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APM-CCTT STATUS REPORT

Close Combat Tactical Trainer Test

Ms. Vanette Johnson

In FY99 the Close Combat Tactical Trainer (CCTT), low rate initial production contract, was successfully tested and fielded in two of its fixed sites and Mobile sets. Production Verification Test (PVT) was performed at Ft Knox, Ft Benning, and Leesburg, SC. During each PVT troops were brought in to train for a full week in the system, providing the opportunity to validate the system's base functionality. As part of the full production contract for FY00 PVT will be conducted at Ft Stewart (March 20-24), Ft Hood II (May 22-26) and Mobile CCTT at Smyrna, TN (18-22 Sept). A Follow On Test and Evaluation (FOTE) will also be conducted by the Army Test and Evaluation Command (formerly OEC) at the Ft Benning facility during the third quarter of FY00.

FACILITIES

Mr. David Meyers

FT Stewart

The installation of Fort Stewart CCTT modules is now scheduled to begin the first week of November 1999. Although, the building has been done since 15 January 1999, the power conditioners have yet to be installed. They are currently scheduled to be installed the week of 18-22 Oct 99. The IOC date for the building remains to be March 2000.

FT Hood #2

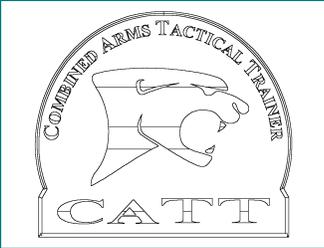
Although the building has been completed since 14 April 1999, the installation of the power conditioners has yet to be accomplished. The original power conditioners were rejected by the Corps of Engineers due to sound and heat problems. A second type is being field tested in October. Contractor has a 1 November deadline to have the power conditioners installed. It is more likely that it will be completed by 1 January 2000.

FT Carson

The building is approximately 75% complete. Current construction completion date is 9 May 2000. However, the Corps of Engineers (COE) have determined a structural design error in the roof steel structure. This may delay completion as much as four months. Making the building late for the installation of the CCTT system. Awaiting determination of COE for official completion date.

FT Riley

The building is approximately 80% complete. An installation site survey of the building is scheduled for 20 October 1999.



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COMMANDER'S INTEGRATED TRAINING TOOL (CITT)

COL (Ret) Robert White

CITT is PC-based software tool being jointly developed by the Army Research Institute (ARI) Fort Knox field office and PM CATT in Orlando as an extension of the SIMUTA and STRUCCTT projects. ARI is developing the process and the user

interface for building structured Training Support Packages (TSP). The TSP are exercise products required by all participants including the training audience, Observer/Controllers, OPFOR and BLUFOR Semi-Automated Forces (SAF or computer generated forces controlled by trained workstation operators), and the CCTT site staff. The TSP format is consistent with the TSP outline specified in TR 350-70.

CITT allows commanders and other unit trainers to select or develop structured training exercises the unit will use during training in the CCTT. CITT leads users through a structured process that produces an exercise TSP by providing ready access to all information and methods needed to exploit the capabilities of CCTT. PM CATT, through the CCTT Exercise Initialization Tool (CEIT) program, is developing the interface for building tactical graphics (i.e., overlays) and the interface for transferring exercise initialization data between CITT and CCTT via a standard 3.5" diskette. This effort is an extension of PM CATT's earlier experience with the Unit Off Site Planning (UOSP) System and the Training Exercise Development System (TREDS) program.

After the TSP is developed in CITT, the unit and site cooperate to develop the required CCTT exercise files. This allows the site staff to better meet the needs of the training unit. As a result of formative evaluation at Fort Hood, Fort Benning, and Fort Knox, the user interface -- the screens which the user sees while building a TSP -- has been greatly simplified and improved from the first version of CITT.

