

ARI Research Note 92-84

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Data Tables From Combat Vehicle Command and Control Battalion-Level Preliminary Evaluation

**Lawrence H. O'Brien, Donald Wigginton,
and John C. Morey**

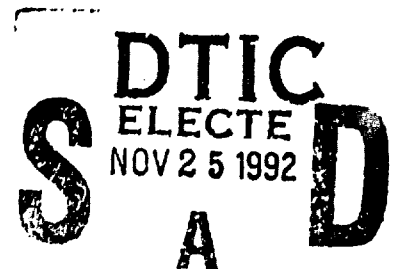
Dynamics Research Corporation

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and Alicia R. Sawyer**

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Field Unit at Fort Knox, Kentucky
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Training Systems Research Division
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September 1992



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United States Army
Research Institute for the Behavioral and Social Sciences

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13. ABSTRACT (Maximum 200 words) The Combat Vehicle Command and Control (CVCC) research and development program addresses key issues associated with the automation of various command, control, and communications (C ³) functions for tanks through the use of soldier-in-the-loop distributed interactive simulation. This report contains summary data tables from the CVCC Battalion-Level Preliminary Evaluation. For the evaluation, four groups, each consisting of 23 troops, completed a 1-week training and testing schedule culminating in two simulated combat scenarios. This effort used specially developed CVCC simulators and tactical operations center workstations located in the Close Combat Test Bed at Fort Knox, Kentucky. These simulation facilities supported both automated and manual data collection of mission/tactical performance and C ³ performance during each combat scenario.				
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DATA TABLES FROM COMBAT VEHICLE COMMAND AND CONTROL BATTALION- LEVEL PRELIMINARY EVALUATION

CONTENTS

	Page
APPENDIX A. ARI TROOP SUPPORT REQUEST	A-1
B. MANUAL DATA COLLECTION INSTRUMENTS	B-1
C. PRE-MISSION PROCEDURES	C-1
D. PERFORMANCE MEASURE DEFINITIONS	D-1
E. DATA COLLECTION LOGS	E-1
F. CONTROL ROOM OPERATING PROCEDURES	F-1
G. DATA TABLES FOR SELECTED MEASURES	G-1
H. BIOGRAPHICAL DATA TABLES	H-1
I. ACRONYM LIST	I-1

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Appendix A
ARI Troop Support Request



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FORT KNOX FIELD UNIT
FORT KNOX, KENTUCKY 40121-5620



REPLY TO
ATTENTION OF:

PERI-IK (70)

MEMORANDUM FOR Director, G-3/Directorate of Plans, Training, and
Mobilization, U.S. Army Armor Center, ATTN:
ATZK-DPT-T-SPT, Fort Knox, KY 40121-5000

SUBJECT: Personnel Support - Evaluation Training and Testing for
CVCC Battalion

1. The Soldier-Machine Interface (SMI) Team of the Combat Vehicle Command and Control (CVCC) program is tasked to develop simulations of projected automated command and control systems in the Close Combat Test Bed (CCTB) and to train and test soldiers in the use of these systems. The CVCC CCTB capabilities have grown from platoon to company to Bn TOC level evaluations in previous ARI-Knox research. This research effort extends the capabilities and focus to the next level -- the battalion.

2. The objectives of the current effort are to finalize materials for, and to conduct, a formative evaluation comparing the performance of commanders using CVCC and conventionally equipped M1 simulators in battalion operations. The approach is to utilize the CCTB facility to support soldier-in-the-loop evaluation of the user requirements for automated command and control systems. Emphasis is placed on the identification of training requirements for future battlefield conditions and the strategies necessary to train soldiers to utilize these new capabilities. Results of this research feed into several Army agencies: the Tank Automotive Command (TACOM) who is sponsoring the CVCC program, the Directorate of Combat Developments at the Armor School, and the Armored Systems Modernization (ASM) program for future ground combat vehicles.

3. The tests will be conducted in five, five-day iterations. Each day will run from approximately 0745 to 1700 with a short lunch break. Breaks between iterations are planned for data reduction and analysis and short-term redesign mandated by preceding tests. In order to gain fresh insights and perspectives with each iteration and to not contaminate results from prior knowledge, **personnel participating in each iteration must not have participated in any previous iteration of the Bn TOC or CVCC Battalion Evaluation.**

4. Request personnel support for the following evaluation dates:

a. Week 1 (TBD).

b. Week 2 (TBD).

PERI-IK

SUBJECT: Personnel Support - Evaluation Training and Testing for CVCC Battalion

c. Week 3 (TBD).

d. Week 4 (TBD).

e. Week 5 (TBD).

5. Each iteration will require personnel to act in the following capacities:

<u>Position</u>	<u>Qualifications</u>
a. Bn Cdr	LTC/MAJ, SC 12
b. Bn S3	MAJ/CPT, SC 12
c. Three tank Co Cdrs	CPT/1LT, SC 12
d. Three tank Co XOs	1LT/2LT, SC 12
e. Eight gunners	SSG/SGT, MOS 19K__
f. Eight drivers	SPC/PFC, MOS 19K__

6. Veh Cdrs will be required from Monday through Friday of each test. Gunners and drivers are required only from Tuesday through Friday.

7. Individuals will be used to man eight tank simulators. These requirements represent an absolute minimum. For this reason, the battalion will be rounded out with SAFOR. Exercise control personnel will represent all elements of the TOC, ALOC, and fire support team. Commanders will be able to communicate with their superiors, adjacent units, and subordinates. Simulated elements will respond to the commanders' instructions and/or requests.

8. Veh Cdrs should check in with ARI personnel inside the CCTB (Bldg 2021) between 0730 and 0745 on the first day (Monday) of their scheduled iteration. Gunners and drivers should check in on Tuesday between 0730 and 0745. The same personnel must be available for the entire iteration. Because of the tight training and evaluation schedule, no appointments or conflicts can be accommodated.

9. Tasked units must provide the ARI POC a standard name line for all participants NLT the Tuesday before scheduled start of

PERI-IK

SUBJECT: Personnel Support - Evaluation Training and Testing for CVCC Battalion

the test. Uniform is BDUs. Participants will require no special equipment. Any non-tenant units supporting the exercise (e.g., reserve component or TDY units) should coordinate transportation, in/out processing, billeting, and mess arrangements to preclude any potential conflict with the test schedule. The ARI POC will assist non-tenant units, as required, to establish initial contact and coordination with post support agencies.

10. ARI will brief Brigade, Regimental and Battalion Commanders, Staff Directors and Division Chiefs, if desired. A pre-briefing for participants can also be arranged. Coordinate directly with the ARI POC for briefings and additional information.

11. The ARI POC is MAJ Milt Koger, AUTOVON 464-2613/3450 or Commercial (502) 624-2613/3450.

MILTON E. KOGER
MAJ, AR
R&D Coordinator

Appendix B
Manual Data Collection Instruments

Appendix B contains the following:

<u>Appendix</u>	<u>Page</u>
B-1 Operator Workload Rating Scales	B-3
B-2 SMI Assessment Questionnaires	B-35
B-3 General Training Assessment Questionnaire	B-47
B-4 Information Effectiveness	B-71
B-5 Biographical Questionnaire	B-81

Appendix B-1
Operator Workload Rating Scales

Workload Assessment

BN COMMANDER

Date _____
Roster Number _____

TOC Workstation Workload Assessment

Duty Position: S2 INTELL NCO XO OPS NCO BN CDR S3
(Circle one)

Task: Prepare Battalion FRAGO

Task Definition

- Receive brigade FRAGO
- Determine battalion tasks
- Develop instructions
- Draft text and graphics
- Disseminate FRAGO

Did you perform this task? No_____ Yes_____

If you answered No, skip this page.

If you answered Yes, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand		Low High
Physical Demand		Low High
Time Demand		Low High
Performance		Good Poor
Effort		Low High
Frustration		Low High

April 10, 1991

TOC Workstation Workload
Assessment

Duty Position: S2 INTEL NCO BN CDR S3 (Circle one)

Task: Determine Threat Probable Courses of Action

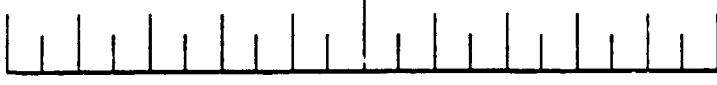
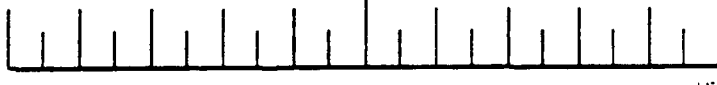
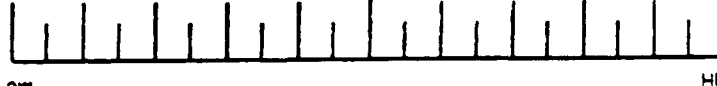
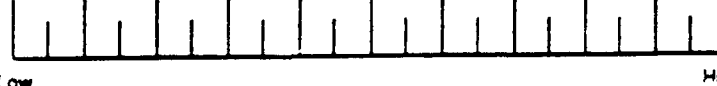
Task Definition

- Identify areas where enemy activities will confirm or deny enemy intentions
- Determine current enemy disposition
- Determine unlikely enemy actions
- Compare intelligence holdings with current indicators
- Develop an estimate of enemy courses of action
- Describe enemy probable courses of action
- Prioritize probable enemy courses of action

Did you perform this task? No _____ Yes _____

If you answered No, skip this page.

If you answered Yes, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
	Low High
Physical Demand	
	Low High
Time Demand	
	Low High
Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

April 10, 1991

TOC Workstation Workload
Assessment

Duty Position: XO OPS NCO BN CDR S3

Task: Identify and Assess Alternative Friendly Courses of Action

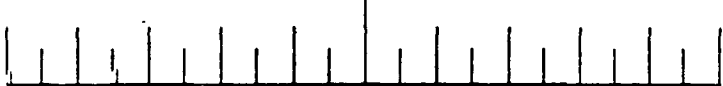
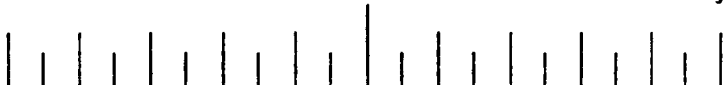
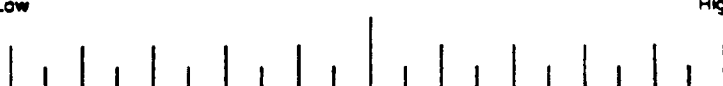
Task Definition

- Review situation map, overlays and other information
- Assess enemy capabilities and probable courses of action
- Project likely battlefield events
- Wargame alternative friendly courses of action
- Summarize and rank order friendly courses of action

Did you perform this task? No_____ Yes_____

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Mental Demand	
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Physical Demand	
	Low High
Time Demand	
	Low High
Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

April 10, 1991

TOC Workstation Workload
Assessment

Duty Position: BN CDR S3 (Circle one)

Task: Supervise Mission Planning

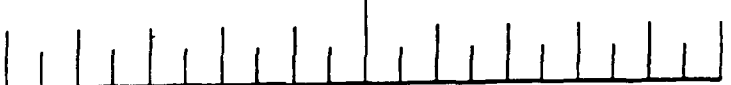
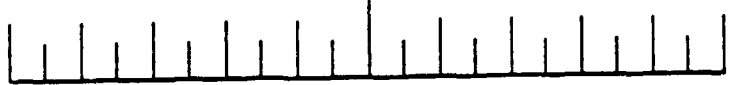
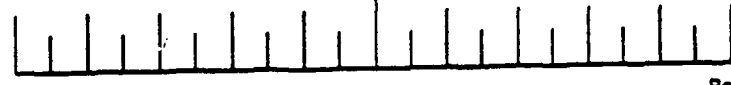
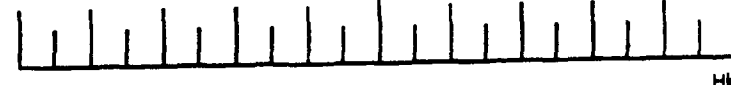
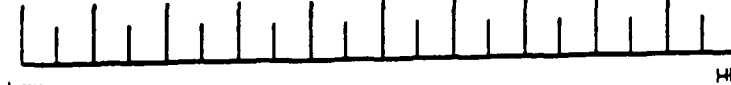
Task Definition

- Receive mission
- Analyze mission
- Issue planning guidance
- Receive and review plan

Did you perform this task? No_____ Yes_____

If you answered No, skip this page.

If you answered Yes, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

TOC Workstation Workload Assessment

Duty Position: BN CDR S3

Task: Supervise Mission Execution

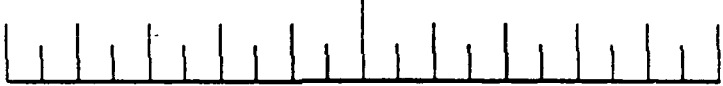
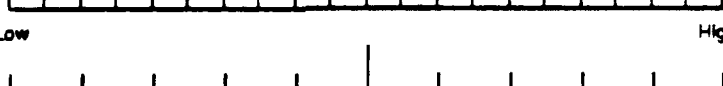
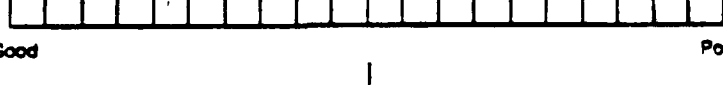
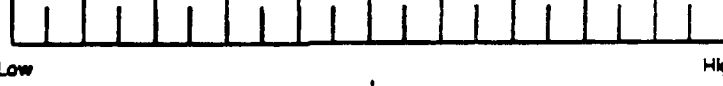
Task Definition

- Acquire and communicate information
- Assess situation
- Determine actions
- Direct and lead subordinates

Did you perform this task? No_____ Yes_____

If you answered No, skip this page.

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Physical Demand	
	Low High
Time Demand	
	Low High
Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

April 10, 1991

TOC Workstation Workload
Assessment

Duty Position: XO BN CDR S3

Task: Monitor Battle and Decide on Need for Action or Change

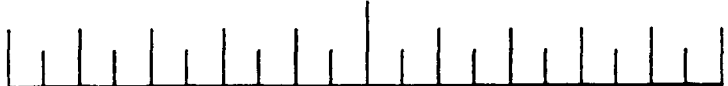
Task Definition

- Maintain watch of communications traffic and situation map
- Assess current situation
 - Analyze mission
 - Evaluate incoming information
 - Fuse new information to existing information
- Project future requirements
 - Examine facts and assumptions
 - Determine and evaluate trends
 - Determine probable requirements and set priorities
- Compare anticipated action with action unit is directed to execute
- Determine actions

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Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

Workload Assessment

S3

Date _____
Roster Number _____

TOC Workstation Workload
Assessment

Duty Position: BN CDR S3 (Circle one)

Task: Supervise Mission Planning

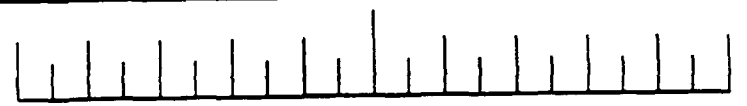
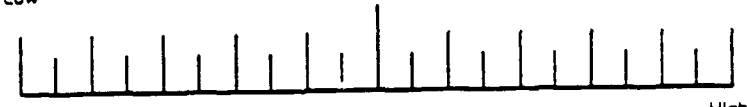
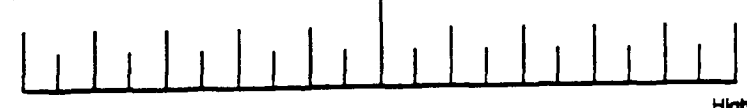
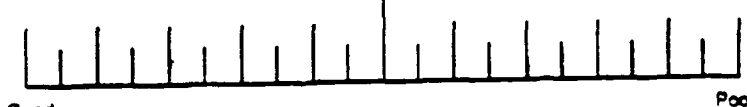
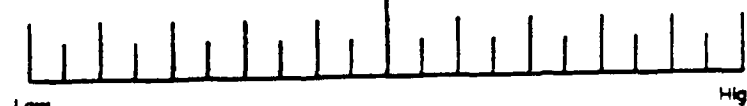
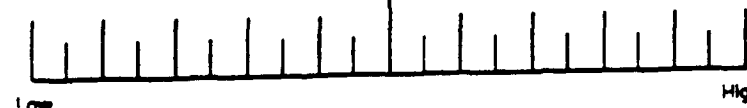
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April 10, 1991

TOC Workstation Workload
Assessment

Duty Position: BN CDR S3

Task: Supervise Mission Execution

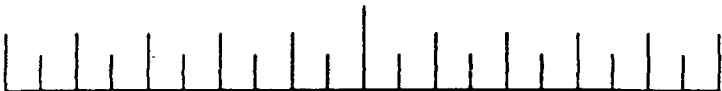
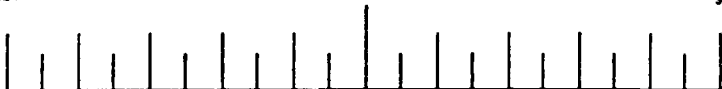
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TOC Workstation Workload
Assessment

Duty Position: XO OPS NCO BN CDR S3

Task: Identify and Assess Alternative Friendly Courses of Action

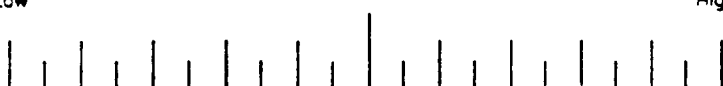
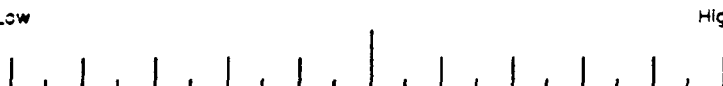
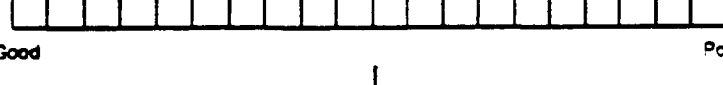
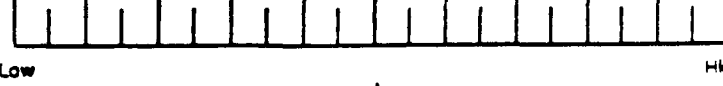
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April 10, 1991

TOC Workstation Workload Assessment

Duty Position: XO BN CDR S3

Task: Monitor Battle and Decide on Need for Action or Change

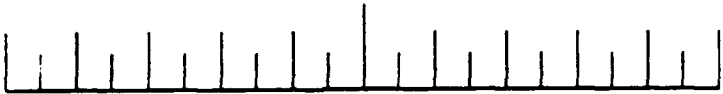
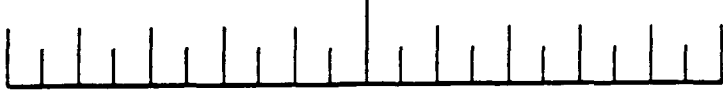
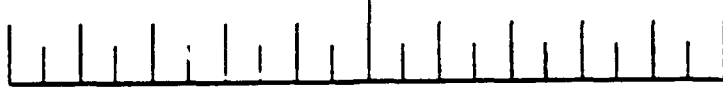
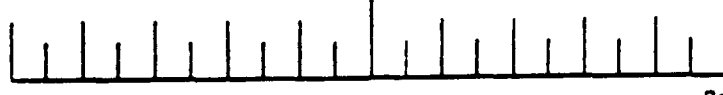
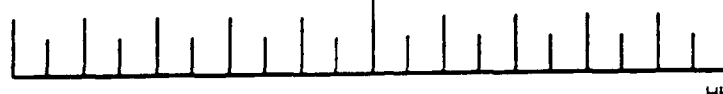
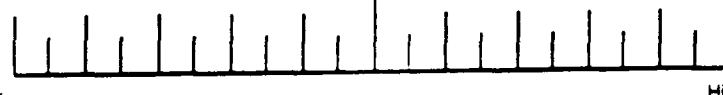
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	Good Poor
Effort	
	Low High
Frustration	
	Low High

TOC Workstation Workload Assessment

Duty Position: S2 INTELL NCO XO OPS NCO BN CDR S3
(Circle one)

Task: Prepare Battalion FRAGO

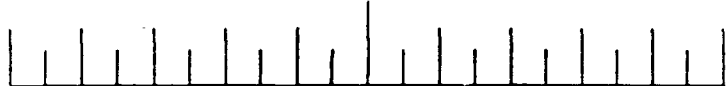
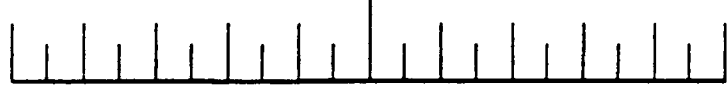
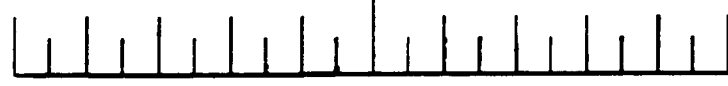
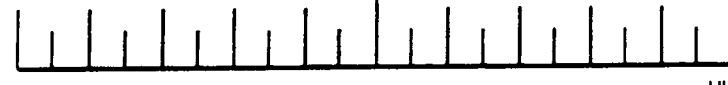
Task Definition

- Receive brigade FRAGO
- Determine battalion tasks
- Develop instructions
- Draft text and graphics
- Disseminate FRAGO

Did you perform this task? No_____ Yes_____

If you answered No, skip this page.

If you answered Yes, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

April 10, 1991

TOC Workstation Workload
Assessment

Duty Position: S2 INTEL NCO BN CDR S3 (Circle one)

Task: Determine Threat Probable Courses of Action

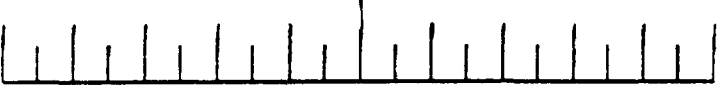
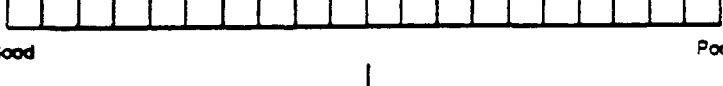
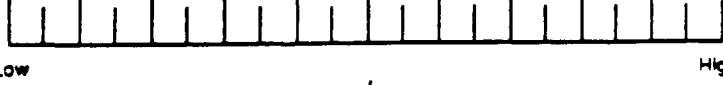
Task Definition

- Identify areas where enemy activities will confirm or deny enemy intentions
- Determine current enemy disposition
- Determine unlikely enemy actions
- Compare intelligence holdings with current indicators
- Develop an estimate of enemy courses of action
- Describe enemy probable courses of action
- Prioritize probable enemy courses of action

Did you perform this task? No_____ Yes_____

If you answered No, skip this page.

If you answered Yes, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

April 10, 1991

Workload Assessment

VEHICLE COMMANDER

Date _____
Roster Number _____

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Prepare and Send SPOT Report

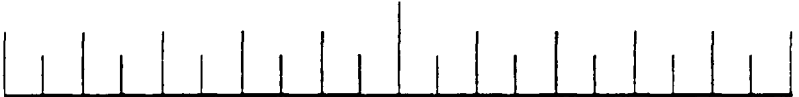
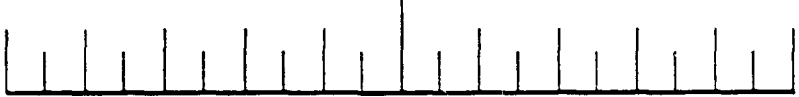
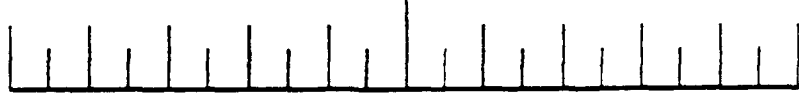
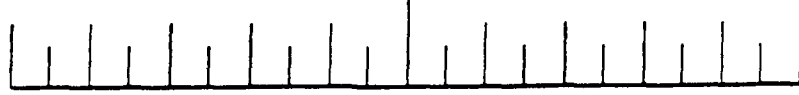
Task Definition

- Observe enemy activity or reportable information about the area of operations
- Determine essential information (e.g., what, where) for report
- List information or compose report
- Send (transmit) report

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Prepare and Send CONTACT Report

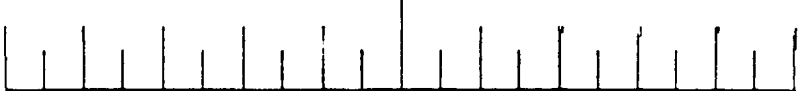
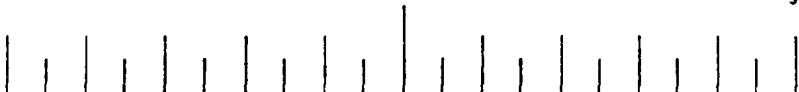
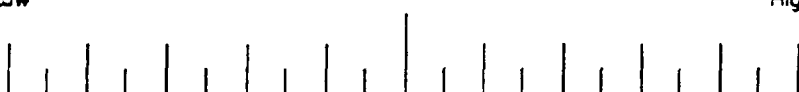
Task Definition

- Observe enemy contact
- Determine essential information (e.g., number, location) for report
- List information or compose report
- Send (transmit) report

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
	Low High
Physical Demand	
	Low High
Time Demand	
	Low High
Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Prepare and Send CONTACT Report

Task Definition

- Observe enemy contact
- Determine essential information (e.g., number, location) for report
- List information or compose report
- Send (transmit) report

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

3 April 1991

CVCC Workload Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Prepare and Send SHELL Report

Task Definition

- Observe incoming artillery, bombs, etc.
- Determine essential information (e.g., location,) for report
- List information or compose report
- Send (transmit) report

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Prepare and Send Call for Fire (CFF) Report

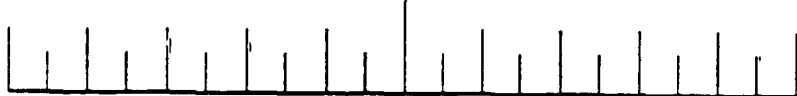
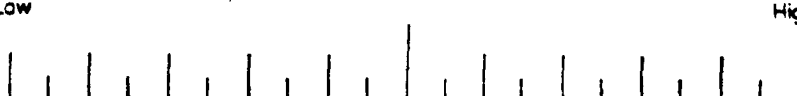
Task Definition

- Determine essential information for request or adjust fire
- List information or compose report
- Send (transmit) report

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
	Low High
Physical Demand	
	Low High
Time Demand	
	Low High
Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Prepare and Send Situation Report (SITREP)

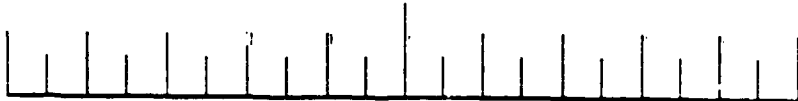
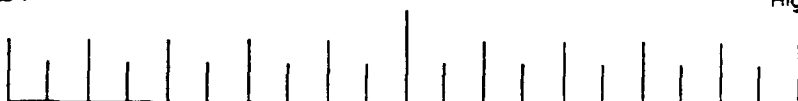
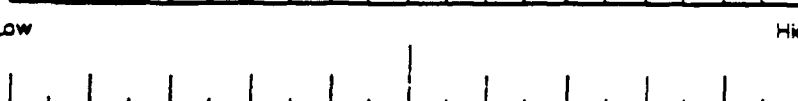
Task Definition

- Determine essential information on enemy status/activity
- Determine essential information on unit status
- List information or compose report
- Send (transmit) report

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
	Low High
Physical Demand	
	Low High
Time Demand	
	Low High
Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Direct Actions of Gunner (including fire commands)

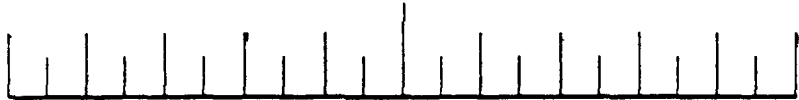
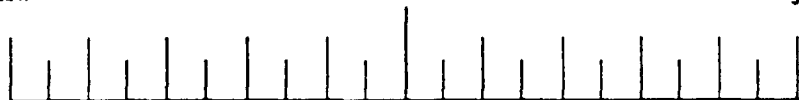
Task Definition

- Select and prioritize targets
- Determine TC or gunner actions
- Issue fire commands
- Observe fires
- Continue or cease engagement

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
	Low High
Physical Demand	
	Low High
Time Demand	
	Low High
Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Determine Location

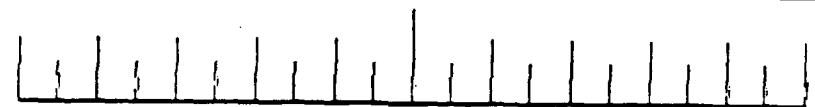
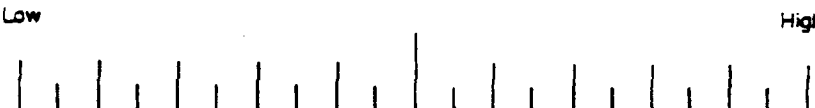
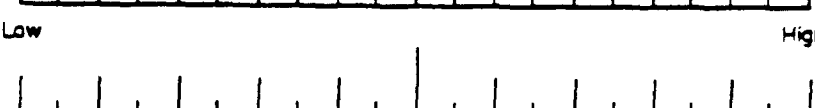
Task Definition

- Using map and terrain, or automated means,
 - establish own grid coordinates
 - establish grid coordinates of target or other objects
- Report location in grid coordinates

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Direct a Scheme of Manuever

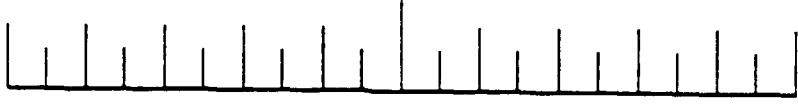
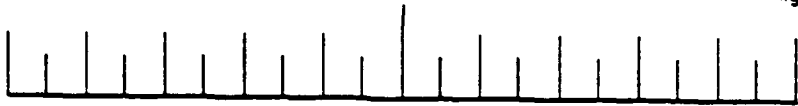
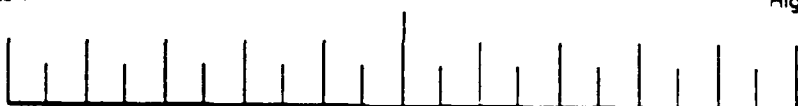
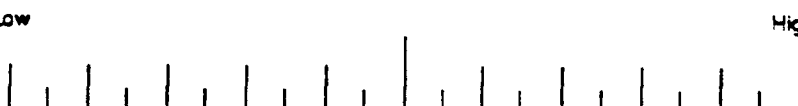
Task Definition

- Monitor movement formations
- Monitor security, dispersion, speed, and avenues of movement
- Coordinate movement and fires
- Modify plans as required
- Communicate corrective actions to subordinates

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Monitor/correct route progress

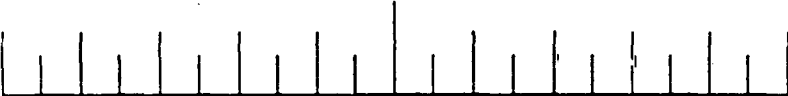
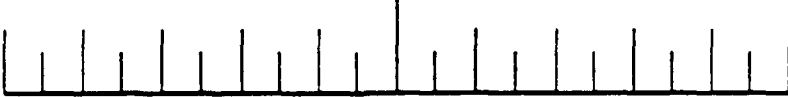
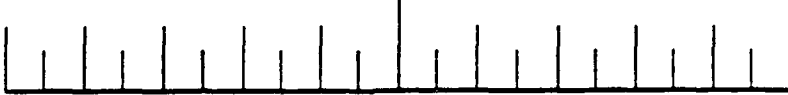
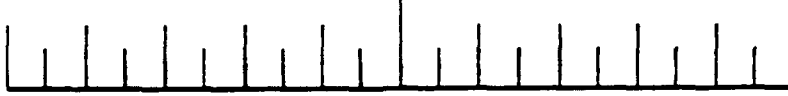
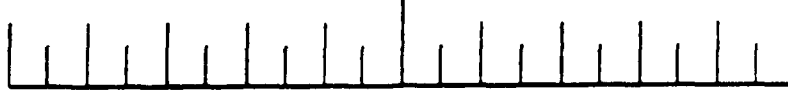
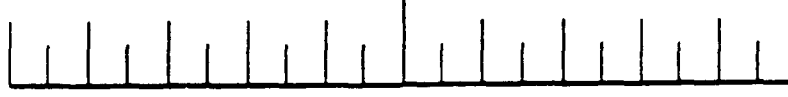
Task Definition

- Maintain direction/axis of advance
- Monitor graphic control measures (e.g., checkpoints)
- Determine course corrections
- Communicate corrective actions to subordinates

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
	Low High
Physical Demand	
	Low High
Time Demand	
	Low High
Performance	
	Good Poor
Effort	
	Low High
Frustration	
	Low High

8 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Monitor/correct company positions with battalion

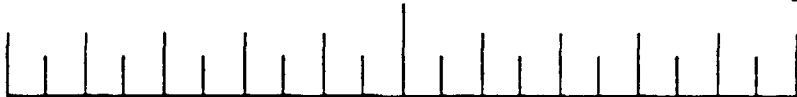
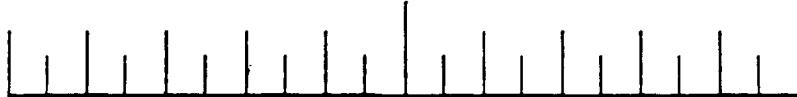
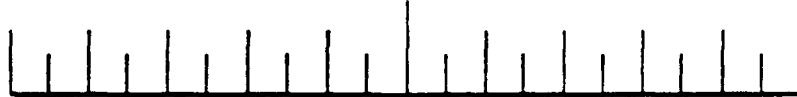
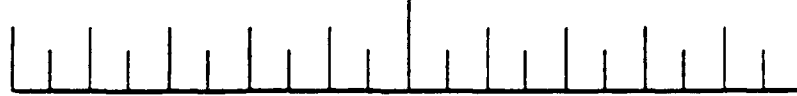
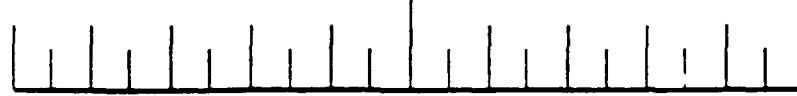
Task Definition

- Initiate company offensive or defensive action
- Determine need for maneuver or position correction
- Communicate situation to battalion commander
- Receive guidance and continue mission

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

8 April 1991

CVCC Workload Assessment

Roster Number: _____

 Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
 Co Cdr D (Circle one)

Task: Coordinate Sector Searches

Task Definition

- Determine sector widths and direction
- Designate sectors to platoons or vehicles
- Modify searches in response to tactical situation

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

3 April 1991

CVCC Workload
Assessment

Roster Number: _____

Duty Position: Bn Cdr S3 Co Cdr A Co Cdr B Co Cdr C
Co Cdr D (Circle one)

Task: Revise/Update Tactical Plan

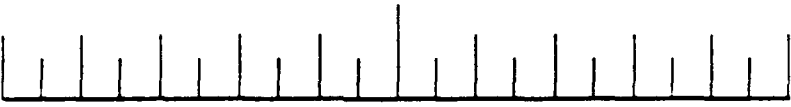
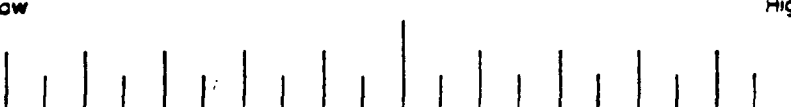
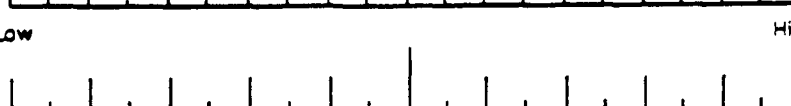
Task Definition

- Maintain picture of friendly and enemy situation
- Monitor/anticipate developments in tactical situation
- Modify existing plan
- Issue orders

Did you perform this task? Yes _____ No _____

If you answered NO, skip this page.

If you answered YES, consider all your experiences performing this task during the exercise. Please provide an overall (average) workload rating for this task using the scales below.

Mental Demand	
Physical Demand	
Time Demand	
Performance	
Effort	
Frustration	

Appendix B-2

SMI Assessment Questionnaires

SMI Vehicle Questionnaire Instructions

The purpose of the SMI questionnaires is to document the strengths and weaknesses of the CVCC equipment. The results will be used to identify improvements for the system and to guide development efforts, so please answer as accurately as possible.

You will be asked to rate the acceptability of different features of the equipment. Acceptability may mean something different for each person responding to the questionnaires. To try to make that concept mean the same thing for each of you, we would like you to use the following definition of acceptability when responding to individual items.

Something is ACCEPTABLE if it:

Enables you to perform your job

Is easy to use

Is not confusing.

Before rating an item I would like you to consider these three aspects of acceptability and make your rating accordingly. Refer back to this cover sheet, if necessary.

If a feature does not "measure up" on any of these aspects, I would like you to tell us about it. Please indicate which aspect of acceptability the feature does not measure up on. Space is provided, after each rating, for your comments.

For example, if you rated changing map scales with a "2" (Very Unacceptable), we would like you to tell us why. So your answer might look like this:

 2 Changing map scales.
It was hard to use.

Do you have any questions?

Thank you in advance for your participation.

 Sim Duty Position: Co Cdr: A B C D Bn Cdr S3 Date: _____

CITV EVALUATION

Place the number from the scale that best reflects your opinion on the space preceding each item.

1	2	3	4	5	6	7
-----	-----	-----	-----	-----	-----	-----
Totally	Very	Somewhat		Somewhat	Very	Totally
Unacceptable	Unacceptable	Unacceptable	Borderline	Acceptable	Acceptable	Acceptable

1. _____ Fidelity ("trueness") of information on the CITV
2. _____ Understandability of information on the CITV
3. _____ Location of operating controls and switches
4. _____ Complexity of operation
5. _____ Commander's Control Handle
6. _____ Operating Modes (Autoscan, Manual Search, GLOS -- if you find any of these to be unacceptable, please identify)
7. _____ Viewing Modes (Black Hot, White Hot, 10X, 3X -- if you find any of these to be unacceptable, please identify)
8. _____ Setting sectors
9. _____ The capability to scan independently from your gunner
10. _____ IFF

CITV Evaluation

1	2	3	4	5	6	7
-----	-----	-----	-----	-----	-----	-----
Totally	Very	Somewhat		Somewhat	Very	Totally
Unacceptable	Unacceptable	Unacceptable	Borderline	Acceptable	Acceptable	Acceptable

11. _____ The capability to acquire targets
12. _____ The Designate function
13. _____ Target hand off using Designate
14. _____ The capability to allocate more responsibility to the gunner
15. _____ Its contribution to command and control
16. _____ Its contribution to your ability to perform your duties

Now that you have rated the individual CITV items, please rate the CITV as a whole.

17. _____ CITV

18. How would you change the CITV?

CITV Evaluation

19. Did you find the CITV more useful in Defensive or Offensive Operations and why?

20. Which operating mode -- Autoscan, Manual Scan, or GLOS -- did you prefer and why?

Additional Comments:

 Sim Duty Position: Co Cdr: A B C D Bn Cdr S3 Date: _____

CCD EVALUATION

Place the number from the scale that best reflects your opinion on the space preceding each item.

1	2	3	4	5	6	7
-----	-----	-----	-----	-----	-----	-----
Totally	Very	Somewhat		Somewhat	Very	Totally
Unacceptable	Unacceptable	Unacceptable	Borderline	Acceptable	Acceptable	Acceptable

1. _____ Location of the CCD
2. _____ Fidelity ("trueness") of information
3. _____ Touchscreen
4. _____ Thumb Cursor
5. _____ Feedback (confirmation of actions)
6. _____ Understandability of information on the Tactical Map
7. _____ Usefulness of information on the Tactical Map
8. _____ Scrolling the Map (Move, Jump, Follow -- if you find any of these unacceptable please identify)
9. _____ Aggregation of vehicle icons
10. _____ The capability to navigate with POSNAV
11. _____ Creating routes

CCD Evaluation

1	2	3	4	5	6	7
----- ----- ----- ----- ----- ----- -----						
Totally	Very	Somewhat		Somewhat	Very	Totally
Unacceptable	Unacceptable	Unacceptable	Borderline	Acceptable	Acceptable	Acceptable

12. _____ Changing waypoints in a route
13. _____ Capability to send waypoints to my driver
14. _____ Appearance of Overlays on Tactical Map
15. _____ Amount of information in the menu/report area
16. _____ Understandability of information in the menu/report area
17. _____ The size of menu/report input fields
18. _____ Reading reports
19. _____ Creating reports
20. _____ Automatic advance of highlighted report input fields
21. _____ Report formats
22. _____ Report icons
23. _____ Report status information (symbols depicting opened, relayed, sent, etc.)
24. _____ The number of reports sent to you
25. _____ Reports from the Semiautomated vehicles

CCD Evaluation

1	2	3	4	5	6	7
-----	-----	-----	-----	-----	-----	-----
Totally	Very	Somewhat		Somewhat	Very	Totally
Unacceptable	Unacceptable	Unacceptable	Borderline	Acceptable	Acceptable	Acceptable

26. _____ Capability to receive/transmit overlays
27. _____ Auditory signals of received messages
28. _____ Visual signals of received messages
29. _____ The integration of the CCD with the CITV (for example, lasing to an object to input grids in a report)
30. _____ The capability to allocate more responsibility to the driver
31. _____ System response time
32. _____ Its contribution to your ability to perform your duties

Now that you have rated the individual CCD items, please rate the CCD components as a whole.

33. _____ Tactical Map
34. _____ Navigation
35. _____ Reports
36. _____ Overlays

CCD Evaluation

37. How would you change the Tactical Map?

38. How would you change the Navigation Component?

39. How would you change the Report Component?

40. How would you change the Overlay Component?

CCD Evaluation

41. Did you find the CCD more useful in Defensive or Offensive Operations and why?

42. Did you find the CCD more useful while in contact with the enemy or prior to/after contact and why?

43. Did you receive multiple copies of the same report? If yes, was it a problem?

44. Did you have any problem with the FREE TEXT messages? If yes, what?

CCD Evaluation

45. Which map scale did you prefer and why?

46. Which vehicle aggregation level did you prefer, and why?

Additional Comments:

Appendix B-3

General Training Assessment Questionnaire

QUESTIONNAIRE ADMINISTRATION INSTRUCTIONS-TRAINING EVALUATION

1. Make sure that all evaluation participants are present. Write down the time when all members are present.

2. Describe the objective of the questionnaire using the following:

This questionnaire has two purposes. The first is to obtain your views on the effectiveness of the training you received this week. The second is to obtain your views on what should be emphasized in future training programs.

3. Ask the Veh Cdrs to identify themselves. Hand them the Training Evaluation Questionnaires marked "Vehicle Commander" at the top. Ask the Gunners and Drivers to identify themselves. Hand them the Training Evaluation Questionnaires marked "Gunners and Drivers" at the top. Ask the TOC personnel to identify themselves. Hand them the Training Evaluation Questionnaires marked "TOC" at the top. When this is done, tell the participants to start making their ratings. Tell them to begin by circling the position they played during the evaluation. Write down the time. If at any time they have problems in filling out the questionnaire, tell them to raise their hand and let you know. Record these problems.

4 April 1991

VEHICLE COMMANDER

YOUR DUTY POSITION: Bn Cdr S3 CoCdrA CoCdrB CoCdrC CoCdrD (circle one)
 DATE: _____ ROSTER NO: _____

TRAINING EVALUATION QUESTIONNAIRE**PART 1: Evaluation of Test Training Program**

We are interested in your views about the training you received this week on the TOC workstations. The questions listed below will ask to rate various components of the training program. Please make your ratings using the following five-point scale.

1	2	3	4	5
Poor	Fair	Average	Good	Excellent

1. How adequate were the components of the training program in preparing you to operate the CCD and the CITV?

CLASSROOM TRAINING:**CCD****CITV**

1a. Classroom Sessions - Overall

1b. Instructor's Presentation

1c. Viewgraphs

1d. Handouts

1e. Examples of Tactical Equipment Use

HANDS-ON SIMULATOR TRAINING:

1f. Hands-On - Overall

1g. RA Explanations

1h. Hands-On Training

Explain reasons for "Poor" or "Fair" ratings, if any: _____

Training Evaluation

2. How adequate were the tactical training exercises in preparing you to use the CVCC in a tactical situation?

1	2	3	4	5
Poor	Fair	Average	Good	Excellent
2a. Tank Crew Training				_____
2b. Company Situational Training Exercises				_____
2c. Bn Staff Situational Training Exercises				_____
2d. Bn Situational Training Exercises				_____
2e. Training Scenario				_____

3. How adequate were the following general training sessions?

3a. General Introduction to TOC Evaluation	_____
3b. CCD/TOC Demonstration	_____
3c. Workload Orientation	_____
3e. TOC Training Review/Free Play	_____

Explain reasons for any "Poor" or "Fair" ratings, listed above:
(List Question # beside response.)

TRAINING EVALUATION

4. Were there any CVCC functions that you did not use during the test scenarios and exercises due to lack of effective training? YES _____ NO _____

If YES, which ones?

5. Rate how well you were trained to perform the tasks required in the test scenario using the following scale.

1	2	3	4	5
Poor	Fair	Average	Good	Excellent

Explain reasons for "Poor" rating:

6. Did the classroom instruction provide enough information about the operational concepts underlying the new CVCC?
YES _____ NO _____

Explain reasons for no answer:

TRAINING EVALUATION

7. Are there any parts of the training program you think should be eliminated or de-emphasized? YES_____ NO_____

Explain reasons for yes answer:

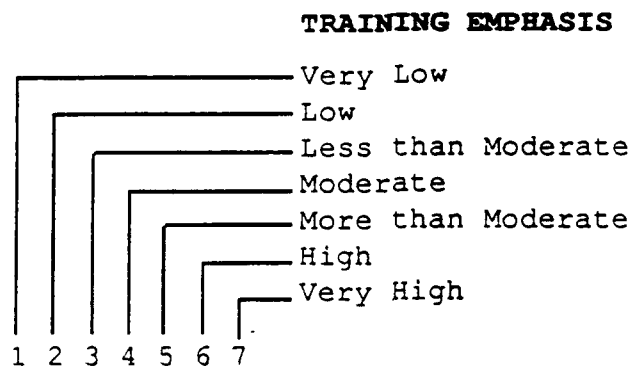
8. Do you have any suggestions on how to improve the test training program?

Additional Comments:

PART 2: Future Training Requirements

The answers you provide in this section will help the Army determine training requirements for new systems similar to the one you have worked with this week.

1. If the Army were to implement a system like the TOC Workstations, how much emphasis should be placed in training each of the skills, knowledges and tasks listed below. In making your ratings, use the following scale.



SKILLS AND KNOWLEDGES

Operating SIMNET - Unique Controls & Displays
(Other than CITV and CCD)

CITV Manual Search

CITV Auto Scan

CITV Target Designate

Operating in GPS Mode

Operating CCD Input Devices

Operating CCD Map Functions

Operating CCD Navigate Functions

Aggregation of CCD Map Icons

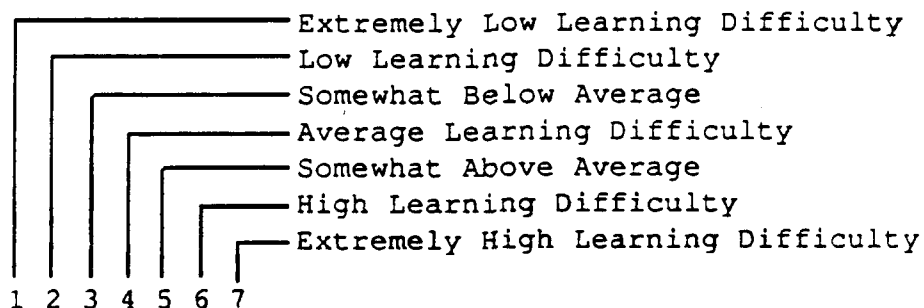
Composing Reports

Retrieving and Reviewing Reports

SKILLS AND KNOWLEDGES (Cont.)

Sending Reports	_____
Coordination with Gunner	_____
Coordination with Driver	_____
Coordination with Other Tank Commanders	=====
Coordination with TOC	_____
Retrieving and Reviewing TOC Overlays	_____
Operational Usage of CVCC	_____
Other (Please Specify)	
_____	_____
_____	_____
_____	_____

2. Rate how difficult you believe it would be to learn each of the skills listed below. In making these ratings, consider the time it would take an incumbent to learn to perform the task satisfactorily. The more time required, the higher the level of learning difficulty.

LEARNING DIFFICULTY**SKILLS AND KNOWLEDGES**

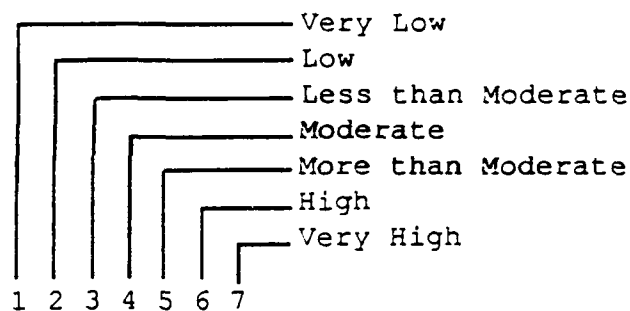
Operating SIMNET - Unique Controls & Displays (Other than CITV and CCD)	_____
CITV Manual Search	_____

SKILLS AND KNOWLEDGES (Cont.)

