

ENCLOSURE 3 (ECO8 OPTASK LINK) TO TAB B (AIRBORNE NETWORKS) TO APPENDIX 2 (COMMAND, CONTROL, COMMUNICATIONS, AND COMPUTER PLANNING) TO ANNEX K (COMMUNICATIONS) TO CJSOTF OPLAN OPERATION DESERT ROSE/CTF781 OPOD 08-01 (EMPIRE CHALLENGE '08) COMMAND, CONTROL, AND COMPUTERS COMMUNICATIONS SYSTEMS

Date: 7/21/2008

Mission: Empire Challenge 2008

Period: (U) 1500-2400Z (0800-1700 Pacific Time) 07 July – 01 Aug 2008

Objectives:

Overall – (U) Exercise Joint interoperability and exchange of information within CFE environment.

L-16 Network Support:

- (U) **Navy NDF designer:** Bill O’Rawe DSN 553-9326 Com 619-553-9326 bill.o'rawe@navy.mil
- (U) **Air Force NDF designer:** DOUG ROLEY, DSN: 574-8328/8329 Com: (757)764-8328/8329 FAX: DSN 574-8460 Secure: 574-8485 doug.royley.ctr@langley.af.mil douglas.royley@langley.af.smil.mil

Ground Participants: (phone numbers during exercise, note CL DSN-437)

- (U) **CAOC-X Control Officer** (TBD) DSN (TBD) Comm (TBD) Mobile (TBD)
- (U) **MOC-X Control Officer** (TBP) DSN (TBP) Comm (TBD) Mobile ???-(TBD)
- (U) **HARRODS** UHF 265.8 DSN 437-1774 Comm 730-939-1774 Mobile (TBD) (**note:** HARRODS is an exercise C2 position manned by the Air Boss in rm 136, with no ATC responsibility. All ATC control on R2524 will be with China Control)
- (U) **Frequency Management** China Lake **POC** Clinton Robbins DSN 437-6085 Com 760-939-6085 clinton.robbins@navy.mil
- (U) **L-16 POC** China Lake Jack Folk L-16 Lab:DSN 437-2759 Com 760-939-2759 **Office:**DSN 437-1274 Comm 760-939-1274 jack.folk@navy.mil

- (U) **TPG (RAIDER) Operator** Christopher Antonsen DSN 437-1791 Com
760-939-1791 **Office:**DSN437-3477 Comm 760-939-3477
christopher.antonsen@navy.mil
- (U) **ECHO Range** China Lake **POC** Pamela A. Tillery DSN 437-9140 Com
760-939-9140 pamelatillery@navy.mil

Airborne Participants:

Name	unit	POC
E-2C Xhawk	PMA-231	Mr Dudley("Lee") Davis, (301) 757-7312, dudley.l.davis@navy.mil
E3 AWACS	552 OSS	Major Patrick Sanden, 884-4488, patrick.sanden@tinker.af.mil
F/A-18 CAS	NSFWS - Lemoore NAS	Lt Raul (Stiny) Acevedo, 559-998-3795, Raul.Acevedo@navy.mil
F/A-18 SHARP	VX-31	Hd. WEO Wayne Willhite, 760-939-8726, h.willhite@navy.mil
F-16CJ	Nellis	Senior Systems Engineer & Ops analyst, SETA Cassian P. O'Rourke, 443-479-0279, cporour@nsa.gov
Golden Eye (UAS)	Aurora Flight Sciences	Nancy Vetere, , nvetere@aurora.aero
JSTARS E-8C	116 ACW / 53 TEG (T3)	Capt / USAF Christopher Allen, 478-201-5885, christopher.allen@garobi.ang.af.mil
JSTARS T-3	Det 2, 505OG	Capt Dennis Duke, , Dennis.Duke@jtf.hanscom.af.mil
King Air (GA-SA)	General Atomics	Bob Klinehoffer, , robert.klinehoffer@ga- asi.com
MQ-9 Reaper UAS	General Atomics	Kenneth Frankovich, 937-904-6958, kenneth.frankovich@wpafb.af.mil
OGC Tigershark	Leica GeoSystems	Derwin Cantrell, 703-286-3817, Derwin.Cantrell@lggi.com
P-3C LSRS	VP-1	LCDR Michael DeMattia, (207)921-1883, michael.demattia@navy.mil
P-3C LSRS (PO)	LSRS PO	Robert Kosturock, 888-353-0327, robert.j.kosturock@saic.com
Paul Revere	Lincoln Labs, MIT	Capt, USAF Derek Dwyer, 781-377-6173, derek.dwyer@hanscom.af.mil Matthew Kercher mrkercher@ll.mit.edu Mike Gethers mgethers@prologic- inc.com
Raytheon Sabreliner Test Aircraft	Raytheon	Richard Landis, 972-205-5975, richard_l_landis@raytheon.com
RC-135 Rivet Joint	55 OG	Capt Steven Payne, 272-7639, Steven.Payne@offutt.af.mil
RQ-4 Global Hawk UAS	412 TW (USN)	Ken Hall, 703-222-9724, khall@seicorp.com

