

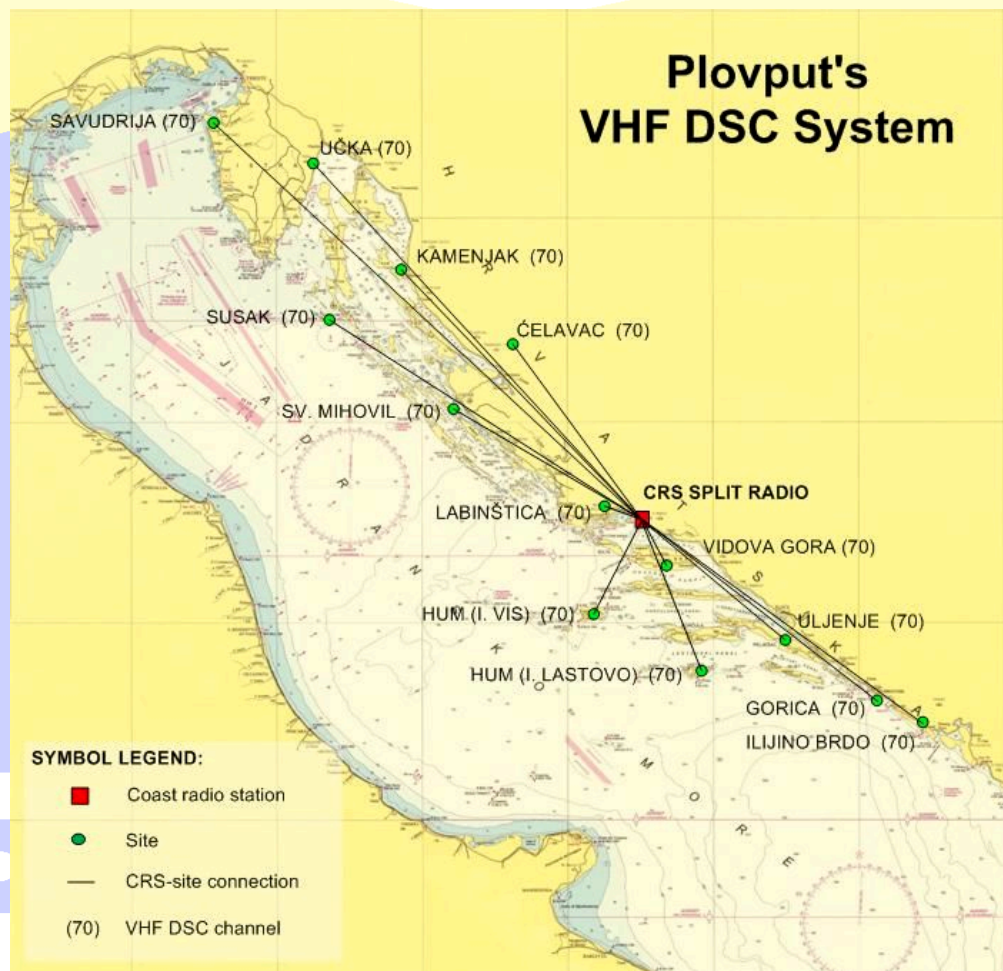
## PLOVPUT'S VHF DSC SYSTEM

### IN GENERAL ABOUT VHF DSC SYSTEM

VHF DSC (Digital Selective Call) System is a part of Global Maritime Distress and Safety System (GMDSS). It uses simplex VHF channel 70 (156.525 MHz) within which it receives and transmits phase modulated digital signal. VHF DSC is used for automatic distress, safety, emergency and routine calls.

