

Enabling Maneuver in Large Scale Combat Operations

Comms weaponry

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Napolean Bonaparte's quote, "The secret to war lies in communications," is no less true today than it was when he said it. Napoleon also believed that to have good soldiers, a nation must always be at war. For most of us in uniform today, we seem to fit that belief too. So, by now, as signal Soldiers of an Army geographically dispersed to more countries than we have states, we should be absolute experts in our craft and how to employ communications to those we support. But I don't think we are there yet.

There are some fundamental lessons we need to relearn in providing communications – lessons such as the Indo-Pacific Command theater and European Command theater are two very different environments with different communication needs. The Army of World War II understood this and capitalized on amplitude modulation (AM) and high frequency (HF) radios to enable island-to-island communication in the Pacific theater. Knowledge like this comes from understanding your equipment, understanding who and what you're supporting, and training to do it. To unlock the secret of war through communications, during large scale combat operations, signal Soldiers must train, be experts at understanding all parts of an operations order, and know how to support the scheme of maneuver through intelligence preparation of the battlefield (IPB).

Current View

Our current doctrine on Signal Operations, Field Manual 6-02, is maneuver-anemic and speaks to enabling different types of operations, enabling different types of formations, and to some extent the core competencies. In the signal professional military education (PME) courses, we teach high technical fidelity to the enlisted, and capabilities and interoperability to the officers. At no point do we teach how to overlay capabilities, technical expertise, and interoperability with the scheme of maneuver or the enemy situational template (SITTEMP), as determined through deliberate analysis or IPB. Being able to do those two things will be imperative to enabling command and control communications in a contested or congested areas of operation.

We do not teach emission control and concepts to improve survivability, but we do an excellent job at

teaching how to apply data and transmission systems per "x number" of users. A signal captain knows that a Command Post Node (CPN) provides data and voice for a certain number of people but does not know how to employ it against adversary sensors.

Army Techniques Publication 6.02.70, Techniques for Spectrum Management Operations, acknowledges facing a contested environment. However, the publication does not have any prescriptive or descriptive techniques for overcoming it. No signal doctrine or training publications mention how to combat or prepare for a contested environment. Until the Army publishes the next Total Army Analysis and Army Structure Memorandum, and signal companies remain at the brigade combat team level, signal Soldiers will remain a low density specialty. This makes the conversation for training space a difficult conversation.

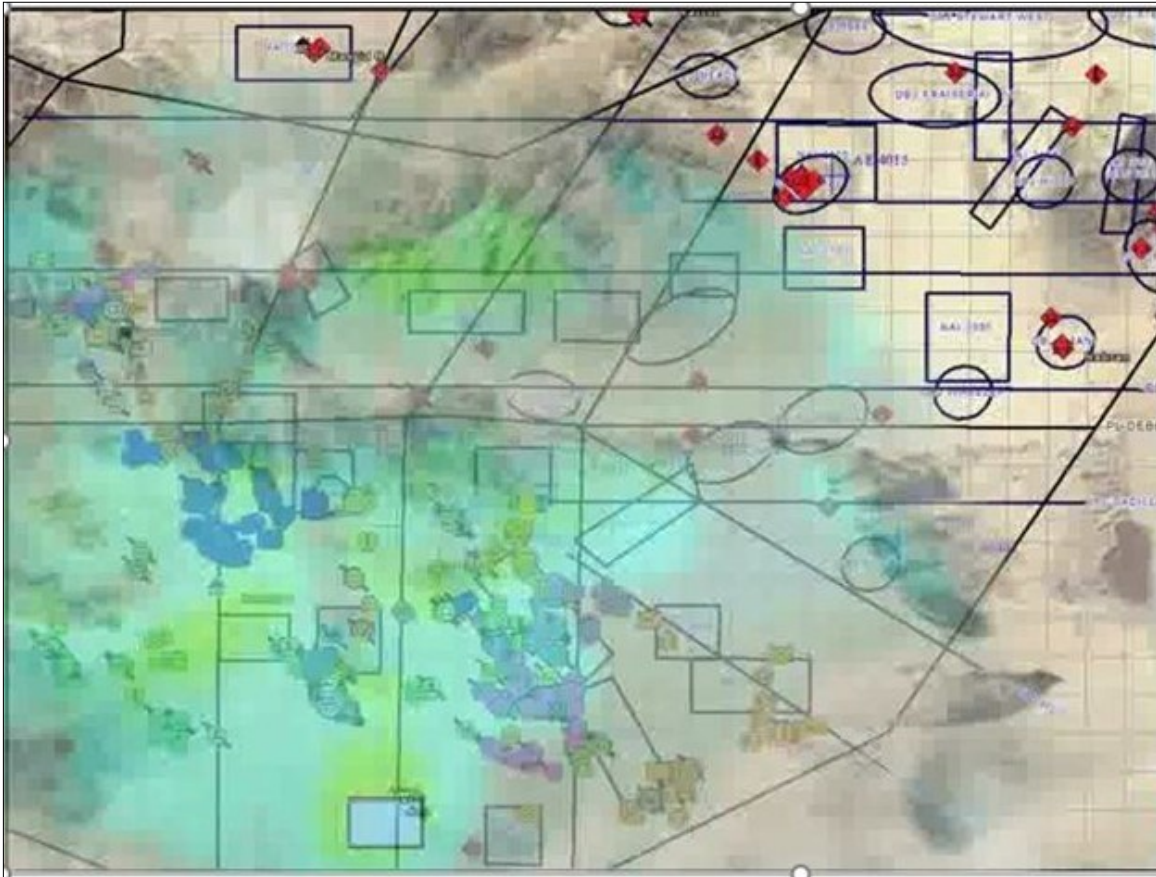
Signal leaders must be able to articulate to their supported maneuver command teams the need for training space. This needs to be a conversation of risk and survivability. The maneuver world is associated with risk and risk mitigation. The signal world is associated with capability.

