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Special Operations Command and Control Element (SOCCE) Preliminary Analysis of Equipment and Personnel Requirements for the Digitized Battlefield

Frank J. Malkin
Stephen Graybill

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Special Operations Command and Control Element (SOCCE) Preliminary Analysis of Equipment and Personnel Requirements for the Digitized Battlefield

Frank J. Malkin
Human Research & Engineering Directorate, ARL

Stephen Graybill
Deputy Chief of Staff Requirements Integration
U.S. Army Special Operations Command

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Abstract

When Army special operations forces (SOF) operate in conjunction with or close to conventional Army forces, a special operations command and control element (SOCCE) is established to synchronize operations and harmonize actions between the SOF and conventional force elements. A SOCCE is usually co-located with an Army corps tactical operations center (TOC). On the emerging digitized battlefield, the corps TOC will be equipped with the Army Tactical Command and Control System (ATCCS) to provide a seamless flow of tactical information to commanders, corps, and below. A SOCCE will also require an ATCCS capability in order to exchange information with the conventional force and successfully perform its mission. A preliminary mission and task analysis was conducted to assist in identifying initial equipment and personnel requirements for a digitized SOCCE employing ATCCS. The outcome of the analysis indicates that if assumptions regarding SOF message format compatibility with ATCCS software are met, the SOCCE will be able to operate with two maneuver control systems (MCS), which is the integration component of ATCCS. The analysis also indicates that, in addition to the existing operations center, the SOCCE will require a signal center to link the operations center with other headquarters within the electronic battlefield command and control architecture. Personnel augmentation will be necessary to fully staff the SOCCE operations center S2 (intelligence) and S3 (operations) functions for 24-hour operations. Recommendations are that the equipment and personnel requirements identified by this analysis be verified during field training exercises and by simulation and modeling, a van or vehicular mounted shelter configuration be considered to house a SOCCE, and documentation be initiated to establish requirements for a system acquisition program.

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CONTENTS

BACKGROUND 3

PURPOSE 3

SPECIAL OPERATIONS COMMAND AND CONTROL ELEMENT (SOCCE) 3

ARMY TACTICAL COMMAND AND CONTROL SYSTEM (ATCCS) 5

ANALYSIS 6

Assumptions 7
Operations Center Analysis 8
Signal Center Analysis. 12

SUMMARY AND CONCLUSIONS 14

RECOMMENDATIONS 14

REFERENCES 17

APPENDICES

A. SOCCE Operations Center Tasks, Equipment, and Personnel. 19
B. SOCCE Signal Center Tasks and Personnel 35
C. Acronym List 41

DISTRIBUTION LIST 45

REPORT DOCUMENTATION PAGE 51

FIGURE

1. Analytical Process 6

TABLES

1. Operational Detachment B (ODB) 4
2. SOCCE Daily Recurring MCS/P Tasks 10
3. Mission-Dependent Non-Recurring MCS/P Tasks 10

SPECIAL OPERATIONS COMMAND AND CONTROL ELEMENT (SOCCE) PRELIMINARY ANALYSIS OF EQUIPMENT AND PERSONNEL REQUIREMENTS FOR THE DIGITIZED BATTLEFIELD

BACKGROUND

When Army special operations forces (SOF) operate in conjunction with or close to conventional Army forces, a special operations command and control element (SOCCE) is established to synchronize operations and harmonize actions between the SOF and conventional force elements. Most commonly, a SOCCE is established to support an Army corps and is co-located with the corps tactical operations center (TOC). On the emerging digitized battlefield, Corps TOCs will be equipped with the Army Tactical Command and Control System (ATCCS) to electronically provide a seamless flow of battlefield information to tactical commanders, corps, and below. To provide timely and effective coordination of operations between SOF and conventional forces, a SOCCE requires command, control, and communications systems and digital message formats that are compatible with ATCCS. This is currently not the case. In response to this need, the U.S. Army Special Operations Command (USASOC) has initiated a cooperative effort with the Training and Doctrine Command (TRADOC) and acquisition program managers to work toward SOF compatibility with ATCCS. In conjunction with this effort, USASOC requested the Human Research and Engineering Directorate of the U.S. Army Research Laboratory (ARL) to assist in identifying the equipment and personnel requirements for a SOCCE employed on the digitized battlefield.

PURPOSE

This report describes a preliminary mission and task analysis conducted to assist in identifying equipment and personnel requirements for a SOCCE using ATCCS on the digitized battlefield. The outcome of the analysis is discussed and recommendations are provided. The outcome of the analysis will provide initial data to support the development of concept of operations and operational requirements document (ORD) for a digitized SOCCE.

SPECIAL OPERATIONS COMMAND AND CONTROL ELEMENT (SOCCE)

A SOCCE is a command and control element that operates in a manner similar to a TOC (U.S. Army JFK Special Warfare Center and School, 1994). A SOCCE does not perform mission planning for SOF operational elements, nor does it launch or recover operational elements. These are functions performed by either a forward operational base (FOB) or a special forces operational

base (SFOB), depending on the tactical situation. A SOCCE does, however, coordinate these special forces operational base activities as part of its mission to synchronize and harmonize operations between SOF and conventional forces. SOCCE functions include

1. Keeping higher SOF commander and conventional force commander informed of each other's current and future operations, intelligence data, fire support coordination measures, unit locations, communications procedures, and situation status;

2. Planning and coordinating linkup between SOF and the conventional force;

3. Exercising operational control or tactical control of deployed SOF, when tasked by higher headquarters; and

4. Advising the conventional force commander and staff of the mission capabilities, limitations, and employment of SOF.

When a decision is made to establish a SOCCE, a special forces Operational Detachment B (ODB) is tasked to organize and operate the SOCCE. The ODB consists of the personnel shown in Table 1.

Table 1

Operational Detachment B (ODB)

	Grade	MOS[a]
Commander	0 4	18AOO
Executive officer	0 3	18AOO
Warrant officer	w 4	180AO
Detachment NCO[b]	E9	18250
Operations NCO	E8	18250
Communications NCO	E7	18E40
Assistant operations NCO	E6	18B30
Medical NCO	E6	18D3D
Communications NCO	E6	18E30
Supply sergeant	E6	92Y3S

[a]MOS = military occupational specialty
[b]NCO = noncommissioned officer

When tasked to operate a SOCCE, the ODB may be augmented with an enhanced communications capability.

