

# Marines Test Tactical Force Field

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The concept of an energy-based defensive force field has been in the subject of popular science fiction for decades. In 1942, author Isaac Asimov posited such protective screens in his book [\*Foundation\*](#). This past week, the Marine Corps Warfighting Laboratory (MCWL) turned the bold idea into reality. In the Central Highlands Training Area, Marines successfully tested a highly classified, energy-based force-field for perimeter defense.



The Tactical Force Field System (TFFS) was tested in two phases under realistic battlefield conditions. At first, TFFS repelled small arms fire, rocket and mortar attacks and even shielded sensitive electronic systems from enemy jamming. In the second phase, a simulated urban riot, TFFS provided a mild repellent to humans as they approached the Marines' position, forcing them to back away without permanent harm. Role players used improvised weapons, using picnic tables for battering rams while hurling rocks and "Molotov cocktails," all without success. Marines inside the perimeter stayed alert but conducted their daily routines. One Marine was overheard saying, "This is some good sh\*t - I can still go to the gym while those knuckleheads are trying to kill us."

MCWL's Commander, Brigadier General Christopher Wood, echoed that Marine's sentiment. "TFFS was an overwhelming success today and none of this would have been possible without the great ideas from the operating forces." One decade ago the Navy and Marine Corps put service competition aside, and

committed to share information and become true learning organizations. Much great Navy work on directed energy systems for shipboard use was shared with the Marines, where they in-turn repurposed the technology to our needs.

Wood said when he assumed command at MCWL that the first thing he did was conduct an honest assessment of what had worked, and what had not, in our last few combat operations. He admits while the Marines fought with valor, the military was not effective in achieving political objectives. "So what can we do better or differently to prepare for the future?" As a student of history, Wood reflected back to the Viet Nam and Iraq Wars for the ideas which eventually became TFFS.



In September 1967, Secretary of Defense McNamara announced plans to construct an electronic anti-infiltration barrier below the Demilitarized Zone. The success of the 1950s' "Morice Line" in Algeria motivated US planners to study several concepts to stop infiltration between North and South Vietnam. Many plans called for using existing technology in the form of mines, pits, wire and other physical obstacles.

McNamara insisted the barrier integrate state-of-the art electronic devices as well.

The initial concept, the so called "McNamara Line", was to be 10 miles deep and 160 miles long. Admiral U. S. Grant Sharp, then Commander-in-Chief Pacific Command, resisted on logistic and operational grounds. McNamara, to develop this concept, enlisted the support of The Jason Group, an elite (and controversial) research arm of the MITRE Corporation. The Jasons recommend using 240 million gravel mines, 300 million button bomblets, 120,000 cluster bombs and 19,200 acoustic sensors (modified land versions of navy sonobouys) for the barricade.

In early 1968, electronic sensors were deployed around the Marine base at Khe Sanh. Initially, the Marines resisted integrating technology into the defense in favor of more active patrols. However, throughout the 77-day siege, the sensors provided valuable real time warning of enemy troop movements, up to 100 alerts per day. Colonel David Lownds, commander of the 26th Marine

Regiment, estimated that friendly casualties at Khe Sanh would have doubled if not for the sensors.

To support the McNamara Line, the Marines established the 1st Searchlight Battery. The unit used xenon arc and infrared technology to illuminate static defenses for fixed bases at Da Nang and Dong Ha, and later elements were attached to riverine and even ground units. Searchlight capabilities effectively detected targets at night, which were subsequently engaged with indirect or small arms fire.

A generation later, after countless attacks on forward operating bases in Iraq, the US military developed the Counter Rocket, Artillery, and Mortar system (C-RAM). The C-RAM program was to develop, procure, field, and maintain a system-of-systems to detect rocket, artillery, and mortar launches; provide local warnings to the defended area in sufficient time for personnel to take appropriate action; intercept rounds in flight, preventing damage to ground forces or facilities; and enhance response to and defeat of enemy forces.

General Wood noted he studied these historical examples to show the military can adapt when it needs to. But he argued we also need to spend more time examining the future battle space and to anticipate operational demands – not just buy expensive programs to fight yesterday's wars and for adversaries which don't exist.

While elated by today's successful demonstration, Wood cautioned it was very difficult to get to where we are today; reform was badly needed. "Despite all the hype about Better Buying Power 17.0, the acquisition process is still hindered by excessive oversight and non-value added paper work; Congressional penny-pinching makes developing innovative programs difficult. McNamara may have thought of the electronic line of defense but he also burdened us with the antiquated PPBES system of today."

Wood concluded by saying the Marine Corps is never satisfied with success and continuously tries to improve. "We are already working on reducing the size and cost of the TFFS and we hope the next version will be cheap enough and light enough to mount on our vehicles. This would allow us to drive through

dangerous urban areas and conduct a variety of missions in a relative safe zone.”

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