CITV Auto Scan	_____
CITV Target Designate	_____
Operating in GPS Mode	_____
Operating CCD Input Devices	_____
Operating CCD Map Functions	_____
Operating CCD Navigate Functions	_____
Aggregation of CCD Map Icons	_____
Composing Reports	_____
Retrieving and Reviewing Reports	_____
Sending Reports	_____
Coordination with Gunner	_____
Coordination with Driver	_____
Coordination with Other Task Commanders	_____
Coordination with TOC	_____
Retrieving and Reviewing TOC Overlays	_____
Operational Usage of CVCC	_____
Other (Please Specify)	_____
_____	_____
_____	_____
_____	_____

3. In developing training exercises for a new system such as the TOC Workstation, describe what tasks should be emphasized using the following rating scale

TRAINING EMPHASIS



Prepare and Send SPOT Report	_____
Prepare and Send SHELL Report	_____
Prepare and Send CONTACT Report	_____
Prepare and Send CFF Report	_____
Prepare and Send SITREP Report	_____
Direct Actions of Gunner (including fire commands)	_____
Determine Location	_____
Direct a Scheme of Maneuver (e.g., bypass)	_____
Monitor/Correct Route Progress	_____
Monitor/Correct Platoon Positions with Company	_____
Coordinate Sector Searches	_____
Revise/Update Tactical Plan	_____

4 April 1991

GUNNER AND DRIVER

YOUR DUTY POSITION: Gunner Driver (circle one)
 DATE: _____ ROSTER NO: _____

TRAINING EVALUATION QUESTIONNAIRE**PART 1: Evaluation of Test Training Program**

We are interested in your views about the training you received this week on the TOC workstations. The questions listed below will ask to rate various components of the training program. Please make your ratings using the following five-point scale.

1	2	3	4	5
Poor	Fair	Average	Good	Excellent

Training Evaluation

1. How adequate were the following training events in preparing you to successfully perform your assigned tasks during the test scenarios?

1	2	3	4	5
Poor	Fair	Average	Good	Excellent

1a.	General Introduction	_____
1b.	Gunner/Driver Simulator Orientation	_____
1c.	Tank Crew Exercises	_____
1d.	Company Situational Training Exercises	_____
1e.	Bn Staff Situational Training Exercises	_____
1f.	Bn Situational Training Exercises	_____

Explain reasons for any "Poor" or "Fair" ratings, listed above:
(List Question # beside response.)

TRAINING EVALUATION

2. Were there any CVCC-related functions that you did not use during the test scenarios and exercises due to lack of effective training? YES _____ NO _____

If YES, which ones?

3. Rate how well you were trained to perform the tasks required in the test scenario using the following scale.

1	2	3	4	5
Poor	Fair	Average	Good	Excellent

Explain reasons for "Poor" rating:

4. Did the instruction provide enough information about the operational concepts underlying the CVCC?

YES_____ NO_____

Explain reasons for no answer:

TRAINING EVALUATION

5. Are there any parts of the training program you think should be eliminated or de-emphasized? YES_____ NO_____

Explain reasons for yes answer:

6. Do you have any suggestions on how to improve the test training program?

Additional Comments:

4 April 1991

TOC

YOUR DUTY POSITION: S2 XO INTELL NCO OPS NCO (circle one)

DATE: _____ ROSTER NO: _____

TRAINING EVALUATION QUESTIONNAIRE**PART 1: Evaluation of Test Training Program**

We are interested in your views about the training you received this week on the TOC workstations. The questions listed below will ask to rate various components of the training program. Please make your ratings using the following five-point scale.

1	2	3	4	5
Poor	Fair	Average	Good	Excellent

1. How adequate were the components of the training program in preparing you to operate the Message Display and the Map Display?

CLASSROOM TRAINING:**Message Map**

1a. Classroom Sessions - Overall

1b. Instructor's Presentation

1c. Viewgraphs

1d. Handouts

1e. Examples of Tactical Equipment Use

HANDS-ON SIMULATOR TRAINING:

1f. Hands-On - Overall

1g. RA Explanations

1h. Hands-On Training

Explain reasons for "Poor" or "Fair" ratings, if any: _____

Training Evaluation

2. How adequate were the tactical training exercises in preparing you to use the TOC Workstations in a tactical situation?

1	2	3	4	5
Poor	Fair	Average	Good	Excellent
2a.	TOC Task Training Exercises			_____
2b.	Company Situational Training Exercises			_____
2c.	Bn Staff Situational Training Exercises			_____
2d.	Bn Situational Training Exercises			_____
2e.	Training Scenario			_____

3. How adequate were the following general training sessions?

3a.	General Introduction to TOC Evaluation	_____
3b.	CCD/TOC Demonstration	_____
3c.	Workload Orientation	_____
3d.	TOC Training Review/Free Play	_____

Explain reasons for any "Poor" or "Fair" ratings, listed above:
(List Question # beside response.)

TRAINING EVALUATION

4. Were there any TOC Workstation functions that you did not use during the test scenarios and exercises due to lack of effective training? YES _____ NO _____

If YES, which ones?

5. Rate how well you were trained to perform the tasks required in the test scenario using the following scale.

1	2	3	4	5
Poor	Fair	Average	Good	Excellent

Explain reasons for "Poor" rating:

6. Did the classroom instruction provide enough information about the operational concepts underlying the new workstation?
YES _____ NO _____

Explain reasons for no answer:

TRAINING EVALUATION

7. Are there any parts of the training program you think should be eliminated or de-emphasized? YES_____ NO_____

Explain reasons for yes answer:

8. Do you have any suggestions on how to improve the test training program?

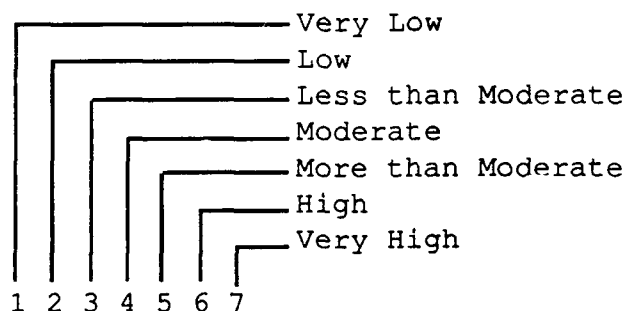
Additional Comments:

PART 2: Future Training Requirements

The answers you provide in this section will help the Army determine training requirements for new systems similar to the one you have worked with this week.

1. If the Army were to implement a system like the TOC Workstations, how much emphasis should be placed in training each of the skills, knowledges and tasks listed below. In making your ratings, use the following scale.

TRAINING EMPHASIS



SKILLS AND KNOWLEDGES

Basic Computer Skills (e.g., use of mouse)	_____
Creation of Overlays	_____
Editing of Overlays	_____
Sending Overlays	_____
Aggregating/Disaggregating Friendly Icons	_____
Manipulating Message Icons	_____
Composing Reports	_____
Reviewing Reports from Vehicles	_____
Organizing Reports	_____
Coordination with Bn Cdr and S3	_____
Coordination Among TOC Staff	_____
Coordination with Tank Commanders	_____

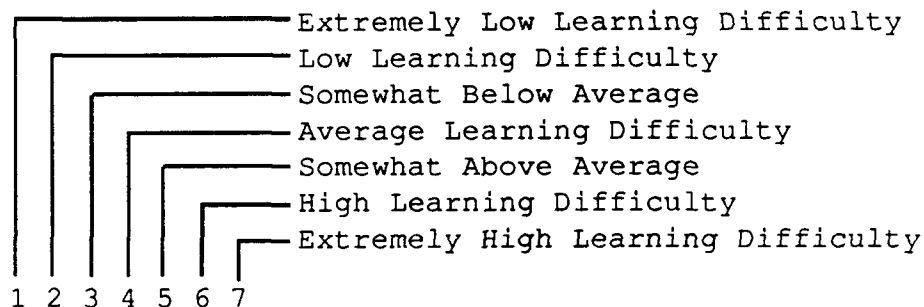
SKILLS AND KNOWLEDGES (Cont.)

Operational Usage of TOC Workstations _____

Potential TOC Workstation Operational Procedures _____

Other (Please Specify) _____

2. Rate how difficult you believe it would be to learn each of the skills listed below. In making these ratings, consider the time it would take an incumbent to learn to perform the task satisfactorily. The more time required, the higher the level of learning difficulty.

LEARNING DIFFICULTY**SKILLS AND KNOWLEDGES**

Basic Computer Skills (e.g., use of mouse) _____

Creation of Overlays _____

Editing of Overlays _____

Sending Overlays _____

Aggregating/Disaggregating Friendly Icons _____

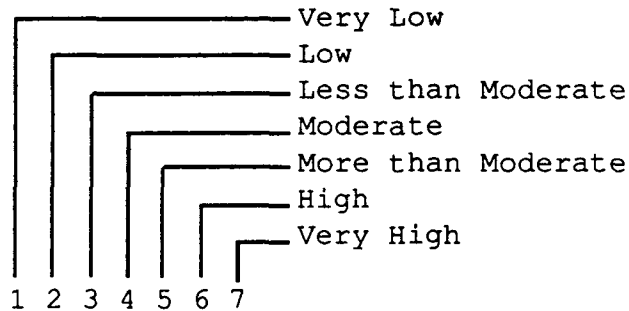
Manipulating Message Icons _____

Composing Reports _____

Reviewing Reports from Vehicles	_____
Organizing Reports	_____
Coordination with Bn Cdr and S3	_____
Coordination with Other TOC Personnel	_____
Coordination with Tank Commanders	_____
Operational Usage of TOC Workstations	_____
Potential TOC Workstation Operational Procedures	_____
Other (Please Specify)	_____
_____	_____
_____	_____
_____	_____

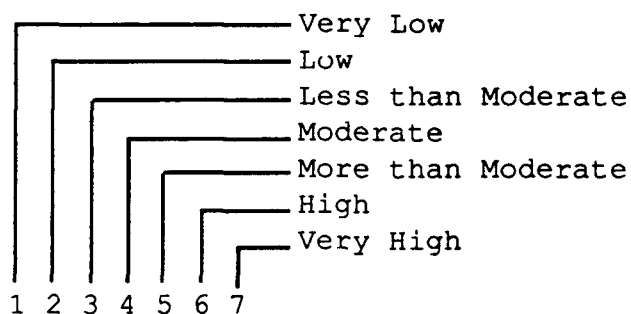
3. In developing training exercises for a new system such as the TOC Workstation, describe what tasks should be emphasized using the following rating scale.

TRAINING EMPHASIS



Maintain Section Journal and Journal File	_____
Prepare and Maintain Situation Map and Associated Overlays	_____
Extract, Categorize, and File Information from Incoming Messages	_____
Determine Threat Probable Course of Action (S2, Intel NCO)	_____

Prepare an Overlay	_____
Disseminate Information to Battalion	_____
Monitor Battle and Decide on Need for Action or Change	_____
Prepare Battalion Frago	_____
Identify and Assess Alternative Friendly Course of Action (XO, OPS NCO)	_____
Evaluate Incoming Information in Terms of Pertinence, Accuracy, and Reliability	_____
Monitor Maintenance of the Section Journal (S2, XO)	_____
Monitor Maintenance of the Situation Map and Preparation of the Situation Overlay (S2, XO)	_____
Supervise the Threat Evaluation Effort (S2, XO)	_____
Supervise Dissemination of Information (S2, XO)	_____
Present Situation Update (S2, XO, OPS NCO, Intell NCO) to Bn Cdr.	_____

TRAINING EMPHASIS

Appendix B-4
Information Effectiveness

**QUESTIONNAIRE ADMINISTRATOR INSTRUCTIONS-
INFORMATION EFFECTIVENESS**

1. Make sure that all Veh Cdrs and members of the TOC are present. Write down the time when all members are present.
2. Describe the objective of the questionnaire using the following:

The purpose of this questionnaire is to obtain your views on the effectiveness of the information you received during the mission exercises. This information will help us evaluate the CVCC.

3. Ask the Veh Cdrs to identify themselves. Give them the questionnaire package marked "INSTRUCTIONS FOR RATING EFFECTIVENESS OF INFORMATION RECEIVED FROM THE TOC."

Tell the participants to read the instructions and then stop and wait until you give them the go ahead before making their ratings.

4. When it appears that all the participants have finished reading the instructions, ask if they have any questions. Answer the questions. If participants have questions about the meaning of some of the information items, refer to the "Information Requirements Hierarchy Definition of Items." Note: Definitions have not been developed for some of the items.

Reiterate to participants that they should not rate an item on the other scales if they give it a "5" rating on the timeliness scale. If they did not receive the item, they cannot rate its frequency, clarity, or completeness.

5. Once all the questions have been answered, tell the participants to start making their ratings. Tell them to begin by circling the position they played during the evaluation. Write down the time. If at any time they have problems in filling out the questionnaire, tell them to raise their hand and let you know. Record these problems.

INFORMATION REQUIREMENTS HIERARCHY DEFINITION OF ITEMS

Definitions for information items contained in the information requirements hierarchy are presented under their area and group headings. The term *information* is used instead of *intelligence* to ensure that all possible output forms are included. Although information such as unit locations may be in another broader information area, the hierarchy treats each as a discrete output of intelligence production. Therefore, information items at all levels are mutually exclusive or independent of each other (i.e., do not assume that because "description of enemy courses of action" might include 'unit locations' that it is redundant). Remember, all information items are independent."

Level 1: Battlefield Area

Specific aspects of the battlefield that include the unit's area of operation and area of interest are delineated into three topical groups: weather, terrain, and other battlefield area conditions.

Level 2: Weather

Weather in the battlefield is divided into three output subsets of information:

Level 3:

Weather Situation. Current and projected weather types, including, but not limited to, what weather will occur, when, and where.

Weather Effects on EN. How, when, and where current and projected weather types will affect current and projected enemy operations or courses of action.

Weather Effects on FR. How, when, and where current and projected weather types will affect current and projected friendly operations or courses of action.

Level 2: Terrain

Battlefield terrain is divided into three output subsets of information:

Level 3:

Terrain Situation (i.e., elevation, vegetation, mobility, and soil conditions).

Terrain Effects on EN (i.e., degree of slope, vegetation, and soil conditions in the battlefield that will shape enemy operations).

Terrain Effects on FR (i.e., degree of slope, vegetation, and soil conditions in the battlefield that will shape friendly operations).

Level 2: Battlefield Area Conditions

Information other than weather or terrain that pertains to physical aspects of the battlefield.

Level 3:

Existing Battlefield Conditions. Other physical aspects of the battlefield excluding weather terrain as described above (e.g., avenues of approach, status of lines of communications, or obstacles within the area of operations.)

Effects on EN Operations. How, when, and where other battlefield conditions will shape the enemy operations.

Effects on FR Operations. How, when, and where other battlefield conditions will shape the friendly operations.

Level 1: Enemy Situation

Current, dynamic, and changing enemy situations within the unit's area of operation and area of interest are delineated into three topical groups: enemy disposition and composition, strength of enemy forces by echelon, and recent and present significant activities.

Level 2: EN Disposition and Composition

Organization for combat and current deployment pattern of enemy elements is further subdivided into ten information items:

Level 3:

Forward Trace. Portrayal of actual linear deployment of the most forward enemy forces in contact within the area of operations.

Unit Locations. Identifies location using point, center of mass, or area for all enemy units in the area of interest.

Main Efforts. Enemy tactical efforts in the area of operations in which he has committed significant portions of available combat power, including location, disposition, and composition.

Combat Support. Disposition, composition, and location of enemy combat support elements in the area of interest.

Echelonment. Disposition, composition, subordination, and location of related enemy echelons (i.e., divisions, fronts, and armies, in the area of interest).

Reserves. Disposition, composition, and location of uncommitted enemy combat units in the area of interest.

Staging Areas. Information on location of enemy assembly/staging areas, either in use or available, in the area of interest.

Combat Service Support. Disposition, composition, and location of enemy combat service support elements in the area of interest.

Air Forces. Disposition, composition, and location of enemy air forces in the area of interest.

C2. Disposition, composition, and location of enemy command and control elements in the area of interest.

Level 2: Strength of EN Forces by Echelon

Numerical status or combat readiness of enemy units based on attrition in the area of interest, by specific echelons, is divided into five information items:

Level 3:

Readiness by Echelons. Available combat potential of enemy units in the area of interest.

Supply Status/Rates by Echelon. Enemy resupply status/rates for items such as fuel or ammunition in the area of interest.

Enemy Critical Nodes/HPT (High Payoff Targets). Formations, locations, or facilities whose capability, strength, or presence is pivotal to continuation of enemy operations within the area of interest and whose destruction or disruption provides advantage to friendly forces.

Level of EN Morale. Morale, well-being, and willingness to fight enemy units, which effects their capability in the area of interest.

Strength of Air Forces. Strength/capability of enemy air forces in the area of interest.

NBC. Strength/capabilities of enemy nuclear, biological, and chemical elements in the area of interest.

Level 2: Recent/Present Significant Activities

Recent (up to 36 hours' old) and present significant activities are divided into six information items:

Level 3:

Combat Action. Enemy combat activities, including, but not limited to, unusual aspects such as actions involving nuclear, biological, or chemical combat in the area of interest.

C2 Activity. Enemy command and control activities (i.e., communication activity or command post relocations, in the area of interest).

Sustainment. Enemy sustainment activities (i.e., resupplying or repairing, in the area of interest).

Intelligence Activities. Enemy intelligence activities (i.e., reconnaissance patrolling, radio intercept, or other covert or overt activities, in the area of interest).

Level 1: Enemy Courses of Action

Enemy course of action (intentions) that are likely or possible are delineated into two topical groups: enumerate possible enemy courses of action and other information for probable enemy courses of action.

Level 2: Enumerate Possible ECOAs

Possible enemy courses of action are divided into the following information items:

Level 3:

Mission. Probable or know specific tasks/missions of related enemy elements in the area of interest.

Objectives. Assigned objectives of enemy units, whether force or terrain oriented, in the area of interest.

Forces. Specific enemy forces related to specific courses of action, including, but not limited to, their composition, locations, strength, and disposition.

Terrain Considerations. Influence of terrain related to specific enemy courses of action (i.e., routes of advance or crossing sites).

Echelonment. Echelonment or subordination of enemy elements such as battalions, regiment, divisions, or corps to specific courses of action.

Main Supporting Efforts. Where, when, and in what strength main and supporting efforts will occur related to specific enemy courses of action.

Fires (including air support). Where, when, and in what strength fires and types of fires will occur related to specific enemy courses of action.

Time/Distance Factors. Movement in terms of times and distances (i.e., how long it will take for a unit to get from point A to point B, related to specific enemy courses of action).

Threat Advance. How rapidly forces can or will move related to specific enemy courses of action, and influenced by doctrine or terrain.

Probability. Probability of occurrence for enemy courses of action (i.e., most and least likely COA with rationale, in the area of interest).

Level 2: Analysis of Probable ECOAs

Probable enemy courses of action are divided into information items:

Level 3:

Enemy Strengths. Specific aspects of each enemy COA (i.e., force ratios or terrain that are to their advantage).

Enemy Vulnerabilities. Specific aspects of each enemy COA (i.e., force ratios or terrain that can make them vulnerable).

Friendly High Value Targets. Potential friendly high value targets (i.e., friendly units or key terrain held by friendly units that may influence specific enemy courses of action).

Enemy Intentions. Independent of the assessed probability, information on which courses of action the enemy intends to execute).

Level 1: Enemy Activities Affecting Operations Security

Specialized enemy activities that may influence command operations security posture in both forward and rear battlefield areas are delineated into five topical groups: reconnaissance (RECCE)/intelligence; radio electronic combat (REC); special operations; friendly vulnerabilities; and deception.

Level 2: EN RECCE/Intelligence

Enemy reconnaissance and intelligence activities that may influence command operations security posture are divided into three information items:

Level 3:

EN RECCE/Intelligence Capabilities (i.e., imagery or human intelligence that may influence how the friendly command conducts operations).

Recent RECCE/Intelligence Activities/Indicators. Most current and significant enemy intelligence activities and indicators that may influence command operations security posture.

Effects of EN Intelligence on FR Operations. Effects, as determined either by friendly analysis or enemy information, of enemy RECCE and intelligence activities on our operations.

Level 2: Enemy Radio Electronic Combat

Enemy jamming and signals collection activities that may influence the command operations security posture is divided into three information items:

Level 3:

REC Capabilities. Enemy radio and electronic warfare capabilities that may influence how the command conducts operations.

Recent and Significant REC Activities. Most current and significant enemy radio and electronic warfare activities that may influence how the command conducts operations.

Effects of REC on FR Operations. Effects, determined by either friendly analysis or enemy information, of enemy radio Electronic Combat activities on friendly operations.

Level 2: EN Special Operations

Enemy special operations activities (i.e., special operating forces and espionage/sabotage operations that may influence command operations security posture) is divided into three information items:

Level 3:

Enemy Special Operations Capabilities. Enemy's special operations capabilities (i.e., special operating forces and espionage/sabotage resources that may influence the command operations security posture).

Recent Significant EN Special Operations. Enemy's recent special operations (i.e., special operating forces, espionage, or sabotage).

Effects of EN Special Operations on FR Operations. Effects, determined either by friendly analysis or enemy information, of enemy special operations on friendly operations.

Level 2: Friendly Vulnerabilities

Friendly vulnerabilities determined either by the enemy or friendly analysis that may influence command operations security posture is divided into two information items:

Level 3:

Friendly High Value Targets. Friendly vulnerabilities information derived from either friendly analysis or enemy information that concerns our own potentially high value targets.

Effects of Friendly Vulnerabilities on Friendly Operations. Vulnerability information derived from friendly analysis or enemy information that concerns the effects of our vulnerabilities on current or projected operations.

Level 2: Deception

Enemy deception or spoofing activities that may influence command operations security posture are divided into three information items.

Level 3:

Deception Capabilities. Present enemy deception capabilities that may influence command operations security posture. These may contain numerous specific data possibilities that need not be further specified.

Recent/Significant Deception Activities. Current and significant enemy deception or spoofing activities that may influence command operations security posture or friendly combat operations.

Effects of Deception on Friendly Operations. Effects, determined by friendly analysis or enemy information, of enemy deception of spoofing activities on our operations.

Appendix B-5
Biographical Questionnaire

ADMIN : Date _____ Partic # _____ Dty Pos _____ * 4-4
 * * * * *

BIOGRAPHICAL QUESTIONNAIRE

Name _____ SSN _____ - _____ - _____

1. Age _____ years 2. Current Army Rank _____

3. Current unit of assignment _____

4. Military Specialty: 12A 12B 12C 19E 19K Other _____

5. Total time on active duty: _____ years / _____ months

6. Total active duty time in Armor units (include Cavalry):
 _____ yrs / _____ months

7. How much experience as a crewmember have you had with the following families of vehicles?

a. M1 _____ / _____
 yrs mos

c. M113 _____ / _____
 yrs mos

b. M60 _____ / _____
 yrs mos

d. M2/M3 _____ / _____
 yrs mos

8. Circle your present Duty Position in your current unit:

Plt Ldr Co Cdr Co XO Bn S2 Bn S3 Bn XO Student

Driver Loader Gunner Tank Cdr Plt Sgt Instructor

Other _____

9. How much experience do you have in each of the following TO&E (combat maneuver unit) positions?

a. Driver _____ / _____
 yrs mos

h. Co XO _____ / _____
 yrs mos

b. Loader _____ / _____
 yrs mos

i. Co Cdr _____ / _____
 yrs mos

c. Gunner _____ / _____
 yrs mos

j. Bn S2 _____ / _____
 yrs mos

d. Tnk Cdr _____ / _____
 yrs mos

k. Bn S3 _____ / _____
 yrs mos

e. Plt Sgt _____ / _____
 yrs mos

l. Bn Staff _____ / _____
 (S1, S4, BMO) yrs mos

f. Plt Ldr _____ / _____
 yrs mos

m. Br. XO /
 yrs mos

g. **Spec** _____ / _____
Plt Ldr yrs mos

n. Bn Cdr /
 yrs mos

10. Which of the following formal military courses have you completed? (check all that apply)

a. PLDC d. TCCC g. AOAC

b. **BNCOC** e. **SPLC** h. **CAS3**

C. **ANCOC** f. **AOBC** i. **C&GSC**

11. How long has it been since you participated as a trainee in an actual field training exercise (not counting NTC and training support)? months

12. How many times have you participated as a member of a rotating unit in NTC or CMTC exercises? times

13. How many days have you previously spent in CCTT (SIMNET-T)?
_____ days. In CCTB (SIMNET-D)? _____ days (if none, skip
question 14)

14. In which of the following CCTB (SIMNET-D) equipment evaluations have you participated? (check all that apply)

a. POSNAV b. IVIS c. CITV

d.	CVCC (Co Level)	e.	CVCC (Bn TOC)

f. Other

15. Check your previous experience with computers (do not count SIMNET experience):

no experience at all

_____ limited experience (i.e., limited word processing or computer games)

_____ moderate experience (i.e., some programming experience or frequent use of commercial computer programs)

considerable experience (i.e., fluent in more than one programming language or extensive experience using commercial programs such as spreadsheets)

16. People commonly report feeling uncomfortable using computers.
Please circle below the value that best describes how you feel
(in general) about using computers.

1	2	3	4	5	6	7
Very Uncomfortable			Neutral			Very Comfortable

17. Highest civilian education level:

_____ High School Diploma/GED
_____ Some College
_____ College Degree (BA/BS)
_____ Postgraduate work

18. Total active duty time in combat maneuver units (for example,
194th AB, 2d AD): (Please list years/months)

CONUS _____ / _____ USAREUR _____ / _____ KOREA _____ / _____

Appendix C
Pre-Mission Procedures

Time	Events
T-1:55	<u>Bn Cdr, S3, and Co Cdrs arrive for Bde OPORD brief.</u>
T-1:50	<u>Brigade Orders Brief.</u> a. Battle Master briefs exercise participants on the Bde OPORD. All participants attend the briefing. Only the Bn Cdr or S3 may ask questions. b. Battle Master issues Bn Cdr scenario materials at Table C-1. c. Battle Master answers all questions from the Cdr and S3 regarding the Bde Order, with emphasis on Cdr's intent and concept of the operation. d. Battle Master provides participants with a time check and a timeline of key or critical milestones (in-simulator time, REDCON 1 time, LD time or mission start time, etc.). <u>Support Staff requirements.</u> a. RAs check simulators, CCDs*, CITVs*, and radios. All operational problems are brought to the attention of technicians and the Test Exercise Director. b. *TOC staff initialize workstations ensuring the bridge is on the same exercise as the simulators. c. *TOC staff calls up initial Threat and current situation graphics files on the workstations. d. FSE and ALOC bring up workstations per events lists. e. ECR personnel initialize manned simulators in appropriate starting positions (see scenario events lists). f. SAFOR operators initialize SAFOR elements in appropriate starting positions (see scenario events lists). Vehicles are sighted according to scenario (defense: in suitable firing positions; offense: in column with appropriate orientations). g. Operators set reporting and firing parameters for SAFOR vehicles to the on position. h. OPFOR operator initializes OPFOR elements in starting positions using scenario-specific files. Movement and firing parameters remain "OFF" until Battle Master directs they be turned on. i. Initial PVD graphic overlays are called up on both PVDs. The LISTEN and SEND stations (if used) are brought on line. j. The ECR workstation screen is set up with the map centered on the exercise area, appropriate overlays posted, and the digital message screen configured for report monitoring.

*These events for CVCC only.

Time	Events
T-1:2	<u>Unit plans and prepares for mission.</u> Unit conducts mission planning and troop leading procedures. a. Bn S2 (role player) updates Bn orders group on current enemy situation and order of battle. b. Bn XO (role player) briefs orders group on Bn order. Covers concept of operation and maneuver paragraphs in detail. c. Co Cdrs back-brief Bn Cdr and S3 on OPORD and their respective Co operations. d. Co Cdrs coordinate with and provide instruction to the co XOs and SAFOR operators concerning unit operations and maneuvers. e. TOC staff members prepare all stations for operation. f. Veh Cdrs brief the OPORD to their crews. g. Time permitting, Bn Cdr conducts map or terrain model rehearsals with Cdrs and staff. h. *TOC staff ensures that initial operations graphics are sent to the simulators.
T-0:20	<u>Participants report to and prepare simulators.</u> Unit conducts pre-combat checks and prepares for the mission. a. Crews conduct simulator before operations checks per M1 SIMNET Operator's Guide, March 1987. b. Crews post mission graphics to maps. c. *Veh Cdrs prepare CCD for operation, to include posting of mission graphics. d. *Veh Cdrs input route/navigation waypoints, save and transmit route data to drivers. e. *Veh Cdrs prepare CITV for operation, to include: setting sector limits, scan rate, polarity, initial operating mode. f. Veh Cdrs enter (perform radio checks on)/open radio networks. g. Co Cdrs report REDCON 1 to Bn Cdr/TOC.
T-0:05	<u>REDCON 1.</u> Bn Cdr reports REDCON 1 to Battle Master. a. Battle Master acknowledges REDCON 1. b. Battle Master directs OPFOR to turn on firing and movement parameters. c. Battle Master coordinates with site support to ensure that DataLogger is on. d. Battle Master obtains "GO" from exercise director.
T Hour	<u>STARTEX.</u> All ECR/TOC staff, RAs proceed with data collection logs and events lists.

*These events for CVCC only.

Table C-1

Scenario Materials

Item	Offense	Defense
Three (3) copies of the Bde OPORD w/ annexes	X	X
Bde Operations Overlay	X	X
Bde Barrier Overlay		X
Three (3) copies of the Bn OPORD w/ annexes	X	X
Bn Operations Overlay	X	X
Bn Fire Support Overlay	X	X
Three (3) copies of Start up message traffic	X	X
Company orders (1 per Co Cdr)	X	X
Bn SOP (as required)	X	X
Bn SOI (as required)	X	X
Maps w/map cases (1 ea for Bn Cdr, S3, Co Cdrs, XOs)	X	X
Acetate	X	X
Tape	X	X
Marking pens (water soluble)	X	X

Appendix D

Performance Measure Definitions

OPERATIONAL DEFINITION

#: 1.1

Measure: Deviation of reported threat locations from actual locations in SPOT, CONTACT, and CFF reports

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Deviation, in meters, of reported enemy location from nearest enemy vehicle within a 500 meter radius of reported location (regardless of type). For descriptive purposes, a tally (%) will be kept of reports which include valid locations (see below) but for which no enemy vehicles are within the 500 m radius.

Measurement Unit: Average per Vehicle

Allowable Events: Any of the above reports with valid location(s) (in range ES6565 - FT1000; adopted to exclude system errors) and nearest enemy vehicle within a 500 meter radius of reported location. Any report containing more than one location will be treated as two (or more) separate reports.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA (CVCC); Manual & DCA (Baseline)

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 1.1

Measure: Deviation of reported threat locations from actual locations in SPOT, CONTACT, and CFF reports

Input Variables (DCA):

Name	Source
A. Report Time	DCA Packets
B. Report Number	" "
C. Report Location	" "
D. Nearest Enemy Location	" "

Operation: Essential report contents are put into an RS/1 table. For each report location, at report create time, the location of the closest enemy vehicle (of any type, within a 500 M radius of reported location) is determined and compared to the reported location (deviation is represented by the absolute direct-line value).

Input Variables (Manual):

Name	Source
A. Report Flag	Radio Commo Log
B. Report Location	" " "

Operation: Record A. and B. on data entry sheet; input to database for input to RS/1; run DCA report accuracy routine.

OPERATIONAL DEFINITION

#: 1.2

Measure: Accuracy of threat descriptions in SPOT, CONTACT, and CFF reports

Year Implemented: 1991

Variable Type/Length: f4.2

Operational Definition: Accuracy of above reports based on proximity of reported "what" (tanks, personnel carriers, trucks, artillery, helicopters) to actual location of nearest matching type vehicle; determined by criterion scoring.

Measurement Unit: Average per Vehicle

Allowable Events: Any referenced report containing a valid location (in range ES6565 - FT1000; adopted to exclude system errors) and a "What"; matching enemy vehicle nearest to reported location. Any report containing more than one location will be treated as two (or more) separate reports.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA (CVCC); Manual & DCA (Baseline)

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 1.2

Measure: Accuracy of threat descriptions in SPOT, CONTACT, and CFF reports

Input Variables (DCA):

Name	Source
A. Report Time	DCA Packets
B. Report Number	" "
C. Report Location	" "
D. Report What	" "
E. Nearest Enemy What	" "

Operation: Essential report contents are put into an RS/1 table. For each report location, at the report time, the distance to the closest enemy vehicle matching the reported type is determined and criterion points assigned. Scoring rules:

0 -100 m = 3 pts
101-250 m = 2 pts
251-500 m = 1 pt
501+ m = 0 pt

Input Variables (Manual):

Name	Source
A. Report Flag	Radio Commo Log
B. Report Location	" " "
C. Report What	" " "

Operation: Record A., B., and C. on data entry sheet; input to database for input to RS/1; run DCA report accuracy routine.

OPERATIONAL DEFINITION

#: 1.3

Measure: Deviation of reported friendly locations from actual locations in SITREP

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Deviation, in meters, of reported FLOT from actual FLOT (of reporting company).

Measurement Unit: Average per Company

Allowable Events: Any SITREP containing grid locations in both FLOT fields.

Note: Procedural guidelines for designating the SITREP FLOT, based on Army doctrine, should be furnished to Veh Cdrs.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA (CVCC); Manual & DCA (Baseline)

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 3/week/scenario

DATA REDUCTION PROCEDURE

#: 1.3

Measure: Deviation of reported friendly locations from actual locations in SITREP

Input Variables (DCA):

Name	Source
A. Report Send Time	DCA Packets
B. Report Number	" "
C. Reporting Unit	" "
D. Reported FLOT	" "
E. Actual FLOT	Computed by DCA

Operation: Essential report contents are put into an RS/1 table. For each reported FLOT, at the report send time, the computer determines the actual FLOT of the reporting company by identifying the most forward vehicle on either edge of the company formation. The midpoint between the two locations so defined is compared to the midpoint between the two FLOT locations in the SITREP to yield a direct-line distance (deviation is represented by the absolute value, in meters).

Input Variables (Manual):

Name	Source
A. Report Flag	Radio Commo Log
B. Reporting Unit	" " "
C. Reported FLOT	" " "
D. Actual FLOT	Computed by DCA

Operation: Record A., B., and C. on data entry sheet; input to database for input to RS/1; run DCA FLOT accuracy routine as above.

OPERATIONAL DEFINITION

#: 1.4

Measure: Deviation of reported location in SHELL report from actual location

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Deviation, in meters, of reported shelling location from nearest shelling location within a 500 meter radius of reported location.

Measurement Unit: Average per Vehicle

Allowable Events: Any SHELL report with a valid location.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA (CVCC); Manual & DCA (Baseline)

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 1.4

Measure: Deviation of reported location in SHELL report from actual location

Input Variables:

Name	Source
A. Report Time	DCA Packets
B. Report Number	" "
C. Report Location	" "
D. Nearest Shelling Location	" "

Operation: Essential report contents are put into an RS/1 table. For each report location, the location of the closest shelling event (within the 5 minutes preceding report "as of" time, and within a 500 m radius of reported location) is determined and compared to the reported location to yield a direct-line distance (deviation is represented by the absolute value, in meters). Reports with valid locations > 500 m from actual location are excluded.

Input Variables (Manual):

Name	Source
A. Report Flag	Radio Commo Log
B. Reported Location	" " "
C. Nearest Shelling Location	DCA Packets

Operation: Record A. and B. on data entry sheet; input to database for input to RS/1; run distance deviation routine as above.

OPERATIONAL DEFINITION

#: 1.5

Measure: Deviation of reported enemy locations on SitDisplay from actual locations

To be developed in 1992

OPERATIONAL DEFINITION

#: 1.6

Measure: Deviation of reported friendly locations on SitDisplay from actual locations

To be developed in 1992

OPERATIONAL DEFINITION

#: 1.7

Measure: Accuracy of threat descriptions on SitDisplay

To be developed in 1992

OPERATIONAL DEFINITION

#: 1.8

Measure: Number of ADJUST FIRE reports

Eliminated due to operational and interpretive ambiguities.

OPERATIONAL DEFINITION

#: 1.9

Measure: Duration of Bn Cdr requests to clarify INTEL reports

Year Implemented: 1991

Variable Type/Length: 5.2

Operational Definition: The cumulative time (in minutes) the Bn Cdr spent obtaining clarification of INTEL reports.

Measurement Unit: Vehicle

Allowable Events: All voice radio requests for clarification of INTEL reports by Bn Cdr.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 1.9

Measure: Duration of Bn Cdr requests to clarify INTEL reports

Input Variables:

Name	Source
A. Clarif commo duration	Audio recordings

Operation: Using playback of audio recordings, the data reducer times the duration of requests made by the Bn Cdr and records values on form; values are summed and entered into database.

OPERATIONAL DEFINITION

#: 2.1

Measure: Time between threat contact and posting of information on S2 workstation

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: The elapsed time, in minutes, from the first broadcast of a CONTACT or SPOT report to the posting of the report to the S2 Journal, folder, or Map Display (CVCC only); excludes reports generated by WS operators.

Measurement Unit: Report

Allowable Events: Any CONTACT or SPOT report posted on the S2 workstation (to Journal, a folder, or Map Display), including those generated by SAFOR elements but excluding those generated by WS operators.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics

Expected N (per Cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 2.1

Measure: Time between threat contact and posting of information on S2 workstation

Input Variables (DCA):

Name	Source
A. Spot_Delay	BTME Table: Role, Event, Detail, Type, FromInit
B. Contact_Delay	BTME Table: Role, Event, Detail, Type, FromInit

Operation: A.= For Role = 'S2' and Event = 'Copy' and Detail = 'From:InFolder To:MapDisplay' and Type = 'Spot' get FromInit Time.

B. = For Role = 'S2' and Event = 'Copy' and Detail = 'From:InFolder To:MapDisplay' and Type = 'Contact' get FromInit Time.

(Note: FromInit Time is the first time the report appears in the network, i.e., first Send)

OPERATIONAL DEFINITION

#: 2.2

Measure: Time between artillery barrage or NBC to posting of information on S2 workstation

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: The elapsed time, in minutes, from the first broadcast of a SHELL or NBC report to the posting of the report to the S2 Journal, folder, or Map Display (CVCC only); excludes reports generated by WS operators.

Measurement Unit: Report

Allowable Events: Any SHELL or NBC report posted on the S2 WS (to Journal, folder, or Map Display), including those generated by SAFOR elements but excluding those generated by WS operators.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics

Expected N (per Cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 2.2

Measure: Time between artillery barrage or NBC to posting of information on S2 workstation

Input Variables:

Name	Source
A. Shell_Delay	BTME Table: Role, Event, Detail, Type, FromInit
B. NBC_Delay	BTME Table: Role, Event, Detail, Type, FromInit

Operation: A.= For Role = 'S2' and Event = 'Copy' and Detail = 'From:InFolder To:MapDisplay' and Type = 'Shell' get FromInit Time.

B. = For Role = 'S2' and Event = 'Copy' and Detail = 'From:InFolder To:MapDisplay' and Type = 'NBC' get FromInit Time.

(Note: FromInit Time is the first time the report appears in the network, i.e., first Send)

OPERATIONAL DEFINITION

#: 2.3

Measure: Time for information from higher headquarters to reach lowest manned echelon

Year Implemented: 1991

Variable Type/Length: 6.2

Operational Definition: CVCC: The elapsed time, in minutes, from the time a digital message was sent from the TOC (by either workstation) until it was opened by the lowest manned echelon; digital reports and overlays analyzed separately.

Baseline: The elapsed time, in minutes, from the time a voice report was broadcast from the TOC on the Bn net until it was relayed on the lowest net.

NOTES:

1. A tally of reports (percent) originating in the TOC but not opened at the lowest echelon will be kept for descriptive purposes.

2. There are fundamental differences in this measure between the two conditions.

Measurement Unit: CVCC: Average per Vehicle; Baseline: Bn

Allowable Events: CVCC: Any message (including FREE TEXT messages) originating in the TOC which was subsequently opened by a Co Cdr. Baseline: Any formatted voice report originating in the TOC and relayed on the lowest net.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA (CVCC); Manual & DCA (Baseline)

Note: The measurement of this in the Baseline condition may require the capability to flag events in the TOC.

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 2.3

Measure: Time for information from higher headquarters to reach lowest echelon

Input Variables (DCA):

Name	Source
A. Report Send Time	Serial Table: Time, Serial
B. Overlay Send Time	Serial Table: Time, Serial
C. Report Open Time	IVMH Table: Time, Role, Serial, Sender, Action
D. Overlay Post Time	IVMH Table: Time, Role, Serial, Sender, Action

Operation: Get serial number and time for each digital message (sent by S3 or S2) opened by A06, B06, C06, and D06; go to serial table and get send time for that message. Compute delta (A.-C. or B.-D.). Output file ready for SPSS.

Input Variables (Manual):

Name	Source
A. Message Sent on Bn net from TOC Flag	Radio commo log
B. Message Sent on lowest net	Radio commo log
C. Flag Times	Flag Table: Time, Seq, PVD

Operation: A. Radio traffic monitor flags downward-going reports sent from the TOC on the Bn net. B. Radio traffic monitor flags same report sent on each subsequent net. Get flag times from DL Flag table; convert to minutes and tenths of minutes; compute delta; enter in database.

OPERATIONAL DEFINITION

#: 2.4

Measure: Timeliness rating of information sent by vehicles

Measure eliminated because of use of contractor-manned TOC.

OPERATIONAL DEFINITION

#: 2.5

Measure: Frequency rating of information sent by vehicles

Measure eliminated because of use of contractor-manned TOC.

OPERATIONAL DEFINITION

#: 2.6

Measure: Timeliness rating of information sent by TOC

Rating scale from Information Effectiveness questionnaire defines this measure.

OPERATIONAL DEFINITION

#: 2.7

Measure: Frequency rating of information sent by TOC

Rating scale from Information Effectiveness questionnaire defines this measure.

OPERATIONAL DEFINITION

#: 2.8

Measure: Average time from significant event initiation to Bn decision point

Measure eliminated from scenarios because it is more appropriate to DCEs.

OPERATIONAL DEFINITION

#: 2.9

Measure: Average time from Bn decision point to event completion

Measure eliminated from scenarios because it is more appropriate to DCEs.

OPERATIONAL DEFINITION

#: 2.10

Measure: Average time from significant event initiation to event completion

Measure eliminated from scenarios because it is more appropriate to DCEs.

OPERATIONAL DEFINITION

#: 3.1.1

Measure: Time to seize last Objective

Eliminated - largely overlaps measure 3.4.3.

OPERATIONAL DEFINITION

#: 3.1.2

Measure: Number of company Objectives seized

Year Implemented: 1991

Variable Type/Length: f2

Operational Definition: Cumulative # of companies reporting SET on Objective

Measurement Unit: Bn

Allowable Events: During offensive stages 2 & 3 and defensive stage 2: The number of companies reporting SET. Contingencies should be made for companies who fail to report SET; PVD operator should monitor radio traffic for Objective status queries by Bn or Bde and determine when to flag SET.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on Condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.1.2

Measure: Number of company Objectives seized

Input Variables:

Name	Source
A. Flag for each Co reporting SET	PVD Log

Operation: Count number of occurrences of A. for each stage;
input to SPSS database.

OPERATIONAL DEFINITION

#: 3.2.1

Measure: Distance between friendly and threat center of mass (CoM), average per Bn

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: Distance, in meters, between each non-reserve company's CoM and the nearest enemy company's CoM at end of delay stages; averaged across three companies in each stage.

Measurement Unit: Average per Bn

Allowable Events: During defensive stages 1 & 3, after the last OPFOR firing: CoM may include dead vehicles but will not include vehicles greater than 500 M from computed CoM. Reserve company is excluded from analysis.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.2.1

Measure: Distance between friendly and threat center of mass (CoM), average per Bn

Input Variables: (To be modified for periodic sampling)

Name	Source
A. A Co CoM (stage 1)	DCA
B. B Co CoM	"
C. C Co CoM	"
D. D Co CoM (stage 3)	"
E. Enemy Co CoM nearest A Co	"
F. Enemy Co CoM nearest B Co	"
G. Enemy Co CoM nearest C Co	"
H. Enemy Co CoM nearest D Co	"
I. Time of OPFOR last firing	Damages Table: F_Force, Time

Operation:

Compute: A. - E. @ I.
 B. - F. @ I.
 C. - G. @ I.
 D. - H. @ I.

provide DCA with file structure; DCA output file ready for SPSS.

OPERATIONAL DEFINITION

#: 3.2.2

Measure: Percent of enemy penetrating designated phase line by end of stage

To be developed in 1992

OPERATIONAL DEFINITION

#: 3.2.3

Measure: Did Task Force prevent decisive engagement?

Year Implemented: 1991

Variable Type/Length: f1

Operational Definition: Determination (yes/no) whether the TF prevented a decisive engagement. Based on Battle Master's assessment of (a) reaction time of Co Cdrs and Bn Cdr, (b) proportion of Bn vehicles successfully displacing, and (c) consideration of BLUFOR controllers' response time.

Measurement Unit: Bn

Allowable Events: During defensive stages 1 & 3: Battle Master's determination of whether the TF prevented a decisive engagement.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: X^2

Expected N (per Cell): 1/week

DATA REDUCTION PROCEDURE

#: 3.2.3

Measure: Did Task Force prevent decisive engagement?

Input Variables:

Name	Source
A. Log item	Battle Master Log

Operation: Battle Master monitors engagement, assessing (a) reaction time of Co Cdrs (requesting permission to displace) and Bn Cdr (ordering displacement), (b) proportion of Bn vehicles successfully displacing (more than 50% of front-line elements = acceptable), and (c) BLUFOR controllers' response time; records whether TF prevented a decisive engagement (Y/N); input to SPSS database.

OPERATIONAL DEFINITION

#: 3.2.4

Measure: Was the Bn bypassed by the enemy?

Year Implemented: 1991

Variable Type/Length: F1

Operational Definition: Determination (yes/no) whether the Bn was bypassed by the enemy. Based on Battle Master's assessment of volume of enemy vehicles penetrating to the rear of the front-line friendly companies.

Measurement Unit: Bn

Allowable Events: During defensive stages 1 & 3: Battle Master's determination of whether the Bn was bypassed by the enemy.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: χ^2

Expected N (per Cell): 1/week

DATA REDUCTION PROCEDURE

#: 3.2.4

Measure: Was the Bn bypassed by the enemy?

Input Variables:

Name	Source
A. Log item	Battle Master Log

Operation: Battle Master monitors engagement, noting volume of enemy vehicles penetrating to the rear of the front-line friendly companies (less than the equivalent of four enemy platoons = acceptable); records Y/N whether the Bn was bypassed by the enemy; input to SPSS database.

OPERATIONAL DEFINITION

#: 3.2.5

Measure: Did the Bn withdraw intact?

Year Implemented: 1991

Variable Type/Length: F1

Operational Definition: Determination (yes/no) whether the Bn withdrew intact. Based on Battle Master's assessment of proportion of friendly platoons established on new battle positions at end of stage.

Measurement Unit: Bn

Allowable Events: During defensive stages 1 & 3: Battle Master's determination of whether the Bn withdrew intact.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: χ^2

Expected N (per Cell): 1/week

DATA REDUCTION PROCEDURE

#: 3.2.5

Measure: Did the Bn withdraw intact?

Input Variables:

Name	Source
A. Log item	Battle Master Log

Operation: Battle Master monitors engagement, noting proportion of friendly platoons established on new battle positions at end of stage (more than 50% of platoons = acceptable, providing each company retained at least one platoon); records Y/N whether the Bn withdrew intact; input to SPSS database.

OPERATIONAL DEFINITION

#: 3.3.1

Measure: Was Task Force surprised by enemy?

Eliminated - Scenario script minimized chance of surprise.

OPERATIONAL DEFINITION

#: 3.3.2

Measure: Did more than one Task Force company make contact at a time?

Year Implemented: 1991

Variable Type/Length: F1

Operational Definition: Determination (yes/no) whether more than one friendly company simultaneously engaged enemy. Based on Battle Master's assessment of engagement events during the course of each stage.

Measurement Unit: Bn

Allowable Events: During offensive stages: exchange of fire between more than one friendly company and any enemy unit.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: X^2

Expected N (per Cell): 1/week

DATA REDUCTION PROCEDURE

#: 3.3.2

Measure: Did more than one Task Force company make contact at a time?

Input Variables:

Name	Source
A. Log item	Battle Master Log

Operation: Battle Master monitors engagement, noting simultaneous exchange of direct fire between two or more friendly companies and any enemy unit; records Y/N whether more than one company was simultaneously engaged; input to SPSS database.

OPERATIONAL DEFINITION

#: 3.4.1

Measure: Percent enemy casualties by end of stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Of the total number of enemy vehicles participating in the battle, the proportion killed by entire friendly force (direct and indirect fire); excludes mobility kills.

Measurement Unit: Bn

Allowable Events: Total number of OPFOR vehicles scripted in the scenario (i.e., a constant number for each stage); this rules out possible confounding by 2nd lives or static vehicles remaining from previous stages. Unique kills of enemy vehicles caused by friendly fire (direct and indirect); dead vehicles include firepower kills and catastrophic kills.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual, DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.4.1

Measure: Percent enemy casualties by end of stage

Input Variables:

Name	Source
A. Enemy Losses	KV_KILLS Table: Blue X Red
B. Stage-specific OPFOR strength	Scenario materials

	<u>Offense</u>	<u>Defense</u>
Stage 1	16	150
Stage 2	35	48
Stage 3	35	96

Operation: Provide DCA with B.; divide A. by B.; provide DCA with file structure; DCA outputs file ready for SPSS.

OPERATIONAL DEFINITION

#: 3.4.2

Measure: Percent of friendly casualties by end of stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Of the total number of friendly vehicles (manned and semiautomated) participating in the battle, the proportion killed by direct and indirect fire; includes fratricide; excludes mobility kills.

Measurement Unit: Bn

Allowable Events: Total number of friendly vehicles scripted in scenario (i.e., a constant for each stage); this rules out possible confounding by 2nd lives or static vehicles remaining from previous stages. Unique kills of friendly vehicles caused by enemy and friendly fire (direct and indirect); dead vehicles include firepower kills and catastrophic kills. DCA determines kills of all vehicles, including manned simulators.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual, DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.4.2

Measure: Percent of friendly casualties by end of stage

Input Variables:

Name	Source
A. Friendly Losses	KV_KILLS Table: Red X Blue
B. Total Friendly Vehicles = 54	

Operation: Provide DCA with B.; divide A. by B.; provide DCA with file structure; DCA outputs file ready for SPSS.

OPERATIONAL DEFINITION

#: 3.4.3

Measure: Time to complete stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Elapsed time from stage start (following REDCON-1) to completion of last scripted event; excludes planning and preparation time.

