

## RECOMMENDATION ITU-R M.1174-1\*

**TECHNICAL CHARACTERISTICS OF EQUIPMENT USED  
FOR ON-BOARD VESSEL COMMUNICATIONS IN  
THE BANDS BETWEEN 450 AND 470 MHz**

(1995-1998)

**Summary**

This Recommendation describes the technical characteristics for equipment operating in the maritime mobile services in accordance with the provisions of No. S5.287 of the Radio Regulations (RR) for on-board vessel communications. Provision is made for 25 kHz or 12.5 kHz channel spacing.

The ITU Radiocommunication Assembly,

*considering*

- a) that there is a need to describe the characteristics of equipment for on-board vessel communications in the bands between 450 and 470 MHz;
- b) that changes have recently been made to the frequency availability;
- c) Resolution 341 (WRC-97),

*recommends*

**1** that transmitters and receivers used in the maritime mobile service for on-board vessel communications in the bands between 450 and 470 MHz should conform to the technical characteristics shown in Annex 1.

## ANNEX 1

**Technical characteristics of equipment used for on-board vessel communications  
in the bands between 450 and 470 MHz**

- 1** The equipment should be fitted with sufficient channels for satisfactory operation in the area of intended use.
- 2** The effective radiated power should be limited to the maximum required for satisfactory operations, but should in no case exceed 2 W. Wherever practicable the equipment should be fitted with a suitable device to reduce readily the output power by at least 10 dB.
- 3** In the case of equipment installed at a fixed point on the ship, the height of its antenna should not be more than 3.5 m above the level of the bridge.

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\* This Recommendation should be brought to the attention of the International Maritime Organization (IMO) and the International Maritime Radio Committee (CIRM).

**25 kHz channels****12.5 kHz channels**

<b>4</b>	Only frequency modulation with a pre-emphasis of 6 dB/octave (phase modulation) should be used.	Only frequency modulation with a pre-emphasis of 6 dB/octave (phase modulation) should be used.
<b>5</b>	The frequency deviation corresponding to 100% modulation should approach $\pm 5$ kHz as nearly as practicable. In no event should the frequency deviation exceed $\pm 5$ kHz.	The frequency deviation corresponding to 100% modulation should approach $\pm 2.5$ kHz as nearly as practicable. In no event should the frequency deviation exceed $\pm 2.5$ kHz.
<b>6</b>	The frequency tolerance should be 5 parts in $10^6$ .	The frequency tolerance should be 2.5 parts in $10^6$ .
<b>7 (Note 1)</b>	The audio-frequency band should be limited to 3 000 Hz.	The audio-frequency band should be limited to 2 600 Hz.

NOTE 1 – The frequency deviation characteristics for 25 kHz and 12.5 kHz channelling are based on European Telecommunications Standards 300 086 published by the European Telecommunications Standards Institute (ETSI).

**8** Control, telemetry and other non-voice signals should be coded in such a manner as to minimise the possibility of false response to interfering signals.

**9** The frequencies specified in RR No. S5.287 for on-board communications may be used for single frequency and two-frequency simplex operation.

**10** When used in the duplex mode the base transmitter frequency should be selected from the lower range for improved operability.

**11** If the use of a repeater station is required on board a ship, the following frequency pairs should be used (see also RR No. S5.288):

457.525 MHz and 467.525 MHz

457.550 MHz and 467.550 MHz

457.575 MHz and 467.575 MHz

**Frequencies**

The frequencies in RR S5.287 (subject to national regulations) are:

For 25 kHz channel spacing:

457.525 MHz

457.550 MHz

457.575 MHz

467.525 MHz

467.550 MHz

467.575 MHz

For equipment designed to operate with 12.5 kHz channel spacing the additional frequencies are:

457.5375 MHz

457.5625 MHz

467.5375 MHz

467.5625 MHz

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