THE DESIGNATED MARKSMAN EQUATION

(Material x Training/Tactics = Mission Success)

FIRST SERGEANT (RETIRED) D. ROBERT CLEMENTS

The concept of the squad designated marksman (SDM or DM) first surfaced in the draft M16 field manual, FM 3-22.9, and FM 3-21.9, *The SBCT Infantry Rifle Platoon and Squad* in late 2000, early 2001. These early requirements are also reflected in the requirement for a designated marksman rifle variant of the Objective Individual Combat Weapon (OICW). Since then, the global war on terrorism has underscored the need for designated marksmen, but further development of the three elements of the designated marksman requirement — material, training, and tactics — have been fitful. Each element alone has very little chance of making a meaningful impact on today's warfighter. Combined, they make the designated marksman a formidable threat.

During the war, Soldiers and leaders have determined that a precision engagement gap exists at the small unit level, but have struggled to define what that gap is. For the purposes of discussion I will use the following definition of the designated marksman's requirements:

1. The capability to effectively place rounds into the Neck/Head Lethal Zone (4" wide x 8" high) as defined by FM 3-22.9, Chapter 7.

2. Current small unit weapons are *perceived* to not possess the accuracy to provide the precision engagement of the lethal zone required at 100-300 meters most commonly encountered in Iraq.

3. Many Soldiers/leaders *believe* the current 5.56-mm weapon systems lack the accuracy to quickly index and engage targets between 300-600 meters frequently encountered in Afghanistan.

4. The requirement has emerged to engage (interspersed with noncombatants) improvised explosive device (IED) operators, suicide bombers, and enemy marksmen within 300 meters that require immediate central nervous system (CNS) engagement to reduce unit and noncombatant casualties.

"I agree that there is a marksmanship gap at the unit level from 300-600m as mentioned and believe the designated marksman at squad level is a possible answer to this. In Afghanistan, we had multiple engagements (I would say vast majority of our engagements) with the enemy (were) from beyond 300m. A lot of engagements took place on our resupply convoys/vehicle patrols. The enemy in these cases always had the high ground because all roads in my AO were in river valleys and followed the river on the valley floor. The terrain was too steep to possibly make a road on higher ground. With the enemies high ground advantage, it was like they were shooting fish in a barrel. They only had to spend a quick second exposing themselves to dump a magazine of AK ammo down in our general direction before dropping behind cover or the crest of the ridge or hill they were on and out of our sight and then they would just repeat until we brought indirect fires on them. Rifle fire/crew served weapons was of little effect on them in most cases. ***I attribute this to three reasons. Lack of marksmanship ability past 300m for which our standard weapons are zeroed at, lack of knowledge on how to engage or lead a moving or pop-up target, and angle firing."***

— Staff Sergeant John Hawes,
C Troop, 3-71 RSTA, 10th Mountain Division

Material

The current M16A4/M4 is a very accurate weapon with proper training and ammunition selection. However, commanders continue to ask for a better material solution to the DM's requirements. A thorough discussion of how to address material improvements is impossible within the context of this article. However, refining the weapon platform through improved configurations, a matched optic, and ammunition will increase the DM's capability. The objective is to provide for more consistent shot placement in order to destroy on the enemy.

Rifle: Accurizing the M16 family of weapons is a common practice that has been applied by the service rifle teams and civilian shooters in competition for over a decade. The most common solutions have already been applied to the Special Operations MK12, Marine Corps Squad Advanced Marksman-Rifle (SAM-R), and the U.S. Army Marksmanship Unit's (USAMU) Designated Marksman Rifles. The Crane MK12 is being qualified for 1.75-inch 5 shot extreme spread groups at 100 yards suppressed with MK262 ammo. The USAMU-built rifles are qualified for 10-shot groups smaller