Measurement Unit: Bn

Allowable Events: Any stage which concludes with the completion of the last scripted event.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual, DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.4.3

Measure: Time to complete stage

Input Variables:

Name	Source
A. Stage Start Flag	PVD Log
B. Stage Stop Flag	PVD Log
C. Breakdown Flags (Start/Stop)	PVD Log

Operation: Provide A., B., and C. to DCA for generation of Exercise_data table with breakdown durations subtracted; largest value among manned vehicles represents Bn; DCA output file ready for SPSS.

OPERATIONAL DEFINITION

#: 3.4.4

Measure: Movement start time

Year Implemented: 1992

Variable Type/Length: f6.2

Operational Definition: Elapsed time, in minutes, from REDCON-1 reported by Bn until first company reaches the LD.

Measurement Unit: Bn

Allowable Events: During offensive stages only, the first BLUFOR vehicle reaching the LD. Vehicles must clearly be moving out, not simply jockeying for position.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual, DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.4.4

Measure: Movement start time

Input Variables:

Name	Source
A. REDCON-1 Flag	Battle Master Log
B. First Co crosses LD Flag	PVD Log (offensive)
C. Flag Times	FLAG Table: Time, Sequence, PVD

Operation: Battle Master flags and records A. on Log; PVD operator flags and records B. on Log; get flag numbers from BM Log; get flag times from DCA; convert seconds to fractions of minutes; subtract A. from B; input to SPSS database.

OPERATIONAL DEFINITION

#: 3.4.5

Measure: Losses/kill ratio

Year Implemented: 1991

Variable Type/Length: 6.2

Operational Definition: Total number of enemy kills by friendly force compared to total number of losses taken by friendly force.

Measurement Unit: Bn

Allowable Events: Includes firepower kills and "catastrophic" kills caused by direct and indirect fire. Mobility kills and fratricide excluded.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.4.5

Measure: Losses/kill ratio

Input Variables:

Name	Source
A. Friendly Losses	KV_KILLS Table: Red X Blue
B. Enemy Losses	KV_KILLS Table: Blue X Red

Operation: Divide A. by B.; provide DCA with file structure; DCA outputs file ready for SPSS.

OPERATIONAL DEFINITION

#: 3.4.6

Measure: Time to readiness for mission execution - deviation of actual from directed

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: Deviation, in minutes, of actual REDCON-1 time from directed REDCON-1 time. Negative values indicate more rapid preparation.

Measurement Unit: Bn

Allowable Events: Bn Cdr or TOC reports REDCON-1 to ECR.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.4.6

Measure: Time to readiness for mission execution - deviation of actual from directed

Input Variables:

Name	Source
A. Directed REDCON-1 time	Battle Master Log
B. Actual REDCON-1 time	Battle Master Log

Operation: Battle Master records time unit was told to give REDCON-1, and time unit reported REDCON-1; convert seconds to tenths of minutes; subtract B. from A.; input to SPSS database.

OPERATIONAL DEFINITION

#: 3.4.7

Measure: Did the Bn meet the Bde Cdr's intent?

Year Implemented: 1991

Variable Type/Length: f1

Operational Definition: Determination of the extent to which the Bn met the Bde Cdr's intent in executing each stage. Expressed in percentage, based on Battle Master's assessment of the proportion of key elements in Bde OPORD or FRAGO which the Bn successfully executes.

Measurement Unit: Bn

Allowable Events: Any completed stage.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: X^2

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 3.4.7

Measure: Did the Bn meet the Bde Cdr's intent?

Input Variables:

Name	Source
A. Log item	Battle Master Log

Operation: Battle Master monitors scenario, noting the key elements explicit or implicit in Bde OPORD or FRAGO which are successfully executed by the Bn; compares the elements successfully executed with those not executed to determine the proportion (0, 25, 50, 75, or 100%) successfully executed; records percentage on log; input to SPSS database.

OPERATIONAL DEFINITION

#: 4.1

Measure: Number of named reports transmitted by voice, a) overall and b) by report type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Volume of formatted reports transmitted by voice radio by each Veh Cdr; computed across report type and by report type.

Measurement Unit: Vehicle

Allowable Events: Any radio transmission by any Veh Cdr which could have been sent over the CCD. More than one report type could be included in a single radio transmission. Continuation of a report after a break in transmission does not count as a new report.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 4.1

Measure: Number of named reports transmitted by voice, a) overall and b) by report type

Input Variables:

Name	Source
A. # named reports sent by radio	RA Log

Operation: RA tallies voice reports sent by Veh Cdr, by type, using instructions which include rules for distinguishing types of reports; sum tallies within each stage; input to database.

OPERATIONAL DEFINITION

#: 4.2

Measure: Number of other voice radio messages sent

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Volume of scenario-related unformatted messages transmitted by voice radio by each Veh Cdr.

Measurement Unit: Vehicle

Allowable Events: Any radio transmission by Veh Cdr relating to execution of the test scenario and which could not have been sent over the CCD. Excludes communications related to equipment problems. A single transmission can result in no more than one "other" tally. Generally, "over" or "out" concludes a transmission.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/Week/Scenario

DATA REDUCTION PROCEDURE

#: 4.2

Measure: Number of other voice radio messages sent

Input Variables:

Name	Source
A. Other messages sent	RA Log

Operation: RA tallies unformatted radio messages transmitted by Veh Cdr, using instructions for tallying voice messages; sum tallies for each stage; input to database.

OPERATIONAL DEFINITION

#: 4.3

Measure: Ratio of named voice reports to digital messages

Year Implemented: 1991

Variable Type/Length: f6.4

Operational Definition: Of the total number of formatted reports originated and sent by each Veh Cdr, the proportion that was transmitted by voice radio; computed across report types; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: Any formatted report (voice and CCD) related to execution of test scenarios which was originated and sent by a Veh Cdr.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): Manual, DCA

Analysis Summary: Descriptive statistics

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 4.3

Measure: Ratio of named voice reports to digital messages

Input Variables:

Name	Source
A. # named reports sent by radio	RA Log
B. # digital reports	#Serial Table: Tally where "Position" = Y06 or Y03

Operation: RA tallies voice reports, by type, sent by Veh Cdr; sum tallies across report types for each stage; input to database. Merge DCA output file and manual input database; divide A. by B.

OPERATIONAL DEFINITION

#: 4.4

Measure: Exposure Index

To be developed in 1992

OPERATIONAL DEFINITION

#: 5.1

Measure: Time to complete Bn FRAGO

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Elapsed time, in minutes, from point where Battle Master directs XO to pull up Bde FRAGO from Test Admin Folder until XO informs Battle Master that preparation of Bn overlay and FREE TEXT message is complete. Applies only to stages 1 and 2.

Note: Obtaining this measure may depend on a participant-staffed TOC.

Measurement Unit: Bn

Allowable Events: Those periods defined by start and termination of FRAGO overlay preparation by the TOC staff.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual, DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 5.1

Measure: Time to complete Bn FRAGO

Input Variables:

Name	Source
A. Flag #	BM Log: Time TOC was told to pull up FRAGO from Test Admin folder
B. Flag #	BM Log: Time TOC notified ECR that they had completed FRAGO or ECR notifies TOC that FRAGO preparation time is up.
C. Flag A. Time	Flag Table: Time, Seq, PVD
D. Flag B. Time	Flag Table: Time, Seq, PVD

Operation: Battle Master flags A. and B.; Get C. for A. and D. for B; convert seconds to tenths of minutes; subtract C. from D.; input to database

OPERATIONAL DEFINITION

#: 5.2

Measure: Time to disseminate and process FRAGO

Year Implemented: 1991

Variable Type/Length: f4.2

Operational Definition: Elapsed time, in minutes, from the time the Battle Master transmits "Orders" to TOC staff until the last Veh Cdr on the lowest manned net acknowledges he understands the FRAGO. Applies only to stages 2 and 3.

Measurement Unit: Bn

Allowable Events: The period bounded by the TOC's delivery of the execution Bn FRAGO and opening of the FRAGO FREE TEXT or overlay by the last manned vehicle (CVCC) or broadcast of the FRAGO on the lowest manned radio net (Baseline).

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA, Manual

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 5.2

Measure: Time to disseminate and process FRAGO

Input Variables (DCA):

Name	Source
A. Orders Flag #	Battle Master Log
B. Orders Flag Time	Flag Table: Time, Seq, PVD
C. Last FRAGO	IVMH Table: Time, Role, RType, Action Open Time

Operation: Battle Master flags A.; input orders flag info to DCA; get time of last FREE TEXT or overlay opening on lowest manned net; convert seconds to tenths of minutes; subtract B. from C.; DCA outputs file ready for SPSS.

Input Variables (Manual):

Name	Source
A. Orders Flag #	Battle Master Log
B. Orders Flag Time	Flag Table: Time, Seq
C. Last Broadcast Flag #	Battle Master Log
D. Last Broadcast Flag Time	Flag Table: Time, Seq

Operation: Battle Master flags A. and C.; input flag info to DCA; for B. and C., DCA convert seconds to tenths of minutes, then subtracts B. from D.; DCA outputs file ready for SPSS.

OPERATIONAL DEFINITION

#: 5.3

Measure: Time to post FRAGO overlay

To be developed in 1992

OPERATIONAL DEFINITION

#: 6.1

Measure: FRAGO Completeness

Eliminated - Failed to address issue.

OPERATIONAL DEFINITION

#: 6.2

Measure: FRAGO Quality

Eliminated - Failed to address issue.

OPERATIONAL DEFINITION

#: 6.3

Measure: Number of Bn Cdr requests to clarify FRAGO

Year Implemented: 1991

Variable Type/Length: 5.2

Operational Definition: The cumulative number of times the Bn Cdr asked for clarification of FRAGOs.

Measurement Unit: Vehicle

Allowable Events: Any request by Bn Cdr for TOC staff to clarify a FRAGO.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 6.3

Measure: Number of Bn Cdr requests to clarify FRAGO

Input Variables:

Name	Source
A. Requests for clarification of FRAGO	RA Log

Operation: The RA in the Bn Cdr's simulator monitors voice radio traffic, tallies the number of requests made by the Bn Cdr. Tallies are summed and entered into database.

OPERATIONAL DEFINITION

#: 6.4

Measure: Veh Cdr's comprehension of Bn FRAGO

To be developed in 1992

OPERATIONAL DEFINITION

#: 7.1

Measure: Situational Awareness questionnaire scores for Veh Cdrs

Year Implemented: 1991

Variable Type/Length: f4.2

Operational Definition: Multi-component index of Veh Cdr's awareness of the current combat situation, based on participant's responses to end-of-stage questionnaire. Three scores are obtained for stage 1, based on Veh Cdr's estimation of: 1) unit's ability to continue the mission, given remaining resources; 2) size and type of enemy destroyed; and 3) when the unit will next encounter the enemy. Scores 1) and 2) are obtained for stage 3.

Measurement Unit: Vehicle

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

Condition
Stage

Measure Collection/Analysis Summary

Collection Method(s): Manual and DCA

Analysis Summary: For each score: Between Ss ANOVA on condition with repeated measures on stage

Expected N (per Cell): 6/week/scenario

DATA REDUCTION PROCEDURE

#: 7.1

Measure: Situational Awareness questionnaire score for vehicles

Input Variables:

Name	Source
A. Q1V_Res	Situational Awareness Questionnaire
B. Q2V_EnDest	Situational Awareness Questionnaire
C. Q3V_Encounter	Situational Awareness Questionnaire
D. Actual Resources	Resource Status Table for each company and the BN, listing remaining Fuel, Ammo, and number of Vehicles
E. Actual En Destroyed	KVK Table: Blufor Co X B T72 and B BMP2
F. Scripted Time to encounter	Scenario events lists: scripted time from start of stage 2 until each company engages enemy

Operation: SME compares A. to D. (correct/incorrect); converts B. (units destroyed) to component vehicles, then compares B. to E. (deviation in # vehicles); rounds F. to nearest 10 min; compares C. to F. (deviation in minutes); input scores to database.

OPERATIONAL DEFINITION

#: 7.2

Measure: Situational Awareness plotting scores for Veh Cdrs

Year Implemented: 1991

Variable Type/Length: f4.2

Operational Definition: Multi-component index of Veh Cdr's spatial awareness of combat situation, derived from participant's end-of-stage plotting of key elements. Three scores are obtained for stage 1, based on accuracy of Veh Cdrs' plotting of: 1) his own location; 2) the location of all Bn units; and 3) the location unit can next expect to encounter the enemy. Scores 1) and 2) are obtained for stage 3.

Measurement Unit: Vehicle

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

Condition
Stage

Measure Collection/Analysis Summary

Collection Method(s): Manual and DCA

Analysis Summary: For each score: Between Ss ANOVA on condition with repeated measures on stage

Expected N (per Cell): 6/week/scenario

DATA REDUCTION PROCEDURE

#: 7.2

Measure: Situational Awareness plotting score for vehicles

Input Variables:

Name	Source
A. Q1V_Own Loc	Situational Awareness Map Plot
B. Q2V_ACo Loc	Situational Awareness Map Plot
C. Q2V_BCo Loc	Situational Awareness Map Plot
D. Q2V_CCo Loc	Situational Awareness Map Plot
E. Q2V_DCo Loc	Situational Awareness Map Plot
F. Q3V_Enemy Encounter	Situational Awareness Map Plot
G. Actual Own Location	FLAG_LOC Table: Counter, Address, UTM (for appropriate vehicle)
H. Actual A Co Loc	Center of Mass for A Co at end of stage
I. Actual B Co Loc	Center of Mass for B Co at end of stage
J. Actual C Co Loc	Center of Mass for C Co at end of stage
K. Actual D Co Loc	Center of Mass for D Co at end of stage
L. Actual En Loc	Center of Mass for each enemy company at time of respective engagement

NOTE: Due to ambiguous wording of question addressing location of next enemy encounter, F. was not scored.

Operation: Obtain G., H., I., J., and K. from DCA; SME calculates deviations (in meters) by comparing A. to G., B. to H., C. to I., D. to J, E. to K. for each participant; input raw deviation values to database; compute company location score for Bn Cdr and S3 by averaging across four company deviation values for each; compute company location score for each Co Cdr by averaging across deviation values for the other three companies.

OPERATIONAL DEFINITION

#: 7.3

Measure: Situational Awareness questionnaire scores for TOC personnel

Year Implemented: 1991

Variable Type/Length: f4.2

Operational Definition: Multi-component index of TOC participant's awareness of the current combat situation, based on participant's responses to end-of-stage questionnaire. Four scores are obtained for stage 1, based on participant's estimation of: 1) Bn's ability to continue the mission, given remaining resources; 2) size and type of enemy destroyed; 3) size and type of enemy remaining; and 4) the time the Bn will next encounter the enemy. Scores 1), 2), and 3) are obtained for stage 3.

Measurement Unit: TOC position

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

Condition
Stage

Measure Collection/Analysis Summary

Collection Method(s): Manual and DCA

Analysis Summary: For each score: Between Ss ANOVA on condition with repeated measures on stage

Expected N (per Cell): 5/week/scenario

DATA REDUCTION PROCEDURE

#: 7.3

Measure: Situational Awareness questionnaire score for TOC

Input Variables:

Name	Source
A. Q1T_Res	Situational Awareness Questionnaire
B. Q2T_EnDest	Situational Awareness Questionnaire
C. Q3T_EnRem	Situational Awareness Questionnaire
D. Q4T_ Encounter	Situational Awareness Questionnaire
E. Actual Resources	Resource Status Table for each company and the Bn, listing remaining Fuel, Ammo, and number of Vehicles
F. Actual En Destroyed	KVK Table: Blufor Co X B T72 and B BMP2
G. Actual En Remaining	Scenario events lists: Number and type of enemy in each stage MINUS KVK Table: A M1 X B T72 and B BMP2
H. Scripted Time to encounter	Scenario events lists: Scripted time from start of stage 2 until each company engages enemy

Operation: SME compares A. to E. (correct/incorrect); converts B. (units destroyed) and C. (units remaining) to component vehicles, then compares B. to F. and C. to G. to produce deviation scores (in # vehicles); rounds H. to nearest 10 min; compares D. to H. (deviation in minutes); input scores to database.

OPERATIONAL DEFINITION

#: 7.4

Measure: Situational Awareness plotting scores for TOC

Year Implemented: 1991

Variable Type/Length: f4.2

Operational Definition: Multi-component index of TOC participant's spatial awareness of combat situation, derived from his end-of-stage plotting of key elements. Three scores are obtained for stages 1 and 3, based on accuracy of participant's plotting of: 1) the location of the 4 companies; 2) the location of the Bn Cdr and S3's tanks; and 3) the enemy axis of advance (defensive stages) or the enemy FLT (offensive stages).

Measurement Unit: TOC position

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

Condition
Stage

Measure Collection/Analysis Summary

Collection Method(s): Manual and DCA

Analysis Summary: For each score: Between Ss ANOVA on condition with repeated measures on stage

Expected N (per Cell): 5/week/scenario

DATA REDUCTION PROCEDURE

#: 7.4

Measure: Situational Awareness plotting score for TOC

Input Variables:

Name	Source
A. Q1T_ACo	Situational Awareness Map Plot
B. Q1T_BCo	Situational Awareness Map Plot
C. Q1T_CCo	Situational Awareness Map Plot
D. Q1T_DCo	Situational Awareness Map Plot
E. Q2T_Y06	Situational Awareness Map Plot
F. Q2T_Y03	Situational Awareness Map Plot
G. Q3T_EN FLT	Situational Awareness Map Plot
H. Q3T_EN Axis Loc	Situational Awareness Map Plot
I. Q3T_EN Axis Dir	Situational Awareness Map Plot
J. Actual A Co Loc	DCA: Center of Mass for A Co at end of stage
K. Actual B Co Loc	DCA: Center of Mass for B Co at end of stage
L. Actual C Co Loc	DCA: Center of Mass for C Co at end of stage
M. Actual D Co Loc	DCA: Center of Mass for D Co at end of stage
N. Actual Y06 Loc	DCA: Vehicle location at end of stage
O. Actual Y03 Loc	DCA: Vehicle location at end of stage
P. Actual EnLoc - Off	DCA: Enemy FLT (defined by end points) at end of stage
Q. Actual EnLoc - Def	Scenario OPFOR overlays: Enemy axis of advance, described by arrow's CoM

R. Actual En Dir - Def Scenario OPFOR overlays: Enemy axis of advance, described by cardinal direction of arrowhead

Note: Due to technical difficulties in DCA algorithm for determining FLT, G. was not scored.

Operation: (1) Obtain J., K., L., and M. from DCA; SME calculates deviations (in meters) by comparing A. to J., B. to K., C. to L., D. to M; average deviations across four companies. (2) Obtain N. and O. from DCA; SME calculates deviations (in meters) by comparing E. to N., F. to O; average deviations across both vehicles. (3) Obtain H. from map plot, determining axis CoM; obtain Q. from OPFOR overlay, determining axis CoM; calculate deviation (in meters) by comparing H. to Q. (4) Obtain R. from OPFOR overlay; score "yes" if I. is within +/- 30 degrees of R. (5) Input values to database.

OPERATIONAL DEFINITION

#: 7.5

Measure: Situational Awareness self-rating

Year Implemented: 1991

Variable Type/Length: f4.2

Operational Definition: Participants' self rating, on a 7-point Likert scale, of their knowledge of elements in their environment, their understanding of their meaning, and their estimate of their status or actions in the near future.

Measurement Unit: Participant

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

Condition

Stage

Situational Awareness Method (questionnaire vs plotting)

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: 1) Between Ss ANOVA on condition with repeated measures on stage

2) Multiple regression with condition, stage, and SA method as predictors or self rating

Expected N (per Cell): 11/week/scenario

DATA REDUCTION PROCEDURE

#: 7.5

Measure: Situational Awareness self-rating

Input Variables:

Name	Source
A. Scale value	Situational Awareness Questionnaire

Operation: Enter scale value circled on questionnaire into database.

OPERATIONAL DEFINITION

#: 8.1

Measure: Bn Cdr/S3 workload

Rating scale from Workload questionnaire defines this measure.

OPERATIONAL DEFINITION

#: 8.2

Measure: Veh Cdr workload ratings

Rating scale from Workload questionnaire defines this measure.

OPERATIONAL DEFINITION

#: 9.1

Measure: Number of fratricide hits by manned vehicles

Year Implemented: 1991

Variable Type/Length: f6.4

Operational Definition: Cumulative number of direct-fire and indirect-fire hits by combined manned vehicles against friendly vehicles (manned and semiautomated).

Measurement Unit: Bn

Allowable Events: Any direct firing by a manned vehicle resulting in a hit to any blue vehicle. Any indirect fire requested by a manned vehicle which results in a hit to any blue vehicle.

Independent Variables to be Used in Analysis:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 9.1

Measure: Number of fratricide hits by manned vehicles

Input Variables:

Name	Source
A. Fratricide hits	TOP_STATS_F Table: Name (manned vehicles only) X Hits

Operation: Output file ready for SPSS analysis

OPERATIONAL DEFINITION

#: 9.2

Measure: Number of fratricide kills by manned vehicles

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Cumulative number of kills by combined manned vehicles against friendly vehicles (manned and semiautomated) resulting from direct and indirect fire.

Measurement Unit: Bn

Allowable Events: Any direct firing by a manned vehicle resulting in a kill of any blue vehicle. Any indirect fire requested by a manned vehicle which results in a kill of any blue vehicle.

Independent Variables to be Used in Analysis:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 9.2

Measure: Number of fratricide kills by manned vehicles

Input Variables:

Name	Source
A. Fratricide hits	TOP_STATS_F Table: Name (manned vehicles only) X Kills

Operation: Output file ready for SPSS analysis

OPERATIONAL DEFINITION

#: 9.3

Measure: Dispersion of battalion, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Spatial separation among manned vehicles; defined as linear distance between the battalion's geometric center of mass (CoM) and the Co Cdr most distant from the CoM; battalion CoM is defined relative to the four Co Cdrs' locations; based on 30-sec sampling cycle. Assessed in movement to contact and counterattack stages only, during periods when enemy contact is being sought.

Measurement Unit: Bn

Allowable Events: N/A

Independent Variables to be Used in Analysis:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 9.3

Measure: Dispersion of battalion, average per stage

Input Variables:

Name	Source
A. Dispersion	New_Dispersion Table

Operation: RS/1 routine computes Bn dispersion every 30 sec; averages across selected period(s); output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: 9.4

Measure: Number of times out of sector

Year Implemented: 1991

Variable Type/Length: f4.2

Operational Definition: Cumulative number of times manned vehicles travelled identifiably outside established boundaries of the respective unit's assigned sector; judged relative to overlay graphics on PVD screen.

Measurement Unit: Bn

Allowable Events: PVD-based observations by PVD operator that a manned vehicle travelled outside of its unit's (normally company) sector.

Independent Variables to be Used in Analysis:

Condition

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on condition

Expected N (per cell): Occurrence dependent

DATA REDUCTION PROCEDURE

#: 9.4

Measure: Number of times out of sector

Input Variables:

Name	Source
A. Out of sector	PVD Log

Operation: PVD operator monitors scenario and flags/records any manned vehicle travelling out of sector. Tabulate and enter in data base.

OPERATIONAL DEFINITION

#: 9.5

Measure: Percent of time company dispersion exceeded 600 m

Eliminated - No manned companies are planned for formative evaluation.

OPERATIONAL DEFINITION

#: 9.6

Measure: Percent of time battalion dispersion exceeded 2000 m

Year Implemented: 1991

Variable Type/Length: 6.2

Operational Definition: Proportion of time dispersion (see 9.3) of the Co Cdrs exceeds the acceptable maximum (defined by Army doctrine); based on 30-second sampling cycle. Assessed in movement to contact and counterattack stages only, during periods when enemy contact is being sought.

Measurement Unit: Bn

Allowable Events: N/A

Independent Variables to be Used in Analysis:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 9.6

Measure: Percent of time battalion dispersion exceeded 2000 m

Input Variables:

Name	Source
A. Dispersion > 2 km	New_Dispatch Stats Table: Count X Battalion>2000
B. Total time	New_Dispatch Stats Table: Count X BattalionOverall

Operation: Divide A. by B.. Output file ready for SPSS analysis

OPERATIONAL DEFINITION

#: 10.1

Measure: Percent time spent at halt (manned vehicles)

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of time each manned vehicle's velocity was zero during mission execution; based on 10-sec sampling cycle; applies to movement to contact and counterattack stages.

Measurement Unit: Vehicle

Allowable Events: Values where manned vehicle velocity equalled zero during mission execution, excluding the reserve company.

Independent Variables to be Used in Analysis:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 10.1

Measure: Percent time spent at halt

Input Variables:

Name	Source
A. Time at halt	#MOVE_STATS Table: $\frac{2}{3}$ time at halt $\bar{X}$ ID

Operation: Output file ready for SPSS analysis

OPERATIONAL DEFINITION

#: 10.2

Measure: Mean velocity while moving (manned vehicles)

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Mean velocity (in km/hr) of each manned vehicle during mission execution; based on 10-second sampling cycle; excludes periods at halt.

Measurement Unit: Vehicle

Allowable Events: All non-zero manned vehicle velocity values occurring during mission execution.

Independent Variables to be Used in Analysis:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 10.2

Measure: Mean velocity while moving (manned vehicles)

Input Variables:

Name	Source
A. Mean Velocity	#MOVE_STATS Table: Vel Mean X Role

Operation: Output file ready for SPSS analysis

OPERATIONAL DEFINITION

#: 10.3

Measure: Percent time moving velocity exceeded 40 km/hr

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of time during mission execution when vehicle velocity exceeds 40 km/hr; based on 10-second sampling cycle; excludes periods at halt.

Measurement Unit: Vehicle

Allowable Events: All non-zero manned vehicle velocity values occurring during mission execution.

Independent Variables to be Used in Analysis:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 10.3

Measure: Percent time moving velocity exceeded 40 km/hr

Input Variables:

Name	Source
A. Velocity > 40	#MOVE_STATS Table: Vel > 40 Count X Role
B. Moving Vel Count	#MOVE_STATS Table: Vel Count X Role

Operation: Divide A. by B. Output file ready for SPSS analysis.

DATA REDUCTION PROCEDURE

#: 10.3

Measure: Percent time moving velocity exceeded 40 km/hr

Input Variables:

Name	Source
A. Velocity > 40	#MOVE_STATS Table: Vel > 40 Count X Role
B. Moving Vel Count	#MOVE_STATS Table: Vel Count X Role

Operation: Divide A. by B. Output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: 10.4

Measure: Distance travelled

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: Cumulative distance (in meters) driven while executing the mission; based on vehicle odometer reading.

Measurement Unit: Vehicle

Allowable Events: Computed for completed stages only.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 10.4

Measure: Distance travelled

Input Variables:

Name	Source
A. Distance	#STATUS Table: DeltaMileage X ID

Operation: Output files ready for SPSS

OPERATIONAL DEFINITION

#: 11.1

Measure: Time to acquire or shift targets

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Elapsed time, in minutes, from when one or more enemy vehicles becomes visible (reflected by the absence of masking terrain features) and remains visible to a manned vehicle until that manned vehicle lases to the enemy vehicle; alternatively, the time from the first lase on one target to the first lase on the next target; includes periods of intermittent non-intervisibility (20 seconds or less); average per vehicle. Includes lases from gunner (CVCC and Baseline conditions) and Veh Cdr (CVCC only).

Measurement Unit: Vehicle

Allowable Events: First lase by a manned vehicle to an enemy vehicle following a period of non-intervisibility of more than 20 seconds, or the first lase on another unique target.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.1

Measure: Time to acquire or shift targets

Input Variables:

Name	Source
A. First lase time	DCA
B. Shift lase time	DCA

Operation: To be developed.

OPERATIONAL DEFINITION

#: 11.2

Measure: Time from lase to first fire

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Elapsed time, in minutes, from when a manned vehicle lases to an enemy vehicle until that manned vehicle first fires on that enemy vehicle; average per vehicle. Includes lases and firings from gunner (CVCC and Baseline conditions) and Veh Cdr (CVCC only).

Measurement Unit: Vehicle

Allowable Events: First firing by a manned vehicle on an enemy vehicle, including hits and misses. Excludes lases beyond 3500 meters.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.2

Measure: Time from lase to first fire

Input Variables:

Name	Source
A. Lase to Fire	ENG_STATS Table: LaseT- EngageT X Mean X Role

Operation: Output file ready for SPSS.

OPERATIONAL DEFINITION

#: 11.3

Measure: Time from first fire to kill

Eliminated - Ballistic trajectory time is not of interest.

OPERATIONAL DEFINITION

#: 11.4

Measure: Maximum lase range

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: Distance (in meters) from own vehicle to potential target, determined by use of laser; includes LRF use by Veh Cdr and gunner (CVCC and Baseline) and CITV laser use by Veh Cdr (CVCC); excludes indeterminate readings and lases to non-targets.

Measurement Unit: Vehicle

Allowable Events: All manned vehicle lasings to enemy vehicles resulting in attributable, unique range values, excluding lase ranges beyond 3500 meters.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.4

Measure: Maximum lase range

Input Variables:

Name	Source
A. Max lase	LSRG_STATS Table: ID X Range X Maximum

Operation: Output file ready for SPSS

OPERATIONAL DEFINITION

#: 11.5

Measure: Mean target hit range

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: Distance (in meters) from a firing manned vehicle to the enemy vehicle hit by the round fired; average per vehicle; hits classified by the computer.

Measurement Unit: Vehicle

Allowable Events: All manned vehicle firings resulting in hits on enemy vehicles.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.5

Measure: Mean target hit range

Input Variables:

Name	Source
A. Target hit range	ENG_STATS Table: ID X HitR X Mean

Operation: Output file ready for SPSS

OPERATIONAL DEFINITION

#: 11.6

Measure: Mean target kill range--vehicle to target

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: Distance (in meters) from a firing manned vehicle to the enemy vehicle killed by the round fired; average per vehicle; kills classified by the computer; exludes "mobility" kills.

Measurement Unit: Vehicle

Allowable Events: All manned vehicle firings resulting in enemy vehicle kills (catastrophic and firepower only).

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.6

Measure: Mean target kill range--vehicle to target

Input Variables:

Name	Source
A. Target kill range	ENG_STATS Table: ID X KillR X Mean

Operation: Output file ready for SPSS

OPERATIONAL DEFINITION

#: 11.7

Measure: Percent of engageable targets engaged

Eliminated - Scenarios limited manned vehicles' opportunities for engagement.

OPERATIONAL DEFINITION

#: 11.8

Measure: Percent targets hit at ranges exceeding 2200 m

Year Implemented: 1991

Variable Type/Length: F6.2

Operational Definition: Of the total number of enemy vehicle hits scored by combined manned vehicle firings, the proportion occurring at distances greater than 2200 m.

Measurement Unit: Bn

Allowable Events: All manned vehicle firings resulting in hits on enemy vehicles.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.8

Measure: Percent targets hit at ranges exceeding 2200 m

Input Variables:

Name	Source
A. # Hits > 2200 m	ENG_STATS Table: Total X Count X HitR > 2200 m
B. Total # hits	ENG_STATS Table: Total X Count X HitR

Operation: Divide A. by B. Output file ready for SPSS.

OPERATIONAL DEFINITION

#: 11.9

Measure: Percent targets killed at ranges exceeding 2200 m

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: Of the total number of enemy vehicles killed by combined manned vehicle firings, the proportion killed at distances greater than 2200 m.

Measurement Unit: Bn

Allowable Events: All manned vehicle firings resulting in enemy vehicle kills (catastrophic and firepower only).

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.9

Measure: Percent targets killed at ranges exceeding 2200 m

Input Variables:

Name	Source
A. # kills > 2200 m	ENG_STATS Table: Total X Count X KillR > 2200
B. Total # kills	ENG_STATS Table: Total X Count X KillR

Operation: Divide A. by B. Output file ready for SPSS.

OPERATIONAL DEFINITION

#: 11.10

Measure: Number of enemy vehicles killed by BLUFOR

Year Implemented: 1991

Variable Type/Length: f5.2

Operational Definition: Total number of enemy vehicles killed by all friendly vehicle (manned + semiautomated) direct firings; excludes "mobility kills."

Measurement Unit: Bn

Allowable Events: All enemy vehicle losses (excluding mobility kills) scored by friendly direct firings.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Collection/Reduction Summary: See attached

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 11.10

Measure: Number of enemy vehicles killed by BLUFOR

Input Variables:

Name	Source
A. # killed by BLUFOR	KVK_1 Table: A SAF X B SAF plus A M1 X B SAF

Operation: Output file ready for SPSS

OPERATIONAL DEFINITION

#: 11.11

Measure: Number of enemy vehicles killed by manned vehicles

Year Implemented: 1991

Variable Type/Length: f5.2

Operational Definition: Total number of enemy vehicles killed by combined manned vehicle firings; excludes "mobility kills."

Measurement Unit: Bn

Allowable Events: All enemy vehicle losses (excluding mobility kills) scored by manned vehicle direct firings.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 1/week/scenario

DATA REDUCTION PROCEDURE

#: 11.11

Measure: Number of enemy vehicles killed by manned vehicles

Input Variables:

Name	Source
A. # kills by manned vehs	KVK_1 Table: A M1 X B SAF

Operation: Output file ready for SPSS

OPERATIONAL DEFINITION

#: 11.12

Measure: Percent enemy vehicles killed by all manned vehicles

Year Implemented: 1991

Variable Type/Length: f5.2

Operational Definition: Of the total number of enemy vehicles killed during the stage, the proportion killed by manned vehicles combined; excludes "mobility kills."

Measurement Unit: Bn

Allowable Events: All enemy vehicle losses (excluding mobility kills) scored by manned vehicle direct firings.

Independent Variables to be Used in Analysis of Measure:

Condition

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.12

Measure: Percent enemy vehicles killed by all manned vehicles

Input Variables:

Name	Source
A. # kills by manned	ENG_STATS Table: Total X HitT-KillT X Count
B. # kills by BLUFOR	KVK_1 Table: A SAF X B SAF plus A M1 X B SAF

Operation: Output file ready for SPSS

OPERATIONAL DEFINITION

#: 11.13

Measure: Hits/round ratio, manned vehicles

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Ratio comparing the cumulative number of hits each manned vehicle scored against enemy vehicles to the cumulative number of rounds fired by that vehicle (excluding fratricide shots).

Measurement Unit: Vehicle

Allowable Events: All rounds fired by each manned vehicle, excluding those resulting in fratricide.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.13

Measure: Hits/round ratio, manned vehicles

Input Variables:

Name	Source
A. # hits	TOP_STATS Table: Name (manned sims) X Hits minus TOP_STATS_F Table: Name (manned sims) X Hits
B. # rounds fired	TOP_STATS Table: Name (manned sims) X Shots minus TOP_STATS_F Table: Name (manned sims) X Shots

Operation: Divide A. by B. Output file ready for SPSS.

OPERATIONAL DEFINITION

#: 11.14

Measure: Kills/hit ratio, manned vehicles

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Ratio comparing the cumulative number of enemy vehicles each manned vehicle killed to the cumulative number of enemy vehicle hits scored by that vehicle.

Measurement Unit: Vehicle

Allowable Events: All manned vehicle firings resulting in hits on enemy vehicles. All firepower and catastrophic kills.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.14

Measure: Kills/hit ratio, manned vehicles

Input Variables:

Name	Source
A. # kills	TOP_STATS Table: Name (manned sims) X Kills minus TOP_STATS_F: Name (manned sims) X Kills
B. # hits	TOP_STATS Table: Name (manned sims) X Hits minus TOP_STATS_F: Name (manned sims) X Hits

Operation: Output file ready for SPSS

OPERATIONAL DEFINITION

#: 11.15

Measure: Kills/round ratio, manned vehicles

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Ratio comparing the cumulative number of enemy vehicles each manned vehicle killed to the cumulative number of rounds fired by that vehicle (excluding fratricide shots).

Measurement Unit: Vehicle

Allowable Events: All rounds fired by each manned vehicle, excluding those resulting in fratricide. All firepower and catastrophic kills.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.15

Measure: Kills/round ratio, manned vehicles

Input Variables:

Name	Source
A. # kills	TOP_STATS Table: Name (manned sims) X Kills minus TOP_STATS F: Name (manned sims) X Kills
B. # rounds fired	TOP_STATS Table: Name (manned sims) X Shots minus TOP_STATS F: Name (manned sims) X Shots

Operation: Divide A. by B. Output file ready for SPSS.

OPERATIONAL DEFINITION

#: 11.16

Measure: Number of kills sustained by each manned vehicle

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Cumulative number of kills resulting from direct fire hits sustained by each manned vehicle; kills scored by computer (firepower and catastrophic kills only); excludes fratricide hits.

Measurement Unit: Vehicle

Allowable Events: All direct fire hits on a manned vehicle (up to an arbitrary max of 20) which resulted in firepower and catastrophic kills, excluding fratricide hits.

Independent Variables to be Used in Analysis of Measure:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 11.16

Measure: Number of kills sustained by each manned vehicle

Input Variables:

Name	Source
A. # kills taken	KVK_1 Table: B SAF X Name (manned sims)

Operation: Set all values exceeding 20 equal to 20; output file ready for SPSS.

OPERATIONAL DEFINITION

#: 11.17

Measure: Number of manned vehicles sustaining a killing hit

To be developed in 1992

OPERATIONAL DEFINITION

#: 12.1

Measure: Fuel used (manned vehicles)

Year Implemented: 1991

Variable Type/Length: f7.2

Operational Definition: Total amount of fuel (in gallons) consumed in executing the mission; manned vehicles only.

Measurement Unit: Vehicle

Allowable Events: All completed stages, adjusted for breaks.

Independent Variables to be Used in Analysis:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 12.1

Measure: Fuel used (manned vehicles)

Input Variables:

Name	Source
A. Fuel used	#STATUS Table: ID X DeltaFuel

Operation: Output file ready for SPSS analysis

OPERATIONAL DEFINITION

#: 12.2

Measure: Number of rounds fired, by type (manned vehicles)

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Cumulative number of heat and sabot rounds fired by each manned vehicle during mission execution.

Measurement Unit: Vehicle

Allowable Events: All main gun rounds fired by manned vehicles during completed stages.

Independent Variables to be Used in Analysis:

Condition
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on condition and echelon

Expected N (per cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: 12.2

Measure: Number of rounds fired, by type (manned vehicles)

Input Variables:

Name	Source
A. Heat rounds	DCA: Manned sim X Heat
B. Sabot rounds	DCA: Manned sim X Sabot

Operation: Tally overall shots fired by ammunition type to generate A. and B. Output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D1.1

Measure: TOC feature acceptability rating

Year Implemented: 1991

Variable Type/Length: f1.0

Operational Definition: Participant scale ratings, ranging from 1-7, on TOC S2 and S3 workstation features and functions.

Measurement Unit: TOC Staff Participant

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

N/A

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Descriptive statistics

Expected N (per Cell): 5/week

DATA REDUCTION PROCEDURE

#: D1.1

Measure: TOC feature acceptability rating

Input Variables:

Name	Source
A. Individual item ratings	TOC SMI Questionnaire
B. Composite ratings	TOC SMI Questionnaire

Operation: A. Input to SPSS, produce descriptive statistics; B. Average individual item ratings within each category, produce descriptive statistics.

OPERATIONAL DEFINITION

#: D1.2

Measure: Recommended changes to TOC features

Year Implemented: 1991

Variable Type/Length: f1.0

Operational Definition: Participant suggestions for improvement to TOC workstations.

Measurement Unit: TOC Staff Participant

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

N/A

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Descriptive statistics

Expected N (per Cell): 5/week

DATA REDUCTION PROCEDURE

#: D1.2

Measure: Recommended Changes to TOC features

Input Variables:

Name	Source
A. Suggestions/comments	TOC SMI Questionnaire Debriefing Notes

Operation: Compile comments in text file, organize by category as appropriate, and tabulate.

OPERATIONAL DEFINITION

#: D1.3

Measure: CCD feature acceptability rating

Year Implemented: 1991

Variable Type/Length: f1.0

Operational Definition: Participant scale ratings, ranging from 1-7, on CCD and CITV features and functions.

Measurement Unit: Vehicle Participant

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

N/A

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Descriptive Statistics

Expected N (per Cell): 6/week

DATA REDUCTION PROCEDURE

#: D1.3

Measure: CCD feature acceptability rating

Input Variables:

Name	Source
A. Individual item ratings	CCD SMI Questionnaire

Operation: Input to SPSS, produce descriptive statistics.

OPERATIONAL DEFINITION

#: D1.4

Measure: Recommended changes to CCD features

Year Implemented: 1991

Variable Type/Length: f1.0

Operational Definition: Participant responses to open ended questions on CCD SMI Questionnaire and debriefing comments.

Measurement Unit: Vehicle Participant

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

N/A

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Descriptive Statistics

Expected N (per Cell): 6/week

DATA REDUCTION PROCEDURE

#: D1.4

Measure: Recommended changes to CCD features

Input Variables:

Name	Source
A. Suggestions/comments	CCD SMI Questionnaire Debriefing Notes

Operation: Compile comments in text file, organize by category as appropriate, and tabulate.

OPERATIONAL DEFINITION

#: D1.5

Measure: CITV feature acceptability rating

Year Implemented: 1991

Variable Type/Length: f1.0

Operational Definition: Participant scale ratings, ranging from 1-7, on CITV features and functions.

Measurement Unit: Vehicle Participant

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

N/A

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Descriptive Statistics

Expected N (per Cell): 6/week

DATA REDUCTION PROCEDURE

#: D1.5

Measure: CITV feature acceptability rating

Input Variables:

Name	Source
A. Individual item ratings	CITV SMI Questionnaire

Operation: Input to SPSS, produce descriptive statistics.

OPERATIONAL DEFINITION

#: D1.6

Measure: Recommended changes to CITV features

Year Implemented: 1991

Variable Type/Length: f1.0

Operational Definition: Participant responses to open ended questions on CITV SMI Questionnaire and debriefing comments.

Measurement Unit: Vehicle Participant

Allowable Events: N/A

Independent Variables to be Used in Analysis of Measure:

N/A

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Descriptive Statistics

Expected N (per Cell): 6/week

DATA REDUCTION PROCEDURE

#: D1.6

Measure: Recommended changes to CITV features

Input Variables:

Name	Source
A. Suggestions/comments	CITV SMI Questionnaire Debriefing Notes

Operation: Compile comments in text file, organize by category as appropriate, and tabulate.

OPERATIONAL DEFINITION

#: D2.1

Measure: Number of reports (unique) received, average per stage, a) overall and b) by type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of unique digital reports arriving in InFolder at the S2 and S3 WSs during mission execution; averaged across the three stages of each scenario. Computed across and by report type (CVCC only).

Measurement Unit: Workstation

Allowable Events: All unique digital reports received (post-filter) at the S2 and S3 WSs during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC Staff section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.1

Measure: Number of reports (unique) received, average per stage,
a) overall and b) by type

Input Variables:

Name	Source
A. Unique arrivals	BTME_STATS: BTME Arrival X Role (S2 and S3)
B. Arrivals by Type	BTME_STATS: BTME Arrival X Type X Role (S2 and S3)

Operation: Average A. and B. (separate measures) across stages;
output A. and B. into file for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.2

Measure: Percent of reports viewed overall, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: The ratio of reports that the WS operator viewed (unique viewings only) to the number of reports arriving in the InFolder; computed across report types; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: The first viewing of any digital report received at the S2 and S3 workstations during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.2

Measure: Percent of reports viewed overall, average per stage

Input Variables:

Name	Source
A. Total Unique Views	BTME_STATS: Unique View X Role (S2 & S3)
B. Total Arrivals	BTME_STATS: BTME Arrival X Role (S2 & S3)

Operation: Divide A. by B.; average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.3

Measure: Number of digital reports sent, average per stage, a) overall and b) by report type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of digital reports created by the S3 and S3 workstation operator and routed on the Bn net; computed across and by report type (CVCC only); averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any digital report created at the workstation and routed "Lower".

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.3

Measure: Number of digital reports sent, average per stage, a) overall and b) by report type

Input Variables:

Name	Source
A. Total Sent	BTME_STATS: BTME Send X Role (S2 and S3)
B. Report Type Sent	BTME_STATS: Send X Type X Role (S2 and S3)

Operation: Average A. and B. across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.4

Measure: Number of reports routed to the Journal, average per stage, a) overall and b) by report type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of reports copied to the Journal by the S2 and S3 workstation operators; computed across and by report type; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any report either created or received at the S2 or S3 workstations and subsequently copied into the Journal during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.4

Measure: Number of reports routed to the Journal, average per stage, a) overall and b) by report type

Input Variables:

Name	Source
A. Total Routed	BTME_STATS: Copy From: <any folder> To: Journ X Role (S2 and S3)
B. Report Type Routed	BTME_STATS: Copy From: <any folder> To: Journ X Role X Report Type (S2 and S3)

Operation: Sum all "To: Journ" for A. and B.; average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.5

Measure: Number of overlays created, average per stage, by type of action

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of overlays generated at the TOC workstations; averaged across the three stages of each scenario; computed by type of action ("Create" and "Save As").

Measurement Unit: Workstation

Allowable Events: Any overlay created by using the "Create" and "Save As" menu options during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.5

Measure: Number of overlays created, average per stage, by type of action

Input Variables:

Name	Source
A. Number "create"	BTOE_STATS: BTOE Create X Role (S2 & S3)
B. Number "save as"	BTOE_STATS: BTOE SaveAs X Role (S2 & S3)

Operation: Average A. and B. across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.6

Measure: Number of overlays posted to the SitDisplay, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of unique overlays posted to the SitDisplay from the TOC workstations; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any unique overlay posted to the SitDisplay during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section.

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.6

Measure: Number of overlays posted to the SitDisplay, average per stage

Input Variables:

Name	Source
A. Number posted	BTOS: Role, Overlay

Operation: For Role = SitDis, sum the number of unique overlays with prefix = "S2"; sum the number of unique overlays with prefix = "S3"; average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.7

Measure: Number of reports posted to SitDisplay, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of unique reports posted to the SitDisplay by the S2 and S3 workstations; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any unique digital report icon posted to the SitDisplay during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.7

Measure: Number of reports posted to SitDisplay, average per stage

Input Variables:

Name	Source
A. Icons posted	BTME_STATS: Copy From:<any folder> To:SitDisp X Role (S2 and S3)

Operation: Sum all "To: SitDisp"; average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.8

Measure: Types of folders created per scenario

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Unique types of folders created at the S2 and S3 workstations, cumulated across the three stages.

Measurement Unit: Workstation

Allowable Events: Any folder created at the S2 or S3 workstation operator during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics on TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.8

Measure: Types of folders created per scenario

Input Variables:

Name	Source
A. Folders created	TOC Log

Operation: TOC operator notes folders created on TOC Log; cumulate unique types across three stages; enter into database.

OPERATIONAL DEFINITION

#: D2.9

Measure: Number of overlays sent on Bn net, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of unique overlays sent from the TOC workstations on the Bn net; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any unique overlay sent on the Bn net by the TOC workstations during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.9

Measure: Number of overlays sent on Bn net, average per stage

Input Variables:

Name	Source
A. Number sent	BTOE_STATS: BTOE Send X Role (S2 and S3)

Operation: Average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.10

Measure: Number of reports deleted, average per stage, a) overall and b) by report type

Eliminated - Measure is of little interest.

OPERATIONAL DEFINITION

#: D2.11

Measure: Number of reports posted to Map Display, average per stage, a) overall and b) by report type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of unique reports posted to the Map Display by the S2 and S3 workstation operators; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any unique digital report posted to the Map Display during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.11

Measure: Number of reports posted to Map Display, average per stage, a) overall and b) by report type

Input Variables:

Name	Source
A. Icons posted	BTME_STATS: Copy From:<any folder> To:MapDisp X Role (S2 and S3)

Operation: Sum all "To: MapDisp"; average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.12

Measure: Percent of time in state for each map scale, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of time during mission execution that each map scale (1:25K, 1:50K, 1:125K, 1:250K) was in effect on the TOC workstations; based on a 30-second sampling cycle; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: All mission execution periods during which map scale state was recorded; "no data" states excluded.

Independent Variables to be Used in Analysis of Measure:

Map scale state
Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Within Ss ANOVA on map scale state.

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.12

Measure: Percent of time in state for each map scale, average per stage

Input Variables:

Name	Source
A. Map Scale Time	BTMS_USAGE: Scale X Role (S2 and S3)
B. Adjusted stage duration	EXERCISE_DATA: ID X Duration

Operation: Divide A. by B. for each scale (exclude "no data" states) by workstation for each stage; average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.13

Measure: Number of reports viewed via icon, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of unique digital reports whose contents were viewed by selecting the posted icon on the S2 and S3 workstation Map Displays; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any unique report viewed from its posted icon during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.13

Measure: Number of reports viewed via icon, average per stage

Input Variables:

Name	Source
A. Number via icon	BTME_STATS: View From: MapOverlay X Role (S2 and S3)

Operation: Average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.14

Measure: Number of times POSNAV icons aggregated.

Eliminated - Measure is of marginal interest.

OPERATIONAL DEFINITION

#: D2.15

Measure: Number of times scroll used, by scroll method.

To be developed in 1992; requires instrumentation.

OPERATIONAL DEFINITION

#: D2.16

Measure: Number of icons deleted from map display

Eliminated - Measure is of marginal interest.

OPERATIONAL DEFINITION

#: D2.17

Measure: Number of overlays edited, average per stage

Eliminated - Action culminating editing is indeterminate.

OPERATIONAL DEFINITION

#: D2.18

Measure: Number of overlays deleted, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of overlays which were deleted from the TOC workstations; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any existing overlay which was deleted during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.18

Measure: Number of overlays deleted, average per stage

Input Variables:

Name	Source
A. Number deleted	BTOE_STATS: BTOE Delete X Role (S2 & S3)

Operation: Average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.19

Measure: Number of overlays copied from the other WS

Eliminated - Measure is of little interest.

OPERATIONAL DEFINITION

#: D2.20

Measure: Number of unit symbols linked

Eliminated - Measure is of marginal interest.

OPERATIONAL DEFINITION

#: D2.21

Measure: Number of report icons linked to unit symbols, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of reports which were posted to the S2 or S3 Map Display and subsequently linked to an overlay unit symbol; averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any report posted to the Map Display and linked to an overlay unit symbol during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.21

Measure: Number of report icons linked to unit symbols, average per stage

Input Variables:

Name	Source
A. Number linked	BTME_STATS: BTME Link X Role (S2 and S3)

Operation: Average across three stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.22

Measure: Number of free text reports generated

Eliminated (subsumed under D2.3).

