

## VHF FCC Licensing Information

Licensing

### FCC Licensing Information

Cobra VHF/GMRS radios comply with the FCC (Federal Communications Commission) requirements that regulate the Maritime Radio Service and General Mobile Radio Service.

The radio operates on all currently allocated marine channels and is switchable for use according to U.S.A., International or Canadian regulations. It features instant access to emergency Channel 16 and calling Channel 9 as well as NOAA (National Oceanic and Atmospheric Administration) All Hazards Radio with Alert.

### Station License

An FCC ship station license is no longer required for any vessel traveling in U.S.A. waters which uses a VHF marine radio, RADAR, or EPIRB (Emergency Position Indicating Radio Beacon), and which is not required to carry radio equipment. However, any vessel required to carry a marine radio on an international voyage, carrying an HF single side band radiotelephone, or carrying a marine satellite terminal must obtain a station license.

FCC license forms and applications for ship and land stations can be downloaded through the Internet at [www.fcc.gov](http://www.fcc.gov). Forms can also be obtained by calling the FCC at 888-225-5322.

### International Station License

If your vessel will be entering the sovereign waters of a country other than the U.S.A. or Canada, you should contact that country's communications regulatory authority for licensing information.

### Radio Call Sign

Currently, the FCC does not require recreational boaters to have a license. The United States Coast Guard recommends that the boat's registration number and state of registry (e.g., IL 1234 AB) be used as a call sign and be clearly visible on the vessel.

### Canadian Ship Station License

You need a Radio Operator's Certificate if your vessel is operated in Canadian waters. Radio Operator training and certification is available from the Canadian Power Squadron. Visit their website at <http://www.cps-ecp.ca/>.

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### User Responsibility and Operating Locations

All users are responsible for observing domestic and foreign government regulations and are subject to severe penalties for violations. The VHF frequencies on your radio are reserved for marine use and require a special license to operate from land, including when your boat is on its trailer.



#### NOTE

This device complies with part 15 of the FCC Rules, and Industry Canada license-exempt RSS standards. Operation is subject to the following two (2) conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

**FCC Warnings:** Replacement or substitution of transistors, regular diodes or other parts of a unique nature, with parts other than those recommended by Cobra may cause a violation of the technical regulations of part 80 of the FCC Rules, or violation of type acceptance requirements of part 2 of the rules.

## GMRS Communication and GMRS FCC Licensing

Appendix

### GMRS Communication

This GMRS (General Mobile Radio Service) feature is a land-mobile service available for short-distance, two-way communications in the USA. You must have a valid FCC license to communicate on these channels.

The GMRS/FRS frequencies that radio this radio uses are set aside for communicating with others while hiking, biking, and working; keeping track of family and friends at a crowded public event; checking with travel companions in another car; talking with neighbors; arranging meeting spots with others while shopping at the mall.

Licensed users will be issued a call sign by the FCC, which should be used for station identification when operating this radio. GMRS users should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other GMRS users, and being prudent with the length of their transmission time.

### GMRS FCC Licensing

This two-way radio operates on GMRS (General Mobile Radio Service) frequencies which require an FCC (Federal Communications Commission) license. A user must be licensed prior to transmitting on the GMRS band with this radio. Serious penalties could result for unlicensed use of GMRS channels, in violation of FCC rules.

Operation of this radio is subject to additional rules specified in 47 C.F.R. Part 95.

For licensing information and application forms, please call the FCC Hotline at 800-418-FORM. Request form #159 and form #605. Questions regarding the license application should be directed to the FCC at 888-CALL-FCC. Additional information is available on the FCC's website at [www.fcc.gov](http://www.fcc.gov).



#### NOTE

Even if you operate this radio on FRS (Family Radio Service) channels at low power (1 watt), you are required to have an FCC license. Because this radio operates in the 1 to 5 watt GMRS power range all GMRS rules apply and will require you have a GMRS license even for FRS (Family Radio Service) communication. Normal FRS only radios operate at a maximum power of 1/2 watt (500 milliwatt) power and have an integral (non-detachable) antenna.

