

4-3 ADA ADADO Section Answers a Burning Question:

How Could 4-3 ADA Cover the 1st Infantry Division's Battlespace In Iraq With Only Six Sentinel Radars?

by 1LT Alex Sherman

For the 4th Battalion, 3rd Air Defense Artillery, 1st Infantry Division; the journey to Tikrit, Iraq, began in the freezing temperatures of Kitzingen, Germany. While most 4-3 ADA Soldiers were preparing to undertake an infantry mission for Operation Iraqi Freedom, the Assistant Division Air Defense Officer (ADADO) section was busy formulating a radar plan to cover the division battlespace.

As the 4-3 ADA's Avenger and Bradley Linebacker crewmembers conducted convoy live-fire exercises during the 1st Infantry Division's Warfighter Exercise, the air defense tactical operations center operators in the division's ADADO section searched for an answer to a single burning question, "How would 4-3 ADA cover the division battlespace in Iraq with Single Channel Ground-Air Radio Systems (SINCGARSS) and only six Sentinel radars?"

Staff Sergeant Anthony Jones and CW2 Marcus Hicks, the battalion's command and control system technician, devised a possible solution. The radars would have to be linked by a Secret Internet Protocol Router Net (SIPRNET) and Central Processing Unit (CPU) to broadcast a common picture. However, in the early stages it was only a theory. Staff Sergeant Jones and CW2 Hicks made several trips to the 69th Air Defense Artillery Brigade in Giebelstadt, Germany, to test their theory.

"With Iraq being so large, we knew we were going to need a reliable system to transfer data over wide spaces," SSG Jones said. "The 1st Infantry Division does not possess EPLRS [Enhanced Position Location Reporting System] radios, and SINCGARS just doesn't have the range we needed."



SSG Anthony Jones and CW2 Marcus Hicks used a Secret Internet Protocol Router and Central Processing Unit to link 1-62 ADA Sentinel Radars.

The 4-3 ADA had used a technique called "sensor chaining" during its deployments to Kosovo. Sensor chaining uses SINCGARS radios to pass data from radar to radar. The drawback with sensor chaining is data can only travel in one direction and a consolidated air picture is not produced. According to SSG Jones, it was not the ideal method to use in Iraq. "If we used sensor chaining," he said, "we would not have a combined operational air picture, and we wouldn't be able to see all the radars at one time."

So, the duo came up with a plan to broadcast the air picture over the SIPRNET. The technique, known as radio elimination mode, was something they had never seen work. "I first learned about radio elimination from Dan Bobitz, a Northrop Grumman contractor. He told me the 10th Mountain had been successful with radio elimination mode in Afghanistan," said SSG Jones. "10th Mountain faced similar challenges linking Sentinels that were positioned great distances apart, and they did it very successfully with radio elimination mode."

The first tests of radio elimination mode took place January 2004, at the 69th ADA Brigade motor pool. "We just wanted to test our theory, and the results were very positive," said Hicks. These tests were extremely important because the next time these radars were emplaced would be in a combat situation. The ADADO section teamed up with CW2 Richard Velez, the 69th ADA Brigade command and control technician, to test their theory. This was a very important rehearsal for 4-3 ADA's radar plan, which would be put to an even harder test in the deserts of Iraq.

Two months later 4-3 ADA was deployed at Forward

Operating Base Danger in Tikrit, Iraq, and was working its way through the first month of a 12-month deployment in support of Operation Iraqi Freedom. After a deliberate relief in place with the 4th Infantry Division, it was now time to test radio elimination mode in the desert.

"At first there was some doubt as to whether or not radio elimination mode would work," said CW2 Hicks. The 4th Infantry Division had been equipped with EPLRS radios; therefore, they never had the need to find an alternate way to pass data. Some were skeptical about the 4-3 ADA approach, but the ADADO section drove on with their original plan. Once again, the first test would be to link the radars in the Forward Operating Base Danger motor pool.

"All the Sentinel sections were trained on the procedures to enter the proper IP [Internet protocol] addresses and standing operating procedures for radio elimination mode," CW2 Hicks said.

