during Mortar LFX. The commander must, however, certify that all assigned FISTs are qualified to safely call for and adjust indirect fires. The commander may base his recommendation for certification on the cumulative results of Tables I, II, and IV for dismounted observers and Tables I, II, IV, and VI for mounted observers.

FIRES CELL TABLE VI

Fires cell qualification requires the participation of the supported company, battalion, or BCT commander and staff. It also requires external evaluator/observer-controllers (OCs) that would be problematic for most BCT-level Fires Cells except as a by-product of a BCT CPX (warfighter exercise [WFX]). The run-level event for the Fires Cell must include a combination of tasks trained in Tables II–IV to demonstrate the capability to establish operations, conduct fire planning, and execute fires. Table VI qualification of the Fires Cell may be accomplished during a live training event such as a company, task force (TF) or BCT combined arms live fire exercise (CALFEX), or FTX or during a constructive event such as a Mission Command Training Center (MTC) or WFX. The qualification may also be accomplished during a scenario-driven training event using an MSEL to provide cues and responses. An interactive simulation-driven event that would include plans and orders and scenario to drive fire-planning and execution, include counterfire inputs, radar positioning requirements as well as non-lethal planning considerations may also be possible for Fires Cell with access to MTC.

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Ch 4 13B	
Section 4a	**Howitzer Section Certification Standardization**
Section 4b	**Example of BN CDR Certification Oversight Memo**
Section 4c	**Training Minimums**

Howitzer Section Certification Standardization

The purpose of 25th DIVARTY Howitzer Section Certification Program is to establish certification standard procedures for all Field Artillery Cannon Crew personnel assigned to 25th Infantry Division, Schofield Barracks, Hawaii. The purpose of this certification is to ensure each 13B has attained a level of proficiency IAW approved Field Artillery Standards, and that each individual has the minimum skills required to "GO TO WAR," with little or no prior notice. This program is designed to define specific certification proficiency within 25th Division Artillery Howitzer sections. Additionally, this certification will provide Commanders, at all levels, with an assessment of the readiness of their cannon battery personnel within their specific organizations. Howitzer sections and the crew-training program should be leveraged to support the commander's METL. The training program must develop and sustain FA core competencies, support collective tasks and provide a means to evaluate, certify and qualify howitzer sections and crews. This memorandum will outline DIVARTYs program:

1. To establish the prerequisites prior to any certifications.

2. To establish a standardized evaluation of individual Field Artillery Cannoneers in the performance of the duties of the "Gunner" on a howitzer.

3. To establish a standardized M119A3/M777A2, Howitzer Section Test for use in certification and evaluation.

4. To establish a standardization that specifies training required on a recurring basis within the DIVARTY.

This standardization is a directive. Certification must occur as specified.

Certification is a semi-annual requirement unless otherwise specified.

New Section Chiefs must certify with their crews NLT 30 days of assuming their duties.

A section may be decertified for a number of reasons: (1) Not achieving the minimum score on a required evaluation, (2) A firing incident, or (3) At the discretion of the Battalion Chain of Command. Decertified sections must go through a retraining period administered by the Platoon Sergeant within 5 days. At the completion of the 5-day retraining period the Battery Chain of Command will forward a letter to the Battalion Chain of Command. The Battalion Master Gunner will conduct recertification.

The Field Artillery certification program consists of the safety test, section artillery skills proficiency test, gunner's test, howitzer section certification. Howitzer section certification is current for 180 days, barring any decertification event or key personnel turn over.

M119A3 / M777A2: Key personnel are the Chief of Section, Gunner, and Ammo Team Chief.

The Battalion Command Sergeant Major, as the senior enlisted trainer within the battalion, is responsible for the management of battalion level certifications. Only a master gunner certified from outside the section's battery may execute the certifications.

The certification will be conducted during daylight in a field environment. Sections must receive a "GO" or get the minimum points on all certification tasks in order to be considered certified.

- As a minimum, all tasks IAW TC 3-09.8 will be evaluated.
- Uniform for all sections being tested is the unit standard field uniform.

A digitally capable AFATDS from the PLT FDC will be used to send fire missions during the digital portion of the certification. For analog operations, the battalion master gunner may use voice commands to replicate fire mission data.

Decertification within the currency timeframe may only be issued by the following personnel: DIVARTY Commander, FA Battalion Commanders, Battery Commanders, and Master Gunners.

Individual Key Leader or Section	Cannon Written Safety Test	Cannon Key Leader hands On Certification	Gunners Test	Hands On Portion	Local Range Certification
Battalion X0 / S-3/13A Staff officers	X				X
Battery Commander	X	X	X		X
Platoon Leader	X	X	X		X
Fire Direction Officer	X	X	X		X
Platoon Sergeant	X	X	X		X
Gunnery Sergeant	X	X	X		X
Howitzer Chief of Section	X		X	X	X (SSG or Above)
Gunner	X		X	X	
Ammunition Team Chief	X		X	X	
Assistant Gunner (M777A2 only)			X (certain Tasks)	X	
Howitzer Section				X	

Certification is critical to the Strategy of the Artillery Battalions within the 25th Infantry Division. This strategy has three major components; combined arms training, certification/sustainment of collective skills, and individual excellence. A brief description of the Training Strategy follows:

The Training Strategy exploits the rigors of combined arms training through Combined Arms Live Fire Exercises (CALFEX), and rotations to the Combined Arms Training Centers. In order to underscore the demands of our mission, the CALFEX replicates actual combat operations during peacetime. Failure in a CALFEX can have the same results as failure in combat.

The rigor and stress of the CALFEX demands extraordinary skills of our leaders and sections. The training minimums concept is aimed at developing and sustaining the individual and section skills needed to go to war with little or no prior notice. Training minimums are the priority since they represent the minimum skills necessary to perform as part of the maneuver and effects team.

The final part of the training strategy is individual excellence. The demanding skills required to perform as a leader or in a section require special individuals. We must care for and maintain soldier readiness to ensure they maintain the extraordinary skills required by our mission. This portion of the strategy focuses on the mind, body, and soul of the individual and is a collection of many programs designed to develop leaders, and provide opportunities and conditions for soldiers to succeed both on and off duty. Every battalion has leader certification programs for officers and NCOs. These programs are METL based and unit specific. Battalion Commanders and CSMs are required to brief the status of leader certification programs at every Quarterly Training Brief (QTB).

Prerequisites to certifications identify the step by step procedures needed to be certified within the Battalions.

Cannon positions should be identical in order for cannoneers to change positions within sections with little to no friction. (Tactical Red Book)

For the raids to be successful, the desired effects on the target must be achieved. Therefore every Artilleryman must have an awareness of how to execute these operations with minimal supervision and standardization is one method to reduce the time of execution. Accuracy and volume of fire are the key factors in achieving effects on the target.

A Training Minimum specifies the minimum amount of training necessary on a recurring basis to remain proficient in a task. The training strategy for the DIVARTY demands a narrow band of excellence at the upper range of the proficiency scale. We must be ready to provide close support and precision strikes in support of the commanders' operational and tactical objectives. Artillerymen must conduct a specified number of drills to remain current in their skills.

Test Execution and Utilization

(Use of the Test in the Section Certification Process)

The battalion commander can dictate if certification evaluations will be graded as a "GO/NO-GO" criteria or graded on a Point system.

The howitzer section tests are components of semi-annual section certifications. All section members will take the written test. The questions may be changed from time to time by the Battalion Master Gunner. The scores will be averaged to determine the section score. All Section members will also take the Artillery Skills Proficiency Test. The ASPT stations 1 through 8 are administered to all crewmembers. The gunner's test is required to all gunners, ammunition team chiefs, and howitzer section chiefs. A howitzer section must achieve all "GOs" on every task mentioned above prior to moving to Table V.

The key leaders consist of the top seven in the battery as outlined in DA Pam 385-63 (*Range Safety*). The key leaders will take the written test, the gunner's test, and the leader tasks (see Leaders

Table on the TC 3-09.8 or Chapter 8, Leaders Certification) semi-annually on critical individual tasks that are essential to the mission of the battalion.

The BN Master Gunner administers certification tests with assistance from Master Gunner Course graduates and over sight of the BN Command Sergeants Major.

Use of the Test for Certification and Evaluation

Evaluation test will be administered against point total or "GO/NO-GO" criteria. The evaluator will grade on the criteria of this memorandum and on the most current reference for that particular task.

Sections that have completed and passed certification (Table I-V), to include qualification (Table VI) will be considered GREEN and safe to live fire

Sections that have completed evaluation Table I-V, or have made any authorized changes, but have not been tested during live fire (Table VI) will be considered RED. RED sections will not conduct any live fire missions.

Factors that decertify a howitzer section

(1) Section Chief, Gunner, Ammunition Team Chief rotates out of the section and no certified Chief, Gunner, Ammunition Team Chief is available to replace them.

(2) A firing incident occurs which is attributed to error by a member of that section.

A section must score 85% on all Phases or get the minimum score during section certification to be first time GO's. Sections not achieving this standard will retake the entire test.

Section Test

(1) The M119A3/M777A2 Section Test is broken down into nine phases:

Phase I: In-brief, written test, Gunner's Qualification Test and ASPT.	Table I
Phase II: Preparation for firing operations.	Table I
Phase III: Degraded Occupation.	Table III
Phase IV: Degraded Fire missions.	Table IV
Phase V: Digital Occupation.	Table III
Phase VI: Digital Fire Missions/Direct Fire	Table IV
Phase VII: Displacement Operations.	IAW ST 3.09-72 / ST 3.09-71

Phase VIII: Rigging Operations	Table II
Phase IX: Critique/ AAR	

Phase I

1. Written Test: The Master Gunner can develop his own written test, or he can use questions from TC 3-09.8 Appendix C. The written test should consist of a minimum of 50 questions from common crewmember and system-specific training. The section must score at least 80% on the written test. The top three in the section will also take a safety test which will include Safety "Ts." The top three must score a 100% in order to continue to the next phase.

a. The Minimum references used to construct the test:

(1) FM 6-50, Tactics, Techniques, and Procedures for Field Artillery Cannon Gunnery, Dec 96

(2) TC 3-09.8 Field Artillery Gunnery, Nov 13

(3) DA Pam 385-63, Range Safety, Apr 14

(4) TM 9-1025-215-10, Howitzer Medium Towed M777A2 with changes Nov 2014

(5) TM 9-1015-260-10, Howitzer Light Towed M119A3, Nov 2014

(6) DIVARTY Red Book.

2. ASPT: To pass the ASPT, a Soldier must receive a GO on all stations. If a Soldier fails a task, he must be retrained and retested on that station until he receives a GO.

3. Gunner's Qualification Test: The gunner's test will be administered to all personnel assigned as gunner, ammunition team chief and section chief. All tasks must be accomplished with GO ratings to be considered qualified. The artillery clasp for the marksmanship badge will be awarded upon completing this test when utilizing the scoring standards criteria located in Appendix E in accordance with AR 600-8-22, *Military Awards*.

Phase II: Preparation for firing operations

(1) This Phase will consist of the following tasks:

a. Disassemble and Assembly of the Breech Block

b. Performance of the Micrometer and End for End Test

c. Preparation for deliberate occupation of a firing position: During this task, Howitzer Section Chiefs will also conduct Initialization of the DFCS.

Phase III: Degraded Operations

(1) This Phase will consist of the following tasks:

a. Preparation of Position by ground guide.

b. Emplacing and laying the cannon

c. Establish Primary and Alternate Aiming references

d. Verify Bore sight using the M140/M154 alignment device

e. Verify lay of cannon (Safe)

f. Perform Pre Fire Checks

g. Preparation of Ammunition/Communication

h. Position Improvement

Phase IV: Degraded Fire Missions

(1) This Phase will consist of the certification table (Fire Missions) on TC 3-09.8, Chapter 4, para. 4-36, pg. 4-61. Time standards for the howitzer section to conduct fire missions can be found in Appendix D of the TC manual as individual howitzer times.

Phase V: Digital Occupation

(1) This Phase consists of the following tasks:

a. Digital Emplacement

b. Perform Pre fire Checks

c. Preparation of Ammunition

d. Position Improvement

Phase VI: Digital fire missions:

Digital fire missions will be conducted using the same certification table as phase IV. A manual input mission to include direct fire missions will be incorporated in this phase.

Phase VII: Displacement Operations IAW ST 3.09-72 / ST 3.09-71:

Time will begin when the evaluator says “BLITZ”, and ends when the last vehicle in the section is loaded with all personnel and equipment, and moving clear of the net in a forward direction.

a. M119A3: Howitzer Section will have 3 minutes to complete this task.

b. M777A2: Howitzer Section will have 5 minutes to complete this task.

Phase VIII: Rigging Operations

(1) Time will begin for preparation for rigging. Sections will have 15 minutes to prep the howitzer and A-22 cargo bag. The vehicle must be moved about 50 feet from the load and section is not authorized to return to any truck to secure any items necessary for rigging. The A-22 cargo bag can be laid out and the flaps unfolded. The section can cut all type III nylon and breakaway and lay them where they go, but cannot tie anything to the howitzer or A-22 cargo bag. Slings may be attached to reach pendants however may not be secured to load. The evaluator will stop the clock and ensure the preparations for rigging standards have been met. Time will reset and the next 15 minutes (30 minutes for the M777A2) will begin when the evaluator says "GO", time will stop when the chief of section announces "Section prepared for Extraction". Sections may only have three combined minor deficiencies. If there are more than three, the section will automatically fail this task. Any major deficiency or missing/unserviceable equipment will also cause the section to fail the entire task.

a. M119A3: 15 minutes of preparation time and 15 minutes to rig the equipment.

b. M777A2: 15 minutes of preparation time and 30 minutes to rig the equipment.