The integration of CITT and CEIT components will be completed by Feb '00. For additional information about CITT and its capabilities, go to

<http://www.stricom.army.mil/STRICOM/PM-CATT/CCTT/>

CCTT/FBCB2 User Evaluation

Mr. Harry Sotomayor

FT Hood

We have completed installation of tactical FBCB2 hardware/ software in 26 simulators (12 M2A2, 10 M1A1, 1 M113, 1 FIST-V, 2 HMMWV) at the Ft. Hood 1 site. During a recently completed two week evaluation, soldiers from TM C/1-22 INF (w/platoon from 3-66 Armor) conducted numerous company exercises and a battalion level excursion on the NTC database using FBCB2 hardware/software capabilities integrated into CCTT. Troops feedback was overwhelmingly supportive of the added FBCB2 capabilities and of the entire CCTT system in support of their training objectives. Having FBCB2 capabilities in CCTT is greatly enhancing the proficiency of the troops as they prepare themselves for the FBCB2 Limited User Test (LUT) next year.

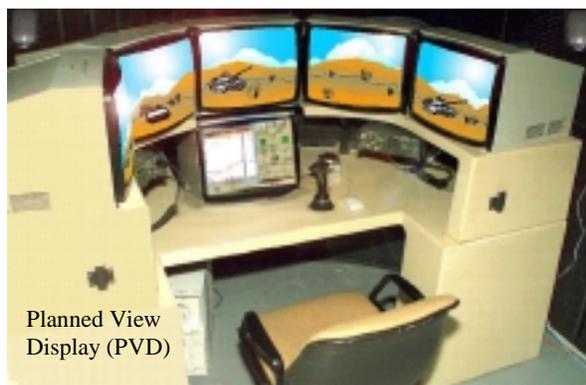
The User Evaluation also served as a mechanism to verify other upgrades made to CCTT, such as, Semi Automated Forces (SAF) digitization capabilities in which CCTT Computer Generated Forces (CGF) can now generate and react to 18 JMVF CORE messages, PLGR hardware/software capabilities added to all manned modules, ODS upgrades to M2A2s and SINCGARS radio re-transmission capabilities

CCTT AAR ENHANCEMENTS

Ms. Hoa Pham

The AAR is the primary feedback tool used by unit commanders and their troops to examine the results of the training event to determine: what happened, why did it happen, and how to improve performance. The current CCTT AAR can monitor, record, and playback at speeds 1-5X via three visual monitors, the Plan View Display, and a menu control monitor. It has 3 line-of-sight modes: slaved, independent, and tethered and can provide text and voice annotation capability. The Data Analysis and Reporting (DAR) capability provides statistical reports and limited digital capability includes having 3 FBCB2's to mirror any FBCB2-equipped entities in an exercise.

To meet its potential, CCTT must be able to provide effective AAR tools to assist commanders in tracking training performance and delivering effective feedback for the training exercises. The current CCTT AAR system has shortcomings that prohibit the user to maximize the potential training benefits. The AAR enhancement BAA effort shall allow the current AAR to generate AAR aids automatically and manually, provide a flexible system for creating data tables and graphs, provide rapid debriefing capability, and perform the CCTT Master Control Console (MCC) exercise control capabilities. This BAA effort is projected to begin early December of 1999.



Planned View
Display (PVD)

CCTT Dismounted Infantry Manned Module

Mr. Garry De Ruyter

The Dismounted Infantry Manned Module (DIMM) provides the dismounted capability (mechanized infantry or scouts) in the CCTT combined arms training environment. The DIMM consists of three independent positions – one for the infantry or scout platoon leader and his forward observer and two positions for the infantry squad leaders or scout section leaders. Each position contains a 180 degrees 3-D visual display system consisting of five monitors and a 2-D interface for command and control of dismounted computer generated force (CGF) combatants. A multi-functional joystick is also provided to support the movement and fire control functions. Simulated SINCGARS radios are provided for communications (figure 1). Additionally, the platoon leader's compartment contains a workstation for the forward observer (figure 2). The forward observer is provided a multi-function joystick for his own movement and fire control. One simulated SINCGARS radio is provided for communications on the fire direction net. A simulated Forward Entry Device (FED) is also provided for digital fire support communications.

