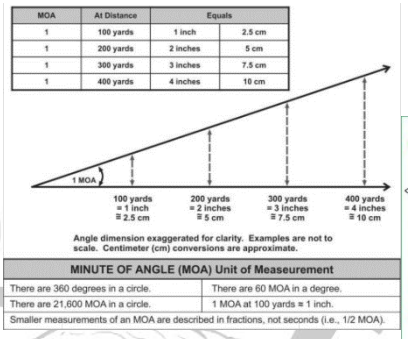
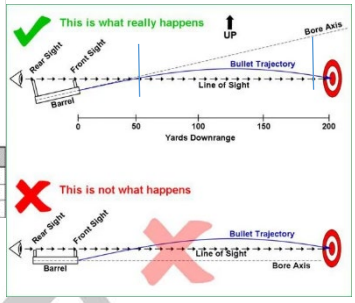
Why do we fail at qualifying?

1. Bad zero
2. Optics issues
3. Bad grouping/fundamentals
4. Target/range technical issues





What is a minute of angle?

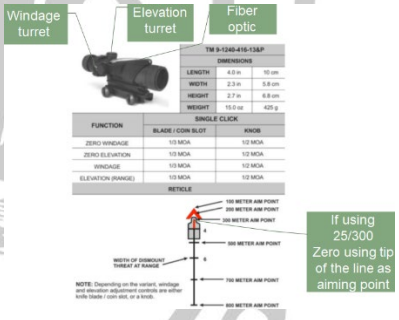
1 MOA is approximately 1” at 100 yards, 2” at 200 yards, 3” at 300 yards, 4” at 400 yards, etc.

Bullet trajectory and ballistics entails understanding the flight path of the bullet, you are literally “lobbing” bullets on a curve to the target.

Two main optics besides traditional iron sights, CCO and RCO.

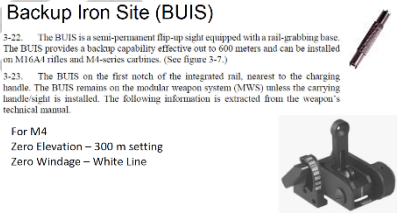
CCO stands for close combat optic, has no magnification, and uses an AA battery. Do not store the AA battery with the optic unless it is a lithium one. Mount the CCO on the front edge of the upper receiver rail. The CCO has a 2 moa dot, during zeroing, dim this out. During qualification, get a sight picture prior to the course of fire and adjust for current lighting conditions to a reasonable level where you can quickly acquire it but also doesn’t bloom and fill the entire far target silhouette. Ensure while mounting any optic you place forward pressure on it *while* tightening it down to the rail. CCO and RCO should be tight and if you have the old style CCO, it should NOT spin freely in the turret mount. You should have both eyes open when shooting with the CCO. Each “click” of the turret adjusts the reticle ½ (0.5 MOA) or half a box on the A8 zeroing target. Your optical focus using the CCO should not be on the dot, but on the target.

RCO should be mounted as rear most on the upper receiver rail as possible to achieve good eye relief. Tape should be used on the fiber element to control reticle brightness based on changing environmental conditions. If you are zeroing at 25m (25/300), you zero to the red tip on the top of the line just under the chevron (triangle). The RCO has a BDC (bullet drop compensating reticle), each number and corresponding hash line or “stadia” should be used to range based on the average width of a man sized target (18”) and is also where you holdover to shoot at those given distances given a typical M4 barrel length and ammo.



The top turret adjusts up and down (elevation), the side turret adjusts the left and right (windage).

If using iron sights, before zeroing, set the rear sight to use the smaller aperture if available, to the white line between the 300 and 400 marks, then when zeroing is completed, move it to the 300 mark. Average man sized targets smaller than the front sight post are further than 300m away from you, and if they are wider than your front sight post, are closer than 300m. Front sight post should be in focus, NOT the target. Front sight post should be center in the rear circular aperture.



Before **Zeroing**, ensure you have conducted laser or manual bore sighting.

