

VHF AND SSB RADIO CHANNELS, FREQUENCIES, AND HF FREQUENCY PROPAGATION PREDICTION CURVES

MF/HF SSB CHANNELS AND FREQUENCIES

Few, if any, Coast Stations monitor all the SSB Calling and Distress frequencies all the time. It is therefore necessary to consult the Admiralty List of Radio Signals (ALRS), Volume 1, 1997 (Part 1 for Europe, Africa and Asia [excluding the Philippine islands and Indonesia]; Part 2 for Philippine islands, Indonesia, Australasia, the Americas, Greenland, and Iceland). These books list all the Coast Stations, and their details of times of working, frequencies monitored, etc.

Call, Answer, and DISTRESS Frequencies

Where a Coast Station uses frequencies from a band of frequencies, the 'Call, Answer and DISTRESS' frequency in that band is as follows:

Band	Channel Number	Ship's Transmit Frequency.
MF:		
1. 2 MHz Band	No channel numbers allocated in this band.	2 182 kHz (Simplex) using Class of Emission H3E
(When 2 182 kHz is in use for a Distress situation, 2 191 kHz is brought into use as a substitute 'Call, Answer and Distress frequency.)		
		J3E Class of Emission: (Duplex - ships' transmit [carrier] frequencies:)
HF:		
	See Appendix 5 for Receive frequencies and full details:	
2. 4 MHz Band	Channel 421	4 125 kHz
3. 6 MHz Band	Channel 606	6 215 kHz
4. 8 MHz Band*	Channel 821	8 255 kHz
5. 12 MHz Band	Channel 1221	12 290 kHz
6. 16 MHz Band	Channel 1621	16 420 kHz
7. 18 MHz Band	Channel 1806	18 795 kHz
8. 22 MHz Band	Channel 2221	22 060 kHz
9. 25 MHz Band	Channel 2510	25 097 kHz

*Additional DISTRESS Frequency

The above frequencies, except for the 8 MHz Band frequency, are the only SSB frequencies to be used for Calling and DISTRESS purposes. In the 8 MHz Band, the use of Channel 833, namely 8 291 kHz, is the 8 MHz band frequency exclusively reserved for Distress and Safety traffic by the GMDSS (Global Maritime Distress and Safety System) involving the use of COSPAS and INMARSAT satellites.

Working and Inter Ship Frequencies

See the following lists of all the SSB frequency bands and their channel numbers and the channel frequencies. Typically a ship's transmit frequency used to a Coast Station, as Working Channels/ frequencies are listed below. The Coast Station will tell the ship's operator what frequency to tune the vessel's receiver to (i.e. the Coast Station's transmit frequency).

MEDIUM FREQUENCY (MF) BAND (All in kHz)

Working Frequencies;

Ship's transmit frequencies:

2 002, 2 023, 2 045, 2 051, 2 057.

Ship's receive/Cape Town area Coast Station uses 2,593 from Cape Columbine and 2 783 kHz from Cape Agulhas BUT they will tell you what frequency they will transmit on/you must use as your receive frequency.

Inter Ship Frequencies

2 048, 2 356, 2 236, 2 266, 2 269, 2 275, 2 278, 2 281, 2 284, 2 287, 2 293, 2 296.

(Ships can decide between themselves which vessel will transmit on which frequency - each just needs to know what the other vessel is to use for transmitting so that they know what frequency to tune their receiver to.)

HIGH FREQUENCY (HF) BAND (All in MHz):

Working Frequencies; Ship's transmit frequencies :

4 MHz: 4 065, 4 071, 4 077, 4 083, 4 134.
 8 MHz: 8 195, 8 201, 8 207, 8 216.
 12 MHz: 12 254, 12 299.
 16 MHz: 16 381, 16 456.
 22 MHz: 22 009, 22 015.

Inter Ship Frequencies

4 MHz: 4 146, 4 149.
 8 MHz: 8 294, 8 297.
 12 MHz: 12 353, 12 356, 12 359, 12 362, 12 365.
 16 MHz: 16 520, 16 531, 16 534, 16 537, 16 540, 16 543, 16 546.
 22 MHz: 22 159, 22 162, 22 168, 22 174, 22 177.

RADIO TELEX. If you have radio telex, your ship's transmit frequencies are:

2 502, 4 173.5, 4 176, 6 271, 8 388.5, 12 498.5, 16 692.5, 22 316.