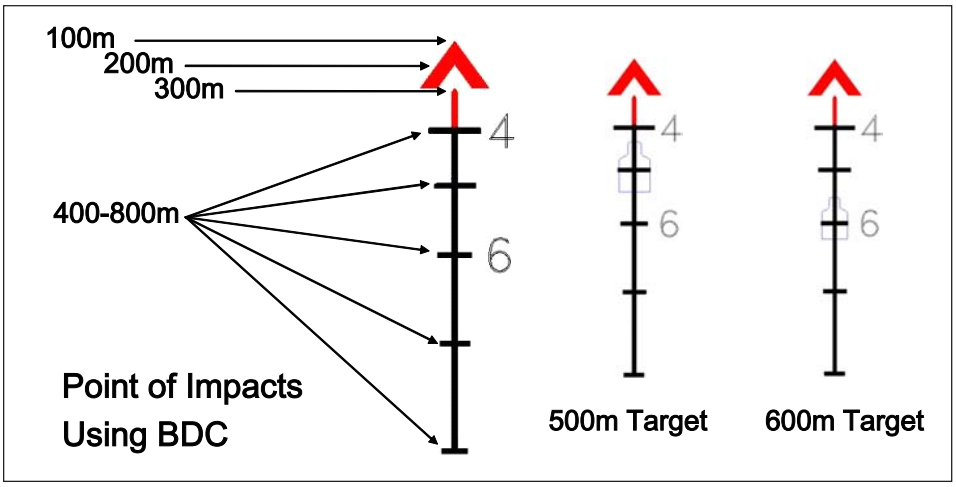


Figure 1 — ACOG Bullet Drop Compensator (BDC) & Ranging Capability

than 3.28 inches at 300 meters, with MK262 ammo. The USMC's SAM-R rifles are built to a 2 MOA specification, with MK262 ammo. The methods to do so are not hard and generally consist of a "match grade" trigger, free-floated barrel and a "match grade barrel." I say generally, because each variation has subtle differences as shown by how their accuracy is defined. These specialized rifles do produce improvements over the base M4/M16. However, without an underlying training program and supporting tactics those improvements may not be realized by the unit.

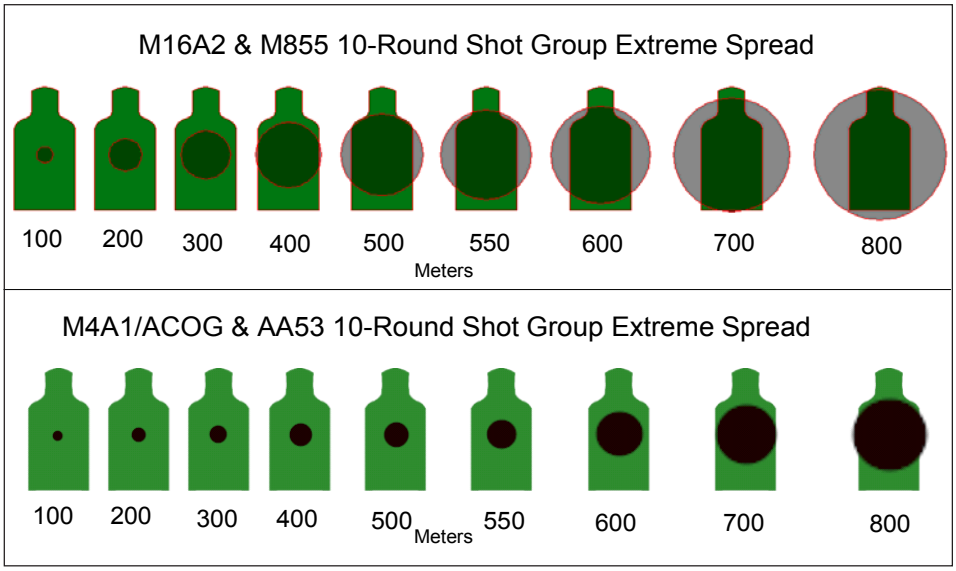
Target Detection (Optics): Target detection begins with scanning your sector looking for what doesn't belong. Scanning crowds with the optic on your rifle is no way to make friends in any country, so what do you do? The current issue M24 Mini-Binoculars can provide the DM with a lightweight 8X ability to scan. The greatest advantage of the M24 is that Soldiers are able to scan for longer periods of time at a higher magnification and greater field of view then they would be using a rifle-mounted optic. The M24 also provides a ranging reticule for range estimation and adjusting indirect fires.