Signal leaders must develop the skills and understanding of how properly employed capabilities will mitigate maneuver risk, and then articulate that risk to the commander with a followed discussion of training required to accomplish that level of enabling.

Evidence to the Case

Combat training centers (CTC) are often viewed as the Super Bowl for a unit and provide the guiding metric for the commander and staff evaluations. More and more, during the after action review, the opposition forces at CTC are showing units how signal emissions led to catastrophic lethal effects. This happens at the National Training Center and Joint Readiness Training Center.

Blackhorse and Geronimo will use sensor data to find, fix, and finish rotational unit elements. However, units do not receive a grade on how often the signal officer got Soldiers killed through lack of emission control. Or, in rare instances, units also do not receive a grade on how they leveraged the Spectrum Manager and Cyber Electromagnetic Activities (CEMA) Cell for survivability. Units are graded on other categories, and this goes largely unnoticed. Outside of training, we see lack of emission control exacting a heavy toll on forces.



Sensor data from a 2020 rotational unit at the National Training Center. Signal emissions are clearly observable by opposing force sensors.

In 2020, the world watched the renewed Nagorno-Karabakh conflict between the two caucas countries of Armenia and Azerbaijan. Lessons learned in the aftermath of that conflict demonstrated the Azeri use of electronic warfare (EW) sensors on drones to enable over the horizon artillery reconnaissance. The EW sensors detected radio emissions from Armenian soldiers, allowing Azeri artillery to fire on their position in minutes. In many instances, the Armenian units did not have time to displace before artillery arrived. A quick google search for “Ukraine War and Electronic Warfare” will deliver hundreds of articles on how Ukrainian and Russian armies are using EW sensors to find, fix, and finish command and control nodes. This is forcing both sides to become smarter on how they conduct signal operations within the proximity of rolling sensors and ariel sensors. As the use of the sensors evolves, so does the method of communication.

Closing the Gap

Closing this gap is easier said than done. That is the case with many things in the Army. Some of this will require a shift in culture. Closing any gap will start with a Functional Needs Analysis. Are maneuver commanders getting what they need from signal enablers? Without going down the entire road of Functional Solutions Analysis and DOTMLPF-P, which will need to occur at some point, we can simply focus on the L: Leader development.

Leader development is where the Signal Corps can begin to address this gap. Signal leaders need to exist beyond their comfort zones of the S6 and move into areas where other staff sections are discussing maneuver. This will require Signal leaders to move beyond the basic understanding of maneuver doctrine to analyze how signal capability will create better maneuver through reliant communications in contested areas. After all, don't we want leaders with high access to Blooms taxonomy, addressing interesting problems in complex environments? Since we do not teach this in doctrine or PME, signal leaders will have to seek this self-development. This can come in the form of self-study and digging into doctrine to understand maneuver, RF propagation, and adversary capability. Leadership development can also come in the form of signal leaders having the candid conversation with the operations officer and commander on what true maneuver enabling looks like in a contested environment and how to overcome it.

Understanding that using the electromagnetic spectrum (EMS) to enable command and control is still a form of maneuver. Signal leaders will need to understand how terrain can be your friend to makes your EMS signature, or terrain can be an obstacle to your enabling. Signal leaders need to know how they look in the EMS when they use certain assemblages, just as a tank commander knows what his silhouette

looks like in an urban environment. Signal is not a maneuver career management field, but we must understand that signal operations are maneuver signatures in the EMS. Signal leaders will require training time to finely hone techniques for EMS maneuvering.

