

Resolution A.809(19)

*adopted on 23 November 1995
(Agenda item 10)*

**PERFORMANCE STANDARDS FOR SURVIVAL CRAFT
TWO-WAY VHF RADIOTELEPHONE APPARATUS**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO regulation III/6.2.1 of the 1988 amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning radiocommunications for the global maritime distress and safety system (GMDSS), which requires that ships be provided with survival craft two-way VHF radiotelephone apparatus and that such apparatus shall conform to appropriate performance standards not inferior to those adopted by the Organization,

RECOGNIZING the need to prepare performance standards for survival craft two-way VHF radiotelephone apparatus to be used in the GMDSS in order to ensure the operational reliability of such equipment and to avoid, as far as practicable, adverse interaction between such equipment and other communication and navigation equipment on board ship,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its sixty-fifth session,

1. ADOPTS the Recommendation on Performance Standards for Survival Craft Portable Two-Way VHF Radiotelephone Apparatus and the Recommendation on Performance Standards for Two-Way VHF Radiotelephone Apparatus for Fixed Installation in Survival Craft set out in annexes 1 and 2, respectively, to the present resolution;
2. RECOMMENDS Governments to ensure that survival craft two-way radiotelephone apparatus for use in search and rescue operations which form part of the GMDSS:
 - (a) if installed on or after 23 November 1996, conform to performance standards not inferior to those specified in annexes 1 and 2 to the present resolution;
 - (b) if installed before 23 November 1996, conform to performance standards not inferior to those specified in annexes 1 and 2 to resolution A.762(18);
3. REQUESTS the Maritime Safety Committee to keep these Performance Standards under review and to adopt amendments thereto, as necessary.

Annex 1

RECOMMENDATION ON PERFORMANCE STANDARDS FOR SURVIVAL CRAFT PORTABLE TWO-WAY VHF RADIOTELEPHONE APPARATUS

1 INTRODUCTION

The survival craft portable two-way VHF radiotelephone, in addition to meeting the requirements of the Radio Regulations, the relevant ITU-R Recommendations and the general requirements set out in resolution A.694(17), should comply with the following performance standards.

2 GENERAL

2.1 The equipment should be portable and capable of being used for on-scene communication between survival craft, between survival craft and ship and between survival craft and rescue unit. It may also be used for on-board communications when capable of operating on appropriate frequencies.

2.2 The equipment should comprise at least:

- .1 an integral transmitter/receiver including antenna and battery;
- .2 an integral control unit including a press-to-transmit switch; and
- .3 an internal microphone and loudspeaker.

2.3 The equipment should:

- .1 be capable of being operated by unskilled personnel;
- .2 be capable of being operated by personnel wearing gloves as specified for immersion suits in regulation 33 of chapter III of the 1974 SOLAS Convention;
- .3 be capable of single-handed operation except for channel selection;
- .4 withstand drops on to a hard surface from a height of 1 m;
- .5 be watertight to a depth of 1 m for at least 5 min;
- .6 maintain watertightness when subjected to a thermal shock of 45°C under conditions of immersion;
- .7 not be unduly affected by seawater, or oil, or both;
- .8 have no sharp projections which could damage survival craft;
- .9 be of small size and light weight;
- .10 be capable of operating in the ambient noise level likely to be encountered on board ships or in survival craft;
- .11 have provisions for its attachment to the clothing of the user;
- .12 be resistant to deterioration by prolonged exposure to sunlight; and
- .13 be either of a highly visible yellow/orange colour or marked with a surrounding yellow/orange marking strip.

3 CLASS OF EMISSION, FREQUENCY BANDS AND CHANNELS

3.1 The two-way radiotelephone should be capable of operation on the frequency 156.800 MHz (VHF channel 16) and on at least one additional channel.

- 3.2 All channels fitted should be for single-frequency voice communication only.
- 3.3 The class of emission should comply with appendix 19 of the Radio Regulations.