The DIMM user-computer interface will be improved during the FY00-FY01 timeframe. The upgrade will add voice recognition/voice synthesis and gesture controls for hand and arm signals. Voice recognition will provide the user a natural method for issuing commands to his CGF forces. The voice recognition system will be a speaker independent, continuous speech system capable of recognizing natural language speech input. Voice synthesis will provide the user with voice responses from the CGF to acknowledge his voice commands. Voice synthesis will also provide CGF voice inputs in the form of SPOT reports to the user to assist in maintaining his situational awareness. The gesture control interface will provide a touch sensitive input device with icon buttons representing various hand

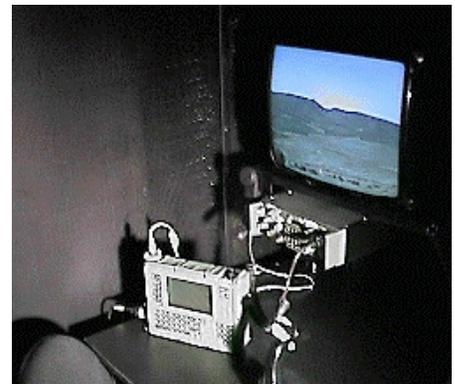


Figure 2 Forward Observer Station

and arm signals used by the infantry for non-verbal control of his CGF forces. The DIMM upgrade will also provide enhanced After Action Review (AAR) capabilities to collect all DIMM user inputs for review during the AAR. The AAR enhancements will provide the exercise observer/controller the data required to critique the DIMM operator's performance during the exercise. The upgrade also includes an option to provide an automated help capability in the DIMM using voice recognition and voice synthesis. The

automated help capability will provide the user the steps to perform each of the command window functions when using the mouse and windows interface.

A CCTT Success

Mr. Rick Crouse

Diamond Visionics Company (DVC) of Vestal NY, was one of five small businesses selected to receive the prestigious DoD Small Business Innovative Research (SBIR) Quality Award, for their work in applying state-of-the-art digital micro-mirror technology to develop an alternative, low cost display for the CCTT Commander's Popped Hatch. This award represents the "Best of Class" from over 500 SBIR nominations. Selection criteria included originality, defense relevance, and commercialization potential.

PM CATT was a principal "investor" in this new technology, with the benefit that this new technology may be available starting with the FY 00 production contract to replace the now "out of production" 27-inch CRTs in that display .

Digital micro-mirror technology uses micro-machine technology in which almost one million tiny mirrors to modulate to high intensity light with a video signal. This technology has been successfully applied in commercial large area displays and is now becoming available in resolutions high enough for military simulation. It offers great flexibility in image size, high image resolution and quality, and very attractive life cycle costs, particularly when compared to CRT technology.

PM CATT is currently attempting to apply this technology for FY 00 production, and if successful,

production units will first be deployed to Ft. Carson in January of 2001.



Photo: 1 Werner Kraemer, Dave Peters, David Gdovin, founders of Diamond Visionics Company receive the Department of Defense SBIR Quality Award Plaque from Dr. Mike Macedonea, Chief Scientist for STRICOM, flanked by Mark McAuliffe, STRICOM SBIR Project Lead

SAF Environments Effort

Mr. Henry Marshall

Presently the SAF Environments development efforts in the requirements/design phases are:

Task 1 "Standalone Single Computer"

- This effort will provide the capability to conduct a CCTT SAF scenario from a single computer as opposed to the several currently required by the CCTT system. In addition this development will provide a "BothFOR" workstation that will allow both BLUFOR and OPFOR to be controlled and edited from one workstation. This capability will help operators that support small platoon level exercises at mobile and fixed CCTT sites. The

Standalone capability will provide the ability to do remote exercise creation and evaluation to the user community.

Task 3 "APACHE and UAV".

- This effort provides new air threats in the form of the *Arme Propulsee A Charges Ejectables* (APACHE) Container Weapon System which is an air to surface cruise missile and Unmanned Aerial Vehicles (UAV). The UAVs behaviors are being designed based on the Shmel-1 for OPFOR and the Tactical UAV (TUAV) for BLUFOR. The APACHE behaviors will be based on modifying current OPFOR

Fixed Wing Aircraft behaviors to support the missiles launch and realistically flying the missile to the target. Both the OPFOR UAV and APACHE will add realistic new OPFOR air threats to CCTT. The BLUFOR UAV will provide CCTT an entry into the intelligence units operational domain. The TUAV could directly provide connectivity into the All Source Analysis System (ASAS) which is part of the CCTT digitization effort.