## GMRS/FRS Frequency Allocation and Compatibility

Appendix

### GMRS/FRS Frequency Allocation and Compatibility

The channel numbers in the GMRS Mode on the MR HH450 DUAL model are designed to "match" the channels on Cobra and other GMRS radios manufactured over the last few years.

Standard GMRS/FRS Channels	MR HH450 DUAL Channels	Service Type	Frequency (MHz)
1	1	GMRS/FRS	462.5625
2	2	GMRS/FRS	462.5875
3	3	GMRS/FRS	462.6125
4	4	GMRS/FRS	462.6375
5	5	GMRS/FRS	462.6625
6	6	GMRS/FRS	462.6875
7	7	GMRS/FRS	462.7125
8	Not Available	FRS	467.5625
9	Not Available	FRS	467.5875
10	Not Available	FRS	467.6125
11	Not Available	FRS	467.6375
12	Not Available	FRS	467.6625
13	Not Available	FRS	467.6875
14	Not Available	FRS	467.7125
15	15	GMRS	462.5500
16	16	GMRS	462.5750
17	17	GMRS	462.6000
18	18	GMRS	462.6250
19	19	GMRS	462.6500
20	20	GMRS	462.6750
21	21	GMRS	462.7000
22	22	GMRS	462.7250



#### NOTE

Older Cobra GMRS (non dual band) models with only 15 Channels may designate different channel numbers for the same frequency. For example, an older Cobra 15 Channel GMRS model would need to be tuned to Channel 11 in order to communicate with a 22 Channel GMRS tuned to Channel 15. Please use the manual for that product to match a frequency chart/map in this section.

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## VHF Marine Channel Assignments

Appendix

### VHF Marine Channel Assignments

Three (3) sets of VHF channels have been established for marine use in the U.S.A., Canada and the rest of the world (International). Most of the channels are the same for all three (3) maps, but there are definite differences (see table on the following pages). Your radio has all three (3) maps built into it and will operate correctly in whichever area you choose.

The following is a brief outline of the channel assignments in the U.S.A. Channel Map.

#### Channel Assignments (English)

##### Distress, Safety, and Calling

###### Channel 16

Getting the attention of another station (calling) or in emergencies (distress and safety).

##### Calling

###### Channel 9

General-purpose (non-emergency) calling by non-commercial vessels. Recreational boaters are urged to use this channel to reduce congestion on Channel 16

##### Intership Safety

###### Channel 6

Ship-to-ship safety messages and for search and rescue messages to Coast Guard ships and aircraft.

##### Coast Guard Liaison

###### Channel 22A

To talk to the Coast Guard, Canadian Coast Guard (non-emergency) after making contact on Channel 16.

##### Non-Commercial

###### Channels 67\*, 68\*, 69, 71, 72, 78A, 79A\*, 80A\*

Working channels for small vessels. Messages must be about needs of the vessel, such as fishing reports, berthing and rendezvous. Use Channel 72 only for ship-to-ship messages.

##### Commercial

###### Channels 1A, 7A, 8, 9, 10, 11, 18A, 19A, 63A, 67, 72, 79A, 80A, 88A\*

Working channels for working ships only. Messages must be about business or needs of the ship. Use Channels 8, 67, 72 and 88A only for ship-to-ship messages.



## VHF Marine Channel Assignments

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### Asignación de canales de VHF para radiocomunicación marítima

Existen tres (3) juegos de canales VHF para uso marítimo en los EE.UU., Canadá y el resto del mundo (internacional). La mayoría de los canales coinciden en los tres (3) mapas, pero sin duda existen diferencias (consulte las tablas en las páginas siguientes). El radio incorpora los tres (3) mapas y funcionará correctamente en cualquiera de las tres áreas.