4 CONTROLS AND INDICATORS

- 4.1 An on/off switch should be provided with a positive visual indication that the radiotelephone is switched on.
- 4.2 The receiver should be provided with a manual volume control by which the audio output may be varied.
- 4.3 A squelch (mute) control and a channel selection switch should be provided.
- 4.4 Channel selection should be easily performed and the channels should be clearly discernible.
- 4.5 Channel indication should be in accordance with appendix 18 of the Radio Regulations.
- 4.6 It should be possible to determine that channel 16 has been selected in all ambient light conditions.

5 PERMISSIBLE WARMING-UP PERIOD

The equipment should be operational within 5 s of switching on.

6 SAFETY PRECAUTIONS

The equipment should not be damaged by the effects of open-circuiting or short-circuiting the antenna.

7 TRANSMITTER POWER

The effective radiated power should be a minimum of 0.25 W. Where the effective radiated power exceeds 1 W, a power reduction switch to reduce the power to 1 W or less is required. When this equipment provides for on-board communications, the output power should not exceed 1 W on these frequencies.

8 RECEIVER PARAMETERS

- 8.1 The sensitivity of the receiver should be equal to or better than 2 μ V e.m.f. for a SINAD ratio of 12 dB at the output.
- 8.2 The immunity to interference of the receiver should be such that the wanted signal is not seriously affected by unwanted signals.

9 ANTENNA

The antenna should be vertically polarized and, as far as practicable, be omnidirectional in the horizontal plane. The antenna should be suitable for efficient radiation and reception of signals at the operating frequency.

10 RECEIVER OUTPUT

- 10.1 The audio output should be sufficient to be heard in the ambient noise level likely to be encountered on board ships or in a survival craft.
- 10.2 In the transmit condition, the output of the receiver should be muted.

11 ENVIRONMENTAL CONDITIONS

The equipment should be so designed as to operate over the temperature range -20°C to $+55^{\circ}\text{C}$. It should not be damaged in stowage throughout the temperature range -30°C to $+70^{\circ}\text{C}$.

12 POWER SUPPLY

12.1 The source of energy should be integrated in the equipment and may be replaceable by the user. In addition, provision may be made to operate the equipment using an external source of electrical energy.

12.2 Equipment for which the source of energy is intended to be user-replaceable should be provided with a dedicated primary battery for use in the event of a distress situation. This battery should be equipped with a non-replaceable seal to indicate that it has not been used.

12.3 Equipment for which the source of energy is intended to be non-user-replaceable should be provided with a primary battery. The portable two-way radiotelephone equipment should be fitted with a non-replaceable seal to indicate that it has not been used.

12.4 The primary battery should have sufficient capacity to ensure 8-hour operation at its highest rated power with a duty cycle of 1:9. This duty cycle is defined as 6-second transmission, 6-second reception above squelch opening level and 48-second reception below squelch opening level.

12.5 Primary batteries should have a shelf life of at least two years, and if identified to be user-replaceable should be of a colour or marking as defined in 2.3.13.

12.6 Batteries not intended for use in the event of a distress situation should be of a colour or marking such that they cannot be confused with batteries intended for such use.

13 LABELLING

In addition to the general requirements specified in resolution A.694(17), the following should be clearly indicated on the exterior of the equipment:

- .1 brief operating instructions; and
- .2 expiry date for the primary batteries.

Annex 2

RECOMMENDATION ON PERFORMANCE STANDARDS FOR TWO-WAY VHF RADIOTELEPHONE APPARATUS FOR FIXED INSTALLATION IN SURVIVAL CRAFT

1 INTRODUCTION

The survival craft two-way VHF radiotelephone for fixed installations, in addition to meeting the requirements of the Radio Regulations, the relevant ITU-R Recommendations and the general requirements set out in resolution A.694(17), should comply with the following performance standards.

2 GENERAL

2.1 The equipment should be capable of being used for on-scene communication between survival craft, between survival craft and ship and between survival craft and rescue unit.

