

**NATO UNCLASSIFIED**

**NATO STANDARD**

**AXP-03**

**ALLIED NAVAL COMMUNICATION  
EXERCISES**

**Edition E, Version 1**

**MAY 2023**



**NORTH ATLANTIC TREATY ORGANIZATION**

**ALLIED EXERCISE PUBLICATION**

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**NATO STANDARDIZATION OFFICE (NSO)**

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11 May 2023

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**TABLE OF CONTENTS**

CHAPTER 1 COMMUNICATION EXERCISES INSTRUCTIONS ..... 1-1

0101 Conduct of Communication Exercises ..... 1-1

0102 Organization of Communication Exercises ..... 1-1

0103 Order Table..... 1-1

0104 Radio Circuits ..... 1-1

0105 Visual Exercises ..... 1-1

0106 Exercise Messages..... 1-1

0107 Transmitting and Receiving Speeds..... 1-2

0108 Use of Maneuvering Board ..... 1-2

0109 Promulgating Special Exercises..... 1-3

0110 Marking Instructions..... 1-3

0111 Exercise Reports ..... 1-3

CHAPTER 2 VISUAL COMMUNICATION EXERCISES ..... 2-1

0201 Introduction..... 2-1

NAVCOMEX 202 FLASHING LIGHT ..... 2-2

NAVCOMEX 204 FLAGHOIST ..... 2-5

NAVCOMEX 205 FLAGHOIST (SIMULATED TACTICAL DRILL) ..... 2-6

NAVCOMEX 206 FLASHING LIGHT (DIRECTIONAL AND NON-DIRECTIONAL). 2-8

NAVCOMEX 207 FLASHING LIGHT (FLAGHOIST)..... 2-9

NAVCOMEX 208 FLASHING LIGHT (WORD READING SKILLS)..... 2-11

CHAPTER 3 COMBINED RADIOTELEPHONE AND VISUAL COMMUNICATIONS ..... 3-1

0301 Introduction..... 3-1

NAVCOMEX 301 RADIO-VISUAL COMMUNICATIONS DRILL ..... 3-2

NAVCOMEX 302 RADIO-VISUAL TACTICAL DRILL (SIMULATED)..... 3-3

CHAPTER 4 RADIOTELEPHONE AND RADIOTELETYPE EXERCISES ..... 4-5

0401 Introduction..... 4-5

NAVCOMEX 404 FREQUENCY SHIFTING ..... 4-6

NAVCOMEX 405 RADIOTELEPHONE PROCEDURE (ENGLISH LANGUAGE)... 4-8

NAVCOMEX 409 RECEIVING DURING INTERFERENCE ..... 4-9

NAVCOMEX 410 COMSEC AWARENESS ..... 4-10

NAVCOMEX 415 RECEIVING ENGLISH LANGUAGE RADIOTELEPHONE COMMUNICATIONS ..... 4-11

NAVCOMEX 416 RECEIVING AND TRANSMITTING ENGLISH LANGUAGE RADIOTELEPHONE COMMUNICATIONS ..... 4-12

NAVCOMEX 417 RADIOTELETYPE PROCEDURES ..... 4-13

NAVCOMEX 422 SHIP-SHORE RADIOTELETYPE PROCEDURE ..... 4-15

NAVCOMEX 423 COMBINED TACTICAL EXERCISE VISUAL, RADIOTELEPHONE, RADIOTELETYPE)..... 4-16

NAVCOMEX 424 EXERCISE SAFE HANDS MESSAGE HAND-DELIVERY SYSTEM 4-18

NAVCOMEX 456 TF/TG Broadcast Control ..... 4-20

CHAPTER 5 OFF-LINE CRYPTO EXERCISES..... 5-1

0501 Introduction..... 5-1

NAVCOMEX 501 OFF-LINE CRYPTOGRAPHIC OPERATION PROCEDURES .... 5-2

CHAPTER 6 COMPOSITE COMMUNICATION EXERCISES ..... 6-1

0601 Introduction..... 6-1

NAVCOMEX 601 CHANGE OF COMMUNICATION PLAN AND CONDITION OF  
 READINESS 6-2

NAVCOMEX 602 SHORE-TO-SHIP BROADCAST COMMUNICATIONS ..... 6-3

NAVCOMEX 603 COMPETITIVE RADIOTELETYPE ON-LINE AND VISUAL  
 COMMUNICATIONS ..... 6-6

NAVCOMEX 604 FREQUENCY CHANGE ..... 6-7

NAVCOMEX 607 COMPETITIVE RADIOTELEPHONE AND VISUAL  
 COMMUNICATIONS ..... 6-9

NAVCOMEX 608 SECURE PC-TO-PC FILE TRANSFER ..... 6-10

NAVCOMEX 609 HIGH FREQUENCY ELECTRONIC MAIL (HFEM)..... 6-11

CHAPTER 7 CYBERWARFARE EXERCISES..... 7-1

0701 Introduction..... 7-1

NAVCOMEX 701 ..... 7-2

RIVER CITY INTIALIZATION ..... 7-2

(a) NAVCOMEX 702..... 7-3

(b) RIVER CITY STATE CHANGE ..... 7-3

(c) NAVCOMEX 710..... 7-4

(d) CYBER INCIDENT ..... 7-4

<b>CHAPTER 1    COMMUNICATION EXERCISES INSTRUCTIONS</b>
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**0101 Conduct of Communication Exercises**

Whenever ships of NATO or Cooperating Nations are operating together, advantage should be taken of every opportunity to exercise personnel in communications. The exercises in this publication are specially designed for this purpose. But, all units are encouraged to submit recommendations for improvement of the exercises. An English language quotation from publications cannot be translated literally into another language. Therefore, the senior officer directing the exercise must ensure that all participating ships hold the same language version of the required publication necessary to participate in the exercise.

**0102 Organization of Communication Exercises**

When units are operating under NATO or Cooperating Nations Operational Control or Command, these exercises are ordered by the OTC. If not present, the senior officer present may request the other commanders to agree on the conduct of the exercises. When such agreement has been reached, the senior officer present normally orders the exercises.

**0103 Order Table**

The Order Table (Table 1-1) establishes the format for planning messages used to advise all forces by signal of the scheduling of communication exercises and to issue detailed instructions for the conduct of these exercises. This table is particularly applicable to any exercise that is not covered by the standard exercises in this book. In using the Order Table, paragraphs neither required nor applicable may be omitted.

**0104 Radio Circuits**

When ordering a radio communication exercise, the senior officer is responsible for obtaining clearance with appropriate authorities for the frequencies to be used. Units participating in such exercises are responsible for operating transmitters at the lowest practicable power and adhering strictly to the assigned frequency. The use of distress or emergency frequencies in any manner for operator training is prohibited.

**0105 Visual Exercises**

The visual signaling procedure used should be applicable to the tactical organization of the group at the time. If the exercise is to be conducted in port, preliminary organization of the group may be the same as though the group were at sea. Signals must be relayed and answered for according to procedures appropriate for such an organization.

**0106 Exercise Messages**

Messages transmitted for the exercise of communication personnel will be identified as follows:

1. The word "DRILL" will be included at the beginning and ending of the text of all plain language messages and messages which consist of random undecipherable groups, and shall be included in the message group count.

2. Practice messages encrypted in systems not solely made for crypto practice shall have transmitted the word "CRYPTODRILL" in the clear immediately preceding the encrypted text. The word "CRYPTODRILL" will not be included in the group count. The operating signal ZEU from ACP-131 series is not to be used in these crypto drills. The word "EXERCISE" will be employed for all other exercise traffic intended to be acted upon when exercise nickname or codeword is not provided. If it becomes necessary to transmit an operational message during a communication exercise or on an exercise circuit, the words "DRILL" or "EXERCISE" will be omitted. Flag signals hoisted for exercise are to be preceded by SIERRA hoisted singly in a superior position. SIERRA is to be flown throughout the exercise. If it is necessary to transmit an operational message during a signal flag exercise, SIERRA is dipped and the operational signal hoisted only after all ships have also dipped SIERRA.