INTERNATIONAL SSB (DUPLIX) CHANNELS' FREQUENCIES

Frequencies quoted are in kHz

NB: 'Calling, Answering and **DISTRESS**' channels' numbers are on page 1.

Frequencies in kHz:

4 MHz BAND			6 MHz BAND		
Channel Number	Ship Receive Frequency	Ship Transmit Frequency	Channel Number	Ship Receive Frequency	Ship Transmit Frequency
401	4357.0	4065.0	601	6501.0	6200.0
402	4360.0	4068.0	602	6504.0	6203.0
403	4363.0	4071.0	603	6507.0	6206.0
404	4366.0	4074.0	604	6510.0	6209.0
405	4369.0	4077.0	605	6513.0	6212.0
406	4372.0	4080.0	606	6516.0	6215.0
407	4375.0	4083.0	607	6519.0	6218.0
408	4378.0	4086.0	608	6522.0	6221.0
409	4381.0	4089.0			
410	4384.0	4092.0			
411	4387.0	4095.0			
412	4390.0	4098.0			
413	4393.0	4101.0			
414	4396.0	4104.0			
415	4399.0	4107.0			
416	4402.0	4110.0			
417	4405.0	4113.0			
418	4408.0	4116.0			
419	4411.0	4119.0			
420	4414.0	4122.0			
421	4417.0	4125.0			
422	4420.0	4128.0			
423	4423.0	4131.0			
424	4426.0	4134.0			
425	4429.0	4137.0			
426	4432.0	4140.0			
427	4435.0	4143.0			

Frequencies in kHz:

8 MHz BAND			12 MHz BAND		
Channel Number	Ship Receive Frequency	Ship Transmit Frequency	Channel Number	Ship Receive Frequency	Ship Transmit Frequency
801	8719.0	8195.0	1201	13077.0	12230.0
802	8722.0	8198.0	1202	13080.0	12233.0
803	8725.0	8201.0	1203	13083.0	12236.0
804	8728.0	8204.0	1204	13086.0	12239.0
805	8731.0	8207.0	1205	13089.0	12242.0
806	8734.0	8210.0	1206	13092.0	12245.0
807	8737.0	8213.0	1207	13095.0	12248.0
808	8740.0	8216.0	1208	13098.0	12251.0
809	8743.0	8219.0	1209	13101.0	12254.0
810	8746.0	8222.0	1210	13104.0	12257.0
811	8749.0	8225.0	1211	13107.0	12260.0
812	8752.0	8228.0	1212	13110.0	12263.0
813	8755.0	8231.0	1213	13113.0	12266.0
814	8758.0	8234.0	1214	13116.0	12269.0
815	8761.0	8237.0	1215	13119.0	12272.0
816	8764.0	8240.0	1216	13122.0	12275.0
817	8767.0	8243.0	1217	13125.0	12278.0
818	8770.0	8246.0	1218	13128.0	12281.0
819	8773.0	8249.0	1219	13131.0	12284.0
820	8776.0	8252.0	1220	13134.0	12287.0
821	8779.0	8255.0	1221	13137.0	12290.0
822	8782.0	8258.0	1222	13140.0	12293.0
823	8785.0	8261.0	1223	13143.0	12296.0
824	8788.0	8264.0	1224	13146.0	12299.0
825	8791.0	8267.0	1225	13149.0	12302.0
826	8794.0	8270.0	1226	13152.0	12305.0
827	8797.0	8273.0	1227	13155.0	12308.0
828	8800.0	8276.0	1228	13158.0	12311.0
829	8803.0	8279.0	1229	13161.0	12314.0
830	8806.0	8282.0	1230	13164.0	12317.0
831	8809.0	8285.0	1231	13167.0	12320.0
832	8812.0	8288.0	1232	13170.0	12323.0
			1233	13173.0	12326.0
			1234	13176.0	12329.0
			1235	13179.0	12332.0
			1236	13182.0	12335.0
			1237	13185.0	12338.0
			1238	13188.0	12341.0
			1239	13191.0	12344.0
			1240	13194.0	12347.0
			1241	13197.0	12350.0

Non-SSB (i.e. Broadcast Stations) 'Time' signal are on 2.5, 5.0, 10.0, 15.0, 20.0, and 25.0 MHz at various times of day. The further the transmitter from your position and the closer to midday/early afternoon, the higher the frequency. At night and for short distances, use lower frequencies.