OPERATIONAL DEFINITION

#: D2.23

Measure: Number of aggregate reports (unique) received, average per stage, a) overall and b) by report type.

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of unique aggregate reports received at the S2 and S3 workstations; computed overall and by report type (SPOT, SHELL, and CONTACT); averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: Any unique aggregate report received at the S2 or S3 workstation during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.23

Measure: Number of aggregate reports (unique) received, average per stage, a) overall and b) by report type.

Input Variables:

Name	Source
A. Total aggregates	BTME_STATS: BTME Agg X Role (S2 and S3)
B. Report Type aggregates	BTME Table: Role, Event, Detail Serial Table: Serial, Type

Operation: A. Average across three stages. B. For each Event = "Agg" get serial number from Detail; go to Serial table and find report type of that serial number; average across three stages by report type by role (S2 and S3). Output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.24

Measure: Number of aggregate reports opened, average per stage, a) overall and b) by report type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: The number of unique aggregate reports received and viewed (unique viewings only) at the S2 or S3 workstation; computed overall and by report type (SPOT, SHELL, and CONTACT); averaged across the three stages of each scenario.

Measurement Unit: Workstation

Allowable Events: The first viewing of any unique aggregate report received at the S2 or S3 workstation during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.24

Measure: Number of aggregate reports opened, average per stage,
a) overall and b) by report type

Input Variables:

Name	Source
A. Agg Reports by Type	BTME Table: Role, Event, Detail Serial Table: Serial, Type
B. Opened Aggregates	BTME Table: Role
C. Total viewings	

Operation: A. - For each Event = "Agg" get serial number from Detail; go to Serial table and find report type of that serial number; B. - go to BTME table, get Event = "View" for Serial equal to one found in step A.; average across three stages by report type by role (S2 and S3); C. - total report types by role; average across three stages. Output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D2.25

Measure: Percent of duplicate automated reports received, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of duplicate digital reports arriving in InFolder at the S2 and S3 WSs during mission execution; averaged across the three stages of each scenario. Computed across report types.

Measurement Unit: Workstation

Allowable Events: All non-unique digital reports received (post-filter) at the S2 and S3 WSs during mission execution.

Independent Variables to be Used in Analysis of Measure:

Section

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Descriptive statistics by TOC Staff section

Expected N (per Cell): 2/week/scenario

DATA REDUCTION PROCEDURE

#: D2.25

Measure: Percent of duplicate automated reports received, average per stage

Input Variables:

Name	Source
A. Dupl arrivals	BTME_STATS: BTME Arrival X Role (S2 and S3)

Operation: Average across stages; output values into file for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.1

Measure: Percent time in each map scale, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of time during mission execution each map scale (1:25K, 1:50K, 1:125K, 1:250K) was in effect on the CCD tactical map; based on 60-sec sampling cycle and state-change events; averaged across the three stages of each scenario; applies only to CVCC vehicles.

Measurement Unit: Vehicle

Allowable Events: Any completed stage, excluding no-data and CCD breakdown periods.

Independent Variables to be Used in Analysis of Measure:

Map scale state
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on map scale state

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.1

Measure: Percent time in each map scale, average per stage

Input Variables (DCA):

Name	Source
A. Map scale time	IVMU_STATS: Scale Time: ID X Scales (excl No-data)
B. Operating time	EXERCISE_DATA: ID X Duration IVIS minus NoData duration

Operation: Divide A. by B. for each scale by each vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.2

Measure: Percent time each map feature used, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of time during mission execution each map feature (grid, contours, rivers, roads, vegetation) was "on" the CCD tactical map; based on 60-sec sampling cycle and state-change events; averaged across the three stages of each scenario; applies only to CVCC vehicles.

Measurement Unit: Vehicle

Allowable Events: Any completed stage, excluding no-data and CCD breakdown periods.

Independent Variables to be Used in Analysis of Measure:

Map feature
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on map feature (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.2

Measure: Percent time each map feature used, average per stage

Input Variables (DCA):

Name	Source
A. Map feature time	IVMU-STATS: For all Features Time Tables: ID X On
B. Operating time	EXERCISE_DATA: ID X Duration IVIS minus No-data duration

Operation: Divide A. by B. for each map feature by each vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.3

Measure: Percent control inputs by touchscreen, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of the total number of control inputs to the CCD effected by touchscreen (vs. thumb control); averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All CCD control inputs (touchscreen and thumb control) recorded by DCA during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.3

Measure: Percent control inputs by touchscreen, average per stage

Input Variables (DCA):

Name	Source
A. Touch input count	IVQY-STATS: ID X Sum X TCHSCR
B. Total input count	IVQY_STATS: (ID X Sum X TCHSCR) plus (ID X Sum X THMDES)

Operation: Divide A. by B. for each vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.4

Measure: Percent grid inputs to reports by laser device, average per stage, a) overall and b) by report type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of the total number of grid location inputs to CCD reports effected by laser device (vs. CCD tactical map); averaged across the three stages of each scenario; computed overall and by report type; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All grid location inputs (laser and touchscreen) to CCD reports during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.4

Measure: Percent grid inputs to reports by laser device, average per stage, a) overall and b) by report type

Input Variables (DCA):

Name	Source
A. Total laser input	IVQY_STATS: ID X Sum X LRFLOC
B. Report type laser input	IVQY_STATS: ID X Sum X Report Type X LRFLOC
C. Total input count	IVQY_STATS: (ID X Sum X MAPLOC) plus (ID X Sum X LRFLOC)

Note: Instrumentation software is to be developed to support break-out by report type.

Operation: Divide A. by C. for each vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.5

Measure: Percent reports retrieved from receive queue, average per stage, by report type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of the total number of report retrievals (non-redundant retrievals only) on the CCD which were selected from the receive queue (vs. old file); averaged across the three stages of each scenario; computed by report type; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All unique (non-redundant) retrievals of reports received on the CCD during mission execution.

Independent Variables to be Used in Analysis of Measure:

Report type
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on report type (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.5

Measure: Percent reports retrieved from receive queue, average per stage, by report type

Input Variables (DCA):

Name	Source
A. Queue retrieval count	IVMR_STATS: Selected Count: ID X ByQueue
B. Old file retrieval count	IVMR_STATS: Selected Count: ID X ByFile

Operation: Divide A. by (A. + B.) for each report type per vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.6

Measure: Number of retrievals per report, average per stage, by report type

Eliminated - Measure is of marginal interest.

OPERATIONAL DEFINITION

#: D3.7

Measure: Median number of icons on tactical map, average per stage

Eliminated - Interpretation is ambiguous. See D3.22.

OPERATIONAL DEFINITION

#: D3.8

Measure: Percent time each map scroll function used, average per stage

Year Implemented: 1992

Variable Type/Length: f6.2

Operational Definition: Proportion of time during mission execution each map scroll function (follow, jump) was in effect on the CCD tactical map; based on state-change events; averaged across the three stages of each scenario; available for CVCC vehicles only.

Note: New instrumentation software is needed to be consistent with new scroll functionality.

Measurement Unit: Vehicle

Allowable Events: All map scroll state changes selected by the Veh Cdr during mission execution, excluding no-data periods.

Independent Variables to be Used in Analysis of Measure:

Map scroll state
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on map scroll state (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.8

Measure: Percent time each map scroll function used, average per stage

Input Variables (DCA):

Name	Source
A. Map scroll time	IVMU_STATS: Scroll Time: ID X Functions
B. Operating time	EXERCISE_DATA: ID X Duration IVIS minus No-data duration

Operation: Divide A. by B. for each scroll state by each vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.9

Measure: Number of CCD messages sent, average per stage

Eliminated - redundant with measure D3.11.

OPERATIONAL DEFINITION

#: D3.10

Measure: Percent of prepared reports transmitted overall, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of formatted reports prepared on the CCD which were transmitted (vs. cancelled) by the Veh Cdr; averaged across the three stages of each scenario; computed across report types; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All CCD reports originated and subsequently sent (first send only) by Veh Cdrs during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.10

Measure: Percent of prepared reports transmitted overall,
average per stage

Input Variables (DCA):

Name	Source
A. Prepared/sent count	IVRG_STATS: ID (Send) X Active Time: Count X Total
B. Prepared/cancelled count	IVRG_STATS: ID (Cancel) X Active Time: Count X Total

Operation: Divide A. by (A. + B.) for each vehicle per stage;
average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.11

Measure: Number of CCD reports sent (originated), average per stage, by report type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Number of CCD transmissions of reports originated by each Veh Cdr per stage; averaged across the three stages of each scenario; computed by report type; excludes repeats and relays; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All CCD reports originated by a Veh Cdr and subsequently sent (first send only) by the same individual during mission execution.

Independent Variables to be Used in Analysis of Measure:

Report type
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on report type (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.11

Measure: Number of CCD reports sent (originated), average per stage, by report type

Input Variables (DCA):

Name	Source
A. First send count	#IVRG: Send Count: ID X RptType (manned sims)

Operation: Average A. across stages for each report type per vehicle per stage; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.12

Measure: Percent reports retrieved overall, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of the total number of unique reports received on the CCD which were subsequently retrieved (non-redundant retrievals only) from the receive queue or the old file; averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All unique (non-redundant) retrievals of reports received (unique receptions) on the CCD during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.12

Measure: Percent reports retrieved overall, average per stage

Input Variables (DCA):

Name	Source
A. Queue retrieval count	IVMR_STATS: Selected Count: ID X ByQueue X Total
B. Old file retrieval count	IVMR_STATS: Selected Count: ID X ByFile X Total
C. Unique received count	IVMR_STATS: RptType Count: ID X Total

Operation: Divide (A. + B.) by C. for each vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.13

Measure: Percent reports retrieved, average per stage, by type

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of the total number of unique reports received on the CCD which were subsequently retrieved (non-redundant retrievals only) from the receive queue or the old file; averaged across the three stages of each scenario; computed by report type; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All unique (non-redundant) retrievals of reports received (unique receptions) on the CCD during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.13

Measure: Percent reports retrieved, average per stage, by type

Input Variables (DCA):

Name	Source
A. Queue retrieval count	IVMR_STATS: Selected Count: ID X ByQueue X Report Type
B. Old file retrieval count	IVMR_STATS: Selected Count: ID X ByFile X Report Type
C. Unique received count	IVMR_STATS: RptType Count: ID X Report Type

Operation: Divide (A. + B.) by C. for each report type per vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.14

Measure: Percent reports relayed overall, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of the total number of unique reports received on the CCD which were subsequently relayed (excludes redundant relays); averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All unique relays of unique reports received on the CCD during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.14

Measure: Percent reports relayed overall, average per stage

Input Variables (DCA):

Name	Source
A. Unique Relays	IVMH Table: Role, Action
B. Unique received count	IVMR_STATS: RptType Count: ID X Total

Operation: For each Role, sum the number of Actions = "Relay"; divide the sum by B. for each vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.15

Measure: Number of reports received, average per stage, by report type; a) total reports received and b) unique reports received

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: (a) Total number of reports received (unique and redundant) on the CCD via all radio nets. (b) Number of unique reports received on the CCD via all radio nets. Both measures computed by report type and averaged across three stages; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All reports (both unique and redundant) received on the CCD during mission execution.

Independent Variables to be Used in Analysis of Measure:

Report type
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on report type (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.15

Measure: Number of reports received, average per stage, by report type; a) total reports received and b) unique reports received

Input Variables (DCA):

Name	Source
A. Total report count	IVMR_STATS: #_Receive X ID
B. Unique report count	IVMR_STATS: #_Unique X ID

Operation: For each report type per vehicle per stage, average A. and B. (separate variables) across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.16

Measure: Percent of redundant reports received, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Of the total number of reports (unique and redundant) received on the CCD via all radio nets, the percent which were redundant. Computed by report type and averaged across three stages. Applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All reports (both unique and redundant) received on the CCD during mission execution.

Independent Variables to be Used in Analysis of Measure:

Report type
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on report type (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.16

Measure: Percent of redundant reports received, average per stage

Input Variables (DCA):

Name	Source
A. Total report count	IVMR_STATS: #_Receive X ID
B. Unique report count	IVMR_STATS: #_Unique X ID

Operation: Divide (A. minus B.) by A for each report type per vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.17

Measure: Percent reports relayed--unique relays, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of the total number of unique reports received on the CCD which were subsequently relayed, excluding redundant relays; averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: The first relay of all unique reports received on the CCD during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.17

Measure: Percent reports relayed--unique relays, average per stage

Input Variables (DCA):

Name	Source
A. Total Relays	IVMH Table: Role, Serial, Action

Operation: For each Role, identify the number of unique Actions = "Relay", using Serial, for each vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D3.18

Measure: Number of times CCD map scale changed

Eliminated - Measure of little interest.

OPERATIONAL DEFINITION

#: D3.19

Measure: Percent time Veh Cdrs used their Tactical Map (CCD) and paper lap map, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Relative proportion of time the Veh Cdr used his paper map and the CCD tactical map for location and navigation purposes, as judged by RA/observers; averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: Any stage completed by Bn Cdr and S3 (where dedicated RA observed in vehicle).

Independent Variables to be Used in Analysis of Measure:

Echelon
Map (Tactical vs paper)

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on map

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.19

Measure: Percent time Veh Cdrs used their tactical map (CCD) and paper lap map, average per stage

Input Variables:

Name	Source
A. Percentage used map	RA Log: Use of maps

Operation: RA records judgement at the end of each stage. Record on data reduction sheet; enter in database; average across three stages.

OPERATIONAL DEFINITION

#: D3.20

Measure: Paper map overlay usage

Not implemented.

OPERATIONAL DEFINITION

#: D3.21

Measure: Percent time Veh Cdr used vision blocks, GPSE, CITV, CCD; average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Relative proportion of time the Veh Cdr used each available means (VBs, GPSE, CITV, and CCD tactical map) to obtain information about the battlefield environment "outside" the sim; judged by RA/observers; averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: Any stage completed by Bn Cdr and S3 (where dedicated RA observed in vehicle).

Independent Variables to be Used in Analysis of Measure:

Echelon

Device

Measure Collection/Analysis Summary

Collection Method(s): Manual

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on device

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D3.21

Measure: Percent time Veh Cdr used vision blocks, GPSE, CITV, CCD; average per stage

Input Variables:

Name	Source
A. Percentage used visual device	RA Log: Visual Devices

Operation: RA records judgement at the end of each stage. Record on data reduction sheet; enter in database; average across three stages.

OPERATIONAL DEFINITION

#: D4.1

Measure: Percent time in each CITV mode, average per stage

Year Implemented: 1991

Variable Type/Length: f6.2

Operational Definition: Proportion of time during mission execution each CITV mode (off, cooling, standby, GPS, gun line of sight, manual search, autoscan) was in effect; based on 60-sec sampling cycle and state-change events; excludes no-data periods; averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: Any completed stage, adjusted for CITV breakdowns.

Independent Variables to be Used in Analysis of Measure:

Mode
Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon, repeated measures on mode (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D4.1

Measure: Percent time in each CITV mode, average per stage

Input Variables (DCA):

Name	Source
A. Cumulative mode time	NEW_CIIN_STATS: State Time: ID X Off .. ID X Autoscan
B. Operating time	EXERCISE_DATA: ID X Duration CITV minus NoData Duration

Operation: Divide A. by B. for each CITV mode per vehicle per stage; average across stages; output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D4.2

Measure: Number of times CITV laser used, average per stage

Year Implemented: 1991

Variable Type/Length: f5.2

Operational Definition: Cumulative number of times per stage the Veh Cdr used the CITV LRF; averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All CITV lase events during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D4.2

Measure: Number of times CITV laser used, average per stage

Input Variables (DCA):

Name	Source
A. Cumul CITV lase count	CIIN_STATS: CITV_Lase Count: ID X Total

Operation: Average A. across stages for each vehicle per stage;
output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D4.3

Measure: Number of times Designate used, average per stage

Year Implemented: 1991

Variable Type/Length: f5.2

Operational Definition: Cumulative number of times the Veh Cdr designated a target, slewing the gun tube to the specific direction of the target; averaged across the three stages of each scenario; applies to CVCC vehicles only.

Measurement Unit: Vehicle

Allowable Events: All Designate events during mission execution.

Independent Variables to be Used in Analysis of Measure:

Echelon

Measure Collection/Analysis Summary

Collection Method(s): DCA

Analysis Summary: Between Ss ANOVA on echelon (data elements averaged across stages).

Expected N (per Cell): 2/6/week/scenario

DATA REDUCTION PROCEDURE

#: D4.3

Measure: Number of times Designate used, average per stage

Input Variables (DCA):

Name	Source
A. Cumul Designate count	CIIN_STATS: Designate Count: ID X Total

Operation: Average A. across stages for each vehicle per stage;
output file ready for SPSS analysis.

OPERATIONAL DEFINITION

#: D5.1

Measure: CCD skill test score

Rating scale from Skills Test questionnaire defines this measure.

OPERATIONAL DEFINITION

#: D5.2

Measure: CITV skills test

Rating scale from Skills Test questionnaire defines this measure.

OPERATIONAL DEFINITION

#: D6.1

Measure: TOC skill and knowledge ratings

Eliminated -- not relevant to contractor-manned TOC.

OPERATIONAL DEFINITION

#: D6.2

Measure: Veh Cdr skill and knowledge ratings

Rating scale from Training Evaluation questionnaire defines this measure.

OPERATIONAL DEFINITION

#: D7.1

Measure: TOC training evaluation ratings

Eliminated -- no longer relevant to contractor-manned TOC.

OPERATIONAL DEFINITION

#: D7.2

Measure: Veh Cdr training evaluation ratings

Rating scales from Training Evaluation questionnaire define this measure.

OPERATIONAL DEFINITION

#: D7.3

Measure: Gunner/Driver training evaluation ratings

Rating scales from Training Evaluation questionnaire define this measure.

OPERATIONAL DEFINITION

#: D8.1

Measure: Veh Cdr biographical data

Rating scales from the Biographical questionnaire define this measure.

OPERATIONAL DEFINITION

#: D8.2

Measure: Gunner and Driver biographical data

Rating scales from the Biographical questionnaire define this measure.

Appendix E
Data Collection Logs

Appendix E contains the following data collection logs:

<u>Logs</u>	<u>Pages</u>
RA Logs, Offensive and Defensive Missions	E-3 through E-26
Battle Master Logs, Offensive and Defensive Missions	E-27 through E-42
PVD Logs, Offensive and Defensive Missions	E-43 through E-58

RA OFFENSIVE LOG**Formative Bn Evaluation**

Date: _____ RA: _____

Simulator Duty Position: _____

Stage 1: Movement to Contact.

As the stage begins, A and B Cos cross the LD heading South. After the first units cross the LD, Bde issues FRAGO 1, which tells 1-10 AR to conduct an attack to the SE after reaching PL JIM. The Bn Cdr sends a Warning Order to his companies. Shortly thereafter, Scouts report enemy elements on a hill mass on the eastern side of the Bn Zone. Before A Co comes into contact with the OPFOR on the eastern hill mass, they come under fire from another OPFOR unit on their western flank. The Bn Cdr has A Co bypass the OPFOR on the western flank and has B Co engage those forces. OPFOR on the eastern hill become visible to A Co. The Bn Cdr orders A Co to bypass, C Co to engage, and D Co to move up to the left wing position. C Co moves out of formation to engage the OPFOR unit in the east and D Co moves up to take the left wing position. The Bn Cdr orders A Co to halt short of PL Jim. B Co has finished its fight and has returned to its right wing position. D Co is on the left wing. C Co has finished its fight and moves to the slot position. A Co encounters 2 MR Plt+ positioned along PL JIM, and the Bn Cdr maneuvers the Bn to eliminate those forces.

Stage 2: Attack.

FRAGO 1 is issued. The Bn is in diamond formation ready to cross PL JIM and attack Bde Obj BASEBALL. With A Co leading, the Bn crosses PL JIM and orients SE along AXIS KIM. After crossing PL JIM, Bde issues FRAGO 2, which tells 1-10 AR to conduct an attack on Obj BRASS after consolidating on BASEBALL. The Bn Cdr sends a Warning Order. After crossing the LD, A and D Cos report contact with an OPFOR unit. A Co engages the OPFOR, calls in artillery, and continues the attack. As the Bn crosses PL SPIKE, the Bn Cdr orders the Cos to break the diamond formation and continue the attack. B, A, and D Cos continue the attack towards Objs BALL, BAT, and GLOVE, respectively. C Co is in reserve. The companies attack their objectives, fight, and consolidate on them.

Stage 3: Attack.

Bn FRAGO 2 is issued. B, A, and D Cos are consolidated on their Stage 2 objectives, C Co is in reserve, and all Cos are prepared to continue the attack to the S along AXIS KELLY. B, A, and D Cos cross the LD (PL CARL) on line and continue towards Objs PLATINUM, COBALT, and IRON, respectively. Bde issues a Warning Order to 1-10 AR to continue the attack to the E after consolidation on Obj BRASS. All three Cos encounter an Outpost (1 BMP). The Cos attack their objectives, fight, and consolidate on them.

Stage 1 (Off):

STARTING SITUATION: The Bn is located along the LD (PL NASH); A Co is in PP3, B Co is in PP5, C Co is in column behind A Co; D Co is in column behind B Co. The simulation is initiated by BLUFOR movement.

A Co reports crossing LD; B Co reports crossing LD

Bde issues FRAGO 1 to attack Obj BASEBALL; orders 1-10 AR "do not cross PL JIM until Bde implements FRAGO 1"

Bn Cdr issues Warning Order: "1-10 AR be prepared to attack SE upon reaching PL JIM. A Co stop short of JIM; all other units form on A Co. Will attack on order."

C Co reports crossing LD; D Co reports crossing LD

Bn Scouts report sighting 2 BMPs vicinity ES795910

Report Tally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
Problems with the Equipment
Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
Questions that the Veh Cdr
asked you

Stage 1 (Off)

S11 reports BMPs ES 774900 and ES 773891

S11 reports CP 9 reached

A Co reports CP 12 reached

Bde issues INTEL: "Division All Source reports elements of the 144th MRR vicinity ES9762."

Bn TOC requests SITREP

Bde issues INTEL: "Long Range Patrol reports sighting 4 tanks and 10 BMPs vic ES9172; 1 BMP vic ES9376."

A Co reports SET; B Co reports SET; C Co reports SET; D Co reports SET

Report Tally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
 Problems with the Equipment
 Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
 Questions that the Veh Cdr
 asked you

Stage 1 (Off)

BREAK (End of Stage 1)

Did Veh Cdr express dissatisfaction with the equipment? What was it?

What percentages of firings was done by Veh Cdr? _____

Use of Maps:

Tactical Map (CCD) _____ + Lap Map _____ = 100%

Use of Visual Devices:

VBs _____ + GPSE _____ + CITV _____ + CCD _____ = 100%

Additional Notes:

Stage 2 (Off):

STARTING SITUATION: The Bn is in a diamond formation ready to cross PL JIM and attack Bde Obj BASEBALL. A Co objective is BAT; B Co objective is BALL; D Co objective is GLOVE; C Co is in reserve. Simulation is initiated when Battle Master orders Bn Cdr to implement FRAGO 1.

S11 reports 2 BMPs ES 801859

Bde issues FRAGO 2 to attack Obj BRASS; orders 1-10 AR "Do not cross PL CARL until Bde implements FRAGO 2."

Bn Cdr issues Warning Order: "1-10 AR be prepared to attack South upon consolidation on Objs BAT, BALL, and GLOVE. Will continue attack on order."

Did Veh Cdr transfer FRAGO to paper map (to what extent)? _____

Report

Tally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
Problems with the Equipment
Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
Questions that the Veh Cdr
asked you

Stage 2 (Off)

Bde INTEL: "2nd Bde reports heavy contact to the East."

A Co reports crossing LD

OPFOR artillery on B, A, D Co

On Bde Net, 1-91 Mech Cdr reports: "Meeting heavy resistance along PL CARL."

A Company reports SET on Obj BAT

B Company reports SET on Obj BALL

D Company reports SET on Obj GLOVE

Report Tally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
Problems with the Equipment
Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
Questions that the Veh Cdr
asked you

Stage 2 (Off)

BREAK (End of Stage 2)

Did Veh Cdr express dissatisfaction with the equipment? What was it?

What percentages of firings was done by Veh Cdr? _____

Use of Maps:

Tactical Map (CCD) _____ + Lap Map _____ = 100%

Use of Visual Devices:

VBs _____ + GPSE _____ + CITV _____ + CCD _____ = 100%

Additional Notes:

Stage 3 (Off):

STARTING SITUATION: A Co is on OBJ BAT; B Co is on Obj Ball; C Co is in reserve; D Co is on Obj GLOVE. A, B, and D Cos will advance to sieze Objs COBALT, PLATINUM, and IRON, respectively. Simulation is initiated when Battle Master orders Bn Cdr to implement FRAGO 2.

A Co reports PL Carl; B Co reports PL Carl; C Co reports PL Carl; D Co reports PL Carl

On Bde Net: "Division All Source reports heavy fortifications vicinity Obj Gold."

Bde INTEL: "Division All Source reports elements of 140th MRR vic ES9465."

Bn TOC issues Warning Order: "Be prepared to continue attack to East after consolidation on Objs PLATINUM, COBALT, and IRON."

Did Veh Cdr transfer FRAGO to paper map (to what extent)?

<u>Report</u>	<u>Tally</u>

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
Problems with the Equipment
Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
Questions that the Veh Cdr
asked you

Stage 3 (Off)

Bde INTEL: "Division All Source reports 144th RAG sighted vic ES9768."

A Company reports SET on Obj COBALT

B Company reports SET on Obj PLATINUM

C Company reports SET vic ES 9374

D Company reports SET on Obj IRON

Bn TOC requests SITREP

<u>Report</u>	<u>Tally</u>

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
 Problems with the Equipment
 Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
 Questions that the Veh Cdr
 asked you

Stage 3 (Off)

END OF EXERCISE

Did Veh Cdr express dissatisfaction with the equipment? What was it?

What percentages of firings was done by Veh Cdr? _____

Use of Maps:

Tactical Map (CCD) _____ + Lap Map _____ = 100%

Use of Visual Devices:

VBs _____ + GPSE _____ + CITV _____ + CCD _____ = 100%

Additional Notes:

EXAMPLES OF COORDINATION BETWEEN VEH CDR AND OTHER CREW MEMBERS:

Designate was NOT clearly signalled to **gunner**.

Gunner tells Veh Cdr to let go of palm switch--after designating a target.

Veh Cdr asks **gunner** to input grids to reports.

Veh Cdr forgets to switch to GPS mode so **gunner** can input grids to reports.

Driver requests next waypoint.

Driver requests clarification of waypoint(s).

RA DEFENSIVE LOG**Formative Bn Evaluation**

Date: _____ RA: _____

Simulator Duty Position: _____

Stage 1: Delay.

As the stage begins, 2 OPFOR recon Plts are advancing to establish the initial defensive positions. The BLUFOR along PL KING receive a 10 min OPFOR artillery barrage. A friendly tank company from the 1-52 Mech is continuing its movement rearward (N) past the D Co position. The OPFOR recon Plts establish contact with A and C Cos. Subsequently, the OPFOR attacks with 2 MRBs in the 1st echelon of the 144th MRR and 1 MRB in its 2nd echelon. Each MRB has 2 MRC + in its 1st echelon and a 3rd MRC + in its 2nd echelon.

As the battle progresses A Co is forced to delay due to OPFOR pressure and because the 1-92 Mech on the W (right) of 1-10 AR is being forced to delay. The Bn Cdr has the Bn delay to subsequent BPs. After movement to subsequent BPs is initiated, the Bde issues FRAGO 1 to 1-10 AR, a counterattack to the SW to destroy the 2nd echelon of the 144th MRR as it passes through the A Co sector. The Bn Cdr sends a Warning Order.

As C Co delays back toward PL JACK, contact is broken with the OPFOR. Shortly thereafter, B Co reports contact with OPFOR is broken and indicates the direction of OPFOR movement is towards BP 11. A Co continues in contact as it delays to BP 11. D Co displaces to BP 22. As this stage ends, the 1st echelon MRBs of the 144th MRR have either been eliminated or move out of the 1-10 AR sector to the NW. A, B, C, and D Cos are set in BPs 11, 21, 31, and 22, respectively.

Stage 2: Counterattack.

As this stage begins, Bn FRAGO 1 is issued. A Co remains in defensive position in BP 11. D Co attacks along AXIS BETTY on the right flank (W) to secure Obj RAIN; B Co attacks along AXIS PAM in the center to secure Obj SNOW; and C Co attacks along AXIS LIZ on the left (E) flank to secure Obj FOG. After the Cos cross the LD, Bde issues FRAGO 2 to 1-10 AR, to resume delay after completion of the counterattack. The Bn Cdr sends a Warning Order. As D Co is reaching Obj RAIN, the 2nd echelon MRB of the 144th MRR is approaching Obj RAIN. The battle is joined; the OPFOR turns to meet the BLUFOR attack. As this stage ends, the OPFOR has been eliminated and D, B, C, and A Cos are in the vicinity of Obj RAIN, SNOW, FOG, and BP 11, respectively.

Stage 3: Delay.

As this stage begins, FRAGO 2 is issued. The FRAGO 2 overlay establishes new BPs 25 (W sector), 45 (center sector), and 35 (E sector), along new PL ACE. FRAGO 2 also establishes BPs 46 (center sector) and 36 (E sector) adjacent to BP 11 (W sector), along PL QUEEN. D, B, and C Cos move to establish defensive positions in BPs 25, 45, and 35, respectively. A Co moves to BP 46 and is in reserve. The OPFOR has element of the 2nd echelon of the 39th GMRD moving forward (N). The OPFOR in the 1-10 AR sector is the 146th MRR, which has 2 MRBs forming the 1st echelon of the regiment. Each of the MRBs attack with 2 MRC + s in its 1st echelon and 1 MRC + in its 2nd echelon. The battle is joined. After a period of fighting, the OPFOR unleashes chemical munitions. 1-10 AR delays to subsequent BPs along PL QUEEN. As the stage ends, the Cos are set in position, have submitted SITREPs, and are prepared to continue the delay mission.

Stage 1 (Def):

STARTING SITUATION: The Bn is set in BPs along PL KING; A Co is in BP 10, B Co is in BP 20, C Co is in BP 30. D Co is in reserve along PL CLUB in BP 40. The simulation is initiated by OPFOR movement.

Bn TOC requests SITREP from Companies

Bde Net: "All Source INTEL reports sighting of MRB, possibly 2nd echelon of MRR, moving ES940650."

OPFOR artillery barrage on BPs 10, 20, 30

Bde Net: 1-92 Mech Bn Cdr reports to Bde Cdr heavy contact along PL KING

D Co Plt reports elements of 1-52nd moving North

S11 reports consolidated at CP10, moving to screen line 1.

Bde issues INTEL: "210 ACR reports only light contact in their sector."

Report Tally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
Problems with the Equipment
Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
Questions that the Veh Cdr
asked you

Stage 1 (Def)

Bde issues Warning Order: "1-10 AR be prepared to counter attack to SW from vicinity PL Spade; 1-91 Mech be prepared to establish hasty defense along PL Club."

1-92 Mech Cdr requests permission to delay to PL Club.

Bde sends to Bn, "To prevent 1-92 Mech from becoming decisively engaged, all Bns delay to Phase II BPs." (if request to delay has not been made)

DIVARTY reports 144thRAG vic ES 910725.

Bde issues Warning Order: "Suspected 2nd echelon of MRB of 144th moving NW in W sector of 1-10 ARAO. 1-10 AR be prepared to establish hasty defense along PL CLUB."

ReportTally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
Problems with the Equipment
Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
Questions that the Veh Cdr
asked you

Stage 1 (Def)

Bde Cdr to Bn Cdr: "Concerned about enemy's direction of attack, which is more westerly than expected. Ensure that your eastern flank companies do not get bypassed."

C Co reports crossing PL Jack; D Co reports crossing PL Spade; B Co reports crossing PL Jack A Co reports crossing PL Club

S11 reports SET screen line 1.

A Co reports SET at BP 11; B Co reports SET at BP 21; C Co reports SET at BP 31; D Co reports SET at BP 22

S11 reports SET screen line 2.

<u>Report</u>	<u>Tally</u>

ADJUST FIRE	

AMMO	

CFF	

CONTACT	

SHELL	

SITREP	

SPOT	

INTEL	

FRAGO	

NBC	

OTHER	

Record:

Coordination between Veh Cdr and crew	Novel uses of the Equipment
Problems with the Equipment	Questions that the Veh Cdr
Anything Noteworthy or Out of the Ordinary	asked you

Stage 1 (Def)

BREAK (End of Stage 1)

Did Veh Cdr express dissatisfaction with the equipment? What was it?

What percentages of firings was done by Veh Cdr? _____

Use of Maps:

Tactical Map (CCD) _____ + Lap Map _____ = 100%

Use of Visual Devices:

VBs _____ + GPSE _____ + CITV _____ + CCD _____ = 100%

Additional Notes:

Stage 2 (Def):

STARTING SITUATION: A Co is in BP 11; B Co is in BP 21; C Co is in BP 31; and D Co is in BP 22. A Co stays in reserve and B, C, and D advance to take Objectives SNOW, FOG, AND RAIN, respectively. Simulation is initiated when Battle Master orders Bn Cdr to implement FRAGO 1.

Bde issues INTEL: "Division All Source reports elements of 146th MRR vic ES9063, moving North."

Bde issues Warning Order: "1-10 AR and 1-92 Mech be prepared to resume defensive after 1-10 AR counterattack."

B Co reports crossing PL Spade; C Co reports crossing PL CLUB; D Co reports crossing PL Queen; S11 reports crossing LD

Did Veh Cdr transfer FRAGO to paper map (to what extent)? _____

Report Tally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
Problems with the Equipment
Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
Questions that the Veh Cdr
asked you

Stage 2 (Def)

C Co reaches Objective Fog

S11 reports screening from CP5 to LD

OPFOR artillery on D Co and B Co

Bn TOC requests SITREP from Companies; All companies consolidate on Objs

<u>Report</u>	<u>Tally</u>

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
 Problems with the Equipment
 Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
 Questions that the Veh Cdr
 asked you

Stage 2 (Def)

BREAK (End of Stage 2)

Did Veh Cdr express dissatisfaction with the equipment? What was it?

What percentages of firings was done by Veh Cdr? _____

Use of Maps:

Tactical Map (CCD) _____ + Lap Map _____ = 100%

Use of Visual Devices:

VBS _____ + GPSE _____ + CITV _____ + CCD _____ = 100%

Additional Notes:

Stage 3 (Def):

STARTING SITUATION: A Co is on BP 11; B Co is on Obj SNOW; C Co is on Obj FOG; D Co is on Obj RAIN.

Simulation is initiated when Battle Master orders Bn Cdr to implement FRAGO 2

D reorients in BP 25; A, B, and C Cos move to establish defensive positions in BP 46, 45, and 35, respectively.

OPFOR artillery barrage along PL ACE

Did **Veh Cdr** transfer FRAGO to paper map (to what extent)? _____

Report

Tally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
Problems with the Equipment
Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
Questions that the Veh Cdr
asked you

Stage 3 (Def)

On Erle net: 1-92 Cdr reports facing elements of 79th GTR.

D and C Co platoons report "GAS"

Bde issues INTEL: "2nd echelon MRB+ sighted vicinity ES8673, moving North."

Bde orders 1-10 AR to delay to PL QUEEN (if request to delay has not been made).

ReportTally

ADJUST FIRE

AMMO

CFF

CONTACT

SHELL

SITREP

SPOT

INTEL

FRAGO

NBC

OTHER

Record:

Coordination between Veh Cdr and crew
 Problems with the Equipment
 Anything Noteworthy or Out of the Ordinary

Novel uses of the Equipment
 Questions that the Veh Cdr
 asked you

Stage 3 (Def)

END OF EXERCISE

Did Veh Cdr express dissatisfaction with the equipment? What was it?

What percentages of firings was done by Veh Cdr? _____

Use of Maps:

Tactical Map (CCD) _____ + Lap Map _____ = 100%

Use of Visual Devices:

VBs _____ + GPSE _____ + CITV _____ + CCD _____ = 100%

Additional Notes:

EXAMPLES OF COORDINATION BETWEEN VEH CDR AND OTHER CREW MEMBERS:

Designate was NOT clearly signalled to **gunner**.

Gunner tells Veh Cdr to let go of palm switch--after designating a target.

Veh Cdr asks **gunner** to input grids to reports.

Veh Cdr forgets to switch to GPS mode so **gunner** can input grids to reports.

Driver requests next waypoint.

Driver requests clarification of waypoint(s).

BATTLE MASTER LOG
OFFENSIVE SCENARIO
 Formative Bn Evaluation

Date: _____

File: BO/_ _ _ _

Battle Master: _____

Assistant Battle Master: _____

<u>Position</u>	<u>Simulator*</u>	<u>Call Sign</u>	<u>Vehicle ID*</u>
Bn Cdr	3B	Y06	_____
S3	2B	Y03	_____
A Co Cdr	4A	A06	_____
B Co Cdr	4B	B06	_____
C Co Cdr	4C	C06	_____
D Co Cdr	3C	D06	_____

* Be sure to note changes in Simulator and Vehicle ID if backup simulator(s) used.

DCA Notified to Turn DataLogger ON: ____:____:____ (Time) ____ (Flag)

Battle Master Log - Offensive Scenario

Stage 1:

_____ Bn Cdr calls in RedCon 1: Time: _____

DATA ELEMENT: Time unit was told to move out: _____

SIMULATION INITIATED BY BLUFOR MOVEMENT

_____ First unit moves out: Time: _____

1ST PLATOON OF D COMPANY REPORTS CROSSING LD

1ST PLATOON OF B COMPANY REPORTS CROSSING LD

_____ Bde issues FRAGO 1 to attack Objective BASEBALL;
Orders 1-10 AR "Do not cross PL JIM until Bde
implements FRAGO 1."

_____ Bde Net: Bn Scouts report sighting 2 BMPs vicinity
ES795910

DATA ELEMENT: Was Friendly force surprised by the first enemy
firing (this engagement)? Support your answer.

DATA ELEMENT: Did more than one friendly company make contact
with the enemy at the same time (this engagement)?

Send Flags and Record: Breakdowns (who, what, start and stop
times); Halt in Exercise (why, start and stop times); Equipment
Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Offensive Scenario

Stage 1

_____ S11 reports BMPs ES 774900 and ES 773891

_____ S11 reports CP 9 reached

_____ Bde issues INTEL: "Division A11 Source reports elements of the 144th MRR vicinity ES9762."

_____ Bde issues INTEL: "Long Range Patrol reports sighting 4 tanks and 10 BMPs vicinity ES9172; 1 BMP vicinity ES9376."

_____ BDE requests SITREP

_____ Bn TOC sends SITREP

DATA ELEMENT: Did Bn meet Commander's Intent (this Stage)?

0% 25% 50% 75% 100%

_____ **BREAK** (End of Stage)

CALL COMPUTER ROOM TO STOP TAPE

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Offensive Scenario

Stage 2:CALL COMPUTER ROOM TO START TAPE

_____ Bn Cdr calls in STARTEX: Time: _____

_____ ORDERS sent out (FRAGO) Time: _____

_____ Bn Cdr calls in RedCon 1: Time: _____

DATA ELEMENT: Time unit was told to move out: _____

_____ First unit moves out: Time: _____

_____ S11 reports 2 BMPs ES 801859

DATA ELEMENT: Was Friendly force surprised by the first enemy firing (this engagement)? Support your answer.

DATA ELEMENT: Did more than one friendly Company make contact at a time (this engagement)?

_____ Bde issues FRAGO 2 to attack Objective BRASS;
Orders 1-10 AR "Do not cross PL CARL until Bde implements FRAGO 2."

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Offensive Scenario

Stage 2

_____ Bde INTEL: "2nd Bde reports heavy contact to East."

_____ OPFOR artillery called on B Co

_____ OPFOR artillery called on A Co

_____ OPFOR artillery called on D Co

_____ ON BDE NET, 1-91 MECH CDR REPORTS: "MEETING HEAVY RESISTANCE ALONG PL CARL."

_____ BDE requests SITREP

_____ Bn TOC sends SITREP to Bde

DATA ELEMENT: Was Friendly force surprised by the first enemy firing (this engagement)? Support your answer.

DATA ELEMENT: Did more than one friendly Company make contact at a time (this engagement)?

DATA ELEMENT: Did Bn meet Commander's Intent (this Stage)?

0% 25% 50% 75% 100%

_____ BREAK (End of Stage)

CALL COMPUTER ROOM TO STOP TAPE

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Offensive Scenario

Stage 3:CALL COMPUTER ROOM TO START TAPE

_____ Bn Cdr calls in STARTEX: Time: _____
 _____ ORDERS sent out (FRAGO) Time: _____
 _____ Bn Cdr calls in RedCon 1: Time: _____

DATA ELEMENT: Time unit was told to move out: _____

_____ First unit moves out: Time: _____

_____ On Bde net, INTEL to 1-91 Mech: "Division A11
 Sources report heavy fortifications vicinity
 Objective GOLD."

_____ Bde INTEL Report: "Division A11 Source reports
 elements of the 140th MRR vic ES9465."

_____ Bde issues Warning Order: "1-10 AR be prepared to
 continue attack to East after consolidation on
 Objective BRASS."

OPFOR ARTILLERY ON D AND B COs

DATA ELEMENT: Was Friendly force surprised by the first enemy
 firing (this engagement)? Support your answer.

DATA ELEMENT: Did more than one friendly company make contact
 with the enemy at the same time (this engagement)?

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns
 (who, what, start and stop times); Halt in Exercise (why, start
 and stop times); Equipment Problems; Anything Noteworthy or Out
 of the Ordinary.

Battle Master Log - Offensive Scenario

Stage 3

_____ Bde INTEL Report: "Division A11 Source reports
144th RAG sighted vic ES9768."

_____ Bde requests SITREP

_____ Bn TOC sends SITREP to Bde

DATA ELEMENT: Did Bn meet Commander's Intent (this Stage)?

0% 25% 50% 75% 100%

_____ END OF EXERCISE

CALL COMPUTER ROOM TO STOP TAPE

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns
(who, what, start and stop times); Halt in Exercise (why, start
and stop times); Equipment Problems; Anything Noteworthy or Out
of the Ordinary.

Battle Master Log - Defensive Scenario

Stage 1:

_____ Bn Cdr calls in RedCon 1: Time: _____

SIMULATION INITIATED BY OPFOR MOVEMENT

_____ Bde TOC requests SITREP

_____ Bn TOC sends SITREP to Bde

_____ Bde issues INTEL: "All source INTEL reports sighting of MRB, possibly 2nd echelon of MRR, moving ES940650."

OPFOR ARTILLERY BARRAGE ON BPs 10, 20, 30

_____ Bn TOC sends SHELL report to Bde

_____ On Bde Net: 1-92 Mech Bn Cdr reports to Bde Cdr heavy contact along PL King.

D CO PLT REPORTS SIGHTING ELEMENTS OF 1-52ND, MOVING NORTH.

_____ Bde issues INTEL: "210 ACR reports only light contact in their sector."

DATA ELEMENT: Did Task Force prevent a decisive engagement (this engagement)?

DATA ELEMENT: Was Bn Bypassed by enemy (this engagement)?

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Defensive Scenario

Stage 1

DATA ELEMENT: Did Bn withdraw intact (this engagement)?

OPFOR ARTILLERY LIFTED

_____ Bde sends Warning Order: "1-10 AR be prepared to counter attack to SW from vicinity PL Spade; 1-91 Mech be prepared to establish hasty defense along PL Club."

_____ Bn TOC send SPOT Report to Bde

_____ On Bde Net: 1-92 Mech Cdr requests permission to delay to PL Club.

_____ Bn Cdr requests permission to delay back

_____ If A Co has not requested to delay, Bde sends to Bn: "To prevent 1-92 Mech from becoming decisively engaged, all Bns delay to Phase II BPs."

DATA ELEMENT: Was permission to delay granted at time of request? If not, why?

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Defensive Scenario

Stage 1

_____ BDE: "DIVARTY Acquisition radar reports 144thRAG vic ES 910725."

_____ Bde issues Warning Order: "Suspected 2nd echelon of MRB of 144th moving NW in W sector of 1-10 AR AO. 1-10 AR be prepared to establish hasty defense along PL CLUB."

_____ Bde Cdr to Bn Cdr: "Concerned about enemy's direction of attack, which is more westerly than expected. Ensure that your eastern flank companies do not get bypassed."

_____ S11 reports SET screen line 1

_____ Bn Toc reports crossing of PL JACK

_____ Bn Toc reports crossing of PL CLUB

_____ Bn Toc reports Bde SET

_____ S11 reports SET screen line 2

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Defensive Scenario

Stage 1

DATA ELEMENT: Did Task Force prevent a decisive engagement (this engagement)?

DATA ELEMENT: Was Bn Bypassed by enemy (this engagement)?

DATA ELEMENT: Did Bn withdraw intact (this engagement)?

BDE requests SITREP

Bn TOC sends SITREP to Bde

DATA ELEMENT: Did Bn meet Commander's Intent (this Stage)?

0% 25% 50% 75% 100%

BREAK (End of Stage)

CALL COMPUTER ROOM TO STOP TAPE

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Defensive Scenario

Stage 2:CALL COMPUTER ROOM TO START TAPE

_____ Bn Cdr calls in STARTEX: Time: _____

_____ ORDERS sent out (FRAGO) Time: _____

_____ Bn Cdr calls in RedCon 1: Time: _____

_____ Bde issues INTEL: "Division All source reports
elements of 146th MRR vic ES9063, moving North."

_____ Bde issues Warning Order: "1-10 AR and 1-92 Mech
be prepared to resume defensive after 1-10 AR
counterattack."

LEAD ELEMENTS OF 2ND ECHELON MRB REACH VIC ES83845

OPFOR ARTILLERY ON D AND B COMPANIES

2ND ECHELON MRC+ REACHES OBJ SNOW

DATA ELEMENT: Number of enemy units penetrating PL SPADE

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Defensive Scenario

Stage 2

Bde requests SITREP

Bn TOC sends SITREP to Bde

DATA ELEMENT: Did Bn meet Commander's Intent (this Stage)?

0% 25% 50% 75% 100%

BREAK (End of Stage)

CALL COMPUTER ROOM TO STOP TAPE

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

Battle Master Log - Defensive Scenario

Stage 3:CALL COMPUTER ROOM TO START TAPE

_____ Bn Cdr calls in STARTEX: Time: _____

_____ ORDERS sent out (FRAGO) Time: _____

_____ Bn Cdr calls in RedCon 1: Time: _____

DATA ELEMENT: Time unit was told to be in BPs Time: _____

_____ Time units were in BPs Time: _____

OPFOR BEGINS MOVEMENT

_____ Bn TOC sends SITREP to Bde

OPFOR artillery barrage along PL ACE

_____ On Bde Net: 1-92 Cdr reports facing elements of
79th GTR.

PLATOON CONTROLLER FOR D CO REPORTS GAS TO D CO CDR

PLATOON CONTROLLER FOR C CO REPORTS GAS TO D CO CDR

_____ Bn TOC sends NBC to Bde

_____ Bde issues INTEL: "2nd echelon MRB+ sighted
vicinity ES8673, moving North."

_____ Bn TOC sends SPOT report to Bde

_____ Bde orders 1-10 AR to delay to PL Queen (if
necessary)

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns
(who, what, start and stop); Halt in Exercise (why, start and
stop); Equipment Problems; Anything Noteworthy or Out of the
Ordinary.

Battle Master Log - Defensive Scenario

Stage 3

_____ Bn TOC reports all companies SET on BPs
_____ Bde requests SITREP
_____ Bn TOC sends SITREP to Bde

DATA ELEMENT: Did Task Force prevent a decisive engagement (this engagement)?

DATA ELEMENT: Was Bn Bypassed by enemy (this engagement)?

DATA ELEMENT: Did Bn withdraw intact (this engagement)?

DATA ELEMENT: Did Bn meet Commander's Intent (this Stage)?

0%	25%	50%	75%	100%

_____ END OF EXERCISE

CALL COMPUTER ROOM TO STOP TAPE

Send Flags and Record: Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

PVD OPERATOR LOG
OFFENSIVE SCENARIO
Formative Bn Evaluation

Date: _____

File: BO/_ _ _ _

PVD Operator: _____

<u>Position</u>	<u>Simulator*</u>	<u>Call Sign</u>	<u>Vehicle ID*</u>
Bn Cdr	3B	Y06	_____
S3	2B	Y03	_____
A Co Cdr	4A	A06	_____
B Co Cdr	4B	B06	_____
C Co Cdr	4C	C06	_____
D Co Cdr	3C	D06	_____

* Be sure to note changes in Simulator and Vehicle ID if backup simulator(s) used.

PVD Log - Offensive Scenario

Stage 1:

_____ Simulation initiated by REDCON 1 TIME: _____

_____ First company crosses the LD: Company = _____

_____ Above company reports crossing LD [Bn radio net]

_____ Last company crosses the LD: Company = _____

_____ Above company reports crossing LD [Bn radio net]

BDE ISSUES FRAGO 1 TO ATTACK OBJ BASEBALL; ORDERS 1-10 AR "DO NOT CROSS PL JIM UNTIL BDE IMPLEMENTS FRAGO 1"

BN SCOUTS REPORT SIGHTING 2 BMPS VICINITY ES795910

_____ First **enemy** rounds fired (for this engagement)

_____ First **friendly** rounds fired (for this engagement)

_____ First **friendly** artillery dropped from ECR--first CFF acted on (for this engagement)

S11 reports BMPs ES 774900 and ES 773891

S11 reports CP 9 reached

_____ First company reaches CP 12 Company = _____

_____ Above company reports CP 12 [Bn radio net]

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

PVD Log - Offensive Scenario

Stage 1

BDE ISSUES INTEL: "DIVISION All SOURCE REPORTS ELEMENTS OF THE 144TH MRR VICINITY ES9762."

BDE REQUESTS SITREP

_____ Bn TOC requests SITREP [Bn radio net]

BN TOC SENDS SITREP TO BDE

BDE ISSUES INTEL: "LONG RANGE PATROL REPORTS SIGHTING 4 TANKS AND 10 BMPS VICINITY ES9172; 1 BMP VIC ES9376."

