



PUNONGHIMPILAN TANOD BAYBAYIN NG PILIPINAS

Headquarters Philippine Coast Guard

139 25th Street, Port Area

1018 Manila

CG-11

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STANDING OPERATING PROCEDURE

NUMBER

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DIGITAL SELECTIVE CALLING (DSC) OPERATIONS DOCTRINE

I. REFERENCES:

- a. Radiotelephone Manual (CGWCEISC 01-16)
- b. SOP Nr 04-10 Creation/Organization of HPCG, District and Station Command Centers
- c. International Telecommunications Union (ITU) Radio Regulations
- d. SOLAS 1974 Chapter IV Radio communications
- e. International Code of Signals

II. INTRODUCTION:

The primary purpose of the Global Maritime Distress and Safety System (GMDSS) is to improve telecommunications to and from ships at sea by automatically identifying the caller and the location of a vessel in distress. The components of GMDSS rely primarily on satellite communications instead of traditional terrestrial communications (i.e., VHF/MF voice and radiotelegraphy). GMDSS becomes fully effective for the 77 signatory nations of the Safety of Life at Sea (SOLAS) convention on February 1, 1999.

As a component of the GMDSS, Digital Selective Calling (DSC) is designed for automatic station calling, distress alerting, and the establishment of communications. DSC terminals call specific units, stations or sub-stations to establish communications. DSC calls are made using the applicable Maritime Mobile Station Identity (MMSI) and appropriate DSC guarded frequencies. The MMSI is the equivalent of the international radio call sign for establishing DSC communications. DSC calls include distress, urgency, safety, position information, or other information as applicable.

For international operational purposes the GMDSS system sub divides the World into 4 main geographical Sea Areas namely, GMDSS Sea Areas A1, A2, A3 and A4. The communication range of the different types of radio communication systems necessarily carried on board SOLAS vessels at sea, substantially defines the geographical boundaries of these Sea Areas.

GMDSS has nine (9) specific functions which SOLAS ships must be capable of performing. Below are the following functions concerning the Coast Guard for DSC purposes:

- a. Transmitting ship-to-shore distress alerts;
- b. Transmitting and receiving ship-to-ship distress alerts;
- c. Receiving shore-to-ship distress signals or calls;
- d. Transmitting and receiving Search and Rescue (SAR) coordination communications;
- e. Transmitting and receiving on-scene communications;
- f. Transmitting and receiving locating signals (EPIRBs/ELTs);
- g. Transmitting and receiving Maritime Safety Information (MSI);
- h. Transmitting and receiving general radio communications (ship/ship and ship/shore); and
- i. Transmitting and receiving bridge-to-bridge communications.

III. **PURPOSE.** To establish policy and operational doctrine for the use of MF/HF/VHF Digital Selective Calling (DSC) in support of the Global Maritime Distress and Safety System (GMDSS) at Coast Station and Ship Station within the Philippine Coast Guard (PCG) Telecommunication System.

IV. **SCOPE.** This procedure is applicable for all Philippine Coast Guard Units afloat and ashore equipped with DSC System and capable of receiving distress, urgent and safety information.

V. **DEFINITION OF TERMS:**

For the purpose of this SOP, the following terms shall mean:

a. **Coast Station** – refers to PCG Districts, Stations and Sub-stations equipped with DSC System and capable of receiving distress, urgent and safety information.

b. **COMMELEX** – Communication Electronics is the specialized field concerned with the use of electronic devices and systems for the acquisition or acceptance, processing, storage, display, analysis, protection, disposition, and transfer of information.

c. **COMMELEX Personnel** – a duty trained Radioman/Radio Technician who is in-charge of the operation, preventive maintenance and repair of the COMMELEX equipment on-board PCG vessel and PCG manned vessel.

d. **DSC** – Digital Selective Calling is a standard for sending pre-defined digital messages via the medium frequency (MF), high frequency (HF) and

very high frequency (VHF) maritime radio systems. It is a core part of the Global Maritime Distress Safety System (GMDSS).

e. **GMDSS** – Global Maritime Distress and Safety System is an international system which is used to improve terrestrial and satellite technology and shipboard radio systems. It ensures rapid alerting of shore-based rescue and communications authorities in the event of an emergency.

f. **HF** – High Frequency is the range of radio frequency electromagnetic waves (radio waves) between 3 and 30 MHz. It is also known as the decameter band or decameter wave as its wavelengths range from one to ten decameters (ten to one hundred meters).

g. **MF** – Medium Frequency is the radio frequency (RF) in the range of 300 kHz to 3 MHz. Part of this band is the medium wave (MW) AM broadcast band.

h. **MMSI** – Maritime Mobile Service Identity is a series of nine digits which are sent in digital form over a radio frequency channel in order to uniquely identify ship station, ship earth stations, coast station, coast earth stations, and group call. These identities are formed in such a way that the identity or part thereof can be used by telephone and telex subscribers connected to the general telecommunications network to call ships automatically.