### **0107 Transmitting and Receiving Speeds**

Keying speeds or rates of transmitting and receiving to be used in communication exercises should be aimed towards attaining the following:

1. Lights        10 words per minute <sup>12</sup>

These rates are based on standard words, each comprising five letters or four figures.

### **0108 Use of Maneuvering Board**

Some of the exercises have been designed to provide training in maneuvering through the use of a plotting board. For such exercises, the type of force is assumed to be of the following:

1. Ships taking part, organized as ordered before or at the beginning of the exercise.
2. Twelve ships in three divisions and six subdivisions in column in order of sequence number, steering 000 degrees at 15 knots - stationing speed, 25 knots, OTC in sequence number 5. The type of force (either 1 or 2) is to be specified in the message ordering the exercise, as required by the Order Table, Designator QQ (Table 1-1).

The conducting ship may check the state of maneuvering boards during or upon completion of the exercise by hoisting FORM at the dip. Participating ships are then to hoist present formation, guide, course, speed of the force and their present station. After all ships have hoisted the information, the conducting ship hoists the correct answer. In exercises conducted by radiotelephone, the instructions to report the state of maneuvering boards are also given in the same means, but answers may be made either by radiotelephone or by flaghoist, as directed.

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<sup>1</sup> The term „words per minute“ will be used as acronym „wpm“ throughout this publication.

<sup>2</sup> In accordance with ACP-176, article 207a.

**0109 Promulgating Special Exercises**

Operational and national commanders may promulgate their own exercises for local use provided that they use a self-evident nickname for each exercise.

**0110 Marking Instructions**

Grading and marking instructions for those exercises, which require such evaluation, are contained in the individual exercise procedures, but appropriate commanders may modify these marking standards as necessary to serve the best interests of their assigned forces. When required, conducting ships should furnish correct message texts as soon as possible after an exercise.

**0111 Exercise Reports**

After communication exercises have been conducted, the senior officer (or other officer designated to conduct the exercise) will prepare a report of exercises completed. These reports are disseminated to participating units and to others as appropriate. Generally a report for each exercise should include the following, but when reports are forwarded by message, only the essential portions need to be included:

1. Date and Time (DTG)/ exercise serial number
2. Location of the exercise
3. Ships and aircraft taking part
4. Exercise number
5. Exercise frequencies
6. General appreciation on the execution of the exercise (free text): marks obtained (if applicable)
7. Points to be stressed:
  - a. Deficiencies in the Communication Publications (report details).
  - b. Special remarks regarding the conduct of the exercise, COMSEC, etc.

Table 1-1. Order Table for Naval Communication Exercises

Paragraph	Meaning	
A	Identifying number of the exercise following the word NAVCOMEX The following suffixes may be added to the short title of the exercise – to indicate personnel who are to carry out exercises or work Maneuvering boards	
	Suffix	Means
		Commanding Officer assisted by CIC/ AIO staff and signal staff
	1	Officers of the deck/ watch
	2	CIC/ AIO officers
	3	Communication officers
	4	Senior signal personnel
	5	Junior signal personnel
	6	CIC/ AIO/ EW personnel
B	Officer scheduling the exercise (OSE <sup>3</sup> )	
C	Officer conducting the exercise (OCE <sup>4</sup> )	
D	Officer in tactical command (OTC)	
E	Chief Umpire	
F	Analyzing authority	
G	Composition of exercising ships	
H	Composition of target (assisting) ships	
HH	Aircraft taking part in the exercise	
I	Time zone to be used throughout the exercise	
J	Date and time (DTG) the exercise is to start	
JJ	Date and time (DTG) the exercise is to end	
K	Initial position of exercising ships	
L	Initial position of target ships (assisting)	
N	Base course for exercise ships	
NN	Base course for target ships (assisting)	

<sup>3</sup> For the purpose of this document the OSE is considered to be the Officer scheduling the communications exercise.

<sup>4</sup> For the purpose of this document the OCE is considered to be the Officer conducting the communication exercise.



P	Area of exercise or rendezvous point before commencement of exercise	
Q	Special instructions for exercise ships	
QQ	Special instructions for simulated maneuvers	
	Suffix	Means
	1	Ships taking part, organized as ordered before or at the beginning of the exercise
	2	Twelve ships in 3 divisions and 6 subdivisions in column in order of sequence number, steering 000 degrees at 15 knots stationing speed, 25 knots, OTC in sequence number 5
R	Special instructions for assisting ships	
S	Special instructions form aircraft taking part in the exercise	
T	Indication of commencement of exercise	
	Suffix	Means
	1	At time as indicated
	2	Upon the order "Commence scheduled exercise"
U	Communication means available:	
	Suffix	Means
	1	W/ T and R/ T (with frequencies and call signs)
	2	Flags
	3	Flashing light
	4	Pyrotechnics
	5	Aircraft service communication
	6	Radio teletype
	7	Secure teletype
	8	Secure voice
	9	Plain Voice
	10	Other means of communication as indicated
X	Special instructions for safety of exercising aircraft	
Z	Movements when exercise completed	
ZZ	Special instructions for record keeping and forwarding to analyzing authority	

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<b>CHAPTER 2    VISUAL COMMUNICATION EXERCISES</b>
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**0201 Introduction**

The purpose of the Visual Communication Exercises contained in Chapter 2 is the training of Officers of the Watch, Communication Officers and signal personnel in the use of visual communication means, i.e. flashing light and flaghoist.

In case a visual communication means (e.g. semaphore) is no longer in use, the related NCX has been deleted, but its number has been kept in the index in order to avoid confusion by renumbering of NCXs.

**NAVCOMEX 202  
FLASHING LIGHT**

**1. Purpose**

To exercise communication personnel in the use of flashing light.

**2. Procedure Senior Officer**

Prescribe type of flashing light to be used.

**3. Procedure Conducting Ship/ OCE**

Transmit 3 exercise messages at a rate not to exceed 10 wpm for the directional flashing light and 8 wpm for the non-directional flashing light.<sup>5</sup> Prepare these messages as follows:

a. Message No. 1

(1) To consist of 48 letters, 22 figures and 10 pro signs/ punctuation mixed in units of five characters each.

(2) Transmit message at a rate not to exceed 8 wpm. (3) Score only text of this message.

Example R-120852Z - FM 0C - TO C DIV 3 GR 18 BT DRILL

P9F7B	K1CE5	DH84F	61302
GBNOQ	7S2MP	R9AJ1	S4GSR
OY1MZ	E3A6C	UHT5X	W2T4Q
NV81D	X5UJL	6KO3Y	ZW7VL
DRILL BT K			

b. Message No. 2

(1) To consist of heading and 4 separate sets of coded signals from ATP-01 Vol. II. Each set to consist of 3 signal groups.

(2) Convert letters and numbers comprising the signal group to phonetic equivalents for transmission (e.g. X-XRAY, 1- ONE, etc.). Call signs included in the text may be sent using their morse equivalents or spelled out.

(3) Transmit message at a rate not to exceed 8 wpm. (4) Score both heading and text of message.

---

<sup>5</sup> In accordance with ACP-176, article 207a.

Example:

Z - 120836Z - FM 0C - TO C DIV 3 - XMT C23 BT DRILL. EMERG JULIETT ONE TWO FIVE TACK FORM ALFA TACK BRAVO CORPEN ONE SIX ZERO TACK. PREP TANGO ALFA TWO TACK TWO TACK SEVEN TWO FOXTROT TACK MIKE WHISKEY FIVE TACK TWO HOTEL TACK ONE TACK.
GOLF TACK PT C63 TACK SPEED 25 TACK CHARLIE OSCAR SIX TACK ONE THREE TWO FOXTROT TACK.
BRAVO FOXTROT TACK ECHO DELTA ONE TWO TACK ONE EIGHT ZERO TACK GOLF MIKE EIGHT TACK ONE TACK SIERRA UNIFORM ONE TACK TWO TACK ONE TWO WHISKEY DRILL BT

c. Message No. 3

- (1) To consist of 30 words plain language text.
- (2) Transmit message at a rate not to exceed 8 wpm. (3) Score only text of message.