_____ A Co arrives at position

_____ A Co reports SET in position [Bn radio net]

_____ B Co arrives at position

_____ B Co reports SET in position [Bn radio net]

_____ C Co arrives at position

_____ C Co reports SET in position [Bn radio net]

_____ D Co arrives at position

_____ D Co reports SET in position [Bn radio net]

_____ BREAK (End of Stage)

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

[illegible]

PVD Log - Offensive Scenario

Stage 2

_____ First **enemy** rounds fired (for this engagement)

_____ First **friendly** rounds fired (for this engagement)

_____ First **friendly** artillery dropped from ECR--first CFF
acted on (for this engagement)

_____ A Company on Objective BAT

_____ A Company reports SET on Obj BAT [Bn radio net]

_____ B Company on Objective BALL

_____ B Company reports SET on Obj BALL [Bn radio net]

_____ D Company on Objective GLOVE

_____ D Company reports SET on Obj GLOVE [Bn radio net]

_____ BREAK (End of Stage)

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

[illegible]

PVD Log - Offensive Scenario

Stage 3:

_____ Simulation initiated by STARTEX TIME: _____

_____ First company crosses PL Carl: Company = _____

_____ Above company reports crossing PL Carl [Bn radio net]

_____ Last company crosses PL Carl: Company = _____

_____ Above company reports crossing PL Carl [Bn radio net]

ON BDE NET, INTEL TO 1-91 MECH: "DIVISION All SOURCES REPORT HEAVY FORTIFICATIONS VICINITY OBJECTIVE GOLD."

BDE INTEL: "DIVISION All SOURCE REPORTS ELEMENTS OF 140TH MRR VIC ES9465."

BDE ISSUES WARNING ORDER: "1-10 AR BE PREPARED TO CONTINUE ATTACK TO EAST AFTER CONSOLIDATION ON OBJECTIVE BRASS."

_____ Bn TOC issues Warning Order: "Be prepared to continue attack to East after consolidation on Objs Platinum, Cobalt, & Iron." [Bn radio net]

BDE INTEL: "DIVISION All SOURCE REPORTS 144TH RAG SIGHTED VIC ES9768."

OPFOR MRC+ ARTILLERY ON D AND B COs

_____ First **enemy** rounds fired (for this engagement)

_____ First **friendly** rounds fired (for this engagement)

_____ First **friendly** artillery dropped from ECR--first CFF acted on (for this engagement)

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

PVD Log - Offensive Scenario

Stage 3

_____ A Company arrives at Objective COBALT
_____ A Company reports SET on Obj COBALT [Bn radio net]
_____ B Company arrives at Objective PLATINUM
_____ B Company reports SET on Obj PLATINUM [Bn radio net]
_____ C Company reports SET vic ES 9374 [Bn radio net]
_____ D Company arrives at Objective IRON
_____ D Company reports SET on Obj IRON [Bn radio net]

BDE REQUESTS SITREP

_____ Bn TOC requests SITREP [Bn radio net]

BN TOC SENDS SITREP TO BDE

_____ END OF EXERCISE

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop times); Halt in Exercise (why, start and stop times); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

PVD OPERATOR LOG
DEFENSIVE SCENARIO
Formative Bn Evaluation

Date: _____

File: BD/_ _ _ _

PVD Operator: _____

<u>Position</u>	<u>Simulator*</u>	<u>Call Sign</u>	<u>Vehicle ID*</u>
Bn Cdr	3B	Y06	_____
S3	2B	Y03	_____
A Co Cdr	4A	A06	_____
B Co Cdr	4B	B06	_____
C Co Cdr	4C	C06	_____
D Co Cdr	3C	D06	_____

* Be sure to note changes in Simulator and Vehicle ID if backup simulator(s) used.

PVD Log - Defensive Scenario

Stage 1:

_____ Simulation initiated by REDCON 1 TIME: _____

_____ Bn TOC requests SITREP from Companies [Bn radio net]

BDE ISSUES INTEL: "All SOURCE INTEL REPORTS SIGHTING OF MRB, POSSIBLY
2ND ECHELON OF MRR, MOVING ES940650."

OPFOR artillery barrage on BPs 10, 20, 30

1-92 MECH BN CDR REPORTS TO BDE CDR HEAVY CONTACT ALONG PL KING

_____ D Co Plt controller reports sighting of a company of
tanks vicinity ES943870 moving North.

S11 reports consolidated at CP10, moving to screen line 1.

BDE ISSUES INTEL: "210 ACR REPORTS ONLY LIGHT CONTACT IN THEIR SECTOR."

_____ First **enemy** rounds fired (for this engagement)

_____ First **friendly** rounds fired (for this engagement)

_____ First **friendly** artillery dropped from ECR--first CFF
acted on (for this engagement)

_____ OPFOR artillery lifted (if Battle Master instructs
OPFOR operator to stop dropping artillery)

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns
(who, what, start and stop); Halt in Exercise (why, start and
stop); Equipment Problems; Anything Noteworthy or Out of the
Ordinary.

PVD Log - Defensive Scenario

Stage 1

BDE SENDS WARNING ORDER: "1-10 AR BE PREPARED TO COUNTER ATTACK TO SW FROM VICINITY PL SPADE; 1-91 MECH BE PREPARED TO ESTABLISH HASTY DEFENSE ALONG PL CLUB."

1-92 MECH CDR REQUESTS PERMISSION TO DELAY TO PL CLUB.

IF A CO HAS NOT REQUESTED TO DELAY, BDE SENDS TO BN: "TO PREVENT 1-92 MECH FROM BECOMING DECISIVELY ENGAGED, ALL BNS DELAY TO PHASE II BPs."

_____ First company delays back: Company = _____

_____ First company crosses PL Jack: Company = _____

_____ Above company reports crossing PL Jack [Bn radio net]

_____ Last company crosses PL Jack: Company = _____

_____ Above company reports crossing PL Jack [Bn radio net]

_____ First company crosses PL Spade: Company = _____

_____ Above company reports crossing PL Spade [Bn radio net]

_____ Last company crosses PL Spade: Company = _____

_____ Above company reports crossing PL Spade [Bn radio net]

_____ First company crosses PL Club: Company = _____

_____ Above company reports crossing PL Club [Bn radio net]

_____ Last company crosses PL Club: Company = _____

_____ Above company reports crossing PL Club [Bn radio net]

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop); Halt in Exercise (why, start and stop); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

PVD Log - Defensive Scenario

Stage 1

DIVARTY reports 144thRAG vic ES 910725.

Bde issues Warning Order: "Suspected 2nd echelon of MPB of 144th moving NW in W sector of 1-10 ARAO. 1-10 AR be prepared to establish hasty defense along PL CLUB."

Bde Cdr to Bn Cdr: "Concerned about enemy's direction of attack, which is more westerly than expected. Ensure that your eastern flank companies do not get bypassed."

S11 reports SET screen line 2.

_____ A Co at BP 11

_____ A Co reports SET at BP 11 [Bn radio net]

_____ B Co at BP 21

_____ B Co reports SET at BP 21 [Bn radio net]

_____ C Co at BP 31

_____ C Co reports SET at BP 31 [Bn radio net]

_____ D Co at BP 22

_____ D Co reports SET at BP 22 [Bn radio net]

_____ Bn TCC requests SITREP from Companies [Bn radio net]

_____ First **enemy** rounds fired (for this engagement)

_____ First **friendly** rounds fired (for this engagement)

_____ First **friendly** artillery dropped from ECR--first CFF acted on (for this engagement)

_____ BREAK (End of Stage)

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop); Halt in Exercise (why, start and stop); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

PVD Log - Defensive Scenario

Stage 2:

_____ Simulation initiated by STARTEX TIME: _____

BDE ISSUES INTEL: DIVISION All SOURCE REPORTS ELEMENTS OF 146TH MRR VIC ES9063, MOVING NORTH."

BDE ISSUES WARNING ORDER: "1-10 AR AND 1-92 MECH BE PREPARED TO RESUME DEFENSIVE AFTER 1-10 AR COUNTERATTACK."

LEAD ELEMENTS OF 2ND ECHELON MRB REACH VIC ES825845

OPFOR ARTILLERY ON D AND B COMPANIES

_____ First company departs BP: Company = _____

_____ First company crosses PL Spade: Company = _____

_____ Above company reports crossing PL Spade [Bn radio net]

_____ Last company crosses PL Spade: Company = _____

_____ Above company reports crossing PL Spade [Bn radio net]

_____ First company crosses PL Queen: Company = _____

_____ Above company reports crossing PL Queen [Bn radio net]

_____ Last company crosses PL Queen: Company = _____

_____ Above company reports crossing PL Queen [Bn radio net]

_____ First company crosses PL Club: Company = _____

_____ Above company reports crossing PL Club [Bn radio net]

_____ Last company crosses PL Club: Company = _____

_____ Above company reports crossing PL Club [Bn radio net]

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop); Halt in Exercise (why, start and stop); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

PVD Log - Defensive Scenario

Stage 2

S11 reports crossing LD

S11 reports screening from CP5 to LD

OPFOR artillery on D Co and B Co

- _____ First **enemy** rounds fired (for this engagement)
- _____ First **friendly** rounds fired (for this engagement)
- _____ First **friendly** artillery from ECR--first CFF acted on (for this engagement)
- _____ B Company arrives at Objective SNOW
- _____ B Company reports SET on Obj SNOW [Bn radio net]
- _____ C Company arrives at Objective FOG
- _____ C Company reports SET on Obj FOG [Bn radio net]
- _____ D Company arrives at Objective RAIN
- _____ D Company reports SET on Obj RAIN [Bn radio net]
- _____ Bn TOC requests SITREP from Companies [Bn radio net]

- _____ BREAK (End of Stage)

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop); Halt in Exercise (why, start and stop); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

PVD Log - Defensive Scenario

Stage 3:

_____ Simulation initiated by STARTEX TIME: _____
 _____ OPFOR begins movement
 _____ First company departs BP: Company = _____
 _____ A Co at BP 46
 _____ A Co reports SET at BP 46 [Bn radio net]
 _____ B Co at BP 45
 _____ B Co reports SET at BP 45 [Bn radio net]
 _____ C Co at BP 35
 _____ C Co reports SET at BP 35 [Bn radio net]
 _____ First **enemy** rounds fired (for this engagement)
 _____ First **friendly** rounds fired (for this engagement)
 _____ First **friendly** artillery from ECR--first CFF acted on
 (for this engagement)

OPFOR artillery barrage along PL ACE

ON BDE NET: 1-92 CDR REPORTS FACING ELEMENTS OF 79TH GTR.

_____ Platoon controller for D Co reports GAS to D Co Cdr
 _____ Platoon controller for C Co reports GAS to D Co Cdr

BDE ISSUES INTEL: "2ND ECHELON MRB+ SIGHTED VICINITY ES 8673, MOVING NORTH."

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns
 (who, what, start and stop); Halt in Exercise (why, start and
 stop); Equipment Problems; Anything Noteworthy or Out of the
 Ordinary.

PVD Log - Defensive Scenario

Stage 3

Platoon controller for D Co reports GAS to D Co Cdr

 Platoon controller for C Co reports GAS to D Co Cdr

BDE ISSUES INTEL: "2ND ECHELON MRB+ SIGHTED VICINITY ES 8673, MOVING NORTH."

BRIGADE ORDERS 1-10 AR TO DELAY TO PL QUEEN (if necessary)

_____ First company delays back: Company = _____

END OF EXERCISE

Send Flags and Record: Out-of-Sector Vehicles; Breakdowns (who, what, start and stop); Halt in Exercise (why, start and stop); Equipment Problems; Anything Noteworthy or Out of the Ordinary.

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Appendix F
Control Room Operating Procedures

August 13, 1991

Bn Eval

CVCC BATTALION EVALUATION

RULES OF ENGAGEMENT

The "Rules of Engagement" consists basically of eight major sections, General Rules, Rules for Handling Missing Personnel, Rules for Missing Research Staff, Rules for Conducting Training, Rules for Handling Equipment, Rules for Scheduling Events when Delays Occur, Rules for Battlemaster Operational Procedures and Rules for SAFOR Operational Procedures. The rules presented below are guidelines for conducting the CVCC Battalion Level Evaluations and may occasionally require professional judgement for situations not covered within this document.

During the conduct of the CVCC experiments, if situations arise that are not covered by this document, document the situation and present it for inclusion in the Rules of Engagement. This should be a living document for the remainder of this research effort. The final set of rules is expected to serve as a guide for implementing next year's full-up battalion evaluation effort.

GENERAL RULES

1. Decision Authority: The Test Director assigned to the research effort on site is responsible for final decisions in resolving support personnel (troop) and technical problems.
2. Basic Approach: The option with the least disruptive overall impact will normally be the preferred course of action. The goal is to identify solutions which minimize impacts on:
 - a. Data or measures collected (e.g., lost or contaminated data).
 - b. Battalion C3 dynamics (e.g., interaction between Bn Cdr, and Co Cdrs).
 - c. Scenario execution, including SAFOR (e.g., firepower, maneuver, mission accomplishment).
 - d. The time to implement a course of action will be considered. Where feasible, delays are preferable to shuffling equipment or crews.

4. Administrative Actions:

- a. Proper briefing of Bn Cdr, and Company Commanders concerning adjustments is imperative. (Action: Battlemaster)
- b. Coordination of adjustments with other contractor personnel is essential. (Action: Test Director)
- c. Complete notations on data and master logs will document all adjustments. (Action: Sr. Analyst; Battlemaster)
- d. Follow-up to ensure late arrivals sit out rest of scenario is imperative. (Action: Test Director)
- e. The Test Director is responsible for coordinating all visitors for the CVCC tests. No one will be allowed in the test area without permission of the test director, this includes all government supporting staff. The test director will notify ARI, DCD, CCTB military manager and CCTB site manager that all visits during the CVCC testing will be coordinated with him. The test director will inform all visitors to limit their conversations to a low tone and not to talk to any of the participants or test controllers during test. If they want to talk to participants or test support staff, it must be done during breaks. The test director is responsible for limiting the number of personnel within a specific area and monitoring their actions while visiting.
- f. To collect useful data, instructions to participants must be standardized therefore, test personnel are required to read instructions from pre-prepared scripts when delivering training, briefings and questionnaire instructions, etc.

RULES FOR HANDLING MISSING PERSONNEL

1. Critical crews will be maintained at a fully manned level at the expense of less critical crews. This may necessitate shuffling crews or crew members. It is essential to keep this critical crews manned to preserve the integrity of the tactical execution. Critical assignments:
 - a. Battalion Commander
 - b. Company Commanders
 - c. S3
 - d. Company XO's
2. Substitute gunners or drivers furnished by the troop unit are acceptable until crew training commences. Short term substitutes are not acceptable

3. Starting crews will be maintained throughout the entire scenario, unless prevented by an emergency.

4. When the Bn Cdr, or Co Cdr misses half or more of Co STX, Bn STX, or battalion training, the entire crew will be dismissed from further participation.

5. A crew that misses the first test scenario may participate in the second test scenario, if possible.

6. Troop Problems (absence, illness, injury, emergency) will be handled on the basis of problem longevity.

a. Temporary: Delay start of training/scenario or suspend scenario until missing soldier is available.

b. Permanent: Normally, it will not be possible to replace a missing Bn Cdr with another participant. If waiting for the missing officer is not viable, unique measures will be necessary. Protecting the critical positions below Bn Cdr requires moving intact crews when a critical position is vacated.

(1) Bn Cdr: The S3 may replace the Bn Cdr; otherwise, consult MAJ Koger and Dr. Black. If S3 replaces the Bn Cdr, the S3 position may be left unmanned.

(2) Any Company commander: Release crew members. Set up missing company commander's simulator as a BLUFOR company.

(3) Any Driver or Gunner: Accept substitutes until crew training starts. After crew training starts there are two options to consider:

(a) Run company commander simulator with only two-man crew (commander and driver) (degraded mode).

(b) Release company commander and other crew member. Set up company simulator as a BLUFOR company.

NOTE: Loss of a manned company might well lead the Bn Cdr to alter his maneuver plan, control procedures, and speed of execution. The resulting changes in automated and a manually collected data could be difficult to identify and more difficult to attribute, but nevertheless real.

NOTE: The interaction between the SAFOR operator and the Bn Cdr would be artificial. Navigation of a BLUFOR company would be close to flawless.

7. Time Guidelines:

a. Terminate battalion training and test scenarios:

- (1) Upon completion of scenario, or
- (2) end of training day (whichever comes soonest).
- (3) Two (2) hours elapsed for actual execution time.

b. Battalion training exercise and test scenarios may be continued after a lunch break.

c. A scenario will be continued after 1700 only if no logical break point is available and RAs/techs are available.

RULES FOR MISSING RESEARCH STAFF

1. In the event of an absence of research staff personnel the "Cross Training" matrix in Table II Exercise Staffing Cross Training will be followed.

2. Exceptions may be made, depending on the situation but must be documented by the Test Director.

3. The back-up RAs will be considered first for replacing RA in the Bn Cdr simulator, and the next consideration will be for the fully manned company simulators.

4. Some of the RAs have been cross-trained into more technical positions (i.e., OPFOR and BLUFOR) and will be utilized as such. The position vacated by these personnel will be filled from the back-up RA positions.

RULES FOR CONDUCTING TRAINING

1. The training assignments designated in Table I will be followed for each test week. In the event of an absence by support staff the position will be filled based on the cross training matrix in Table II, (Tables I and II are examples and will need to be updated based on changes for Bn Eval).

2. Training modules conducted during the exercise week have specific times allocated on the exercise schedule. Maximum training time, should not be exceeded.

a All personnel conducting training must cover a specific subject within time allocated (see Table 1).

TABLE 1

MAXIMUM TIMES FOR TRAINING EVENTS

NOTE: This training time table is designed for a full-up unit supported TOC.

<u>DAY 1</u>			TRAINER
1a	-	1 hour	Test Director
1b	-	1 hour	Controller, RA
1c	-	45 minutes	RA's
1d	-	2 hours, 40 minutes	RA's
1e	-	20 minutes	RA's
1f	-	1 hour, 45 minutes	Battlemaster, RA's
1g	-	40 minutes	Controller's
1h	-	20 minutes	Controller's
1i	-	1 hour, 40 minutes	Controller's
1j/2a	-	3 hours, 45 minutes	Controller's
<u>DAY 2</u>			
2b	-	2 hours, 45 minutes	Controller's
2c	-	1 hour	Battlemaster
2d	-	1 hour	RA's
2e	-	1/2 hour	RA's
2f	-	1/2 hour	RA's
2g	-	1 hour, 45 minutes	RA's, Battlemaster
2h	-	1/2 hour	Battlemaster
2i	-	1-1/2 hour	All Staff
2j	-	1 hour	Battlemaster
2k	-	2 hours	All Staff
2l	-	1 hour	Controller's
2m	-	1/2 hour	Controller
<u>DAY 3</u>			
3a	-	45 minutes	Battlemaster
3b	-	1-1/2 hours	All Staff
3c	-	1/2 hour	Battlemaster
3d	-	30 minutes	Controller
3e	-	1 hour	Battlemaster
3f	-	2 hours	All Staff
3g	-	1/2 hour	Battlemaster

TABLE II
EXERCISE STAFFING CROSS TRAINING

<u>TEST POSITION</u>	<u>PRIMARY ASSIGNMENT</u>	<u>SECONDARY ASSIGNMENT</u>
Test Site Director	Leibrecht, B.	Ainslie, F.
Battlemaster	Campbell, S.	Byrd, R.
Assistant Battlemaster	Byrd, R.	Voss, T.
SAFOR # 1 - OPFOR	Byrd, R.	Shay, M.
SAFOR # 2 - BLUFOR	Voss, T.	Crawford, W.
SAFOR # 3 - BLUFOR	Bunch, D.	Crawford, W.
PVD # 2 Monitor	Wigginton, D.	Shay, M.
S2 Monitor	Wigginton, D.	Shay, M.
S3 Monitor	Sawyer, E.	Wigginton, D.
Bn Cdr Monitor	Shay, M.	Crawford, W.
S3 Monitor	McNutt, K.	Meier, C.
Co Cdr Monitor	Meier, C.	Crawford, W.

b. In the event additional time is required for a training event (see Rules for Scheduling Events when delay occurs) due to equipment malfunctions.

4. If during the execution of test scenario a participant is experiencing a difficult time in remembering something from the training phase that will create serious problems in the execution of tasks during test scenarios the monitor or RA may assist the individual. This again to some degree is an on the spot call by the monitor or RA and Test Director.

5. In the event that one group of students gets ahead of the other, the additional time may be spent reviewing areas which participants have or normally have the most problems with (e.g., overlays, CCD).

6. The CITV classroom instruction will be presented by the Battlemaster, assistant battlemaster or Test Director. The trainer for this class must be knowledgeable of all CITV functions, and have armor M1 experience to include tactics and doctrine to address a wide array of questions from the participants.

7. An outline of the CCD/TOC Introduction will be handed out at the end of the General Introduction for participants to take notes on during the CCD/TOC Intro and to use during their CCD class.

8. Stage/break procedures will consist of the following actions:

a. The battlemaster will coordinate with the CCD operator to obtain receipt of digital Situation Report which will signal the end of that stage (stage 1).

b. Battlemaster will then notify the PVD #2 operator to flag end of stage and inform Data Logger operator that stage 1 is completed and prepare to start stage 2 at designated time (there will be a break after stage one of test scenario).

c. If there is a situational awareness assessment it will be conducted during this break. The simulators will be reconstituted during the break with a full ammo load. The battlemaster will remind participants to conserve their ammo during remainder of scenario.

d. Coordinate with Data Logger operator on starting stage 2 of scenario.

e. At the end of second stage, which will end on receipt of digital Situation Report by CCD operator. Battlemaster will notify PVD #2 operator to flag end of stage 2 and Data Logger operator to end second stage and to let him know when he is ready to start stage 3.

f. Again, stage 3 will end with receipt of digital Situation Report at CCD stand-alone and battlemaster will give "Index" command to unit. He will also notify all test personnel in the ECR, TOC and Data Logger operator that exercise is completed.

9. All support staff conducting training and tests must limit their interaction with the participants to accomplish the training and complete the tests during a test week or obtaining information on "lessons learned." Support staff will limit personal conversations with participants to break-times or away from test area. Support staff must conduct themselves in a professional manner at all times.

10. Support staff must always be alert for distractors of any sort that would effect the training or tests for the participants. Immediate action if possible should be taken to correct these distractors (e.g., turning off fans during class in the TOC). If there are visitors and they get too loud, trainer or monitor should ask the visitor(s) to please hold down their conversation to a reasonable level.

11. It is the responsibility of the Test Director or his designated representative to interface with the participants during breaks to obtain any feedback concerning the test.

12. Feedback is very important during the conduct of training for both the trainer and the trainee. Support staff should provide immediate feedback to the participants while they are performing hands-on training. During classroom training this can be accomplished by asking questions and providing responses to questions asked. The trainee needs to have immediate feedback to increase performance.

13. It is the responsibility of the senior controller/monitor for the simulators and TOC to assure Research Assistants are present and performing the various system checkouts each morning during a test week. The system checkout should include the simulators, workstations, SAFOR stations, PVD's, CCD stand-alone, MCC, Listen station, Send station, Video system, and communications on all channels. The various systems are assigned to specific RA's on a assignment roster based on their positions during the test.

RULES FOR TECHNICAL PROBLEMS

1. Simulator or Software Breakdowns:

a. Temporary:

(1) Delay start until fixed, if possible.

(2) If minor, fix without suspending scenario execution or wait until scheduled break to fix.

(3) If major, suspend scenario and fix.

b. Permanent:

(1) Utilize backup simulator.

(2) If no backup simulator is available, double up training on simulator until fixed.

2. TOC workstation:

a. Temporary:

(1) Delay start until fixed, if possible.

(2) If minor, fix without suspending scenario execution or wait until scheduled break to fix.

(3) If major, suspend scenario and fix.

b. Permanent:

(1) Monday: Double up training on other workstation until fixed.

(2) After Monday: Utilize backup workstation.

3. Radio Problems: If more than 3 sims are involved or more than 5 mins estimated to fix, stop and fix. The same time allowable for ECR, SIMS, TOC. Otherwise, fix without suspending scenario execution.

4. SAFOR Problems with Noticeable Impact:

a. If no immediate impact, fix without suspending scenario.

b. If immediate impact, suspend scenario and fix.

RULES FOR SCHEDULING EVENTS WHEN DELAYS OCCUR

1. General:

a. Training events are lock-stepped not self-paced. Each training event has a maximum time. When this time is reached, the event is ended even if a student/participant has not completed the training. Maximum times for each event are listed in Table I.

b. The prebrief for a scenario must always be conducted on the same day as the scenario. It is desirable to conduct the debrief on the same day as the scenario.

c. Only one test scenario can be conducted in a day.

d. The training events which occur on Day 1 and the AM of Day 2 on the schedule (i.e., training up to but not including the Co STX and Bn Staff STX) cannot be modified or eliminated. They must always be conducted.

e. If possible, the Exercise Director will produce and disseminate revised schedules to the support staff as changes are made during the evaluation week.

2. Day 1 Rules:

a. If delay occurs, push back training schedule as required.

b. If the delay is 2.25 hours or less, use Thursday reserve time.

c. If more time is needed, use rules described under subsequent day rules.

3. Day 2 - AM Rules:

a. If delay occurs, push back training schedule as required.

b. If the delay is 2.25 hours or less, use Thursday reserve time.

c. If more time is needed, use rules described under subsequent day rules.

4. Day 2 - PM Rules:

a. If the delay is 2.25 hours or less, use Thursday reserve time.

b. If more time is needed, do the following in order:

(1) Cut back on Bn STX time (cannot be cut below 20 mins).

(2) Cut Training Scenario time (cannot be cut below 20 mins).

(3) Eliminate Bn STX.

(4) Cut Co and Bn STX (cannot be cut below .5 hrs

(5) Eliminate Training Scenario.

(6) Go to Day 4 rules.

5. Day 3 - AM Rules: Same As Day 2 PM except cuts to Co STX are eliminated.

6. Day 3 - PM Rules: Same as Day 2 PM except cuts to Bn STX are eliminated.

7. Days 4 and 5 Rules:

a. If the delay is 2.25 hours or less and occurs before Thursday PM, use Thursday reserve time.

b. If more time is needed, do the following in order:

(1) Cut back on debrief times.

(2) Eliminate the last stage in scenario.

(3) Eliminate one scenario.

NOTE: A stage should only be started if there is enough time to complete it.

PROVIDING STANDARDIZATION OF EVENTS ACROSS SCENARIO

The events list provides a detailed listing of the actions which ECR personnel must take during each scenario. These actions include moving or engaging OPFOR units, sending radio messages from higher or adjacent units (Battlemaster or Assistant Battlemaster), sending pre-canned messages via the SEND SIMNET-D program, or sending voice messages from subordinate units (2 BLUFOR, SAFOR operators). Also the sections for Battlemaster and SAFOR operators within this guide must be followed exactly.

RULES FOR BATTLEMASTER OPERATIONAL PROCEDURES

1. Battlemaster is responsible for insuring that all interactions follow appropriate Army procedures wherever it is possible to do. He is also responsible for answering all questions on military operations.

2. Battlemaster will inform participants that they must conserve ammo while executing Stage 2 and Stage 3 of Test Scenarios.

3. Battlemaster must coordinate with Data Logger operator on when to stop and start stage breaks and with PVD operator for sending flags to key the stop and start of each stage. The receipt of the digital Situation Report by the CCD operator is the key for the battlemaster to end that stage.

4. Battlemaster is to inform the participants during Pre-Brief Activities that the "Maverick" or "Rambo" attitude during execution of a scenario will not be tolerated.

5. Battlemaster will stress the point that during the company STX he will be acting as battalion commander and during remainder of scenarios as the brigade commander. He must conduct himself in such a manner as to convey this image to the participants and command the respect that that position demands.

6. Battlemaster will insure that the control staff is familiar with the OPORD for conducting scenario in regards to the "priority of fires," any preplanned fires desired by the unit and understands actions required to accomplish firing mission.

7. Battlemaster must be observant during Pre-Brief Activities (Bde pre-brief) to assure the participants understanding of what is expected of them, not only in execution of Brigade Order but in the conduct of the overall test. He must, set a good briefing pace and occasionally ask questions to ensure that they are paying attention.

8. Battlemaster is to ensure that the BLUFOR operators are familiar with the events list for the designated scenario and that they understand their "Birds-eye view" of the battlefield is not to effect the normal reporting requirements performed by someone without that view. Also that they are not to lead or make decisions for the commander based on their additional knowledge of what the situation is or will be if certain actions don't occur.

9. Battlemaster is to reinforce with all ECR personnel that there will be no discussion with participants in regards to what or how other units performed during their tests. This is confidential information and may contaminate test results.

10. Battlemaster is responsible for all activities in the ECR to include the personnel participating as support staff, visitors or other interested parties. The ECR is OFF LIMITS to unit personnel participating in the tests. This should be emphasized during the Pre-Brief Activities and any information exchange required between participants and BLUFOR/OPFOR operators should be conducted outside of the ECR. Any visitors or government support personnel should clear their visit through the Test Director and he, in turn, should inform the battlemaster as to their need of access to the ECR during a test. In the event that this process isn't followed, it is the battlemasters responsibility to control their entrance to the ECR.

11. Battlemaster is responsible for all ECR equipment in preparing that equipment for an operational test. He may have an assistant or designate someone else certain duties or tasks to prepare the different systems for operation but the ultimate responsibility is his.

(2) Change the engagement parameters to handicap the side that is doing too well and help the side that is not doing well enough.

(3) As a worse case or last resort, create or destroy forces using SAFOR functions to even up the score.

b. Position errors, e.g., someone is not where they are supposed to be, or is not there on time. Positioning errors arise from a number of sources including errors in navigation (rare with POSNAV), manned sims thinking they are somewhere they are not because of aggregation problems, and commanders who just plain decide to do something that is not planned or who is determined to hang on to a position (often the result of para a above). Specific remedies include:

(1) Provide orders from higher/requests from lower to move, these orders will be provided by ECR personnel.

(2) Bombard the offender with artillery until he gets the idea that he should move somewhere else. This is most appropriate with those who are holding positions too long.

NOTE: To assist the ECR staff in identifying deviations from expected behavior, the events list should list the expected time when engagements are likely to occur, the expected winner of each engagement, and approximate times when units are expected to cross critical control measures or reach key objectives.

SUPPORT STAFF POSITION RESPONSIBILITIES

Table F-2 lists the specific duties assigned to each support staff position during the scenarios. Table F-3 lists the additional responsibilities assigned to each of the support staff positions during the training and data collection events that comprised the remainder of the week.

Table F-2

Roles and Responsibilities of Test Support Staff During Scenarios

Exercise Director

- Oversee coordination of all activities
- Identify procedures for dealing with all unplanned events such as equipment malfunctions and troop problems
- Ensure research plan is followed
- Oversee operation of VCR

CONTROL ROOM STAFF

Battle Master

- Supervise execution of test scenarios by control room personnel
- Conduct orders briefing for Bn Staff prior to scenarios
- Role play the Bde Cdr during scenarios
- Conduct debriefing after scenarios
- Supervise SAFOR Operators

Assistant Battle Master

- Complete Battle Master Log
- Assist the Battle Master during prebriefings and debriefings

Fire Support Operator

- Initialize MCC
- Operate SACCD during scenarios
- Role play Bn FSO during scenarios
- Initialize SEND and LISTEN Stations

PVD Monitor

- Generate Bn movement and report flags on PVD Log
- Record Bn radio traffic on PVD Log
- Record other significant incidents on PVD Log

SAFOR OPERATOR #1 - OPFOR

- Initialize SAFOR prior to scenarios*
- Use SAFOR to controls actions of OPFOR

* This activity has to be done by one of the SAFOR operators.

Table F-2

Roles and Responsibilities of Test Support Staff During Scenarios
(Cont.)

SAFOR OPERATOR #2 - Co's A and B

- Initialize SAFOR prior to scenarios
- Use SAFOR to control actions of Platoons in Companies A and B
- Role play Co. A and B Plt Ldrs during scenarios

SAFOR OPERATOR #3 - Co's C and D

- Initialize SAFOR prior to scenarios
- Use SAFOR to controls actions of Platoons in Companies C and D
- Role play Co. C and D Plt Ldrs during scenarios

TOC STAFF

S2 Station Monitor

- Record key performance events on S2 Log

S3 Station Monitor

- Record key performance events on S3/XO Log

VEHICLE STAFF

BN CDR Monitor

- Record key performance events on Bn Cdr Log

S3 Monitor

- Record key performance events on S3 Log

Co Cdr Monitor (A and B Companies)

- Monitor activities of A and B Co Cdrs
- Notify exercise director of system malfunctions and troop problems

Co Cdr Monitor (C and D Companies)

- Monitor activities of C and D Co Cdrs
 - Notify exercise director of system malfunctions and troop problems
-

Table F-3

Additional Roles and Responsibilities of Test Support Staff
During Evaluation Week

Exercise Director

- Oversee coordination of all activities
- Identify procedures for dealing with all unplanned events such as equipment malfunctions and troop problems
- Ensure research plan is followed
- Act as go between for vehicles and ECR during training exercises

CONTROL ROOM STAFF

Battle Master

- Supervise execution of training exercises by control room personnel
- Role play the Bde Cdr during exercises
- Provide ECR Support for all training events
- Supervise SAFOR Operators during exercises

Fire Support Officer

- Initialize MCC for all exercises
- Operate SACCD exercises
- Role play Bn FSO exercises

Assistant Battle Master

- Provide ECR Support for all Day 1 training events and Day 2 AM training
- Initialize SAFOR prior to Day 2 and 5 exercises
- Deliver General Introduction (Events 1a and 2c)

PVD Monitor

- Responsibilities for Data Collection Exercises (Event 5b) are same as scenario responsibilities (see Table 7-1)
- Act as go between for TOC and ECR during training exercises
- Administer global workload ratings (Event 5d)
- Administer training assessment questionnaire (4d)

SAFOR OPERATOR #1 - OPFOR

- Use SAFOR to control actions of OPFOR during training exercises in Events 2e and 3b)

Table F-3

Additional Roles and Responsibilities of Test Support Staff
During Evaluation Week (Cont.)

SAFOR OPERATOR #2 - Co's A and B

- Use SAFOR to controls actions of Platoons in Companies A and B during exercises in Events 2e and 3b
- Role play Co. A and B Plt Ldrs during these exercises
- Primary administrator of following Veh Cdr training events for B Co Cdr:
 - 1d: CCD Training
 - 1c: Veh Cdr Seat-Specific Training
 - 1e: CITV Training
 - 2d: Gunner and Driver Simulator Orientation
 - 2e: CCD Skills Test
 - 2f: CITV Skills Test
 - 2g: Tank Crew Training

SAFOR OPERATOR #2 - Co's C and D

- Use SAFOR to controls actions of Platoons in Companies C and D during exercises in Events 2e and 3b
- Role play Co. C and D Plt Ldrs during these exercises
- Primary administrator of following Veh Cdr training events for D Co Cdr:
 - 1d: CCD Training
 - 1c: Veh Cdr Seat-Specific Training
 - 1e: CITV Training
 - 2d: Gunner and Driver Simulator Orientation
 - 2e: CCD Skills Test
 - 2f: CITV Skills Test
 - 2g: Tank Crew Training

TOC STAFF

S2 Station Monitor

- Administer SMI questionnaire (Event 5f)
- Primary administrator of following TOC training events for S2 station:
 - 1f: TOC Overview
 - 1g: TOC Computer Basics
 - 1h: TOC Message Display
 - 1i: TOC Map Display
 - 2a: TOC Task Training
 - 2h: Bn Staff Situational Training
 - 2j: Bn Situational Training

Table F-3

Additional Roles and Responsibilities of Test Support Staff
During Evaluation Week (Cont.)

S3 Station Monitor

- Deliver CCD/TOC Demo
- Administer event workload ratings
- Administer SMI questionnaire
- Primary administrator of following TOC training events for S3 station:
 - 1f: TOC Overview
 - 1g: TOC Computer Basics
 - 1h: TOC Message Display
 - 1i: TOC Map Display
 - 2a: TOC Task Training
 - 2h: Bn Staff Situational Training
 - 2j: Bn Situational Training

VEHICLE STAFF

Bn Cdr Monitor

- Primary administrator of following Veh Cdr training events for Bn Cdr:
 - 1d: CCD Training
 - 1c: Veh Cdr Seat-Specific Training
 - 1e: CITV Training
 - 2d: Gunner and Driver Simulator Orientation
 - 2e: CCD Skills Test
 - 2f: CITV Skills Test
 - 2g: Tank Crew Training
 - 2i: Company Situational Training
 - 2j: Bn Situational Training
- Administer SMI questionnaire (Event 5c)

S3 Monitor

- Primary administrator of following Veh Cdr training events for S3:
 - 1c: CCD Training
 - 1d: Veh Cdr Seat-Specific Training
 - 1e: CITV Training
 - 2d: Gunner and Driver Simulator Orientation
 - 2e: Tank Crew Training
 - 2i: Company Situational Training
 - 2j: Bn Situational Training

Table F-3

Additional Roles and Responsibilities of Test Support Staff
During Evaluation Week (Cont.)

- Administer SMI questionnaire
- Administer training assessment questionnaire

Co Cdr Monitor (A and B)

- Primary administrator of following Veh Cdr training events for A Co Cdr:
 - 1d: CCD Training
 - 1c: Veh Cdr Seat-Specific Training
 - 1e: CITV Training
 - 2d: Gunner and Driver Simulator Orientation
 - 2e: Tank Crew Training
- Primary administrator of following Veh Cdr training events for A and B Co Cdrs:
 - 2j: Bn Situational Training
 - 2i: Company Situational Training

Co Cdr Monitor (C and D)

- Primary administrator of following Veh Cdr training events for C Co Cdr:
 - 1d: CCD Training
 - 1c: Veh Cdr Seat-Specific Training
 - 1e: CITV Training
 - 2d: Gunner and Driver Simulator Orientation
 - 2e: Tank Crew Training
 - Primary administrator of following Veh Cdr training events for A and B Co Cdrs:
 - 2i: Company Situational Training
 - 2j: Bn Situational Training
-

Appendix G

Data Tables for Selected Measures

Data Tables for Issue 1:

Do CVCC commanders receive more accurate
information than Baseline unit commanders on battlefield events?

Table G-1

Deviation of Reported Locations (in meters): Manned Vehicle
Digital Reports, Offensive Scenario, by Stage

Stage	SPOT	CONTACT	CFF	Overall* (SPOT, CONTACT, CFF)	SITREP FLOT	SHELL
1						
N	5	2	4	7	4	3
Mean	110.20	39.50	57.81	71.63	541.32	267.99
SD	124.59	54.45	73.43	94.69	342.80	152.21
CVar	1.13	1.38	1.27	1.32	.63	.57
Min	3.00	1.00	3.00	1.67	99.03	109.97
Max	247.00	78.00	164.75	245.00	874.19	413.62
2						
N	7	4	10	13	5	8
Mean	174.98	30.67	161.13	146.92	529.00	133.92
SD	199.33	33.16	105.98	108.24	571.55	69.73
CVar	1.14	1.08	.66	.74	1.08	.52
Min	1.00	2.00	50.50	20.00	95.55	23.12
Max	498.00	74.00	330.00	330.00	1529.94	221.89
3						
N	6	3	8	13	7	2
Mean	66.50	80.17	152.25	117.68	553.59	58.06
SD	79.76	65.10	74.13	70.52	225.60	41.69
CVar	1.20	.81	.49	.60	.41	.72
Min	0.00	31.00	37.50	31.00	287.67	28.58
Max	182.00	154.00	252.50	219.00	958.32	87.53

*A single vehicle commander can contribute a value in each of the three report categories, but can only be represented once in the overall category (thus the individual N's do not sum to the overall measure).

Table G-2

Deviation of Reported Locations (in meters): Manned Vehicle
Digital Reports, Defensive Scenario, by Stage

Stage	SPOT	CONTACT	CFF	Overall* (SPOT, CONTACT, CFF)	SITREP FLOT	SHELL
1						
N	7	9	10	12	6	8
Mean	263.93	201.07	182.84	197.02	501.03	182.40
SD	143.38	109.40	106.71	59.05	284.70	117.84
CVar	.54	.54	.58	.30	.57	.65
Min	4.00	12.00	6.00	107.00	169.49	40.55
Max	455.00	361.00	389.00	276.50	951.99	352.01
2						
N	3	--	6	8	6	--
Mean	120.33		145.96	124.58	478.77	
SD	148.76		98.30	102.29	321.60	
CVar	1.24		.67	.82	.67	
Min	1.00		72.67	1.00	150.28	
Max	287.00		338.00	338.00	994.26	
3						
N	5	7	5	11	6	13
Mean	183.80	59.29	108.85	120.70	638.46	104.03
SD	137.85	100.19	99.22	109.16	403.25	95.61
CVar	.75	1.69	.91	.90	.63	.92
Min	1.00	1.00	24.00	1.00	177.93	3.16
Max	334.00	278.00	273.00	334.00	1382.44	337.96

*A single vehicle commander can contribute a value in each of the three report categories, but can only be represented once in the overall category (thus the individual N's do not sum to the overall measure).

Table G-3

Accuracy Scores for Reported Enemy Vehicle Type: Manned Vehicle
Digital Reports, Offensive Scenario, by Stage

Stage	SPOT	CONTACT	CFF	Overall* (SPOT, CONTACT, CFF)
1				
N	5	2	4	7
Mean	1.90	2.25	1.50	1.51
SD	1.24	1.06	1.22	1.13
CVar	.66	.47	.82	.75
Min	0.00	1.50	0.00	0.00
Max	3.00	3.00	3.00	3.00
2				
N	7	4	10	13
Mean	1.48	2.25	1.52	1.56
SD	1.02	1.50	.98	.99
CVar	.69	.67	.65	.63
Min	0.00	0.00	0.00	0.00
Max	3.00	3.00	3.00	3.00
3				
N	6	3	8	13
Mean	2.17	1.50	1.69	1.83
SD	1.17	1.32	1.00	1.02
CVar	.54	.88	.59	.56
Min	0.00	0.00	0.00	0.00
Max	3.00	2.50	3.00	3.00

Note. Maximum possible score = 3.

*A single vehicle commander can contribute a value in each of the three report categories, but can only be represented once in the overall category (thus the individual N's do not sum to the overall measure).

Table G-4

Accuracy Scores for Reported Enemy Vehicle Type: Manned Vehicle
Digital Reports, Defensive Scenario, by Stage

Stage	SPOT	CONTACT	CFF	Overall* (SPOT, CONTACT, CFF)
1				
N	7	9	10	12
Mean	.79	1.67	1.57	1.43
SD	.39	.60	.75	.46
CVar	.50	.36	.48	.32
Min	0.00	1.00	.50	.75
Max	1.00	2.67	3.00	2.25
2				
N	3	--	6	8
Mean	2.33		1.69	2.02
SD	1.15		1.06	1.08
CVar	.49		.62	.54
Min	1.00		0.00	0.00
Max	3.00		3.00	3.00
3				
N	5	7	5	11
Mean	1.80	1.57	1.65	1.59
SD	.84	.98	1.17	.74
CVar	.46	.62	.71	.47
Min	1.00	0.00	0.00	0.00
Max	3.00	3.00	3.00	2.50

Note. Maximum possible score = 3.

*A single vehicle commander can contribute a value in each of the three report categories, but can only be represented once in the overall category (thus the individual N's do not sum to the overall measure).

Table G-5

Accuracy-Dependent Measures, by Scenario and Stage

Scenario	Stage	Bn Cdr Requests to Clarify INTEL	# ADJ Reports
Offense	1		
	N	--	24
	Mean		.04
	SD		.20
	CVar		4.90
	Min		0.00
	Max		1.00
	2		
	N	4	24
	Mean	.25	.33
	SD	.50	.87
	CVar	2.00	2.60
	Min	0.00	0.00
	Max	1.00	3.00
	3		
	N	--	24
	Mean		.46
	SD		1.06
	CVar		2.32
	Min		0.00
	Max		4.00
Defense	1		
	N	4	24
	Mean	.75	.63
	SD	.50	2.10
	CVar	.67	3.36
	Min	0.00	0.00
	Max	1.00	10.00
	2		
	N	4	24
	Mean	.25	.13
	SD	.50	.45
	CVar	2.00	3.59
	Min	0.00	0.00
	Max	1.00	2.00
	3		
	N	4	24
	Mean	.50	.46
	SD	.58	1.02
	CVar	1.15	2.23
	Min	0.00	0.00
	Max	1.00	4.00

Data Table for Issue 2:

Does the command and control structure of CVCC
battalions process incoming information more quickly?

Table G-6

Throughput Time (in minutes) for Selected Digital Transmissions,
by Scenario and Stage

Scenario	Stage	CONTACT: Origination to S2 Map	SPOT: Origination to S2 Map	Overlays: TOC to Last Co Cdr	All Reports: TOC to Last Co Cdr
Offense					
	N	1	1	12	8
	Mean	2.21	.79	2.40	4.02
	SD	--	--	2.20	2.96
	CVar	--	--	.91	.74
	Min	2.21	.79	.34	1.75
	Max	2.21	.79	6.39	11.20
	2				
	N	4	4	7	5
	Mean	1.06	.80	.70	2.89
	SD	.27	.33	.64	2.71
	CVar	.26	.42	.91	.94
	Min	.77	.44	.12	.09
	Max	1.38	1.23	1.76	5.71
	3				
	N	1	1	5	4
	Mean	.47	.54	.75	.93
	SD	--	--	.94	.29
	CVar	--	--	1.26	.32
	Min	.47	.54	.17	.57
	Max	.47	.54	2.39	1.20
Defense					
	1				
	N	3	2	3	4
	Mean	.88	.75	.90	3.44
	SD	.40	.00	.60	3.41
	CVar	.46	.01	.66	.99
	Min	.44	.74	.33	1.72
	Max	1.23	.75	1.53	8.56
	2				
	N	1	2	5	3
	Mean	.55	.73	1.28	.83
	SD	--	.04	.93	.77
	CVar	--	.05	.73	.93
	Min	.55	.70	.18	0.00
	Max	.55	.75	2.19	1.52
	3				
	N	1	2	4	5
	Mean	.55	1.12	.49	2.37
	SD	--	.26	.23	2.78
	CVar	--	.23	.46	1.18
	Min	.55	.94	.29	.62
	Max	.55	1.30	.80	7.26

Data Tables for Issue 3:

Do CVCC battalions have a higher rate of
mission success than the Baseline battalions?

Table G-7

Objectives Seized Measures by Stage (Offense Only)

Stage	Time to Seize Last Obj (min)	# Objs Seized
1		
N	--	--
2		
N	3	4
Mean	44.64	2.00
SD	7.88	1.00
CVar	.17	.50
Min	39.32	0.00
Max	53.70	3.00
3		
N	3	4
Mean	29.23	2.00
SD	18.62	1.00
CVar	.64	.50
Min	17.57	0.00
Max	50.70	3.00

Table G-8

Stage-Specific Mission Success Measures: SME Judgements (Percent Judged "Yes") by Scenario and Stage

Scenario	Stage	TF Surprised	> 1 TF Co Engaged at Once?	Prevented Decisive Engagement?	Enemy Bypassed Bn?	Bn Withdrew Intact?
Offense	1					
	N	4	4	--	--	--
	Yes	0%	50%			
	2					
	N	--	--	--	--	--
	Yes					
	3					
	N	--	--	--	--	--
	Yes					
Defense	1					
	N	--	--	8	8	8
	Yes			50%	0%	62%
	2					
	N	--	--	--	--	--
	Yes					
	3					
	N	--	--	3	4	4
	Yes			33%	25%	75%

Table G-9

Distance between Friendly and Threat Center of Mass at End of Engagement, by Stage (Defense Only)

Stage	Distance (meters)
1	
N	4
Mean	5132.29
SD	1338.46
CVar	.26
Min	3272.87
Max	6147.36
3	
N	4
Mean	2262.00
SD	747.79
CVar	.33
Min	1285.95
Max	3096.01

Table G-10

General Mission Success Measures, by Scenario and Stage

Scenario	Stage	%	%	Losses/Kill	Deviation Time to		Bn Met
		Enemy	Friendly		REDCON 1	from Complete Bde	
		Casualties	Casualties	Ratio	(min)	Stage	Cdr's
						(min)	Intent? ^a
Offense	1						
	N	4	4	4	4	4	4
	Mean	76.56	4.17	.19	-1.625	37.72	100
	SD	17.95	2.78	.13	2.926	15.15	0.00
	CVar	.23	.67	.67	-1.80	.40	0.00
	Min	56.25	1.85	.08	-6.000	25.43	100
	Max	100.00	7.41	.33	0.000	58.43	100
	2						
	N	4	4	4	4	4	4
	Mean	79.29	13.89	.28	1.750	45.00	94
	SD	25.70	8.75	.16	16.091	10.16	12
	CVar	.32	.63	.58	9.19	.23	.13
	Min	42.86	7.41	.11	-10.000	33.93	75
	Max	100.00	25.93	.50	25.000	57.98	100
	3						
	N	4	4	4	3	4	4
	Mean	93.57	18.06	.30	-1.861	31.74	100
	SD	7.51	6.30	.11	2.495	14.94	0.00
	CVar	.08	.35	.37	-1.34	.47	0.00
	Min	85.71	9.26	.16	-3.583	19.38	100
	Max	100.00	24.07	.43	1.000	52.80	100
Defense	1						
	N	4	4	4	4	4	4
	Mean	49.17	24.54	.18	9.250	64.87	75
	SD	6.94	6.30	.05	13.401	6.09	20
	CVar	.14	.26	.26	1.45	.09	.27
	Min	39.33	16.67	.11	-4.000	60.68	50
	Max	54.67	29.63	.22	24.000	73.75	100
	2						
	N	4	4	4	4	4	4
	Mean	88.54	12.04	.16	-1.175	35.67	100
	SD	10.83	5.56	.08	4.589	15.22	0.00
	CVar	.12	.46	.54	-3.91	.43	0.00
	Min	72.92	5.56	.07	-7.333	19.18	100
	Max	95.83	16.67	.26	2.633	49.28	100
	3						
	N	4	4	4	3	4	4
	Mean	61.46	32.87	.31	7.389	38.69	85
	SD	20.47	11.65	.08	8.423	16.22	24
	CVar	.33	.35	.27	1.14	.42	.28
	Min	32.29	22.22	.19	-8.833	25.90	50
	Max	79.17	46.30	.39	16.000	61.18	100

^aRated on a scale of: 0, 25, 50, 75, 100%.

