Summary
The Recommendation describes the sequential single frequency selective-calling (SSFC) system which may be used for calling ships until the system is superseded by the DSC system described in Recommendations ITU-R M.493 and ITU-R M.541.

The ITU Radiocommunication Assembly,

considering
a) that there is a need to define the characteristics of a sequential single-frequency selective calling system suitable for use with normal types of radio equipment on ships,

noting
1 that a sequential single frequency selective-calling system may be in operation until it is superseded by the digital selective-calling system described in Recommendation ITU-R M.493,

recommends
1 that the system to be used should have the characteristics given in Annex 1;
2 that the operational procedures described in Annex 2 should be observed.

ANNEX 1
Characteristics of the system

1 the selective call signal should consist of five figures representing the code number assigned to a ship for selective calling;

1.1 the audio-frequency signal applied to the input of the coast station transmitter should consist of consecutive audio-frequency pulses conforming to the following:

1.1.1 the audio frequencies used to identify the figures of the code number assigned to a ship should conform to the following series:

<table>
<thead>
<tr>
<th>Figure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>0</th>
<th>Figure repetition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio frequency (Hz)</td>
<td>1124</td>
<td>1197</td>
<td>1275</td>
<td>1358</td>
<td>1446</td>
<td>1540</td>
<td>1640</td>
<td>1747</td>
<td>1860</td>
<td>1981</td>
<td>2 110</td>
</tr>
</tbody>
</table>

* This Recommendation should be brought to the attention of the International Maritime Organization (IMO) and the Telecommunication Standardization Sector (ITU-T).

Note by the Secretariat: The references made to the Radio Regulations (RR) in this Recommendation refer to the RR as revised by the World Radiocommunication Conference 1995. These elements of the RR will come into force on 1 June 1998. Where applicable, the equivalent references in the current RR are also provided in square brackets.
For example, the series of audio-frequency pulses corresponding to the selective call 12 133 would be 1 124-1 197-1 275-2 110 Hz, and the series corresponding to the code number 22 222 would be 1 197-2 110-1 197-2 110-1 197 Hz;

1.1.2 if the series of numbers represented by the use of only two frequencies, chosen from those in § 1.1.1, are reserved for calling predetermined groups of ships, then 100 different groups of numbers are available for allocation, according to the needs of administrations;

1.1.3 the waveforms of the audio-frequency generators should be substantially sinusoidal, not exceeding 2% total harmonic distortion;

1.1.4 the audio-frequency pulses should be transmitted sequentially;

1.1.5 the difference between the maximum amplitude of any audio-frequency pulses should not exceed 1 dB;

1.1.6 the duration of each audio-frequency pulse, measured between the half-amplitude points, should be 100 ms ± 10 ms;

1.1.7 the time interval between consecutive pulses, measured between the half-amplitude points, should be 3 ms ± 2 ms;

1.1.8 the rise and the decay time of each audio-frequency pulse, measured between the 10% and 90% amplitude points, should be 1.5 ms ± 1 ms;

1.1.9 the frequency tolerance of the audio frequencies given in § 1.1.1 should be ± 4 Hz;

1.1.10 the selective call signal (ship’s code number) should be transmitted twice with an interval of 900 ms ± 100 ms between the end of the first signal and the beginning of the second signal (Fig. 1);

1.1.11 the interval between calls from a coast station to different ships should be at least 1 s (Fig. 1); but the interval between calls to the same ship, or the same group of ships, should be at least 5 s;

FIGURE 1
Composition of selective call signals without additional information

Acoustic or optical call signal energized if correctly received at ship A

Acoustic or optical call signal energized if correctly received at ship B

1 000 ms 500 ms 900 ms 500 ms ≥ 1 000 ms 500 ms etc.