### PLOVPUT'S VHF DSC SYSTEM

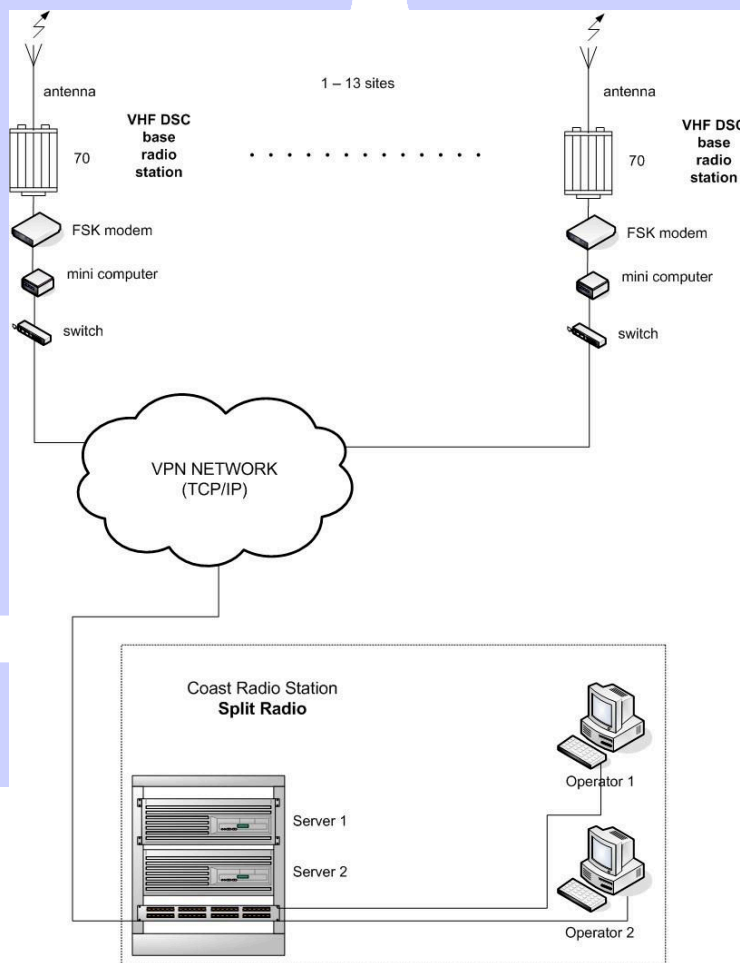
VHF DSC System of Plovput includes the equipment located in Coast Radio Station Split Radio and on 13 sites (one radio stations on each site: VHF DSC channel 70). The Coast Radio Station is connected with VHF base radio stations by means of VPN network based on TCP/IP technology.



Picture No 1: *Plovput's VHF DSC System*  
(Coast Radio Station, belonging sites and VHF channels)

Coast Radio Station	Sites	VHF DSC channels
CRS SPLIT RADIO	Lighthouse Savudrija	70
	R.R.S. Učka	70
	Lighthouse Susak	70
	R.R.S. Kamenjak	70
	R.R.S. Sv. Mihovil	70
	R.R.S. Čelavac	70
	R.R.S. Labinštica	70
	M.B. Hum (isl. Vis)	70
	R.R.S. Vidova Gora	70
	R.R.S. Uljenje	70
	R.R.S. Hum (isl. Lastovo)	70
	C.R.S. Gorica Sv. Vlaha	70
	R.R.S. Ilijino brdo	70

Table No. 1: *Plovput's VHF DSC System*  
 (list of Coast Radio Station, belonging sites and VHF DSC channels)



Picture No. 2: *Plovput's VHF DSC System*  
 (equipment on Coast Radio Station, sites and type of connection)

## VHF DSC SYSTEM IN COAST RADIO STATION

The equipment of VHF DSC System in Coast Radio Station includes:

- control and communication rack which contains two servers (main and reserve);
- two operators' places equipped with: computer, monitor, keyboard and mouse.