Data Table for Issue 4:

Do CVCC battalions reduce their voice-radio traffic and overall
visibility?

Table G-11

Voice Radio Usage Measures (Bn Cdr and S3 only), by Scenario and Stage

Scenario	Stage	Total Named Reports	Total "Other" Reports	Ratio of Voice/Digital
Offense	1	N	8	3
		Mean	1.00	3.63
		SD	1.41	3.81
		CVar	1.41	1.05
		Min	0.00	0.00
		Max	4.00	9.00
				0.00
	2	N	8	2
		Mean	1.63	4.00
		SD	1.77	4.34
		CVar	1.09	1.09
		Min	0.00	0.00
		Max	4.00	11.00
				.38
	3.00	N	8	2
		Mean	1.88	3.63
		SD	2.10	3.96
		CVar	1.12	1.09
		Min	0.00	0.00
		Max	5.00	9.00
				0.00
Defense	1	N	8	3
		Mean	4.00	4.63
		SD	3.85	5.71
		CVar	.96	1.23
		Min	0.00	0.00
		Max	9.00	14.00
				2.00
	2	N	8	1
		Mean	1.63	5.00
		SD	2.26	6.05
		CVar	1.39	1.21
		Min	0.00	0.00
		Max	6.00	14.00
				0.00
	3.00	N	8	4
		Mean	2.25	3.88
		SD	4.17	4.39
		CVar	1.85	1.13
		Min	0.00	0.00
		Max	12.00	11.00
				1.00

Data Table for Issue 5:

Can CVCC battalions develop and disseminate FRAGOs more quickly
than the Baseline batallions?

Table G-12

FRAGO Preparation and Dissemination Measures, by Scenario and Stage

Scenario	Stage	Time to Create Bn FRAGO Overlay (min)	Time to Relay Bn Free Text FRAGO (min)
Offense	1		
	N	4	3
	Mean	23.86	10.78
	SD	4.68	17.74
	CVar	.20	1.65
	Min	19.88	.52
	Max	30.42	31.26
	2		
	N	3	2
	Mean	25.40	1.50
	SD	5.28	.64
	CVar	.21	.43
	Min	21.03	1.04
	Max	31.27	1.95
	3		
	N	--	1
	Mean		1.19
	SD		--
	CVar		--
	Min		1.19
	Max		1.19
Defense	1		
	N	3	3
	Mean	19.80	1.45
	SD	9.37	1.76
	CVar	.47	1.22
	Min	8.98	.39
	Max	25.37	3.48
	2		
	N	2	3
	Mean	22.23	5.91
	SD	4.21	2.19
	CVar	.19	.37
	Min	19.25	4.55
	Max	25.20	8.44
	3		
	N	--	2
	Mean		6.02
	SD		7.65
	CVar		1.27
	Min		.61
	Max		11.43

Data Tables for Issue 6:

Do CVCC battalions receive better FRAGOs from the TOC?

Table G-13

FRAGO Completeness and Quality Measures, Offensive Scenario, by Stage

Stage	Completeness: Higher Graphics	Quality: Judged Accuracy	Quality: Added Details	Bn Cdr Requests to Clarify FRAGO
1				
N	1	1	2	4
Yes	100%	0%	100%	
Mean				1.25
SD				1.89
CVar				1.51
Min				0.00
Max				4.00
2				
N	1	1	1	4
Yes	100%	100%	100%	
Mean				1.25
SD				1.89
CVar				1.51
Min				0.00
Max				4.00
3				
N	--	--	--	4
Yes				
Mean				.25
SD				.50
CVar				2.00
Min				0.00
Max				1.00

Table G-14

FRAGO Completeness and Quality Measures, Defensive Scenario, by Stage

Stage	Completeness: Higher Graphics	Quality: Judged Accuracy	Quality: Added Details	Bn Cdr Requests to Clarify FRAGO
1				
N	2	1	2	4
Yes	50%	0%	100%	
Mean				.25
SD				.50
CVar				2.00
Min				0.00
Max				1.00
2				
N	2	2	2	4
Yes	100%	50%	100%	
Mean				1.00
SD				.82
CVar				.82
Min				0.00
Max				2.00
3				
N	--	--	--	--
Yes				
Mean				
SD				
CVar				
Min				
Max				

Data Tables for Issue 7:

Does the CVCC increase the situational awareness
of the TOC and Veh Cdrs?

Table G-15

Situational Awareness Questionnaire Responses, Offensive Scenario, by Stage and Location

Stage	Loc	Correctly Indicated Ability to Continue Mission?	# Enemy Destroyed Deviation	# Enemy Remaining Deviation	Time to Next Engagement Deviation (min)
1	Veh Cdrs				
	N	17	14	--	7
	Yes	94%			
	Mean		6.57		15.71
	SD		4.89		5.35
	CVar		.74		.34
	Min		1.00		10.00
	Max		18.00		20.00
	TOC Personnel				
	N	12	11	12	5
	Yes	100%			
	Mean		41.45	75.00	10.00
	SD		90.84	74.40	0.00
	CVar		2.19	.99	0.00
	Min		3.00	3.00	10.00
	Max		310.00	205.00	10.00
3	Veh Cdrs				
	N	6	6	--	--
	Yes	100%			
	Mean		34.17		
	SD		47.97		
	CVar		1.40		
	Min		1.00		
	Max		131.00		
	TOC Personnel				
	N	9	9	9	--
	Yes	100%			
	Mean		63.00	151.44	
	SD		102.65	147.18	
	CVar		1.63	.97	
	Min		3.00	7.00	
	Max		333.00	442.00	

Table G-16

Situational Awareness Questionnaire Responses, Defensive Scenario, by Stage and Location

Stage	Loc	Correctly Indicated Ability to Continue Mission?	# Enemy Destroyed Deviation	# Enemy Remaining Deviation	Time to Next Engagement Deviation (min)
1	Veh Cdrs				
	N	7	7	--	4
	Yes	100%			
	Mean		52.14		10.00
	SD		57.00		0.00
	CVar		1.09		0.00
	Min		1.00		10.00
	Max		135.00		10.00
	TOC Personnel				
	N	10	8	8	8
	Yes	90%			
	Mean		57.00	73.88	10.00
	SD		43.90	65.18	0.00
	CVar		.77	.88	0.00
	Min		29.00	7.00	10.00
	Max		158.00	219.00	10.00
3	Veh Cdrs				
	N	12	11	--	--
	Yes	92%			
	Mean		37.55		
	SD		47.70		
	CVar		1.27		
	Min		2.00		
	Max		165.00		
	TOC Personnel				
	N	9	9	9	--
	Yes	100%			
	Mean		38.89	155.89	
	SD		24.27	319.01	
	CVar		.62	2.05	
	Min		4.00	3.00	
	Max		69.00	999.00	

Table G-17

Situational Awareness Plotting by Vehicle Commanders, Offensive Scenario, by Stage (deviation in meters)

Stage	Echelon	Own Location Deviation	Own Co Deviation	Average Co Deviation
1	Co			
	N	4	3	4
	Mean	87.04	63.17	172.77
	SD	80.79	35.39	47.91
	CVar	.93	.56	.28
	Min	2.24	29.97	106.02
	Max	178.63	100.40	219.69
	Bn			
	N	1	--	1
	Mean	72.80		105.18
	SD	--		--
	CVar	--		--
	Min	72.80		105.18
	Max	72.80		105.18
3	Co			
	N	12	9	12
	Mean	164.24	196.82	223.27
	SD	210.47	190.14	105.89
	CVar	1.28	.96	.48
	Min	12.37	17.03	65.52
	Max	557.85	578.47	379.42
	Bn			
	N	6	--	6
	Mean	321.60		391.85
	SD	325.24		262.06
	CVar	1.01		.67
	Min	7.21		95.21
	Max	838.01		853.97

Table G-18

Situational Awareness Plotting by Vehicle Commanders, Defensive Scenario, by Stage (deviation in meters)

Stage	Echelon	Own Location Deviation	Own Co Deviation	Average Co Deviation
1	Co			
	N	11	8	11
	Mean	91.48	332.10	362.16
	SD	154.41	335.35	104.62
	CVar	1.69	1.01	.29
	Min	2.00	34.37	142.17
	Max	541.29	854.75	505.36
	Bn			
	N	6	--	6
	Mean	120.57		305.73
	SD	86.37		66.29
	CVar	.71		.22
	Min	42.94		185.41
	Max	283.30		373.25
3	Co			
	N	8	8	8
	Mean	272.79	403.49	376.55
	SD	120.54	191.19	221.29
	CVar	.44	.47	.59
	Min	123.71	152.05	83.05
	Max	498.55	625.28	715.90
	Bn			
	N	4	--	4
	Mean	219.45		420.36
	SD	166.78		170.09
	CVar	.76		.40
	Min	23.35		217.43
	Max	397.15		569.38

Table G-19

Situational Awareness Plotting of Vehicle Locations by TOC
Personnel, Offensive Scenario, by Stage (deviation in meters)

Stage	Section	Y03 Loc Deviation	Y06 Loc Deviation	Avg Vehicle Deviation
1	Intel Section			
	N	3	3	3
	Mean	302.93	307.84	305.39
	SD	154.58	101.90	122.30
	CVar	.51	.33	.40
	Min	206.23	198.30	202.26
	Max	481.21	399.80	440.51
	Ops Section			
	N	2	1	2
	Mean	513.06	322.31	513.92
	SD	274.60	--	273.39
	CVar	.54	--	.53
	Min	318.89	322.31	320.60
	Max	707.23	322.31	707.23
3	Intel Section			
	N	4	4	4
	Mean	756.09	773.93	765.01
	SD	625.30	562.42	590.29
	CVar	.83	.73	.77
	Min	120.11	95.69	107.90
	Max	1565.57	1460.05	1512.81
	Ops Section			
	N	5	6	6
	Mean	654.06	508.66	552.49
	SD	684.92	546.84	587.19
	CVar	1.05	1.07	1.06
	Min	209.76	161.23	185.50
	Max	1862.50	1615.74	1739.12

Table G-20

Situational Awareness Plotting of Company Locations by TOC
Personnel, Offensive Scenario, by Stage (deviation in meters)

Stage	Section	A Co Loc Deviation	B Co Loc Deviation	C Co Loc Deviation	D Co Loc Deviation	Avg Co Deviation
1	Intel Section					
	N	4	4	4	4	4
	Mean	427.49	475.70	367.69	549.20	455.02
	SD	321.39	219.57	299.95	248.48	250.66
	CVar	.75	.46	.82	.45	.55
	Min	184.84	285.25	134.01	283.77	221.97
	Max	899.89	792.32	801.97	777.95	809.37
	Ops Section					
	N	4	4	4	4	4
	Mean	447.87	598.91	452.20	429.25	482.06
	SD	71.27	135.75	58.54	80.08	72.13
	CVar	.16	.23	.13	.19	.15
	Min	361.22	430.30	392.86	349.81	403.45
	Max	532.32	758.89	527.19	539.22	544.96
3	Intel Section					
	N	4	4	4	4	4
	Mean	845.47	808.00	740.58	702.90	774.24
	SD	774.24	524.32	568.08	629.98	622.16
	CVar	.92	.65	.77	.90	.80
	Min	68.60	251.39	189.53	144.09	163.40
	Max	1795.38	1479.56	1487.44	1502.68	1566.26
	Ops Section					
	N	6	6	6	6	6
	Mean	534.99	454.33	376.50	493.13	464.74
	SD	503.03	450.56	397.12	546.44	470.54
	CVar	.94	.99	1.06	1.11	1.01
	Min	160.21	145.17	109.29	177.72	170.07
	Max	1529.92	1334.27	1173.88	1602.36	1410.11

Table G-21

Situational Awareness Plotting of Vehicle Locations by TOC
Personnel, Defensive Scenario, by Stage (deviation in meters)

Stage	Section	Y03 Loc Deviation	Y06 Loc Deviation	Avg Vehicle Deviation
1	Intel Section			
	N	4	3	4
	Mean	422.21	336.91	386.13
	SD	116.46	27.06	46.21
	CVar	.27	.08	.12
	Min	300.08	308.87	331.47
	Max	579.35	362.96	444.11
	Ops Section			
	N	2	3	3
	Mean	325.36	472.32	395.87
	SD	74.26	143.62	78.65
	CVar	.23	.30	.20
	Min	272.86	307.52	307.52
	Max	377.87	570.82	458.24
3	Intel Section			
	N	4	4	4
	Mean	301.10	462.16	381.63
	SD	115.97	392.40	246.70
	CVar	.39	.85	.65
	Min	178.09	22.67	100.38
	Max	422.93	943.33	658.52
	Ops Section			
	N	5	5	5
	Mean	239.76	393.13	316.45
	SD	260.84	196.30	180.36
	CVar	1.09	.50	.57
	Min	0.00	188.18	157.83
	Max	664.49	636.40	614.57

Table G-22

Situational Awareness Plotting of Company Locations by TOC
Personnel, Defensive Scenario, by Stage (deviation in meters)

Stage	Section	A Co Loc Deviation	B Co Loc Deviation	C Co Loc Deviation	D Co Loc Deviation	Avg Co Deviation
1	Intel Section					
	N	4	4	4	4	4
	Mean	712.13	368.82	382.44	653.78	529.29
	SD	257.99	86.92	266.16	282.38	164.96
	CVar	.36	.24	.70	.43	.31
	Min	476.33	275.17	135.44	319.94	366.67
	Max	1021.50	451.87	760.29	980.61	748.31
	Ops Section					
	N	4	4	4	4	4
	Mean	725.51	551.43	607.97	608.06	623.24
	SD	247.34	51.13	195.33	239.65	132.90
	CVar	.34	.09	.32	.39	.21
	Min	452.95	512.00	490.89	310.18	452.16
	Max	1042.03	626.02	899.53	810.39	775.78
3	Intel Section					
	N	4	4	4	4	4
	Mean	379.85	306.93	424.41	409.72	380.23
	SD	193.33	122.61	235.95	201.38	166.08
	CVar	.51	.40	.56	.49	.44
	Min	178.44	146.24	286.33	182.12	204.00
	Max	639.72	441.87	777.54	642.38	599.66
	Ops Section					
	N	5	5	5	5	5
	Mean	373.64	173.16	472.48	411.96	357.81
	SD	368.66	149.60	285.98	213.05	209.98
	CVar	.99	.87	.61	.52	.59
	Min	151.63	36.36	17.49	140.58	94.71
	Max	1019.59	342.03	709.69	651.40	635.72

Table G-23

Situational Awareness Plotting of Enemy Axis of Advance (AA) by
TOC Personnel, Defensive Scenario, by Stage

Stage	Section	AA Deviation (meters)	AA Heading Correct?
1	Intel Section		
	N	4	4
	Yes		100%
	Mean	833.81	
	SD	108.52	
	CVar	.13	
	Min	738.33	
	Max	982.53	
	Ops Section		
	N	4	4
	Yes		75%
	Mean	492.90	
	SD	345.48	
	CVar	.70	
	Min	98.99	
	Max	883.46	
3	Intel Section		
	N	4	4
	Yes		75%
	Mean	229.79	
	SD	87.63	
	CVar	.38	
	Min	117.05	
	Max	330.04	
	Ops Section		
	N	6	6
	Yes		67%
	Mean	322.13	
	SD	147.35	
	CVar	.46	
	Min	196.98	
	Max	535.28	

Table G-24

Situational Awareness Self-Ratings by Vehicle Commanders and TOC Personnel, Offensive Scenario, by Stage

Stage	Location	Rating
1	Veh Cdrs	
		N 24
		Mean 6.46
		SD 1.59
		CVar .25
		Min 2.00
		Max 9.00
	TOC Personnel	
		N 19
		Mean 5.05
		SD 2.27
		CVar .45
		Min 1.00
		Max 8.00
2	Veh Cdrs	
		N 6
		Mean 6.17
		SD 1.83
		CVar .30
		Min 3.00
		Max 8.00
	TOC Personnel	
		N 4
		Mean 4.00
		SD 1.41
		CVar .35
		Min 3.00
		Max 6.00

Note. Scale = 1 (No Awareness) to 9 (Total Awareness)

Table G-25

Situational Awareness Self-Ratings by Vehicle Commanders and TOC Personnel, Defensive Scenario, by Stage

Stage	Location	Rating
1	Veh Cdrs	
		N 24
		Mean 5.75
		SD 1.75
		CVar .30
		Min 3.00
		Max 9.00
	TOC Personnel	
		N 19
		Mean 5.74
		SD 1.41
		CVar .25
		Min 3.00
		Max 8.00
2	Veh Cdrs	
		N 6
		Mean 5.67
		SD 1.51
		CVar .27
		Min 3.00
		Max 7.00
	TOC Personnel	
		N 4
		Mean 4.25
		SD 1.89
		CVar .45
		Min 3.00
		Max 7.00

Note. Scale = 1 (No Awareness) to 9 (Total Awareness)

Data Tables for Issue 8:

Does the CVCC increase operator workload?

Table G-26

Vehicle Commander Task Workload

Vehicle	SPOT Report	CONTACT Report	SHELL Report	CALL FOR FIRE	SITUATION Report
Co A					
N	4	4	4	4	4
Mn	56.75	48.00	43.25	36.50	55.00
StD	10.31	23.49	8.46	13.70	20.30
CVa	.18	.49	.20	.38	.37
Min	46.00	26.00	33.00	24.00	34.00
Max	70.00	80.00	52.00	52.00	80.00
Co B					
N	4	3	4	3	4
Mn	53.75	37.67	26.50	28.67	43.50
StD	21.42	30.60	14.98	4.16	32.23
CVa	.40	.81	.57	.15	.74
Min	22.00	20.00	11.00	24.00	2.00
Max	68.00	73.00	47.00	32.00	80.00
Co C					
N	3	3	3	3	3
Mn	66.67	36.00	45.33	42.00	62.00
StD	17.01	5.29	24.68	20.88	7.21
CVa	.26	.15	.54	.50	.12
Min	54.00	30.00	18.00	28.00	56.00
Max	86.00	40.00	66.00	66.00	70.00
Co D					
N	4	4	4	4	4
Mn	74.25	64.75	53.00	34.50	49.25
StD	29.51	12.47	16.69	28.44	27.15
CVa	.40	.19	.31	.82	.55
Min	54.00	54.00	44.00	8.00	14.00
Max	118.00	81.00	78.00	68.00	73.00
Bn Cdr					
N	1	1	0	1	0
Mn	42.00	2.00	-	16.00	-
StD	-	-	-	-	-
CVa	-	-	-	-	-
Min	42.00	2.00	-	16.00	-
Max	42.00	2.00	-	16.00	-

Table G-26

Vehicle Commander Task Workload (Cont.)

Vehicle	SPOT Report	CONTACT Report	SHELL Report	CALL FOR FIRE	SITUATION Report
S3					
N	2	1	1	2	2
Mn	38.50	9.00	15.00	20.00	22.50
StD	10.61	-	-	8.49	2.12
CVa	.28	-	-	.42	.09
Min	31.00	9.00	15.00	14.00	21.00
Max	46.00	9.00	15.00	26.00	24.00
TOTAL					
N	18	16	16	17	17
Mn	58.78	42.69	40.13	32.47	48.35
StD	20.81	24.65	18.44	17.59	23.51
CVa	.35	.58	.46	.54	.49
Min	22.00	2.00	11.00	8.00	2.00
Max	118.00	81.00	78.00	68.00	80.00

Table G-26

Vehicle Commander Task Workload (Cont.)

Vehicle	Direct Gunner	Determine Location	Direct Scheme of Mnv'r	Monitor Route Progress	Correct Co. Pos'n with Bn
Co A					
N	3	4	4	4	4
Mn	42.33	20.50	38.25	33.75	35.75
StD	15.89	21.06	15.33	7.14	15.84
CVa	.38	1.03	.40	.21	.44
Min	24.00	8.00	23.00	26.00	23.00
Max	52.00	52.00	58.00	42.00	58.00
Co B					
N	3	2	3	3	1
Mn	43.00	18.00	51.00	18.67	12.00
StD	18.36	16.97	24.88	6.11	-
CVa	.43	.94	.49	.33	-
Min	30.00	6.00	29.00	12.00	12.00
Max	64.00	30.00	78.00	24.00	12.00
Co C					
N	2	3	2	3	3
Mn	46.00	31.33	46.00	32.00	42.00
StD	16.97	13.01	19.80	10.00	13.86
CVa	.37	.42	.43	.31	.33
Min	34.00	18.00	32.00	22.00	26.00
Max	58.00	44.00	60.00	42.00	50.00
Co D					
N	4	3	4	3	4
Mn	37.75	33.33	37.50	29.33	36.75
StD	28.59	23.35	25.99	20.43	12.15
CVa	.76	.70	.69	.70	.33
Min	6.00	8.00	8.00	6.00	26.00
Max	71.00	54.00	64.00	44.00	52.00
Bn Cdr					
N	1	2	2	1	0
Mn	26.00	29.00	63.50	58.00	-
StD	-	24.04	43.13	-	-
CVa	-	.83	.68	-	-
Min	26.00	12.00	33.00	58.00	-
Max	26.00	46.00	94.00	58.00	-

Table G-26

Vehicle Commander Task Workload (Cont.)

Vehicle	Direct Gunner	Determine Location	Direct Scheme of Mnvr	Monitor Route Progress	Correct Co. Pos'n with Bn
S3					
N	2	1	2	2	2
Mn	22.50	7.00	35.00	18.50	38.00
StD	2.12	-	7.07	10.61	19.80
CVa	.09	-	.20	.57	.52
Min	21.00	7.00	30.00	11.00	24.00
Max	24.00	7.00	40.00	26.00	52.00
TOTAL					
N	15	15	17	16	14
Mn	38.00	25.13	43.82	29.38	36.00
StD	18.53	17.91	21.87	13.84	14.32
CVa	.49	.71	.50	.47	.40
Min	6.00	6.00	8.00	6.00	12.00
Max	71.00	54.00	94.00	58.00	58.00

Table G-26

Vehicle Commander Task Workload (Cont.)

Vehicle	Revise Tactical Plan	Coord Sector Searches
Co A		
N	4	3
Mn	40.25	36.67
StD	20.07	11.02
CVa	.50	.30
Min	20.00	26.00
Max	58.00	48.00
Co B		
N	2	1
Mn	49.00	58.00
StD	18.38	-
CVa	.38	-
Min	36.00	58.00
Max	62.00	58.00
Co C		
N	3	2
Mn	54.67	37.00
StD	26.63	18.38
CVa	.49	.50
Min	24.00	24.00
Max	72.00	50.00
Co D		
N	4	4
Mn	42.50	33.75
StD	30.26	12.97
CVa	.71	.38
Min	6.00	17.00
Max	80.00	48.00
Bn Cdr		
N	2	1
Mn	55.00	20.00
StD	38.18	-
CVa	.69	-
Min	28.00	20.00
Max	82.00	20.00

Table G-26

Vehicle Commander Task Workload (Cont.)

Vehicle	Revise Tactical Plan	Coord Sector Searches
S3		
N	1	2
Mn	39.00	18.00
StD	-	0.00
CVa	-	0.00
Min	39.00	18.00
Max	39.00	18.00
TOTAL		
N	16	13
Mn	46.38	33.31
StD	22.81	14.15
CVa	.49	.42
Min	6.00	17.00
Max	82.00	58.00

Table G-27

TOC Personnel, Bn Commander, and S3 Task Workload

Station	Position	Monitor Maintnce Sec Jrnl	Monitor Maintnce Sit Map	Evaluate Incoming Info	Suprvise Threat Eval	Suprvise Dissem Info
Bn Cdr		0	0	0	0	0
S3		0	0	0	0	0
TOC	XO					
	N	4	4	3	3	4
	Mn	42.00	36.75	25.00	32.67	47.50
	StD	22.80	29.16	13.53	20.13	8.39
	CVa	.54	.79	.54	.62	.18
	Min	20.00	11.00	11.00	14.00	42.00
	Max	68.00	62.00	38.00	54.00	60.00
	Ass't S3	0	0	0	0	0
	S2					
	N	3	4	4	4	3
	Mn	53.67	66.50	72.25	68.00	62.67
	StD	30.27	26.15	7.50	13.47	17.93
	CVa	.56	.39	.10	.20	.29
	Min	26.00	28.00	64.00	48.00	42.00
	Max	86.00	86.00	80.00	76.00	74.00
TOTAL	N	7	8	7	7	7
	Mn	47.00	51.63	52.00	52.86	54.00
	StD	24.58	30.17	26.96	24.13	14.42
	CVa	.52	.58	.52	.46	.27
	Min	20.00	11.00	11.00	14.00	42.00
	Max	86.00	86.00	80.00	76.00	74.00

Table G-27

TOC Personnel, Bn Commander, and S3 Task Workload (Cont.)

Station	Position	Present Sit'n Update	Maintain Section Journal	Maintain Sit'n Map	Extract Incoming Messages	Determine Threat COAs
Bn Cdr	N	0	0	0	0	1
	Mn	-	-	-	-	48.00
	StD	-	-	-	-	-
	CVa	-	-	-	-	-
	Min	-	-	-	-	48.00
	Max	-	-	-	-	48.00
S3	N	0	0	0	0	2
	Mn	-	-	-	-	67.50
	StD	-	-	-	-	37.48
	CVa	-	-	-	-	.56
	Min	-	-	-	-	41.00
	Max	-	-	-	-	94.00
TOC	XO					
	N	4	2	2	2	0
	Mn	48.00	21.00	32.00	27.50	-
	StD	26.58	12.73	28.28	21.92	-
	CVa	.55	.61	.88	.80	-
	Min	24.00	12.00	12.00	12.00	-
	Max	72.00	30.00	52.00	43.00	-
	Ass't S3					
	N	0	0	0	0	1
	Mn	-	-	-	-	45.00
	StD	-	-	-	-	-
	CVa	-	-	-	-	-
	Min	-	-	-	-	45.00
	Max	-	-	-	-	45.00
	S2					
	N	4	3	4	3	3
	Mn	73.75	43.33	76.00	63.00	68.33
	StD	12.12	26.10	6.53	16.09	8.14
	CVa	.16	.60	.09	.26	.12
	Min	57.00	16.00	68.00	45.00	59.00
	Max	86.00	68.00	84.00	76.00	74.00
TOTAL	N	8	5	6	5	4
	Mn	60.88	34.40	61.33	48.80	62.50
	StD	23.56	23.04	26.49	25.05	13.43
	CVa	.39	.67	.43	.51	.21
	Min	24.00	12.00	12.00	12.00	45.00
	Max	86.00	68.00	84.00	76.00	74.00

Table G-27

TOC Personnel, Bn Commander, and S3 Task Workload (Cont.)

Station	Position	Dissem Info to Bn	Monitor Battle	Prepare Bn FRAGO	Identify Friendly COAs	Supervise Mission Planning
Bn Cdr	N	0	3	1	2	4
	Mn	-	58.33	69.00	57.00	60.00
	StD	-	31.37	-	1.41	15.49
	CVa	-	.54	-	.02	.26
	Min	-	35.00	69.00	56.00	38.00
	Max	-	94.00	69.00	58.00	74.00
S3	N	0	2	0	1	1
	Mn	-	83.50	-	81.00	70.00
	StD	-	16.26	-	-	-
	CVa	-	.19	-	-	-
	Min	-	72.00	-	81.00	70.00
	Max	-	95.00	-	81.00	70.00
TOC	XO					
	N	4	4	4	4	0
	Mn	46.25	55.50	56.25	38.25	-
	StD	13.02	21.32	25.67	17.63	-
	CVa	.28	.38	.46	.46	-
	Min	36.00	28.00	20.00	21.00	-
	Max	64.00	80.00	78.00	58.00	-
	Ass't S3					
	N	0	2	3	3	1
	Mn	-	71.00	62.67	64.33	66.00
	StD	-	9.90	20.03	22.50	-
	CVa	-	.14	.32	.35	-
	Min	-	64.00	40.00	39.00	66.00
	Max	-	78.00	78.00	82.00	66.00
	S2					
	N	3	0	0	0	0
	Mn	59.00	-	-	-	-
	StD	11.27	-	-	-	-
	CVa	.19	-	-	-	-
	Min	52.00	-	-	-	-
	Max	72.00	-	-	-	-
TOTAL	N	7	11	8	10	6
	Mn	51.71	64.18	60.25	54.10	62.67
	StD	13.17	22.22	20.49	21.10	12.75
	CVa	.25	.35	.34	.39	.20
	Min	36.00	28.00	20.00	21.00	38.00
	Max	72.00	95.00	78.00	82.00	74.00

Table G-27

TOC Personnel, Bn Commander, and S3 Task Workload (Cont.)

Station	Position	Supervise Mission Execution	Prepare Intelligence Overlay	Prepare Operation Overlay
Bn Cdr	N	4	0	0
	Mn	62.50	-	-
	StD	33.67	-	-
	CVa	.54	-	-
	Min	30.00	-	-
	Max	94.00	-	-
S3	N	2	0	0
	Mn	72.00	-	-
	StD	18.38	-	-
	CVa	.26	-	-
	Min	59.00	-	-
	Max	85.00	-	-
TOC	XO			
	N	0	4	2
	Mn	-	77.50	55.00
	StD	-	9.29	1.41
	CVa	-	.12	.03
	Min	-	68.00	54.00
	Max	-	90.00	56.00
	Ass't S3	0	0	0
	S2			
	N	0	4	3
	Mn	-	79.00	76.33
	StD	-	7.39	12.10
	CVa	-	.09	.16
	Min	-	72.00	67.00
	Max	-	88.00	90.00
TOTAL	N	6	8	5
	Mn	65.67	78.25	67.80
	StD	27.78	7.81	14.50
	CVa	.42	.10	.21
	Min	30.00	68.00	54.00
	Max	94.00	90.00	90.00

Table G-28

TOC OPS NCO and Intell NCO Task Workload Assessment

Station	Position	Monitor Maintnce Sec Jrnl	Monitor Maintnce Sit Map	Evaluate Incoming Info	Suprvise Threat Eval	Suprvise Dissem Info
TOC	OPS NCO					
	N	0	0	3	0	0
	Mn	-	-	55.33	-	-
	StD	-	-	15.28	-	-
	CVa	-	-	.28	-	-
	Min	-	-	42.00	-	-
	Max	-	-	72.00	-	-
	Intell NCO					
	N	0	0	4	0	0
	Mn	-	-	46.50	-	-
	StD	-	-	26.46	-	-
	CVa	-	-	.57	-	-
	Min	-	-	11.00	-	-
	Max	-	-	73.00	-	-
TOTAL	N	0	0	7	0	0
	Mn	-	-	50.29	-	-
	StD	-	-	21.22	-	-
	CVa	-	-	.42	-	-
	Min	-	-	11.00	-	-
	Max	-	-	73.00	-	-

Table G-28

TOC OPS NCO and Intell NCO Task Workload Assessment (Cont.)

Station	Position	Present Sit'n Update	Maintain Section Journal	Maintain Sit'n Map	Extract Incoming Messages	Determine Threat COAs
TOC	OPS NCO					
	N	2	3	3	3	0
	Mn	46.00	39.33	49.33	42.33	-
	StD	8.49	18.04	29.28	24.83	-
	CVa	.18	.46	.59	.59	-
	Min	40.00	22.00	18.00	22.00	-
	Max	52.00	58.00	76.00	70.00	-
	Intell NCO					
	N	3	3	4	3	4
	Mn	42.67	39.33	40.00	37.00	52.75
	StD	30.55	44.60	20.13	22.52	18.39
	CVa	.72	1.13	.50	.61	.35
	Min	16.00	6.00	12.00	11.00	34.00
	Max	76.00	90.00	60.00	50.00	70.00
TOTAL	N	5	6	7	6	4
	Mn	44.00	39.33	44.00	39.67	52.75
	StD	22.09	30.43	22.66	21.40	18.39
	CVa	.50	.77	.51	.54	.35
	Min	16.00	6.00	12.00	11.00	34.00
	Max	76.00	90.00	76.00	70.00	70.00

Table G-28

TOC OPS NCO and Intell NCO Task Workload Assessment (Cont.)

Station	Position	Dissem Info to Bn	Monitor Battle	Prepare Bn FRAGO	Identify Friendly COAs	Supervise Mission Planning
TOC	OPS NCO					
	N	4	0	2	1	(1)
	Mn	63.75	-	65.50	54.00	-
	StD	21.14	-	12.02	-	-
	CVa	.33	-	.18	-	-
	Min	36.00	-	57.00	54.00	-
	Max	86.00	-	74.00	54.00	-
	Intell NCO					
	N	3	0	2	0	(1)
	Mn	38.67	-	41.00	-	-
	StD	25.01	-	36.77	-	-
	CVa	.65	-	.90	-	-
	Min	14.00	-	15.00	-	-
	Max	64.00	-	67.00	-	-
TOTAL	N	7	0	4	1	(1)
	Mn	53.00	-	53.25	54.00	-
	StD	24.73	-	26.44	-	-
	CVa	.47	-	.50	-	-
	Min	14.00	-	15.00	54.00	-
	Max	86.00	-	74.00	54.00	-

Table G-28

TOC OPS NCO and Intell NCO Task Workload Assessment (Cont.)

Station	Position	Supervise Mission Execution	Prepare Intelligence Overlay	Prepare Operations Overlay
TOC	OPS NCO			
	N	0	2	3
	Mn	-	66.50	58.67
	StD	-	3.54	15.28
	CVa	-	.05	.26
	Min	-	64.00	42.00
	Max	-	69.00	72.00
	Intell NCO			
	N	0	4	4
	Mn	-	45.25	47.50
	StD	-	24.07	27.49
	CVa	-	.53	.58
	Min	-	12.00	22.00
	Max	-	68.00	86.00
TOTAL	N	0	6	7
	Mn	-	52.33	52.29
	StD	-	21.69	22.16
	CVa	-	.41	.42
	Min	-	12.00	22.00
	Max	-	69.00	86.00

Data Table for Issue 9:

Do CVCC commanders maintain better operational control
over their units than do Baseline commanders?

Table G-29

Operational Control Measures, by Scenario and Stage

Scenario	Stage	# Fratricide Hits	# Fratricide Kills	Bn Dispersion (meters)	% Time Co Dispersion > 600 m	% Time Bn Dispersion > 2000 m
Offense	1	N	4	4	16	4
		Mean	0	1925.58	61.23	23.20
		SD	--	454.57	24.07	29.77
		CVar	--	.24	.39	1.28
		Min	0	1622.89	16.67	0.00
		Max	0	2585.55	88.89	66.67
	2	N	4	4	16	4
		Mean	1.00	1990.18	70.82	46.12
		SD	2.00	408.26	19.02	25.16
		CVar	2.00	.21	.27	.55
		Min	0.00	1696.00	41.46	22.58
		Max	4.00	2589.43	100.00	77.39
	3	N	4	4	16	4
		Mean	0	2781.09	65.70	93.02
		SD	--	122.43	30.57	13.34
		CVar	--	.04	.47	.14
		Min	0	2606.77	0.00	73.02
		Max	0	2870.17	100.00	100.00
Defense	1	N	4	4	4	4
		Mean	0	0	0	0
		SD	--	--	--	--
		CVar	--	--	--	--
		Min	0	0	0	0
		Max	0	0	0	0
	2	N	4	4	16	4
		Mean	0	3860.80	71.35	99.52
		SD	--	150.79	23.26	.96
		CVar	--	.04	.33	.01
		Min	0	3709.36	31.91	98.08
		Max	0	4069.17	100.00	100.00
	3	N	4	4	4	4
		Mean	.75	0	0	0
		SD	.96	--	--	--
		CVar	1.28	--	--	--
		Min	0.00	0	0	0
		Max	2.00	0	0	0

Data Table for Issue 10:

Do CVCC battalions move more rapidly?

Table G-30

Tactical Movement Measures, by Scenario and Stage

Scenario	Stage	Percent Time at Halt	Mean Velocity While Moving	Percent Time Moving Velocity > 40 kph	Distance Travelled
Offense	1				
	N	24	24	24	24
	Mean	38.80	29.58	26.17	9719.70
	SD	22.67	9.15	22.46	1727.03
	CVar	.58	.31	.86	.18
	Min	6.58	13.95	.74	6659.26
	Max	81.43	48.92	71.25	14069.38
	2				
	N	24	24	24	24
	Mean	35.18	34.88	33.59	15665.74
	SD	15.33	6.33	17.86	3124.12
	CVar	.44	.18	.53	.20
	Min	12.14	27.89	11.59	4156.52
	Max	81.71	53.91	73.11	19598.24
	3				
	N	24	24	24	24
	Mean	43.58	34.93	34.64	8996.19
	SD	17.39	5.58	17.08	1120.89
	CVar	.40	.16	.49	.12
	Min	21.58	18.55	4.27	7174.82
	Max	72.81	48.37	82.35	12032.40
Defense	1				
	N	--	23	23	24
	Mean		46.70	63.82	13114.78
	SD		10.25	21.17	4370.73
	CVar		.22	.33	.33
	Min		27.15	21.15	8372.04
	Max		61.51	86.25	28499.97
	2				
	N	24	23	23	24
	Mean	62.64	40.50	51.23	8550.04
	SD	25.43	8.65	18.76	5423.64
	CVar	.41	.21	.37	.63
	Min	16.83	24.84	0.00	0.00
	Max	100.00	62.07	90.74	19727.79
	3				
	N	--	24	24	24
	Mean		44.58	61.27	6548.32
	SD		6.24	13.47	2411.91
	CVar		.14	.22	.37
	Min		33.76	35.71	1599.88
	Max		53.79	82.93	10950.74

Data Tables for Issue 11:

Do CVCC battalions acquire and process targets
more quickly and effectively?

Table G-31

Target Acquisition Measures, by Scenario and Stage

Scenario	Stage	Target Visible to Lase (min)	Lase to Fire (min)	Max Lase Range (meters)
Offense	1			
	N	22	6	22
	Mean	8.27	.62	2615.58
	SD	7.06	.98	613.01
	CVar	.85	1.58	.23
	Min	.43	.04	1047.50
	Max	25.21	2.55	3578.75
	2			
	N	22	10	22
	Mean	12.64	.40	2971.68
	SD	7.56	.76	694.40
	CVar	.60	1.91	.23
	Min	1.95	0.00	1058.13
	Max	32.95	2.53	3990.75
	3			
	N	23	16	23
	Mean	6.39	.21	2585.66
	SD	5.02	.26	855.27
	CVar	.79	1.22	.33
	Min	.48	.01	772.88
	Max	21.65	.93	3799.19
Defense	1			
	N	22	12	23
	Mean	9.65	.28	3297.48
	SD	7.46	.15	470.61
	CVar	.77	.52	.14
	Min	.36	.08	2042.00
	Max	31.12	.51	3855.06
	2			
	N	23	11	23
	Mean	8.74	.47	2688.23
	SD	7.70	.82	950.27
	CVar	.88	1.73	.35
	Min	.84	.01	825.44
	Max	34.67	2.83	3837.44
	3			
	N	20	14	21
	Mean	7.68	.27	2983.30
	SD	6.16	.27	660.16
	CVar	.80	.99	.22
	Min	.69	.04	1288.19
	Max	27.99	.87	3788.88

Table G-32

Range-Related Target Engagement Measures, by Scenario and Stage

Scenario	Stage	Mean Hit Range (meters)	% Targets Hit > 2200 m	Mean Kill Range (meters)	% Targets Killed > 2200 m
Offense	1	N	3	2	2
		Mean	1986.13	1786.55	50.00
		SD	750.90	1338.74	70.71
		CVar	.38	.75	1.41
		Min	1231.45	839.92	0.00
		Max	2733.18	2733.18	100.00
	2	N	7	4	4
		Mean	1354.26	1251.92	40.00
		SD	830.32	1140.07	48.90
		CVar	.61	.91	1.22
		Min	23.19	23.17	0.00
		Max	2249.20	2307.04	100.00
	3	N	10	10	10
		Mean	1247.77	1237.18	30.00
		SD	944.71	935.77	48.30
		CVar	.76	.76	1.61
		Min	227.33	234.17	0.00
		Max	2679.94	2690.67	100.00
Defense	1	N	11	11	11
		Mean	1647.10	1595.76	28.41
		SD	765.23	773.11	46.13
		CVar	.46	.48	1.62
		Min	309.94	273.97	0.00
		Max	2789.10	2869.33	100.00
	2	N	8	6	6
		Mean	1452.10	1491.36	33.33
		SD	744.45	859.52	40.82
		CVar	.51	.58	1.22
		Min	379.27	439.99	0.00
		Max	2334.73	2334.73	100.00
	3	N	11	11	11
		Mean	1538.29	1586.04	18.18
		SD	565.17	541.85	35.52
		CVar	.37	.34	1.95
		Min	1011.40	1027.34	0.00
		Max	2512.78	2512.78	100.00

Table G-33

Target Engagement Effectiveness Measures, by Scenario and Stage

Scenario	Stage	% Targets Engaged	# Enemy Killed by BLUFOR	# Enemy Killed by Manned Vehicles	# Enemy Killed by Each Manned Vehicle	Hits Taken by Each Manned Vehicle
Offense	1					
	N	18	4	--	--	24
	Mean	12.75	11.75			.04
	SD	26.10	2.99			.20
	CVar	2.05	.25			4.90
	Min	0.00	9.00			0.00
	Max	100.00	16.00			1.00
	2					
	N	17	4	4	24	24
	Mean	16.19	27.00	1.75	.83	1.54
	SD	25.88	8.83	1.71	2.45	4.18
	CVar	1.60	.33	.98	2.94	2.71
	Min	0.00	15.00	0.00	0.00	0.00
	Max	100.00	35.00	4.00	11.43	13.00
	3					
	N	18	4	4	24	24
	Mean	26.43	32.00	4.75	2.26	1.17
	SD	24.15	3.56	3.30	3.37	4.11
	CVar	.91	.11	.70	1.49	3.53
	Min	0.00	28.00	1.00	0.00	0.00
	Max	80.00	35.00	9.00	11.43	20.00
Defense	1					
	N	15	4	4	24	24
	Mean	17.61	72.75	11.50	1.28	4.33
	SD	13.06	9.46	3.79	1.67	8.23
	CVar	.74	.13	.33	1.30	1.90
	Min	0.00	59.00	6.00	0.00	0.00
	Max	40.91	79.00	14.00	4.67	20.00
	2					
	N	20	4	4	24	--
	Mean	9.94	42.50	3.50	1.22	
	SD	11.46	5.20	2.52	2.37	
	CVar	1.15	.12	.72	1.95	
	Min	0.00	35.00	0.00	0.00	
	Max	31.58	46.00	6.00	10.42	
	3					
	N	17	4	4	24	24
	Mean	16.93	59.00	5.00	.87	4.71
	SD	10.86	19.65	.82	1.05	7.20
	CVar	.64	.33	.16	1.21	1.93
	Min	0.00	31.00	4.00	0.00	0.00
	Max	35.48	76.00	6.00	3.13	20.00

Table G-34

Target Engagement Ratios, by Scenario and Stage

Scenario	Stage	Hits/Round	Kills/Hit	Kills/Round
Offense	1	N	6	--
		Mean	.17	--
		SD	.23	
		CVar	1.38	
		Min	0.00	
		Max	.50	
	2	N	12	7
		Mean	.29	.26
		SD	.34	.29
		CVar	1.18	1.11
		Min	0.00	0.00
		Max	1.00	.67
	3	N	18	10
		Mean	.40	.52
		SD	.42	.30
		CVar	1.04	.58
		Min	0.00	.13
		Max	1.00	1.00
Defense	1	N	14	11
		Mean	.27	.56
		SD	.17	.23
		CVar	.65	.42
		Min	0.00	.33
		Max	.52	1.00
	2	N	12	8
		Mean	.25	.48
		SD	.29	.31
		CVar	1.15	.65
		Min	0.00	.20
		Max	1.00	1.00
	3	N	15	13
		Mean	.34	.52
		SD	.24	.27
		CVar	.72	.52
		Min	0.00	0.00
		Max	1.00	1.00

Data Table for Issue 12:

Do CVCC battalions use resources more efficiently
than the Baseline battalions?

Table G-35

Resource Usage Measures, Average per Vehicle, by Scenario and Stage

Scenario	Stage	Fuel Used (gal)	HEAT Rounds Expended	Sabot Rounds Expended
Offense	1			
	N	24	24	24
	Mean	11.82	.08	1.17
	SD	3.21	.28	2.75
	CVar	.27	3.39	2.35
	Min	7.30	0.00	0.00
	Max	19.58	1.00	12.00
	2			
	N	24	24	24
	Mean	20.09	.25	2.83
	SD	7.43	.74	4.20
	CVar	.37	2.95	1.48
	Min	8.11	0.00	0.00
	Max	39.77	3.00	15.00
	3			
	N	24	24	24
	Mean	11.71	.87	3.42
	SD	3.06	2.31	4.93
	CVar	.26	2.64	1.44
	Min	8.11	0.00	0.00
	Max	17.76	9.00	18.00
Defense	1			
	N	23	24	24
	Mean	23.04	1.87	8.83
	SD	13.70	3.13	10.37
	CVar	.59	1.67	1.17
	Min	12.05	0.00	0.00
	Max	74.74	13.00	27.00
	2			
	N	24	24	24
	Mean	13.89	.75	4.42
	SD	9.19	1.48	5.98
	CVar	.66	1.98	1.36
	Min	2.23	0.00	0.00
	Max	46.00	6.00	17.00
	3			
	N	24	24	24
	Mean	10.47	1.13	5.17
	SD	3.64	2.17	5.99
	CVar	.35	1.93	1.16
	Min	3.98	0.00	0.00
	Max	19.56	6.00	17.00

Data Tables for Issue D2:

How frequently were the WS features used?

Table G-36

Number of Unique Reports Received at TOC Workstations, Average per Stage, by Scenario and TOC Section

Scenario	Section	ADJ	AMMO	CFF	CONTACT	SHELL
Offense	S2					
	N	4	4	4	4	4
	Mean	1.42	.92	1.67	6.17	4.58
	SD	1.48	1.26	1.25	1.40	3.14
	CVar	1.04	1.37	.75	.23	.69
	Min	0.00	0.00	.33	4.67	.67
	Max	3.00	2.67	3.33	8.00	8.33
	S3					
	N	4	4	4	4	4
	Mean	5.42	2.33	5.83	1.42	.58
	SD	4.06	2.46	3.71	2.83	1.17
	CVar	.75	1.06	.64	2.00	2.00
	Min	2.33	.67	3.33	0.00	0.00
	Max	11.33	6.00	11.33	5.67	2.33
Defense	S2					
	N	4	4	4	4	4
	Mean	1.83	.33	2.75	7.08	4.33
	SD	2.05	.47	2.64	1.52	.47
	CVar	1.12	1.41	.96	.22	.11
	Min	0.00	0.00	0.00	5.33	3.67
	Max	4.33	1.00	5.33	8.67	4.67
	S3					
	N	4	4	4	4	4
	Mean	5.83	1.67	6.42	2.17	1.58
	SD	5.45	1.41	4.77	3.90	3.17
	CVar	.93	.85	.74	1.80	2.00
	Min	0.00	0.00	.67	0.00	0.00
	Max	13.00	3.00	12.33	8.00	6.33

Table G-36

Number of Unique Reports Received at TOC Workstations, Average per Stage, by Scenario and TOC Section (Cont.)

Scenario	Section	SITREP	SPOT	NBC	FREE TEXT	All Reports
Offense	S2	N	4		4	4
		Mean	1.08	7.00	.50	23.33
		SD	1.32	1.83	.58	5.45
		CVar	1.21	.26	1.15	.23
		Min	0.00	5.00	0.00	16.67
		Max	2.67	9.00	1.33	30.00
	S3	N	4		4	4
		Mean	1.75	2.08	.83	20.25
		SD	1.69	3.95	1.04	13.53
		CVar	.96	1.89	1.24	.67
		Min	.33	0.00	0.00	8.33
		Max	3.67	8.00	2.33	34.33
Defense	S2	N	4	4	4	4
		Mean	3.08	7.67	.58	28.33
		SD	3.07	3.32	.17	6.90
		CVar	1.00	.43	.29	.24
		Min	1.33	3.33	.33	22.33
		Max	7.67	11.00	.67	38.00
	S3	N	4	4	4	4
		Mean	3.08	1.75	.58	24.33
		SD	3.35	3.50	.17	18.55
		CVar	1.09	2.00	.29	.76
		Min	0.00	0.00	.33	7.00
		Max	7.67	7.00	.67	46.67

Note. Report types with zero values omitted from table.

Table G-37

Percent Duplicate Reports Received at TOC Workstations, Average per Stage, by Scenario and TOC Section

Scenario	Section	CFF	CONTACT	SHELL	SPOT	NBC
Offense	S2					
		--	4	--	--	--
			9.20			
			12.86			
			1.40			
			0.00			
			27.27			
	S3					
		--	--	--	--	--
Defense	S2					
		3	4	4	4	4
		5.26	29.92	5.21	6.68	15.00
		9.12	18.63	6.25	8.47	30.00
		1.73	.62	1.20	1.27	2.00
		0.00	13.33	0.00	0.00	0.00
		15.79	47.22	12.50	17.65	60.00
	S3					
		--	2	--	--	4
			7.14			29.17
			10.10			20.97
			1.41			.72
			0.00			0.00
			14.29			50.00

Note. Report types with zero values omitted from table.