ARMY TACTICAL COMMAND AND CONTROL SYSTEM (ATCCS)

As mentioned previously, ATCCS will provide a seamless flow of information to Army tactical commanders on the digitized battlefield (U.S. Army TRADOC Program Integration Office, Army Battle Command System, 1 July 1996). Common hardware is used to share data pertaining to plans, troop movements, re-supply points, and other battlefield information. ATCCS is comprised of six battlefield automated system products:

1. All-Source Analysis System (ASAS) - The intelligence and electronic warfare (IEW) component used to plan and analyze intelligence operations and to process intelligence messages and reports.

2. Forward Area Air Defense Command, Control Communications, and Intelligence (FAADC3I) - Integrates air defense, fire units, sensors, and C2 centers to defeat low altitude air threats.

3. Combat Service Support Control System (CSSCS) - The logistics component.

4. Advanced Field Artillery Tactical Data System (AFATDS) - The fire support component, which coordinates fire support and processes call for fire messages.

5. Maneuver Control System (MCS) - The integration component of ATCCS, which provides a mapping capability and the common battlefield picture depicting friendly and threat locations and situational awareness to commanders. Provides a message-handling capability as well as commercial office tools software.

6. Force XXI Battle Command Brigade and Below (FBCB2) - Distributes information from above Corps level down to the platform and provides feedback up the chain of command.

An issue for SOF is that in the current stage of development, message formats for one ATCCS product may not be compatible with another. Among the messages that deployed SOF commonly sends are intelligence spot reports, calls for fire, and situation reports. The result is that a SOCCE could conceivably need an ASAS, AFATDS, and MCS to receive and pass SOF messages to the Corps. The typical SOCCE has neither the physical space nor personnel to support all three systems.

USASOC intends to develop software that will allow deployed SOF to send digital messages in a format that is compatible with MCS. Also, the Army is initiating efforts toward compatibility of message formats among all ATCCS products. This will permit a SOCCE to receive and forward digitized messages with only one type system, the MCS.

ANALYSIS

In order to identify the equipment and personnel needed to operate a SOCCE on the digitized battlefield, a mission and task analysis was conducted using the process represented in Figure 1 and described in the following paragraphs.

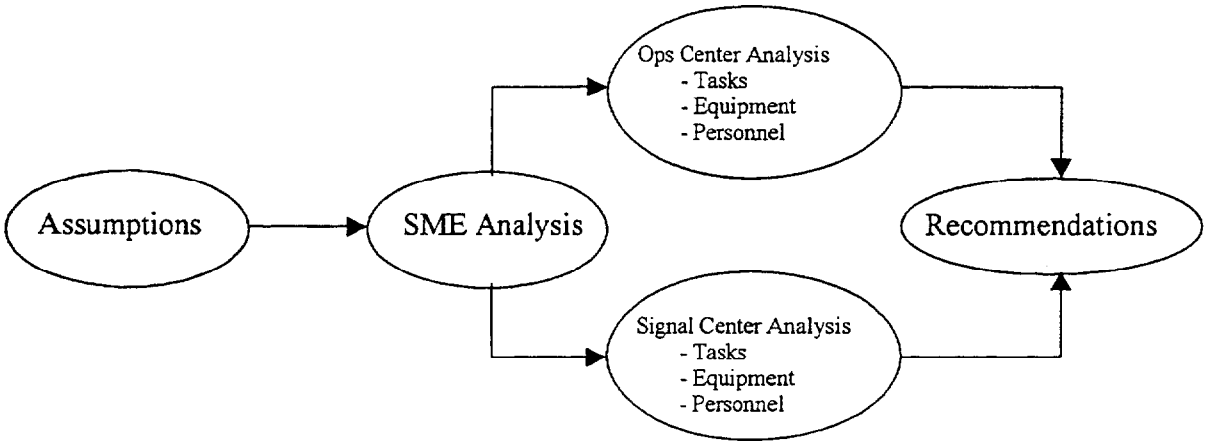

Figure 1. Analytical process.

Specifically, the analysis addressed the following issues for a digitized SOCCE:

1. How many MCS are required?

2. Is ASAS required for intelligence tasks?

3. What type of command, control, communications, and computers are required?

4. What ancillary equipment is required?

5. What is the MOS and quantity of personnel required?

To answer these questions, the SOCCE was divided into two sections: An operations center staffed by the ODB, which is responsible for performing the SOCCE mission, and a signal center responsible for providing the communications link for SOCCE. A list of tasks performed

within each of the sections was developed for the analysis. Three special forces subject matter experts (SMEs) (one captain, 18AOO; one CW4, 180AO; and one sergeant first class, 18E) participated in the analysis. The analysis was accomplished by answering the following questions for each task:

1. What is the purpose of the task?

2. How is the task accomplished (process, equipment)?

3. If information is passed, to whom and how is it passed?

4. How often is the task performed?

5. How much time is required to perform the task?

6. Who accomplishes the task?

7. Is the MOS appropriate?

8. Is the number of assigned personnel adequate?

Assumptions

The following assumptions were made in order to conduct the analysis:

1. The SOCCE is co-located with an Army corps TOC equipped with ATCCS.

2. SOCCE operates 24 hours per day and employs two 12-hour shifts.

3. All messages arriving at a SOCCE from deployed SOF can be reviewed and then, if required, can be passed to the corps via the MCS.

4. The deployed SOF supported by the SOCCE consists of six special forces Operational Detachments A (ODA).

5. The FOB or SFOB launches the six ODAs. The ODAs conduct a special reconnaissance mission and are re-tasked to conduct an ensuing direct action mission. SOCCE coordinates ODA linkups with conventional forces and at the completion of the mission, coordinates ODA exfiltration.

Operations Center Analysis

Operations Center Tasks

The list of tasks for the operations center was derived from the draft SOCCE handbook and a set of SOCCE critical tasks provided by the JFK Special Warfare Center and School. The list includes tasks performed during mission planning before deployment, during deployment, and during operation of the SOCCE. The analysis encompassed the complete list of tasks. The focus and emphasis of the analysis and this report, however, are the tasks performed by the SOCCE once it is established and operating with the corps TOC.

The matrix in Appendix A was developed to assist in the process of assigning equipment and staff positions to each task. Blocks with an "X" indicate the corresponding equipment or staff position assigned each task. Some tasks are performed using multiple items of equipment or by multiple staff positions. Certain tasks do not require the use of any equipment and are performed by thought processes, face-to-face conversations, or other means.

Operations Center Equipment

The SOCCE equipment requirements were identified by addressing the questions in the analytical process described earlier. The outcome of the analysis indicates that the SOCCE operations center will require the following types of equipment to perform its mission on the digitized battlefield:

1. Office automation hardware and software, for example, a laptop computer with standard commercial software.

2. Mission planning hardware and software.

3. MCS-message handling, tactical situation awareness map with threat and friendly force information, Microsoft (MS) Office@ software.