i. **Sea Area A1** - VHF-FM Range - Coastal Area to approximately 20 miles offshore within the radiotelephone coverage of at least one VHF coast station with continuous DSC alerting capabilities. Sea Area A1 must be declared effective by a signatory nation.

j. **Sea Area A2** - MF Range - The area beyond VHF-FM coverage to approximately 200 miles offshore within the radiotelephone coverage of at least one MF station with continuous DSC alerting capabilities. Sea Area A2 must be declared effective by a signatory nation.

k. **Sea Area A3** - INMARSAT - Generally defined as the area between 70N and 70S. Sea Area A3 includes Sea Areas A1 and A2 if not declared effective by the signatory nation.

l. **Sea Area A4** - Beyond Areas A1, A2, and A3. Generally defined as the regions north of 70N and south of 70S.

m. **Ship Station** – refers to PCG commissioned vessels and PCG manned vessels equipped with DSC System and capable of receiving distress, urgent and safety information.

n. **SITOR** – Simplex Teletype Over Radio is a system for transmitting text messages.

o. **VHF** – Very High Frequency is the range of radio frequency electromagnetic waves (radio waves) from 30 MHz to 300 MHz, with corresponding wavelengths of ten to one meter.

VI. POLICIES:

a. Requirements:

Coast Guard Communication Stations will guard the following DSC frequencies:

DSC Frequency	Voice Frequency	SITOR Frequency
156.525MHz	156.8MHz	N/A
2187.5 kHz	2182 kHz	2174.5 kHz
4207.5 kHz	4125 kHz	4177.5 kHz
6312.0 kHz	6215 kHz	6268 kHz
8414.5 kHz	8291 kHz	8376.5 kHz
12577.0 kHz	12290 kHz	12520 kHz
16804.5 kHz	16420 kHz	16695 kHz

b. All Radio Communication Equipment with DSC shall always be placed at "switch on" mode twenty-four (24) hours a day, seven (7) days a week "24/7" operation unless there is an equipment failure.

c. Regular radio checks are encouraged. When conducting radio checks via DSC, the alert signal shall not be used. Over-the-air testing of DSC distress alerts is encouraged on the appropriate working frequency. Testing of DSC distress alerts shall not be conducted on DSC frequencies as stated on para (VI.a) of this SOP.

d. All DSC Distress calls shall be acknowledged immediately via DSC on the same frequency where the call was received. All other DSC calls will be acknowledged if requested by the originator. The originator will normally dictate the method of acknowledgment (i.e., DSC, voice) and the working frequency in the initial DSC data transmission.

e. International Code of Signals (see Annex) will be used whenever a language barrier exists between the originating and responding stations.

f. All distress, urgent and safety calls received by a Coast Station shall be forwarded to their respective Coast Station. Other messages (example: Weather observation and urgent information) will be processed in accordance with current procedures.

g. The proper method for Coast Station and Ship Station to cancel a false alert they initiated as stated in para (VI.a) of this SOP is to stop the transmission immediately, switch to the associated voice frequency and make an "all stations" broadcast. The broadcast should indicate the name, callsign, MMSI number and state that the station is cancelling the false alert sent with the date/time.

h. All DSC initiated calls addressed to the PCG must be acknowledged. If the PCG is unable to provide the requested service, the originator will be notified that PCG is unable to comply and will be directed elsewhere for response.

i. Responding Coast Station and Ship Station will use the MMSI number of the remote site from which they are transmitting in order to uniquely identify coast station and ship station.

j. All PCG originated DSC calls are preceded by a pre-set 200-bit phasing sequence. The phasing sequence gives character bit information to the receiver to allow accurate assignment of characters within a call sequence.

k. All Ship Stations that receive DSC distress alert from another ship shall watch for the reception of a distress acknowledgment on the distress channel (2187.5 kHz on MF and channel 70 on VHF) and thereafter shall:

- Prepare to receive the subsequent distress communication by tuning the radiotelephony receiver to the distress traffic frequency in the same band in which the DSC distress alert was received, i.e. 2182 kHz on MF, channel 16 on VHF;

- Acknowledge the receipt of the distress alert by transmitting the following by radiotelephony on the distress traffic frequency in the same band in which the DSC distress alert was received, i.e. 2182 kHz on MF, channel 16 on VHF:

- i. The distress signal MAYDAY, spoken three times;

- ii. THIS IS;

- iii. The distressed unit's name, spoken three times;

- iv. The distressed unit's call sign or other identification, spoken once; and

- v. The distressed unit's maritime mobile service identity (MMSI), spoken once (if the initial alert is sent by DSC).

Example: MAYDAY (three times) - THIS IS
SWAMPER (three times) - I'M A 46 FOOT CABIN
CRUISER, WHITE HULL WITH BLUE TRIM - MMSI
366123456 - OVER

l. All distress, urgent and safety calls received through DSC by the concern Coast Station shall be forwarded to CPCG (Attn: CGAC/CG-3) for reference and monitoring purposes.