A continuación presentamos en forma resumida las asignaciones de canales del Mapa de canales para EE.UU.

#### Asignaciones de canales (Español)

##### Auxilio, seguridad y llamadas

###### Canal 16

Para ser oídos por otra estación (llamadas) o en casos de emergencia (auxilio y seguridad).

##### Llamadas

###### Canal 9

Llamadas de carácter general (excepto casos de emergencia) para embarcaciones no comerciales. Se le pide encarecidamente a la tripulación de las embarcaciones recreativas usar este canal para reducir la congestión del canal 16.

##### Seguridad entre embarcaciones

###### Canal 6

Para mensajes de seguridad entre embarcaciones y para mensajes de búsqueda y rescate enviados a barcos y aviones de la guardia costera.

##### Enlace con la guardia costera

###### Canal 22A

Para hablar con las guardias costeras estadounidenses y canadienses (excepto casos de emergencia) tras haber establecido contacto por el canal 16.

##### No comerciales

###### Canales 67\*, 68\*, 69, 71, 72, 78A, 79A\*, 80A\*

Canales activos para pequeñas embarcaciones. Los mensajes deberán estar relacionados con necesidades de las embarcaciones, como por ejemplo, informes de pesca, atraques y agrupamientos. Use el canal 72 solamente para mensajes entre embarcaciones.

##### Comerciales

###### Canales 1A, 7A, 8, 9, 10, 11, 18A, 19A, 63A, 67, 72, 79A, 80A, 88A\*

Canales activos para embarcaciones activas solamente. Los mensajes deberán estar relacionados con la actividad comercial o las necesidades de la embarcación. Use los canales 8, 67, 72 y 88A solamente para mensajes entre embarcaciones.

## VHF Marine Channel Assignments

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### Channel Assignments (English)

#### Sea Tow ARC (Automated Radio Check)

**Channels 24, 25, 26, 27, 28**

Tune your radio to the proper channel for your community. Conduct a radio check as you normally would. Upon releasing the mic, the system will replay your transmission, letting you hear how you sound.

#### Public Correspondence (Marine Operator)

**Channels 84, 85, 86, 87, 87A, 88\***

For calls to marine operators at public coast stations. You can make and receive telephone calls through these stations.

#### Port Operations

**Channels 1A\*, 5A\*, 12\*, 14\*, 20A, 63A\*, 65A, 66A, 73, 74, 75, 76, 77\***

Used for directing the movement of ships in or near ports, locks or waterways. Messages must be about operational handling, movement and safety of ships.

#### Navigational

**Channels 13, 67**

Channels are available to all vessels. Messages must be about navigation, including passing or meeting other vessels. These are also the main working channels for most locks and drawbridges. You must keep your messages short and power output at no more than 1 watt.

#### Maritime Control

**Channel 17**

For talking to vessels and coast stations operated by state or local governments. Messages must be about regulation and control, boating activities, or assistance.

#### Digital Selective Calling

**Channel 70**

This channel is set aside for distress, safety and general calling using only digital selective calling techniques. Voice communication is prohibited; your radio cannot transmit voice messages on this channel.

#### Weather

**Channels Wx 1 Thru 10**

Receive-only channels for NOAA and Canadian weather broadcasts. You cannot transmit on these channels.



#### NOTE

\* These channels are restricted to the listed uses in certain parts of the country or for certain types of users only. Consult FCC rules or a knowledgeable radio operator before using them.

## VHF Marine Channel Assignments

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### Asignaciones de canales (Español)

#### Remolque Marino CAR (Chequeo Automatizado de la Radio)

**Canales 24, 25, 26, 27, 28**

Sintonice su radio en el canal apropiado para su comunidad. Realice un chequeo de la radio como lo hace normalmente. Al soltar el micrófono, el sistema repetirá su transmisión, dejándola oír como suena.