Example:

Z - 120836Z - FM 0C - TO C DIV 3 BT DRILL AFTER PASSING POINT OSCAR SENIOR OFFICERS OF GROUPS ARE TO TAKE COMMAND OF THEIR GROUPS AND PROCEED TO POSITIONS DETAILED IN EXERCISE ORDERS FOR SERIAL ONE PHASE BRAVO RADIO STATE DRILL DRILL BT.
--

#### 4. Marking

a. Message No. 1

Deduct one-half point for each letter or figure in text read incorrectly (maximum attainable score: 40 points).

b. Message No. 2

Deduct 1 point for each incorrectly received letter, numeral or pro sign, but not more than 2 points for each signal group and not more than 6 points for the heading (maximum attainable score: 30 points).

c. Message No. 3

Deduct 1 point for each word of the text incorrectly read (maximum attainable score: 30 points).

#### 5. Exercise Report

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**NAVCOMEX 204  
FLAGHOIST**

**1. Purpose**

To exercise communication personnel in the use of flaghoist and to train communication and signal officers and supervisory personnel in the use of signal publications.

**2. Procedure Conducting Ship/ OCE**

- a. Prepare a series of hoists (hoists must have a definite meaning, but need not to have relation to each other). Maximum flags per hoist will not exceed eight flags. Hoist only one hoist at a time.
- b. Drill will consist of a series of 12 hoists.
- c. Do not delay drill to clarify signals not understood by some ships.

Conducting ship is to indicate start and end of drill by hoisting appropriate exercise signal from ATP-01 Vol. II. (Not to be counted as part of 12 drill hoists).

**3. Procedure Exercise Ships**

- a. Repeat hoist of conducting ship at the dip.
- b. Go close up when signal is understood.
- c. Haul down signal with originator.

**4. Marking**

Maximum points 100.

Penalties: Incorrect signal hoisted (each): deduct 2 points.

**5. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**NAVCOMEX 205  
FLAGHOIST  
(SIMULATED TACTICAL DRILL)**

**1. Purpose**

To familiarize designated personnel with current tactical publications and to provide training in flag hoisting.

**2. Provisions**

- a. The drill is to be simulated with respect to the ship's movements, which will be carried out by plotting on maneuvering boards (paragraph 0108).
- b. The drill may be conducted in port if visibility is favorable, or underway if traffic and weather conditions permit.

**3. Procedure Conducting Ship/ OCE**

Promulgate an organization for the exercise (paragraph 0108) of the following:

- a. Ships taking part, organized as ordered before or at the beginning of the exercise.
- b. Twelve ships in three divisions and six subdivisions in column in order of sequence numbers, steering 000 degrees at 15 knots, stationing speed 25 knots, OTC in sequence number 5.
- c. Prepare a series of maneuvers and hoist them consecutively.

**4. Procedure Exercise Ships**

- a. Repeat all hoists of the conducting ship.
- b. Work maneuvering boards in accordance with prescribed procedure.
- c. Signal information as requested by the conducting ship.

**5. Procedure Conducting Ship**

At the end of exercise, require all ships to signal simultaneously the following:

- a. If in organization 1:
  - Final course
  - Speed
  - Station



b. If in organization 2:

- Final formation
- Speed
- Other pertinent data as required

## **6. Marking Flaghoists**

Grade individual hoist by Table 6-2. The average of scores on all flaghoists gives the points to be used to determine the weighted score for the flaghoist portion of the exercise.

## **7. Tactical Drill**

Score 1 point for each correct solution of course, speed, station, etc. For example: correct solution of course and speed for a particular problem would be worth 2 points (1 for course and 1 for speed).

## **8. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**NAVCOMEX 206  
FLASHING LIGHT  
(DIRECTIONAL AND NON-DIRECTIONAL)**

**1. Purpose**

To provide training for signal personnel in the application of directional and non-directional light procedures.

**2. Procedure Conducting Ship**

Transmit drill signals by directional or non-directional flashing light at a rate not to exceed 10 wpm for the directional flashing light and 8 wpm for the non-directional flashing light.<sup>6</sup>

**3. Procedure Exercise Ships**

Relay and answer conducting ship's signals in accordance with established procedure.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

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<sup>6</sup> In accordance with ACP-176, article 2017a.

**NAVCOMEX 207  
FLASHING LIGHT  
(FLAGHOIST)**

**1. Purpose**

To provide training for signal personnel in reading flashing light and flaghoist signals.

**2. Provisions**

- a. No call is made by conducting ship, nor are other ships to answer.
- b. If the senior officer presents wishes to use a publication other than ATP-01 Vol. II, the title of the desired volume is to be ordered in the signal detailing the exercise.
- c. The exercise may be varied by requiring the use of directional lights with lowest brilliancy, making it necessary to read with binoculars.

**3. Procedure Exercise Ship**

Hoist flag signals (using ATP-01 Vol. II), which are the equivalent of the conducting ships flashing light signals.

**4. Procedure Conducting Ship**

- a. After all participating ships have answered or five minutes after the signal, hoist flag signals equivalent to original flashing light signals.
- b. Haul down and transmit next signal to continue the exercise.
- c. Transmit signals from ATP-01 Vol. II in plain language by non-directional light, if visual conditions and distance permit. The use of directional flashinglights is authorized for two ship exercises.

**5. Marking**

Grade individual hoists of exercise by the following tables:

Encoding:

Less than 30 seconds	10 points
30 – 60 seconds	8 points
60 – 100 seconds	6 points
100 – 140 seconds	4 points
140 – 180 seconds	2 points
Over 180 seconds	0 points

Flaghoist Scoring Table:

NUMBER OF FLAGS IN HOIST								
	1	2	3	4	5	6	7	8
Score	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds	Seconds
100	0-7	8-10	11-13	14-16	17-19	20-22	23-25	26-28
95	8-10	11-13	14-16	17-19	20-22	23-25	26-28	29-31
90	11-13	14-16	17-19	20-22	23-25	26-28	29-31	32-34
85	14-16	17-19	20-22	23-25	26-28	29-31	32-34	35-37
80	17-19	20-22	23-25	26-28	29-31	32-34	35-37	38-40
75	20-22	23-25	26-28	28-31	32-34	35-37	38-40	41-43
70	23-25	26-28	29-31	32-34	35-37	38-40	41-43	44-46
65	26-28	29-31	32-34	35-37	38-40	41-43	44-46	47-49
60	29-31	32-34	35-37	38-40	41-43	44-46	47-49	50-52
55	32-34	35-37	38-40	41-43	44-46	47-49	50-52	53-55
50	35-37	38-40	41-43	44-46	47-49	50-52	53-55	56-58
45	38-40	41-43	44-46	47-49	50-52	53-55	56-58	59-61
40	41-43	44-46	47-49	50-52	53-55	56-58	59-61	62-64
35	44-46	47-49	50-52	53-55	56-58	59-61	62-64	65-67
30	47-49	50-52	53-55	56-58	59-61	62-64	65-67	68-70
25	50-52	54-55	56-58	59-61	62-64	65-67	68-70	71-73
20	53-55	56-58	59-61	62-64	65-67	68-70	71-73	74-76
15	56-58	59-61	62-64	65-67	68-70	71-73	74-76	77-79
10	59-61	62-64	65-67	68-70	71-73	74-76	77-79	80-82
5	62-64	65-67	68-70	71-73	74-76	77-79	80-82	83-85
0	65-67	68-70	71-73	74-76	77-79	80-82	83-85	86-88

The timing of flaghoist will be from the time the conducting ship has completed transmitting the signal until the exercise ship has completed encoding the signal and from completion of encoding until the exercise ship's hoist is close up (or at the dip if exercise ship has visual responsibility for other ship(s)). The two values obtained from the above tables will be added to give the total grade for the hoist.

**6. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**NAVCOMEX 208  
FLASHING LIGHT  
(WORD READING SKILLS)**

**1. Purpose**

To exercise and develop flashing light word reading skills.

**2. Provisions**

Each exercise message should consist of at least 50 words.