Table G-38

Percent Reports Viewed at TOC Workstations, Average per Stage, by Scenario and TOC Section

Scenario	Section	ADJ	AMMO	CFF	CONTACT	SHELL
Offense	S2	N	3	2	4	4
		Mean	27.78	100.00	12.50	59.84
		SD	41.11	0.00	25.00	21.16
		CVar	1.48	0.00	2.00	.35
		Min	0.00	100.00	0.00	33.33
		Max	75.00	100.00	50.00	77.14
						100.00
	S3	N	4	4	4	1
		Mean	4.66	27.50	19.56	18.10
		SD	8.06	32.02	27.35	--
		CVar	1.73	1.16	1.40	--
		Min	0.00	0.00	0.00	18.10
		Max	16.67	60.00	60.00	18.10
Defense	S2	N	3	2	3	4
		Mean	12.70	50.00	16.00	58.99
		SD	18.03	70.71	16.38	28.47
		CVar	1.42	1.41	1.02	.48
		Min	0.00	0.00	0.00	27.78
		Max	33.33	100.00	32.73	96.67
						39.58
	S3	N	3	3	4	2
		Mean	17.46	40.83	21.90	40.67
		SD	13.12	25.04	26.50	13.19
		CVar	.75	.61	1.21	.32
		Min	5.13	12.50	0.00	31.35
		Max	31.25	60.00	58.33	50.00
						4.55

Table G-38

Percent Reports Viewed at TOC Workstations, Average per Stage, by Scenario and TOC Section (Cont.)

Scenario	Section	SITREP	SPOT	FREE TEXT	NBC	All Reports
Offense	S2					
	N	2	4	3	--	4
	Mean	88.89	68.84	94.44		51.81
	SD	15.71	17.86	9.62		22.94
	CVar	.18	.26	.10		.44
	Min	77.78	55.56	83.33		32.24
	Max	100.00	93.33	100.00		84.38
	S3					
	N	4	2	3	--	4
	Mean	46.25	2.08	33.33		18.44
	SD	41.38	2.95	57.74		10.82
	CVar	.89	1.41	1.73		.59
	Min	0.00	0.00	0.00		7.05
	Max	100.00	4.17	100.00		32.12
Defense	S2					
	N	4	4	3	4	4
	Mean	63.12	58.90	33.33	62.50	41.84
	SD	21.93	29.57	28.87	47.87	12.32
	CVar	.35	.50	.87	.77	.29
	Min	33.33	36.43	0.00	0.00	33.63
	Max	83.33	100.00	50.00	100.00	60.00
	S3					
	N	3	1	3	4	4
	Mean	31.94	9.55	27.78	75.00	32.61
	SD	31.27	--	19.25	50.00	16.34
	CVar	.98	--	.69	.67	.50
	Min	0.00	9.55	16.67	0.00	16.72
	Max	62.50	9.55	50.00	100.00	52.14

Note. Report types with zero values omitted from table.

Table G-39

Number of Unique Aggregate Reports Received at TOC Workstations,
Average per Stage, by Scenario and TOC Section

Scenario	Section	CONTACT	SHELL	SPOT	All Aggregate Reports
Offense	S2	N	4	4	4
		Mean	1.92	1.00	1.58
		SD	1.13	.86	.96
		CVar	.59	.86	.60
		Min	1.00	0.00	.33
		Max	3.33	2.00	2.33
					7.67
	S3	N	4	4	4
		Mean	.75	.17	.67
		SD	1.50	.33	1.33
		CVar	2.00	2.00	2.00
		Min	0.00	0.00	0.00
		Max	3.00	.67	2.67
					6.33
Defense	S2	N	4	4	4
		Mean	.75	.42	1.67
		SD	.74	.17	1.39
		CVar	.99	.40	.83
		Min	0.00	.33	0.00
		Max	1.67	.67	3.33
					5.33
	S3	N	4	4	4
		Mean	.58	.58	.92
		SD	.96	1.17	1.83
		CVar	1.64	2.00	2.00
		Min	0.00	0.00	0.00
		Max	2.00	2.33	3.67
					8.00

Note. Aggregation implemented only for these report types.

Table G-40

Percent of Aggregate Reports Viewed at TOC Workstations, Average per Stage, by Scenario and TOC Section

Scenario	Section	CONTACT	SHELL	SPOT	All Aggregate Reports
Offense	S2	N	4	3	4
		Mean	49.29	33.33	66.07
		SD	15.32	28.87	25.67
		CVar	.31	.87	.39
		Min	33.33	0.00	42.86
		Max	66.67	50.00	100.00
					64.29
	S3	N	1	--	1
		Mean	33.33		37.50
		SD	--		--
		CVar	--		--
		Min	33.33		37.50
		Max	33.33		37.50
					31.58
Defense	S2	N	3	4	3
		Mean	42.22	25.00	78.33
		SD	36.72	50.00	20.21
		CVar	.87	2.00	.26
		Min	0.00	0.00	60.00
		Max	66.67	100.00	100.00
					100.00
	S3	N	2	--	1
		Mean	25.00		36.36
		SD	35.36		--
		CVar	1.41		--
		Min	0.00		36.36
		Max	50.00		36.36
					29.17

Note. Aggregation implemented only for these report types.

Table G-41

Number of Reports Sent from TOC Workstations, Average per Stage,
by Scenario and TOC Section

Scenario	Section	AMMO	CFF	CONTACT	SITREP
Offense	S2				
	N	--	--	--	--
	Mean				
	SD				
	CVar				
	Min				
	Max				
	S3				
	N	4	4	--	--
	Mean	.08	3.75		
	SD	.17	5.51		
	CVar	2.00	1.47		
	Min	0.00	0.00		
	Max	.33	11.67		
Defense	S2				
	N	--	4	--	4
	Mean		.08		.08
	SD		.17		.17
	CVar		2.00		2.00
	Min		0.00		0.00
	Max		.33		.33
	S3				
	N	--	4	4	4
	Mean		2.92	.08	.08
	SD		3.44	.17	.17
	CVar		1.18	2.00	2.00
	Min		0.00	0.00	0.00
	Max		6.67	.33	.33

Table G-41

Number of Reports Sent from TOC Workstations, Average per Stage,
by Scenario and TOC Section (Cont.)

Scenario	Section	SPOT	FREE TEXT	All Reports
Offense	S2			
	N	4	4	4
	Mean	.42	.92	1.33
	SD	.50	.88	.86
	CVar	1.20	.96	.65
	Min	0.00	0.00	.33
	Max	1.00	1.67	2.33
	S3			
	N	--	4	4
	Mean		.17	4.00
	SD		.19	5.42
	CVar		1.15	1.36
	Min		0.00	0.00
	Max		.33	11.67
Defense	S2			
	N	--	4	4
	Mean		.75	.92
	SD		1.10	1.42
	CVar		1.47	1.55
	Min		0.00	0.00
	Max		2.33	3.00
	S3			
	N	--	4	4
	Mean		.33	3.42
	SD		.27	3.56
	CVar		.82	1.04
	Min		0.00	.33
	Max		.67	6.67

Note. Report types with zero values omitted from table.

Table G-42

Number of Reports Routed to the Journal, Average per Stage, by
Scenario and TOC Section

Scenario	Section	ADJ	AMMO	CFF	CONTACT
Offense	S2				
		--	--	--	4
					.17
					.33
					2.00
					0.00
					.67
	S3				
		--	4	--	--
			.08		
			.17		
			2.00		
			0.00		
			.33		
Defense	S2				
		--	--	--	4
					.25
					.50
					2.00
					0.00
					1.00
	S3				
		4	--	4	4
		.17		1.25	.08
		.33		2.50	.17
		2.00		2.00	2.00
		0.00		0.00	0.00
		.67		5.00	.33

Table G-42

Number of Reports Routed to the Journal, Average per Stage, by Scenario and TOC Section (Cont.)

Scenario	Section	SITREP	SPOT	FREE TEXT	NBC	All Reports
Offense	S2					
	N	--	4	4	--	4
	Mean		1.92	1.08		3.17
	SD		3.83	1.32		5.28
	CVar		2.00	1.21		1.67
	Min		0.00	0.00		0.00
	Max		7.67	2.67		11.00
	S3					
	N	4	--	4	--	4
	Mean	.08		.67		.83
	SD	.17		.77		.96
	CVar	2.00		1.15		1.15
	Min	0.00		0.00		0.00
	Max	.33		1.33		1.67
Defense	S2					
	N	4	4	4	--	4
	Mean	.08	1.67	1.17		3.17
	SD	.17	2.91	1.58		3.80
	CVar	2.00	1.74	1.35		1.20
	Min	0.00	0.00	0.00		0.00
	Max	.33	6.00	3.33		8.33
	S3					
	N	4	--	4	4	4
	Mean	.08		1.42	.33	3.33
	SD	.17		2.04	.27	2.94
	CVar	2.00		1.44	.82	.88
	Min	0.00		0.00	0.00	.33
	Max	.33		4.33	.67	6.33

Note. Report types with zero values omitted from table.

Table G-43

Overlay Events at the TOC Workstations, Average per Stage, by Scenario and TOC Section

Scenario	Section	# Overlays Created	# Overlays Edited	# Overlays Deleted	# Overlays Sent
Offense	S2				
	N	4	4	4	4
	Mean	.08	1.58	.58	.83
	SD	.17	.50	1.17	.58
	CVar	2.00	.32	2.00	.69
	Min	0.00	1.33	0.00	0.00
	Max	.33	2.33	2.33	1.33
	S3				
	N	--	4	--	4
	Mean		1.67		1.33
	SD		.61		.61
	CVar		.37		.46
	Min		1.00		.67
	Max		2.33		2.00
Defense	S2				
	N	4	4	4	4
	Mean	.08	2.08	.42	.92
	SD	.17	1.20	.83	1.03
	CVar	2.00	.58	2.00	1.13
	Min	0.00	1.00	0.00	0.00
	Max	.33	3.67	1.67	2.33
	S3				
	N	4	4	--	4
	Mean	.25	1.00		1.17
	SD	.50	1.19		.69
	CVar	2.00	1.19		.59
	Min	0.00	0.00		.33
	Max	1.00	2.33		2.00

Table G-44

Number of Overlays and Reports Posted to the SitDisplay, Average per Stage, by Scenario and TOC Section

Scenario	Section	# Overlays Posted	# Reports Posted
Offense	S2	N	4
		Mean	2.00
		SD	.72
		CVar	.36
		Min	1.00
		Max	2.67
	S3	N	4
		Mean	2.17
		SD	1.50
		CVar	.69
		Min	0.00
		Max	3.33
Defense	S2	N	4
		Mean	2.25
		SD	1.60
		CVar	.71
		Min	0.00
		Max	3.67
	S3	N	4
		Mean	1.67
		SD	1.28
		CVar	.77
		Min	0.00
		Max	2.67

Table G-45

Number of Reports Posted to and Viewed from the Map Display,
Average per Stage, by Scenario and TOC Section

Scenario	Section	ADJ	CFF	CONTACT	SPOT	All Reports Posted	# Reports Viewed from Report Icon
Offense	S2						
	N	--	--	4	4	4	3
	Mean			3.25	4.00	7.25	1.78
	SD			1.29	2.84	4.03	.69
	CVar			.40	.71	.56	.39
	Min			2.00	1.33	4.00	1.00
	Max			5.00	8.00	13.00	2.33
	S3						
	N	--	--	--	--	--	--
	Mean						
	SD						
	CVar						
	Min						
	Max						
Defense	S2						
	N	--	--	4	4	4	2
	Mean			3.25	3.08	6.92	4.25
	SD			1.66	2.75	4.23	1.77
	CVar			.51	.89	.61	.42
	Min			1.00	1.00	2.67	3.00
	Max			4.67	7.00	12.00	5.50
	S3						
	N	4	4	4	--	4	--
	Mean	.08	1.17	.08		1.58	
	SD	.17	1.45	.17		1.60	
	CVar	2.00	1.25	2.00		1.01	
	Min	0.00	0.00	0.00		.33	
	Max	.33	3.00	.33		3.67	

Note. Report types with zero values omitted from table.

Table G-46

Percent Time in each Map Scale at TOC Workstations, Average per Stage, by Scenario and TOC Section

Scenario	Section	1:50,000	1:125,000	1:250,000
Offense	S2			
		N	4	4
		Mean	42.73	55.58
		SD	40.05	41.96
		CVar	.94	.75
		Min	2.90	18.45
		Max	79.56	97.10
	S3			
		N	4	4
		Mean	49.43	49.77
		SD	33.50	33.81
		CVar	.68	.68
		Min	.13	25.45
		Max	74.55	99.57
Defense	S2			
		N	4	4
		Mean	13.37	84.86
		SD	22.64	22.32
		CVar	1.69	.26
		Min	0.00	52.73
		Max	47.02	100.00
	S3			
		N	4	4
		Mean	55.69	39.48
		SD	10.55	13.78
		CVar	.19	.35
		Min	44.14	27.52
		Max	69.02	55.86

Note. 1:25,000 map scale was not used.

Data Tables for Issue D3:

How frequently were the CCD features used?

Table G-47

Percent Time in each CCD Map Scale, Average per Stage, by
Scenario and Echelon

Scenario	Echelon	1:25K	1:50K	1:125K	1:250K
Offense	Company				
	N	16	16	16	16
	Mean	4.19	70.07	25.62	.12
	SD	7.71	28.27	29.79	.27
	CVar	1.84	.40	1.16	2.19
	Min	0.00	9.77	1.54	0.00
	Max	28.41	98.46	90.23	.80
	Battalion				
	N	8	8	8	8
	Mean	6.74	29.79	55.18	8.30
	SD	11.30	31.07	32.64	14.42
	CVar	1.68	1.04	.59	1.74
	Min	0.00	0.00	11.75	0.00
	Max	31.12	80.01	100.00	38.50
Defense	Company				
	N	16	16	16	16
	Mean	1.49	69.10	28.34	1.07
	SD	3.16	27.15	27.16	1.77
	CVar	2.11	.39	.96	1.65
	Min	0.00	1.05	1.37	0.00
	Max	12.01	95.57	94.42	5.28
	Battalion				
	N	8	8	8	8
	Mean	5.19	19.60	66.95	8.26
	SD	7.50	25.36	29.94	11.57
	CVar	1.44	1.29	.45	1.40
	Min	0.00	0.00	15.68	0.00
	Max	19.22	65.11	100.00	26.31

Table G-48

Percent Time each CCD Map Feature Was in Effect, Average per Stage, by Scenario and Echelon

Scenario	Echelon	Contour Lines	Grid Lines	Rivers	Roads	Vegetation
Offense	Company					
	N	16	16	16	16	16
	Mean	93.75	100.00	100.00	96.87	93.75
	SD	25.00	0.00	0.00	12.50	25.00
	CVar	.27	0.00	0.00	.13	.27
	Min	0.00	100.00	100.00	50.00	0.00
	Max	100.00	100.00	100.00	100.00	100.00
	Battalion					
	N	8	8	8	8	8
	Mean	89.51	100.00	88.48	88.19	88.40
	SD	29.03	0.00	32.59	32.75	32.81
	CVar	.32	0.00	.37	.37	.37
	Min	17.68	100.00	7.81	7.14	7.19
	Max	100.00	100.00	100.00	100.00	100.00
Defense	Company					
	N	16	16	16	16	16
	Mean	93.75	100.00	100.00	100.00	100.00
	SD	25.00	0.00	0.00	0.00	0.00
	CVar	.27	0.00	0.00	0.00	0.00
	Min	0.00	100.00	100.00	100.00	100.00
	Max	100.00	100.00	100.00	100.00	100.00
	Battalion					
	N	8	8	8	8	8
	Mean	87.50	100.00	91.67	88.59	87.50
	SD	35.36	0.00	23.57	32.28	35.36
	CVar	.40	0.00	.26	.36	.40
	Min	0.00	100.00	33.33	8.71	0.00
	Max	100.00	100.00	100.00	100.00	100.00

Table G-49

Percent Inputs Affected by Touchscreen and Laser, Average per Stage, by Scenario and Echelon

Scenario	Echelon	Percent Inputs by Touchscreen	Percent Inputs to Reports by Laser
Offense	Company		
	N	16	16
	Mean	88.77	23.52
	SD	29.05	27.36
	CVar	.33	1.16
	Min	.77	0.00
	Max	100.00	88.46
	Battalion		
	N	8	8
	Mean	87.57	7.12
	SD	34.71	13.06
	CVar	.40	1.83
	Min	1.67	0.00
	Max	100.00	37.50
Defense	Company		
	N	16	16
	Mean	92.14	22.90
	SD	24.87	21.86
	CVar	.27	.95
	Min	0.00	0.00
	Max	100.00	81.25
	Battalion		
	N	8	8
	Mean	87.34	16.34
	SD	32.05	29.29
	CVar	.37	1.79
	Min	8.26	0.00
	Max	100.00	75.57

Table G-50

Percent Reports Retrieved from Receive Queue (as Opposed to Old Files), Average per Stage, by Scenario and Echelon

Scenario	Echelon	ADJ	AMMO	CFF	CONTACT	SHELL
Offense	Company					
	N	5	12	7	16	11
	Mean	80.00	98.13	100.00	99.48	100.00
	SD	44.72	6.50	0.00	2.08	0.00
	CVar	.56	.07	0.00	.02	0.00
	Min	0.00	77.50	100.00	91.67	100.00
	Max	100.00	100.00	100.00	100.00	100.00
	Battalion					
	N	--	4	3	7	--
	Mean		100.00	100.00	100.00	
	SD		0.00	0.00	0.00	
	CVar		0.00	0.00	0.00	
	Min		100.00	100.00	100.00	
	Max		100.00	100.00	100.00	
Defense	Company					
	N	3	10	8	15	13
	Mean	66.67	100.00	93.75	98.74	100.00
	SD	57.74	0.00	17.68	3.49	0.00
	CVar	.87	0.00	.19	.04	0.00
	Min	0.00	100.00	50.00	87.73	100.00
	Max	100.00	100.00	100.00	100.00	100.00
	Battalion					
	N	1	4	3	8	5
	Mean	100.00	100.00	100.00	100.00	100.00
	SD	--	0.00	0.00	0.00	0.00
	CVar	--	0.00	0.00	0.00	0.00
	Min	100.00	100.00	100.00	100.00	100.00
	Max	100.00	100.00	100.00	100.00	100.00

Table G-50

Percent Reports Retrieved from Receive Queue (as Opposed to Old Files), Average per Stage, by Scenario and Echelon (Cont.)

Scenario	Echelon	SITREP	SPOT	FREE TEXT	NBC	Total
Offense	Company					
	N	10	14	11	--	16
	Mean	90.00	100.00	98.48		98.12
	SD	31.62	0.00	5.03		3.38
	CVar	.35	0.00	.05		.03
	Min	0.00	100.00	83.33		89.17
	Max	100.00	100.00	100.00		100.00
	Battalion					
	N	1	6	5	--	8
	Mean	100.00	100.00	70.00		88.54
	SD	--	0.00	21.73		14.73
	CVar	--	0.00	.31		.17
	Min	100.00	100.00	50.00		66.67
	Max	100.00	100.00	100.00		100.00
Defense	Company					
	N	13	14	12	6	16
	Mean	89.74	92.86	77.55	100.00	94.02
	SD	28.50	16.66	22.08	0.00	7.06
	CVar	.32	.18	.28	0.00	.08
	Min	0.00	44.44	36.11	100.00	75.00
	Max	100.00	100.00	100.00	100.00	100.00
	Battalion					
	N	5	4	6	4	8
	Mean	90.00	97.92	87.22	100.00	93.84
	SD	22.36	4.17	24.08	0.00	12.82
	CVar	.25	.04	.28	0.00	.14
	Min	50.00	91.67	40.00	100.00	67.50
	Max	100.00	100.00	100.00	100.00	100.00

Table G-51

Number of Digital Reports Originated, Average per Stage, by
Scenario and Echelon

Scenario	Echelon	ADJ	AMMO	CFF	CONTACT	SHELL
Offense	Company					
	N	16	16	16	16	16
	Mean	1.29	.31	1.23	.38	.50
	SD	1.58	.52	1.17	.48	.44
	CVar	1.22	1.67	.95	1.29	.88
	Min	0.00	0.00	0.00	0.00	0.00
	Max	4.67	2.00	3.67	1.67	1.00
	Battalion					
	N	8	--	8	--	8
	Mean	.04		.33		.08
	SD	.12		.62		.15
	CVar	2.83		1.87		1.95
	Min	0.00		0.00		0.00
	Maximum	.33		1.33		.33
Defense	Company					
	N	16	16	16	16	16
	Mean	1.40	.23	1.50	.60	.60
	SD	1.75	.36	1.55	.47	.30
	CVar	1.25	1.57	1.03	.79	.50
	Min	0.00	0.00	0.00	0.00	0.00
	Max	5.00	1.00	4.67	2.00	1.00
	Battalion					
	N	8	--	8	8	8
	Mean	.38		.46	.21	.17
	SD	1.06		1.30	.47	.25
	CVar	2.83		2.83	2.25	1.51
	Minimum	0.00		0.00	0.00	0.00
	Maximum	3.00		3.67	1.33	.67

Table G-51

Number of Digital Reports Originated, Average per Stage, by
Scenario and Echelon (Cont.)

Scenario	Echelon	SITREP	SPOT	NBC	Total
Offense	Company				
	N	16	16	--	16
	Mean	.44	.54		4.69
	SD	.54	.44		2.77
	CVar	1.24	.81		.59
	Min	0.00	0.00		1.00
	Max	1.67	1.33		11.00
	Battalion				
	N	--	8	--	8
	Mean		.08		.54
	SD		.15		.83
	CVar		1.85		1.54
	Min		0.00		0.00
	Max		.33		2.00
Defense	Company				
	N	16	16	16	16
	Mean	.67	.58	.12	5.71
	SD	.76	.39	.17	3.52
	CVar	1.14	.68	1.33	.62
	Min	0.00	0.00	0.00	1.33
	Max	2.33	1.33	.33	12.67
	Battalion				
	N	--	8	--	8
	Mean		.13		1.33
	SD		.25		2.61
	CVar		1.98		1.95
	Min		0.00		0.00
	Max		.67		7.67

Table G-52

Percent Digital Reports Retrieved, Average per Stage, by Scenario and Echelon

Scenario	Echelon	ADJ	AMMO	CFE	CONTACT	SHELL
Offense	Company					
	N	16	16	16	16	16
	Mean	2.09	27.69	6.29	40.59	12.32
	SD	3.95	21.72	10.76	24.22	12.19
	CVar	1.89	.78	1.71	.60	.99
	Min	0.00	0.00	0.00	6.67	0.00
	Max	12.82	66.67	38.33	88.57	42.86
	Battalion					
	N	--	8	8	8	--
	Mean		20.71	1.86	27.48	
	SD		23.76	2.82	24.66	
	CVar		1.15	1.52	.90	
	Min		0.00	0.00	0.00	
	Max		50.00	7.14	68.52	
Defense	Company					
	N	12	15	15	16	16
	Mean	.56	22.75	3.43	35.77	19.74
	SD	1.32	22.99	4.64	20.44	18.57
	CVar	2.35	1.01	1.35	.57	.94
	Min	0.00	0.00	0.00	0.00	0.00
	Max	3.70	75.00	13.85	67.95	61.90
	Battalion					
	N	6	6	7	8	8
	Mean	1.01	31.67	5.15	31.58	8.88
	SD	2.47	38.69	7.02	22.52	11.18
	CVar	2.45	1.22	1.36	.71	1.26
	Min	0.00	0.00	0.00	4.76	0.00
	Max	6.06	100.00	16.27	70.83	33.33

Table G-52

Percent Digital Reports Retrieved, Average per Stage, by Scenario and Echelon (Cont.)

Scenario	Echelon	SITREP	SPOT	FREE TEXT	NBC	Total
Offense	Company					
	N	15	16	12	--	16
	Mean	20.67	30.07	64.58		23.05
	SD	19.53	21.69	29.25		14.85
	CVar	.95	.72	.45		.64
	Min	0.00	0.00	0.00		2.01
	Max	60.00	81.94	106.67		58.01
	Battalion					
	N	8	8	6	--	8
	Mean	3.33	10.06	50.74		11.22
	SD	9.43	11.71	37.79		5.91
	CVar	2.83	1.16	.74		.53
	Min	0.00	0.00	0.00		4.01
	Max	26.67	33.33	116.67		19.85
Defense	Company					
	N	16	16	12	16	16
	Mean	21.40	27.44	82.96	40.63	23.78
	SD	22.94	19.56	42.86	61.15	16.95
	CVar	1.07	.71	.52	1.51	.71
	Min	0.00	0.00	46.67	0.00	.67
	Max	92.86	64.31	200.00	200.00	54.63
	Battalion					
	N	8	8	6	8	8
	Mean	14.72	10.35	62.69	31.25	18.78
	SD	17.44	18.20	33.73	37.20	13.87
	CVar	1.18	1.76	.54	1.19	.74
	Min	0.00	0.00	6.67	0.00	1.63
	Max	50.00	52.59	100.00	100.00	43.97

Table G-53

Comparison of Unique Relays to Total Relays, Average per Stage,
by Scenario and Echelon

Scenario	Echelon	% Reports Relayed -- Unique Relays	% Reports Relayed -- Total Relays
Offense	Company		
	N	16	16
	Mean	9.12	9.46
	SD	6.30	6.39
	CVar	.69	.68
	Min	1.21	1.21
	Max	25.55	25.55
	Battalion		
	N	8	8
	Mean	.17	.17
	SD	.49	.49
	CVar	2.83	2.83
	Min	0.00	0.00
	Max	1.39	1.39
	Company		
	N	16	16
	Mean	10.21	11.10
	SD	8.85	10.24
	CVar	.87	.92
	Min	0.00	0.00
	Max	29.98	35.34
	Battalion		
	N	8	8
	Mean	2.20	2.37
	SD	3.81	4.03
	CVar	1.73	1.70
	Min	0.00	0.00
	Max	10.00	10.00

Table G-54

Number of Digital Reports Received, Average per Stage, by
Scenario and Echelon

Scenario	Echelon	ADJ	AMMO	CFF	CONTACT	SHELL
Offense	Company					
	N	16	16	16	16	16
	Mean	3.85	3.46	17.73	6.85	6.42
	SD	2.60	2.30	21.80	1.59	2.41
	CVar	.68	.67	1.23	.23	.38
	Min	.67	.67	2.67	4.67	2.33
	Max	9.67	8.33	64.67	10.00	13.00
	Battalion					
	N	8	8	8	8	8
	Mean	5.17	2.04	15.79	5.58	4.75
	SD	3.42	1.92	16.55	1.81	2.05
	CVar	.66	.94	1.05	.33	.43
	Min	2.33	.67	3.33	1.67	2.33
	Max	11.00	6.33	45.33	7.33	8.00
Defense	Company					
	N	16	16	16	16	16
	Mean	4.94	2.56	17.35	8.15	6.35
	SD	3.78	1.53	19.97	1.07	1.81
	CVar	.77	.60	1.15	.13	.28
	Min	0.00	0.00	0.00	5.33	3.00
	Max	12.33	5.00	52.00	9.67	9.67
	Battalion					
	N	8	8	8	8	8
	Mean	6.08	1.42	18.08	6.13	4.25
	SD	4.31	1.31	21.92	1.89	1.49
	CVar	.71	.92	1.21	.31	.35
	Min	0.00	0.00	0.00	2.33	2.33
	Max	12.33	3.00	60.33	8.67	6.33

Table G-54

Number of Digital Reports Received, Average per Stage, by
Scenario and Echelon (Cont.)

Scenario	Echelon	SITREP	SPOT	FREE TEXT	NBC	Total
Offense	Company					
	N	16	16	16	--	16
	Mean	2.44	8.92	1.92		51.58
	SD	1.68	1.84	1.60		20.65
	CVar	.69	.21	.84		.40
	Min	0.00	6.67	0.00		23.33
	Max	5.00	13.00	3.67		91.67
	Battalion					
	N	8	8	8	--	8
	Mean	1.63	6.96	1.96		43.88
	SD	1.28	1.77	1.69		17.11
	CVar	.79	.25	.87		.39
	Min	.33	4.67	0.00		18.67
	Max	3.67	9.67	3.67		66.00
	Company					
Defense	N	16	16	16	16	16
	Mean	3.83	8.25	2.50	.56	54.50
	SD	2.91	2.05	1.85	.20	16.59
	CVar	.76	.25	.74	.36	.30
	Min	1.00	4.00	0.00	.33	31.67
	Max	9.33	11.67	5.00	1.00	83.67
	Battalion					
	N	8	8	8	8	8
	Mean	3.33	6.42	2.38	.63	48.71
	SD	3.38	2.63	1.84	.21	21.91
	CVar	1.01	.41	.77	.34	.45
	Min	1.00	2.67	0.00	.33	13.67
	Max	8.67	9.33	5.00	1.00	84.00

Table G-55

Number of Unique Digital Reports Received, Average per Stage, by Scenario and Echelon

Scenario	Echelon	ADJ	AMMO	CFF	CONTACT	SHELL
Offense	Company					
	N	16	16	16	16	16
	Mean	3.85	3.46	11.33	6.56	6.42
	SD	2.60	2.30	10.17	1.30	2.41
	CVar	.68	.67	.90	.20	.38
	Min	.67	.67	2.67	4.67	2.33
	Max	9.67	8.33	29.00	9.00	13.00
	Battalion					
	N	8	8	8	8	8
	Mean	5.13	2.04	12.50	5.50	4.75
	SD	3.45	1.92	10.48	1.77	2.05
	CVar	.67	.94	.84	.32	.43
	Min	2.33	.67	3.33	1.67	2.33
	Max	11.00	6.33	29.00	7.33	8.00
Defense	Company					
	N	16	16	16	16	16
	Mean	4.94	2.56	12.38	7.15	6.25
	SD	3.78	1.53	11.35	1.07	1.84
	CVar	.77	.60	.92	.15	.29
	Min	0.00	0.00	0.00	4.67	3.00
	Max	12.33	5.00	31.67	9.33	9.67
	Battalion					
	N	8	8	8	8	8
	Mean	5.92	1.42	13.04	5.88	4.17
	SD	4.25	1.31	12.48	1.81	1.49
	CVar	.72	.92	.96	.31	.36
	Min	0.00	0.00	0.00	2.33	2.33
	Max	12.33	3.00	32.33	8.00	6.33

Table G-55

Number of Unique Digital Reports Received, Average per Stage, by Scenario and Echelon (Cont.)

Scenario	Echelon	SITREP	SPOT	FREE TEXT	NBC	Total
Offense	Company					
	N	16	16	16	--	16
	Mean	2.44	8.92	1.69		44.67
	SD	1.68	1.84	1.43		11.61
	CVar	.69	.21	.85		.26
	Min	0.00	6.67	0.00		23.00
	Max	5.00	13.00	3.33		59.33
	Battalion					
	N	8	8	8	--	8
	Mean	1.63	6.96	1.67		40.17
	SD	1.28	1.77	1.46		13.29
	CVar	.79	.25	.88		.33
	Min	.33	4.67	0.00		18.33
	Max	3.67	9.67	3.33		52.67
Defense	Company					
	N	16	16	16	16	16
	Mean	3.83	8.10	1.96	.48	47.65
	SD	2.91	1.90	1.65	.17	11.52
	CVar	.76	.23	.84	.36	.24
	Min	1.00	4.00	0.00	.33	26.67
	Max	9.33	11.00	4.33	.67	60.00
	Battalion					
	N	8	8	8	8	8
	Mean	3.33	6.42	1.96	.54	42.67
	SD	3.38	2.63	1.71	.17	15.84
	CVar	1.01	.41	.87	.32	.37
	Min	1.00	2.67	0.00	.33	12.00
	Max	8.67	9.33	4.33	.67	54.67

Table G-56

Percent Redundant Digital Reports Received, Average per Stage, by Scenario and Echelon

Scenario	Echelon	ADJ	AMMO	CFF	CONTACT	SHELL
Offense	Company					
	N	--	--	16	16	--
	Mean			8.45	2.97	
	SD			15.28	3.61	
	CVar			1.81	1.22	
	Min			0.00	0.00	
	Max			40.08	9.52	
	Battalion					
	N	8	--	8	8	--
	Mean	1.04		5.83	1.39	
	SD	2.95		10.97	3.93	
	CVar	2.83		1.88	2.83	
	Min	0.00		0.00	0.00	
	Max	8.33		27.03	11.11	
Defense	Company					
	N	--	--	15	16	16
	Mean			8.61	9.36	1.95
	SD			14.98	6.45	3.78
	CVar			1.74	.69	1.94
	Min			0.00	0.00	0.00
	Max			36.92	22.86	11.11
	Battalion					
	N	6	--	7	8	8
	Mean	2.36		8.92	2.61	1.82
	SD	3.65		16.06	3.94	3.42
	CVar	1.55		1.80	1.51	1.88
	Min	0.00		0.00	0.00	0.00
	Max	7.20		39.99	9.52	8.33

Table G-56

Percent Redundant Digital Reports Received, Average per Stage, by Scenario and Echelon (Cont.)

Scenario	Echelon	SITREP	SPOT	INTEL	FREE TEXT	NBC	Total
Offense	Company						
	N	--	--	--	12	--	16
	Mean				9.98		7.26
	SD				8.97		10.98
	CVar				.90		1.51
	Min				0.00		0.00
	Max				25.00		32.15
	Battalion						
	N	--	--	--	6	--	8
	Mean				12.96		5.41
	SD				8.55		7.72
	CVar				.66		1.43
	Min				0.00		0.00
	Max				25.00		19.52
Defense	Company						
	N	--	16	--	12	16	16
	Mean		.99		16.32	11.46	10.56
	SD		1.86		16.17	20.83	10.03
	CVar		1.87		.99	1.82	.95
	Min		0.00		0.00	0.00	.81
	Max		6.67		40.48	50.00	25.25
	Battalion						
	N	--	--	--	6	8	8
	Mean				11.75	10.42	7.91
	SD				13.42	19.80	11.27
	CVar				1.14	1.90	1.43
	Min				0.00	0.00	0.00
	Max				35.71	50.00	31.43

Table G-57

Percent Time Available Maps and Visual Devices Used (Bn Cdr and S3), Average per Stage, by Scenario

Scenario	Stage	Maps		Vision Blocks	Visual Devices		
		CCD	Lap		GPSE	CITV	CCD
Offense	1	N	8	8	8	8	8
		Mean	91.25	8.75	8.13	2.50	28.13
		SD	7.91	7.91	5.94	3.78	17.72
		CVar	.09	.90	.73	1.51	.63
		Min	75.00	0.00	0.00	0.00	5.00
		Max	100.00	25.00	20.00	10.00	55.00
	3	N	8	8	8	8	8
		Mean	95.00	5.00	6.25	1.88	25.00
		SD	10.35	10.35	3.54	2.59	16.04
		CVar	.11	2.07	.57	1.38	.64
		Min	70.00	0.00	0.00	0.00	10.00
		Max	100.00	30.00	10.00	5.00	50.00
Defense	1	N	8	8	8	8	8
		Mean	86.13	13.87	5.63	3.75	21.25
		SD	13.68	13.68	4.96	5.18	12.75
		CVar	.16	.99	.88	1.38	.60
		Min	60.00	0.00	0.00	0.00	5.00
		Max	100.00	40.00	15.00	15.00	40.00
	3	N	8	8	8	8	8
		Mean	90.63	9.38	6.88	3.75	21.25
		SD	13.21	13.21	5.94	3.54	14.58
		CVar	.15	1.41	.86	.94	.69
		Min	60.00	0.00	0.00	0.00	5.00
		Max	100.00	40.00	20.00	10.00	45.00

Data Tables for Issue D4:

How frequently were the CITV features used?

Table G-58

Percent Time in Operating Mode, Average per Stage, by Scenario and Echelon

Scenario	Echelon	Manual Search	Autoscan	GLOS	GPS
Offense	Company				
	N	16	16	16	16
	Mean	32.49	46.47	20.38	.66
	SD	28.64	25.56	14.04	1.14
	CVar	.88	.55	.69	1.74
	Min	0.00	0.00	0.00	0.00
	Max	87.24	88.23	54.09	3.07
	Battalion				
	N	8	8	8	8
	Mean	33.28	23.63	42.49	.60
	SD	32.23	29.98	34.58	.89
	CVar	.97	1.27	.81	1.49
	Min	0.00	0.00	5.55	0.00
	Max	89.73	70.11	98.93	2.22
Defense	Company				
	N	16	16	16	16
	Mean	26.66	52.35	19.04	1.95
	SD	18.61	24.44	12.84	2.99
	CVar	.70	.47	.67	1.53
	Min	0.00	12.93	.04	0.00
	Max	71.73	90.34	42.65	8.90
	Battalion				
	N	8	8	8	8
	Mean	21.53	25.94	51.62	.91
	SD	18.39	15.68	24.75	2.02
	CVar	.85	.60	.48	2.21
	Min	0.00	0.00	18.85	0.00
	Max	44.80	45.18	94.68	5.75

Table G-59

Number of Times CITV Laser and Designate Function Used, Average per Stage, by Scenario and Echelon

Scenario	Echelon	Number of CITV Lases	Number of Times Designate Used
Offense	Company		
	N	16	16
	Mean	9.35	.79
	SD	7.93	.70
	CVar	.85	.88
	Min	0.00	0.00
	Max	26.33	2.00
	Battalion		
	N	8	8
	Mean	7.92	.60
	SD	9.51	.59
	CVar	1.20	.98
	Min	0.00	0.00
	Max	25.33	1.50
Defense	Company		
	N	16	16
	Mean	13.00	.74
	SD	10.66	.81
	CVar	.82	1.10
	Min	1.67	0.00
	Max	45.67	3.00
	Battalion		
	N	8	8
	Mean	15.04	.50
	SD	25.86	.94
	CVar	1.72	1.89
	Min	0.00	0.00
	Max	57.00	2.67

Data Tables for Issue D7:

**How good was the training provided to the evaluation
participants?**

Table G-60

TOC Personnel Training Evaluation

Group	Duty Position	Classroom Training - Messages				
		Overall Rating	Instructor Rating	Viewgraph Rating	Handout Rating	Demo Rating
Officers	XO					
	N	4	4	4	4	4
	Mn	3.00	3.50	2.75	2.75	3.25
	StD	.82	.58	1.26	1.26	1.26
	CVa	.27	.16	.46	.46	.39
	Min	2.00	3.00	1.00	1.00	2.00
	Max	4.00	4.00	4.00	4.00	5.00
	Ass't S3					
	N	3	3	3	3	3
	Mn	3.67	4.33	3.67	3.67	3.33
	StD	1.15	1.15	1.15	.58	.58
	CVa	.31	.27	.31	.16	.17
	Min	3.00	3.00	3.00	3.00	3.00
	Max	5.00	5.00	5.00	4.00	4.00
	S2					
	N	4	4	4	4	4
	Mn	4.25	4.00	4.25	4.50	4.25
	StD	.50	0.00	.50	.58	.50
	CVa	.12	0.00	.12	.13	.12
	Min	4.00	4.00	4.00	4.00	4.00
	Max	5.00	4.00	5.00	5.00	5.00
	N	11	11	11	11	11
	Mn	3.64	3.91	3.55	3.64	3.64
	StD	.92	.70	1.13	1.12	.92
	CVa	.25	.18	.32	.31	.25
	Min	2.00	3.00	1.00	1.00	2.00
	Max	5.00	5.00	5.00	5.00	5.00
NCOs	OPS NCO					
	N	4	4	4	3	3
	Mn	4.00	4.50	3.75	4.00	4.33
	StD	0.00	.58	.50	0.00	.58
	CVa	0.00	.13	.13	0.00	.13
	Min	4.00	4.00	3.00	4.00	4.00
	Max	4.00	5.00	4.00	4.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Classroom Training - Messages				
		Overall Rating	Instructor Rating	Viewgraph Rating	Handout Rating	Demo Rating
NCOs	INTEL NCO					
	N	4	4	4	4	4
	Mn	4.25	4.50	4.00	4.00	3.75
	StD	.50	.58	.82	.82	1.26
	CVa	.12	.13	.20	.20	.34
	Min	4.00	4.00	3.00	3.00	2.00
	Max	5.00	5.00	5.00	5.00	5.00
N		8	8	8	7	7
Mn		4.13	4.50	3.88	4.00	4.00
StD		.35	.53	.64	.58	1.00
CVa		.09	.12	.17	.14	.25
Min		4.00	4.00	3.00	3.00	2.00
Max		5.00	5.00	5.00	5.00	5.00
TOTAL						
N		19	19	19	18	18
Mn		3.84	4.16	3.68	3.78	3.78
StD		.76	.69	.95	.94	.94
CVa		.20	.17	.26	.25	.25
Min		2.00	3.00	1.00	1.00	2.00
Max		5.00	5.00	5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Classroom Training - Maps				
		Overall Rating	Instructor Rating	Viewgraph Rating	Handout Rating	Demo Rating
Officers	XO					
	N	3	3	3	3	4
	Mn	2.67	3.33	2.67	2.67	3.25
	StD	.58	.58	1.53	1.53	1.26
	CVa	.22	.17	.57	.57	.39
	Min	2.00	3.00	1.00	1.00	2.00
	Max	3.00	4.00	4.00	4.00	5.00
	Ass't S3					
	N	2	2	2	2	2
	Mn	3.50	4.00	4.00	3.50	4.00
	StD	.71	1.41	1.41	.71	1.41
	CVa	.20	.35	.35	.20	.35
	Min	3.00	3.00	3.00	3.00	3.00
	Max	4.00	5.00	5.00	4.00	5.00
	S2					
	N	4	4	4	4	4
	Mn	4.25	4.00	4.25	4.50	4.25
	StD	.50	0.00	.50	.58	.50
	CVa	.12	0.00	.12	.13	.12
	Min	4.00	4.00	4.00	4.00	4.00
	Max	5.00	4.00	5.00	5.00	5.00
	N	9	9	9	9	10
	Mn	3.56	3.78	3.67	3.67	3.80
	StD	.88	.67	1.22	1.22	1.03
	CVa	.25	.18	.33	.33	.27
	Min	2.00	3.00	1.00	1.00	2.00
	Max	5.00	5.00	5.00	5.00	5.00
NCOs	OPS NCO					
	N	2	2	2	3	1
	Mn	4.00	4.50	3.50	4.00	5.00
	StD	0.00	.71	.71	1.00	-
	CVa	0.00	.16	.20	.25	-
	Min	4.00	4.00	3.00	3.00	5.00
	Max	4.00	5.00	4.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Classroom Training - Maps				
		Overall Rating	Instructor Rating	Viewgraph Rating	Handout Rating	Demo Rating
NCOs	INTEL NCO					
	N	4	4	4	4	4
	Mn	4.25	4.50	4.00	4.00	4.00
	StD	.50	.58	.82	.82	.82
	CVa	.12	.13	.20	.20	.20
	Min	4.00	4.00	3.00	3.00	3.00
	Max	5.00	5.00	5.00	5.00	5.00
	N	6	6	6	7	5
	Mn	4.17	4.50	3.83	4.00	4.20
	StD	.41	.55	.75	.82	.84
	CVa	.10	.12	.20	.20	.20
	Min	4.00	4.00	3.00	3.00	3.00
	Max	5.00	5.00	5.00	5.00	5.00
TOTAL						
	N	15	15	15	16	15
	Mn	3.80	4.07	3.73	3.81	3.93
	StD	.77	.70	1.03	1.05	.96
	CVa	.20	.17	.28	.27	.24
	Min	2.00	3.00	1.00	1.00	2.00
	Max	5.00	5.00	5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Hands-on Simulator Training - Messages		
		Overall Rating	RA Explanations Rating	Hands-on Training Rating
Officers	XO			
	N	4	4	4
	Mn	4.25	4.25	4.00
	StD	.96	.96	.82
	CVa	.23	.23	.20
	Min	3.00	3.00	3.00
	Max	5.00	5.00	5.00
	Ass't S3			
	N	3	3	3
	Mn	4.67	4.67	4.67
	StD	.58	.58	.58
	CVa	.12	.12	.12
	Min	4.00	4.00	4.00
	Max	5.00	5.00	5.00
	S2			
	N	3	3	3
	Mn	4.33	4.00	4.33
	StD	1.15	1.00	1.15
	CVa	.27	.25	.27
	Min	3.00	3.00	3.00
	Max	5.00	5.00	5.00
NCOs				
	N	10	10	10
	Mn	4.40	4.30	4.30
	StD	.84	.82	.82
	CVa	.19	.19	.19
	Min	3.00	3.00	3.00
	Max	5.00	5.00	5.00
NCOs	OPS NCO			
	N	4	4	4
	Mn	4.50	4.75	4.75
	StD	.58	.50	.50
	CVa	.13	.11	.11
	Min	4.00	4.00	4.00
	Max	5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	<u>Hands-on Simulator Training - Messages</u>		
		Overall Rating	RA Explanations Rating	Hands-on Training Rating
NCOs	INTEL NCO			
	N	4	4	4
	Mn	5.00	5.00	4.75
	StD	0.00	0.00	.50
	CVa	0.00	0.00	.11
	Min	5.00	5.00	4.00
	Max	5.00	5.00	5.00
N		8	8	8
Mn		4.75	4.88	4.75
StD		.46	.35	.46
CVa		.10	.07	.10
Min		4.00	4.00	4.00
Max		5.00	5.00	5.00
TOTAL				
N		18	18	18
Mn		4.56	4.56	4.50
StD		.70	.70	.71
CVa		.15	.15	.16
Min		3.00	3.00	3.00
Max		5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Hands-on Simulator Training - Maps		
		Overall Rating	RA Explanations Rating	Hands-on Training Rating
Officers	XO			
	N	4	4	4
	Mn	4.00	4.00	3.75
	StD	1.41	1.41	1.26
	CVa	.35	.35	.34
	Min	2.00	2.00	2.00
	Max	5.00	5.00	5.00
	Ass't S3			
	N	3	3	3
	Mn	4.67	4.67	4.67
	StD	.58	.58	.58
	CVa	.12	.12	.12
	Min	4.00	4.00	4.00
	Max	5.00	5.00	5.00
	S2			
	N	3	3	3
	Mn	4.33	4.00	4.00
	StD	1.15	1.00	1.73
	CVa	.27	.25	.43
	Min	3.00	3.00	2.00
	Max	5.00	5.00	5.00
	N	10	10	10
	Mn	4.30	4.20	4.10
	StD	1.06	1.03	1.20
	CVa	.25	.25	.29
	Min	2.00	2.00	2.00
	Max	5.00	5.00	5.00
NCOs	OPS NCO			
	N	2	2	2
	Mn	4.50	4.50	5.00
	StD	.71	.71	0.00
	CVa	.16	.16	0.00
	Min	4.00	4.00	5.00
	Max	5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Hands-on Simulator Training - Maps		
		Overall Rating	RA Explanations Rating	Hands-on Training Rating
NCOs	INTEL NCO			
	N	4	4	4
	Mn	5.00	5.00	4.75
	StD	0.00	0.00	.50
	CVa	0.00	0.00	.11
	Min	5.00	5.00	4.00
	Max	5.00	5.00	5.00
	N	6	6	6
	Mn	4.83	4.83	4.83
	StD	.41	.41	.41
	CVa	.08	.08	.08
	Min	4.00	4.00	4.00
	Max	5.00	5.00	5.00
TOTAL				
	N	16	16	16
	Mn	4.50	4.44	4.37
	StD	.89	.89	1.02
	CVa	.20	.20	.23
	Min	2.00	2.00	2.00
	Max	5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Adequacy of TOC Workstation Training Exercises				
		Task Trng Exercises	Co Sit'n Exercises	Bn Staff Exercises	Bn Sit'n Exercises	Training Scenario
Officers	XO					
	N	4	3	4	4	4
	Mn	4.25	4.00	3.75	3.75	4.00
	StD	.50	1.00	.96	.96	1.15
	CVa	.12	.25	.26	.26	.29
	Min	4.00	3.00	3.00	3.00	3.00
	Max	5.00	5.00	5.00	5.00	5.00
	Ass't S3					
	N	3	2	3	3	3
	Mn	4.33	3.50	3.67	3.67	3.67
	StD	.58	.71	.58	.58	.58
	CVa	.13	.20	.16	.16	.16
	Min	4.00	3.00	3.00	3.00	3.00
	Max	5.00	4.00	4.00	4.00	4.00
	S2					
	N	4	4	4	4	4
	Mn	4.25	4.50	4.50	4.75	4.75
	StD	.96	.58	.58	.50	.50
	CVa	.23	.13	.13	.11	.11
	Min	3.00	4.00	4.00	4.00	4.00
	Max	5.00	5.00	5.00	5.00	5.00
	N	11	9	11	11	11
	Mn	4.27	4.11	4.00	4.09	4.18
	StD	.65	.78	.77	.83	.87
	CVa	.15	.19	.19	.20	.21
	Min	3.00	3.00	3.00	3.00	3.00
	Max	5.00	5.00	5.00	5.00	5.00
NCOs	OPS NCO					
	N	4	4	4	4	4
	Mn	4.25	3.50	4.00	3.75	3.75
	StD	.50	.58	.82	.50	.50
	CVa	.12	.16	.20	.13	.13
	Min	4.00	3.00	3.00	3.00	3.00
	Max	5.00	4.00	5.00	4.00	4.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Adequacy of TOC Workstation Training Exercises				
		Task Trng Exercises	Co Sit'n Exercises	Bn Staff Exercises	Bn Sit'n Exercises	Training Scenario
NCOS	INTEL NCO					
	N	4	4	4	4	4
	Mn	4.25	4.25	4.25	4.25	4.25
	StD	.50	.50	.50	.50	.50
	CVa	.12	.12	.12	.12	.12
	Min	4.00	4.00	4.00	4.00	4.00
	Max	5.00	5.00	5.00	5.00	5.00
N		8	8	8	8	8
Mn		4.25	3.87	4.13	4.00	4.00
StD		.46	.64	.64	.53	.53
CVa		.11	.17	.16	.13	.13
Min		4.00	3.00	3.00	3.00	3.00
Max		5.00	5.00	5.00	5.00	5.00
TOTAL						
N		19	17	19	19	19
Mn		4.26	4.00	4.05	4.05	4.11
StD		.56	.71	.71	.71	.74
CVa		.13	.18	.17	.17	.18
Min		3.00	3.00	3.00	3.00	3.00
Max		5.00	5.00	5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Adequacy of General Training Sessions			
		General Intro	CCD/TOC Demo	Workload Orientation	Toc Training Review/ Free Play
Officers	XO				
	N	4	4	3	4
	Mn	3.50	3.00	3.33	3.75
	StD	.58	.82	.58	.50
	CVa	.16	.27	.17	.13
	Min	3.00	2.00	3.00	3.00
	Max	4.00	4.00	4.00	4.00
	Ass't S3				
	N	3	3	3	3
	Mn	4.33	4.00	3.67	4.00
	StD	.58	0.00	.58	0.00
	CVa	.13	0.00	.16	0.00
	Min	4.00	4.00	3.00	4.00
	Max	5.00	4.00	4.00	4.00
	S2				
	N	4	4	4	4
	Mn	3.75	4.25	3.50	4.25
	StD	.96	.50	1.73	.50
	CVa	.26	.12	.49	.12
	Min	3.00	4.00	1.00	4.00
	Max	5.00	5.00	5.00	5.00
	N	11	11	10	11
	Mn	3.82	3.73	3.50	4.00
	StD	.75	.79	1.08	.45
	CVa	.20	.21	.31	.11
	Min	3.00	2.00	1.00	3.00
	Max	5.00	5.00	5.00	5.00
NCOs	OPS NCO				
	N	4	4	4	4
	Mn	4.25	4.00	4.00	4.00
	StD	.96	1.15	.82	1.15
	CVa	.23	.29	.20	.29
	Min	3.00	3.00	3.00	3.00
	Max	5.00	5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	Adequacy of General Training Sessions			
		General Intro	CCD/TOC Demo	Workload Orientation	Toc Training Review/ Free Play
NCOs	INTEL NCO				
	N	4	4	4	4
	Mn	4.25	4.25	4.25	4.25
	StD	.50	.50	.50	.50
	CVa	.12	.12	.12	.12
	Min	4.00	4.00	4.00	4.00
	Max	5.00	5.00	5.00	5.00
	N	8	8	8	8
	Mn	4.25	4.13	4.13	4.13
	StD	.71	.83	.64	.83
	CVa	.17	.20	.16	.20
	Min	3.00	3.00	3.00	3.00
	Max	5.00	5.00	5.00	5.00
TOTAL					
	N	19	19	18	19
	Mn	4.00	3.89	3.78	4.05
	StD	.75	.81	.91	.62
	CVa	.19	.21	.25	.15
	Min	3.00	2.00	1.00	3.00
	Max	5.00	5.00	5.00	5.00

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	How Well Trained	<u>Percentage of Respondents Answering No or None</u>		
			Functions Not Used Due to Poor Trng	Enough Training on Operational Concepts	Eliminate Parts of Training
Officers	XO				
	N	4			
	Mn	3.25			
	StD	1.71			
	CVa	.53			
	Min	1.00			
	Max	5.00			
			100.0%	66.7%	75.0%
	Ass't S3				
	N	3			
	Mn	4.33			
	StD	.58			
	CVa	.13			
	Min	4.00			
	Max	5.00			
			66.7%	0.0	100.0%
	S2				
	N	4			
	Mn	4.50			
	StD	.58			
	CVa	.13			
	Min	4.00			
	Max	5.00			
			100.0%	25.0%	100.0%
	N	11			
	Mn	4.00			
	StD	1.18			
	CVa	.30			
	Min	1.00			
	Max	5.00			
			90.9%	30.0%	90.9%

Table G-60

TOC Personnel Training Evaluation (Cont.)