#### Correspondencia pública (operador marítimo)

**Canales 84, 85, 86, 87, 87A, 88\***

Para llamadas a operadores marítimos en estaciones costeras públicas. Usted puede realizar y recibir llamadas telefónicas a través de estas estaciones.

#### Operaciones portuarias

**Canales 1A\*, 5A\*, 12\*, 14\*, 20A, 63A\*, 65A, 66A, 73, 74, 75, 76, 77\***

Usados para dirigir el movimiento de las embarcaciones dentro de áreas portuarias, esclusas o canales. Los mensajes deberán estar relacionados con maniobras operacionales, movimientos y seguridad de las embarcaciones.

#### Navegación

**Canales 13, 67**

Estos canales están disponibles para todas las embarcaciones. Los mensajes deberán estar relacionados con la navegación, incluidas las maniobras para pasar o alcanzar otras embarcaciones. Éstos también son los principales canales activos para la mayoría de las esclusas y puentes levadizos. Usted deberá transmitir mensajes cortos y mantener la potencia de salida en un vatio como máximo.

#### Control marítimo

**Canal 17**

Para comunicarse con embarcaciones y estaciones costeras operadas por entidades gubernamentales locales o estatales. Los mensajes deberán estar relacionados con regulación y control, asistencia o actividades de navegación.

#### Llamadas selectivas digitales

**Canal 70**

Este canal está reservado para solicitudes de auxilio, seguridad y llamadas de carácter general que usen solamente técnicas de llamadas selectivas digitales. Las comunicaciones verbales están prohibidas; el radio no puede transmitir mensajes de voz por este canal.

#### Meteorología

**Canales Wx 1 a 10**

Canales de recepción únicamente para difusión de información meteorológica NOAA y canadiense. Usted no puede transmitir por estos canales.



#### NOTA

\* El uso de estos canales está dedicado a las aplicaciones que aparecen en la lista, en ciertas partes del país o para ciertos tipos de usuario solamente. Consulte las normas de la FCC o a un operador de radio con experiencia antes de usarlos.

## VHF Marine Channel Assignments

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Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l Internac	Canada Canadá	Transmit Transm.	Receive Recepción	
01		•	•	156.050	160.650	
01A	•			156.050	156.050	
02		•	•	156.100	160.700	
03		•	•	156.150	160.750	
04		•		156.200	160.800	
04A			•	156.200	156.200	
05		•		156.250	160.850	
05A	•		•	156.250	156.250	
06	•	•	•	156.300	156.300	
07		•		156.350	160.950	
07A	•		•	156.350	156.350	
08	•	•	•	156.400	156.400	
09	•	•	•	156.450	156.450	
10	•	•	•	156.500	156.500	
11	•	•	•	156.550	156.550	
12	•	•	•	156.600	156.600	
13	•	•	•	156.650	156.650	1 watt USA 1 vatio EE.UU.

## VHF Marine Channel Assignments

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Channel Use (English)	Uso de canales (Español)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Port Operations and Commercial, VTS in selected areas	Operaciones portuarias y comerciales; VTS en áreas selectas
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo) operaciones portuarias, movimiento de embarcaciones
<b>West Coast (Coast Guard Only); East Coast (Commercial Fishing)</b>	<b>Costa occidental (guardia costera solamente); Costa oriental (pesca comercial)</b>
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo) operaciones portuarias, movimiento de embarcaciones
Port Operations, VTS in selected areas	Operaciones portuarias; VTS en áreas selectas
Intership Safety	Seguridad entre embarcaciones
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo) operaciones portuarias, movimiento de embarcaciones
Commercial	Comerciales
Commercial (Intership Only)	Comercial (entre embarcaciones solamente)
Boater Calling Channel, Non-Commercial (Recreational)	Canal de llamada de la tripulación, no comercial (recreativo)
Commercial	Comerciales
Commercial, VTS in selected areas	Comercial; VTS en áreas selectas
Port Operations, VTS in selected areas	Operaciones portuarias; VTS en áreas selectas
Intership Navigation Safety (Bridge-to-Bridge). In U.S. waters, large vessels maintain a listening watch on this channel.	Seguridad marítima entre embarcaciones (de puente de mando a puente de mando). En aguas estadounidenses, las grandes embarcaciones se mantienen vigilantes con sus radios sintonizados en este canal