**3. Procedure Senior Officer**

Prescribe type of flashing light to be employed.

**4. Procedure Conducting Ship**

- a. Transmit three exercise messages at a rate not to exceed 10 wpm for the directional flashing light and 8 wpm for the non-directional flashing light<sup>7</sup>.
- b. Prepare these messages as follows:

Message No 1 (4-letter words) DOWN PORT FLAG STBD FORM WHEN TIME SHIP FROM BOAT TYPE BOWS ETC
Message No 2 (5-letter words) OTHER DRESS STERN FLOWN SCOPA CLASS BROAD COVER GUIDE DAILY ETC
Message No 3 (6-letter words) ENSIGN BUGLER SUNSET SUNRISE DIPPED SINGLE MASTED MOBILE SIGNAL ETC

The conducting ship should feel free to change the number of letters per word.

**5. Marking**

Each error should result in a two-point deduction.

**6. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

<sup>7</sup> In accordance with ACP-176, article 207a.

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<b>CHAPTER 3    COMBINED RADIOTELEPHONE AND VISUAL COMMUNICATIONS</b>
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**0301 Introduction**

The purpose of the Combined Radiotelephone and Visual Naval Communication Exercises in chapter 3 is mainly the training of signal and radio communication personnel in the combined use of communication systems thereby improving cooperation between signal and radio personnel.

As radiotelegraph is not a valid communication means in NATO, all references to radiotelegraph have been removed.

**NAVCOMEX 301  
RADIO-VISUAL COMMUNICATIONS DRILL**

**1. Purpose**

To provide training for all communication personnel in radiotelephone and flag hoisting.

**2. Procedure Conducting Ship**

Transmit signals from ATP-01 Vol. II by executive method. Use radiotelephone.

**3. Procedure Exercise Ships**

- a. Repeat signal by flaghoist at the dip. When the signal is understood, close up.
- b. Haul down when the signal to execute is received by radio.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.



**NAVCOMEX 302  
RADIO-VISUAL TACTICAL DRILL  
(SIMULATED)**

**1. Purpose**

To exercise communication personnel in radiotelephone procedures and in maneuvering signals.

**2. Provisions**

- a. The drill is to be simulated with respect to ship's movement, which will be carried out by plotting on maneuvering boards (paragraph 0108).
- b. The drill may be conducted either in port when visibility is favorable or underway when traffic and weather conditions permit.

**3. Procedure Conducting Ship**

- a. Promulgate the organization for the exercise (see Order Table QQ, Table 1-1 in Chapter 1).
- b. Prepare a series of maneuvers and transmit via radiotelephone.
- c. At end of exercise, require all ships to signal simultaneously the following:
  - (1) If in organization 1:
    - Final course
    - Speed
    - Station
  - (2) If in organization 2:
    - Final formation
    - Speed
    - Other pertinent data as required

**4. Procedure Exercise Ships**

- a. Repeat all messages of the conducting ship by radiotelephone or by flaghoist.
- b. Work maneuvering boards in accordance with prescribed procedure.
- c. Signal information as requested by conducting ship.

5. Exercise Report

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**CHAPTER 4    RADIOTELEPHONE AND RADIOTELETYPE EXERCISES****0401 Introduction**

The purpose of the Radiotelephone and Radioteletype Exercises in chapter 4 is the training of communication personnel in procedures related to the use of radio communications. As radiotelegraph is not a valid communication means in NATO any longer, all references to radiomorse have been removed.

In case a NCX as a whole had to be deleted for above reason, the number of this NCX has been kept in the index in order to avoid confusion by renumbering of NCX.

**NAVCOMEX 404  
FREQUENCY SHIFTING****1. Purpose**

To provide training for communication personnel in all aspects and rapid handling of setting up and operating of communications equipment in their ship.

**2. Procedure Conducting Ship/ OCE**

- a. Designate conducting ship.
- b. Specify controlling frequency.
- c. Notify different complans to be used (obtain clearance).
- d. Specify power output (use the lowest practical power).
- e. Designate date and time (DTG) exercise is to begin.
- f. Prepare a minimum of 10 frequency shifts for different transmission modes (RATT, VOICE) using frequencies from notified/cleared complans.
- g. Establish communication with all exercise ships on controlling frequency. Authentication procedure will be used when establishing the net or reporting into the net.
- h. Indicate by procedure signal the frequency the shift is to be made to. Line number(encrypted in low-grade code) will be used.
- i. Maintain guard on the controlling frequency throughout the exercise. All frequency shift orders and QRK/ QSA/ ZBZ reports will be made on the control frequency in the mode designated by the OTC.
- j. Call those stations failing to switch to the new frequency on controlling frequency and inform with operating signal ZGN before ordering a new frequency shift

**3. Procedure Exercise Ships**

- a. Transmitters and receivers of all exercise ships should be set on specified frequency at least 15 minutes prior to commencement of the exercise.
- b. Establish communications as directed by conducting ship. Authentication procedure will be used when establishing the net or reporting into the net.
- c. Maintain a listening watch on the control frequency throughout the exercise.
- d. Shift transmitters as necessary.
- e. Make radio check on new frequency in appropriate mode (QRK/ QSA/ ZBZ) with conducting ship. *Note: Listen before transmitting.*

#### **4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships. Number of correct frequency shifts/transmission modes will be indicated.

**NAVCOMEX 405  
RADIOTELEPHONE PROCEDURE  
(ENGLISH LANGUAGE)**

**1. Purpose**

To provide training for communication personnel in the proper application of radiotelephone procedure.

**2. Procedure Conducting Ship**

- a. Prepare and transmit messages (in English plain language or in the valid low-grade code) to all participating ships, either individually or collectively.
- b. Use all forms of radiotelephone procedure, including the application of the effective allied authentication code.
- c. Order all operators to transmit in English language only.

**3. Procedure Exercise Ships**

- a. Notify OCE if English-speaking operators are not available.
- b. Establish communication as directed by the conducting ship.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**NAVCOMEX 409  
RECEIVING DURING INTERFERENCE**

**1. Purpose**

To train radio personnel in receiving during interference.

**2. Procedure Conducting Ship**

Designate one or more ships to provide interference on designated drill circuit by any available means.

**3. Procedure Exercise Ships**

- a. Attempt to copy all traffic on drill circuit through interference.
- b. Submit messages to conducting ship for analysis.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**NAVCOMEX 410  
COMSEC AWARENESS****1. Purpose**

To provide training in all forms of radiotelephone procedures for communication personnel including the use of authentication, COMSEC procedures and operation signals.

**2. Procedure Conducting Ship**

- a. Order exercise ships to transmit questions that require application of all points of procedure.
- b. Enforce rigid circuit discipline at all times.
- c. Require Challenge and Reply and Transmission Authentication procedures to be conducted during exercise.
- d. Initiate requirement for Bead Window and Gingerbread procedures to be practiced during the exercise.
- e. Require at least one shift of frequency to be practiced during the exercise.

**3. Procedure Exercise Ships**

- a. Prepare a minimum of 5 questions.
- b. Transmit messages when ordered by conducting ship.
- c. Identify breaches of COMSEC and initiate appropriate procedures.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships indicating a list of COMSEC breaches observed.



**NAVCOMEX 415  
RECEIVING ENGLISH LANGUAGE RADIOTELEPHONE COMMUNICATIONS**

**1. Purpose**

To exercise communication personnel in typing or writing out messages dictated by radiotelephone.

**2. Procedure Conducting Ship/ OCE**

- a. Select 200 English words taken from any English book.
- b. Specify power output (use the lowest practical power output).
- c. Have operators transmit the 200 words in plain language at a dictation speed of 20 wpm.

**3. Procedure Exercise Ship**

Have communication personnel type or write out the 200 words dictated by the conducting ship operators.