Several broadcast stations such as the BBC transmit six (5 short plus one longer) 'pips' on the hour preceding the reading of the news. The start of the sixth 'pip' is the exact time for the start of the new hour.

Frequencies in kHz:

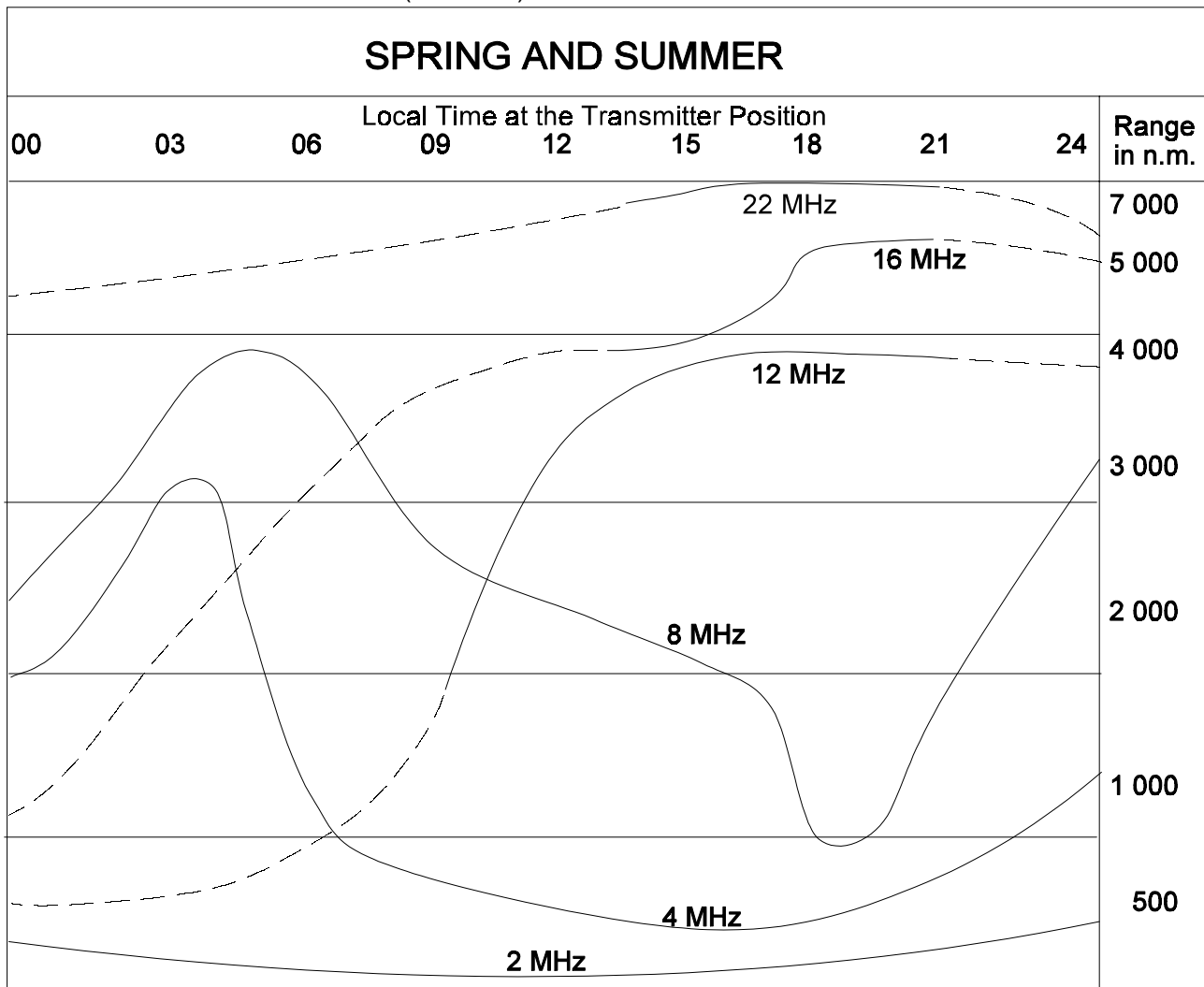
16 MHz BAND			18 MHz BAND			22 MHz BAND		
Channel Number	Ship Receive Frequency	Ship Transmit Frequency	Channel Number	Ship Receive Frequency	Ship Transmit Frequency	Channel Number	Ship Receive Frequency	Ship Transmit Frequency
1601	17242.0	16360.0	1801	19755.0	18780.0	2201	22696.0	22000.0
1602	17245.0	16363.0	1802	19758.0	18783.0	2202	22699.0	22003.0
1603	17248.0	16366.0	1803	19761.0	18786.0	2203	22702.0	22006.0
1604	17251.0	16369.0	1804	19764.0	18789.0	2204	22705.0	22009.0
1605	17254.0	16372.0	1805	19767.0	18792.0	2205	22708.0	22012.0
1606	17257.0	16375.0	1806	19770.0	18795.0	2206	22711.0	22015.0
1607	17260.0	16378.0	1807	18773.0	18798.0	2207	22714.0	22018.0
1608	17263.0	16381.0	1808	19776.0	18801.0	2208	22717.0	22021.0
1609	17266.0	16384.0	1809	19779.0	18804.0	2209	22720.0	22024.0
1610	17269.0	16387.0	1810	19782.0	18807.0	2210	22723.0	22027.0
1611	17272.0	16390.0	1811	19785.0	18810.0	2211	22726.0	22030.0
1612	17275.0	16393.0	1812	19788.0	18813.0	2212	22729.0	22033.0
1613	17278.0	16396.0	1813	19791.0	18816.0	2213	22732.0	22036.0
1614	17281.0	16399.0	1814	19794.0	18819.0	2214	22735.0	22039.0
1615	17284.0	16402.0	1815	19797.0	18822.0	2215	22738.0	22042.0
1616	17287.0	16405.0				2216	22741.0	22045.0
1617	17290.0	16408.0				2217	22744.0	22048.0
1618	17293.0	16411.0				2218	22747.0	22051.0
1619	17296.0	16414.0				2219	22750.0	22054.0
1620	17299.0	16417.0				2220	22753.0	22057.0
1621	17302.0	16420.0				2221	22756.0	22060.0
1622	17305.0	16423.0				2222	22759.0	22063.0
1623	17308.0	16426.0				2223	22762.0	22066.0