Phase IX: Critique/AAR of section certification

Units should strive to receive a "GO" on each performance measures. "NO GOs" should be analyzed and discussed during after action reviews and critiques. The Master Gunner will conduct an AAR to understand the actions and interactions during the conduct of the evaluation. The AARs will be conducted before the unit's commander debrief and should consist of a discussion of the strengths and weaknesses of the training event

This section test is a tool to certify and evaluate howitzer section collective and individual tasks. Crew drill is stressed and performance is evaluated against established standard of proficiency. All tasks are derived from MTP, Soldiers Manual, and FM or TM standards. For a section to be certified to fire in the absence of the certified section chief, the gunner or Ammunition Team Chief (acting as the section chief) must be certified in all phases.

Upon Completion the evaluating Master Gunner will update, maintain, and submit a copy of a memorandum for record outlining the current status of the FA Battalion Section Certifications to the DIVARTY Master Gunner. The memorandum must detail the section, key personnel (chief of section, gunner, and ammunition team chief), date of certification, and date of written test. The DIVARTY Master Gunner will maintain records of all certified sections.

Responsibilities: The 25th Infantry Division Artillery has overall responsibility for the certification program. The DIVARTY monitors the execution of the certification program by battalions. Additionally, the DIVARTY acts as a "Quality Control" element by sampling training and readiness as described above.

The DIVARTY Command Sergeant Major / Battalion CSMs are responsible for the development, documentation, and quality control of howitzer section and section leader training. He validates the certification program.

The DIVARTY Master Gunner is the CSMs primary SME in the areas of howitzer training and certification. They recommend techniques and procedures for systems to include occupation, safety, and maintenance procedures. They act as quality control for battalion-sponsored gunner's tests and section certifications. The Master Gunners report to DIVARTY or Battalion CSMs when monitoring their training and certifications.

The Board of Directors meeting is the CSMs primary forum to exchange ideas between Battalions and ensure standardization within the DIVARTY. This board is made up of Battalion CSMs, 1SGs, Platoon Sergeants, Gunnery Sergeants, Master Gunners. The board will meet once a quarter to review policies and to implement changes.

The Battalion CSMs and Master Gunners have similar duties within their organizations. The Battalion CSM implements DIVARTY and Battalion programs, provides input to the DIVARTY CSM, and is overall responsible for training within their Battalions. The Master Gunners act as the SME and principal advisor to the Commanders and certifies sections under his program.

Battalion Commanders will:

(1) Be responsible for administering the test or a designated representative.

(2) Ensure newly assigned Officers complete the safety test prior to assuming their duties.

(3) Ensure all newly assigned NCO's complete the safety test prior to assuming their duties.

(4) Written records of safety personnel to include maintaining the most recent copy of the completed and graded exam for each safety certified soldier. Command Inspections will include this as an item for inspection.

(5) Only safety certified personnel are allowed to fire the howitzer weapon system.

(6) Ensure that all artillery live firing within his battalion is conducted safely IAW Schofield Barracks post range regulations and the requirements in this document.

(7) Ensure that **no one performs live fire** duties until the certification standards are met.

Battery Commanders will:

(1) Follow all safety procedures outlined in AR 385-63 and Schofield Barracks Post Range Regulation

(2) Ensure live fire safety procedures are complied within his unit.

(3) Ensure that all safety requirements are met before authorizing the battery to fire in each new position (during special missions the battery commander may delegate this authority to his Platoon Leaders or FDOs).

(4) Ensure that all required personnel are command safety certified.

DIVARTY S3 will:

(1) Supervise and implement the DIVARTY's safety certification program.

(2) Conduct quality control inspections or other validating events to ensure that all training is being conducted to standards.

Artillery Skills Proficiency Test Score Sheet Example

TASK	GO/NO-GO	2nd GO	TIME	INITIALS
1. Disassemble / Assemble the Breech Mechanism				
2. Prepare Ammunition for Firing				
3. Measure Sit to Crest Using M-2 Compass				
4. Prepare Ammunition for Transporting				
5. Emplace and Recover Close in Aiming Points				
6. Record and Maintain Fire Mission Data on a DA Form 4513				
7. Load and Fire a Prepared Round				
8. Prepare a Position to Receive/Emplace a Howitzer (Advance Party)				

Gunner's Test Score Sheet Example (M119A3 and M777A2)

GUNNER'S NAME:		SECTION:	UNIT:
SECTION CHIEF:		DATE:	WEAPON SYSTEM:
Task			Points Achieved
Task 1	Lay a howitzer for initial direction of fire using the aiming circle		NO-GO = 0 points Time: _____ = _____ points
Task 2	Lay a howitzer for initial direction of fire using the M2 compass		NO-GO = 0 points Time: _____ = _____ points
Task 3	Lay a howitzer for initial direction of fire using a distant aiming point		NO-GO = 0 points Time: _____ = _____ points
Task 4	Lay another howitzer reciprocally		NO-GO = 0 points Time: _____ = _____ points
Task 5	Refer the piece		NO-GO = 0 points Time: _____ = _____ points
Task 6	Align the collimator		NO-GO = 0 points Time: _____ = _____ points
Task 7	Align the aiming posts		NO-GO = 0 points Time: _____ = _____ points
Task 8	Verify Boresight of the M90A3 Direct Fire telescope by using the DAP (M119A3 only)		NO-GO = 0 points Time: _____ = _____ points
Task 8B	Boresight the howitzer (pantel) using a distant aiming point		NO-GO = 0 points Time: _____ = _____ points
Task 8C	Boresight the howitzer (elbow telescope) using a distant aiming point (M777 only)		NO-GO = 0 points Time: _____ = _____ points
Task 9	Verify boresight with the M140/M154 alignment device		NO-GO = 0 points Time: _____ = _____ points
Task 10A	Conduct fire missions		NO-GO = 0 points Time: _____ = _____ points
Task 10B	Conduct fire missions		NO-GO = 0 points Time: _____ = _____ points
Task 10C	Conduct fire missions		NO-GO = 0 points Time: _____ = _____ points
Task 10D	Conduct fire missions		NO-GO = 0 points Time: _____ = _____ points
Task 10E	Conduct fire missions		NO-GO = 0 points Time: _____ = _____ points
Task 11A	Perform direct fire		NO-GO = 0 points Time: _____ = _____ points
Task 11B	Perform direct fire		NO-GO = 0 points Time: _____ = _____ points
Task 11C	Perform direct fire		NO-GO = 0 points Time: _____ = _____ points
Task 11D	Perform direct fire		NO-GO = 0 points Time: _____ = _____ points
Task 12	Lay a howitzer for quadrant with the range quadrant		NO-GO = 0 points Time: _____ = _____ points
Task 13	Measure the quadrant using the range quadrant		NO-GO = 0 points Time: _____ = _____ points
Task 14	Initialize the digital fire control system (DFCS)		NO-GO = 0 points Time: _____ = _____ points
Task 15	Prepare for firing using the digital fire control system (DFCS)		NO-GO = 0 points Time: _____ = _____ points
Task 16	Conduct a manual fire mission using the digital fire control system (DFCS)		NO-GO = 0 points Time: _____ = _____ points
Task 17	Lay howitzer for deflection using the (DFCS)gunner display		NO-GO = 0 points Time: _____ = _____ points
Task 18	Lay howitzer for quadrant using the DFCS assistant gunner display (M777 only)		NO-GO = 0 points Time: _____ = _____ points
Total points			

M119A3 Howitzer Section Certification Test Score Sheet Example

GRADING SHEET **SECTION CERTIFICATION (M119A3)**			
BATTERY:	SECTION CHIEF:	SECTION #:	
DATE:	EVALUATOR:		
TASK		**TOTALPOINTS**	**SECTIONPOINTS**
PHASE I:ORIENTATION AND WRITTEN TEST			
1.	Written Test Section Average		
PHASE II: PREPARATION FOR FIRING OPERATIONS			
2.	Disassembly of the Breech Block		
3.	Assembly of the Breech Block		
4.	Performance of the Micrometer Test		
5.	Performance of the End for End Test		
6.	Preparation for Deliberate Occupation of a Firing Position		
7.	Initialization of the FCC		
PHASE III: DEGRADED OCCUPATION			
8.	Preparation of Position by Gun Guide		
9.	Emplacing and Laying the Cannon		
10.	Establish Primary and Alternate Aiming References		
11.	Verify Boresight Using M140 Alignment Device		
12.	Verify Lay of Cannon (safe)		
13.	Perform Prefire Checks		
14.	Preparation of Ammunition/Communications		
15.	Position Improvement		
PHASE IV: DEGRADED FIRE MISSIONS			
16.	Conduct Low Angle (AMC) Using the M137A2		
17.	Conduct Low Angle Adjust Fire Using the M137A2		
18.	Conduct High Angle Using the M137A2		
19.	Conduct Planned Priority Target Using the M137A2		
20.	Conduct Out of Traverse Using the M137A2		
21.	Conduct Sweep and Zone Using the M137A2		
PHASE V:DIGITAL OCCUPATION			
22.	Digital Emplacement		
23.	Perform Prefire Checks		
24.	Preparation of Ammunition		
25.	Position Improvement		
PHASE VI: DIGITAL FIRE MISSIONS			
26.	Conduct FPF/ Priority Target Mission using the FCC		
27.	Conduct Low Angle (AMC) Using the FCC		
28.	Conduct Low Angle FFE Using the FCC		
29.	Conduct High Angle FFE Using the FCC		
30.	Conduct Out of Traverse Using the FCC		
31.	Conduct Manual Input Mission Using the FCC		
32.	Conduct Direct Fire Missions		
PHASE VII: DISPLACEMENT OPERATIONS			
33.	Hasty Displacement		
PHASE VIII:RIGGING OPERATIONS			
34/35.	Rigging the M119A3 Howitzer/A-22 Cargo Bag		
PHASE IX:AAR			
36.	Critique/AAR of Section Certification		
	TOTAL SCORE		
Remarks:			

M777A2 Howitzer Section Certification Test Score Sheet Example

GRADING SHEET **SECTION CERTIFICATION (M777A2)**			
BATTERY:	SECTION CHIEF:	SECTION #:	
DATE:	EVALUATOR:		
TASK		**TOTALPOINTS**	**SECTIONPOINTS**
PHASE I:ORIENTATION AND WRITTEN TEST			
1.	Written Test Section Average		
PHASE II: PREPARATION FOR FIRING OPERATIONS			
2.	Disassembly of the Breech Block		
3.	Assembly of the Breech Block		
4.	Performance of the Micrometer Test		
5.	Performance of the End for End Test		
6.	Preparation for Deliberate Occupation of a Firing Position		
7.	Initialization of the DFCS		
PHASE III: DEGRADED OCCUPATION			
8.	Preparation of Position by Gun Guide		
9.	Emplacing and Laying the Cannon		
10.	Establish Primary and Alternate Aiming References		
11.	Verify Boresight Using M154 Alignment Device		
12.	Verify Lay of Cannon (safe)		
13.	Perform Prefire Checks		
14.	Preparation of Ammunition/Communications		
15.	Position Improvement		
PHASE IV: DEGRADED FIRE MISSIONS			
16.	Conduct Low Angle (AMC) Using the M137A2		
17.	Conduct Low Angle Adjust Fire Using the M137A2		
18.	Conduct High Angle Using the M137A2		
19.	Conduct Planned Priority Target Using the M137A2		
20.	Conduct Out of Traverse Using the M137A2		
21.	Conduct Sweep and Zone Using the M137A2		
PHASE V:DIGITAL OCCUPATION			
22.	Digital Emplacement		
23.	Perform Prefire Checks		
24.	Preparation of Ammunition		
25.	Position Improvement		
PHASE VI: DIGITAL FIRE MISSIONS			
26.	Conduct FPF/ Priority Target Mission using the DFCS		
27.	Conduct Low Angle (AMC) Using the DFCS		
28.	Conduct Low Angle FFE Using the DFCS		
29.	Conduct High Angle FFE Using the DFCS		
30.	Conduct Out of Traverse Using the DFCS		
31.	Conduct Manual Input Mission Using the DFCS		
32.	Conduct Direct Fire Missions		
PHASE VII: DISPLACEMENT OPERATIONS			
33.	Hasty Displacement		
PHASE VIII:RIGGING OPERATIONS			
34/35.	Rigging the M777A2 Howitzer/A-22 Cargo Bag		
PHASE IX:AAR			
36.	Critique/AAR of Section Certification		
	TOTAL SCORE		
Remarks:			

DEPARTMENT OF THE ARMY
HEADQUARTERS, 25TH INFANTRY DIVISION ARTILLERY (DIVARTY)
13 GRIMES STREET
SCHOFIELD BARRACKS, HAWAII 96857

APVG-DI-CO 01 May 2015

MEMORANDUM FOR RECORD

SUBJECT: Certification Over-Sight

1. The purpose of this memorandum is to validate that Table V was conducted in accordance with the Division Artillery Standard and TC 3-09.8.

2. The following section members participated in the certification. These members are no longer eligible to serve as section members to other certifying sections.

Howitzer Section: 5th Section Unit: X-XX FA Platoon: XXX Platoon
Howitzer Section Chief: SSG Doe, John
Gunner:
Ammunition Team Chief:
Cannoneer #1:
Cannoneer #2:
Driver:

3. The certification testing was witnessed by X-XX FA, master gunner on DDMMYYYY. The following are the observers that witnessed the process and validated that the process was in accordance with the Division Artillery standard and TC 3-09.8:

Platoon Leader:
Platoon Sergeant:
Gunnery Sergeant:

4. Based on the above signatures, Division Artillery Commander recognizes the certification testing has been conducted and supports the unit commander's decision to continue to the qualification Phase. The section is thereby authorized to participate in live fire exercises (Table VI).