Once a threat is detected, you need to be able to engage with your rifle optic. Many of the advantages over the M4 with ACOG of the MK12 SPR and the SAM-R are provided by the use of a higher powered magnified optic, then the 4x ACOG. The two most commonly encountered optics for use by the military designated marksman are the Trijicon ACOG and the Leupold Mark 4 MR/T. Each optic has its advantages and represent a compromise. Selection needs to reflect the TTPs of the unit and the level of training committed to sustaining the units' DM program. Key considerations when selecting the optic are ranging, ballistic holdover's, and the ability to quickly detect and acquire the target. Low power 4x optics appear more stable when firing off hand or in other nonstandard firing positions. High-powered optics provide more precise target identification and target engagement.

Trijicon ACOG Rifle scopes: The Trijicon ACOG (TA31RCO, M150 RCO, or TA31F) is the most common magnified optic currently being employed by the Army and the TA31RCO for the USMC. SOCOM SOPMOD Block II uses a TA31ECOS version that adds an unmagnified red dot sight. The ACOG offers a very simple ranging reticule that incorporates a bullet drop compensator (BDC) in one reticle. The ACOG's illuminated reticle also allows for use of the ACOG at close quarters nearly has fast as the M68 Close Combat Optic. The standard issue sights are 4X magnification, but larger 5.5X or 6X versions are also available (TA55: 5.5x50 or TA648: 6x48 Trijicon ACOG). Both versions offer common training with the issue TA31RCO/TA31F and are worth considering verses the more complicated Mark 4 MR/T scopes. The commands assessments of their requirements really determine the proper choice.

Leupold Mark 4 MR/T Rifle scopes: Leupold Mark 4 MR/T's are most commonly found on the SOCOM MK12 SPRs and the USMC's SAM-R (and the M110 SASS). The selection of this optic reflects an operational employment different from the Army. The Marine Corp's standard optic is the ACOG, unlike the Army's M68. With that in mind, a higher-powered scope such as the 2.5-8X MR/T for the SAM-R makes sense. Unlike the ACOG, the MR/T is typically used by extremely well-trained designated marksman. It is a specialized optic that is not well suited to close combat work, but extremely good at intermediate range work. Its higher magnification allows for more precise target selection and to some extent improved target detection. Depending on the reticle, range finding, and ballistic hold over's, the MR/T will require more

Figure 2 — M16/M4 & M855 vs M4A1/ACOG & AA53



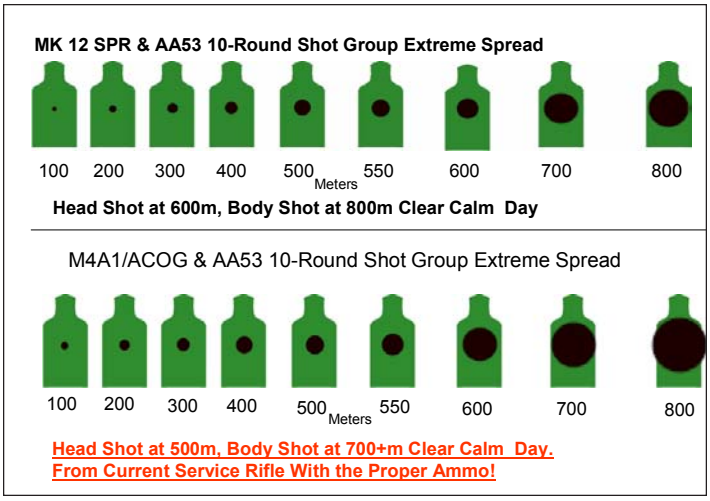


Figure 3 — M4A1/ACOG & AA53 vs MK12 SPR &AA53

advanced training than either the Trijicon or Aimpoint (M68).

Ammunition: Great debate continues on the accuracy of 5.56-mm M855 (standard ball 5.56mm) versus MK262 ("match grade" 5.56mm). Using published reports, it is often hard to sort out the truth due to the use of different data points for comparing information. For example in a Crane NDIA brief on the M855 vs. MK262 Iron sighted M16's with M-855 are compared to MK12's with MK262. In that example MK12 with MK262's accuracy is clearly superior to M885. However, if you were to make a composite of M4 with ACOG vs. the MK12 both using MK262 you see very close performance. Indeed a summary showing the M4 w/ACOG & M855 vs. MK262 is the best comparison. The comparison of the M4 with ACOG vs. the MK12 SPR shows that with MK262 ammo the standard Army issue M4 is mechanically capable of meeting the requirements outlined above.