**4. Evaluation**

If desired, papers may be collected, graded, and the merits signaled to the exercise ship. Attainable score: 100 (deduct one-half point for each word containing 1 or more mistakes)

*Note: The following suffixes may be added to the short title of the exercise to indicate the speed of the dictation and standard of advancement:*

No Suffix	200 words at 20 words a minute
A	250 words at 25 words a minute
B	300 words at 30 words a minute
C	350 words at 35 words a minute

**NAVCOMEX 416  
RECEIVING AND TRANSMITTING ENGLISH LANGUAGE RADIOTELEPHONE  
COMMUNICATIONS**

**1. Purpose**

To exercise communication personnel in pronouncing the English language.

**2. Procedure OCE**

- a. Designate conducting ship with an English-speaking officer able to assess pronunciations.
- b. Designate DTG of exercise.
- c. Specify frequency to be used.

**3. Procedure Conducting Ship**

- a. Transmit by radiotelephone encoded signal from current edition of ATP-1 Vol. II (signal should require an answer).
- b. Issue comment of operators' pronunciation and require repetition of words incorrectly pronounced.

**4. Procedure Participating Ships**

- a. Decode signal.
- b. Transmit plain language answer to question.

*Note: It is mandatory that the provisions of Article 102, ATP-01 Vol. II, be adhered to in the conduct of this exercise.*

**5. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**NAVCOMEX 417  
RADIOTELETYPE PROCEDURES****1. Purpose**

To provide training in all forms of radioteletype procedures for communication personnel and to evaluate performance.

**2. Provisions**

Transmitters and receivers of all exercise ships should be set on specified frequency at least 30 minutes prior to commencement of exercise.

**3. Procedure Conducting Ship/ OCE**

- a. Designate frequencies, on-line system and keying material (where jointly available), and type of procedure to be employed. Order exercise ships to transmit messages.
- b. Ask questions which will require application of all points of procedure.
- c. Enforce rigid circuit discipline at all times.
- d. Require authentication, operating signals, and at least one shift of frequency during the exercise.
- e. Specify the band and unit code to be used.

**4. Procedure Exercise Ship**

- a. Prepare and transmit a minimum of six messages consisting of 20-30 groups manually and six messages using tape facilities. Ships not equipped with tape facilities, transmit 12 messages manually.
- b. Transmit messages as directed by conducting ship.
- c. Maintain complete circuit log and submit to Conducting Ship/ OCE.

**5. Markings**

	<b>Maximum Credit</b>
Adherence to standard procedures (penalty of 5 points for each error)	45
Transmission (penalty of 5 points for each uncorrected error and 2 points for each corrected error, but allow one corrected error without penalty for each message transmitted manually)	40
Receiving equipment operability	10
Frequency change (calculated in accordance with Table 6-1, frequency change)	5

**6. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

**NAVCOMEX 422  
SHIP-SHORE RADIOTELETYPE PROCEDURE**

**1. Purpose**

To familiarize and to provide realistic training in the different methods employed by Nations of ship-shore radioteletype procedure, for ship and shore communication personnel including the use of authentication, operating signals and atmospheric conditions.

**2. Provisions**

Transmitters and receivers of all ships should be set on specified frequency at least 30 minutes before exercise begins.

**3. Procedure**

To liaise and request a shore station of an allied nation in the area to conduct the exercise.

**4. Procedure Shore Station**

- a. Obtain clearance for one or two secondary circuits (as practicable) in addition to the primary exercise circuit.
- b. Order exercise ships to transmit messages.
- c. Ask questions which will require application of all points of procedure.
- d. Enforce rigid circuit discipline at all times.
- e. Require authentication, operating signals and at least one shift of frequency during the exercise.
- f. Whenever practicable, upon completion of the exercise, furnish each exercise ship with copy of the exercise log showing errors noticed.

**5. Procedure Exercise Ship**

- a. Prepare a minimum of 5 messages, each message to consist of from 20 to 50 groups.
- b. Transmit messages when ordered by conducting shore station.

*Note: OSEs of this exercise should always consult the shore station or authority concerned before ordering NAVCOMEX 422. If a shore station is not available to conduct the exercise, the OSE may assign a ship to act as shore station.*

**NAVCOMEX 423  
COMBINED TACTICAL EXERCISE VISUAL, RADIOTELEPHONE, RADIOTELETYPE)**

**1. Purpose**

To train operators of visual, radiotelephone and radioteletype systems to respond using an assigned system. This includes high grade off-line cryptographic systems and low-grade codes.

**2. Procedure OCE**

- a. Order ships to be within visual range.
- b. Prepare 15 questions from current communication publications.
- c. Transmit questions by any means of communication listed in Table A. Questions may be encrypted.
- d. Precede each question by a question number.
- e. Direct a method of answering from Table A and insert it as the last sentence of the message question. All questions must be answered within 15 minutes of participating ship receipt or score zero for that question.

**3. Procedure Exercise Ship**

- a. Man visual systems (flashing lights, flaghoist), radiotelephone circuits, and radioteletype circuits.
- b. Provide bridge and AIO/ CIC operators with current low-grade codes.
- c. Appoint senior rating/ warrant officer as unit exercise director. Unit exercise director surveys questions, passes to relevant section and directs specific system to answer.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ship containing critique and score.

Table A	
DESIGNATOR	METHOD
Alfa	Flashing Light
Bravo	Flaghoist
Charlie	Radiotelephone
Delta	Radioteletype
Echo	Flashing Light – High-Grade Off-Line
Foxtrot	Radioteletype – High-Grade Off-Line
Golf	Radiotelephone – Low-Grade Code
Hotel	Flashing Light – Low-Grade Code

Scoring Table (See Table A)			
Answer System	Basic Score	Error Loss	Incorrect System
Alfa	90	-30	-50
Bravo	90	-30	-50
Charlie	70	-20	-40
Delta	70	-20	-40
Echo	100	-35	-55
Foxtrot	90	-30	-50
Golf	80	-30	-40
Hotel	100	-35	-55

The first ship with the correct answer employing correct systems receives an additional score of plus 10 points.

Remaining ships receive basic score, minus weighted error and system assessments, where appropriate.

**NAVCOMEX 424**  
**EXERCISE SAFE HANDS MESSAGE HAND-DELIVERY SYSTEM**

**1. Purpose**

To check the speed and reliability of the message delivery system in harbour.

**2. Procedure**

CTG will issue an exercise message addressed to the Force (see example 1).

**3. Action to be taken**

a. The exercise message will go through normal communication channels in accordance with the indicated precedence. It will normally have a precedence of at least Priority so it is to be delivered to the Duty Officer immediately. The Duty Officer is to be authorized to release the reply in the absence of the Commanding Officer.

b. The reply (example 2) is to be in the form of a routine message and has to include:

- (1) Time of receipt onboard by the Duty Communications Rating.
- (2) Time of delivery to the Duty Officer.
- (3) The answer to the question (if appropriate).

Example 1

```
(Z, O, P) 101231Z FEB 05
FM COMMCMFORNORTH
TO MCMFN
BT
SIC JJS
EXERCISE SAFE HAND
WHAT IS THE STANDARD DISTANCE FOR SNFC NORMALLY
BT
```



Example 2

R 101421Z FEB 05  
FM HNLMS HAARLEM  
TO COMMCMFORNORTH  
BT  
SIC JJS  
EXERCISE SAFE HAND  
101239Z (Time of receipt by the duty comes rating)  
101241Z (Time of receipt by the duty officer)  
101242Z (Time of warning the CO)  
500 yards (Answer to the question)  
BT

**NAVCOMEX 456  
TF/TG Broadcast Control****1. Purpose**

To exercise the ability to rapid creation of HF broadcast/working circuits in case of satellite communication failure or within a SATCOM denied environment.

**2. Provisions**

Within a naval group a ship will be named "Broadcast Control Ship - BCS" and will promote provisions on the conduct of the exercise and prepare the Order Table (listed in Table 1-1) to be sent at least 24 hours before the start of the exercise.

To optimize exercise duration it is advisable to do this type of training with a maximum of 5 ships, in case the number of ships is larger two different networks are suitable. Procedures iaw ACP 127 Supp 1 CH 5 Section II.