5. The point of contact for this document is the X-XXFA S-3 at xxx-xxxx.

John Doe
LTC, FA
Commander

Training Minimums

This standardization specifies training required on a recurring basis within the 25th Infantry Division.

A Training Minimum specifies the minimum amount of training necessary on a recurring basis to remain proficient in a task. The training strategy for the brigade demands a narrow band of excellence at the upper range of the proficiency scale. We must be ready to provide close support and precision strikes in support of the commanders' operational and tactical objectives. Artillerymen must conduct a specified number of drills to remain current in their skills.

Definitions:

a. Training Minimum: The minimum number of times an individual, section or larger organization must train on a certain task within a specified time period to remain current.

b. Training Required: The training minimum is required training units / sections / individuals train to standard the number of times specified.

c. Train to Standard: units / sections / individuals must perform the tasks correctly. Train to standard time is normally the work week, but additional time is specified on weekends.

Training must occur as specified. The Battalion Commander may grant an exception to the Training Required Number based on the unit schedule. The exception(s) will be briefed at the next battery-level Quarterly Training Briefs (QTB). An example of an exception is post support. It is not feasible to conduct collective battery FDC training when all section members are on support for the entire week. However, it is feasible to conduct howitzer section training even when some howitzers sections are on support. Commanders must find ways to complete the required training.

Training must be evaluated in some way to ensure it is performed to standard. It is not feasible for a Platoon Sergeant to evaluate all training at the section level. Section Chiefs must take part in the evaluation process. However, the Platoon Sergeant must sample training to ensure sections adhere to the specified standards. Training conducted, but not to standard, must be conducted again during the train to standard time. Leaders at all levels must force themselves to sample and evaluate training each week.

The following forms specify required training. They are intended for use at the battery-level QTB.

The following is the Cannon Battery Tasks Table to be used during a cycle (G/A/R):

Cannon Battery
Training Minimums

TASKS	CYCLES					
	GRN	AMBER	RED	LAST DATE	NEXT DATE	REMARKS
Emergency FM (Hip Shoot) Live Fire	1	1				
Live Fire Battery Fire Missions	2	1				
Conduct an Air Assault Artillery Raid	1					
Conduct All Battalion Fire Missions	1					
Conduct a Tactical Move	2	1				
Defend Against an Ambush:	1	1				
a. Unblocked	1	1				
b. Blocked	1	1				
Direct and Control Battery Occupation and Establishment of Firing Capabilities	2	1				
Construct Defensive Diagram	2	1				
Perform Crater Analysis Operations	1	1				
Perform Lay Procedures (All Types)	1	1				

GREEN (TRAINING), AMBER (TRANSITION), RED (SUPPORT) CYCLE

(W=Weekly; M=Monthly; 1=Once/cycle; 2=Twice/cycle)

The following is the Howitzer Section Tasks Table to be used during a cycle (G/A/R):

Howitzer Section
Training Minimums

TASKS	CYCLES					
	GRN	AMBER	RED	LAST DATE	NEXT DATE	REMARKS
ASIP Training	2	1				
4 Minute Drill (In Order) Digital (M119A3) 18 Minute Drill (Drill Complete)	2	1				
6 Minute Drill (In Order) Degraded (M119A3)	2	1				
6 Minute Drill (In Order) Digital (M777A2) 30 Minute Drill (Drill Complete)	2	1				
8 Minute Drill (in order) Degraded (M777A2)	2	1				
Low Angle Fire Missions w/Priority TGT	2	1				
High Angle Fire Missions w/Priority TGT	2	1				
Special Missions:						
a. Sweep/Zone	1	1				
b. Action Azimuth	1	1				
Direct Fire Missions w/Range Cards	1	1				
Hasty Displacement	1	1				
Hasty Occupation (Hipshoot)	1	1				
Air Assault Rigging (M119A3/M777A2)	1	1				
Air Assault Rigging (A-22)	1	1				
Gunner Test Training	1	1				
Perform Maintenance Operations	W	W	W			
Store and Transport Ammunition	2	1				
Unload the Howitzer	1	1				
Howitzer Firing Safety (Dual independent Checks)	2	1				
Shell/Fuze Combination	2	1				
Safety “T”	1	1				
Misfire Procedures	2	1				

GREEN (TRAINING), AMBER (TRANSITION), RED (SUPPORT) CYCLE

(W=Weekly; M=Monthly; 1=Once/cycle; 2=Twice/cycle)

Ch 5 13R	
Section 5a	Radar Certification Program

The purpose of the 25th DIVARTY Target Acquisition Radar Certification Program o establish certification standard procedures for all Field Artillery Target Acquisition Radar personnel, MOS – 13R, assigned to 25th Infantry Division, Schofield Barracks, Hawaii. The purpose of this certification is to ensure each 13R has attained a level of proficiency IAW approved Field Artillery Standards, and that each individual has the minimum skills required to "GO TO WAR," with little or no prior notice. Additionally, this certification will provide Commanders, at all levels, with an assessment of the readiness of their radar personnel within their specific organizations.

REFERENCES.

25th ID (L) & USARHAW Reg 210-6
TC 3.09.8 (Field Artillery Gunnery)
FM 3.09.12 (TTPs for FA Target Acquisition)
ARTEP 6-303-30-MTP
TM 11-5840-390-13&P
STP 21-1-SMCT
STP 21-4 SMCT
25th DIVARTY Red Book

This program applies to all radar personnel, MOS – 13R personnel and any personnel assigned to the radar section assigned to 25th Infantry Division, Schofield Barracks, Hawaii.

The DIVARTY S3 is the proponent, and the executive agent, for this memorandum. The Counterfire Officer and TA PL in each respective unit must ensure the effectiveness of the radar training program. Recommended changes will be submitted to the DIVARTY S-3 for approval or disapproval.

The Radar Certification/Qualification Program is designed to ensure all radar personnel posses the minimum skills required for the actual position they hold. The TA Platoon Leader, TA Platoon Sergeant, Counterfire Officer, and BN Targeting NCO will be the primary evaluators for Tables II thru VI. DIVARTY can provide external evaluators. The radar section must complete the following bi-annually in order to be considered certified:

a. ASPT. The first step in the certification of the radar section will be the administering of the Artillery Skills Proficiency Test (ASPT). This must occur, at a minimum, 90 days prior to the scheduled execution of Tables II through VI to allow ample time for training. All Soldiers assigned must achieve a score of 70% or above in the written examination. Additionally, all Soldiers must receive a GO at every task in all 12 stations.

b. TABLE IA. This table includes individual tasks, skills, and common tasks that all Soldiers must be proficient at to survive on the battlefield. These tasks are trained during Sergeant's Time Training and are the basic building blocks for radar section training. The evaluation of the Soldier on Table IA tasks is a routine part of Sergeant's Time Training. The Target Acquisition Platoon Sergeant must record the performance of each task by each individual. This documentation, such as the Leader's book, can be evaluated by the senior 13R (SSG/SFC) as a gate prior to all other tables. Table 1A will be complete when all individuals have successfully executed all tasks.

c. TABLE IB. This table includes skill-level 2-3 tasks that leaders must be proficient at for their section to survive on the battlefield. These are skills that are taught at unit level through cross-training with a 13R who has graduated from the Advanced Leaders Course (ALC) or the Senior Leaders Course (SLC), with assistance from the Master Gunner to help coordinate. Table 1B will be complete when all individuals in leadership positions have successfully executed all leader tasks.

d. TABLE II. This table includes Lightweight Counter Mortar Radar (Q-50 LCMR) skill level 1 collective tasks that all members of the radar section must be able to perform. This Table must be accomplished during Sergeant's Time or during a Field Exercise.

e. TABLE III. This table includes collective and supported individual tasks necessary to deploy, emplace, and operate the radar system most commonly known as RSOP tasks. This section also includes tasks that are based on unit TSOP such as PCCs and PCI checks, PMCS checks, etc... Table III can be conducted in conjunction with a Field Exercise Training, Situational Training Exercise, or Team Training.

f. TABLE IV. Radar Table IV includes the collective task and supporting individual tasks necessary to operate the radar set. These tasks can be conducted in coordination with other elements during FTX, STX, or team training.

g. TABLE V. Radar Table V, Certification, includes requirements for radar sections. Table V is identical to Table IV and can be evaluated using the embedded training capability (FEM) on the radar as a gate prior to live-fire evaluation during Table VI. Table V contains the core combat task for radar sections, locating targets in the Hostile Fire Mode and Friendly Fire Mode. These tasks can be conducted in coordination with other elements during a combined arms live fire exercise (CALFEX), command field exercise (CFX), or FTX.

h. TABLE VI. Table VI, Qualification, should evaluate the radar section in both the Friendly Fire and Hostile Fire modes during artillery and/or mortar live-fire. The qualification table for all radar sections is an LFX. The tasks to be evaluated are the tasks in Tables II–IV. The commander may base his recommendation for qualification on the cumulative results of Tables II–VI.

Certification Criteria. The radar section must successfully complete all tasks within the radar certification tables IOT be certified.

Radar Section Certification Tables

The Radar Tables below are a summary of the content of the qualification tables and the elements trained. **All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards.**
The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the certification tables.

TABLE	GENERAL OVERVIEW
A. ASPT – Artillery Skills Proficiency Test a. Written Test b. Initialize the Radar c. Establish Communications	The ASPT evaluates the radar section member's ability to execute selected individual skills. The tasks listed in this chapter provide the unit commander a means to evaluate the radar section member's basic proficiency prior to live-fire exercises. The ASPT can also be used as a guide for identifying section strengths and weaknesses. ASPT results should be used by the commander and Target Acquisition Platoon Leader when structuring the unit's training program.
B.Table IA – Individual Tasks	This table consists of individual and leader tasks that can be conducted throughout the training year during Sergeant's Time by hands-on evaluation.
C. Table IB – Individual Leader Tasks	
D.Table II – Lightweight Counter Mortar Radar (Q-50 LCMR) Table III – RSOP (Reconnaissance, Selection and Occupation of Position Table IV – Perform Radar Operations	These tables will train the radar section in Establishing Operations, Site Occupation, and Target Acquisition in support of the commander's METL Tables also identify tasks required for Preparation, Operations, and March Order procedures for units assigned the LCMR.
Table V – Certification	This table (Dry Fire) must be conducted prior to Table VI.
Table VI – Qualification	The execution of table VI is the culmination exercise of the section certification. It must be conducted during a LFX so that the radar section is live-fire qualified.

TABLE 1 ARTILLERY SKILLS PROFIENCY TEST (ASPT)
Reference: . **All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards. The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the tasks.**
INTRODUCTION ASPT will consist of three separate testing stations, a control station/waiting area, and a retraining area. See Figure 3.1.
ORIENTATION AND ORGANIZATION :
❑ All personnel are briefed on the conduct and purpose of the training. ❑ The scoring system is explained. ❑ The organization of the training area and general administrative and safety procedures are explained. ❑ All questions concerning the evaluation are answered. ❑ Personnel must score a minimum of __% to achieve a "GO." ❑ The written test is administered to section personnel. ❑ The Evaluator is provided a copy of the unit SOP to use during the evaluation.

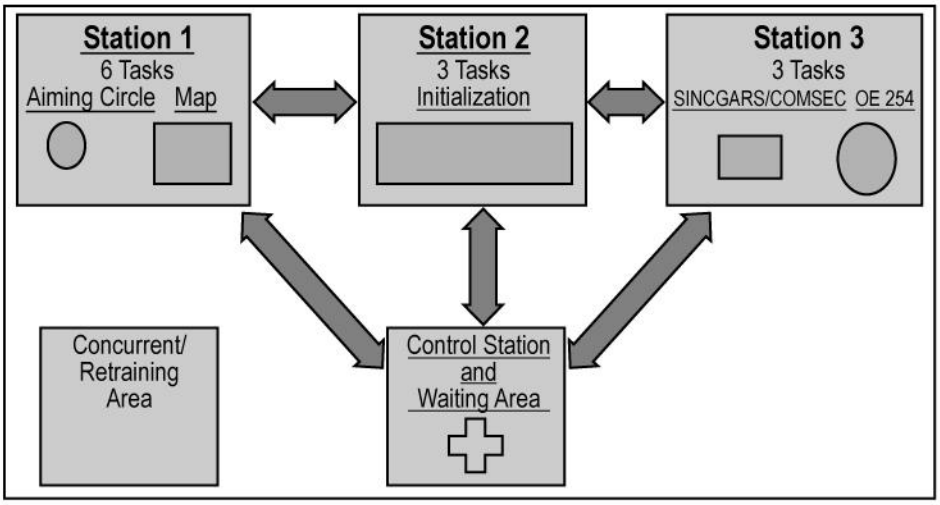

Figure 3.1.Testing Station Diagram

RADAR TABLES 1A

Reference: All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards. The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the tasks.