Scan Eagle UAS	Boeing/Insitu	Mark LaVille, 206-544-0929, mark.c.laville@boeing.com
		POC Sqn Ldr Glen Burrough amc1-5sqn@waddington.raf.mod.uk +44 1522 727534
		Fred Hughes Sqn Ldr OC D Flt 5(AC) Sqn RAF 95771 8466 01522 728466 WAD 5ACSqn-OC D Flt [frederick- hughes@waddington.raf.mod.uk]
Sentinal/ASTOR	GBR	
U-2 ASARS 2A (ASIP)	Palmdale	Ken Hall, 530.634.8778, ken.hall.ctr@beale.af.mil
U-2 OBC	9 OG	Ken Hall, 530.634.8778, ken.hall.ctr@beale.af.mil
U-2 SYERS-2A - BAB	9 OG	Ken Hall, 530.634.8778, ken.hall.ctr@beale.af.mil
U-2 SYERS-2A - BAB	9 OG	Ken Hall, 703-222-9724, khall@seicorp.com
U-2 SYERS-2A (RARE)	9 OG	Ken Hall, 530.634.8778, ken.hall.ctr@beale.af.mil

By Player-

1. (U) **NAWCWD MOC-X** – Establish Task-Collect-Process-Exploit-Disseminate (TCPED) systems also processes and execute Allied NTISR Operational Threads within that federation.
2. (U) **CAOC-X** – Provide C2ISR Decision Authority and Dynamic/Ad Hoc Tasking within TCPED federation.
3. (U) **IBAR** – Provide L-16 Net Time Reference (NTR) and transmission capability for Air and Ground picture into the L-16 network.
4. (U) **RAIDER** – Provide C2 ground node for L-16 tasking within MOC-X.
5. (U) **PAUL REVERE** - Provides unclassified Airborne IP network connectivity to ground C2 node.
6. (U) **P3_MSA** - LSRS
7. (U) **VX-31** – Provide mission execution support using F/A18 SHARP and ATFLIR. Tasking provided via L-16 and product down-linked via TIGDL and L-16.

8. (U) **Rivet Joint** –Air Force's airborne reconnaissance platform.
9. (U) **RCC** – Range Test Conductors/Controllers and source of digital range instrumentation data to include ground and air track data from ECHO Range.
10. (U) **Lemoore NAS** – Provide F/A-18 FAC(A)/CAS mission participants as part of SFWSPAC FAC(A) Shop training.
11. (U) **Sentinel (ASTOR)** - Provide Allied SAR IMINT and GMTI NRT for TCPED federation. Tracks provided via L-16. Some tasking opportunities through L16 possible.

L-16 Network Values:

(U) **L-16 Contact** at IBAR – UHF = 257.425, phone 760-939-2759/2743, J28.2 Free Text JU64040 or JU64041

(U) **Link 16 Network** - USNE0005A / Navy JNL 115 and USNE0005B / Navy JNL 116.

(U) **Link 16 Crypto** - **AKAD3328** for base net 0.

(U) **NTR** – IBAR at MOC-X using **ZULU + 20** minuets **offset due to real world conflict.**

(U) **JU/Track Blocks** – See attached spread sheet below. Platforms not in matrix will be assigned STN and track blocks by L-16 POC during event.

(U) **Air Control Channels (NPG 9)** = 10

(U) **Fighter to Fighter Channels (NPG 19/20)** - set F/F1 =19

(U) Imagery J16 and Free text J28.2 supported in Base Net 0

Frequency Plan:

(U) **Data Link Coordination Net (DCN)** – In vicinity of R-2508 will use Harrods frequency. This frequency will be assigned to the EC test conductor at that time for those purposes. You will still need to still coordinate entry and exit of datalink as normal.

(U) **Alternate L-16 Data Link Coordination Net (DCN)** – In vicinity of R-2508 will use UHF 257.425 frequency. This frequency is requested by IBAR and will be assigned to the L-16 NTR ICO at that time for those purposes. You will still need to still coordinate entry and exit of datalink as normal.

(U) **J-VOICE – NOT USED** due to high TSDF usage with China Lake, Edwards, and Nellis. JNL 115 and JNL 116 define J-Voice but not used for EC08.