**3. Procedure Conducting Ship/OCE/BCS**

- a. Issue specific Order Table
- b. Designate frequencies, communication parameters (band/frequencies/modulation) and modem settings (transmission speed/interleaving/data port/polarity and clock), on-line system and keying material (where jointly available), and type of procedure to be employed. Order exercise ships to transmit messages (or with correct timing iaw ACP 127).
- c. The Broadcast Control Ship (BCS) is to simulate the duty of their alternative broadcast guard ship for all ships involved in the serial and relay relevant signal traffic via TG Broadcast.
- d. Issue callsigns iaw ACP 127 Supp 1 Chapter 4.
- e. Control the transmission and receipt of messages via TG Call/Answering.
- f. Enforce rigid circuit discipline at all times. BCS to draw attention to breaches via TG CALL/Answering and is to include them in the subsequent NAVCOMEX report.
- g. Request authentication on working frequency before starting the exercise, use of operating signals, and conduct at least one shift in frequency during the exercise.
- h. BCS will look for the best frequency IOT maintain optimal propagation conditions.

**4. Procedure of Exercising Ships**

- a. To optimize exercise performances, a maximum of 5 ships have to be connected on the net; in case of larger disposition, two or more different networks must be set.
- b. Prepare and transmit up to 6 drill messages. These are to be of varying precedence (except FLASH) and should take the form of a CIS related question from NATO publications.

- c. Transmit messages on TG Working as directed by conducting ship.
- d. Answer to questions are to be sent via the TG RATT/DATA organization.
- e. Maintain complete circuit log and submit to Conducting SHIP/OCE.

**5. Markings**

	Maximum Credit
Adherence to standard procedures (penalty of 5 points for each error)	40
Transmission (penalty of 5 points for each uncorrected error and 2 points for each corrected error)	40
Correct use of authentication	10
Receiving equipment operability	5
Frequency change	5

**6. Exercise Report**

After completion of the exercise the conducting ship must submit an exercise report to the participating ships.

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<b>CHAPTER 5    OFF-LINE CRYPTO EXERCISES</b>
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**0501 Introduction**

The purpose of the Off-Line Crypto Exercises in chapter 5 is the training of communication personnel in the use of off-line cryptographic systems. The exercises can be conducted either as a cryptographic exercise proper or simultaneously with another communication exercise. If it is conducted only as a crypto exercise, the officer scheduling or conducting the exercise should detail the communication means to be used for the transmission of exercise messages.

*Note that these exercises do not apply to US or French Naval Forces.*

**0502 Security Rules**

The officer arranging the exercise must ensure, prior to the exercise, that participants hold the appropriate crypto material. Before conducting the exercise it is obligatory that crypto personnel taking part and authorities responsible for the training are familiar with appropriate crypto procedures.

**1. Key Lists**

Operational key lists only are to be used for these crypto exercises. It is important to ensure that all messages transmitted are free from operational and procedural errors, which might endanger security of the crypto system.

**2. Questions and Answers**

The questions asked by the conducting ship may be of a communications or general nature, or concerned with the associated exercise, but should be worded so that the answers from each participant will be different from those of the other participants. Under no conditions should questions or answers be verbatim quotations from a newspaper or other printed documents.

**NAVCOMEX 501  
OFF-LINE CRYPTOGRAPHIC OPERATION PROCEDURES**

**1. Purpose**

To exercise communication personnel in all aspects of off-line cryptographic operating procedures. Low and high-grade crypto systems are to be used.

**2. Procedure Conducting Ship**

Ask questions by means of one or more encrypted messages addressed to the exercise ships.

**3. Procedure All Participating Ships**

- a. Prepare a minimum of 5 messages in the form of general communications knowledge questions.
- b. Each ship encrypts answers to questions and transmits to the conducting ship unless otherwise directed using the same crypto system.
- c. The encrypted answer will contain the time that the conducting ship's message was received and decrypted.

*Note: NCX 501 can be conducted simultaneously with another NCX, e.g. NCX 405 or 417.*

<b>CHAPTER 6    COMPOSITE COMMUNICATION EXERCISES</b>
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**0601 Introduction**

The purpose of the Composite Communication Exercises is the training of personnel including officers involved in communication in the use of all communications systems.

In case a NCX did no longer apply it has been deleted, but its number has been kept in the index in order to avoid confusion by renumbering of NCXs.

**NAVCOMEX 601  
CHANGE OF COMMUNICATION PLAN AND CONDITION OF READINESS**

**1. Purpose**

To exercise communication personnel in the following:

- a. Conducting fleet communications under all conditions (peace and war).
- b. Making rapid changes in radio plan and conditions of readiness.

**2. Procedure OCE**

Prepare and disseminate detailed information prior to exercise, specifying the following:

- a. Designate conducting ship.
- b. Date and time (DTG) exercise is to begin
- c. Participating naval reconnaissance aircrafts or ships to simulate reconnaissance reports.
- d. Cruising disposition to be formed - axis and positions to be occupied.
- e. Initial course and speed.
- f. Simulated conditions under which exercise is to be conducted (peace, war, position of enemy etc.).
- g. Initial circuits to be manned.
- h. Power output (use the lowest practical power output).

**3. Procedure Conducting Ship**

- a. Initiate flag and radio signals simulating conditions, which will require changes in radio plan and conditions of readiness.
- b. Record time required by participating ships to change radio plan and report change of condition of readiness to OCE.

**4. Procedure Participating Ships**

- a. Set watch 10 minutes prior to start of exercise (expect further states of radio readiness to be signaled during the exercise).
- b. Repeat flag signals initiated by the conducting ship.
- c. If desired, simulate emergency alarm reports applicable to the situation.



**NAVCOMEX 602**  
**SHORE-TO-SHIP BROADCAST COMMUNICATIONS**

**1. Purpose**

To exercise communication personnel in the rapid handling of signals received from shore stations.

**2. Situation**

Exercise to be carried out by ships in harbor and on passage.

**3. Special Provision**

All cryptography is to take place in the normal action position. Communications staffs should be augmented only as necessary to handle the volume of traffic, to man ship broadcast, and to transmit on ship-to-shore circuits. The full action team should not be required.

**4. Procedure OCE**

- a. Designate shore station to conduct exercise and ships to take part.
- b. Designate exercise frequency. Specify power output.
- c. Originate a "carry out exercise" message.

**5. Procedure Shore Station**

- a. On exercise frequency, send OCE's "carry out exercise" message followed by time check.
- b. Transmit 12 messages on Ship Broadcast as follows:
  - 4 messages in high-grade systems with 2 containing questions.
  - 4 messages in low-grade systems with 1 containing question.
  - 4 unclassified messages with 1 containing question.
- c. Broadcast the 12 messages at intervals throughout the exercise. Use normal call signs or address groups as applicable. If desired, include in encrypted messages imaginary addresses and originators.
- d. For encrypting messages, use any cryptographic system common to all ships taking part.
- e. Identify exercise messages in accordance with paragraph 0106.
- f. Signals "NAVCOMEX 602 completed" after all ships have reported "Finished".

## 6. Procedure Participating Ships

- a. Each ship nominates an officer to represent the Commanding Officer and places him in any position well apart from the receiving or transmitting office.
- b. Transmit direct to shore station all replies, requests for checks, requests for repeats, etc.
- c. Deliver plain language versions of all received messages to CO representative as soon as possible.
- d. When all replies are cleared and all signal action is completed, transmit "Finished at (insert time)" direct to shore station.

## 7. Procedure CO's Representative (each ship)

- a. When each message is received, insert time to the nearest minute on the form and initial it. Originate all replies by signing DTG (correct local time).
- b. Upon receipt of all exercise messages originate "Finished at (insert time)" message for shore station.
- c. Accept no message form or correction after releasing "Finished at..." message.
- d. On completion of exercise send to OCE all exercise messages received using quickest method.

## 8. Reports Participating Ships

On completion of exercises, send to the conducting authority by hand message or signal the following pro-forma in six columns:

- a. DTG of INCOMING message
- b. TOR (Time of Receipt)
- c. Time plain language copy is handed to CO's representative
- d. DTG of OUTGOING message
- e. Time started calling on ship-to-shore f. Time cleared on ship-to-shore

## 9. Evaluation Conducting Authority

Assign penalties according to the following table. A penalty is counted under only one heading. Accordingly a reception fault is not counted as a cryptographic fault.