Task Number	*Subject*	*Skill Level*
061-294-1026	Emplace the AN/TPQ-36 Firefinder Radar Trailer Group	1
061-294-1028	Emplacement an AN/TPQ-36 Generator Set	1
061-294-5001	Prepare the AN/TPQ-36 Firefinder Radar System Shelter for Operations	1
061-294-1013	Prepare the AN/TPQ-37 Firefinder Radar System Shelter for Operations	1
061-294-1010	Emplace the Firefinder Radar Shelter	1
061-294-5123	Start an MEP-816A/B 60kw Main Power Source	1
061-294-5122	Start an MEP-813A 10kw Main Power Source	1
061-294-5116	Operate Modular Azimuth Positioning Systems (MAPS)	1
061-294-1030	Perform PMCS on the AN/TPQ-36 Radar Systems	1
061-294-5120	Operate the AN/TPQ-36 Firefinder Radar System Using a Remote Control Display Terminal (CDT)	1
061-294-1009	Operate the Firefinder Radar Set in the Hostile Mode (AN/TPQ- 36 (V)8 or AN/TPQ-37 Digital Upgrade) Using Field Exercise Mode (FEM)	1
061-294-1000	Prepare the Radar Set for Friendly Fire observation	1

RADAR TABLES 1B: INDIVIDUAL LEADERS' TASKS

Reference: All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards. The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the tasks.

INTRODUCTION:
Skill-level 2-3 tasks are skills for both the AN/TPQ-36 and 37 sections that leaders must be proficient at for their section to survive on the battlefield. These are skills that are taught at unit level through cross-training with a 13R who has graduated from the Advanced Leaders Course (ALC) or the Senior Leaders Course (SLC).

Task Number	*Subject*	*Skill Level*
061-294-1022	Organize the emplacement of an AN/TPQ-36/37 Firefinder Radar System	2-3
061-294-1021	Select a Site for the FA Target Acquisition Radars	2-3
061-294-1023	Organize the March Order of an AN/TPQ-36/37 Firefinder Radar System	2-3
061-294-1024	Initiate Operator Maintenance of AN/TPQ-36/37 Radar Systems and Associated Equipment	2-3

RADAR TABLES II: LCMR (LIGHTWEIGHT COUNTER-MORTAR RADAR)

Reference: All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards. The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the tasks.

INTRODUCTION: Table II consists of the skills needed to be proficient on the operations of the LCMR. LCMR operations are for the crewmembers to understand proper maintenance of the system, site requirements in order to correctly emplace the radar, and to ensure that the operators are capable of making a digital connection with their assigned AFATDS.

Task Number	*Subject*	*Skill Level*
061-294-5600	Prepare the AN/TPQ-50 LCMR for Operations	1
061-294-5610	Operate the AN/TPQ-50 LCMR	1
061-294-5620	March Order the AN/TPQ-50 LCMR	1

RADAR TABLE III: RSOP (Reconnaissance, Selection, and Occupation of position)

Reference: All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards. The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the tasks.

INTRODUCTION: Table III includes the collective and supporting individual tasks as shown in the Table below. This table should include tasks based on unit TSOP such as pre-combat checks and inspections, load plans, PMCS checks, and certification of drivers. These tasks can be conducted in coordination with other elements during field training exercises (FTXs), situational training exercises (STXs), or team training.

Task Number	*Subject*
06-4-2046	Prepare Radar Equipment for Operations
06-4-2047	Occupy a Radar Site
06-4-2048	Select a Radar Position
06-4-3013	Prepare a Radar System for Movement
06-4-5088	Reconnoiter a Lightweight Counter-Mortar Radar (AN/TPQ-50) Position

RADAR TABLE IV PERFORM RADAR OPERATIONS

Reference: All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards. The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the tasks.

INTRODUCTION: Radar Table IV includes the collective task and supporting individual tasks shown in Table below. These tasks can be conducted in coordination with other elements during FTX, STX, or team training.

Task Number	*Subject*
06-4-6033	Perform Unit Maintenance on Radar Equipment
06-4-5086	Observe Friendly Indirect Fires (Radar)
06-4-5087	Perform Surveillance And Locate Targets
06-4-5090	Locate Targets with the AN/TPQ-50 Lightweight Counter-Mortar Radar (LCMR)

RADAR TABLE V: CERTIFICATION

Reference: All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards. The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the tasks.

INTRODUCTION: Radar Table V, Certification, are requirements for radar sections. Table V is identical to Table VI and can be evaluated using the embedded training capability (Field Exercise Mode [FEM]) on the radar as a gate prior to live fire evaluation during Table VI. Table V contains the core combat task for radar sections, locating targets in the Hostile Fire Mode and Friendly Fire Mode. These tasks can be conducted in coordination with other elements during a CALFEX, command field exercise (CFX), or FTX.

RADAR TABLE VI: QUALIFICATION

Reference: All tasks for the qualification tables are conducted IAW Chapter 5 of five TC 3-09.8 and evaluated according to corresponding STP or ARTEP standards. The following guidance is extracted from TC 3-09.8 and it provides guidance to conduct the tasks.

INTRODUCTION: Table VI, Qualification, should evaluate the radar section in both the Friendly Fire and Hostile Fire Modes during artillery and/or mortar live-fire. Table VI may be integrated into a lane training exercise (LTX) or conducted as standalone evaluated STXs. The qualification table for all radar sections is an LFX. The tasks to be evaluated are the tasks in Tables II–IV. The commander may base his recommendation for qualification on the cumulative results of Tables II–VI.

Ch 6 13D	
6A	**Cannon Fire Direction Center Certification Standardization**

FIRE DIRECTION CERTIFICATION STANDARDIZATION

The purpose of the 25th DIVARTY Fire Direction Certification Program is to establish a certification standard for all Fire Direction personnel, MOS – 13D, assigned to DIVARTY. The purpose of this certification is to ensure each 13D has attained a level of proficiency IAW approved Field Artillery Standards. Additionally, this certification will provide Commanders, at all levels, with an assessment of the readiness of their Fire Direction personnel within their specific organizations.

RESPONSIBILITIES

Battalion FDO is responsible for the overall certification program of the battalion. The Battalion FDO will develop a certification program that will test a Fire Direction Center's ability to utilize its digital systems and perform their function both digitally and manually. It is his responsibility to adhere to doctrine (TC-3.09.8) and implement a tough, demanding and realistic certification program within the Battalion Commander's intent.

Chief Fire Control Sergeant / Digital Master Gunner, as the senior enlisted fires direction trainer within the battalion, is responsible for the management and record keeping of battalion level certifications. He is also responsible for supervising training that supports the certification process. The Senior Fire Control Sergeant will execute all phases of the certification process.

The Fire Direction Certification is designed to ensure all FDC/POC/BOC personnel have the minimum skills required for the actual position they hold. The program breaks down each section and collective requirement, and responsibility, by both skill level and position. All section members will certify according to their skill level as well as those below their specified duty position. Battery senior leadership will not be dismissed from this requirement.

The FDC Certification Program is designed to evaluate each FDC's ability to perform its mission using primarily digital capabilities and the ability to perform manual gunnery as a secondary means. The Certification is administered in six phases and should focus on the **MODERNIZATION OF FIRES**.

1. Phase I. Written Exam/ASPT/Fire Direction Operators Test (Table I) will be given to all 13A's/13D's regardless of skill level and duty position. Phase I should test the Soldiers general knowledge, comprehension of manual gunnery and ability to use and incorporate all digital systems within an FDC.

2. Phase II. PCC/PCI's/Vehicle Readiness (Table II/Table IV) will test a section's readiness prior to conducting a tactical road march and establishing operations. Phase II should be conducted IAW the FDC Checklist located in the tactical portion of the Redbook.

3. Phase III. Advance Party Tasks (Table I/Table II) will test a section's ability to accomplish key individual tasks prior to establishing operations. Phase III should validate tasks already performed in Phase I and can also include tasks performed while in an assembly area.

4. Phase IV. FDC Deliberate Operations (Table III/Table IV) will test a section's ability to perform collective tasks. Phase IV should evaluate a section's ability to quickly establish the 5 requirements for accurate fire.

5. Phase V. Conduct Fire Mission Processing (Table V) will test a section's ability to respond to calls for fire and compute and transmit firing data. Phase V will evaluate a section's ability to process fire missions digitally with the capability to also process missions manually.

6. Phase VI. Qualification (Table VI) is the culmination of all previous phases and tests sections ability to process fire missions safely, timely, and accurately in a live-fire situation. Upon successful completion the Battery Commander may assess a section as qualified.

Certification Frequency

The FDC section certification program is administered semi-annually. All Field Artillery officers other than the BN FDO will be required to complete Phase I of the certification.

New FDO's / Fire Control Sergeants will certify with their section through Phase V (Table V) of the certification NLT 30 days after assuming their duties.

A section must re-certify within 30 days if:

(1) A new FDO or FDNCO is assigned to the section.

(2) A firing incident occurs which is caused by an FDC error.

(3) The Battalion chain of command deems a section is using poor or unsafe practices.

Certification Status

Sections that have completed and passed certification (Table I-V) and qualification (Table VI) will be considered **GREEN** and safe to live fire.

Sections that have completed evaluation Table I-V but have not completed Table VI will be considered **RED**.

Sections are considered **RED** when a:

(1) Fire Control Sergeant/FDO have not completed any phase of the certification.

(2) Section collectively has not completed Table V.

(3) **RED** sections will not conduct any live fire missions unless they have been authorized by the Battalion chain of command through a written memo.

Decertification

A section may be decertified for a number of reasons:

(1) Not achieving the minimum score on a required evaluation

(2) A firing incident

(3) Not having the appropriate means to compute data

If a section fails to pass the certification, the section will go through a retraining period of 5 days administered by the Battalion FDO/Battalion Senior Fire Control Sergeant before being allowed to retest. At the completion of the retraining period the Battery Commander will notify the Battalion Chain of Command that the section is ready for recertification.

If a section is not certified, the Battalion Commander is the approval authority for live fire operations, and the Battery Commander must be present in the FDC when conducting live fire operations.

Quality Inspection

The DIVARTY Fire Direction Officer/Senior Fire Control Sergeant will conduct quality control inspections of Battalions certification programs quarterly in order to ensure all key tasks have been properly trained and evaluated.

Ch 7 13T Survey Crewmember	
Section 7a	**Survey Crewmember Certification**

The purpose of the 25th DIVARTY Surveyor Crew Member Certification Program is to establish certification standard procedures for all Field Artillery Survey personnel, MOS – 13T, assigned to 25th Infantry Division, Schofield Barracks, Hawaii. The purpose of this certification is to ensure each 13T has attained a level of proficiency IAW approved Field Artillery Standards, and that each individual has the minimum skills required to "GO TO WAR," with little or no prior notice. Additionally, this certification will provide Commanders, at all levels, with an assessment of the readiness of their radar personnel within their specific organizations.

REFERENCES.

25th ID (L) & USARHAW Reg 210-6
TC 3.09.8 (Field Artillery Gunnery)
FM 3.09.12 (TTPs for FA Target Acquisition)
ARTEP 6-303-30-MTP
TM 11-5840-390-13&P
STP 21-1-SMCT
STP 21-4 SMCT
25th DIVARTY Red Book

This program applies to all survey personnel, MOS – 13T personnel and any personnel assigned to the survey section assigned to 25th Infantry Division, Schofield Barracks, Hawaii.

The DIVARTY S3 is the proponent, and the executive agent, for this program. The Battalion Master Gunner, Chief of Party and Target Acquisition Platoon Leader in each respective unit must ensure the effectiveness of the survey training program. Recommended changes will be submitted to the DIVARTY S-3 for approval or disapproval.

The Survey Certification/Qualification Program is designed to ensure all survey personnel posses the minimum skills required for the actual position they hold. The TA Platoon Leader, TA Platoon Sergeant, Battalion Master Gunner, Chief of Party will be the primary evaluators for Tables II thru VI. DIVARTY can provide external evaluators. The survey section must complete the following bi-annually in order to be considered certified:

Tasks, conditions, standards, and performance measure for all Survey Tables are found in chapter 7 of the 3-09.8.

ASPT. The first step in the certification of the survey section will be the administering of the Artillery Skills Proficiency Test (ASPT). This must occur, at a minimum, 90 days prior to the scheduled execution of Tables II through VI to allow ample time for training. All Soldiers assigned must achieve a score of 70% or above in the written examination. Additionally, all Soldiers must receive a GO at every task in all 12 stations.

TABLE IA. This table includes individual tasks, skills, and common tasks that all Soldiers must be proficient at to survive on the battlefield. These tasks are trained during Sergeant's Time Training and are the basic building blocks for survey section training. The evaluation of the Soldier on Table IA tasks is a routine part of Sergeant's Time Training. The Chief of Party must record the performance of each task by each individual. This documentation, such as the Leader's book, can be evaluated by the senior 13T (SSG/SFC) as a gate prior to all other tables. Table 1A will be complete when all individuals have successfully executed all tasks.

TABLE IB. This table includes skill-level 2-3 tasks that leaders must be proficient at for their section to survive on the battlefield. These are skills that are taught at unit level through cross-training with a 13T who has graduated from the Advanced Leaders Course (ALC) or the Senior

Leaders Course (SLC), with assistance from the Master Gunner to help coordinate. Table 1B will be complete when all individuals in leadership positions have successfully executed all leader tasks.

TABLE II. This table includes Improved Position Azmuith Determing System - GBS (IPADS-G) skill level 1 collective tasks that all members of the survey section must be able to perform. This Table must be accomplished during Sergeant's Time or during a Field Exercise.

TABLE III. This table includes collective and supported individual tasks necessary to deploy, emplace, and operate the survey system most commonly known as IPADS-G tasks. This section also includes tasks that are based on unit TSOP such as PCCs and PCI checks, PMCS checks, etc... Table III can be conducted in conjunction with a Field Exercise Training, Situational Training Exercise, or Team Training.

TABLE IV. Survey Table IV includes the collective task and supporting individual tasks necessary to operate the NE 102 Theodilite. These tasks can be conducted in coordination with other elements during FTX, STX, or team training.