4. E-mail capability

5. Secure wide area network (WAN)-wire link between SOCCE and other elements on the digitized battlefield.

6. Secure local area network (LAN)-wire link inside SOCCE.

7. SOCCE communications-radio links.

8. Projection TV

9. Copy machine

10. Facsimile machine

11. Printer

12. Telephones—including secure line capability.

As mentioned earlier, one of the issues addressed by the analysis is whether ASAS is required to accomplish intelligence tasks. The analysis indicates that an ASAS is not required in the SOCCE operations center. ASAS is used to conduct intelligence analysis and planning at the FOB or SFOB or supported conventional force intelligence assets. A SOCCE does not plan operations to the extent that would justify a need for ASAS. The level of intelligence information needed at a SOCCE is primarily battlefield situational awareness, including the status and location of friendly and enemy forces. This information can be obtained using MCS. Again, the mission of a SOCCE is only to provide command and control to deployed elements and to synchronize and coordinate SOF operations.

An MCS capability is required for a SOCCE to synchronize and coordinate SOF and conventional force operations on the digitized battlefield. The analysis identified 32 tasks requiring the use of MCS, once a SOCCE is established and operating with the corps TOC (see Appendix A, page 29, Operate SOCCE). In order to determine the number of MCS required, the frequency of tasks and the time to perform MCS tasks were assessed. Of the 32 tasks, 27 are recurring and are performed on a daily basis. The five remaining tasks are non-recurring and are accomplished only during particular phases of the mission. The five non-recurring tasks are (a) coordinate exfiltration operations, (b) issue fragmentary orders, (c) plan and coordinate link operations, (d) prepare a synchronization matrix, and (e) coordinate maps.

The three special forces SMEs categorized tasks by staff position and then estimated the time required to perform each MCS task. The time each staff position performs daily, recurring MCS tasks during a 12-hour shift, is shown in Table 2. For example, during a typical 12-hour shift, the S2 spends 8.5 hours on tasks using MCS.

The estimated time to complete each non-recurring task is shown in Table 3. For example, the time to perform the task of planning and coordinating one linkup operation is 6 hours. With six ODAs deployed, it is conceivable that over the course of the SOCCE mission,

six separate linkup operations could be coordinated. It is important to note, though, that non-recurring tasks are not normally accomplished within the confines of one 12-hour shift. As shown in Table 3, the S3 is the primary staff element responsible for performing the non-recurring tasks.

Table 2

SOCCE Daily Recurring MCS Tasks

Position	Hours per 12-hour shift
Commander	1
XO/shift leader	1.5
S1	2.5
s2	8.5
s3	3.5
S4	0.1
Total	17.1

Table 3

Mission-Dependent Non-Recurring MCS Tasks

Position and task		Hours per one event
s3:	Coordinate exfiltration	3
S3 and CMDR:	Issue fragmentary orders	2
s3:	Plan and coordinate linkup	6
s3:	Prepare synchronization matrix	1
S2 andS3:	Coordinate maps, charts, imagery	0.2
	Total	12.2

As indicated in Tables 2 and 3, the time spent by the S2 and S3 in performing MCS tasks justifies each having an MCS. Other staff positions occasionally use MCS. These positions could share the S2 and S3 systems when needed while relying primarily on laptop computers to conduct most of their tasks.

Operations Center Personnel

As mentioned earlier, a SOCCE is staffed by the ODB. In order to identify who performs each task, it was useful to categorize staff positions by function as well as MOS. Tasks were assigned to the following staff positions or functions, as appropriate:

Command Group-Commander and Executive Officer
Shift Leaders-Executive Officer and Warrant officer
Sergeant Major-Detachment NCO
S 1-Medical NCO
S2—Operations NCO
S3—Operations NCO and Assistant Operations NCO
S4—Supply Sergeant
Communications-Senior Communications NCO and Junior Communications NCO.

The analysis indicates that the ODB does not have sufficient personnel with the necessary qualifications to staff the S2 and S3 functions for 24-hour SOCCE operations. The S3 function can be performed by either the Operations NCO or the assistant Operations NCO. The S2 function requires someone who has completed operations and intelligence training that is currently obtained by attending the Advanced Noncommissioned Officers' Course. Referring to Table 1, only the detachment NCO and the Operations NCO are qualified to perform S2 functions. The detachment NCO normally is not available to perform dedicated S2 or S3 functions because of other responsibilities. The Operations NCO is qualified to perform both S3 an S2 functions. However, in view of the workload associated with these staff positions as indicated in Tables 2 and 3, time may not always permit the Operations NCO to perform both functions. Therefore, additional personnel qualified to perform either the S2 or S3 functions are required in order to provide adequate staffing for 24-hour operations. For example, if we assume that the Operations NCO and the assistant Operations NCO split the S3 responsibility for each 12-hour shift, then the ODB will require augmentation of two additional personnel to fulfill the S2 responsibility for each shift. Personnel augmentation is not a new issue resulting from digitizing the SOCCE. Currently, when non-digitized SOCCEs are established, the ODB is usually assigned personnel on a temporary basis to assist in operating a SOCCE. Some units augment the ODB with personnel from the Military Intelligence Detachment to fulfill the S2 function.

ODB appears to have sufficient personnel to fill the other SOCCE staff positions for 24-hour operations.

Signal Center Analysis

Signal Center Tasks

The tasks performed in the signal center were developed by analyzing the mission command, control, and communications requirements. This analysis began with defining the type of information flowing in and out of a SOCCE and identifying the communication nets needed to provide this information flow on the digitized battlefield.

It was determined that the communication nets and peripheral equipment needed for a SOCCE are similar to those in the joint base station (JBS) recently developed for SOF. JBS is a communications shelter designed to serve as a signal center for FOBs and SFOBs (Malkin, Allender, Kelley, O'Brien, & Graybill, 1997). The list of tasks used in the development of JBS was adapted and tailored for use in the SOCCE analysis. SOCCE signal center tasks and the MOSs of the personnel identified to perform those tasks are listed in Appendix B.

Signal Center Equipment

When an ODB is tasked to establish a SOCCE, it is supported with communications systems and personnel to operate the systems. A SOCCE normally shares information and maintains communications links with deployed SOF, FOBs, or SFOBs, the joint task force, and conventional forces, To link with these headquarters on the digitized battlefield, the following communications and computer nets are needed.