(U) **Air Picture** – Combined operations between CAOC-X & MOC-X. Air picture data provided by RCC range instrumentation.

(U) **Ground Picture** – Combined operations between CAOC-X & MOC-X. Ground picture data provided by RCC range instrumentation and JSTARS GMTI.

(U) **ROEs** – (rules of engagement)

- (U) The L-16 POC will support the mission commanders with respect to TDL connectivity and architecture design.
 - (U) Primary L-16 for this mission will be at MOC-X.
 - (U) EC08 will use the CONR JU/Track Block assignments. To provide maximum flexibility in architecture.
- (U) Platform POCs are responsible for scenario execution, mission deconfliction, and data classification/dissemination.
- (U) HARRODS at ML Rm 136 provides exercise Command and Control. (939-1774 and UHF 265.8)
- (U) ECHO range POCs are responsible for Slate Range moving target scenario execution, mission deconfliction, and data classification / dissemination to MOC-X and CAOC-X.

USNE0005A / Navy Network 115 and USNE0005B / Navy Network 116 Network Operational Considerations

<https://www.nctsi.navy.mil/secsite/ndf/docs/USNE0005A.pdf?JNLID=115>

<https://www.nctsi.navy.mil/secsite/ndf/docs/USNE0005B.pdf?JNLID=116>

(U) Network USNE0005A was designed to support joint Link 16 operations for exercise Empire Challenge. USNE0005A supports the following Navy participants: three (3) Ships, four (4) E2Cs, two (2) Raider-Ms, one (1) P3C_MSA, one (1) P3C_BLK3, one (1) EP3, six (6) MMH60s, four (4) EA6Bs, one (1) FA18, four (4) EA18Gs and one (1) LMS16 for monitoring the network. Other Joint services participants include: one (1) E3, one (1) E3D, two (2) JSTARS, two (2) RJs, two (2) UK_NIMRODs [UK Sentinel], three (3) F15Es, one (1) F22A, one (1) JRE_LVT2 and one (1) JRE.

(U)Network USNE0005B is a revision of the base network USNE0005A. The modification incorporated in USNE0005B provides the E2Cs transmit participation in NPG 11 (Imagery). E2C platforms must use this network if required to participate in NPG 11. All other platforms may operate from the base network USNE0005A. Both networks are fully interoperable.

Since the network for EC08 was already in distribution prior to the decision by Sentinel to participate, and there will not be any UK NIMRODs participating in EC08; UK Sentinel will be platform substituted across the board for the UK NIMROD allocations in the network. UK Sentinel is authorized IDSETS 19 and 20, per the INDE file and NDD for Network USNE0005A supporting EC08. IDSETS 19 and 20 are available, at UK Sentinel's discretion, for Sentinel load files to participate in EC08. A four flight of F-16CJ will be included. The NDD will not change. Connectivity for the F-16CJ is similar to the F15E and the network file has been sent to the USAF NDF for them to cut the platform load files.

1. (U) Net Entry Transmit Enable (NETE) has been enabled for all participants except for F22A and LMS16. The network manager will designate the NTR in the OPTASKLINK message or in the pre-mission briefing.
2. (U) This network was designed with IPF settings of Exercise, Normal Range and Communication Mode 1.
3. (U) TSEC 1 is set to crypto variable memory location 0/1 for all participants.
4. (U) TSEC 2 is set to crypto variable memory location 2/3 in NPG 20 for RJs, FA18, EA18Gs and F15Es.
5. (U) Default net is Net 0 for all participants.
6. (U) Ships, E2Cs, Raider-Ms, P3C_MSA, P3C_BLK3, EP3, E3, E3D, JSTARS, RJs, UK_NIMRODs [UK Sentinel] , MMH60s, JRE_LVT2 and JRE have one dedicated timeslot each for NPG 6 (PPLI-B).
7. (U) EA6Bs, FA18, EA18Gs and F15Es are in contention for NPG 6 (PPLI-B) with an access rate of 8 providing a 2 second PPLI update rate.
8. (U) Ships, E2Cs, and EA18Gs are all in separate Option Pools for surveillance. Refer to [Table D-2, in the Network Design Description](#) for Navy surveillance option pool assignments.
9. (U) MMH60s have 4 timeslots each for surveillance allowing for a total of 16 tracks each.

10. (U) EA6Bs have 2 timeslots each for surveillance allowing for a total of 8 tracks each.

11. (U) E3, E3D, JSTARS, RJS are in an option pool for surveillance with a total track capacity of 512.