## VHF Marine Channel Assignments

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Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		
	USA EE.UU.	Int'l Internac	Canada Canadá	Transmit Transm.	Receive Recepción	
14	•	•	•	156.700	156.700	
15	•			Rx Only	156.750	
15		•	•	156.750	156.750	1 watt CAN 1 vatio Canadá
16	•	•	•	156.800	156.800	
17	•	•	•	156.850	156.850	1 watt CAN 1 vatio Canadá
18		•		156.900	161.500	
18A	•		•	156.900	156.900	
19		•		156.950	161.550	
19A	•		•	156.950	156.950	
20	•	•	•	157.000	161.600	1 watt CAN 1 vatio Canadá
20A	•			157.000	157.000	
21		•		157.050	161.650	
21A	•		•	157.050	157.050	
21B			•	RX only	161.650	
22		•		157.100	161.700	
22A	•		•	157.100	157.100	
23		•	•	157.150	161.750	
23A	•			157.150	157.150	
23B			•	Rx Only	161.750	

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## VHF Marine Channel Assignments

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Channel Use (English)	Uso de canales (Español)
Port Operations, VTS in selected areas	Operaciones portuarias; VTS en áreas selectas
Environmental (Receive Only).	Medioambiental (recepción solamente). Usado por radiobalizas de localización de siniestros (EPIRB) clase C
Canada (EPIRB Buoys Only); International (On-Board Communication)	Canadá (boyas de EPIRB solamente); Internacional (comunicación de a bordo)
<b>International Distress, Safety and Calling</b>	<b>Llamadas, seguridad y solicitud de auxilio internacional</b>
State Controlled (U.S.A. Only)	Controlado a nivel estatal (EE.UU. solamente)
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial	Comerciales
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial	Comerciales
<b>Canada (Coast Guard Only); International (Port Operations, Ship Movement)</b>	<b>Canadá (guardia costera solamente); Internacional (operaciones portuarias, movimiento de embarcaciones)</b>
Port Operations	Operaciones portuarias
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
<b>U.S. (Government Only); Canada (Coast Guard Only)</b>	<b>EE.UU. (entidades gubernamentales solamente); Canadá (guardia costera solamente)</b>
<b>Coast Guard Only – Weather Broadcasts</b>	<b>Solamente Guardacostas – Transmisiones Meteorológicas</b>
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
U.S. and Canadian Coast Guard Liaison and Maritime Safety Information Broadcasts that are announced on Channel 16	Enlace entre las guardias costeras estadounidenses y canadienses, y difusión de información sobre seguridad marítima anunciada por el canal 16
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
<b>Coast Guard Only</b>	<b>Solamente Guardacostas</b>
<b>Coast Guard Only – Weather Broadcasts</b>	<b>Solamente Guardacostas – Transmisiones Meteorológicas</b>

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Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l nternac	Canada Canadá	Transmit Transm.	Receive Recepción	
24	•	•	•	157.200	161.800	
25	•	•	•	157.250	161.850	
25B			•	RX only	161.850	
26	•	•	•	157.300	161.900	
27	•	•	•	157.350	161.950	
28	•	•	•	157.400	162.000	
28B			•	RX only	162.000	
60		•	•	156.025	160.625	
61		•		156.075	160.675	
61A			•	156.075	156.075	
62		•		156.125	160.725	
62A			•	156.125	156.125	
63		•		156.175	160.775	
63A	•		•	156.175	156.175	
64		•	•	156.225	160.825	
64A			•	156.225	156.225	
65		•		156.275	160.875	
65A	•		•	156.275	156.275	
66		•		156.325	160.925	