TABLE V. Survey Table V, Certification, includes requirements for survey sections. In accordance with chapter 7 of the 3-09.8, Table V is considered the "Run" phase of certification, these tasks can be conducted in coordination with other elements during a combined arms live fire exercise (CALFEX), command field exercise (CFX), or FTX.

TABLE VI. Table VI, Qualification, culminates in an LFX, and requires the participation of a supported company/battery. Upon completion of Table VI, the Commander may deem the Survey Section qualified.

Certification Criteria. The survey section must successfully complete all tasks within the survey certification tables IOT be certified.

Enclosures	
Enclosure a	**Certification Tables**
Enclosure b	**Time and Accuracy Standards**

Enclosure a: Certification Tables

Collective Gunnery Tables I–XV (13B)

Table Number	*Cannon Unit Tasks*
• **Artillery Table I (Individual Tasks)**	▪ **Table 4-2. CH 4, pg. 4-28, TC 3-09.8 Howitzer Table I: Individual Tasks**
• **Artillery Table II (Rigging Procedures)**	▪ **Prepare for Air Movement (06-2-3006)** ▪ **Conduct a Field Artillery Air Assault (06-2-3025)** ▪ **Conduct Field Artillery Airborne Operations (06-2-3024)** ▪ **Conduct an Air Assault Artillery Raid (06-2-5005)**
• **Artillery Table III (Establish Operations)**	▪ **Occupy a Tactical Area (06-2-3001)** ▪ **Conduct a Non Paladin Occupation (06-2-3026)** ▪ **Prepare Howitzer for Conduct of Fire Mission (06-4-5021)** ▪ **Load Howitzer Section Ammunition (06-4-5007)**
• **Artillery Table IV (Execute Fires)**	▪ **Conduct Emergency Missions (06-3-5010)** ▪ **Conduct Howitzer Fire Missions (06-4-5017)** ▪ **Conduct Direct Fire (06-4-5022)** ▪ **Perform an Excalibur Fire Mission (06-4-6035)**
• **Artillery Table V (Section Certification)**	▪ **Table 4-2. CH 4, pg. 4-62, TC 3-09.8 Howitzer Table V: Section Certification**
• **Artillery Table VI (Section Qualification)**	▪ **Table 4-8. CH 4, pg. 4-62, TC 3-09.8 Howitzer Table V: Section Qualification**
▪ **Artillery Table VII (Platoon RSOP)**	▪ **Perform Reconnaissance Operations for Artillery Position (06-2-3005)**
▪ **Artillery Table VIII (Move)**	▪ **Conduct Tactical Convoy (55-2-4003)**
▪ **Artillery Table IX (Conduct Occupation of a Position Area and Establish a Firing Capability)**	▪ **Conduct a Non-Paladin Occupation (06-2-3026)** ▪ **Conduct Emergency Missions (06-3-5010)**
▪ **Artillery Table X (Platoon Training)** ▪ **Artillery Table XI (Platoon Certification)** ▪ **Artillery Table XII (Platoon Qualification)**	▪ **Establish an Operations Center (06-2-1063)** ▪ **Control Cannon Firing Operations (06-3-1066)** ▪ **Determine Firing Data (06-4-5016)** ▪ **Conduct Howitzer Fire Missions (06-4-5017)**

Howitzer Table V – Section Certification

Fire Missions	Table
High Angle, AF	**V**
High Angle, FFE	**V**
Low Angle, AF	**V**
Priority Target	**V**
Out of Sector Mission	**V**
Direct Fire Mission	**V**

Howitzer Table VI – Section Qualification

Fire Mission	Table	Ammo
High Angle, AF	**VI**	**HE, 8 rds**
High Angle, FFE	**VI**	**HE, 1 rd**
Low Angle, AF	**VI**	**HE, 8 rds**
Priority Target	**VI**	**HE, 1 rd**
Out of Sector Mission	**VI**	**0**
Direct Fire Mission	**VI**	**HE, 5 rds**

Collective Gunnery Tables I–VI (13D)

Table Number	13D Fire Direction Tasks
ASPT	▪ **Initialize the AFATDS** ▪ **Maintain Unit Data in AFATDS** ▪ **Establish AFATDS Communication Configurations** ▪ **Process Meteorological (MET) Data using AFATDS** ▪ **Prepare the AFATDS for Fire Mission Processing**
Operator's Test	▪ **Verify Fire Mission Data using AFATDS** ▪ **Compute Manual Safety** ▪ **Compute Safety Data using CENTAUR** ▪ **Verify CENTAUR Initialization Data** ▪ **Compute Manual Muzzle Velocity Variation (WVV)**
FIRE DIRECTION TABLE	▪ **Load Digital Maps on AFATDS 1** ▪ **Operate SINCGARS Advanced System Improvement Program (ASIP) with VIC-3**

I **(Individual Task)**	▪ **Prepare to Process Fire Mission in Degraded Mode (Manual)** ▪ **Process Survey Control Point Information Using AFATDS** ▪ **Determine the Grid Coordinates of a Point on a Military Map** ▪ **Determine the Elevation of a Point on the Ground Using a Map** ▪ **Prepare a Range Card for a Machine Gun** ▪ **Request Medical Evacuation**
FIRE DIRECTION TABLE II **(Establish Operations)**	▪ **Install OE-254/GRC Antenna Group** ▪ **Connect the AFATDS Cables** ▪ **Prepare the AFATDS Printer** ▪ **Configure Message Setup in AFATDS** ▪ **Set Data Distribution in AFATDS**
FIRE DIRECTION TABLE III **(Compute Firing Data)**	**Reference: Table 6-6. CH 6, pg. 6-23, TC 3-09.8 Fire Direction Table III: Compute Firing Data**
FIRE DIRECTION TABLE IV **(Provide Control of the FDC)**	▪ **Perform Transfer of Control Functions** ▪ **Implement Planned Continuity of Operations (CONOPS) Using AFATDS** ▪ **Validate Movement Request Using AFATDS** ▪ **Process a Movement Order Using AFATDS** ▪ **Prepare the Radar Deployment Order for Transmission Using AFATDS** ▪ **Verify the Radar Deployment Order Using AFATDS**

Fire Direction Table V- FDC Certification

Fire Missions	Table
High Angle, AF	V
High Angle, FFE	V
Low Angle, AF	V
Priority Target	V
Out of Sector Mission	V
Direct Fire Mission	V

Fire Direction Table VI – FDC Qualification

Fire Mission	Table	Ammo
High Angle, AF	VI	HE, 8 rds
High Angle, FFE	VI	HE, 1 rd
Low Angle, AF	VI	HE, 8 rds
Priority Target	VI	HE, 1 rd
Out of Sector Mission	VI	0
Direct Fire Mission	VI	HE, 5 rds

Collective Gunnery Tables I–VI (13F)

Table Number	*Cannon Unit Tasks*
Fire Support Table I **(Individual Tasks)**	▪ **Table 3-2. CH 3, pg. 3-17, TC 3-09.8 Fire Support Table I: Individual Tasks**
Fire Support Table II **(Establish Operations)**	***Observer Tasks*** • **Establish a Fire Support Team Observation Post(06-5-5049)** • **Establish a Single Channel Voice Radio Net(11-2-0302)** ***Fires Cell Tasks*** • **Establish Fire Support Operations(06-5-5082)** • **Maintain a Fires Cell (FC)(06-6-5054)**
Fire Support Table III **(Fire Planning)**	• **Conduct Rehearsals (CO/TRP FIST)(06-1-1055)** • **Conduct Rehearsals (BN Fires Cell)(06-1-1097)** • **Process the FIST Fire Plan (06-5-5048)** • **Plan Fires in Support of Maneuver Operations06-5-5080** • **Conduct Fire Support Planning (06-6-1118)** • **Analyze Targets (06-6-5074)** • **Establish Target Priorities (Battalion – Corps)(71-8-5114)**
Fire Support Table IV **(Execute Fires)**	***Observer Tasks*** • **Conduct FIST/COLT Fire Missions (06-5-5046)** • **Employ Non Field Artillery Fire Support Assets (06-5-5047)** • **PFED Checklist (NONE)** ***Fires Cell Tasks*** • **06-1-5002 Execute Fires (06-1-5002)** • **06-6-6053 Conduct Precision Targeting (06-6-6053)** • **06-6-5066 Employ Lethal Fires in Support of the BCT (06-6-5066)** • **71-8-5146 Perform Battle Damage Assessment (Battalion – Corps)(71-8-5146)** • **LFED (RHC-2/SCU) Checklist (NONE)**
Fire Support Table V	• **CH 3, para. 3-35, pg. 3-104, TC 3-09.8 Fire Support Table V:**

(Mounted Gunnery Training Program)	**Mounted Gunnery Training Program**
Fire Support Table VI (Observer Table)	• **CH 3 para. 3-43, pg. 3-105, TC 3-09.8 Fire Support Table VI: Observer**
Fire Support Table VI (Fires Cell)	• **CH 3 para. 3-44, pg. 3-105, TC 3-09.8 Fire Support Table VI: Fires Cell**

Collective Gunnery Tables I–VI (13R)

Table Number	*Cannon Unit Tasks*
Radar Table IA (Individual Tasks)	**Table 5-1. CH 5, pg. 5-12, TC 3-09.8 Radar Table IA: Individual Tasks**
Radar Table IB (Individual Leaders Tasks)	• **Organize the Emplacement of an AN/TPQ-36 Firefinder Radar System(061-294-1022)** • **Select a Site for the Firefinder Radar Systems (061-294-1021)** • **Organize the March Order of an AN/TPQ-36 Firefinder Radar System(061-294-1023)** • **Initiate Operator Maintenance of AN/TPQ-36 Firefinder Radar System and Associated Equipment(061-294-1024)**
Radar Table II (LCMR)	• **Prepare an AN/TPQ-48 Lightweight Counter Mortar Radar(LCMR) System Operations(061-294-5600)** • **Operate an AN/TPQ-48 Lightweight Counter-Mortar Radar** • **(LCMR) System(061-294-5610)** • **March Order an AN/TPQ-48 Lightweight Counter-Mortar Radar(LCMR) System(061-294-5620)**

Radar Table III **(RSOP)**	• **Prepare Radar Equipment for Operations(06-4-2046)** • **Occupy a Radar Site(06-4-2047)** • **Select a Radar Position(06-4-2048)** • **Prepare a Radar System for Movement(06-4-3013)** • **Reconnoiter a Lightweight Counter-Mortar Radar (LCMR)Position(06-4-5088)** • **Prepare the Lightweight Counter-Mortar Radar (LCMR) for Movement(06-4-5091)**
Radar Table V **(Certification)**	**CH 5, para. 5-29, pg. 5-29, TC 3-09.8, Radar Table V: Certification**
Radar Table VI **(Qualification)**	**CH 5 para. 5-30, pg. 5-29, TC 3-09.8 Radar Table VI: Qualification**

Collective Gunnery Tables I–VI (13T)

Table Number	*Cannon Unit Tasks*
Survey/Meteorological Table I (Individual Tasks)	• **Table 7-4. CH 7, pg. 7-13, TC 3-09.8 Survey/Meteorological Table I: Individual Tasks**
Survey/Meteorological Table II (Establish Operations)	• **Emplace a Meteorological (MET) Section(06-4-3015)** • **Establish Azimuth by Astronomic Observation(06-4-5025)** • **Update IPADS by Using Assumed Data(06-4-5037)** • **Establish a Declination Station (06-4-5042)**
Survey/Meteorological Table III (Survey/Met Planning and Coordination))	• **Prepare for a Survey Operation(06-4-5041)**
Survey/Meteorological Table V (Survey/Met Training and Certification)	• **CH 7, para. 7-37, pg. 7-38, TC 3-09.8, Radar Table V: Survey/Met Training and Certification**
Survey/Meteorological Table VI (Survey/Met Qualification)	• **CH7 para. 7-42, pg. 7-38, TC 3-09.8 Radar Table VI: Survey/Met Qualification**

ARTILLERY TABLES XIII–XV: BATTERY TRAINING, CERTIFICATION, AND QUALIFICATION

Units organized and equipped to operate at the battery level use the identical tasks as the platoons in the previous section. These tasks are trained during battery LFXs, FTXs, or FTXs (EXEVAL). If applicable, this table should be conducted concurrently with the Brigade Fire Control Exercise (FCX). External evaluations are conducted and resourced by the brigade. The battalion commander will certify that all leaders have been safety certified within the past 6 months and that the battery has demonstrated proficiency on all METL-related gunnery tasks. The commander must also certify that all supporting sections (Survey, Met, Radar, and Observer Teams) have qualified on Table VI prior to battery live-fire.

Task Number	Task Title	Reference
	Cannon Battery Tasks	
06-2-1063	**Establish an Operations Center**	**TC 3-09.8**
06-3-1066	**Control Cannon Firing Operations**	**TC 3-09.8**
06-4-5016	**Determine Firing Data**	**TC 3-09.8**
06-4-5017	**Conduct Howitzer Fire Missions**	**TC 3-09.8**

Enclosure b: Time and Accuracy Standards

Purpose: This Enclosure Has Three Purposes.

1. It outlines the framework of the training objective time and accuracy standards for fire missions.

2. It delineates the methodology by which fire mission total time standards should be timed for both basic and special missions.

3. It provides an indication of strengths and weaknesses of each element of the gunnery team (FO, FDC, guns), by breaking down total mission time into section response times.