You will engage three A8 targets in table IV ("grouping and zeroing"). Starting from left to right, each target you will shoot five rounds at a time for a total of ten rounds on each target. The first shot group of five you do not make any adjustments, it is purely for grouping. The second shot group if you get CONSISTENT results and a "good group", you may start making optic adjustments from there on out. Take your time, this is an untimed event. Lubricate your weapon/action prior to all events if possible. This is your time to work on fundamentals of marksmanship. There is a legend at the bottom of the modern A8 target version, which based on the optic you are using, which tells you how to adjust the turrets and what effect each click has. As a reminder, for each box on the A8 you want to move, you will need to "dial" two clicks on a CCO and most RCO's. Pay attention that you are moving the turret the correct direction and amount you intend as well as the correct turret depending on if you are trying to move left/right or up/down. Support your weapon when possible even if only have the magazine as a connection point to the ground. Zeroing and grouping is conducted from the prone supported position.

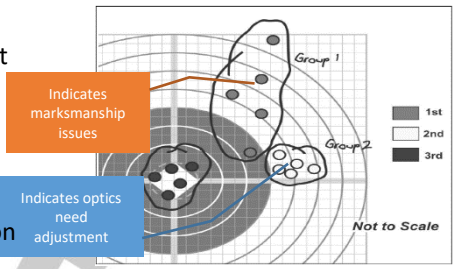
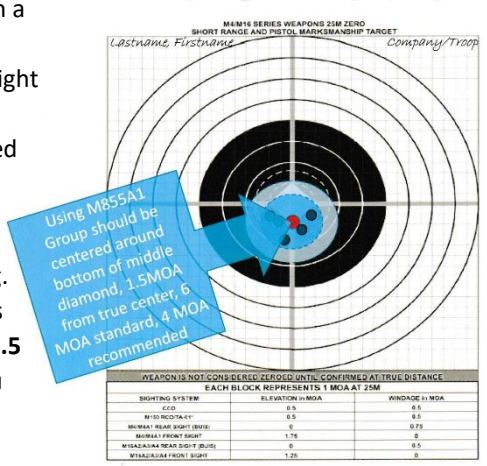


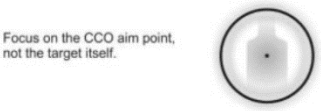
Table IV, Zeroing Standard Template/Example

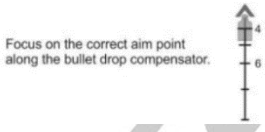


Circle each shot group of five, write your name on each target and keep the target with you when you come off the range for the remainder of the weekend and have completed zeroing. Using M855A1, your goal is to have 8 out of 10 shots within a 4-6 MOA sized circle (4-6 boxes wide/diameter on the A8 target), ***averaged*** **around the bottom tip of the center diamond (1.5 MOA or boxes below absolute center)**. If your shot groups are too large or inconsistent, you need to work on fundamentals and WILL have trouble passing when you go to qualify if you deem something outside the standard as acceptable because you will likely miss the further silhouette pop-up targets.

The shot process is:

1. **Pre-shot**:
   a. Position, natural point of aim, sight picture, hold
2. **Shot**:
   a. Refine aim, breathing control, trigger control
3. **Post-shot**:
   a. Follow-through, recoil management, call the shot, evaluate the shot





The fundamentals of marksmanship are:

1. **Natural point of aim**, the point where the barrel naturally orients when the shooter's muscles are relaxed and support is achieved
2. **Sight picture**, relationship between the aiming device and the firer's eye, consistent cheek weld and head placement is key here
3. **Breathing control**, breath in, breath out, and at the bottom of breathing out "natural respiratory pause", begin trigger squeeze, do not hold your breath or stay in this pause for longer than eight seconds, otherwise begin breathing cycle again before
4. **Trigger control and follow through**, the act of firing the weapon while not disturbing it until the bullet has left the muzzle. Good trigger control involves a smooth, consistent/steady application of pressure straight to the rear of the weapon, such that your sight picture remains undisturbed. Assume a high grip on the pistol grip at all times, relax your firing hand to isolate your trigger finger from the rest of your hand/fingers. After the shot breaks, keep the trigger pinned to the rear until the bullet has completely left the muzzle, return to the audible and tactile "reset", do not adjust or move your body or head position at all.