MOBILE CCTT

Mr. Mike Kochmann

The second set of mobile CCTT has been successfully fielded to Leesburg, South Carolina. Both the Tank and



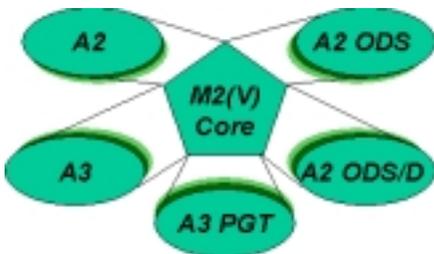
Bradley Teams have been busy since deployment began in Aug 99. These two teams traveled to Ft. Stewart for the first month. The US Marine Reserves based in Leesburg (D CO 8th Tank Bn 4th Marine Div) were scheduled to train in the M1 set in September. Unfortunately, Hurricane Floyd forced postponement. This event has been rescheduled for 3-5 Dec 99.

BRADLEY VARIANT

Mr. Mike Kochmann

The first M2 Variant is scheduled to come off the LMIS production line 15 Oct 99. This will be the future of CCTT as the system becomes more robust in it's ability to accommodate the changing Army. The M2 Variant includes the capability to plug and unplug key components, transforming the simulator into one of several versions of vehicles in the field. The first of the variants will be going to the CCTT site at Ft. Stewart.

M2 Variant concept diagram:



CCTT HLA

Ms. Susan Harkrider

CCTT is progressing along the path to HLA compliance. At present, the Semi-Automated Forces (SAF) are compliant with the HLA Interface Specification, and will undergo formal compliance testing by the end of October. The HMMWV manned module is also

compliant with the Interface Specification and will be certified by year's end. Both subsystems will be demonstrated at the I/ITSEC '99, within a series of vignettes collectively named "Operation Desert Rats". The SAF and the HMMWV will become the baseline by which the rest of the CCTT system achieves full HLA compliance.

Bradley Advanced Training System (BATS)

MAJ Brent Kremer

In the Bradley Advanced Training System (BATS) program, close coordination has begun with PM BFVS to ensure comparable functionality with CCTT's Lockheed Martin-produced M2 trainers. PM BFVS has acknowledged that a number of improvements are necessary to ensure that soldiers being trained in the UDLP-produced trainers will not encounter fidelity differences between the two trainers. BFVS has agreed to fund those necessary improvements, as well as the integration costs, and UDLP has assured that they will still be able to meet their production schedule. All BATS modules will be virtual trainers for the A3 Bradley variant. The first production BATS module (a gunnery trainer) is due for delivery to Fort Hood on May 00, and the final module will be delivered in Nov 00. The current contract calls for four gunnery modules, three dual-purpose (maneuver & gunnery) modules, and six maneuver modules. BATS represent the first integration of a new virtual trainer into the CCTT environment.

Col Steve Layford, Commander 3rd Bde, stated during the AAR, "It was all transparent to me. I was commanding two battalion task forces."

CCTT Production

MAJ Brent Kremer

The key events for 1Q FY 00 production include LMIS' production efforts in the M2 (v), module moves at Fort Stewart, Fort Knox, and Fort Benning; and further preparation for populating the second Fort Hood facility ("Hood 2") and the Fort Stewart facility. As of this writing, the projected funding cut to CCTT looks to be approximately \$10M. This would result in reducing FY00 production by one M2 mobile platoon set (four M2 trainers and one Dismounted Infantry Module) and one M1 platoon set originally schedule for fielding at Fort Carson.

Fort Hood Brigade Exercise in CCTT

Mr. Chuck Smith

3rd Bde 1st Cav Div conducted an External Evaluation with two BNs (3-8 Cav & 1-9 Cav) from 19 to 31 Aug 99. One Bn was live and one virtual during the entire exercise. 1-9 Cav(M) used CCTT from 19 - 24 Aug while 3-8 Cav was in the field. On 25 Aug they switched places. 3-8 Cav fought the CCTT war from 26 - 31 Aug 99 while 1-9 Cav(M) was in the field. Both units fought on Ft Hood terrain simultaneously. The Bde TOC stayed in the field controlling both BNs. The CCTT Bn set up their TOC out side the CCTT building and ran wire into the facility to communicate with their units. The CCTT facility was in full operation for the thirteen day operation. It was so successful that 1st Cav Division plans a similar operation for Nov. 1999.

NOTES