			Penalties
1.	Each group missing or in error, incorrect answers to questions, and encryption errors	1	fault
2.	A group conveying more than one item of information	1	Fault for each wrong item
3.	Wrong table or setting used (in addition to faults made in encryption)	5	faults
4.	The use of a cryptographic system that is not held by the addresses		Maximum number of faults from other errors plus 10
5.	Use Table 6-2 for evaluation of transmission and receipt	1	Fault for each 10 minutes

**10. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships and to promulgate an Order of Merit with column headings as follows:

- a. Order of Merit
- b. Number of Reception and Cryptographic Faults
- c. Time Penalty
- d. Total Faults
- e. Time Taken

**NAVCOMEX 603**  
**COMPETITIVE RADIOTELETYPE ON-LINE AND VISUAL COMMUNICATIONS**

**1. Purpose**

To exercise radioteletype and visual communication personnel in receipt and employment of cryptography.

**2. Procedure OCE/ Conducting Ship**

- a. Designate conducting ship.
- b. Specify DTG exercise is to begin.
- c. Specify power output (use the lowest practical output).
- d. Transmit encrypted messages in a low-grade code via radioteletype.
- e. Record time of receipt of each participating ship's flaghoist.
- f. Record number of flaghoist errors in each message by each participating ship.

**3. Procedure Participating Ship**

- a. Decrypt messages received and provide compass, platform or flagdeck (as appropriate) with plain language copies.
- b. Compass, platform or flagdeck encrypt answers in appropriate code.
- c. Reply to conducting ship by groups hoisted by flags.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

Evaluation of exercise will be conducted as follows:

- a. Award 2 points credit to first correct flaghoist answer to each question.
- b. Deduct 1 point for each error in individual ship's flaghoist.

**NAVCOMEX 604  
FREQUENCY CHANGE****1. Purpose**

To ensure that ships can execute rapid HF frequency changes accurately without breaking radio silence.

**2. Procedure OCE/ Conducting Ship**

- a. Designate conducting ship (preferably one with HFDF).
- b. Designate participating ships.
- c. Specify controlling frequency (preferable voice UHF).
- d. Specify power output (use the lowest practical output).
- e. Before the beginning of the exercise, circulate to the participating ships lettered envelopes, each containing a frequency.
- f. During the exercise, signal when each lettered envelope is to be opened.
- g. Acknowledge on controlling frequency each ship's own call sign when received.

**3. Procedure Participating Ship**

- a. Set watch on the controlling frequency 10 minutes prior to start of exercise.
- b. Open a lettered envelope containing a frequency on receipt of a signal from the conducting ship.
- c. Set watch on frequency indicated and transmit own callsign for 15 seconds on frequency indicated.
- d. Make no other transmission than a 15-second net callsign transmission.
- e. Return unused envelopes to conducting ship.

*Note: Changing frequency may be required of as few as a single ship at any particular time. New callsign to be used may be ordered for any selected day.*

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

Assess results on basis of time taken to change to ordered frequency and on the accuracy of the change. Assign total of 14 points to each change and deduct penalties as follows:

	<b>Penalty</b>
Each 10 Hz off of frequency	1 point
Ships detected tuning up "on the air"	14 points
Automatic Transmitter After the first 30 seconds, each additional 5 seconds required to change	1 point
Manual Transmitter After the first 30 seconds, each additional 30 seconds required to change	1 point

**NAVCOMEX 607**  
**COMPETITIVE RADIOTELEPHONE AND VISUAL COMMUNICATIONS**

**1. Purpose**

To exercise radiotelephone and visual communication personnel in receipt and employment of cryptography.

**2. Procedure OCE/ Conducting Ship**

- a. Designate conducting ship.
- b. Specify DTG exercise is to begin.
- c. Designate frequency to be used.
- d. Specify power output (use the lowest practical output).
- e. Specify low-level crypto to be used.
- f. Designate participating ships (recommend three or more to promote competition).
- g. Transmit encrypted tactical messages (at least four messages) in low-grade code via radiotelephone.
- h. Record time of receipt of each participating ship's flaghoist.
- i. Record number of flaghoist errors in each message by each participating ship.

**3. Procedure Exercise Ship**

- a. Decrypt messages received and provide compass, platform or flag deck (as appropriate) with plain language copies.
- b. Compass, platform or flag deck encrypt answers in appropriate code.
- c. Reply to conducting ship by hoisting appropriate signals from ATP-01 Vol. II.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships.

Evaluation of exercise will be conducted as follows:

- a. Award 2 points credit to first correct flag hoist answer to each question.
- b. Deduct 1 point for each error in individual ship's flaghoist.

**NAVCOMEX 608  
SECURE PC-TO-PC FILE TRANSFER**

**1. Purpose**

To train communication personnel in transferring electronic data through secure telephone means.

**2. Procedure OCE/ Conducting Ship**

- a. Designate conducting ship.
- b. Prepare and disseminate detailed information prior to the exercise
- c. Phone Numbers of all units (e.g. INMARSAT numbers).
- d. State Engineering frequency (secure RTF).
- e. Order in which the data file has to be transferred between units.
- f. Establish configuration of PC communication port, crypto device and software to be used, keymat etc.
- g. Prepare a file of maximum 50 KB.
- h. At serial start transfer file to first unit.

**3. Procedure Participating Ships**

- a. Acknowledge receipt of file on engineering frequency to conducting ship.
- b. Transfer file to next unit.
- c. Last ship transfer file to conducting ship.

**4. Remarks**

If transfer fails conducting ship transfers file to next participating unit. Conducting ship reports to

OCE which units failed to transfer the file.



**NAVCOMEX 609  
HIGH FREQUENCY ELECTRONIC MAIL (HFEM)**

**1. Purpose**

To train communications personnel in network setup for, and use the HFEM iaw HFEM SOP (MC3G STANAG 5066 High Frequency EMAIL Standard Operating Procedures (HFEM SOP) in order to practice exchange of emails, file transfer, distribution of Common Operational Picture (COP), chat and data replication.

**2. Procedure OCE/ Conducting Unit**

- a. Designate conducting unit.
- b. Determine aim and objective of the exercise, basic or advanced use of the system
  - basic would consist of engineering and system use in plain without a crypto device
  - advance would consist of engineering system use iaw chapter 6 of the HFEM SOP.
- c. Prepare and disseminate detailed information iaw chapter 3 and 4 of the HFEM SOP prior to the exercise (to include frequency, standby frequency, offsets, crypto, modem, wave form, modem data rate, modem interleave, email protocol and client type in use).
- d. Disseminate contact details, phone numbers and/ or chat room to be monitored. Including the units the units' node address and the unique user and domain name.
- e. Designate a plain voice radio circuit for basic or a secure voice radio circuit for advanced exercises to be monitored throughout for engineering purposes.
- f. Establish iaw chapters 3 and 4 of the HFEM SOP configuration of PC communication port, modem, crypto device and software to be used prior to serial start
- g. State the order in which emails are to be passed between units with forwarding and attachment instructions.

**3. Procedure Participating Units**

- a. Provide all participants with own node address and unique user and domain name.
- b. Establish iaw chapters 3 and 4 of the HFEM SOP configuration of PC communication port, modem, crypto device and software to be used prior to serial start.
- c. On receipt of an email, carry out any forwarding and action instructions while logging both, timing and data rate.

**4. Exercise Report**

After completion of the exercise the conducting unit is to submit an exercise report to the participating units highlighting any engineering issues and commenting on email transfer procedures based on the aim of the exercise. The conducting unit must also request

for consolidate all feedback on the HFEM SOP iaw page 2 of the SOP. The logged information on timings and the data rates should be used to brief the command on the use an limitations of the system.