1624	17311.0	16429.0				2224	22765.0	22069.0
1625	17314.0	16432.0				2225	22768.0	22072.0
1626	17317.0	16435.0				2226	22771.0	22075.0
1627	17320.0	16438.0				2227	22774.0	22078.0
1628	17323.0	16441.0				2228	22777.0	22081.0
1629	17326.0	16444.0				2229	22780.0	22084.0
1630	17329.0	16447.0				2230	22783.0	22087.0
1631	17332.0	16450.0				2231	22786.0	22090.0
1632	17335.0	16453.0				2232	22789.0	22093.0
1633	17338.0	16456.0				2233	22792.0	22096.0
1634	17341.0	16459.0				2234	22795.0	22099.0
1635	17344.0	16462.0				2235	22798.0	22102.0
1636	17347.0	16465.0				2236	22801.0	22105.0
1637	17350.0	16468.0				2237	22804.0	22108.0
1638	17353.0	16471.0				2238	22807.0	22111.0
1639	17356.0	16474.0				2239	22810.0	22114.0
1640	17359.0	16477.0				2240	22813.0	22117.0
1641	17362.0	16480.0				2241	22816.0	22120.0
1642	17365.0	16483.0				2242	22819.0	22123.0
1643	17368.0	16486.0				2243	22822.0	22126.0
1644	17371.0	16489.0				2244	22825.0	22129.0
1645	17374.0	16492.0				2245	22828.0	22132.0
1646	17377.0	16495.0				2246	22831.0	22135.0
1647	17380.0	16498.0				2247	22834.0	22138.0
1648	17383.0	16501.0				2248	22837.0	22141.0
1649	17386.0	16504.0				2249	22840.0	22144.0
1650	17389.0	16507.0				2250	22843.0	22147.0
1651	19392.0	16510.0				2251	22846.0	22150.0
1652	17395.0	16513.0				2252	22849.0	22153.0
1653	17398.0	16516.0				2253	22852.0	22156.0
1654	17401.0	16519.0						
1655	17404.0	16522.0						
1656	17407.0	16525.0						
			25	MHz	BAND			
			Channel Number	Ship Receive Frequency	Ship Transmit Frequency			
			2501	26145.0	25070.0			
			2502	26148.0	25073.0			
			2503	26151.0	25076.0			
			2504	26154.0	25079.0			
			2505	26157.0	25082.0			
			2506	26160.0	25085.0			
			2507	26163.0	25088.0			
			2508	26166.0	25091.0			
			2509	26169.0	25094.0			
			2510	26172.0	25097.0			