1. **Fire Mission Total Time Standards** (Tables D-8 through D-30 are based on the following)

a. The goal of the Field Artillery is to achieve first round FFE on every fire mission. By meeting the five requirements of accurate predicted fire, or by applying the five steps to improved firing data, units will be able to deliver fires on target or be close enough to necessitate limited subsequent adjustments.

b. The fire mission tables use four components to determine a mission's total time standard: Observer time, Battalion FDC (Tactical Fire Direction) time, Platoon/Battery (Tactical and Technical Fire Direction) time, and Gun time. Time Standards are listed for each section.

c. TOTAL MISSION time equals Total Observer Time + Battalion FDC Total Time + Platoon/Battery FDC Total Time + Total Gun Time (by system). For example: The Platoon/Btry FDC can be evaluated without BN FDC or Observers. Total mission time would be the sum of the evaluated sections.

d. Three schemes are used to determine the time standards. They are represented by the two columns in each table. The digital column represents the use of digital methods at each node in the processing of the mission (e.g., observer–PPFED or LPFED, FDC–AFATDS, Guns). The manual column is a voice call for fire, manual FDC, and voice fire commands method. The first entry is "Tactical Fire Direction" which is done by FDC.

e. If for some reason automation fails, a switch to manual methods will occur. This means that the evaluator may have to zigzag between the columns and take times from both (digital and manual/voice) columns and add them together to compute the "Total Mission Time" standard. Thirty seconds may be added at the component where automation fails, or is non-existent, to compensate for time to switch to manual.

f. In the Adjust Fire mission tables, only one round observer adjustments are annotated (the initial round) and added to the FFE times when determining total mission time. That is, other than the radar or LLDR missions which by nature only allow for one round adjustments, the standard for adjust fire missions that employ subsequent rounds in adjustment must be calculated by adding the additional subsequent round adjustment times. Therefore, the "+" (plus) sign in these tables denotes this possible addition of subsequent observer, FDC, and gun times for each of the subsequent rounds yielding a revised total mission time standard. Trainers and evaluators determine if subsequent adjustments in any mission become excessive.

g. Fuze quick is used as the baseline fuze in the fire mission tables. If fuze time or VT is used in a particular fire mission, 15 seconds will be added to the "gun time" standard for each round fired.

h. The time standards were developed through operational testing and subsequent field validation. These standards do not include the following:

(1) Safety time by external safety personnel.

(2) Time of flight: shot to munitions impact.

(3) Illumination: shot to burst (illumination adjustment).

(4) Illumination: shot to mark (HE adjustment).

2. **Evaluating Fire Mission Times**

a. The timing and sequencing for each fire mission (initial, subsequent correction, FFE) is shown in Table D-2. This table is used to determine the basic start and stop times, by mission phase, for each fire mission. This overall mission table, when used in conjunction with the component section timing tables (D-4, D-5, and D-6), gives the trainer/evaluator an accurate picture of how to determine unit fire mission timeliness.

b. Total mission time is usually kept using one of two methods. When training a FIST/KNIGHT/FO, the observer trainer/evaluator is normally responsible for keeping both total mission time as well as the observer section time. Under general support (GS) unit conditions, where an observer may not be part of the unit evaluation, the FDC trainer/evaluator is normally responsible for keeping the total mission time as well as the FDC section time.

c. Safety time is embedded into the section's time to execute required actions (assumes chain of command personnel, e.g., safety certified chiefs of section). Units using other than chain of command safety personnel should record and subtract safety time from total mission time, if necessary.

d. Observer times are based on a team consisting of at least one observer assisted by an RTO/digital device operator (FO party, KNIGHT, or FIST). Two such teams may be employed for firing a simultaneous mission.

e. Fire mission time standards may have to be modified by the trainer/evaluator when any of the following occurs:

(1) When bad weather prevents the effective execution of a fire mission (e.g., high, shifting winds when illumination rounds are being fired).

(2) When increased MOPP status in simulated CBRN conditions adversely affect the unit's timeliness.

(3) When real or simulated personnel or equipment losses severely reduces unit capabilities.

(4) When the unit receives more fire missions than it can readily handle with the firing units that are available (e.g., high-intensity war scenario).

f. If a howitzer misfires during the FFE phase of a fire mission, and the platoon leader or FDO calls the piece out of action, mission time will stop when all other pieces have fired in the initial volley of FFE. Misfires subsequently fired should be observed/evaluated for accuracy (effects).

g. There is no administrative requirement that every howitzer in the unit be in position and firing for each battalion mission. As a general rule, two-thirds of the battalion's firing capability should be in position and available to answer calls for fire. The bottom line is that the FDO is responsible to the commander for determining the volume of fire necessary to achieve the desired effects on the target and issues a fire order which appropriately reflects the number of available howitzers to fire.

h. Out-of-traverse missions may be a necessary part of some units' METL. The FA School has no established time standard for the execution of the re-laying of firing units on targets outside traverse limits. Units with these mission requirements should develop a standard for this procedure, battle drill it, and use this standard in training and evaluations. Once the firing unit is relayed, the tables in this Appendix will serve as the time standard for the fire mission itself.

Out of Traverse Time Standards		
M119A2/A3	M777A2	
1:15	Degraded	Digital
	3:00	2:10

i. Scheduling planned fires, as in a preparation or other program of fires, by its very nature is an untimed event. During the planning process for a battle, fire support personnel may be tasked to develop a particular schedule of fires to support the scheme of maneuver. This process is untimed. In an evaluation, the measure of success for a schedule of fires is whether or not it was executed when required, and had the intended effect on the target(s) to meet the commander's intent.

Table D-1. Overall Fire Mission Timing

FFE Mission		
Phase	**Action**	**Timing**
FFE	Observer identifies the target.	Starts
	Last round in first volley of FFE is fired.	Stops

Adjust Fire Mission		
Phase	**Action**	**Timing**
Initial	Observer identifies the target.	Starts
	Round is fired.	Stops
Subsequent*	Initial/Subsequent round impacts.	Starts

	Round is fired.	Stops
FFE	Subsequent round (last) impacts.	Starts
	Last round in first volley FFE is fired.	Stops
*Timing of this phase is repeated for each adjustment.		

NOTE: The "stopwatch" method of timing the adjust fire mission shown in Part II above automatically accounts for time of flight (TOF). If the total mission time evaluator prefers a "let the clock run" method of timing the mission, he would strip the TOF(s) out of the total time at the end of the mission (per paragraph D-5, b.)

3. **Special Situations**

a. The timing techniques in paragraph D-5 apply to all missions—adjust fire, FFE, and special munitions. However, certain missions require slightly adjusted timing techniques to evaluate them properly.

b. Illumination and/or Coordinated Illumination. When an observer is involved in the evaluation of this mission, the evaluator must adjust the timing sequence because of the peculiar illumination TOF determination.

(1) Time of flight during illumination adjustment is defined as shot-to-illumination mark time.

(2) Time of flight during HE adjustment under illumination is also defined as illumination shot-to-mark time. Since this time includes both illumination TOF to effective illumination on the target, and the HE TOF impact, the time represented by illumination shot to mark encompasses all of the variables that need to be stripped out of this portion of mission timing.

c. Simultaneous Mission (Table D-3). This mission is to evaluate a platoon/battery. The stress of performing the simultaneous mission has often been a valuable training tool for the firing platoon/battery. Evaluating the timing of two adjust fire missions simultaneously, is more difficult than running two total mission watches, one for each mission. Table D-2 must be adapted to a timing sequence that realistically strips out the mission variables. That is, the stopping of the watch following each shot to eliminate TOF variables may not be accurate (e.g., while the round for Mission 1 is in flight to the target area, Mission 2 may be in progress in the FDC). Timing should be conducted as follows:

(1) During training not involving the evaluation of the observer team, the unit should not be charged with time when both the FDC and guns are idle and awaiting observer corrections for either mission. That is, should the occasion arise whereby rounds from both missions have been fired (guns

idle), and the FDC has yet to receive a correction from the observer for either mission (FDC idle), then that amount of time should be subtracted from the total mission time as often as this occurs in adjust fire. The second column of Table D-3 attempts to portray this occurrence.

(2) In evaluating a unit with an observer, the only variable time is when both rounds for the separate missions are in the air at the same time. This amount of time normally will be only a few seconds and may be negligible in the total mission time. The third column shown in Table D-2 attempts to portray this occurrence.

Table D-2. Simultaneous Mission Timing

Action	Timing Without Observer	Timing With Observer
Adjusting piece (Mission 1) fires a round	Watch already running from FDC's receipt of initial target location	Watch already running from initial target identification by observer
Adjusting piece (Mission 2) fires a round	Stop Watch	Stop Watch
Round 1 impacts		Start Watch
Round 2 impacts		Watch Running
The FO sends correction: The FDC receives correction (Mission 1)	Start Watch	Watch Running
The FO sends correction: The FDC receives correction (Mission 2)	Watch Running	Watch Running
Last round, first volley in FFE is fired	STOP	STOP

4. **Section Timing Standards**

a. For the FA gunnery team to meet the standards listed as fire mission time standards, each element of the team (Observer, FDC, guns) must perform to standard.

b. Tables D-4, D-5, and D-6 outline the "time starts–time stops" methodology for the timing of each phase of a fire mission for the Observer, FDC, and gun sections.

c. RTF time standards appear in Tables D-7 through D-7.4. These tables prescribe the standards for the occupation of position areas for firing

Table D-3. Fire Mission Section Timing (FIST)

Phase	Event	Actions	Timing
Initial	Observer Time	Detect and identify target Prepare call for fire	Start
		Transmit target location to FDC, and receive acknowledgment Complete call for fire	Stop
Subsequent Corrections	Observer Time	Initial or subsequent round impacts Sense initial or subsequent round Determine subsequent corrections (if any)	Start
		Transmit corrections (if any) to FDC, and receive acknowledgment	Stop
FFE	Observer Time	Initial or subsequent round impacts Sense initial or subsequent round Determine subsequent corrections (if any)	Start
		Transmit corrections (if any) and FFE to FDC, and receive acknowledgment	Stop
Refinement/ Surveillance		Report refinement, replot data, surveillance, and end of mission to FDC, as appropriate	Not Timed

NOTE TO EVALUATOR: Missions times are based on a team of at least one observer assisted by an RTO/digital device operator. Observer times in the "Digital" column are valid for PFED or HTU.

Table D-4. Fire Mission Section Timing (FDC Section)

Phase	Event	Actions	Timing
Initial	Battalion FDC Tactical Fire Direction	FDC receives target location FDO receives complete call for fire FDO analyzes target for attack FDO approves or disapproves target	Start
		FDO issues fire order	Stop
Initial	Plt/Battery FDC Tactical Fire Direction	Plt/Battery receives BN Fire Order (or when FDC receives target location if Plt/Btry is autonomous) FDO performs tactical checks	Start
		FDO issues fire order	Stop
Initial	Technical Fire Direction	FDC/DFCS computes firing data FDO verifies data is safe*	Start
		FDC sends firing data to gun(s) (xmit)	Stop
Subsequent	Technical Fire Direction	FDC receives subsequent correction or FFE FDC/DFCS computes firing data FDO verifies data is safe*	Start
		FDC sends firing data to gun(s) (xmit)	Stop
FFE	Technical Fire Direction	FDC receives FFE FDC/DFCS computes firing data FDO verifies data is safe*	Start
		FDC sends firing data to gun(s) (xmit)	Stop

Table D-5. Fire Mission Section Timing (Gun Section)

Phase	Event	Actions	Timing
Initial	Gun Time	Acknowledges quadrant from FDC/DFCS displays data Set off firing data Prepares and loads ammunition Section chief safes gun	Start
		Announces SHOT (depresses shot key) (READY for at my command fire mission)	Stop
Subsequent Corrections	Gun Time	Acknowledges quadrant from FDC/DFCS displays data Gun (s) set off firing data Gun (s) prepares and loads ammunition Section chief safes gun	Start
		Announces SHOT (depresses shot key) (READY for at my command fire mission)	Stop
FFE	Gun Time	Acknowledges quadrant from FDC/DFCS displays data Set off firing data Prepares and loads ammunition Section chief safes gun	Start
		Announces SHOT (depresses shot key) (READY for at my command fire missions)	Stop

Table D-6. Ready to Fire (RTF) Times – General

Occupy Position Area	PLT – 4 Gun	PLT – 3 Gun	Btry – 6 Gun
M119A2/A3			12:00
M777A2	10:00	10:00	13:00

TIME STARTS: When first howitzer stops in its firing position.

TIME STOPS: When every howitzer section has completed TLABSPAP procedures; Trails, Lay, Aiming reference established, Boresight verified, Safe (verification of lay), prefire checks performed, ammunition prepared (IAW position standardization); commo established with the FDC and critical elements* of the section chief's report rendered. The FDC has commo with guns, Battalion FDC, and Fires Cell/FISTS, current sitmap posted, two means of computing firing data, XO's min QE determined (lowest charge), and transmits "READY" in the operational tab of the unit data to Bn FDC (RTF).

(*Reference FM 3-09.50; these critical elements should be designated in the unit's TACSOP.)

NOTES:

1. Times do not include position improvement.

2. Times assume site to crest determined by advanced party.

3. Add 5 minutes for night occupation.

4. Add 10 minutes for occupation of unprepared position.

5. Time standard for M119A2/A3 applies to all configurations.

6. Tasks do not reflect any local range safety regulations, or unit safety policies (safety "Ts," taping guns, staking guns, verifying data via a "bump mission," etc.)

Table D-6.1. Ready to Fire Times – Emergency Mission (Hip Shoot)

Occupy Position Area	PLT	BTRY
M119A2/A3		11:00
M777A2	12:00	12:00

TIME STARTS: When FDC receives fire mission warning order.

TIME STOPS: When the last round is fired in the first volley of FFE.