However, MK262's improved accuracy comes at a cost of penetration over M855. M855 will penetrate hard targets at slightly longer ranges, for example, 3/16 ASTM A36 mild steel; M855 at 315 yards versus MK262 at 256 yards. Again, this means that commanders have to balance their mission requirements against the material they use to accomplish the task. In both loadings, inconsistent terminal effectiveness on the enemy underlines the importance of good shot placement.

Training

Proper training and shooter selection within a TTP-driven program are more important then any of the material solutions.

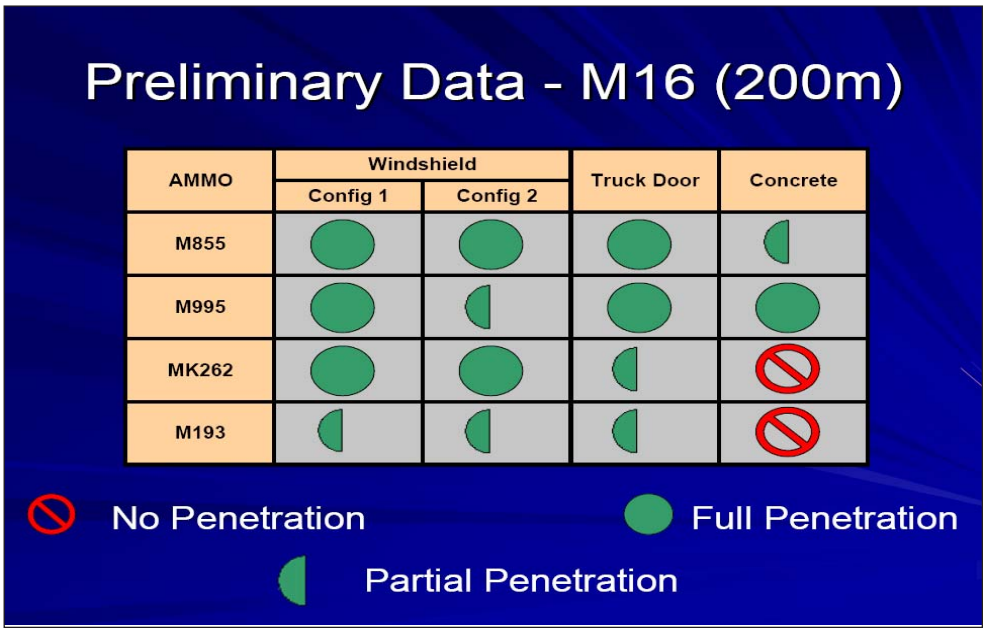
"The main factor units need to address in developing their DM Program is the training. The skill set given to the shooter will determine his ability to engage targets consistently at distance effectively. Good marksmanship is not 40/40 on a pop-up range but rather the ability to place rounds in the same spot time after time. A shooter with an understanding of a good body position, what the round is (doing) during the external phase of ballistics and proper eye (to) sight alignment, he will be effective consistently. But a shooter who doesn't understand how to properly point the rifle and fire it without movement will never be effective regardless of the optics or modifications made to a rifle. The concept is simple but the ability to train this is lost because of short cuts engrained in current marksmanship programs. ***The current M4 is capable of meeting the DM needs as long as the shooter has the proper skill set.*** *It is far less expensive to teach a skill set than to equip shooters with a system they are unable to effectively use because they can't properly point the rifle and fire it without movement."*

— 1st Sergeant Scott Baughn
Former commandant of the 10th Mountain Division's Light Fighters School

Training is the one variable that the commander can control. An intense pre-deployment focus on developing the fundamental skills, stabilizing the designated marksmen in position, and a sustainment program focused on the designated marksman's advanced skills while deployed, are a must. Too often, Soldiers are selected as designated marksmen, sent to school for training and then return to their unit and assume other duties. In designing a sustainment program, the commander will need to overcome several institutional issues beyond stabilizing the Soldiers.