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Channel Use (English)	Uso de canales (Español)
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
<b>Safety: Continuous Marine Broadcast (CMB) service by MCTS Canada</b>	<b>Seguridad: Transmisión Marítima Continua (CMB) servicio por MCTS Canadá</b>
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
Sea Tow ARC (Automated Radio Check)	RMCAR (Chequeo Automatizado de la Radio)
<b>Safety: Continuous Marine Broadcast (CMB) service by MCTS Canada</b>	<b>Seguridad: Transmisión Marítima Continua (CMB) servicio por MCTS Canadá</b>
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator) Port Operation, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
<b>Canada (Coast Guard Only); West Coast (Coast Guard Only); East Coast (Commercial Fishing)</b>	<b>Canadá (guardia costera solamente); Costa occidental (guardia costera solamente); Costa oriental (pesca comercial)</b>
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
<b>West Coast (Coast Guard Only); East Coast (Commercial Fishing)</b>	<b>Costa occidental (guardia costera solamente); Costa oriental (pesca comercial)</b>
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
Port Operations and Commercial, VTS in selected areas, Canada Tow Boats-BCC	Operaciones portuarias y comerciales; VTS en áreas selectas, Barcos-BCC de la remolque de Canadá
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
<b>U.S. (Government Only); Canada (Commercial Fishing)</b>	<b>EE.UU. (entidades gubernamentales solamente); Canadá (pesca comercial)</b>
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
Port Operations	Operaciones portuarias
Public Correspondence (Marine Operator), Port Operations, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones

## VHF Marine Channel Assignments

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Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l Internac	Canada Canadá	Transmit Transm.	Receive Recepción	
66A	•		•	156.325	156.325	
67	•	•	•	156.375	156.375	
68	•	•	•	156.425	156.425	
69	•	•	•	156.475	156.475	
70	•	•	•	RX only	156.525	
71	•	•	•	156.575	156.575	1 watt USA
72	•	•	•	156.625	156.625	
73	•	•	•	156.675	156.675	
74	•	•	•	156.725	156.725	
75	•	•	•	156.775	156.775	1 watt
76	•	•		156.825	156.825	1 watt
77	•	•	•	156.875	156.875	1 watt USA 1 vatio EE.UU

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Channel Use (English)	Uso de canales (Español)
Port Operations	Operaciones portuarias
U.S. (Commercial). Used for bridge-to-bridge communications in lower Mississippi River (Intership Only); Canada (Commercial Fishing), S&R	EE.UU. (comercial). Usado para comunicaciones de puente de mando a puente de mando en la parte baja del Río Misisipí (entre embarcaciones solamente); Canadá (pesca comercial) (transmisión y recepción)
Non-Commercial (Recreational)	No comercial (recreativo)
U.S. (Non-Commercial, Recreational); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (no comercial, recreativo); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
<b>Digital Selective Calling (Voice communications not allowed)</b>	<b>Llamadas selectivas digitales (las comunicaciones verbales están prohibidas)</b>
U.S. and Canada (Non-Commercial, Recreational); International (Port Operations, Ship Movement)	EE.UU. y Canadá (no comercial, recreativo); Internacional (operaciones portuarias, movimiento de embarcaciones)
Non-Commercial (Intership Only)	No comercial (entre embarcaciones solamente)
U.S. (Port Operations); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (operaciones portuarias); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
U.S. (Port Operations); Canada (Commercial Fishing Only); International (Intership, Port Operations, Ship Movement)	EE.UU. (operaciones portuarias); Canadá (pesca comercial solamente); Internacional (comunicaciones entre embarcaciones, operaciones portuarias, movimiento de embarcaciones)
Port Operations (Intership Only)	Operaciones portuarias (entre embarcaciones solamente)
Port Operations (Intership Only)	Operaciones portuarias (entre embarcaciones solamente)
Port Operations (Intership only). Restricted to communications with pilots for movement and docking of ships.	Operaciones portuarias (entre embarcaciones solamente). Restringido a comunicaciones con pilotos para el movimiento y atraque de embarcaciones.