1. To net with deployed operational elements, the SOCCE will need the following communications systems.

a. Two high frequency (HF) nets (secure voice, data, International Morse Code)

b. Two ultra high frequency (UHF) nets (one voice, one data)

c. One very high frequency-frequency modulated (VHF-FM) net (single channel ground and airborne radio system [SINCGARS])

d. Lightweight video reconnaissance system (LVRS) base station (could be located either in the signal center or the operations center)

e. One HF low probability of interception/low probability of detection (LPI/LPD) net

2. The special operations communications assemblage (SOCA) is currently provided to a SOCCE for communications with the FOB or SFOB. The improved SOCA will be fielded soon and consists of (a) one HF radio net, and (b) one UHF radio net.

3. The following connectivity is required for a SOCCE to digitally link with the Army corps TOC and other headquarters within the seamless electronic command and control architecture:

a. Automation system -joint base station type capability (communication gateway system [CGS] 100, automated message system [AMS], matrix switch)

b. LAN

c. WAN (access provided by corps TOC)

d. Router-route messages by IP address.

e. Four wires-secure telephone, multiple subscriber equipment (MSE)

Signal Center Personnel

Operators, identified by MOS, were assigned to perform each of the signal center tasks as shown in Appendix B. SOF has previously identified three radio operator-maintainer 3 1 Cs to operate the SOCA kit on a 24-hour basis. In addition to the 3 1 Cs who operate the SOCA kit, one 3 1 C and one 18E per 12-hour shift will be needed to operate the other SOCCE communications systems. One information system operator-analyst, 74B, per 12-hour shift will be needed to perform the automation and network management tasks. Therefore, two 18Es, two 3 1 Cs, and two 74Bs are needed for 24-hour operations employing two 12-hour shifts, not including the SOCA kit operators. This number of personnel will require supervision. One solution would be for the ODB communication NCOs to provide staff supervision for the signal center.

A SOCCE signal center of the size and with the equipment proposed in this analysis does not currently exist. Except for the three 3 1 Cs for the SOCA, there is no organization in place to provide the personnel needed to operate this proposed signal center. 18E, 3 1 C, and 74B personnel are assigned to special forces group headquarters signal detachments. These personnel are identified to operate the JBS. However, as a result of funding shortages, the JBS will not be fielded at the group headquarters level. If a decision is made to develop and field a digitized SOCCE system, group headquarters personnel may be available to staff the SOCCE signal center.

SUMMARY AND CONCLUSIONS

Army corps TOCs soon will be equipped with ATCCS. SOCCEs that coordinate battlefield information with Army corps require ATCCS-compatible hardware and software. A preliminary analysis was conducted to identify initial equipment and personnel requirements for a future SOCCE using ATCCS on the digitized battlefield.

The outcome of the analysis indicates that if assumptions regarding SOF message format compatibility with ATCCS software are met, the SOCCE can operate with two MCS systems and an ASAS will not be needed. The MCS systems will be used primarily to support S2 and S3 coordination functions. Using MCS to perform these functions will provide timely and effective synchronization of SOF and conventional force operations with the goal of harmonizing actions and avoiding fratricide. ASAS is not needed because a SOCCE does not normally conduct a level of tactical mission planning and intelligence analysis that requires a capability beyond that provided by the MCS.

As with current, non-digitized SOCCEs, the ODB will have to be augmented with additional personnel when tasked to operate the digitized SOCCE to staff both the S2 and S3 functions for 24-hour operations.

In order for a SOCCE to link with other headquarters in the command and control architecture of the electronic battlefield, a signal center similar to that of JBS will be required. Staffing for the signal center needs to be resolved. It is suggested that individuals with the appropriate MOS, who are currently assigned to SF group headquarters, be employed to operate the signal center.

RECOMMENDATIONS

Recommend that the preliminary requirements for equipment and personnel identified in this analysis be validated during SOCCE field training exercises using MCS and through simulation and modeling. During training exercises, data should be collected about how frequently tasks are performed, the time to perform tasks, the quantity and MOSs of personnel who perform the tasks, and the workload associated with each task. These data could then be placed in a model such as the improved performance research integration tool (IMPRINT) designed to assess levels of soldier and system performance. The model can assist in verifying the appropriateness of assigned personnel and predicting workload associated with operating or maintaining SOCCE equipment.

An analysis of how the equipment should be packaged must be completed. The Army is developing a command and control vehicle for use by the corps TOC. As a result, the corps will be highly mobile. The SOCCE will need to be equally mobile. Recommend that vehicular options such as vans or vehicular mounted shelters be investigated for effective packaging and configuration of the SOCCE operations and signal centers.

An ORD for a digitized SOCCE system needs to be developed as soon as practical. If SOF and conventional forces are to support each other on the future electronic battlefield, then SOCCE technology must keep pace and be compatible with that of the conventional Army corps TOC.

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APPENDIX A

SOCCE OPERATIONS CENTER TASKS, EQUIPMENT, AND PERSONNEL

SOCCE OPERATIONS CENTER TASKS**	EQUIPMENT	Office atmtn sftwr/hrdwr	Msn plng sftwr/hrdwr	MCS	E-mail	Secure WAN	Secure LAN	SOCCE COMMS	Projection TV	copy Machine	FAX	Printer	Telephone	Eqpt Not Required	STAFF POSITION	Cmdr/XO/Command	XO/CWO/Shift Ldr	SGM/Det NCO	S2/18F/18Z	S3/18Z/18F/18B	COMM0/18E	S1/Medic/18D	S4/92Y
Mission Planning (for SOCCE deployment & mission)																							
1. Conduct mission analysis.																							
a. Identify facts and assumptions.				X		X								X		X	X	X	X	X	X	X	X
b. Identify specified tasks.														X		X	X	X	X	X	X	X	X
c. Identify implied tasks.														X		X	X	X	X	X	X	X	X
d. Identify mission essential tasks.														X		X							
e. Identify higher cmdr's mission and intent				X		X								X		X							
f. Identify supported Cmdr's mission and intent.				X		X								X		X							
g. Identify limitations & constraints .				X	X	X	X						X			X	X		X	X			
h. Develop the cmdr's restated mission.		X		X												X							
i. Issue commander's planning guidance.														X		X							
j. Issue warning order														X									
2. Prepare estimate of the situation.																							
a. Obtain & analvze effects of weather		X	X	X	X	X	X				X		X							X			
b. Analyze effects of terrain.			X	X															X				
c. Determine enemy threat.				X	X	X	X												X				
d. Analyze friendly situation.				X	X	X	X												X				
e. Develop task organization.														X		X							
f. Study the mission's risk.			X													X							
g. Identify close support requirements.														X						X			
h. Identify personnel requirements.														X						X			
i. Identify logistics requirements.														X									X
j. Identify medical requirements.														X								X	
k.Identify communications requirements.														X							X		
l. Develop a time schedule.														X		X				X			
3. Develop COAs																							
a. Develop alternative COAs.			X											X		X	X	X	X	X	X	X	X