2.2 The equipment should comprise at least:

- .1 a transmitter and receiver;
- .2 an antenna which may be fixed to the equipment or mounted separately; and
- .3 a microphone with a press-to-talk switch and a loudspeaker.

2.3 The equipment should:

- .1 be capable of being operated by unskilled personnel;
- .2 be capable of being operated by personnel wearing gloves as specified for immersion suits in regulation III/33 of SOLAS 1974;
- .3 withstand such shocks and vibration as may occur in survival craft;
- .4 be watertight to a depth of 1 m for at least 5 min;
- .5 maintain watertightness when subjected to a thermal shock of 45°C under conditions of immersion;
- .6 not be unduly affected by seawater, or oil, or both;
- .7 have no sharp projections which could injure personnel;
- .8 be capable of operating in the ambient noise level likely to be encountered in survival craft; and
- .9 be so designed that it can be readily mounted in a survival craft.

3 CLASS OF EMISSION, FREQUENCY BANDS AND CHANNELS

3.1 The two-way radiotelephone should be capable of operation on the frequency 156.800 MHz (VHF channel 16) and on at least one additional channel.

3.2 All channels fitted should be for single-frequency voice communication only.

3.3 The class of emission should comply with appendix 19 of the Radio Regulations.

4 CONTROLS AND INDICATORS

4.1 An on/off switch should be provided with a positive visual indication that the radiotelephone is switched on.

4.2 The receiver should be provided with a manual volume control by which the audio output of the loudspeaker may be varied. Where a handset is provided, this manual volume control of the loudspeaker should not influence the audio output of the handset.

4.3 A squelch (mute) control and a channel selection switch should be provided.

4.4 Channel selection should be easily performed and the channels should be clearly discernible.

4.5 Channel indication should be in accordance with appendix 18 of the Radio Regulations.

4.6 It should be possible to determine that channel 16 has been selected in all ambient light conditions.

5 PERMISSIBLE WARMING-UP PERIOD

The equipment should be operational within 5 s of switching on.

6 SAFETY PRECAUTIONS

The equipment should not be damaged by the effects of open-circuiting or short-circuiting the antenna.

7 TRANSMITTER POWER

The RF output power should be a minimum of 0.25 W. Where the RF output power exceeds 1 W a power reduction switch to reduce the output power to 1 W or less is required.

8 RECEIVER PARAMETERS

8.1 The sensitivity of the receiver should be equal to or better than 2 μV e.m.f. for a SINAD ratio of 12 dB at the output.

8.2 The immunity to interference of the receiver should be such that the wanted signal is not seriously affected by unwanted signals.

9 ANTENNA

The antenna should be vertically polarized and, as far as practicable, be omnidirectional in the horizontal plane. The antenna should be suitable for efficient radiation and reception of signals at the operating frequency.

10 RECEIVER OUTPUT

10.1 The audio output should be sufficient to be heard in the ambient noise level likely to be encountered in survival craft.

10.2 In the transmit condition, the output of the receiver should be muted.

11 ENVIRONMENTAL CONDITIONS

The equipment should be so designed as to operate over the temperature range -20°C to $+55^{\circ}\text{C}$. It should not be damaged in stowage throughout the temperature range -30°C to $+70^{\circ}\text{C}$.

12 POWER SUPPLY

12.1 The source of energy may be integrated in the equipment or external to it.

12.2 The source of energy should have sufficient capacity to ensure 8-hour operation at its highest rated power with a duty cycle of 1:9. This duty cycle is defined as 6-second transmission, 6-second reception above squelch opening level and 48-second reception below squelch opening level.

12.3 The two-way radiotelephone equipment may be equipped with a primary or secondary battery. Primary batteries should have a shelf life of at least two years.

12.4 Where secondary batteries are used, suitable arrangements should be made to ensure the availability of fully charged cells at all times.

13 LABELLING

In addition to the general requirements specified in resolution A.694(17), the following should be clearly indicated on the exterior of the equipment:

- .1** brief operating instructions; and
- .2** expiry date for the primary batteries, if any.