SSG Hawes outlined the following shortcomings: "Lack of marksmanship ability past 300m for which our standard weapons are zeroed at, lack of knowledge on how to engage or lead a moving or pop-up target, and angle firing." Each of these are difficult tasks for commanders to get at, in particular while deployed. Moving target ranges are not normally designed as rifle ranges. Ranges for angle firing from extreme elevations, such as rooftops or hilltops, are rarely available. Very few posts have more than one range designed to require Soldiers to engage targets between 300-600 meters, as frequently encountered in Afghanistan. Even fewer have

Figure 4 — Effects of Small Caliber Munitions Through Intermediate Barriers



a range designed for engaging small fleeting targets such as IED operators, suicide bombers, and enemy marksmen within 300 meters interspersed with noncombatants, such has often encountered in Iraq. With this in mind, institutionally we need to look at how our range complexes are developed and institute some of the lessons learned into their design.

Tactics

Failure to develop a sound set of operational tactics for the employment of the designated marksman will decrease his effectiveness.

First, the DM is NOT A SNIPER. Some of the skill sets are transferable, but the DM is not a sniper. Tactics are very complicated and vary by many factors based on the AOR and level of training of the unit. Doctrinally the few references available are in conflict.

The DM's role is well-defined in FM 3-22.9, *Rifle Marksmanship*: "The primary mission of the SDM is to deploy as a member of the rifle squad. The SDM is a vital member of his individual squad and not a squad sniper. He fires and maneuvers with his squad and performs all the duties of the standard rifleman. The SDM has neither the equipment nor training to operate individually or in a small team to engage targets at extended ranges with precision fires. The secondary mission of the SDM is to engage key targets from 300 to 500 meters with effective, well-aimed fires using the standard weapon system and standard ammunition."

Under this definition the use of a highly tuned precision rifle such as the USMC's SAM-R or the SOF MK12 SPR presents a risk. Is this rifle system the right thing to have in a Soldiers' hands when clearing buildings? Are the M14 based systems that are being promoted the right answer? Deployed as a member of the clearing squad, an M4 based solution would appear to be the better choice.

FM 3-21.9, *The SBCT Infantry Rifle Platoon and Squad,* states: "**Designated Marksman.** The designated marksman acts as a member of the squad under the direction of the squad leader or as designated by the platoon leader. Although normally functioning as a rifleman within one of the fire teams in a rifle squad, the designated marksman is armed with a modified M4, 5.56-mm rifle. He is employed at the direction of the squad leader or reorganized with the other squads' designated marksmen into a platoon sniper section. He is trained to eliminate high-payoff enemy personnel targets (such as enemy automatic rifle teams, antitank teams, and snipers) with precision fires."

Specialist Micah Clare

Balancing security with civilian interaction is key for units patrolling in Iraq.

This definition opens up the possibility for a different material solution. I disagree with the proposition that the DM is well-suited to countersniper/sniper duties. If, however, you accept the DM being consolidated at the platoon level, such as under the weapon squad leader, then different material solutions are possible. Use of the Javelin Gunners with specialized rifles, such as the MK12 or SAM-R, is one possible solution. DM's could then be task organized to support the squads, or remain under the control of the weapons squad leader to provide supporting fires and overwatch for the platoon. Other 7.62mm solutions such has the M14 Enhanced Battle Rifle or the Special Operation MK14 also have advantages that could also be explored.

Conclusion

The designated marksman is a great combat multiplier. Properly trained, equipped, and employed DM's are devastating to the enemy on the battlefield. If they are improperly trained or employed, they are just another guy on the battlefield. Does your unit need the latest **MATERIAL** advancement in Optics, Rifles, and Ammunition? Maybe. Will your **TRAINING** program alone allow you to dominate the battlefield? Maybe. Without sound **TACTICS** within which to employ your DM's, will you realize their full potential? No. Only by pursuing a balanced approach and fully examining requirements and committing resources to those requirements will you truly achieve MISSION SUCCESS — (Material x Training)/Tactics = Mission Success.

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