SOCCE OPERATIONS CENTER TASKS**	EQUIPMENT	Office atmtn sftwr/hrdwr	Msn plng sftwr/hrdwr	MCS	E-mail	Secure WAN	Secure LAN	SOCCE COMMS	Projection TV	copy Machine	FAX	Printer	Telephone	Eqpt Not Required	STAFF POSITION	Cmdr/XO/Command	XO/CWO/Shift Ldr	SGM/Det NCO	S2/18F/18Z	S3/18Z/18F/18B	COMM0/18E	S1/Medic/18D	S4/92Y
b. Analyze each COA.			X													X	X	X	X	X	X	X	X
c. Develop event templates.			X													X	X	X	X	X	X	X	X
d. Develop decision support templates.			X													X	X	X	X	X	X	X	X
e. Compare COAs (wargame).			X													X	X	X	X	X	X	X	X
4. Develop the OPORD.																							
a. Brief the COAs to the SFOD B Cmdr.				X					X											X			
b. The commander reaches a decision.														X		X							
c. Develop the concept of the operation.		X		X												X				X			
d. Prepare the OPORD.		X		X												X	X	X	X	X	X	X	X
e. Submit statement of requirements (SOR) to the support element (Bn S4, Gp S4, TASOSOC, SOC J4).				X	X	X	X																X
f. Submit transportation requests and load plans.				X	X	X	X										X						
5. Conduct a battlefield area evaluation.																							
a. S3 provides S2 with the area of operation divided into the deep, close, and rear areas.				X															X	X			
b. S2 and S3 determine the area of interest.				X															X	X			
c. Areas evaluated in five dimensions: width, depth, airspace height, time.				X										X					X	X			
6. Develop a terrain analysis of the AO/AI.																							
a. Analyze observation and fire.				X		X	X												X				
b. Analyze cover and concealment.				X		X	X												X				
c. Identify obstacles.				X		X	X												X				
d. Identify key terrain.				X		X	X												X				
e. Identify avenues of approach and mobility corridors for both air and ground.				X		X	X												X				

SOCCE OPERATIONS CENTER TASKS**	EQUIPMENT	Office atmtn sftwr/hrdwr	Msn plng sftwr/hrdwr	MCS	E-mail	Secure WAN	Secure LAN	SOCCE COMMS	Projection TV	copy Machine	FAX	Printer	Telephone	Eqpt Not Required	STAFF POSITION	Cmdr/XO/Command	XO/CWO/Shift Ldr	SGM/Det NCO	S2/18F/18Z	S3/18Z/18F/18B	COMM0/18E	S1/Medic/18D	S4/92Y
f. Develop an operational view of the terrain: relief, drainage, trafficability, obstacles, contaminated areas, vegetation, pop. Density transp. facilities, and physical resources.				X		X	X												X				
g. Use the terrain analysis process IAW ST 100-9, ch 3 to develop a graphic portrait of the effects of the terrain and operations.		X	X	X															X				
7. Develop a weather analysis.																							
a. Develop products which include light-data charts; 12, 24, 36, and 72 hour forecasts; long-range forecasts, and climatic studies.		X		X	X	X	X												X				
b. Determine affect on personnel, operations, tactics, systems, or equipment.														X									
c. Use terrain and Wx analysis to determine impact on friendly and enemy COAs.			X																X				
8. Conduct a threat evaluation.																							
a. Determine enemy disposition, composition,strength, and significant recent and present activities.				X	X		X	X											X				
b. Template the enemy based on results of analysis and valid assumptions.			X	X															X				
9. Conduct threat integration.																							
a. Develop situation templates accounting for terrain, weather, and confirmed intel.			X	X															X				
b. Develop event and decision support templates during the wargaming process.			X	X															X				

SOCCE OPERATIONS CENTER TASKS**	EQUIPMENT	Office atmtn sftwr/hrdwr	Msn plng sftwr/hrdwr	MCS	E-mail	Secure WAN	Secure LAN	SOCCE COMMS	Projection TV	copy Machine	FAX	Printer	Telephone	Eqpt Not Required	STAFF POSITION	Cmdr/XO/Command	XO/CWO/Shift Ldr	SGM/Det NCO	S2/18F/18Z	S3/18Z/18F/18B	COMM0/18E	S1/Medic/18D	S4/92Y
10. Prepare for deployment.																							
a. Conduct briefback to FOB/SFOB Cmdr.		X		X					X							X	X	X	X	X	X	X	X
b. Synchronize deployment with Bn staff and support company Cmdr.					X		X	X								X	X	X	X	X	X	X	X
c. Monitor requests for deployment support submitted to Bn staff and support company Cmdr.					X								X			X	X	X	X	X	X	X	X
d. Establish deployment timetable ICW the unit movement officer and S3.														X			X						
e. Await deployment notification.														X		X	X	X	X	X	X	X	X
f. Update planning & estimates continuously.														X		X							
g. Maintain approved movement plans and SOPs.														X			X						
h. Deploy advance party (when applicable).														X		X							
i. Verify the notification, initiate recall, and establish security as necessary after alert.														X		X							
j. Conduct preparation for overseas movemnt.														X		X	X	X	X	X	X	X	X
k. Coordinate with supporting elements for logistical requirements.													X										X
l. Insure disposition of files, classified docs, installation property, POVs, individual Property.														X				X					
m. Perform special requirements for equipment deployment (i.e. document hazardous cargo).														X			X						X
n. Appoint rear detachment Cmdr.														X		X							
o. Initiate family support plan.														X		X		X					
Deployment																							
1. Conduct deployment.																							
a. Execute movement of personnel and equipment IAW timetable.														X			X						
b. Prepare for movement ot marshaling area.														X				X					
c. Palletize equipment.														X		X	X	X	X	X	X	X	X