If additional information is added to the selective call signal it should be as follows:

2.1 to identify the calling coast station four figures should be transmitted;

2.2 to identify the VHF channel on which a reply is required two “zeros” followed by two “figures” should be transmitted (see RR Appendix S18 [Appendix 18]);

2.3 the characteristics of the signals should conform to § 1.1.1 and 1.1.3 to 1.1.9 inclusive;
2.4 the composition of the signal should be as shown in the diagram (Fig. 2), the tolerance on the 350 ms interval being ±30 ms;

![FIGURE 2](image1)

Composition of selective call signals with additional information

<table>
<thead>
<tr>
<th>Code number of ship A</th>
<th>Interval</th>
<th>Additional information</th>
<th>Repetition of code number of ship A</th>
<th>Interval</th>
<th>Repetition of additional information</th>
<th>Interval between calls to different ships</th>
<th>Code number of ship B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 000 ms</td>
<td>500 ms</td>
<td>350 ms</td>
<td>400 ms</td>
<td>350 ms</td>
<td>500 ms</td>
<td>350 ms</td>
</tr>
</tbody>
</table>

3 an “all ships call” to actuate the receiving selectors on all ships, regardless of their individual code numbers, should consist of a continuous sequential transmission of the eleven audio frequencies given in § 1.1.1. The parameters of the audio-frequency pulses should be in accordance with § 1.1.3, 1.1.4, 1.1.5 and 1.1.9. The duration of each audio-frequency pulse, measured between the half-amplitude points, should be 17 ms ± 1 ms and the interval between consecutive pulses, measured between half-amplitude points, should not exceed 1 ms (Fig. 3). The total duration of this “all ships call” signal should be at least 5 s;

![FIGURE 3](image2)

Composition of the “all ships call” signal

4 receiving selectors on ships should operate reliably in any radio conditions acceptable for satisfactory communication;

5 the receiving selector should be designed to accept the signals as defined in § 1 and 3. However, bearing in mind that coast stations may transmit additional signals (e.g. coast station identification), it is important to ensure that during reception of a selective call the decoder should be re-set after 250 ± 40 ms if an incorrect digit or no digit is received;
the receiving selector should be so designed, constructed and maintained that it is resistant to atmospherics and other unwanted signals including selective-calling signals other than that for which the decoder has been set up;

the receiving selector should include an audible or visual means of indicating the receipt of a call and, if required, an additional facility allowing the determination of the identity of the calling station or the VHF channel on which to reply according to the needs of administrations;

in order to distinguish whether an incoming call is a normal selective call or an “all ships call”, the multiple actuation of the ship’s decoder by the “all ships call” signal (see § 3) can be used;

the indicating means mentioned in § 7 should be actuated on correct reception of the calling signal, no matter whether the correct registration has occurred on the first, or the second, or both parts of the calling signal transmitted by the coast stations;

the indicating means should remain actuated until re-set manually;

the receiving selector equipment should be as simple as is practicable, be capable of reliable operation over long periods with a minimum of maintenance, and could, with advantage, include facilities for self-testing.

ANNEX 2

Operational procedures

Method of calling (4669)

(1) The call shall consist of:
    a) the selective call number or identification number or signal of the station called, followed by
    b) the selective call number or identification number or signal of the station calling.

However, in the case of a coast station calling on VHF, the number of the channel to be used for the reply and for traffic may replace the identification number or signal of the coast station.

The call shall be transmitted twice.

(2) When a station called does not reply, the call should not normally be repeated until after an interval of at least five minutes and should not then normally be renewed until after a further interval of fifteen minutes.

(3) The use of an “all ships call” shall be confined to distress and urgency in the MF and HF bands and the announcement of vital navigational warnings in those bands; additionally it may be used for safety purposes in the VHF band. This call may only be used to supplement, if required, the distress procedure specified in RR Appendix S13 [Nos. 3101, 3102, 3116 and 3117] and shall in no circumstances be used in place of such procedures, in particular the alarm signals mentioned in RR Appendix S13 [Nos. 3268 and 3270].

Reply to calls

The reply to calls shall be made in accordance with the provisions of:

a) § 20 and 21 of Annex 1 to Recommendation ITU-R M.1170 when using Morse radiotelegraphy;

b) § 16, 17, 18 and 19 of Annex 1 to Recommendation ITU-R M.1171 when using radiotelephony.
Selective calling may be carried out on the following calling frequencies:

- 500 kHz
- 2170.5 kHz
- 4125 kHz
- 4417 kHz
- 6516 kHz
- 8779 kHz
- 13137 kHz
- 17302 kHz
- 19770 kHz
- 22756 kHz
- 26172 kHz
- 156.8 MHz (see Note 1.

NOTE 1 – Selective calling on this frequency should normally be only in the direction coast station to ship or intership. Selective calls from ship to coast station should whenever possible be sent on other frequencies of RR Appendix S18 [Appendix 18], as appropriate.