12. (U) Raider-Ms have 8 timeslots each for surveillance allowing for a total of 32 tracks each.

13. (U) P3C_MSA, P3C_BLK3, and EP3 each have 8 timeslots each for surveillance allowing for a total of 32 tracks each.

14. (U) UK_NIMRODs [UK Sentinel] have 8 timeslots each for surveillance allowing for a total of 32 tracks each.

15. (U) JRE_LVT2 and JRE have 24 timeslots each for surveillance allowing for a total of 96 tracks each.

16. (U) Air control backlink is in contention in this network. However, some C2P versions of Model 4/5 UYK-43 ships must enter an air control option to successfully load and initialize the network therefore operators of Model 4/5 UYK-43 ships should enter Air Control Option 1. While this will support the requirements that some systems have for loading their terminal, it does not support FA18, P3C_MSA, P3C_BLK3, EA6Bs, EA18Gs and EP3 dynamic air control in this network because of the ONMR/ROTA bit setting.

17. (U) NPGs 8 (Mission Management), 9 (Air Control uplink), 11 (Imagery), 14 (Indirect PPLI) and 29 (Free text) are in dedicated timeslot reuse.

18. (U) Electronic Warfare (NPG 10) has 24 timeslots in contention access 8 for ships, E2Cs, P3C_MSA, P3C_BLK3, EP3, E3, E3D, RJs, UK_NIMRODs[UK Sentinel], EA6Bs and EA18Gs.

19. (U) **NO J-voice authorized:** There are two (2) 16kbps voice channels, Voice A (NPG 12) and Voice B (NPG 13). All participants, except UK_NIMRODs[UK Sentinel], F15Es, F22As, JRE_LVT2 and JRE, have transmit assignments where only Voice A (NPG 12) is relayed.

20. (U) **NO J-voice authorized:** The EP3 has transmit assignments for one 16 Kbps voice on NPG 13 (Voice B) and is constrained to Net 2. Other platforms must select Net 2 for Voice B communications with EP3s.

21. (U) **Data Forwarders (NPG 14):** This network is designed for dual forwarders (FJUA) in dedicated slot reuse. When two data forwarders are employed

simultaneously, they **must be odd and even sequence numbered units**. Data may be lost if they both have ODD or they both have EVEN "User Sequence Numbers".

22. (U) The fighter-to-fighter nets, NPG 19 and NPG 20, are initially set to Net 1 and fighter nets are not restricted to Net 1. These NPGs operate as pseudo stacked nets and can be changed to a different net selection as required in the cockpit.

23. (U) MMH60s have 16 dedicated timeslots each for NPG 19 and are initially set to Net 60.

24. (U) All participants, except F15Es, F22As and LMS16, have transmit assignments on NPG 29.

25. (U) LMS16 (1) is mapped to a ship ICD and is assigned User Sequence Number 4.

26. (U) **USN/USMC FA18 OPERATIONS:** The FA18 platform load files in this network are designed for both USN and USMC FA18s.

27. (U) **FTRBL (1)** is not an active participant, but will appear as F14D (1) in the platform load files. **Do not attempt to use** this platform to initialize mission support systems. This is in place to allow the backlink in contention access only and should be transparent to the operators.

COMMUNICATIONS

(U) Aircraft will start up/taxi/depart on appropriate airfield frequencies

(U) Upon departure from China Lake or Inyokern, contact China Control on UHF 381.9, VHF 126.05.

(U) Aircraft departing from other locations will first be handed off by the Center to Joshua Control and may be subsequently passed to China Control.

(U) Aircraft are to maintain contact with China Control at all times while operating within R-2505 and R-2524.

(U) Once established with China Control, aircrews that are dual radio equipped are to check in with HARRODS on UHF 265.8 to advise mission status and to receive any EC08 Operational Updates. Monitor HARRODS when possible. If not possible, advise HARRODS upon switching and return as soon as practical.

(U) Aircraft shall monitor China Control at all times for safety of flight. Advise China Control prior to orbit entry.

(U) Upon mission completion, check out with HARRODS, contact China Control. **Please pass PIREPs on developing thunderstorms to HARRODS so UAS recovery and wx impacts may be assessed.**

(U) Lost communications procedures for aircraft being monitored by China Control (except UASs)

(U) If no contact with China Control for 30 minutes, attempt contact China Control on UHF 381.9 or GUARD.

(U) If no contact, continue orbit until able to exit R-2505 or R-2524 at the nearest point. Maintain VMC and attempt contact with Joshua Approach on UHF 348.7/ VHF 133.65.

(U) If no contact, squawk 7600 and return to base.