Group	Duty Position	How Well Trained	<u>Percentage of Respondents Answering No or None</u>		
			Functions Not Used Due to Poor Trng	Enough Training on Oper'nal Concepts	Eliminate Parts of Training
NCOs	OPS NCO				
	N	4			
	Mn	4.25			
	StD	.50			
	CVa	.12			
	Min	4.00			
	Max	5.00			
			75.0%	25.0%	75.0%
NCOs	INTEL NCO				
	N	3			
	Mn	4.33			
	StD	.58			
	CVa	.13			
	Min	4.00			
	Max	5.00			
			75.0%	0.0	100.0%
	N	7			
	Mn	4.29			
	StD	.49			
	CVa	.11			
	Min	4.00			
	Max	5.00			
			75.0%	12.5%	87.5%
TOTAL					
	N	18			
	Mn	4.11			
	StD	.96			
	CVa	.23			
	Min	1.00			
	Max	5.00			
			84.2%	22.2%	89.5%

Table G-61

Vehicle Commander Training Evaluation

Vehicle	Classroom Training - CCD				
	Overall Rating	Instructor Rating	Viewgraph Rating	Handout Rating	Demo Rating
Company Commander					
N	16	16	16	15	16
Mn	3.63	4.06	3.69	3.47	3.75
StD	.89	.68	.87	.83	.77
CVa	.24	.17	.24	.24	.21
Min	2.00	3.00	2.00	2.00	3.00
Max	5.00	5.00	5.00	5.00	5.00
Bn Commander					
N	4	4	4	4	4
Mn	4.00	4.00	3.50	3.75	4.25
StD	.82	.82	.58	.50	.50
CVa	.20	.20	.16	.13	.12
Min	3.00	3.00	3.00	3.00	4.00
Max	5.00	5.00	4.00	4.00	5.00
S3					
N	4	4	4	4	4
Mn	3.50	3.75	4.25	3.00	3.25
StD	1.00	.50	1.71	1.15	.50
CVa	.29	.13	.40	.38	.15
Min	2.00	3.00	2.00	2.00	3.00
Max	4.00	4.00	6.00	4.00	4.00
TOTAL					
N	24	24	24	23	24
Mn	3.67	4.00	3.75	3.43	3.75
StD	.87	.66	.99	.84	.74
CVa	.24	.16	.26	.25	.20
Min	2.00	3.00	2.00	2.00	3.00
Max	5.00	5.00	6.00	5.00	5.00

Table G-61

Vehicle Commander Training Evaluation (Cont.)

Vehicle	Classroom Training - CITV				
	Overall Rating	Instructor Rating	Viewgraph Rating	Handout Rating	Demo Rating
Company Commander					
N	16	16	16	15	16
Mn	3.50	4.00	3.69	3.53	3.75
StD	.89	.73	.79	.83	.77
CVa	.26	.18	.22	.24	.21
Min	2.00	3.00	2.00	2.00	3.00
Max	5.00	5.00	5.00	5.00	5.00
Bn Commander					
N	4	4	4	4	4
Mn	4.00	4.00	3.50	3.75	4.25
StD	.82	.82	.58	.50	.50
CVa	.20	.20	.16	.13	.12
Min	3.00	3.00	3.00	3.00	4.00
Max	5.00	5.00	4.00	4.00	5.00
S3					
N	4	4	4	4	4
Mn	3.50	3.75	4.25	3.25	3.50
StD	1.00	.50	1.71	.96	.58
CVa	.29	.13	.40	.29	.16
Min	2.00	3.00	2.00	2.00	3.00
Max	4.00	4.00	6.00	4.00	4.00
TOTAL					
N	24	24	24	23	24
Mn	3.58	3.96	3.75	3.52	3.79
StD	.88	.69	.94	.79	.72
CVa	.25	.17	.25	.22	.19
Min	2.00	3.00	2.00	2.00	3.00
Max	5.00	5.00	6.00	5.00	5.00

Table G-61

Vehicle Commander Training Evaluation (Cont.)

Vehicle	Hands-on Simulator Training - CCD		
	Overall Rating	RA Explanations Rating	Hands-on Training Rating
Company Commander			
N	16	16	16
Mn	4.00	4.12	4.25
StD	.89	.72	.58
CVa	.22	.17	.14
Min	2.00	3.00	3.00
Max	5.00	5.00	5.00
Bn Commander			
N	4	4	4
Mn	4.75	4.75	4.50
StD	.50	.50	1.00
CVa	.11	.11	.22
Min	4.00	4.00	3.00
Max	5.00	5.00	5.00
S3			
N	4	4	4
Mn	4.50	4.50	4.25
StD	.58	.58	.50
CVa	.13	.13	.12
Min	4.00	4.00	4.00
Max	5.00	5.00	5.00
TOTAL			
N	24	24	24
Mn	4.21	4.29	4.29
StD	.83	.69	.62
CVa	.20	.16	.15
Min	2.00	3.00	3.00
Max	5.00	5.00	5.00

Table G-61

Vehicle Commander Training Evaluation (Cont.)

Vehicle	Hands-on Simulator Training - CITV		
	Overall Rating	RA Explanations Rating	Hands-on Training Rating
Company Commander			
N	16	16	16
Mn	4.19	4.19	4.31
StD	.66	.75	.60
CVa	.16	.18	.14
Min	3.00	3.00	3.00
Max	5.00	5.00	5.00
Bn Commander			
N	4	4	4
Mn	4.75	4.75	4.50
StD	.50	.50	1.00
CVa	.11	.11	.22
Min	4.00	4.00	3.00
Max	5.00	5.00	5.00
S3			
N	4	4	4
Mn	4.50	4.25	4.25
StD	.58	.50	.50
CVa	.13	.12	.12
Min	4.00	4.00	4.00
Max	5.00	5.00	5.00
TOTAL			
N	24	24	24
Mn	4.33	4.29	4.33
StD	.64	.69	.64
CVa	.15	.16	.15
Min	3.00	3.00	3.00
Max	5.00	5.00	5.00

Table G-61

Vehicle Commander Training Evaluation (Cont.)

Vehicle	Adequacy of CVCC Training Exercises				
	Task Trng Exercises	Co Sit'n Exercises	Bn Staff Exercises	Bn Sit'n Exercises	Training Scenario
Company Commander					
N	16	16	10	16	16
Mn	3.81	3.87	4.00	4.19	4.13
StD	.75	.81	.82	.66	.62
CVa	.20	.21	.20	.16	.15
Min	2.00	2.00	3.00	3.00	3.00
Max	5.00	5.00	5.00	5.00	5.00
Bn Commander					
N	4	4	3	4	4
Mn	3.50	3.50	4.33	4.25	4.50
StD	1.29	1.29	1.15	.96	1.00
CVa	.37	.37	.27	.23	.22
Min	2.00	2.00	3.00	3.00	3.00
Max	5.00	5.00	5.00	5.00	5.00
S3					
N	4	4	4	4	4
Mn	3.75	3.75	4.00	4.25	4.25
StD	.50	.96	0.00	.50	.50
CVa	.13	.26	0.00	.12	.12
Min	3.00	3.00	4.00	4.00	4.00
Max	4.00	5.00	4.00	5.00	5.00
TOTAL					
N	24	24	17	24	24
Mn	3.75	3.79	4.06	4.21	4.21
StD	.79	.88	.75	.66	.66
CVa	.21	.23	.18	.16	.16
Min	2.00	2.00	3.00	3.00	3.00
Max	5.00	5.00	5.00	5.00	5.00

Table G-61

Vehicle Commander Training Evaluation (Cont.)

Group	Adequacy of General Training Sessions			
	General Intro	CCD/VC Demo	Workload Orientation	Toc Training Review/ Frce Play
Company Commander				
N	10	12	9	6
Mn	3.60	3.42	3.11	3.50
StD	.52	.67	.60	.55
CVa	.14	.20	.19	.16
Min	3.00	3.00	2.00	3.00
Max	4.00	5.00	4.00	4.00
Bn Commander				
N	4	4	3	4
Mn	3.25	3.75	3.33	3.50
StD	.96	.50	1.53	.58
CVa	.29	.13	.46	.16
Min	2.00	3.00	2.00	3.00
Max	4.00	4.00	5.00	4.00
S3				
N	4	4	3	4
Mn	3.50	3.75	3.67	3.50
StD	.58	1.26	.58	.58
CVa	.16	.34	.16	.16
Min	3.00	2.00	3.00	3.00
Max	4.00	5.00	4.00	4.00
TOTAL				
N	18	20	15	14
Mn	3.50	3.55	3.27	3.50
StD	.62	.76	.80	.52
CVa	.18	.21	.24	.15
Min	2.00	2.00	2.00	3.00
Max	4.00	5.00	5.00	4.00

Table G-61

Vehicle Commander Training Evaluation (Cont.)

Vehicle	How Well Trained	Percentage of Respondents Answering No or None		
		Functions Not Used Due to Poor Trng	Enough Training on Operational Concepts	Eliminate Parts of Training
Company Commander				
N	14			
Mn	4.43			
StD	.51			
CVa	.12			
Min	4.00			
Max	5.00			
		92.9%	7.1%	43.8%
Bn Commander				
N	4			
Mn	4.00			
StD	.82			
CVa	.20			
Min	3.00			
Max	5.00			
		50.0%	25.0%	75.0%
S3				
N	4			
Mn	4.25			
StD	.50			
CVa	.12			
Min	4.00			
Max	5.00			
		100.0%	0.0	50.0%
TOTAL				
N	22			
Mn	4.32			
StD	.57			
CVa	.13			
Min	3.00			
Max	5.00			
		86.4%	9.1%	50.0%

Table G-62

Driver and Gunner Training Evaluation

Position	General Intro	Simu- lator Intro	Crew Exercises	Company Situation Exercises	Bn Staff Situation Exercises
Gunner					
N	24	24	24	24	24
Mn	3.92	3.88	3.67	3.79	3.71
StD	.72	.90	.92	.83	.91
CVa	.18	.23	.25	.22	.24
Min	2.00	1.00	1.00	2.00	1.00
Max	5.00	5.00	5.00	5.00	5.00
Driver					
N	24	23	24	24	24
Mn	3.96	4.04	4.17	4.00	4.08
StD	.91	.77	.76	.59	.58
CVa	.23	.19	.18	.15	.14
Min	2.00	2.00	2.00	3.00	3.00
Max	5.00	5.00	5.00	5.00	5.00
TOTAL					
N	48	47	48	48	48
Mn	3.94	3.96	3.92	3.90	3.90
StD	.81	.83	.87	.72	.78
CVa	.21	.21	.22	.19	.20
Min	2.00	1.00	1.00	2.00	1.00
Max	5.00	5.00	5.00	5.00	5.00

Table G-62

Gunner and Driver Training Evaluation (Cont.)

Position	Bn Situational Training Exercises	Percentage of Respondents Answering No or None		
		CVCC Functions Not Used Due to Poor Training	Enough Info on Operational Concepts	Eliminate Parts of Training
Gunner				
N	24			
Mn	3.79			
StD	.83			
CVa	.22			
Min	1.00			
Max	5.00			
		78.3%	16.7%	83.3%
Driver				
N	24			
Mn	4.00			
StD	.66			
CVa	.16			
Min	3.00			
Max	5.00			
		82.6%	4.5%	86.4%
TOTAL				
N	48			
Mn	3.90			
StD	.75			
CVa	.19			
Min	1.00			
Max	5.00			
		80.4%	10.9%	84.8%

Data Tables for Information Effectiveness
(Issues 1 and 2)

Table G-63

Effectiveness of Information Received from Battalion

Group	Duty Position	Battlefield Area - Terrain			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Officer	XO				
	N	4	2	2	2
	Mn	4.08	3.17	3.00	3.17
	StD	1.62	2.12	1.89	2.12
	CVa	.40	.67	.63	.67
	Min	1.67	1.67	1.67	1.67
	Max	5.00	4.67	4.33	4.67
	Ass't S3				
	N	3	1	1	1
	Mn	3.11	3.33	3.67	3.67
	StD	2.01	-	-	-
	CVa	.65	-	-	-
	Min	1.00	3.33	3.67	3.67
	Max	5.00	3.33	3.67	3.67
	S2				
	N	3	2	1	1
	Mn	2.33	3.00	1.00	1.00
	StD	2.31	2.83	-	-
	CVa	.99	.94	-	-
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	1.00	1.00
	N	10	5	4	4
	Mn	3.27	3.13	2.67	2.75
	StD	1.88	1.77	1.59	1.71
	CVa	.58	.57	.60	.62
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	4.33	4.67
NCOs	OPS NCO				
	N	3	1	1	1
	Mn	5.00	5.00	5.00	5.00
	StD	0.00	-	-	-
	CVa	0.00	-	-	-
	Min	5.00	5.00	5.00	5.00
	Max	5.00	5.00	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Battlefield Area - Terrain			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
NCOs	INTEL NCO				
	N	3	3	3	3
	Mn	3.33	3.56	3.33	3.67
	StD	2.08	2.22	2.08	2.31
	CVa	.62	.62	.62	.63
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	5.00	5.00
N		6	4	4	4
Mn		4.17	3.92	3.75	4.00
StD		1.60	1.95	1.89	2.00
CVa		.38	.50	.50	.50
Min		1.00	1.00	1.00	1.00
Max		5.00	5.00	5.00	5.00
TOTAL					
N		16	9	8	8
Mn		3.60	3.48	3.21	3.38
StD		1.79	1.78	1.72	1.85
CVa		.50	.51	.54	.55
Min		1.00	1.00	1.00	1.00
Max		5.00	5.00	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Battlefield Area - Conditions			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Officer	XO				
	N	4	3	3	3
	Mn	3.00	2.56	2.67	2.89
	StD	1.83	.96	1.45	1.26
	CVa	.61	.38	.54	.44
	Min	1.00	2.00	1.67	2.00
	Max	5.00	3.67	4.33	4.33
	Ass't S3				
	N	3	1	1	1
	Mn	2.89	2.33	2.33	2.33
	StD	2.22	-	-	-
	CVa	.77	-	-	-
	Min	1.00	2.33	2.33	2.33
	Max	5.00	2.33	2.33	2.33
	S2				
	N	3	2	1	1
	Mn	1.56	3.00	1.00	1.00
	StD	.96	2.83	-	-
	CVa	.62	.94	-	-
	Min	1.00	1.00	1.00	1.00
	Max	2.67	5.00	1.00	1.00
NCOs					
	N	10	6	5	5
	Mn	2.53	2.67	2.27	2.40
	StD	1.69	1.43	1.26	1.21
	CVa	.67	.54	.55	.50
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	4.33	4.33
NCOs	OPS NCO				
	N	3	1	1	1
	Mn	4.56	5.00	5.00	5.00
	StD	.77	-	-	-
	CVa	.17	-	-	-
	Min	3.67	5.00	5.00	5.00
	Max	5.00	5.00	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Battlefield Area - Conditions			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
NCOs	INTEL NCO				
	N	3	3	3	3
	Mn	3.67	3.89	3.56	4.00
	StD	1.20	.84	1.07	1.20
	CVa	.33	.22	.30	.30
	Min	2.33	3.00	2.33	2.67
	Max	4.67	4.67	4.33	5.00
N		6	4	4	4
Mn		4.11	4.17	3.92	4.25
StD		1.03	.88	1.13	1.10
CVa		.25	.21	.29	.26
Min		2.33	3.00	2.33	2.67
Max		5.00	5.00	5.00	5.00
TOTAL					
N		16	10	9	9
Mn		3.13	3.27	3.00	3.22
StD		1.64	1.41	1.42	1.46
CVa		.53	.43	.47	.45
Min		1.00	1.00	1.00	1.00
Max		5.00	5.00	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Enemy Disposition and Composition			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Officer	XO				
	N	4	4	4	4
	Mn	1.69	1.94	2.38	2.31
	StD	.63	1.13	1.64	1.14
	CVa	.37	.58	.69	.49
	Min	1.00	1.00	1.00	1.00
	Max	2.50	3.25	4.75	3.75
	Ass't S3				
	N	2	1	1	1
	Mn	1.00	1.00	1.00	1.00
	StD	0.00	-	-	-
	CVa	0.00	-	-	-
	Min	1.00	1.00	1.00	1.00
	Max	1.00	1.00	1.00	1.00
	S2				
	N	3	2	1	1
	Mn	1.50	2.75	1.00	1.00
	StD	.87	2.47	-	-
	CVa	.58	.90	-	-
	Min	1.00	1.00	1.00	1.00
	Max	2.50	4.50	1.00	1.00
	N	9	7	6	6
	Mn	1.47	2.04	1.92	1.87
	StD	.64	1.42	1.45	1.12
	CVa	.44	.70	.76	.59
	Min	1.00	1.00	1.00	1.00
	Max	2.50	4.50	4.75	3.75
NCOs	OPS NCO				
	N	2	2	2	2
	Mn	2.50	3.63	3.13	2.75
	StD	.71	1.59	2.65	2.12
	CVa	.28	.44	.85	.77
	Min	2.00	2.50	1.25	1.25
	Max	3.00	4.75	5.00	4.25

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Enemy Disposition and Composition			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
NCOs	INTEL NCO				
	N	3	3	3	3
	Mn	2.67	3.00	2.75	3.17
	StD	1.53	1.73	1.39	1.76
	CVa	.57	.58	.51	.55
	Min	1.00	1.00	1.25	1.50
	Max	4.00	4.00	4.00	5.00
N		5	5	5	5
Mn		2.60	3.25	2.90	3.00
StD		1.14	1.50	1.66	1.65
CVa		.44	.46	.57	.55
Min		1.00	1.00	1.25	1.25
Max		4.00	4.75	5.00	5.00
TOTAL					
N		14	12	11	11
Mn		1.88	2.54	2.36	2.39
StD		.98	1.52	1.56	1.43
CVa		.52	.60	.66	.60
Min		1.00	1.00	1.00	1.00
Max		4.00	4.75	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Strength of Enemy Forces by Echelon			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Officer	XO				
	N	4	3	3	3
	Mn	2.50	2.83	2.67	2.67
	StD	1.91	2.02	2.08	2.08
	CVa	.77	.71	.78	.78
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	5.00	5.00
	Ass't S3				
	N	3	1	1	1
	Mn	3.50	4.50	4.50	4.50
	StD	2.18	-	-	-
	CVa	.62	-	-	-
	Min	1.00	4.50	4.50	4.50
	Max	5.00	4.50	4.50	4.50
	S2				
	N	3	2	1	1
	Mn	2.33	3.00	1.00	1.00
	StD	2.31	2.83	-	-
	CVa	.99	.94	-	-
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	1.00	1.00
	N	10	6	5	5
	Mn	2.75	3.17	2.70	2.70
	StD	1.93	1.91	1.92	1.92
	CVa	.70	.60	.71	.71
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	5.00	5.00
NCOs	OPS NCO				
	N	3	2	2	2
	Mn	2.50	1.75	1.75	2.00
	StD	.50	1.06	1.06	0.00
	CVa	.20	.61	.61	0.00
	Min	2.00	1.00	1.00	2.00
	Max	3.00	2.50	2.50	2.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Strength of Enemy Forces by Echelon			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
NCOs	INTEL NCO				
	N	3	3	3	2
	Mn	3.50	4.33	4.00	3.50
	StD	1.80	.58	1.00	2.12
	CVa	.52	.13	.25	.61
	Min	1.50	4.00	3.00	2.00
	Max	5.00	5.00	5.00	5.00
	N	6	5	5	4
	Mn	3.00	3.30	3.10	2.75
	StD	1.30	1.57	1.52	1.50
	CVa	.43	.47	.49	.55
	Min	1.50	1.00	1.00	2.00
	Max	5.00	5.00	5.00	5.00
TOTAL					
	N	16	11	10	9
	Mn	2.84	3.23	2.90	2.72
	StD	1.68	1.68	1.65	1.64
	CVa	.59	.52	.57	.60
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Enemy Recent/Present Significant Activities			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Officer	XO				
	N	4	4	4	4
	Mn	2.00	2.25	2.50	2.50
	StD	2.00	1.89	1.73	1.73
	CVa	1.00	.84	.69	.69
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	5.00	5.00
	Ass't S3				
	N	3	2	2	2
	Mn	1.00	1.25	1.00	1.50
	StD	0.00	.35	0.00	.71
	CVa	0.00	.28	0.00	.47
	Min	1.00	1.00	1.00	1.00
	Max	1.00	1.50	1.00	2.00
	S2				
	N	3	3	3	3
	Mn	1.00	2.00	1.67	2.00
	StD	0.00	1.73	1.15	1.73
	CVa	0.00	.87	.69	.87
	Min	1.00	1.00	1.00	1.00
	Max	1.00	4.00	3.00	4.00
	N	10	9	9	9
	Mn	1.40	1.94	1.89	2.11
	StD	1.26	1.51	1.36	1.45
	CVa	.90	.78	.72	.69
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	5.00	5.00
NCOs	OPS NCO				
	N	3	3	3	3
	Mn	1.33	2.67	3.00	2.67
	StD	.58	2.08	1.73	2.08
	CVa	.43	.78	.58	.78
	Min	1.00	1.00	2.00	1.00
	Max	2.00	5.00	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Enemy Recent/Present Significant Activities			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
NCOs	INTEL NCO				
	N	3	3	3	2
	Mn	3.17	4.50	3.50	3.50
	StD	1.89	.50	.50	2.12
	CVa	.60	.11	.14	.61
	Min	1.00	4.00	3.00	2.00
	Max	4.50	5.00	4.00	5.00
N		6	6	6	5
Mn		2.25	3.58	3.25	3.00
StD		1.60	1.69	1.17	1.87
CVa		.71	.47	.36	.62
Min		1.00	1.00	2.00	1.00
Max		4.50	5.00	5.00	5.00
TOTAL					
N		16	15	15	14
Mn		1.72	2.60	2.43	2.43
StD		1.41	1.73	1.43	1.60
CVa		.82	.67	.59	.66
Min		1.00	1.00	1.00	1.00
Max		5.00	5.00	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Friendly Disposition and Composition			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Officer	XO				
	N	4	4	4	4
	Mn	1.50	1.75	1.38	1.38
	StD	1.00	1.50	.75	.75
	CVa	.67	.86	.55	.55
	Min	1.00	1.00	1.00	1.00
	Max	3.00	4.00	2.50	2.50
	Ass't S3				
	N	3	1	1	1
	Mn	2.00	1.00	1.00	1.00
	StD	1.00	-	-	-
	CVa	.50	-	-	-
	Min	1.00	1.00	1.00	1.00
	Max	3.00	1.00	1.00	1.00
	S2				
	N	3	2	2	2
	Mn	1.67	1.00	1.00	1.50
	StD	1.15	0.00	0.00	.71
	CVa	.69	0.00	0.00	.47
	Min	1.00	1.00	1.00	1.00
	Max	3.00	1.00	1.00	2.00
	N	10	7	7	7
	Mn	1.70	1.43	1.21	1.30
	StD	.95	1.13	.57	.63
	CVa	.56	.79	.47	.46
	Min	1.00	1.00	1.00	1.00
	Max	3.00	4.00	2.50	2.50
NCOs	OPS NCO				
	N	3	3	3	3
	Mn	1.50	2.00	2.00	2.00
	StD	.50	1.73	1.73	1.73
	CVa	.33	.87	.87	.87
	Min	1.00	1.00	1.00	1.00
	Max	2.00	4.00	4.00	4.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Friendly Disposition and Composition			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
NCOS	INTEL NCO				
	N	3	3	3	2
	Mn	2.17	2.67	2.67	3.25
	StD	2.02	1.76	2.08	2.47
	CVa	.93	.66	.78	.76
	Min	1.00	1.00	1.00	1.50
	Max	4.50	4.50	5.00	5.00
N		6	6	6	5
Mn		1.83	2.33	2.33	3.50
StD		1.37	1.60	1.75	1.87
CVa		.75	.69	.75	.75
Min		1.00	1.00	1.00	1.00
Max		4.50	4.50	5.00	5.00
TOTAL					
N		16	13	13	12
Mn		1.75	1.85	1.73	1.83
StD		1.08	1.39	1.33	1.35
CVa		.62	.75	.77	.74
Min		1.00	1.00	1.00	1.00
Max		4.50	4.50	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Strength of Friendly Forces by Echelon			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Officer	XO				
	N	4	4	4	4
	Mn	2.00	2.50	2.50	2.00
	StD	1.41	1.22	1.78	.91
	CVa	.71	.49	.71	.46
	Min	1.00	1.00	1.00	1.00
	Max	4.00	4.00	5.00	3.00
	Ass't S3				
	N	3	1	1	1
	Mn	1.67	1.00	1.00	1.00
	StD	1.15	-	-	-
	CVa	.69	-	-	-
	Min	1.00	1.00	1.00	1.00
	Max	3.00	1.00	1.00	1.00
	S2				
	N	3	2	2	2
	Mn	1.67	1.00	1.00	1.50
	StD	1.15	0.00	0.00	.71
	CVa	.69	0.00	0.00	.47
	Min	1.00	1.00	1.00	1.00
	Max	3.00	1.00	1.00	2.00
	N	10	7	7	7
	Mn	1.80	1.86	1.86	1.71
	StD	1.14	1.18	1.49	.81
	CVa	.63	.64	.80	.47
	Min	1.00	1.00	1.00	1.00
	Max	4.00	4.00	5.00	3.00
NCOs	OPS NCO				
	N	3	2	2	2
	Mn	1.67	1.50	1.50	2.00
	StD	1.15	.71	.71	.71
	CVa	.69	.47	.47	.35
	Min	1.00	1.00	1.00	1.50
	Max	3.00	2.00	2.00	2.50

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Strength of Friendly Forces by Echelon			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
NCOs	OPS NCO				
	N	2	1	1	1
	Mn	3.75	4.50	4.00	5.00
	StD	1.06	-	-	-
	CVa	.28	-	-	-
	Min	3.00	4.50	4.00	5.00
	Max	4.50	4.50	4.00	5.00
N		5	3	3	3
Mn		2.50	2.50	2.33	3.00
StD		1.50	1.80	1.53	1.80
CVa		.60	.72	.65	.60
Min		1.00	1.00	1.00	1.50
Max		4.50	4.50	4.00	5.00
TOTAL					
N		15	10	10	10
Mn		2.03	2.05	2.00	2.10
StD		1.26	1.32	1.43	1.24
CVa		.62	.64	.72	.59
Min		1.00	1.00	1.00	1.00
Max		4.50	4.50	5.00	5.00

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	<u>Friendly Recent/Present Significant Activities</u>			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Officer	XO				
	N	4	4	4	4
	Mn	1.83	1.83	1.83	1.67
	StD	1.67	1.67	1.67	1.33
	CVa	.91	.91	.91	.80
	Min	1.00	1.00	1.00	1.00
	Max	4.33	4.33	4.33	3.67
	Ass't S3				
	N	2	1	1	1
	Mn	2.33	2.33	2.33	2.33
	StD	0.00	-	-	-
	CVa	0.00	-	-	-
	Min	2.33	2.33	2.33	2.33
	Max	2.33	2.33	2.33	2.33
	S2				
	N	3	3	3	3
	Mn	1.11	1.11	1.11	1.44
	StD	.19	.19	.19	.51
	CVa	.17	.17	.17	.35
	Min	1.00	1.00	1.00	1.00
	Max	1.33	1.33	1.33	2.00
	N	9	8	8	8
	Mn	1.70	1.62	1.62	1.67
	StD	1.14	1.19	1.19	.96
	CVa	.67	.73	.73	.58
	Min	1.00	1.00	1.00	1.00
	Max	4.33	4.33	4.33	3.67
NCOs	OPS NCO				
	N	3	3	3	3
	Mn	1.33	1.22	1.11	1.44
	StD	.33	.38	.19	.38
	CVa	.25	.31	.17	.27
	Min	1.00	1.00	1.00	1.00
	Max	1.67	1.67	1.33	1.67

Table G-63

Effectiveness of Information Received from Battalion (Cont.)

Group	Duty Position	Friendly Recent/Present Significant Activities			
		Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
NCOs	OPS NCO				
	N	2	2	2	2
	Mn	3.33	4.00	3.33	3.67
	StD	2.36	1.41	2.36	1.89
	CVa	.71	.35	.71	.51
	Min	1.67	3.00	1.67	2.33
	Max	5.00	5.00	5.00	5.00
	N	5	5	5	5
	Mn	2.13	2.33	2.00	2.33
	StD	1.63	1.70	1.70	1.56
	CVa	.76	.73	.85	.67
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	5.00	5.00
TOTAL					
	N	14	13	13	13
	Mn	1.86	1.90	1.77	1.92
	StD	1.29	1.38	1.35	1.21
	CVa	.69	.73	.76	.63
	Min	1.00	1.00	1.00	1.00
	Max	5.00	5.00	5.00	5.00

Table G-64

Effectiveness of Information Received from TOC

Duty Position	Battlefield Area - Terrain			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	9	5	5
Mn	3.91	3.37	2.00	1.80
StD	1.64	1.64	1.25	.84
CVa	.42	.49	.62	.46
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	4.00	3.00
Bn Commander				
N	4	1	1	1
Mn	3.50	2.33	1.00	1.00
StD	1.55	-	-	-
CVa	.44	-	-	-
Min	2.00	2.33	1.00	1.00
Max	5.00	2.33	1.00	1.00
S3				
N	4	4	3	2
Mn	2.00	2.00	1.22	1.50
StD	2.00	2.00	.38	.71
CVa	1.00	1.00	.31	.47
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	1.67	2.00
TOTAL				
N	23	14	9	8
Mn	3.51	2.90	1.63	1.63
StD	1.77	1.73	1.01	.74
CVa	.50	.60	.62	.46
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	4.00	3.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	Battlefield Area - Conditions			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	11	8	7
Mn	3.20	2.70	1.92	1.71
StD	1.87	1.83	1.09	.71
CVa	.58	.68	.57	.41
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	4.00	3.00
Bn Commander				
N	4	2	2	2
Mn	2.83	1.00	1.17	1.17
StD	1.97	0.00	.24	.24
CVa	.70	0.00	.20	.20
Min	1.00	1.00	1.00	1.00
Max	5.00	1.00	1.33	1.33
S3				
N	4	3	2	2
Mn	3.00	2.33	1.00	1.67
StD	2.31	2.31	0.00	.47
CVa	.77	.99	0.00	.28
Min	1.00	1.00	1.00	1.33
Max	5.00	5.00	1.00	2.00
TOTAL				
N	23	16	12	11
Mn	3.10	2.42	1.64	1.61
StD	1.87	1.81	.97	.61
CVa	.60	.75	.59	.38
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	4.00	3.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	Enemy Disposition and Composition			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	13	12	12
Mn	2.32	2.19	1.81	2.12
StD	1.37	1.50	1.07	1.12
CVa	.59	.68	.59	.52
Min	1.00	1.00	1.00	1.00
Max	4.25	4.75	3.75	4.00
Bn Commander				
N	4	2	2	2
Mn	2.94	1.75	1.13	1.50
StD	1.51	1.06	.18	.71
CVa	.51	.61	.16	.47
Min	1.00	1.00	1.00	1.00
Max	4.25	2.50	1.25	2.00
S3				
N	4	3	3	3
Mn	2.00	2.33	1.58	1.92
StD	.89	1.01	.38	.52
CVa	.44	.43	.24	.27
Min	1.25	1.25	1.25	1.50
Max	3.25	3.25	2.00	2.50
TOTAL				
N	23	18	17	17
Mn	2.37	2.17	1.69	2.01
StD	1.31	1.34	.93	.98
CVa	.55	.62	.55	.49
Min	1.00	1.00	1.00	1.00
Max	4.25	4.75	3.75	4.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	Strength of Enemy Forces by Echelon			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	9	7	10
Mn	3.37	3.17	2.21	2.20
StD	1.54	1.64	1.47	1.40
CVa	.46	.52	.66	.64
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00
Bn Commander				
N	4	1	1	3
Mn	3.63	3.00	1.00	2.00
StD	.95	-	-	1.00
CVa	.26	-	-	.50
Min	3.00	3.00	1.00	1.00
Max	5.00	3.00	1.00	3.00
S3				
N	4	3	2	4
Mn	2.13	2.17	1.00	2.25
StD	1.03	1.04	0.00	.96
CVa	.49	.48	0.00	.43
Min	1.00	1.00	1.00	1.00
Max	3.00	3.00	1.00	3.00
TOTAL				
N	23	13	10	17
Mn	3.20	2.92	1.85	2.18
StD	1.43	1.47	1.33	1.19
CVa	.45	.50	.72	.54
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	Enemy Recent/Present Significant Activities			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	12	11	10
Mn	2.47	1.92	1.68	1.40
StD	1.65	1.44	.90	.70
CVa	.67	.75	.54	.50
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	3.00	3.00
Bn Commander				
N	4	3	3	3
Mn	3.13	1.00	1.33	1.33
StD	1.44	0.00	.58	.58
CVa	.46	0.00	.43	.43
Min	2.00	1.00	1.00	1.00
Max	5.00	1.00	2.00	2.00
S3				
N	4	4	4	4
Mn	1.50	1.25	1.25	1.75
StD	.41	.50	.50	.50
CVa	.27	.40	.40	.29
Min	1.00	1.00	1.00	1.00
Max	2.00	2.00	2.00	2.00
TOTAL				
N	23	19	18	17
Mn	2.41	1.63	1.53	1.47
StD	1.51	1.21	.78	.62
CVa	.63	.74	.51	.42
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	3.00	3.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	<u>Enumerate Possible Enemy Courses of Action</u>			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	8	5	5
Mn	2.81	2.56	1.94	1.76
StD	1.58	1.80	1.31	.82
CVa	.56	.70	.68	.47
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	3.70	3.00
Bn Commander				
N	4	0	1	1
Mn	2.93	-	1.00	1.00
StD	1.39	-	-	-
CVa	.48	-	-	-
Min	1.70	-	1.00	1.00
Max	4.90	-	1.00	1.00
S3				
N	4	2	2	2
Mn	2.05	2.15	1.65	2.30
StD	.31	.49	.92	.28
CVa	.15	.23	.56	.12
Min	1.80	1.80	1.00	2.10
Max	2.50	2.50	2.30	2.50
TOTAL				
N	23	10	8	8
Mn	2.70	2.48	1.75	1.80
StD	1.40	1.61	1.10	.75
CVa	.52	.65	.63	.42
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	3.70	3.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	Analysis of Probable Enemy Courses of Action			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	9	6	6
Mn	2.82	2.78	1.89	2.00
StD	1.57	1.67	1.07	.89
CVa	.56	.60	.57	.45
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	3.33	3.00
Bn Commander				
N	4	2	2	2
Mn	2.67	1.00	1.50	1.33
StD	2.00	0.00	.71	.47
CVa	.75	0.00	.47	.35
Min	1.00	1.00	1.00	1.00
Max	5.00	1.00	2.00	1.67
C3				
N	3	2	2	2
Mn	2.22	1.50	1.00	1.50
StD	1.35	.71	0.00	.71
CVa	.61	.47	0.00	.47
Min	1.00	1.00	1.00	1.00
Max	3.67	2.00	1.00	2.00
TOTAL				
N	22	13	10	10
Mn	2.71	2.31	1.63	1.77
StD	1.56	1.57	.91	.79
CVa	.57	.68	.56	.45
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	3.33	3.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	Enumerate Possible Friendly Courses of Action			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	14	8	6	15
Mn	2.37	2.18	1.23	.80
StD	1.54	1.81	.37	.56
CVa	.65	.83	.30	.70
Min	1.00	1.00	1.00	.00
Max	5.00	5.00	1.80	2.00
Bn Commander				
N	4	2	2	4
Mn	2.75	1.50	1.00	1.25
StD	1.97	.42	0.00	1.26
CVa	.72	.28	0.00	1.01
Min	1.00	1.20	1.00	.00
Max	5.00	1.80	1.00	3.00
S3				
N	4	3	3	4
Mn	2.10	1.40	1.40	1.00
StD	1.47	.53	.53	.82
CVa	.70	.38	.38	.82
Min	1.00	1.00	1.00	.00
Max	4.20	2.00	2.00	2.00
TOTAL				
N	22	13	11	23
Mn	2.39	1.89	1.24	.91
StD	1.54	1.45	.38	.73
CVa	.64	.77	.31	.80
Min	1.00	1.00	1.00	.00
Max	5.00	5.00	2.00	3.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	<u>Analysis of Probable Friendly Courses of Action</u>			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	15	15	15
Mn	3.00	3.07	3.00	3.00
StD	2.00	2.02	2.00	2.00
CVa	.67	.66	.67	.67
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00
Bn Commander				
N	4	4	4	4
Mn	3.25	3.00	3.00	3.00
StD	2.06	2.31	2.31	2.31
CVa	.63	.77	.77	.77
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00
S3				
N	4	4	4	4
Mn	2.50	2.50	2.50	2.50
StD	1.73	1.73	1.73	1.73
CVa	.69	.69	.69	.69
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00
TOTAL				
N	23	23	23	23
Mn	2.96	2.96	2.91	2.91
StD	1.89	1.94	1.93	1.93
CVa	.64	.66	.66	.66
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00

Table G-64

Effectiveness of Information Received from TOC (Cont.)

Duty Position	FRAGO Descriptions			
	Timeliness Rating	Frequency Rating	Clarity Rating	Completeness Rating
Company Commander				
N	15	11	10	10
Mn	1.98	1.86	1.35	1.30
StD	1.32	1.21	.49	.42
CVa	.67	.65	.36	.32
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	2.25	2.00
Bn Commander				
N	4	2	2	2
Mn	3.13	1.13	1.00	1.00
StD	2.17	.18	0.00	0.00
CVa	.70	.16	0.00	0.00
Min	1.00	1.00	1.00	1.00
Max	5.00	1.25	1.00	1.00
S3				
N	4	3	3	3
Mn	1.88	1.50	1.50	1.50
StD	.85	.50	.50	.50
CVa	.46	.33	.33	.33
Min	1.00	1.00	1.00	1.00
Max	3.00	2.00	2.00	2.00
TOTAL				
N	23	16	15	15
Mn	2.16	1.70	1.33	1.30
StD	1.44	1.04	.46	.41
CVa	.66	.61	.34	.32
Min	1.00	1.00	1.00	1.00
Max	5.00	5.00	2.25	2.00

Appendix H
Biographical Data Tables

Table H-1

Age Distribution of Participants

Duty Position	Age (Percent)	Age (Mean)
TOC Officers		
N	11	11
		28.27
21-23	9.1	
24-26	36.4	
27-29	36.4	
30+	18.2	
TOC NCOs		
N	8	8
		35.25
24-26	12.5	
27-29	12.5	
33-35	37.5	
35+	37.5	
Vehicle Commanders		
N	24	24
		31.67
21-23	4.2	
24-26	20.8	
27-29	25.0	
30-32	16.7	
33-35	8.3	
36+	25.0	
Gunnery & Drivers		
N	48	48
		29.62
20	12.5	
21-23	18.8	
24-26	10.4	
27-29	10.4	
30-32	20.8	
36+	27.1	

Table H-2

Rank Distribution of Participants

Duty Position	Rank (Percent)
TOC Officers	
N	11
2LT	18.2
1LT	45.5
CPT	9.1
MAJ	27.3
TOC NCOs	
N	8
E5	12.5
E6	37.5
E7	50.0
Vehicle Commanders	
N	24
2LT	4.2
1LT	16.7
CPT	50.0
MAJ	16.7
LTC	12.5
Gunners & Drivers	
N	48
E2	2.1
E3	12.5
E4	22.9
E5	10.4
E6	25.0
E7	27.1

Table H-3

Active Duty, Armor, M1 and Maneuver Unit Experience of
Participants (in months)

Duty Position	Total Time Active Duty	Total Time Armor Units	M1 Experience
TOC Officers			
N	11	10	3
Mean	5.98	2.72	11.00
SD	4.37	2.49	13.89
Min	.50	.08	2.00
Max	14.58	7.00	27.00
TOC NCOs			
N	8	8	5
Mean	10.91	10.60	66.80
SD	6.58	7.05	58.03
Min	2.25	.17	8.00
Max	18.00	18.00	144.00
Vehicle Commanders			
N	24	23	18
Mean	7.75	5.14	20.56
SD	4.74	3.40	12.64
Min	1.75	.25	1.00
Max	19.92	11.92	48.00
Gunners & Drivers			
N	48	44	45
Mean	7.64	6.40	43.24
SD	6.48	4.93	35.45
Min	.05	.05	3.00
Max	23.67	19.00	132.00

Table H-4

Education Level of Participants

Duty Position	Education Level (Percent)
TOC Officers	
N	11
College Degree (BA/BS)	54.5
Postgraduate Work	45.5
TOC NCOs	
N	8
High School/GED	62.5
Some College	25.0
College Degree (BA/BS)	12.5
Vehicle Commanders	
N	24
Some College	4.2
College Degree	58.3
Postgraduate Work	37.5
Gunners & Drivers	
N	48
High School/GED	62.5
Some College	31.3
College Degree	6.3

Table H-5

Maneuver Unit Experience of Participants

Duty Position	Unit Experience (Percent)	Years in Unit (Mean)
TOC Officers		
N	11	11
		2.61
< 1 month	27.3	
1-3 months	45.5	
4-6 months	9.1	
7-12 months	18.2	
TOC NCOs		
N	8	8
		9.03
< 1 month	12.5	
4-6 months	25.0	
7-12 months	25.0	
> 12 months	37.5	
Vehicle Commanders		
N	24	24
		4.65
< 1 month	12.5	
1-2 months	25.0	
4-6 months	37.5	
7-12 months	20.8	
> 12 months	4.2	
Gunners & Drivers		
N	48	48
		4.82
< 1 month	27.1	
1-2 months	22.9	
4-6 months	18.8	
7-12 months	20.8	
> 12 months	10.4	

Table H-6

Computer and SIMNET Experience of Participants

Duty Position	Computer Experience (Percent)	No. of Days in SIMNET (Mean)
TOC Officers		
N	11	11
Limited Experience	54.5	6.18
Moderate Experience	27.3	
Considerable Experience	18.2	
TOC NCOs		
N	8	8
Limited Experience	75.0	19.50
Moderate Experience	12.5	
Considerable Experience	12.5	
Vehicle Commanders		
N	24	24
Limited Experience	54.2	11.87
Moderate Experience	29.2	
Considerable Experience	16.7	
Gunners & Drivers		
N	48	48
No Experience at All	18.8	15.52
Limited Experience	45.8	
Moderate Experience	31.3	
Considerable Experience	4.2	

Table H-7

Distribution of Current Unit Assignments

Duty Position	Current Assignment (Percent)
TOC Officers	
Bn XO	18.2
S3	18.2
S2	18.2
Asst S3	9.1
Bn FSO	9.1
Co Cdr	9.1
Co XO	9.1
Student	9.1
TOC NCOs	
Bde S2	12.5
S3	12.5
S2	12.5
Ops Sgt	12.5
Instructor	37.5
Other	12.5
Veh Cdrs	
Bn Cdr	4.5
Bn XO	4.5
S3	18.2
Co Cdr	45.5
Co XO	9.1
Plt Ldr	9.1
Squad S-4	4.5
Student	4.5
Gunners and Drivers	
Plt Sgt	2.2
Veh Cdr	17.8
Gunner	17.8
Driver	24.4
Loader	6.7
Instructor	28.9
Other	2.2

Appendix I
Acronym List

ACRONYM LIST

<u>ACRONYM</u>	<u>DEFINITION</u>
ADST	Advanced Distributed Simulation Technology
AMMO	Ammunition Report
ANOVA	Analysis of Variance
ARI	U.S. Army Research Institute for the Behavioral and Social Sciences
ASCII	American Standard Code for Information Interchange
BBN	Bolt Beranek & Newman Systems
Bde	Brigade
BLUFOR	Blue Forces
BMP	Soviet Infantry Fighting Vehicle
Bn	Battalion
Bn Cdr	Battalion Commander
Bn TOC	Battalion Tactical Operations Center
Bn XO	Battalion Executive Officer
BP	Battle Position
C ²	Command and Control
C ³	Command, Control and Communication
CALL	Center for Army Lessons Learned
CAS	Combat Air Support
CCD	Command and Control Display
CCTB	Close Combat Test Bed
CCTT	Close Combat Tactical Trainer
CEOI	Chief Executive Officer I
CFF	Call for Fire
CITV	Commander's Independent Thermal Viewer
Co	Company
COA	Courses of Action
Co Cdr	Company Commander
Co XO	Company Executive Officer
CVCC	Combat Vehicle Command and Control
DBMS	Data Base Management System
DCA	Data Collection & Analysis System
DCE	Data Collection Exercise
DRC	Dynamics Research Corporation
EA	Engagement Area
EOCA	Enemy Courses of Action
ECR	Exercise Control Room
FBC	Future Battlefield Conditions
FIST	Fire Support Team
FLOT	Forward Line of Own Troops
FM	Frequency Modulation
FRAGO	Fragmentary Order
FSE	Fire Support Element
FSO	Fire Support Officer
GLOS	Gun Line of Sight
GPS	Global Positioning System
GPSE	Gunner's Primary Sight
HEAT	Gunner's Primary Sight Extension
	High Explosive Anti-Tank

HPT	High Priority Target
IFF	Identification Friend or Foe
Intel	Intelligence
INTEL	Intelligence Report
Intel NCO	Intelligence Non-Commissioned Officer
ISO	International Standards Organization
IVIS	Intervehicular Information System
LAN	Local Area Network
LRF	Laser Range Finder
MA&D	MicroAnalysis and Design
Max	Maximum Value
MCC	Management, Command and Control System
METT-T	Mission, Enemy, Troops, Terrain-Time Available
Min	Minimum Value
MOS	Military Occupational Specialty
MOU	Memoranda of Understanding
NASA-TLX	National Aeronautics and Space Administration Task Load Index
N	Number of Participants
NBC	Nuclear, Biological, Chemical
NCO	Non-Commissioned Officer
OBJ	Objective
OPFOR	Opposing Forces
OPORD	Operations Order
Ops	Operations
Ops NCO	Operations Non-Commissioned Officer
PL	Phase Line
Plt	Platoon
Plt Ldr	Platoon Leader
POSNAV	Position Navigation
POSNAV-G	Position Navigation-Grid
POSNAV-T	Position Navigation-Terrain
PoC	Point of Contact
PVD	Plan View Display
RA	Research Assistant
REDCON	Readiness Condition
S2	Intelligence Staff Officer
S3	Operations Staff Officer
SA	Situational Awareness
SACCD	Stand-Alone Command and Control Display
SAFOR	Semiautomated Forces
SCC	SIMNET Control Console
SD	Standard Deviation
SICPS	Standard Integrated Command Post System
SIMNET	Simulation Network
SIMNET-D	Simulation Network--Developmental
SIMNET-T	Simulation Network--Training
SINCGARS	Single Channel Ground and Airborne Radio System
SitDisplay	Situation and Planning Display
SITREP	Situation Report
SME	Subject Matter Expert
SMI	Solder-Machine Interface
SMI&S	Soldier-Machine Interface and Simulation

SOP	Standard Operating Procedure
SPSS/PC+	Statistical Package for the Social Sciences/ IBM Personal Computer
STX	Situational Training Exercise
TACOM	Tank Automotive Command
TDA	Table of Distribution and Allowances
TF	Task Force
TLX	Task Load Index
TOC	Tactical Operations Center
UCI	User Computer Interface
UCOFT	Unit Conduct of Fire Trainer
UTM	Universal Transverse Mercator
VBS	Vision Blocks
Veh Cdr	Vehicle Commander
WS	TOC Workstation
XO	Executive Officer