CHOOSING THE RIGHT FREQUENCY FOR RANGE AND TIME
HF SKYWAVE PROPAGATION PREDICTION

The Marine Bands of Radio Frequencies

In the table below:

- a. solid lines represent the optimum frequency for the time of day and distance between communicating stations. The ranges are averages which are also affected by the 'eleven year cycle' and sun spot activity. In the latter part of 1992 this cycle reached its apex when ranges were better than average most of the time. Until the year 1997/8, conditions deteriorated resulting in shorter ranges with louder noise background levels, and thereafter improvements have been experienced until the next peak in 2004. This cycle repeats every 11 years.
- b. dotted lines represent the Skip Distance/Zone where no communications are possible over those distances at the times and for the frequencies specified.
- c. times along the top scale are local time to the user of the SSB. Your local time is 1 hour ahead of UT (Universal Time, the new name replacing GMT) for every 15° of Longitude you are East of Greenwich; or West if local time is behind (later than) UT.

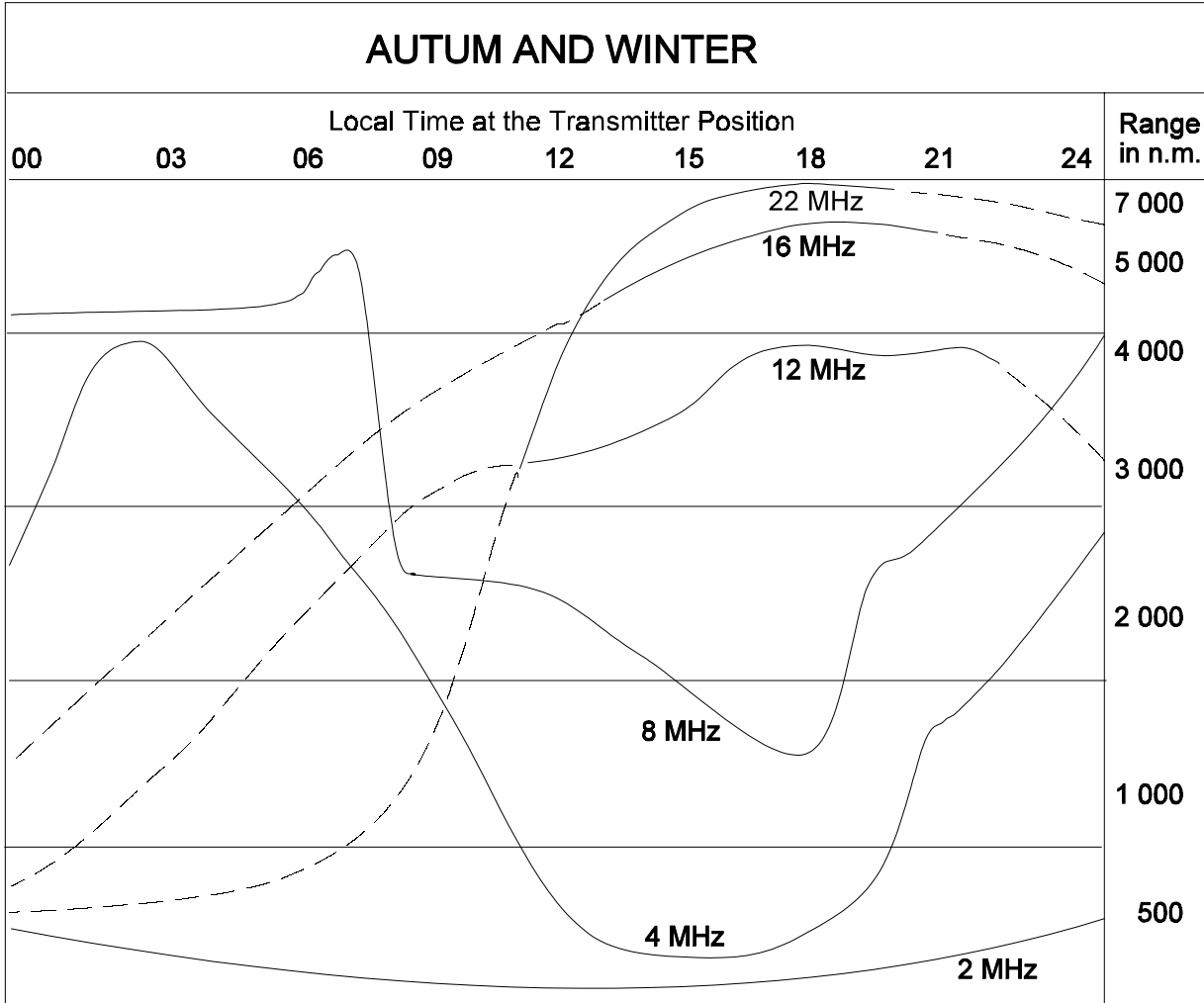


As an example:

- a. if local time is 10h00 and you wish to call a Coast Station which is 2 500 n.m. away, the 12 MHz Band should be, or is about to, open up and will get better quite quickly. If it happens that it is just too early

for the 12 MHz channels, the 8 MHz Band is still useable but is favouring shorter distances as time goes on; background noise and/or a weakening of this band's signal will be experienced.

- b. if local time is 14h00 and the distance to be communicated over is between 1 000 and 1 500 n.m., try the 8 MHz Band first for best results; if not satisfactory, try the 6 MHz band but it may be noisy with music!
- c. if local time is 03h00 and the distance from you to the station to be called is 800 to 1 000 n.m. away, try the 2 MHz band (call on 2.182 MHz). If not successful, you can try the 4 MHz Band (call on 4.125 MHz) but it is likely the frequencies will be too high - you may have to wait until after 05h00 to get through on the 4 MHz frequency.



Continued on the next page.

INTERNATIONAL VHF CHANNEL ALLOCATIONS