VII. RESPONSIBILITIES:

A. Deputy Chief of Coast Guard Staff for MCWEIS, CG-11 shall:

1. Responsible for the financial support program for the maintenance of the DSC communication system;

2. Provide financial support for the GMDSS related training programs; and

3. Perform other tasks as directed.

B. Commander, CGWCEISC shall:

1. Ensure that the Manila Coast Station will guard the DSC frequencies such as 2187.5 kHz, 4207.5 kHz, 6312.0 kHz, 8414.5 kHz, 12577.0 kHz, and 16804.5 kHz for HF radio and 156.525 MHz (ch.70) for VHF radio simultaneously;
2. Responsible for the deployment and assignment of COMMELEX personnel aboard Coast Station and Ship Station to operate and maintain all DSC communication system;
3. Ensure that the COMMELEX personnel has the ability to operate and maintain DSC communication system;
4. Conduct appropriate training program and seminar to COMMELEX personnel pertaining to proper operations and distress call management using DSC communication system prior to deployment to Coast Station and Ship Station;
5. Provide technical services for the sustainment of all PCG DSC communication system;
6. Conduct regular radio check, testing and exercises relating to distress management in accordance with the prescribed rules and regulations; and
7. Perform other tasks as directed.

C. All District Commanders and Station Commanders shall:

1. Ensure that the Coast Station will guard the DSC frequencies such as 2187.5 kHz, 4207.5 kHz, 6312.0 kHz, 8414.5 kHz, 12577.0 kHz, and 16804.5 kHz for HF radio and 156.525 MHz (ch.70) for VHF radio simultaneously;
2. Ensure that all Radio Communication Systems equipped with DSC shall always be placed at "switch on" mode twenty-four (24) hours a day, seven (7) days a week "24/7" operation unless there is an equipment failure;
3. Monitor the conduct of radio checking and testing and ensure that the appropriate working frequencies are being observed while radio checks via DSC alert signal shall not be used during the conduct of same;
4. Ensure that all DSC distress calls shall be acknowledged immediately via DSC on the frequency the call was received while other DSC calls will be acknowledged if requested by the originator;
5. Ensure that the responding Coast Station and Ship Station

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within the area of responsibility will use MMSI number of the remote site from which they are transmitting;

6. Acknowledge the DSC distress information received within its area of responsibility and subsequently respond if the need arises;

7. Report all distress, urgent and safety information received to the Headquarters Philippine Coast Guard (Attn: CGAC/CG-3);

8. Ensure that the communication range of the different types of radio communication systems that are being used during operational purposes is in accordance with four (4) GMDSS geographical areas that are Sea Areas A1, A2, A3 and A4; and

9. Perform other tasks as directed.

D. Commanding Officers, PCG Commissioned Vessels and PCG Manned Vessels shall:

1. Ensure that the COMMELEX personnel onboard will guard the DSC frequencies such as 2187.5 kHz, 4207.5 kHz, 6312.0 kHz, 8414.5 kHz, 12577.0 kHz, and 16804.5 kHz for HF radio and 156.525 MHz (ch.70) for VHF radio simultaneously;

2. Acknowledge and respond to all distress calls received and broadcast the information to all ships plying within the vicinity for the possible conduct of search and rescue operations;

3. Ensure that all incoming distress calls received will be noted and responded to if the need arises;

4. Ensure that the International Code of Signals (see Annex) will be used if there is a language barrier occurs between the originating and responding stations;

5. Monitor the conduct of radio checking and testing and ensure that the appropriate working frequencies are being observed while radio checks via DSC alert signal shall not be used during the conduct of same;

6. Report all distress, urgent and safety calls received to the nearest Districts/Stations;

7. Ensure that the communication range of the different types of radio communication systems on-board that are being used during operational purposes is in accordance with four (4) GMDSS geographical areas that are Sea Areas A1, A2, A3 and A4; and

8. Perform other tasks as directed.

E. COMMELEX personnel shall:

1. Ensure that the DSC communication system are always placed on "switch on" mode twenty-four (24) hours a day, seven (7) days a week "24/7" and kept operational unless there is an equipment failure;
2. Conduct radio check every 0800H and 1700H and ensure that the DSC communication system has its contact with the nearest Coast Station and Ship Station respectively;
3. Ensure that all DSC communication system requirements and regulations are complied with and other appropriate training and field manuals related to the radio communication are being used;
4. Observe proper voice procedures such as, protocol, call signs, and secure nets and codes in accordance with radio telephone manual;
5. Ensure that the communication range of the different types of radio communication systems that are being used during operational purposes is in accordance with four (4) GMDSS geographical areas that are Sea Areas A1, A2, A3 and A4; and
6. Perform other tasks as directed.


VIII. RECISSION. Previous publications in conflict with the provisions of the SOP are hereby rescinded.

IX. EFFECTIVITY. This Standing Operating Procedure shall take effect upon approval.

BY COMMAND OF COMMODORE GARCIA:

OFFICIAL:

BON DAN CHAN
COMMO PCG
Chief of Coast Guard Staff


LIEZEL B. BAUTISTA
LCDR PCG
Coast Guard Adjutant

27/03/17/19

ANNEX: International Code of Signals