

# Army and Industry Working OT to Supply Improved Tactical Headsets for Troops in Iraq



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*The Improved Tactical Headset (inset) protects Soldiers' hearing and allows them to communicate in the high-noise environment of the M1114 up-armored HMMWVs (High-Mobility Multipurpose Wheeled Vehicles) and other light tactical vehicles being used by the Army in Iraq.*



FORT MONMOUTH, N.J. – Maj. Ron Claiborne has a pretty good idea how Santa Claus feels this time of year.

Like the jolly fellow up at the North Pole, Claiborne gets mail every day asking him to please provide a certain something. In Claiborne's case, he is not being asked for toys – he is being asked for more Improved Tactical Headsets (ITH) – as many he can get his hands on, as quickly as possible.

The Improved Tactical Headset is designed to protect Soldiers' hearing and to allow them to communicate in the high-noise environment of the M1114 up-armored HMMWVs (High-Mobility Multipurpose Wheeled Vehicles) and other light tactical vehicles being used by the Army in Iraq.

"I get e-mail or phone calls almost every day from Soldiers - and even from parents of Soldiers," said Claiborne, who is the Army's Assistant Product Manager, Vehicular Intercommunication Systems (APM VIS), with the Project Manager, Defense Communications and Army Transmission Systems (PM DCATS), here. "They're all asking for headsets for use in convoys in Iraq."

Lately, though, Claiborne has felt more like Scrooge than Santa, as the Army struggles to acquire sufficient quantities of the improved tactical headsets, which are being manufactured by Bose Corporation under a subcontract with Northrop Grumman Corporation. The hurdle is that the Improved Tactical Headset is a completely new, revolutionary design that is being rushed into production to satisfy the Army's needs in Iraq.

"The Army had not planned on needing the new headsets until sometime in late 2005," said Claiborne. "But we don't have the luxury of waiting for our original planned production date – we have Soldiers in Iraq who need these headsets *now* - so Bose is working with us to produce ITHs on an accelerated production and delivery schedule. Bose has been tremendous in working with the Army to get their product into the field. They've even added a second shift at Northrop Grumman's and the Army's request."

Claiborne said there are "around 2,000" ITHs currently fielded – all in Iraq - and that Bose is currently able to produce between 125 to 400 ITHs a week.

"Our goal is to get production and fielding up to between 500 to 700 ITHs per week by the end of January," said Claiborne. "Then, after we satisfy all requirements for M1114 HMMWV headsets in Iraq, we hope to be able to field them to the rest of the Army beginning in July 2005."

Why such a clamor for the ITH? Claiborne points to its features. Designed to fit under the standard U.S. Army Personnel Armor System Ground Troops (PASGT) helmet and the newer Advanced Combat Helmet (ACH), the ITH provides hearing protection through both active and passive noise reduction technologies and enables Soldiers to communicate in the high-noise environment - up to 95-plus decibels (dB) – typical of the M1114 up-armored HMMWV.

“The ITH is based on the same active noise reduction technology Bose uses in their consumer headsets,” said Claiborne.

Claiborne added that Soldiers can wear the ITH for extremely long periods without discomfort because of the reduced clamping force on users’ ears and its light weight – it weighs only about 16 ounces. Additionally, he pointed out that Bose also has a special patent on ear cushion material, which further increases comfort.

## **Feedback from Soldiers in Iraq**

Claiborne said that the ITH will be replacing nearly 15,000 “emergency issue” Interim Headsets (IH) and older models currently in use. Soldiers of the 1st Cavalry Division deployed to Iraq have had mixed feelings about the “emergency issue” Interim Headset.

“I don’t like it (the emergency issue Interim Headset), it’s uncomfortable under the helmet,” said Sgt. 1st Class Jamie Favreau, “and it’s only over the left ear so I can’t listen to the other radio.”

“With the wires dangling, you can’t get it off quickly enough to dismount,” said 2nd Lt. Guy Malatino. “We need something you can just pop off to dismount.”

“It’s too bulky under the Kevlar (helmet),” said 1st Lt. John Shaeffer, about which Staff Sgt. Dawn Hodges agreed, though he added, “the two times we did use it, it worked well.”

Sgt. John Blair, though, gave the interim headset high marks.

“I love it,” said Blair. “We used it once and we were sold on it. In an AAR (after action report) the lieutenant asked what the troops thought about it, and they said ‘Yeah!’ The first time Soldiers use it, that’s what they want. HMMWVs don’t muffle very well - plus the armor holds the noise inside - plus there’s noise from weapons - but we can communicate clearly with the headset.”

Blair told how the headset allowed his unit to maintain communications when their convoy was ambushed.

“The second time we were on a convoy, coming back from Tajii, we were ambushed from above and behind - armor piercing bullets - and we were able to communicate throughout the firefight,” said Blair.

Claiborne said that the Improved Tactical Headset will go a long way towards solving the shortcomings of the Interim Headset.

“The ‘emergency issue’ Interim Headset doesn’t provide any hearing protection from the noise in the M1114 HMMWV,” said Claiborne. “The Army’s goal is to replace every Interim Headset with the new ITH so that the soldiers have adequate safety and protective equipment and reduce hearing loss medical claims.”