Basic functions of VHF DSC System in Coast Radio Station connected with VHF DSC radio stations on sites are:

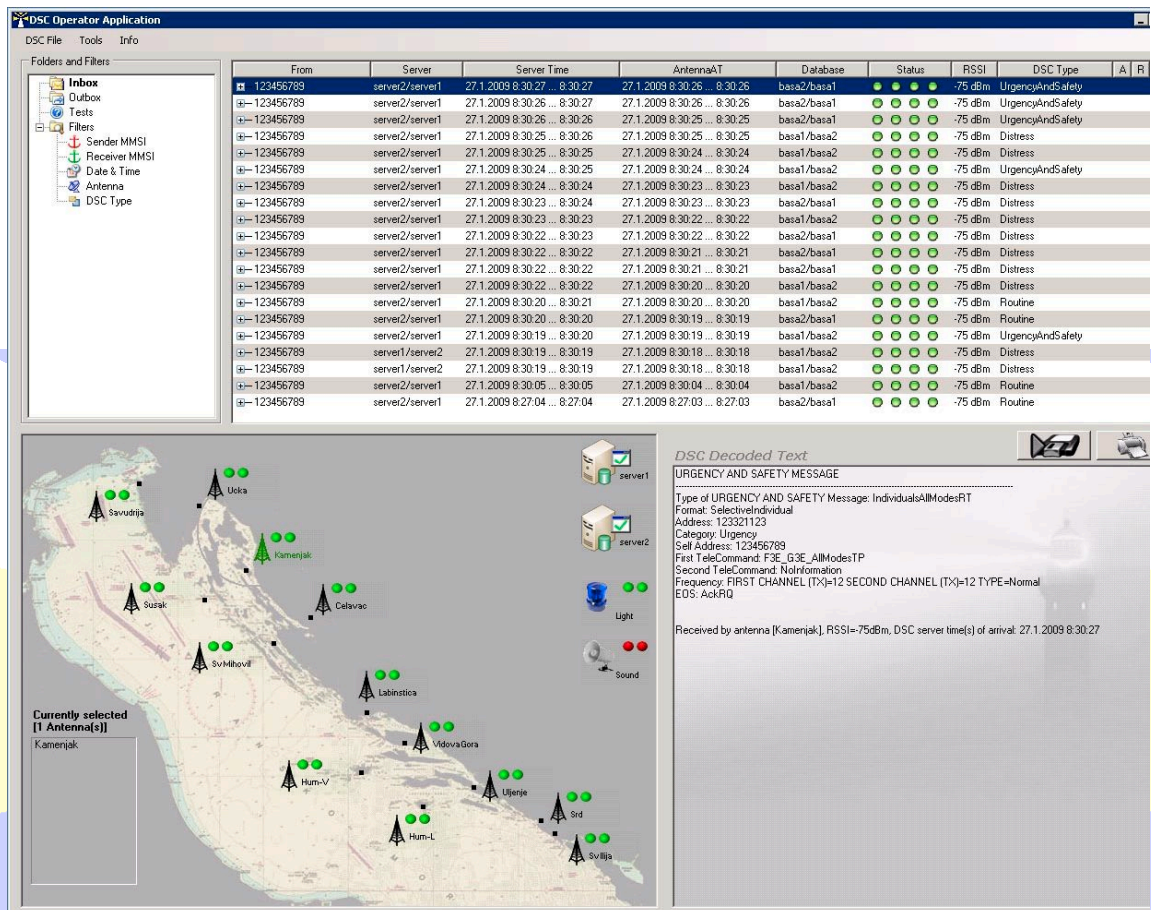
- permanent distress watch on VHF DSC channel 70;
- transmission and receiving of distress, emergency and safety calls, as well as of routine ship to shore and shore to ship calls;
- System's redundancy, namely independent functioning of both servers which work parallel with mutual synchronization of data bases, as well as independent work of each personal computer;
- guarantee of access to all VHF DSC channels from both operators' places, without regard to overloading of the System;
- continuous control of functioning of all parts of the System, including checking of communications with VHF DSC radio stations located on sites and automatic reporting of a System's failure;
- simple maintenance of certain parts of the System with its continuous work;
- possibility of remote access to the System in order to maintain the software of the entire System;
- possibility of simple enlargement of the System by adding new operators' places and VHF DSC radio stations on sites.