SOCCE OPERATIONS CENTER TASKS**	EQUIPMENT	Office atmtn sftwr/hrdwr	Msn plng sftwr/hrdwr	MCS	E-mail	Secure WAN	Secure LAN	SOCCE COMMS	Projection TV	copy Machine	FAX	Printer	Telephone	Eqpt Not Required	STAFF POSITION	Cmdr/XO/Command	XO/CWO/Shift Ldr	SGM/Det NCO	S2/18F/18Z	S3/18Z/18F/18B	COMM0/18E	S1/Medic/18D	S4/92Y
d. Prepare manifest and sesitive items equipment list.		X														X	X	X	X	X	X	X	X
e. Move to point of embarkment.														X		X	X	X	X	X	X	X	X
f. Assist in joint inspection of vehicles & eqpt.														X			X						
g. Account for eqpt & pers prior to departure.														X				X					
h. Deploy to point of debarkation.														X		X	X	X	X	X	X	X	X
I. Link up with advance party personnel.														X		X	X	X	X	X	X	X	X
2. Transload from aircraft to ground transp in host nation																							
a. Report arrival IAW OPORD.								X								X							
b. Ensure personnel security IAW SOP.														X			X						
c. Maintain accountability of supplies & eqpt.														X				X					
d. Assist Air Force in eqpt handling.														X			X						
e. Brief drivers, fork lift operators, on routes eqpt handling, convoy procedures, actions in response to terrorist or insurgent incident.														X			X						
f. Clear host nation customs, as required.														X		X	X	X	X	X	X	X	X
3. Obtain Intel update at destination airfield.																							
a. Receive update on current terrorist or insurgent situation.								X											X				
b. Disseminate changes in the situation.														X					X				
c. Provide SFOD B Cmdr and S3 verbal analysis of situation changes.														X					X				
4. Maintain SFOD B data base.																							
a. Maintain staff data bases IAW SOP.		X														X	X	X	X	X	X	X	X
b. Request info to satisfy CCIR.								X						X					X	X			

SOCCE OPERATIONS CENTER TASKS**	EQUIPMENT	Office atmtn sftwr/hrdwr	Msn plng sftwr/hrdwr	MCS	E-mail	Secure WAN	Secure LAN	SOCCE COMMS	Projection TV	copy Machine	FAX	Printer	Telephone	Eqpt Not Required	STAFF POSITION	Cmdr/XO/Command	XO/CWO/Shift Ldr	SGM/Det NCO	S2/18F/18Z	S3/18Z/18F/18B	COMM0/18E	S1/Medic/18D	S4/92Y
c. Route functional area information requests through SFOD B S3 to other staff sections														X		X	X	X	X	X	X	X	X
d. Identify information received that satisfies CCIR.														X					X	X			
e. Route Intel information reqts through S3.														X		X	X	X	X	X	X	X	X
f. Modify plans & estimates with current information.		X																	X				
g. Notify other staff of modifications.														X					X				
h. Notify other staff (higher, lower, adjacent) of information that satisfies their IR.								X											X				
i. Update, through S3, CCIR list & additional CCIR arising from modifications.														X		X	X	X	X	X	X	X	X
5. Execute inteligence functional duties.																							
a. Continuously update COIN IPB.		X																	X				
b. Supervise disseminaiton of info within														X			X		X				
SFOD B and to other headquarters.																							
c. Monitor implementation of SFOD B collectin pan to include updating Cmdr's PIR/IR, conducting area assesment, and coordinating for additional inteligence support.														X			X		X				
6. Issue a FRAGO, as required.																							
a. Assess changes to deployment COAs and S2s revised inteligence estimate.		X														X	X	X	X	X	X	X	X
b. Select alternative COAs or changes to present COAs as required.														X		X							
c. Develop a FRAGO for selected chages.		X														X							
d. Disseminate FRAGO to detachment.														X						X			
7. Move from debarkation point to destination.																							
a. Follow specified convoy routes.														X		X	X	X	X	X	X	X	X

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b. Conduct convoy procedures IAW SOP.														X		X	X	X	X	X	X	X	X
c. Ensure SFOD B personnel remain oriented during movement, disseminating checkpoints and designating observation duties.														X			X						
d. Report SFOD B arrival in JSOA.								X								X							
Establish SOCCE																							
1. Perform initial coordintion with GPF.																							
a. Contact SOCOORD upon arrival, if applicable.														X		X							
b. brief GPFC on planned execution of the AO survey and preparation for main body.		X		X												X							
c. Brief GPF on capabilities & limitations of SOCCE and SOF for particular mission.		X		X												X							
d. Identify GPF staff point of contact.														X		X	X	X	X	X	X	X	X
e. Esablish operational procedures with GPF staff.														X					X	X			
f. Determine support limitations.														X			X						
g. Identify key meetings & briefings to attend.													X	X		X	X	X	X	X	X	X	X
h. Determine time and locations of GPF information briefing, coord SOCCE participatoin.													X	X		X							
i. Coordinate for workspace in the main command post.													X	X				X					
j. Coord to obtain maps, charts, & imagery.													X	X						X			
k. Establish SOF/GPF combined Intel Prep of Battlefield planning.				X																X			
l. Develop an Intel collection matrix based on GPF PIR/IR.		X		X																X			
m. Coordinate security procedures to protect personnel, docs., & eqpt. with HQ Cmdr.													X	X			X						
n. Deconflict missions and areas of operation between SOF and GPF.				X																X			

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p. Confirm/Establish CS,CSS, fire support with higher in-country Cmdr.				X									X	X			X						
q. Coordinate for joint use of G3 maps.				X									X							X			
r. Coordinate fire support for deployed SOF.				X													X						
s. Coordinate medical evac and hospital support plans for deployed SOF.													X									X	
t. Coordinate for food service and billeting.													X					X					
u. Coordinate parking, maint, refuel areas for aircraft and vehicles.													X					X					
v. Brief Communications plan to GPF signal officer.		X																			X		
w. Confirm/est. Commuanications procedures between SOCCE/supporting unit/ODAs.														X							X		
x. Identify message release authority.		X														X							
z. Coordinate with FOB to ensure deconfliction of SOF missions with GPF is performed.				X			X	X								X							
2. Prepare SOCCE for Operations.																							
a. SFOD B(-) receives & brfs the main body.														X									
b. Read GPF SOP.														X		X	X	X	X	X	X	X	X
c. Establish the priorities of work.														X		X							
d. Test C2, CS, medivac, fire support procedures.		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
e. Establish internal communications.				X	X	X	X	X			X		X								X		
f. Establish defined workstations.														X		X	X	X	X	X	X	X	X
g. Task organize into shifts for 24 hr. operations														X			X						
h. Est. comm for C2 of subordinate elements.								X													X		
i. Establish journals and logs.		X		X												X	X	X	X	X	X	X	X
m. Provide input for initial PERSTAT, LOGSTAT, to GPF, FOB/SFOB.		X		X																		X	X
3. Enforce OPSEC.																							