In the columns "Inter ship" and columns to its right, numbers shown indicate the priority in which the channels are to be brought into use. A low priority channel should not be used if a higher priority channel is not already in use. So first check to see if "1" is clear; if that is in use, use "2"; if that is in use, use "3"; etc.

Chan- nel No.	Inter- ship	Port Oper- ations	Ship move- ments	Public Corres- pond.**	Chan- nel No.	Inter ship	Port Oper- ations	Ship move- ments	Public Corres- pond.**
1		10	15	8	60		17	9	25
2		8	17	10	61		23	3	19
3		9	16	9	62		20	6	22
4		11	14	7	63		18	8	24
5		6	19	12	64		22	4	20
6	1				65		21	5	21
7		7	18	11	66		19	7	23
8	2				67	9	10	9	
9	5	5	12		68		6	2	
10	3	9	10		69	8	11	4	
11		3	1		70	See	below;	do not	use.
12		1	3		71		7	6	
13	4	4	5		72	6			
14		2	7		73	7	12	11	
15	11	14			74		8	8	
16*	Call,*	Answ	and	DISTRESS	75				
17	12	*er		*	76				
18		13	22		77	10			
19		3	21		78		12	13	27
20		4	23		79		14	1	
21		1	20		80		16	2	
22		5	24		81		15	10	28
23		2		5	82		13	11	26
24				4	83				16
25				3	84		24	12	13
26				1	85				17
27				2	86				15
28				6	87				14
					88				18

*Channel is the Call, Answer, and DISTRESS channel for vessels under 300 tons and non-passenger carrying vessels not required to conform with the Global Maritime Distress and Safety System (GMDSS). Vessels over 300 tons and passenger carrying vessels must conform with the GMDSS. Channel 70 is reserved for **'Digital selective calling'** in the GMDSS.

**Public Correspondence channels are commercial channels used for telephone links, the passing of telegrams, and the reading of weather forecasts, reports and bulletins, and navigation warnings and traffic lists (a traffic list is a list of vessels' names for which telephone calls are waiting to be cleared).

Numbers on the left side of columns refer to single frequency (Simplex) channels: those on the right refer to two frequency (Duplex) channels. Channel 6 is the PRIME (main) inter ship channel.

Since the above table was produced, an additional 30 channels, which use a channel number as above and have the suffix letter 'A', have been added to the total list of channels available in some countries. They are 1, 2, 3, 4, 5, 7, 18, 19, 20, 21, 22, 23, 60, 61, 62, 63, 64, 65, 66, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, and 88. For example, in some places Channel 22 A is used as the Call and Answering channel, leaving channel 16 clear for emergencies.