Cold War Era TTPs for Reducing EM Signature

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This article was written in response to Nick Baker's article, "Less is More: Communications, Mission Command, and Survivability in the Future Operating Environment," featured in the Harding Project Substack.

The Soviet military had robust radio direction finding (RDF) and electronic warfare (EW) units fielded down to division and regimental levels. Our light infantry commo tactics, techniques and procedures (TTPs) assumed that our electro-magnetic (EM) signature, if not carefully managed, would bring down a battery of six BM-21 Katyushas on our grid square. The TTPs outlined below were all based on using the PRC-77 and PRC-68 single-channel very high frequency and frequency modulation (VHF/FM) radios and the KY-57 secure device. Light infantry companies did not have frequency-hopping or satellite communications (SATCOM) radio capabilities in the 1980s.

Technique No. 1: The use of codewords and operations schedule (OPSKEDS), checkpoints during movement and keeping radio transmissions brief was standard operating procedure (SOP) during daytime. Any station broadcasting for more than 30 seconds at a time received a "nasty-gram" radio call from the net control station battalion tactical operations center (TOC) or the battalion commander.

Technique No. 2: Since we mostly moved on foot once inserted into the operational area, we were continually aware of the topography and cognizant to use terrain masking as much as possible.

Technique No. 3: In the defense, all units went to radio listening silence until contact was made with the enemy. The battalion commo platoon placed WD-1 commo wire from the battalion TOC to the company command posts (CPs) and battalion mortars. If time and resources permitted, they laid wire to the direct support (DS) artillery battalion fire direction center (FDC). The commo platoon had Kawasaki KL-250 motorcycles with reels on the back to speed up placing wire. Each company was responsible for laying wire from the company CP to

U.S. Army Maj. Richard Eaton and Staff Sgt. Carter Nichols, electromagnetic warfare Soldiers assigned to 25th Infantry Division, operate a Terrestrial Layer System (TLS), manpack during an Operational Spectrum Comprehension Analytics and Response (OSCAR), jamming simulation in support of the Joint Pacific Multinational Readiness Center Exportable (JPMRC-X), at Fort Magsaysay, Philippines, June 5, 2025. ***(U.S. Army photo by Sgt. Brandon Roland)***

the platoon CPs, the company mortars, squad leader positions and observation posts (OPs) forward for the defense. We used the TA-312 telephone at the company CP; rifle platoons and company mortars used the TA-1. The commo wire was considered an expendable item, so if we had to move quickly without picking up, it was not going to generate a report of survey (today it is a Financial Liability Investigation of Property Loss, or FLIPL). Of course, in training, we did pick up the wire! Also, our battalion commander (3rd Battalion, 327th Infantry, Fort Campbell, Kentucky) reassigned two commo platoon motorcycles to each rifle company to use as another means to communicate without using radios. Perhaps with today's modern equipment, using fiber optic cable instead of WD-1 commo wire might be worthy to think about to bring back the use of hand-held telephones, which would reduce EM signature.

Technique No. 4: The other item of equipment we used was the AT-984 directional antenna for the PRC-77 radio. Each company had two of these antennas on its Modified Table of Organization and Equipment (MTOE). We set up this antenna for the battalion command net radio and the battalion Administrative/Logistics (A/L) net radio to reduce EM signature once contact was made. We aimed these antennas in the direction of the battalion TOC and the battalion trains; they reduced our EM signature by only transmitting 15 degrees left or right of the azimuth and did not send any EM signal in the enemy's direction.

Question: *Can anyone tell me if this technique will work with today's modern radios at the rifle battalion level and below? I have asked several signal officers over the past couple of years but have not received a conclusive answer.*

Technique No. 5: This night and limited visibility infiltration attack TTP was based on operating in restrictive terrain like heavy woods, jungle, swamp, etc. Today, with ubiquitous enemy small unmanned aerial system (sUAS) and intelligence, reconnaissance and surveillance (ISR) coverage, this may not be as effective but might offer some mitigation from observation in heavily wooded or jungle areas. Back then, light infantry companies had limited night vision capability compared to today. Each rifle platoon only had two PVS-5A night vision goggles (NVGs) and PVS-4 night sights for each of the two M60 machine guns and one per rifle squad. The battalion scouts had two PVS-5A NVGs per scout squad. Twenty-four hours prior to the attack, battalion scouts conducted route reconnaissance from the assembly areas to the platoon assault positions (last covered and concealed position prior to commencing the assault). The scout platoon provided guides to the infantry units to move into position. When rifle companies left the line of departure, the company commander's assistant radio-telephone operator (RTO) connected to a TA-1 handheld telephone and had a donut roll on his back, reeling out single strand commo wire, which we called "assault wire" (not double strand like the standard WD-1 commo wire) that went to the battalion commander's RTO. The company commander's primary RTO carried the PRC-77 in radio listening silence mode until contact was made with the enemy. At the platoon release point, the platoon leader's RTO had the same type of wire donut roll to maintain connection back to the company commander. When I was a platoon leader during these missions, I carried the radio. This technique allowed the main elements of the battalion to stay in contact and move into the assault position without an EM signature.

Mitigating effects of Electro-Magnetic Pulse (EMP) from a tactical nuclear weapon The last technique I'll discuss was our SOP for ensuring that at company-level, we would have at least one PRC-77 radio survive Soviet use of a tactical nuclear weapon. Back then, the PRC-68 squad and team leader radios were so horrible that they were virtually useless unless conditions were perfect. We were lucky to get them to work at 500 meters, much less at their advertised 3-kilometer range. Also, a rifle company only had 13 PRC-77 radios. The basis of issue was two-per-rifle platoon, two-per-company mortars, two for the company commander (company and battalion net), one for the executive officer (XO), one for the first sergeant and one spare. The spare radio—with its associated KY-57 secure device—was put into an empty 20mm ammo can to make a field expedient Faraday cage. The radio was turned off, and the battery was not inserted. This ensured one radio survived for the company commander to be able to communicate to the battalion commander after a detonation that affected the battalion area.

I hope you found this article interesting. I realize the severity of enemy EW and UAS threats are much greater today than when I was a company-grade officer training to fight against the Soviet army. Today, the U.S. Army is developing better capabilities to deal with those threats. I challenge you to think broadly about how you and your unit will develop your own TTPs to increase survivability on the modern battlefield.

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