Also, he said, the new ITH can be put on or quickly removed without requiring a soldier to remove their helmet – “this is an absolute requirement for soldiers who might have to quickly dismount from their HMMWV for combat or security operations,” said Claiborne.

He cautions, though, that whether Soldiers have the Interim Headset or the Improved Tactical Headset, they must ensure their helmet is adjusted for a correct fit before putting on the headset.

“You can’t wear the helmet like ‘Sarge’ or ‘G.I. Joe,’” said Claiborne. “For either headset to fit properly and provide the most comfort and functionality, the headband in the helmet and all of the support straps need to be adjusted properly for a correct fit.”

Claiborne said that he also has feedback from Maj. Matt Paige, the Project Leader for the M1114 Up-Armored HMMWV, who was on temporary duty in Iraq.

“Paige said that every Soldier he spoke to who had the Improved Tactical Headset had only positive things to say,” said Claiborne. “The Soldiers told him the ITH is very comfortable, and does a great job in canceling out background noise and allowing them to communicate. One M1114 crew told him they were wearing the ITH when a tank was operating nearby, and the M1114 driver was not only able to keep in constant contact with the gunner through the headset, but that the headset canceled out almost all of the background noise from the tank. Prior to getting the improved tactical headset, the driver or vehicle commander wouldn't have been able to communicate with the gunner in a safe manner because of the tank turbine engine noise levels.”



At the U.S. Military Academy, West Point, N.Y., Cadet Jon Wertz wears the Improved Tactical Headset (ITH) in the sound chamber which he and fellow Cadet Edward “Flip” Klein used to test the effect of noise cancellation on sound localization, comparing the ITH to the Interim Headset.

## West Point study

The effectiveness of the Improved Tactical Headset's active noise reduction technology was supported by a study completed in early December by Cadets in the Engineering Psychology department of the U.S. Military Academy, West Point, N.Y.

Cadets Edward “Flip” Klein and Jon Wertz, under the leadership of research coordinator Maj. Dan Smith, studied the effect of noise cancellation on sound localization, comparing use of the Interim Headset with the Improved Tactical Headset. Their study subjects were 21 undergraduate cadets, ranging in age from 18 to 22 years old.

In a sound chamber, Klein and Wertz set up eight speakers in a five-foot diameter ring; placed at ear level every 45 degrees. They played the sound of

95 dB HMMWV vehicle noise, and tested each subject's ability to localize the sound of AK-47 gunfire.

Klein said they conducted their study with the “talk-thru” feature enabled in the Improved Tactical Headset, which allows binaural (stereo) monitoring of ambient noise.

“Because the Interim Headset has only one ear cup, Soldiers must use an ear-plug in the left ear,” said Klein, “Which they often don't do in a ‘real-world’ convoy, both because it is uncomfortable for extended periods and because it effectively mutes hearing in that ear.”

“The study supported our hypotheses, which were based on signal detection and sound localization theory,” said Wertz, “that the Improved Tactical Headset allows Soldiers to better localize the direction of exterior sounds – in this case, AK-47 gunfire – although there is a degree of typical front-rear confusion.” He added that they have a statistically significant confidence in their results of greater than 95 percent.

“In practical terms, this means a soldier wearing the new ITH headset has a better chance of identifying the direction of incoming sniper fire than a soldier wearing the older Interim Headset,” said Claiborne.

Claiborne suggested that the Cadets possibly do further study – “we've been considering adding an ambient noise amplification, or ‘bionic hearing’ feature to a variant of the ITH,” he said. “We've also had a number of requests for a wireless version.”

Smith, Klein and Wertz are planning more experimentation with the ITH for the Spring semester. “The bottom line for now,” said Smith, “is that the Improved Tactical Headset protects

Soldiers' hearing, enables intra-vehicle communication and increases Soldiers' ability to localize sound, such as gunfire."

So how do all the Soldiers and units out there clamoring for the Improved Tactical Headset get it for their up-armored HMMWVs?



Cadets Jon Wertz (left, wearing Improved Tactical Headset, ITH) and Edward "Flip" Klein studied the effect of noise cancellation on sound localization, comparing use of the Interim Headset with the ITH at the U.S. Military Academy, West Point, N.Y.

"The Light Tactical Vehicle PM who's fielding HMMWVs has the bumper and serial numbers of each M1114 that has the Interim Headset and will replace it with the ITH as soon as we can get them sufficient quantities to do so," said Claiborne.

Claiborne said that some units have just begun getting the ITH as "part of the package" when they receive a brand-new up-armored HMMWVs directly from the fielding location in Iraq; other units with light tactical vehicles other than the M1114 must provide the funds themselves for Vehicle Intercom System (VIS) kits – which include a master control station, two crew stations, mounting hardware, special connectors and cables and, typically, three headsets per vehicle.

"Resourceful units are planning and budgeting to upgrade their Vehicle Intercom Systems from the older (AN/VIC-1) systems – which do not support the newer headsets or active noise reduction – to the newer (AN/VIC-3) system using 'reset' funds after they redeploy from Iraq or Afghanistan," said Claiborne.

*For information about availability or technical characteristics of the Improved Tactical Headset or Vehicle Intercom System, contact Maj. Ron Claiborne at (732) 532-5415 or [Ronald.Claiborne@us.army.mil](mailto:Ronald.Claiborne@us.army.mil).*