**Table 6-1. Frequency Change (100 Points)**

Score frequency change on (1) adherence to the prescribed tolerance, and (2) speed of setting up the frequency. Assign points as follows:				
Frequency Adjustment			Time required to change frequency	
Frequency	Frequency Error	Points	Automatic or semi-automatic tuning	Points
<b>50 kHz to 535 kHz</b>	5 % or less	50	Less than 1 minute	50
	Over 5 %	0	1-2 minutes	35
			2-3 minutes	15
<b>536 kHz to 30 MHz</b>	1.5 % or less	50	Over 3 minutes	0
	Over 1.5 %	0		
<b>Above 30 MHz</b>	1 % or less	50	Manually tuned equipment	Points
	Over 1 %	0	<b>Less than 3 minutes</b>	50
			<b>3-4 minutes</b>	35
			<b>4-5 minutes</b>	15
			<b>Over 5 minutes</b>	0

**Score**

Each frequency change can score a possible 100 points. Average the total number of changes to obtain the points to be used to determine the weighted score for frequency change.

**SPEED IN TRANSMISSION AND RECEPTION (100 POINTS)**

The time required to encrypt and decrypt message is not to be included in computing speed grade.

Table 6-2. Speed Standard for Transmission and Reception

<b>Score</b>	<b>100</b>	<b>98</b>	<b>96</b>	<b>94</b>	<b>9</b>	<b>90</b>	<b>88</b>	<b>86</b>	<b>84</b>	<b>82</b>	<b>80</b>	<b>78</b>	<b>76</b>	<b>74</b>
<b>Minutes</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
<b>Score</b>	<b>72</b>	<b>70</b>	<b>68</b>	<b>66</b>	<b>64</b>	<b>62</b>	<b>60</b>	<b>58</b>	<b>56</b>	<b>54</b>	<b>52</b>	<b>50</b>	<b>48</b>	<b>46</b>
<b>Minutes</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>32</b>
<b>Score</b>	<b>44</b>	<b>42</b>	<b>40</b>	<b>38</b>	<b>36</b>	<b>34</b>	<b>32</b>	<b>30</b>	<b>28</b>	<b>26</b>	<b>24</b>	<b>22</b>	<b>20</b>	<b>18</b>
<b>Minutes</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>	<b>37</b>	<b>38</b>	<b>39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>
<b>Score</b>	<b>16</b>	<b>14</b>	<b>12</b>	<b>10</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>Minutes</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>50</b>	<b>51</b>	<b>52</b>	<b>53</b>	<b>54</b>	<b>55</b>	<b>56</b>	<b>57</b>	<b>58</b>	<b>59</b>	<b>60</b>

Components of Table 6-2 are the average of the following:

- a. Average time of all incoming messages from Time of Receipt (TOR) until messages released by Communications Watch Officer (CWO) for internal distribution to Action or Info officers.
- b. Average time of all transmitted messages from delivery to CWO to time of Delivery (TOD)

Score

Average a. and b., and using Table 6-2, obtain points to be used to determine the weighted score for Speed in Transmission and Receipt.

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<p><b>CHAPTER 7    CYBERWARFARE EXERCISES</b></p>
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**0701 Introduction**

The purpose of the Cyberwarfare exercises contained in Chapter 7 is the training in the cyber domain. Train all ships crews to identify/realize/detect any kind of cyber incident in their environment. Report it and act as a ship in accordance with standing instructions.

**NAVCOMEX 701  
RIVER CITY INTIALIZATION****1. Purpose**

To provide training for communication personnel in initial setup and verification of RIVER CITY states

**2. Procedure Conducting Ship/ OCE**

- a. Designate conducting ship.
- b. Specify controlling frequency.
- c. Notify and consult with participating units regarding optimal timings to minimize operational impact during exercise.
- d. Specify whether any changes will be simulated.
- e. Designate date and time (DTG) exercise is to begin.
- f. Establish communication with all exercise ships on controlling frequency. Authentication procedure will be used when establishing the net or reporting to the net.
- g. Maintain guard on the controlling frequency throughout the exercise.
- h. Call those stations failing to report within pre-established time frames in regards to standing up of new RIVER CITY state(s).

**3. Procedure Exercise Ships**

- a. This exercise may be conducted as a table top exercise if operational requirements prevent any possible down time.
- b. Establish communications as directed by conducting ship. Authentication procedure will be used when establishing the net or reporting into the net.
- c. Maintain a listening watch on the control frequency throughout the exercise.
- d. Participating units are to respond to OCE upon achievement of stable state on pre-defined RIVER CITY state.

**4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships. Note the status of RIVER CITY state before and after, as well as number of attempts and verifications required. This number may also reflect multiple attempts and verifications due to the number of personnel involved onboard participating ships.

(a) NAVCOMEX 702

(b) RIVER CITY STATE CHANGE

### **1. Purpose**

To provide training for communication personnel in the change of RIVER CITY states and reporting of change of states to national and fleet authorities.

### **2. Procedure Conducting Ship/ OCE**

- a. Designate conducting ship.
- b. Specify controlling frequency.
- c. Notify and consult with participating units regarding optimal timings to minimize operational impact during exercise.
- d. Specify whether any changes will be simulated.
- e. Designate date and time (DTG) exercise is to begin.
- f. Establish communication with all exercise ships on controlling frequency. Authentication procedure will be used when establishing the net or reporting into the net.
- g. Maintain guard on the controlling frequency throughout the exercise.
- h. Call those stations failing to report within pre-established time frames in regards to standing up of new RIVER CITY state(s).

### **3. Procedure Exercise Ships**

- a. This exercise may be conducted as a table top exercise if operational requirements prevent any possible down time.
- b. Establish communications as directed by conducting ship. Authentication procedure will be used when establishing the net or reporting into the net.
- c. Maintain a listening watch on the control frequency throughout the exercise.
- d. Participating units are to respond to OCE upon achievement of stable state on pre-defined RIVER CITY state(s).

### **4. Exercise Report**

After completion of the exercise the conducting ship has to submit an exercise report to the participating ships. Note the status of RIVER CITY state before and after, as well as number of attempts and verifications required. This number may also reflect multiple attempts and verifications due to the number of personnel involved onboard participating ships.

(c) NAVCOMEX 710

(d) CYBER INCIDENT

## 1. Purpose

To provide training for warfighters to identify and communicate a cyber incident in accordance with standard operating procedures in order to ensure correct implementation of cyber response measures and to rectify/mitigate an attempted denial of service (DOS) or breach of security in regards to information services.

## 2. Procedure Conducting Ship/OCE

- a. Designate conducting ship.
- b. Review CTG Cyber Warfare instructions.
- c. Review CTG Cyber Incident reporting instructions.
- d. Specify the type, duration, and severity of attack vectors by opposition
- e. Specify if passive or active methods will be used for denial of service
- f. Designate date and time (DTG) exercise is to begin.
- g. Prepare scenario guidelines and identify redundant/secondary lines of communication
- h. Establish communication with all exercise ships on controlling frequency. Authentication procedure will be used when establishing the net or reporting to the net.
- i. Indicate by procedure signal the degradation and/or loss of circuits/networks and whether actual or simulated loss of communication on affected networks is to be utilized.
- j. Maintain guard on the controlling frequency throughout the exercise. All "no duff" or reversion to normal operating environment reports will be made on the control frequency in the mode designated by the OTC.
- k. Call those stations failing to observe pre-established guidelines and inform with pre-established operating signals if they are unable to continue due to operational requirements.
- l. Draft CYBER Incident Report (for Exercise only)

## 3. Procedure Exercise Ships

- a. Transmitters and receivers of all exercise ships should be set on specified frequency at least 15 minutes prior to commencement of the exercise.
- b. Establish communications as directed by conducting ship. Authentication procedure will be used when establishing the net or reporting into the net.
- c. Maintain a listening watch on the control frequency throughout the exercise.



d. Shift transmitters as necessary.

e. Make check on new frequency or other data circuits in appropriate mode with conducting ship. Note: Listen before transmitting.

**4. Exercise Report**

After completion of the exercise the conducting ship is to submit an exercise report to the participating ships. State the timings and expected/unexpected results and any lessons learned during the exercise.

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