harmonics of the carrier frequency and intermodulation products, but not components which are a result of the modulation process.

(2) When sending morse dots at speeds up to 30 bauds, 95 percent of the total power radiated shall be within a band not wider, relative to the frequency of the steady-state carrier, than plus and minus 100 Hz for Class A1 emissions and plus and minus 1500 Hz for Class A2 emissions.

11. Operating Facilities—(1)It shall be possible for an operator to change the transmitter, in a period not exceeding 10 seconds, from operation on any frequency to operation, within the terms of this specification, on any other frequency.

(2) The transmitter shall be ready for operation on full power within one minute of switching on.

(3) If it is necessary to delay the application of voltage to any part of the transmitter after switching on, the delay shall be provided automatically.

(4) The transmitter shall provide facilities for readily using, by approved means, the automatic keying device in place of the manual transmitting key.

12. Listening-through Faciliies—Means shall be incorporated to provide, in conjunction with an associated receiver, listening-through facilities at normal signalling speeds.

13. Dummy Load—A dummy load shall be provided for testing the transmitter on full power.

14. Meters—(1) The transmitter shall incorporate a meter to indicate the 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.

15. 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.

16. 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 4 of this Part 4 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 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 devices from damage due to r.f. energy.

PART II

Main Radiotelegraph Receiver

1. Scope of Specification—This specification covers the minimum performance of a main radio receiver suitable for use in ships compulsorily fitted for radiotelegraphy and, as such, may form the basis for type testing.This specification shall be assumed to cover, in addition to the receiver proper, all equipment necessary for its operation, but not the source of electrical energy or the aerial system with which the receiver is associated.

2. General—(1) The receiver shall consist either of a single unit, or of separate units each of which is capable of reception on one or more sections of the frequency range specified in subclause (3) of this clause.

(2) Each unit of the receiver shall bear a plate stating the frequency range it is intended to cover.

(3) The receiver shall provide for headphone and loudspeaker reception of emissions within the frequency ranges and of the Classes specified in the table below:

Frequency Range Inclusive	Class of Emission
15 kHz–160 kHz	A1
(Greater than 160 kHz)–1,500 kHz	A1, A2
(Greater than 1,500 kHz)–4 MHz..	A1, A2, A3
(Greater than 4 MHz)–28 MHz	A1, A2, A3

(4) 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.

(5) The requirements of this specification shall be met, unless otherwise specified, for a range of voltage variation of plus and minus 10 percent relative to the nominal supply voltage.

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

(7) The loudspeaker shall be rendered inoperative when reception is by headphones.

(8) The receiver shall not employ any vibrators or primary batteries.

3. Climatic and Durability Tests— Except where otherwise stated, the receiver shall meet the requirements of this specification when tested under the conditions specified in the "Climatic and Durability Testing of Marine Radio Equipment" applicable to Class B equipment.

4. Power Supply—(1) The receiver shall be capable of being operated from the main source or sources of electrical energy required by these rules for a radiotelegraph installation.

(2) The receiver shall not cause the ship's main to be earthed.

5. 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.

6. 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

(b) For frequencies above 4 MHz, a 75 ohm non-inductive resistor.

(2) A Class A2 test signal shall unless otherwise specified, be nodulated 30 percent at 1000 Hz.