On operators' computer there is a continuous presentation of:

- state of all devices of VHF DSC System with the presentation of sites marked on the chart of the Adriatic Sea;
- review of all received VHF DSC calls;
- review of all transmitted VHF DSC calls;
- results of testing of single devices within VHF DSC System;
- state of availability of all devices within VHF DSC System (base radio station, server, data base, alarm).

Computer program on operators' computers has the following possibilities:

- calling of one radio station, a group of radio stations, all radio stations or radio station within certain area and receiving of calls on VHF DSC channel;
- testing of base radio stations in order to obtain information about the state of equipment on sites;
- testing of VHF DSC System by means of real VHF DSC calls;
- searching of received and transmitted DSC calls according to various criteria;
- printing and storing of received and transmitted VHF DSC calls;
- archiving of failures on all devices within VHF DSC System in order to be able to monitor the work of VHF DSC System;
- obtaining of information about RSSI (dBm) values of received VHF DSC calls in order to determine the position from which VHF DSC calls are transmitted;
- presentation of information about transmitting and reflecting power (W) of all transmitted VHF DSC calls;
- automatic transmission of a system's failure;
- automatic adjustment of System's watch by means of NTP server;
- exit from the program by means of password.



Picture No 3: VHF DSC System – main screen of a VHF DSC computer program

All VHF DSC equipment is connected to uninterrupted power supply (UPS). In case of a longer interruption of electric energy the supply is switched to a diesel generator. It is used the same diesel generator as for VHF System.

### VHF DSC SYSTEM ON SITES

The equipment of VHF DSC System on sites includes:

- base radio station for VHF DSC channel 70;
- antenna system;
- mini-computer;
- communication devices;
- uninterrupted power supply (UPS) - it is used the same UPS as for VHF System.

### COMMUNICATION BETWEEN VHF DSC SYSTEM IN COAST RADIO STATION AND ON SITES

VHF DSC System in Coast Radio Station is linked with VHF DSC base radio stations by means of VPN network based on TCP/IP technology, making possible remote access to each site within the VHF DSC system. It is used the same VPN network as for VHF System.

Sites	Connection speed
C.R.S. Split Radio	2 Mbit/s
Lighthouse Savudrija	256 kbit/s
R.R.S. Učka	256 kbit/s
Lighthouse Susak	256 kbit/s
R.R.S. Kamenjak	256 kbit/s
R.R.S. Sv. Mihovil	256 kbit/s
R.R.S. Čelavac	256 kbit/s
R.R.S. Labinštica	256 kbit/s
M.B. Hum (isl. Vis)	256 kbit/s
R.R.S. Vidova Gora	256 kbit/s
R.R.S. Uljenje	256 kbit/s
R.R.S. Hum (isl. Lastovo)	256 kbit/s
C.R.S. Gorica Sv. Vlaha	256 kbit/s
R.R.S. Ilijino brdo	256 kbit/s

Table No 2: *Connection speed of Plovput's VHF DSC System*

## BACKUP OF PLOVPUT'S VHF DSC SYSTEM

Backup of Plovput's VHF DSC System includes the use of VHF DSC ship radio stations located in Coast Radio Stations that are used in case of impossibility of use of the primary VHF DSC System. It also serves for transmission and reception of calls on VHF DSC channel 70.

Coast Radio Stations	Sites	VHF DSC channels
CRS RIJEKA RADIO	C.R.S Mlaka	70
CRS SPLIT RADIO	C.R.S Zenta	70
CRS DUBROVNIK RADIO	C.R.S. Gorica Sv. Vlaha	70

Table No. 3: *Backup of Plovput's VHF DSC System  
(list of Coast Radio Stations, belonging sites and VHF DSC channels)*



Picture No. 4: *Backup of Plovput's VHF DSC System  
(Coast Radio Stations, belonging sites and VHF DSC channels)*