Table D-6.2. Ready to Fire Times – Air Assault Movement

1. Preparation standards for an air assault operation are (M119A2/M119A3/M777A2):

a. 30 minutes to rig all howitzers

b. 40 minutes to rig all howitzers and prime movers

TIME STARTS: When the first vehicle arrives in the PZ.

TIME STOPS: When last vehicle is prepared (PZ posture).

2. Once the howitzers arrive at the new position the Ready to Fire standard is:

a. 12 minutes for each serial (includes de-rigging and TLABSPAP – day time)

b. 17 minutes night time

TIME STARTS: When first vehicle arrives in the firing position.

TIME STOPS: When every howitzer section and the FDC are ready to fire (see Table D-7).

NOTES:

1. The advance party is on the LZ, and lift helicopters arrive at the LZ.

2. If firing position is offset from LZ, allow 4 minutes for each serial to clear the LZ, and then apply occupation time standards.

3. Time does not include position improvement.

4. Times assume site to crest determined by advanced party.

5. Add 10 minutes for occupation of unprepared position.

6. Time standard for M119A2 applies to all configurations.

Ready to Fire Times – Air Assault Artillery Raid

1. Preparation standards for an air assault artillery raid:

a. 30 minutes to rig howitzers.

TIME STARTS: When the first howitzer arrives at the PZ, or upon receipt of mission if the PZ is the firing position.

TIME STOPS: When the last howitzer is ready for liftoff.

2. Once the howitzers are in position:

a. 10 minutes (day time)

b. 20 minutes (night time)

TIME STARTS: When first howitzer touches down.

TIME STOPS: When the last howitzer is ready to fire.

NOTES:

1. Raid will be conducted with M119A2/A3 in A-frame configuration with firing platform attached.

2. Assumes all howitzers arrive at firing position in one serial.

3. Firing position is the LZ.

3. Fire mission is conducted IAW standards established in Tables D-8 through D-27.

TIME STARTS: When howitzers are ready to fire.

TIME STOPS: When last round, first volley in FFE is fired.

4. Extraction standards:

a. 17 minutes to prepare howitzer(s) for extraction, (19 minutes nighttime).

TIME STARTS: At EOM (command to march order for extraction is given).

TIME STOPS: When howitzers are ready to be extracted.

5. Time Standard Accuracies

Table D-7. Fire For Effect: When Ready, At My Command, or Time on Target (TOT)

	Type of Computation		DIGITAL	VOICE/ MANUAL COMPS
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction		0:55	0:45
	TOTAL OBSERVER TIME		0:55	0:45
Battalion FDC	*TACTICAL FIRE DIRECTION TIME*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:35	0:45
Guns	Each Round	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
TOTAL MISSION TIME WITH OBSERVER PHASE		105-mm	2:35	2:35
		155-mm (T)	3:05	3:05

NOTES:

1. These three fire missions have the same time standards.

2. For TOT missions, all rounds must impact at ±3 seconds of TOT time.

Table D-8. Fire For Effect: Large Segmented Target

	Type of Computation		DIGITAL	VOICE/ MANUAL COMPS
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction		0:55	0:45
	TOTAL OBSERVER TIME		0:55	0:45
Battalion FDC	*TACTICAL FIRE DIRECTION*		1:05	1:00
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME (Note 1)		0:35	0:45
Guns	Each Round	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
TOTAL MISSION TIME WITH OBSERVER PHASE		105-mm	3:05	3:00
		155-mm (T)	3:35	3:30

NOTES:

1. Assumes each firing element, platoon or battery, fires a single target location.

2. If only Platoon/Btry FDC is being evaluated on these procedures the “Tactical Fire Direction” time would be 1 minute, 05 seconds.

Table D-9. Fire For Effect: FASCAM (Target of Opportunity)

	Type of Computation		DIGITAL	VOICE/ MANUAL COMPS
	FFE Shell/Fuze Combination		HE/TI	HE/TI
Observer	Initial Round			
	Each Subsequent Correction			
	FFE FASCAM Target		0:55	0:45
	TOTAL OBSERVER TIME		0:55	0:45
Battalion FDC	*TACTICAL FIRE DIRECTION*		(Note 1)	15:00
Platoon/Battery FDC	Initial Round Tactical Fire Direction		0:15	0:15
	Initial Aimpoint Technical Fire Direction		0:20	0:30
	Each Subsequent Aimpoint Technical Fire Direction (Note 2)		(0:20)	(0:30)
	FFE Technical Fire Direction			
	FDC TOTAL TIME (Note 3)		0:35+	0:45+
Guns	Each Round	155-mm (T)	0:45 1:00	0:45 1:00
	TOTAL GUN TIME	155-mm (T)	(Note 4)	(Note 4)
TOTAL MISSION TIME WITH OBSERVER PHASE (Note 5)		155-mm (T)	17:30+	17:30+

NOTES:

1. Unit is evaluated on determining FASCAM data. HE data may be computed separately and delivered for execution. Release of FASCAM has been received from proper authority. Coordination has been affected with the Engineers. Minefield Safety Zone is computed and disseminated per unit SOP.

2. No digital method of determining FASCAM aim point data is available. Use manual method standard (15:00 min.).

3. Time standard for the FDC is determined by the number of aim points required. Multiply the number of subsequent aim points by value shown and add to the FDC total time = new FDC total time.

4. For HE execution, time stops at determination of FASCAM data, time starts again when FFE HE/TI (to simulate FASCAM) data is sent to the guns.

5. Multiply the number of rounds fired by the time shown (by weapon system), that time becomes total gun time. (Add 15 seconds per round, gun time, for high angle fire.)

6. Total mission time = new total observer time + new FDC total time + total gun time.

Table D-10. Fire For Effect: Priority Target or Final Protective Fire

	Type of Computation		DIGITAL	VOICE/ MANUAL COMPS
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction			
	TOTAL OBSERVER TIME		0:10	0:10
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:05	0:10
Platoon/Battery FDC	Tactical Fire Direction		0:05	0:05
	Initial Round Technical Fire Direction		0:20	0:30
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction			
	FDC TOTAL TIME		0:05	0:05
Guns	Each Round	105-mm	0:20	0:20
		155-mm (T)	0:30	0:30
	TOTAL GUN TIME	105-mm	0:20	0:20
		155-mm (T)	0:30	0:30
TOTAL MISSION TIME		105-mm	0:40	0:45
		155-mm (T)	1:10	1:15

NOTES:

1. These two separate fire missions have the same time standards.

Table D-11. Fire For Effect: Immediate Suppression

	Type of Computation		**DIGITAL**	**VOICE/ MANUAL COMPS**
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction		0:55	0:25
	TOTAL OBSERVER TIME		0:55	0:45
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:35	0:45
Guns	Each Round	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
TOTAL MISSION TIME		105-mm	2:35	2:35
		155-mm (T)	3:05	3:00

Table D-12. Fire For Effect: Immediate Smoke

	Type of Computation		**DIGITAL**		**VOICE/MANUAL COMPS**	
	FFE Shell/Fuze Combination (Note 1)		WP/Q	HC/TI	WP//Q	HC/TI
Observer	Initial Round					
	Each Subsequent Correction					
	FFE Correction		0:55		0:25	
	TOTAL OBSERVER TIME		0:55		0:25	
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35		0:35	
Platoon/Battery FDC	Tactical Fire Direction		0:15		0:15	
	Initial Round Technical Fire Direction		0:20		0:30	
	Each Subsequent Correction Technical Fire Direction					
	FFE Technical Fire Direction			0:20		0:30
	FDC TOTAL TIME		0:55		1:15	
Guns	Each Round	105-mm	0:30	0:45	0:30	0:45
		155-mm (T)	1:00	1:15	1:00	1:15
	TOTAL GUN TIME	105-mm	1:15		1:15	
		155-mm (T)	2:15		2:15	
TOTAL MISSION TIME		105-mm	3:40		3:30	
		155-mm (T)	4:40		4:30	

NOTES:

1. (105mm) 1st round, WP/Q, remaining rounds HC smoke

2. (155mm) Add 15 sec to FDC for M825 smoke workaround, if necessary.

Table D-13. Fire For Effect: Excalibur Priority Mission/Target of Opportunity

(Will be determined by Battalion SOP)

Table D-14. Fire For Effect: ICM/DPICM

	Type of Computation		**tx6480 DIGITAL**	**VOICE/ MANUAL COMPS**
	FFE Shell/Fuze Combination		HE/TI	HE/TI
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction		0:55	0:45
	TOTAL OBSERVER TIME		0:55	0:45
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:35	0:45
Guns	Each Round	105-mm	0:45	0:45
		155-mm (T)	1:15	1:15
	TOTAL GUN TIME	105-mm	0:45	0:45
		155-mm (T)	1:15	1:15
TOTAL MISSION TIME		105-mm	2:50	2:50
		155-mm (T)	3:20	3:20

NOTE: Unit is evaluated on determining ICM/DPICM data. HE/TI data may be computed separately and delivered for FFE.

Table D-15. Fire For Effect: Schedule of Fires/Fire Plan

	Type of Computation		**DIGITAL**	**VOICE/ MANUAL COMPS**
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction			
	TOTAL OBSERVER TIME		Note 1	Note 1
Battalion FDC	*TACTICAL FIRE DIRECTION*		Note 1	Note 1
Platoon/Battery FDC	Tactical Fire Direction		0:15+	0:15+
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20+	0:30+
	FDC TOTAL TIME		0:35+	0:45+
Guns	Each Round	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME	105-mm	0:30+	0:30+
		155-mm (T)	1:00+	1:00+
TOTAL MISSION TIME		105-mm	1:05+	1:15+
		155-mm (T)	1:35+	1:45+

NOTES:

1. The preparation of a schedule of fires or fire plan, is not a timed event. The delivery of fires is timed. If there is an H-Hour then the rounds must impact within 03 seconds.

2. If any target is High angle or fuze time add 15 seconds to gun time.

3. Total mission time would be the sum X number of missions in the plan.

Table D-16. Fire For Effect: Counterfire

	Type of Computation		**DIGITAL**	**VOICE/ MANUAL COMPS**
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction		0:55	0:45
	TOTAL OBSERVER TIME		0:55	0:45
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:35	0:45
Guns	Each Round	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
TOTAL MISSION TIME		105-mm	2:35	2:35
		155-mm (T)	3:05	3:05

Table D-17. Fire For Effect: Engage a Moving Target, AMC, or TOT

	Type of Computation		**DIGITAL**	**VOICE/ MANUAL COMPS**
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round		0:50	0:45
	Each Subsequent Correction			
	FFE Correction		0:20	0:10
	TOTAL OBSERVER TIME		1:10	0:55
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:25
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:20
	FDC TOTAL TIME		0:35	0:35
Guns	Each Round	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
TOTAL MISSION TIME		105-mm	2:50	2:25
		155-mm (T)	3:20	2:55

NOTES: This procedure is performed using the FFE mission type, and either At My Command or Time on Target Method of Control. If undesirable effects are achieved, the observer may make corrections and repeat the mission

Table D-18. Conduct Registration, with Radar

	Type of Computation		DIGITAL	VOICE/ MANUAL COMPS
	FFE Shell/Fuze Combination		HE/TI	HE/TI
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction			
	TOTAL OBSERVER TIME			
Battalion FDC	*TACTICAL FIRE DIRECTION*		1:15	1:00
Platoon/Battery FDC (Note 1)	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:35	0:45
Guns	Each Round (Note 2)	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME (Note 3)	105-mm	0:30+	0:30+
		155-mm (T)	1:00+	1:00+
TOTAL MISSION TIME		105-mm	2:20+	2:15+
		155-mm (T)	2:50+	2:45+

NOTES:

1. If Platoon/Btry FDC orients RADAR/conducts the registration, the FDC Time would be 1:15.

2. If time fuze is fired for a HB registration, add 15 seconds to gun times.

3. Multiply gun time by number of rounds fired.

4. FDC must ensure that RADAR has the following data: Btry Loc., TGT Loc (to include ALT), QE fired, MAX ORD.

Table D-19. Conduct HB/MPI Registration (with at least two observers)

	Type of Computation		**DIGITAL**	**VOICE/ MANUAL COMPS**
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round			
	Each Subsequent Correction			
	FFE Correction			
	TOTAL OBSERVER TIME			
Battalion FDC	*TACTICAL FIRE DIRECTION*		1:15	1:15
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction			
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:35	0:45
Guns	Each Round	105-mm	0:45	0:45
		155-mm (T)	1:15	1:15
	TOTAL GUN TIME	105-mm	0:45+	0:45+
		155-mm (T)	1:15+	1:15+
TOTAL MISSION TIME		105-mm	2:35+	2:45+
		155-mm (T)	3:05+	3:15+

NOTES:

1. Observer participation is not timed for this mission.

2. If Platoon/Btry FDC orients the observers/conducts the registration, the FDC Time would be 1:15.

3. This mission normally needs 6 to 8 rounds. HB is the most desirable method; it gives us a fuze TI correction. If MPI is conducted subtract 15 seconds from “EACH ROUND” gun time.

Table D-20. Adjust Fire, Forward Observer

	Type of Computation		DIGITAL	VOICE/ MANUAL COMPS
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round		0:55	0:45
	Each Subsequent Correction (Note 1)		0:10	0:10
	FFE Correction		0:10	0:10
	TOTAL OBSERVER TIME		1:05+	0:55+
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction		0:20	0:30
	Each Subsequent Correction Technical Fire Direction (Note 2)		(0:20)	(0:30)
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:55+	1:15+
Guns	Each Round	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME (Note 3)	105-mm	1:00+	1:00+
		155-mm (T)	2:00+	2:00+
TOTAL MISSION TIME WITH OBSERVER PHASE (Note 4)		105-mm	3:35+	3:45+
		155-mm (T)	4:35+	4:45+

NOTES:

1. Multiply the number of subsequent adjustments by value shown and add to the total observer time = new total observer time.