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a. Ensure SOCCE is secure with single entry														X			X						
b. Obtain access roster of GPF personnel.				X	X		X										X						
c. Maintain classified waste containers.														X						X	X		X
d. Coordinate with GPF Military inteligence for counter inteligence inspections.													X				X						
4. Establish a CP within the supported GPF.																							
a. Request additional guidance from GPF as required (rules-of-engagement, scheme of maneuver)				X	X		X						X			X							
b. Provide LNO support to main, rear CP, and jump TOCs.														X									
c. Maintain communications link with deployed SOF.								X													X		
Operate SOCCE																							
1. Synchronize and deconflict SOF and GPF operations.																							
a. Coordinate infil / exfil of SOF elements.				X			X	X												X			
b. Monitor SOF movements and actions.				X			X	X												X			
c. Monitor personnel status of deployed SOFand submit required reports.				X			X	X														X	
d. Monitor enemy situation, processes SOF intel and submit required reports to higher, lower, and laterally as needed.				X			X	X											X				
e. Analyze spot reports from SOF and higher Hqs in relation to current IPB products and pass intel to deployed SOF and GPF.				X			X	X											X				
f. Issue FRAGOs to SOF elements based on battlefield situational changes, with SFOB/FOB commanders prior approval.			X	X			X	X								X				X			

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g. Provide GPF CMDR briefings on SOF operations.		X		X					X	X		X					X						
h. Review plans and make SOF target nominations to the SOCOORD that insure SOF supports the GPFC scheme of maneuver. (The SOCCE plans future opns in the absence of a SOCOORD).				X			X	X								X				X			
I. Plan and coordinate linkups between deployed SOF and the GPF.				X			X	X												X			
j. Write GPF OPLAN/OPORD linkup annex.		X		X						X		X								X			
k. Prepare deployed SOF & GPF sycnchronization matrix.		X		X																X			
2. Conduct SOCCE Operations.																							
a. ID message releasers & post signatures.														X		X							
b. Synchronize demobilization operations.		X		X	X		X	X	X	X	X	X	X				X						
c. Coordinate intel requiremnets with GPF.					X		X	X					X						X				
d. Monitor IR, PIR, CCIR of SOCCE, GPF,and deployed SOF.				X			X	X									X		X	X			
e. Plan for all intel requirements.				X															X				
f. Conduct intel briefings & training.		X		X					X	X		X							X				
g. Plan local force protection/security plan.		X								X		X					X						
h. Mainitain journal and message log files.		X		X						X		X					X						
I. Organize and direct routine business of the SOCCE (mess quarters, mail).														X				X					
j. Supervise sensitive item storage.														X				X					
k. Submit daily SITREP & other reports to SOF higher HQ.				X			X	X								X	X						
l. Establish & maintain situation map.				X			X	X												X			
m. Prepare messages, requests, and combat orders .		X		X								X								X			
n. Advise SOCCE Commander on threat COAs.		X		X					X			X							X				
o. Control classified waste.														X			X						

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p. Prepare Access roster.		X		X						X		X					X						
q. Maintain weather/light data contingencies.		X		X															X	X			
r. Coordinate maps, charts, imagery to support operations.				X	X	X	X	X					X						X	X			
s. Serve as SOCCE Communication-Electronic staff officer and exercise staff supervision of attached C-E elements.														X							X		
t. Establish secure comm btwn SOCCE, GPF, SOF.							X	X					X								X		
u. Establish comm procedure for SOCCE.		X																			X		
v. Prepare COMSTAT.		X																			X		
w. Coordinate airspace & fire support missions and management with GPF.				X			X						X							X			
x. Brief SOCCE and SOF higher on fire support missions.		X		X				X	X			X								X			
y. Establish Restricted and No Fire Areas.				X			X													X			
z. Ensure linkup annex has fire support overlay.		X		X																X			
aa. Represent SOCCE at fire support briefings.														X						X			
bb. Brief SOCCE and higher on target priorities.		X		X			X	X	X											X			
cc. Brief GPF on type, location, mission of deployed SOF air defense weapons.		X		X			X		X	X		X								X			
dd. Identify and prevent potential fratricide situations.				X			X	X												X			
ee. Monitor health of SOCCE.														X								X	
ff. Establish logistics for medical supply requisitions.				X			X	X														X	
gg. Establish or coordinate medical treatment facilities					X		X						X									X	
hh. Collect & disseminate medical inteligence.		X			X		X			X		X										X	
ii. Advise GPF on medical capabilities of deployed SOF and resistance forces.					X		X			X		X										X	
jj. Coordinate with GPF logistics section.					X		X						X										X

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kk. Initiate logistics requisitions.		X		X	X		X						X										X

**Acronym List

BN	battalion
CCIR	commander's critical intelligence requirements
CMDR	commander
COIN	counter insurgency
COMMSTAT	communications status
CP	command post
c s	combat support
c s s	combat service support
Exfil	exfiltration
FRAGO	fragmentary order
GP	group
GPF	general purpose force
HQ	headquarters
IAW	in accordance with
ICW	in coordination with
Infil	infiltration
Intel	Intelligence
IPB	intelligence preparation of the battlefield
IR	intelligence requirements
JSOA	Joint Special Operations Area
LAN	local area network
LNO	liaison officer
LOGSTAT	logistics status
OPLAN	operation order
OPSEC	operations security
PERSTAT	personnel status
PIR	priority intelligence requirements
POV	privately owned vehicle
SITREP	situation report
SOC	Special Operations Command
SOCOORD	Special Operations Coordination Element
TASOSC	Theater Army Special Operations support Command
WAN	wide area network

APPENDIX B

SOCCE SIGNAL CENTER TASKS AND PERSONNEL

SOCCE SIGNAL CENTER TASKS AND PERSONNEL

Function	Task	MOS(s)
Setup Tasks		
Shelter Setup	Position shelter on site	18E
	Set up/install ISOCA radios	ISOCA Tm
	Ground system	18E
	Connect power cables	31c
	Set up tent extension	18E, 31C, & 74B
	Set up camouflage nets	18E, 74C, & 74B
	Run pre-op checks on ECU and generator	31c
	Power up generator	31c
	Power up ECU	31c
	Remote terminal equipment into tent	74B
	Perform shelter power-up procedures	31c
General System Setup	Remote & power up RCCs	74B
	Erect HF antenna #1 (ISOCA)	ISOCA Tm
	Erect HF antenna #2	18E & 31c
	Erect HF antenna #3	18E & 31c
	Erect HF LPI/D antenna	18E & 31c
	Erect UHF TACSAT antenna #1 (ISOCA)	ISOCA Tm
	Erect UHF TACSAT antenna #2	18E & 31c
	Erect UHF TACSAT antenna #3	18E & 31c
	Erect VHF/FM antenna	18E & 31c
	Install SOCCE LAN	74B
	Set up/install MCS workstations	74B
	Perform built-in tests	18E, 31C & 74B
	Perform op checks	18E, 31C & 74B
	Setup/install LAN & wire interfaces with supported unit	74B & 31C