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Channel Number Número de canal	Channel Map Mapa de canales			Frequency Frecuencia		Power Limits Límites de potencia
	USA EE.UU.	Int'l Internac	Canada Canadá	Transmit Transm.	Receive Recepción	
78		•		156.925	161.525	
78A	•		•	156.925	156.925	
79		•		156.975	161.575	
79A	•		•	156.975	156.975	
80		•		157.025	161.625	
80A	•		•	157.025	157.025	
81		•		157.075	161.675	
81A	•		•	157.075	157.075	
82		•		157.125	161.725	
82A	•		•	157.125	157.125	
83		•		157.175	161.775	
83A			•	157.175	157.175	
83B			•	RX only	161.775	
84	•	•	•	157.225	161.825	
85	•	•	•	157.275	161.875	
86	•	•	•	157.325	161.925	
87	•	•	•	157.375	157.375	
88	•	•	•	157.425	157.425	
88A	•			157.425	157.425	

## VHF Marine Channel Assignments

Appendix

Channel Use (English)	Uso de canales (Español)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Non-Commercial (Recreational)	No comercial (recreativo)
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial (Also Non-Commercial only in Great Lakes)	Comercial (en los Grandes Lagos también no comercial)
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
Commercial (Also Non-Commercial only in Great Lakes)	Comercial (en los Grandes Lagos también no comercial)
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
<b>U.S. (Government Only; Environmental Protection Operations)</b>	<b>EE.UU. (entidades gubernamentales solamente; operaciones de protección medioambiental)</b>
Public Correspondence (Marine Operator), Port Operation, Ship Movement	Correspondencia pública (operador marítimo), operaciones portuarias, movimiento de embarcaciones
<b>U.S. (Government Only); Canada (Coast Guard Only)</b>	<b>EE.UU. (entidades gubernamentales solamente); Canadá (guardia costera solamente)</b>
Port Operations, Ship Movement	Operaciones portuarias, movimiento de embarcaciones
<b>(Coast Guard Only) (Coast Guard Only)</b>	<b>Canadá (guardia costera solamente) Canadá (guardia costera solamente)</b>
<b>Coast Guard Only – Weather Broadcasts</b>	<b>Solamente Guardacostas – Transmisiones Meteorológicas</b>
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Marine Operator)	Correspondencia pública (operador marítimo)
Public Correspondence (Ship to Coast). In U.S. only within 75 miles of Canadian Border.	Correspondencia pública (entre embarcación y costa). En los EE.UU., solamente dentro de los casi 121 kilómetros (75 millas) de la frontera canadiense
Commercial Intership only	Comercial entre embarcaciones solamente

## VHF Marine Channel Assignments

Appendix

### VHF Marine Channel Assignments (English)

**NOTE**  
Many of the plain-numbered channels, such as 01, 02 and 03, transmit and receive on different frequencies. This is termed duplex operation. The rest of the plain-numbered channels and all of the A channels, such as 01A, 03A and 04A, transmit and receive on a single frequency, which is termed simplex operation. Your radio automatically adjusts to these conditions. When in simplex operation, the A icon will appear on the LCD (see illustration on page A3).

**NOTE**  
All channels are preprogrammed at the factory according to international regulations and those of the FCC (U.S.A.) and Industry Canada (Canada). They cannot be altered by the user nor can modes of operation be changed between simplex and duplex.