(U) UASs shall attempt to contact China control on UHF 381.9 or VHF 126.05

	UHF Primary	UHF Secondary	VHF
China Control	381.9	301.0	126.05
Joshua Control	348.7	N/A	133.65
HARRODS	265.8	N/A	126.05
IBAR L-16	257.425	N/A	N/A
Armitage Ground	360.2	N/A	N/A
Armitage Tower	340.2	N/A	120.15
Armitage ATIS	322.375	N/A	N/A
TACP/Fighter Frequency	362.625	N/A	N/A

Although HARRODS is available for short Link 16 information exchange, prolonged Link 16 resolution should be conducted on **IBAR L-16 maintenance: 257.425**

Platform

Call sign

U-2 ASARS 2A (ASIP)
 JSTARS E-8C
 MQ-9 Reaper UAS
 RQ-4 Global Hawk
 Sentinal / ASTOR
 F/A-18 SHARP
 P-3C LSRS
 RC-135 Rivet Joint
 RC-135 Rivet Joint
 Paul Revere
 Scan Eagle UAS
 E3 AWACS
 King Air (GA-SA)
 Golden Eye (UAS)
 E-2C Xhawk
 Sabreliner
 OGC Tigershark
 U-2 SYERS-2A(RARE)
 U-2 OBC
 JSTARS T-3
 U-2 SYERS-2A - BAB
 P-3C LSRS (PO)
 F/A-18 CAS
 E/A-18 G

XRAY xx
 STRIKESTAR 35
 REAPER xx
 UAS HAWK 01
 SNAPSHOT 01 / RAVEN
 COSO xx
 PRIME TIME xx
 HOOVR xx
 SNOOP xx
 ANCHOR 27
 Eagle 07
 CHALLIS 31
 CLAW 01
 GOLD 01
 XHAWK 25
 Sunshine One
 TIGER 06
 PINION XX
 PINION XX
 CANOE 03
 PINION XX
 TBP
 KNIGHT XX
 VAMPIRE XX

Flight Schedules: Will issue/update daily schedule during exercise.

JU/STN and track blocks: note: these values are in octal unless stated dec = decimal

Jack Folk China Lake ICO Jack.folk@navy.mil	Andrew Nelson JFCOM Ground Networks Andrew.nelson@jfc.com.mil	LCDR Steve Waltner JFCOM JICO Steven.waltner@jfc.com.mil
---	---	--

Land JTIDS UNITS						
Unit	C/S	User Seq #	STN / JU	Trk Blk		# Trks dec
416-R			64021	0	777	512
IBAR			64040	1	175	125
IBAR-JRE			64041			1
RCC			64042			1
MIDS LVT-1#1			64043			1
MIDS LVTT-1 #2			64044			1
BOSS #1			64001	1000	1777	512
Trailer #1			64011	3000	3177	128
JINDI			165	11200	11277	64
JINDI Translator			166	11300	11377	64

JRE Network Units						
Unit	C/S	User Seq #	STN / JU	Trk Blk		# Trks dec
RAIDER			64060	700	737	64
TPG echo			64061	740	776	63
GCCS			46			1
RVfaa			33	TL0	TL177	128

C2 Aircraft					
Unit	C/S	STN / JU	Trk Block		# Trks dec
Rivit Joint		14025	600	676	63
P3 MSA		14024	200	276	63
Paul Revere		14023	300	376	63
JSTARS		14020	500	576	63
Astor sentinel		14022	400	477	64
E-2C XHAWK		14041/42	3200	3377	128
VX9 EA-18G 1		14026/37	TL300	TL337	32
VX9 EA-18G 2		14026/37	TL340	TL377	32

Fighter Aircraft JUs					
Unit	C/S	Type	JUs		# Jus dec
VX-31		F/A-18	14040	14057	16
VX-9		F/A-18	14026	14037	10
416 CTF		F-16	71001	71006	6
411 CTF		F-22	71007	71014	6

Notes
F-22 receive only
NO J-Voice net authorized for EC08
Forwarding BLK 5400-5574 125 TRKS

FOR QUICK REFERENCE:

	UHF	VHF
China Control	381.9	126.05
Joshua Control	348.7	133.65
HARRODS	265.8	126.05
IBAR L-16	257.425	N/A
Armitage Grnd	360.2	N/A
Armitage Tower	340.2	120.15
Armitage ATIS	322.375	N/A
TACP/Fighter	362.625	N/A

EC08 L-16 info/settings:
 ND1 115, USNE0005A (or ND116 for
 AIC = 10
 FF1 = 19
 Key AKAD3328
 Zulu + 20
 Imagery J16 net = 0
 Free text J28.2
 NTR is CL STN 64040