Along with the training, an operator standing operating procedure (SOP) containing basic operations and trouble shooting procedures was developed and issued to all the Sentinel sections. This SOP was important because it would allow the operators at remote locations to fix minor problems by themselves. The test was conducted and once again was successful. Now the ADADO section knew their plan would work, and the 4-3 ADA chain of command agreed to put it into action.

The next step was for the radars to move into positions across the 1st Infantry Division battle-space. Once this was complete, the radar sections again followed their SOPs and entered their designated Internet protocols. The result was just what the ADADO section had hoped for: a consolidated air picture that could be displayed inside the division and brigade tactical operation centers. The system was also very reliable, and as long as the SIPRNET was working, the radars' tracks were passed.

According to SSG Jones, "pushing data over the SIPRNET is preferable to SINCGARS for several reasons. When you are deployed for over a year, the harsh environment puts a beating on the equipment. Also, the G-6 element has better resources for troubleshooting the equipment and keeping the SIPR running."

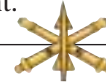
In other words, you don't have to worry about your signal going down every time a windstorm blows over your OE-254 antenna retransmission site. Fewer problems also mean fewer trips out for repairs and less exposure on the roads to ambush and deadly roadside explosives. This is not only a common sense approach; it is an approach that puts a significant emphasis on safety.

"Radio elimination should be the new standard for providing a consolidated air picture," CW2 Hicks added. "SINCGARS radios are very susceptible to external conditions, and when they go down you have to worry about providing maintenance. With radio elimination mode, when the SIPR is up, you know that you are going to be good."

Last fall the ADADO shop was given the mission of providing a consolidated air picture of the 1st Infantry

Division battle-space. They knew covering a widely dispersed division sector, in a hostile environment would be a challenge. They worked through every aspect of the problem and came up with a solution they believed would meet the challenge. They tested it and re-tested it, and met the mission requirements when it mattered most—in the deserts of Iraq and during combat operations.

"In the future, pushing data through the SIPR needs to be the mainstay," SSG Jones said. "It is easier to maintain, and more efficient."



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SCANNING

1-3 ADA at Al Kifi

On 24 March 2003, SFC Matthew Gruidl, 28, received orders to take his platoon to the town of Al Kifi and guard a bridge. Army commanders believed Iraqi fighters were crossing the bridge en route to ambushing U.S. soldiers camped further south in the desert. "We wanted to stop it so no traffic comes across the bridge," Gruidl said. Gruidl led his 10 Bradley Linebackers to the city. When the convoy got halfway down the main street through the center of town, rocket-propelled grenades and rifle fire started flying at them. It was an ambush. "We weren't able to fight through it because civilian vehicles were coming at us with RPGs," Gruidl said. "We couldn't tell what we might run into up ahead." Gruidl and his platoon leader pulled the convoy out. They assessed the damage and realized no one was hurt and no Linebackers were destroyed. They called in artillery fire for backup.

For the next four and a half days, Gruidl's platoon fought. They rarely slept because attacks came constantly. Iraqis fought by driving civilian trucks and vans toward the Linebackers. "I'd light up a truck with a .50-caliber and stop it, and another would come right behind it," Gruidl said. SPC Ron Liner remembered a sandstorm that made it hard to see the enemy. Because of the constant barrage of enemy attacks, they didn't sleep, he said. "With all of the adrenaline going, you stay awake," Liner said. The Linebacker platoon finally got reinforcements on the fifth day. Tanks and Bradley Fighting Vehicles and U.S. Air Force jets helped take control of the town. However, there was little time to rest. Missions kept coming. When Gruidl and his soldiers talked about the Al Kifi battle over the weekend, circles ringed their eyes. They said they've gotten little more than four or five hours of sleep at a time since the war began. Now, they're spending time escorting supply convoys to and from Baghdad International Airport. Most of those vehicles—fuel trucks, cargo trucks and Humvees—have little protection, so they need the firepower of the Linebacker crews.

The air defense crewmembers believe they adapted well to their new role in the war. "I think we did it above and beyond," SPC Sherman Barto said. "We were finally given a mission, which is what we always wanted."

—Noelle Phillips, Savannah Morning News, 9 April 2003