Signal leaders will need to articulate to commanders the need for training space so signal Soldiers can practice or develop techniques for signal operations in a contested environment. Developing a signal force capable of enabling maneuver through low probability of detection (LPD) almost makes the signal force a force multiplier. Electronic contact is one of the 11 forms of contact in doctrine. LPD is just as it sounds and prevents electronic contact by sensors. In the Ukrainian War, Ukrainian and Russian elements are using LPD methods to prevent electronic detection until the last possible moment – the “don’t shoot until you see the whites of their eyes” metaphor, but in the electromagnetic spectrum. This allows a certain freedom of movement; it also restricts the amount of data passed. Fighters developed some of these methods through hard-won trial and error; they developed other techniques through training and leader development.

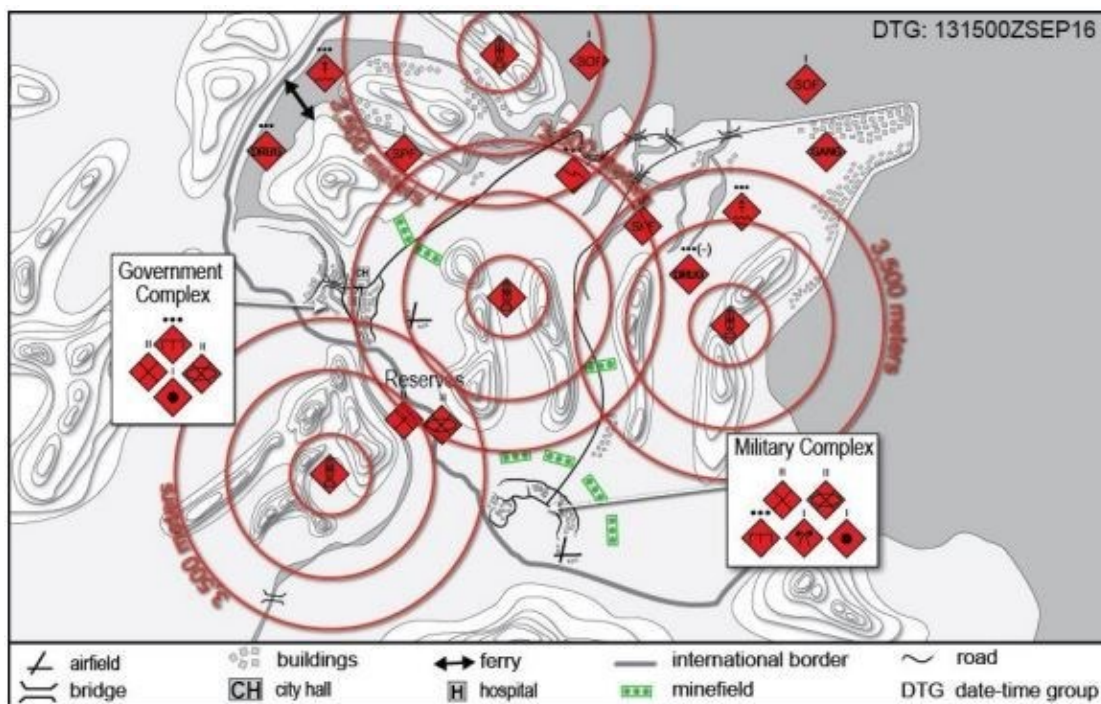
Directional antennas, only transmitting during certain time windows, and rotating your communications plan daily are all very easy ways to remain LPD. The Cold War Army had many emission control and LPD techniques. Signal field craft from the Cold War era is a good place to start with training, coming back around to proper camouflaging of systems, developing signal operating instructions, and using VHF radio etiquette. Understanding how to use HF Radios with directional

antennas will allow low probability of detection for Fires. Knowing how to use the military crest and correct antenna height on re-transmission stations will aid in masking from adversary sensors. Using high bandwidth assemblages with directional antennas for upper tier communications, such as the high capacity line of sight, will reduce detection. These methods are almost completely foreign to leaders born into the digital generations or leaders developed during the Global War on Terrorism. These practices are not restrictive either. Out-of-the-box analysis and evolving techniques will help enhance survivability against evolving sensors.

Communication is the Secret

Communication will always be the secret to war. Subordinate units can only fight the plan and seize the initiative for so long before they need further command and control guidance. It is simply the history of warfare. But, as wars in the 21st century progress, the army with the best communicators, that understand adversary sensors and doctrine, will be the army with an asymmetric advantage.

Everyone must be an expert in their portion of the profession of arms. Leaders and Soldiers must know how they fit into the puzzle and also know how their piece directly affects all of the other pieces. That will give the Army a decisive and asymmetric advantage. For the Army to have that advantage, our signal leaders must train, change their culture, understand enemy SITTEMP, and enable maneuver with a low probability of detection. This begins with addressing the knowledge gap in leader development.



Enemy Situation Template example from ATP 2-01.3 Intelligence Preparation of the Battlefield, March 2019.