2. Multiply the number of subsequent adjustments by value shown and add to the FDC total time = new FDC total time.

3. Multiply the number of subsequent rounds by the “each round” time shown and add to the total gun time = new total gun time.

4. Total mission time = new total observer time + new FDCs total time + new total gun time.

Table D-21. Adjust Fire, Forward Observer Using a LLDR/MELIOS, or Adjust Fire, Radar Observed

	Type of Computation		DIGITAL	VOICE/ MANUAL COMPS
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round		0:55	0:45
	Each Subsequent Correction			
	FFE Correction		0:10	0:10
	TOTAL OBSERVER TIME		1:05	0:55
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction		0:20	0:30
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:55	1:15
Guns	Each Round	105-mm	0:30	0:30
		155-mm (T)	1:00	1:00
	TOTAL GUN TIME	105-mm	1:00	1:00
		155-mm (T)	2:00	2:00
TOTAL MISSION TIME WITH OBSERVER PHASE		105-mm	3:35	3:45
		155-mm (T)	4:35	4:45

NOTES:

1. Normally there is only one round in adjustment.

2. These two separate fire missions have the same time standards.

Table D-22. Adjust Fire, High-Angle, Forward Observer

	Type of Computation		DIGITAL	VOICE/ MANUAL COMPS
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round		0:55	0:45
	Each Subsequent Correction (Note 1)		(0:10)	(0:10)
	FFE Correction		0:10	0:10
	TOTAL OBSERVER TIME		1:05+	0:55+
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction		0:20	0:30
	Each Subsequent Correction Technical Fire Direction (Note 2)		(0:20)	(0:30)
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:55+	1:15+
Guns	Each Round	105-mm	0:45	0:45
		155-mm (T)	1:15	1:15
	TOTAL GUN TIME	105-mm	1:30+	1:30+
		155-mm (T)	2:30+	2:30+
TOTAL MISSION TIME WITH OBSERVER PHASE (Note 4)		105-mm	4:05+	4:15+
		155-mm (T)	5:05+	5:15+

NOTES:

1. Multiply the number of subsequent adjustments by value shown and& add to the total observer time = new total observer time.

2. Multiply the number of subsequent adjustments by value shown and& add to the FDC total time = new FDC total time.

3. Multiply the number of subsequent rounds by the "each round" time shown and add to the total gun time = new total gun time.

4. Total mission time = new total observer time + new FDC total time + new total gun time.

Table D-23. Adjust Fire, High-Angle, Forward Observer Using a G/VLLD/LLDR/MELIOS; Adjust Fire, High-Angle, Radar Observed

	Type of Computation		**DIGITAL**	**VOICE/ MANUAL COMPS**
	FFE Shell/Fuze Combination		HE/Q	HE/Q
Observer	Initial Round		0:55	0:45
	Each Subsequent Correction			
	FFE Correction		0:10	0:10
	TOTAL OBSERVER TIME		1:05	0:55
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction		0:20	0:30
	Each Subsequent Correction Technical Fire Direction			
	FFE Technical Fire Direction		0:20	0:30
	FDC TOTAL TIME		0:55	1:15
Guns	Each Round	105-mm	0:45	0:45
		155-mm (T)	1:15	1:15
	TOTAL GUN TIME	105-mm	1:30	1:30
		155-mm (T)	2:30	2:30
TOTAL MISSION TIME WITH OBSERVER PHASE		105-mm	4:05+	4:15+
		155-mm (T)	5:05+	5:15+

NOTES:

1. Normally there is only one round in adjustment.

2. These two separate fire missions have the same time standards.

Table D-24. Adjust Fire: Coordinated Illumination

	Type of Computation		DIGITAL		VOICE/MANUAL COMPS	
	FFE Shell/Fuze Combination		ILLUM/ TI	HE/Q	ILLUM/ TI	HE/Q
Observer	Initial Round		0:55	0:55	0:45	0:45
	Each Subsequent Correction (Note 1)		(0:10)	(0:10)	(0:10)	(0:10)
	FFE Correction			0:10		0:10
	TOTAL OBSERVER TIME		2:00+		1:40+	
Battalion FDC	Tactical Fire Direction		0:35	0:10	0:35	0:10
	BATTALION FDC TOTAL TIME		0:45		0:45	
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15	0:15	0:15
	Initial Round Technical Fire Direction		0:20	0:20	1:00	0:30
	Each Subsequent Correction Technical Fire Direction (Note 2)		(0:20)	(0:20)	(0:30)	(0:30)
	FFE Technical Fire Direction			0:20		0:30
	FDC TOTAL TIME		1:30+		2:30+	
Guns	Each Round	105-mm	0:45	0:30	0:45	0:30
		155-mm (T)	1:15	1:00	1:15	1:00
	TOTAL GUN TIME (Note 3)	105-mm	1:45+		1:45+	
		155-mm (T)	3:15+		3:15+	
TOTAL MISSION TIME WITH OBSERVER PHASE (Note 4)		105-mm	6:00+		6:40+	
		155-mm (T)	7:30+		8:10+	

NOTES:

1. This mission doesn't start until target has been identified and "mark" time is determined. The times denote 1 round of Illum, 1 round HE (initial), and 1 round HE in effect. Other rounds in adjustment, either Illum and/or HE, must be added to determine overall time.

2. Multiply the number of subsequent adjustments for both shell/fuze combinations by value shown and add to the total observer time = new total observer time.

3. Multiply the number of subsequent adjustments for both shell/fuze combinations by value shown and add to the FDC total time = new FDC total time.

4. Multiply the number of subsequent rounds by the "each round" time shown and add to the total gun time = new total gun time.

5. Total mission time = new total observer time + new FDC total time + total gun time.

Table D-25. Adjust Fire: Simultaneous Missions

	Type of Computation	**DIGITAL**		**VOICE/MANUAL COMPS**	
	FFE Shell/Fuze Combination	HE/Q		HE/Q	
		Msn 1	Msn 2	Msn 1	Msn 2
Observer	Initial Round	0:55	0:55	0:45	0:45
	Each Subsequent Correction (Note 2)	(0:10)	(0:10)	(0:10)	(0:10)
	FFE Correction	0:10	0:10	0:10	0:10
	TOTAL OBSERVER TIME	2:10+		1:50+	
Battalion FDC	Tactical Fire Direction	0:35	0:35	0:35	0:35
	BATTALION FDC TOTAL TIME	1:10		1:10	
Platoon/Battery FDC	Tactical Fire Direction	0:15	0:15	0:15	0:15
	Initial Round Technical Fire Direction	0:20	0:20	0:30	0:30
	Each Subsequent Correction Technical Fire Direction (Note 2)	(0:20)	(0:20)	(0:30)	(0:30)
	FFE Technical Fire Direction	0:20	0:20	0:30	0:30
	FDC TOTAL TIME	1:50+		2:30+	
Guns	Each 105-mm	0:30		0:30	

	Round	155-mm (T)	1:00	1:00
	TOTAL GUN TIME (Note 4)	105-mm 155-mm (T)	2:00+ 4:00+	2:00+ 4:00+
TOTAL MISSION TIME WITH OBSERVER PHASE (Note 5)		105-mm 155-mm (T)	7:10+ 9:10+	7:30+ 9:30+

NOTES: For timing sequence see instructions Table D-3.

1. This should be a Platoon/Btry mission to gain optimum training value.

2. Multiply the number of subsequent adjustments by the value shown and add to the total observer time = new total observer time.

3. Multiply the number of subsequent adjustments by the value shown and add to the FDC total time = new FDC total time.

4. Multiply the number of subsequent rounds by the "each round" time shown and add to the total gun time = new total gun time.

5. Total mission time = Platoon/Battery FDC total time + new total gun time.

Table D-26. Adjust Illumination

	Type of Computation	**DIGITAL**	**VOICE/ MANUAL COMPS**
	FFE Shell/Fuze Combination	ILLUM/TI	ILLUM/TI
Observer	Initial Round	0:55	0:45
	Each Subsequent Correction (Note 1)	0:10	0:10
	FFE Correction		

	TOTAL OBSERVER TIME		1:05+	0:55+
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35	0:35
Platoon/Battery FDC	Tactical Fire Direction		0:15	0:15
	Initial Round Technical Fire Direction		0:25	1:00
	Each Subsequent Correction Technical Fire Direction (Note 1)			
	FFE Technical Fire Direction			
	FDC TOTAL TIME (Note 1)		0:40+	1:15+
Guns	Each Round	105-mm	0:45	0:45
		155-mm (T)	1:15	1:15
	TOTAL GUN TIME	105-mm	1:30+	1:30+
		155-mm (T)	2:30+	2:30+
TOTAL MISSION TIME WITH OBSERVER PHASE (Note 3)		105-mm	3:50+	4:15+
		155-mm (T)	4:50+	5:15+

NOTES:

1. This mission denotes only the times for the first round fired. Times for subsequent volleys fired must be added to the total time.

2. Multiply the number of subsequent adjustments by the value shown and add to observer or FDC total time = new observer or FDC total time.

3. Multiply the number of subsequent rounds by the "each round" time shown and add to the total gun time = new total gun time.

4. Total mission time = new observer total time + new FDC total time + new total gun time.

Table D-27. Adjust Smoke

	Type of Computation	**DIGITAL**		**VOICE/MANUAL COMPS**	
	FFE Shell/Fuze Combination	HE/Q	SMK/TI	HE/Q	SMK/TI
Observer	Initial Round	0:55		0:45	
	Each Subsequent Correction (Note 1)		(0:10)		(0:10)
	FFE Correction		0:10		0:10

	TOTAL OBSERVER TIME		1:05+		0:55+	
Battalion FDC	*TACTICAL FIRE DIRECTION*		0:35		0:35	
Platoon/Battery FDC	Tactical Fire Direction		3:00		3:00	
	Initial Round Technical Fire Direction		0:20		0:40	
	Each Subsequent Correction Technical Fire Direction (Note 2)			(0:20)	(0:30)	
	FFE Technical Fire Direction (R1) (Note 3)			0:40		1:20
	FDC TOTAL TIME		4:00+		5:00+	
Guns	Each Round	105-mm	0:30	0:45	0:30	0:45
		155-mm (T)	1:00	1:15	1:00	1:15
	TOTAL GUN TIME (Note 4)	105-mm	1:15+		1:15+	
		155-mm (T)	2:15+		2:15+	
TOTAL MISSION TIME (Note 5)		105-mm	6:55+		7:45+	
		155-mm (T)	7:55+		8:45+	

NOTES:

1. This mission denotes only the times for the first round fired. Times for subsequent volleys fired must be added to the total time.

2. Multiply the number of subsequent adjustments by the value shown and add to the total observer time = new total observer time (if evaluating observers).

3. Multiply the number of subsequent adjustments by the value shown and add to the FDC total time = new FDC total time.

4. R1 and R2 fired at appropriate intervals determined by the Munitions Expenditure Tables.

5. Multiply the number of subsequent rounds by the “each round” time shown and add to the total gun time = new total gun time.

6. Total mission time = New Platoon/Battery FDC total time + new total gun time.

1. Fire Mission Accuracy Standards

a. There are two methods of determining if FFE achieves accuracy standards.

(1) The primary method is to subjectively decide, by observing from the observer's location, if the fires had the desired effect on the target. If so, the standard was met. If any element of the FFE (deviation, range, or HOB) was not obtained, the standard was not met.

(2) Commanders are reminded that there are a myriad of variables that affect an artillery projectile's accuracy in terms of "hitting the target." If the commander cannot use the primary method of judging effects (visual determination) in his firing evaluation, the following graphical methods are offered. They use average firing data (the distribution of mean points of impact [MPI] around an aiming point) from a ballistics laboratory. There are two different procedures depending on whether or not the unit can meet the five elements of accurate predicted fire.

b. If the five requirements for accurate predicted fire (target location and size, firing unit location, weapon and ammunition information, MET information [2- or 4-hour schedule], and computational procedures [see FM 6-40, Chapter 1]) can be met, and are properly applied, it is "statistically possible" to judge accuracy of the round being fired.

2. Five elements of accurate predicted fire are met.

a. If the five requirements for accurate predicted fire cannot be met, then the five steps to improved firing data (rounds burst at a point of known location, determine did-hit and should-hit data, determine total corrections, isolate position constants [by quantifying all measurable non-standard conditions] update total corrections), or an observer-adjusted mission, should be used.

3. Accurate predicted fire requirements not met.

a. The preceding graphical methods were designed to determine the accuracy of a weapon. Trainers and evaluators must remember that most targets fired upon are area targets. Therefore, when judging effects, avoid the tendency to treat a grid coordinate sent by the observer as a point target. Consider the choice of munitions, method of attack, and acceptable dispersion of the FFE sheaf.

b. Using a Firefinder radar, or a G/VLLD/LLDR/MELIOS, a round may be accurately plotted (within the tolerances of the system) and compared against the location of the aiming point. During the computation of special sheaf's, various aiming points are selected around the target. Care must be taken during any measurement of accuracy to ensure the burst is being compared against the proper aiming point for the howitzer being fired. This should reinforce the FDO's use of a proper sheaf in computing

firing data (and resist the temptation to “close” the sheaf in an attempt to hit a “point” with an area weapon).

NOTE: If a firefinder radar is used to observe rounds impacting, it must be used in the friendly fire mode, with an “angle T” of less than 1,000 mils. A battery or platoon should fire by piece, at 30-second intervals, or AMC (RADAR), for adequate control in spotting individual bursts.