Function	Task	MOS(s)
Programming Tasks		
Configure CGS 100	Perform station setup	74B
	Create a configuration set	74B
	Select routing methods & devices	74B
	Create RI routing tables	74B
	Create PLA/RI database	74B
	Setup networking	74B
	Create user accounts	74B
Configure Matrix Switch	Select input/output connections	74B
Program COMSEC Equipment	Load keying material	18E
	Select mode of operation	18E
Configure Audio Monitoring System	Select audio or data mode of operation	18E
	Program RCCs	18E
	Enable/disable RCC functions	18E
	Configure RCC data port	18E
Program Radio Parameters	Program HF radios	31c
	Program UHF TACSAT radios	31c
	Program VHF/FM radio	31c
	Program HF LPI/D radio	31C
Program Data Controllers	Configure input/output ports	74B
	Set configuration parameters	74B
Program Ethernet router	Configure input/output ports	74B
	Program TCP/IP protocols	74B
Program MCS workstations	Tasks TBD	74B

Function	Task	MOS(s)
Operations		
Checks & Services	Perform PMCS shelter	18E
	Perform PMCS ECU and generator	31c
	Perform PMCS on communications eauiument	18E & 31C
	Perform PMCS on automation eauinment	74B
Radio Communications	Monitor power	31c
	Listen for incoming voice	31c
	Respond to incoming voice	31c
	Route incoming voice traffic	31c
	Initiate voice call	31c
	Listen for incoming IMC traffic	31c
	Recognize incoming IMC traffic	31c
	Copy incoming IMC traffic	18E
	Respond to incoming IMC traffic	18E
	Troubleshoot radio communications	18E
Digital Message Processing.	Monitor incoming message traffic	74B
	Respond to incoming message errors	74B
	Print incoming message traffic	74B
	Deliver incoming message traffic	18E
	Archive incoming message traffic	74B
	Log outgoing messages	74B
	Prepare/load outgoing messages	18E & 74B
	Troubleshoot digital message processing	74B
Automation & Network Management	Back up system logs and files	74B
	Add new hosts/addresses	74B
	Establish user privileges	74B
	Change user privileges	74B
	Troubleshoot automation & networking	74B

Function	Task	MOS(s)
Tear Down		
General System Tear-down	Zeroize COMSEC equipment	18E
	Print logs and archive files, as required	74B
	Power down subsystems	18E, 31C, & 74B
	Power down ECU & generator	31c
	Disconnect antenna & power cables	18E
	Remove ISOCA radios	ISOCA Tm
	Disassemble antennas & stow	18E & 31C
	Disconnect & package RCCs	74B
Shelter Svstem Teardown	Disconnect & stow terminal and MCS equipment	74B
	Dismantle & stow camouflage nets	18E & 31C
	Dismantle & stow tent extension	18E, 31C & 74B
	Disconnect & stow power cables	31c
	Remove & stow grounding equipment	18E

CGS	communications gateway system
COMSEC	communications security
ECU	environmental control unit
HF	high frequency
IMC	international morse code
ISOCA	improved special operations communications assemblage
LAN	local area network
LPI/D	low probability of interception/deception
MCS	maneuver control system
PLA/RI	plain language address/routing indicators
PMCS	preventive maintenance checks and services
RCC	remote control console
TACSAT	tactical satellite
TCP/IP	transport control protocol/intemet protocol
UHF	ultra high frequency
VHF/FM	very high frequency/frequency modulation

APPENDIX C

ACRONYM LIST

ACRONYM LIST

AFATDS	advanced field artillery tactical data system
AMS	automated message system
ASAS	all-source analysis system
ATCCS	Army Tactical Command and Control System
CGS	communications gateway system
CSSCS	combat service support control system
FAADC3I	forward area air defense command, control communications, and intelligence
FBCB2	Force XXI Battle Command Brigade and Below
FOB	forward operational base
IEW	intelligence and electronic warfare
IMC	International Morse Code
IMPRINT	improved performance research integration tool
JBS	joint base station
LAN	local area network
LPI/LPD	low probability of interception/low probability of detection
LVRS	lightweight video reconnaissance system
MCS	maneuver control system
MOS	military occupational specialty
MSE	multiple subscriber equipment
NCO	noncommissioned officer
ODA	Operational Detachment A
ODB	Operational Detachment B
ORD	operational requirements document
SFOB	special forces operational base
SINCGARS	single channel ground and airborne radio system
SME	subject matter expert
SOCA	special operations communications assemblage
SOCCE	special operations command and control element
SOF	special operations forces
TOC	tactical operations center
TRADOC	Training and Doctrine Command
USASOC	U.S. Army Special Operations Command
WAN	wide area network

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Malkin, F.J. (ARL) ; Graybill, S. (USASOC)

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13. ABSTRACT *(Maximum 200 words)*

When Army special operations forces (SOF) operate in conjunction with or close to conventional Army forces, a special operations command and control element (SOCCE) is established to synchronize operations and harmonize actions between the SOF and conventional force elements. A SOCCE is usually co-located with an Army corps tactical operations center (TOC). On the emerging digitized battlefield, the corps TOC will be equipped with the Army Tactical Command and Control System (ATCCS) to provide a seamless flow of tactical information to commanders, corps, and below. A SOCCE will also require an ATCCS capability in order to exchange information with the conventional force and successfully perform its mission. A preliminary mission and task analysis was conducted to assist in identifying initial equipment and personnel requirements for a digitized SOCCE employing ATCCS. The outcome of the analysis indicates that if assumptions regarding SOF message format compatibility with ATCCS software are met, the SOCCE will be able to operate with two maneuver control systems (MCS), which is the integration component of ATCCS. The analysis also indicates that, in addition to the existing operations center, the SOCCE will require a signal center to link the operations center with other headquarters within the electronic battlefield command and control architecture. Personnel augmentation will be necessary to fully staff the SOCCE operations center S2 (intelligence) and S3 (operations) functions for 24-hour operations. Recommendations are that the equipment and personnel requirements identified by this analysis be verified during field training exercises and by simulation and modeling, a van or vehicular mounted shelter configuration be considered to house a SOCCE, and documentation be initiated to establish requirements for a system acquisition program.

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