### Asignación de canales de VHF para radiocomunicación marítima (Español)

**NOTA**  
Muchos de los canales de números simples, como 01, 02 y 03, transmiten y reciben en diferentes frecuencias. A esto se le llama operación dúplex. El resto de los canales de números simples y todos los canales A, como 01A, 03A y 04A, transmiten y reciben en una sola frecuencia, a la que se le llama operación simple (simplex). Su radio se ajusta automáticamente a estas condiciones. Cuando esté en operación simple, el icono A aparecerá en la pantalla de cristal líquido (vea la ilustración de la página A3).

**NOTA**  
Todos los canales vienen programados previamente de fábrica conforme a los reglamentos internacionales y a los de la FCC (EE. UU) e Industry Canada (Canadá). No pueden ser alterados por el usuario, así como tampoco pueden cambiarse los modos de operación entre simple y dúplex.

## Weather Channel Assignments

Appendix

### Weather Channel Assignments Asignaciones de canales meteorológicos

Channel Number Número de canal	RX Frequency MHz Frecuencia de recepción (MHz)	Weather Channel Weather Channel
1	162.550	NOAA
2	162.400	NOAA
3	162.475	NOAA
4	162.425	NOAA
5	162.450	NOAA
6	162.500	NOAA
7	162.525	NOAA
8	161.650	Canada
9	161.775	Canada
10	163.275	NOAA

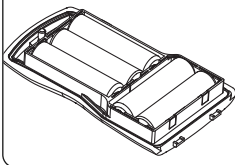
## Optional Accessories

Accessories

### Accessories

Your Cobra radio has several optional accessories available to enhance the use of the radio. Some are listed below:

#### Alkaline Battery Tray



#### Alkaline Battery Tray

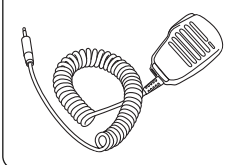
A special alkaline battery tray (P/N CM 110-024) is available as an optional accessory to have as an emergency backup. By using five (5) high-quality AA alkaline batteries, you can have a spare battery backup source for your radio.



#### NOTE

Alkaline batteries are not rechargeable.

#### Lapel Speaker/Microphone

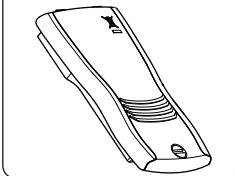


#### Lapel Speaker/Microphone

A speaker/microphone that attaches to your lapel, by ordering P/N CM 330-001.

This unique accessory allows you to wear the radio on your belt while still being able to communicate with other vessels. A small Push to Talk (PTT) button on the lapel speaker/microphone allows you to answer any incoming call.

#### LiON Battery Pack



#### LiON Battery

LiON replacement battery (P/N CM 110-026). Can be used with the charger included with this radio.

#### Antenna



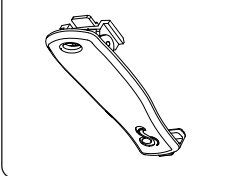
#### Antenna

Replacement Antenna P/N CM 300-003

## Optional Accessories

Accessories

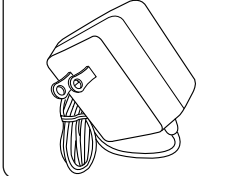
#### Belt Clip



#### Belt Clip

Replacement Belt Clip P/N CM 240-003

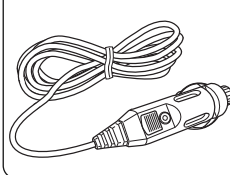
#### AC Charger



#### AC Charger

Replacement AC Charger P/N CM 120-005

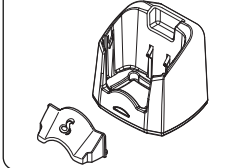
#### DC Charger



#### DC Charger

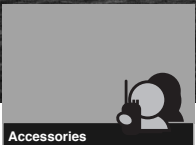
Replacement DC Charger P/N CM 130-005

#### Drop-In Battery Charger



#### Drop-In Battery Charger

Replacement Drop-In Charger P/N CM 110-030



Accessories

## Notes

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