11. Meters—(1) The transmitter shall incorporate a meter to indicate aerial current in amperes. Failure of the movement of this meter shall not disconnect the aerial.

(2) Other meters shall be included as necessary to enable the transmitter to be checked and adjusted.

12. Use for normal Communications—(1) If the transmitter is designed for operation on frequencies in the band 405 to 525 kHz in addition to 500 kHz, the following conditions shall be observed:

(a) In addition to the requirements of this specification, clauses 2(1), 3, 8, 9, 10, 11(1), and 12 of the Performance Specification for a Main Medium Frequency Radiotelegraph Transmitter shall be met:

(b) The transmitter shall be capable of operation from a power supply other than the reserve source of energy, and arrangements for rapidly changing from one source to the other shall be provided.

(2) The transmitter shall be so designed as to enable an unskilled person to set the transmitter for operation on 500 kHz within the terms of this specification and to connect the automatic keying device.

13. Use on Radiotelephone Distress Frequency—If the transmitter is designed for operation on the Radiotelephone distress frequency, the following conditions shall also be met:

(a) The transmitter shall bc capable of sending signals of Class A3 on a frequency of 2182 kHz only:

(b) It shall be possible to modulate the carrier wave fully by speech:

(c) The transmitter shall conform to the relevant frequency tolerance required by the Radio Regulations of the International Telecommunication Union current at the time of type-testing. The transmitter shall comply with this frequency tolerance without adjustment:

(d) The output power of any spurious emission shall be at least 40 dB below the carrier power:

(e) An aerial tuning control shall be incorporated:

(f) The power of the transmitter shall be defined as the total carrier power delivered to a dummy load consisting of a capacitor of 250 pF in series with a 6 ohm non-inductive resistor, when the ambient temperature is not less than 5°C and not greater than 30°C:

(g) The carrier power of the transmitter shall be between 4 watts and 100 watts at nominal supply voltage.

(h) The transmitter shall be so designed as to enable an unskilled person to set the transmitter for operation on 500 kHz within the terms of this specification and to connect the automatic keying device.

14. Construction—In all respects the mechanical and electrical construction and the finish of the transmitter shall conform to good standards of engineering practice, and the transmitter shall be suitable for use on board ships at sea.

15. Additional Safeguards to be Incorporated Where the Transmitter Includes Semiconductor Devices—(1) Where semiconductor devices are incorporated in the transmitter, the following requirements shall be met:

(a) Under all conditions of service referred to in clause 3 of this Part of this Schedule, the maker's maximum ratings for each type of semiconductor device shall not in any respect be disregarded. In particular, the maker's recommended maximum junction temperature shall never be exceeded:

(b) The semiconductor devices shall be effectively protected from damage if the power supply is subject to transient voltage changes:

(c) When the transmitter is operated from a battery of secondary cells, the semiconductor devices shall not be damaged by a sustained increase in power supply voltage of 25 percent relative to the nominal supply voltage:

(d) Means shall be incorporated for the protection of the semiconductor devices from damage due to the accidental reversal of power-supply polarity.

(2) Although it is not possible to specify the intensity of r.f. fields which may be encountered, attention is drawn to the need for screening and filtering to protect the semiconductor device from damage due to r.f. energy.

Part IV

Reserve Radiotelegraph Receiver

1. Scope of Specification—This specification covers the minimum performance of a reserve radio receiver for use in ships compulsorily fitted for radiotelegraphy and, as such, may form the basis for type-testing.

2. General—(1) The receiver shall be capable of operation both from the main source of electrical energy required by rule 15 (1) of these rules and the reserve source of electrical energy required by rule 15 (2). Arrangements for rapidly changing from one source of supply to the other shall be incorporated. No vibrators or primary cells shall be employed.

(2) The receiver shall provide for headphone and loudspeaker reception of Classes A1 and A2 signals in the frequency range 405 to 535 kHz and of Classes A1, A2, and A3 signals in the frequency range 1605 to 3800 kHz and throughout each of the maritime mobile bands between 4 and 23 MHz.

(3) All parts and wiring in which the direct or alternating voltages or both (other than radio-frequency voltages) combine to give an instantaneous voltage greater than 250 volts shall be protected against accidental access, and shall be isolated automatically from all sources of electrical energy when the means of protection are removed.

All parts and wiring in which the direct or alternating voltages or both (other than radio-frequency voltages) combine to give an instantaneous voltage greater than 50 volts shall be protected against accidental access.

(4) When the receiver is operated from a ship's main supply, the requirements of this specification shall be met for a range of supply voltage variation of plus and minus 10 percent relative to the nominal mains voltage.

When the receiver is operated from a battery of secondary cells, the requiremnents of this specification shall be met for a range of supply voltage variation of plus 5 percent and minus 10 percent relative to the nominal battery voltage.

(5) Manual controls shall be provided as necessary for the adjustment of radio or intermediate frequency gain or both and of audio-frequency gain.

(6) The loudspeaker shall be rendered inoperative when reception is by headphone.

(7) The receiver shall not cause the ship's mains to be earthed.

3. Climatic and Durability Tests—The receiver shall comply with the requirements of the "Climatic and Durability Testing of Marine Radio Equipment" applicable to Class B equipment.

4. Standard Output Level—(1) The standard audio-frequency output level for headphone reception shall be 1 mW into a resistance substantially equal to the modulus of the impedance of the headphones at 1000 Hz.

(2) The standard audio-frequency output level for loudspeaker reception shall be 50 mW into a resistance substantially equal to the modulus of the impedance of the loudspeaker at 1000 Hz.

5. Method of Test—(1) The dummy aerials employed for testing shall be as follows:

(a) For frequencies below 4 MHz, a 10 ohm non-inductive resistor in series with a capacitor having any and every value between 200 and 600 pF; and