

power of the carrier shall be between 0dB and 6dB below the peak envelope power:

- (ii) A3A-Amplitude modulated, single sideband, radiotelephony, reduced carrier. For class A3A emission, the power of the carrier shall be 16 ± 2 dB below the peak envelope power:
- (iii) A3J Amplitude-modulated, single sideband, radiotelephony, suppressed carrier. For class A3J emission, the power of the carrier shall be 40dB or more below the peak envelope power.

(3) SINAD—The SINAD ratio is defined as the ratio of the signal plus noise plus distortion to noise plus distortion expressed in decibels.

3. Mechanical and Electrical Design—(1) General

(a) In all respects the mechanical and electrical construction and the finish of the equipment shall conform to good standards of engineering practice, and the equipment shall be suitable for use on board ships at sea:

(b) 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 50V shall be protected against accidental access, and shall be isolated automatically from all sources of electrical energy when the means of protection are removed. Alternatively, the equipment shall be so constructed that access to such voltages may be gained only using a tool, such as a spanner or screwdriver, and warning labels shall be prominently displayed both within the equipment and on protective covers:

(c) Means shall be provided for earthing the case of the equipment, but the equipment shall not cause the ship's mains to be earthed:

(d) The design shall be such that all parts are readily accessible for maintenance:

(e) Provision shall be made for protecting the equipment from the effects of excessive current and voltage:

(f) The equipment shall be so designed and constructed as to ensure that failure of a single component will not cause direct current high-tension voltage to appear at the aerial terminals.

(2) Fire Hazards—Precautions shall be taken against fire. In particular—

(a) The use of materials which ignite easily or sustain combustion shall be kept to a minimum and, as far as possible, materials of the fire-proof, non-burning, or slow burning types shall be used:

(b) Sufficient space shall be provided around heat-producing components to permit adequate cooling and prevent damage to adjacent components. Where necessary, ventilation shall be aided by means of splash-proof louvres or vents.

(3) Component Ratings—All components used in the equipment shall operate within manufacturer's ratings under normal operating conditions; but, in the case of semiconductors, the following conditions apply:

(a) Under all conditions of service, 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 equipment is operated from a battery of secondary cells, the semiconductor devices shall not be damaged by a sustained increase in power supply voltage of 15 percent relative to the Standard Test Voltage:

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

(e) Although it is not practicable to specify the intensity of radio frequency fields which may be encountered, attention is drawn to the need for screening and filtering to protect the semiconductor devices from damage due to radio frequency energy.

4. Operational Requirements—(1) Class of Emission and Operating Frequencies—

(a) Transmitter—The transmitter shall be capable of A3H operation on 2182 kHz and shall also be capable of—

(i) For Class III ships, A3H, A3A, and A3J operation on at least 9 other frequencies:

(ii) For Class IV and Class V ships, A3H and A3J operation on at least 6 other frequencies, as specified by the Secretary of Commerce, in the Maritime Mobile Bands between 1605 kHz and 6525 kHz, except that after the 1st day of January 1978 A3H emissions shall be limited to frequencies below 4 MHz and after the 1st day of January 1982 A3H emissions shall be limited to 2182 kHz only.

Transmitters for installation in Class IV and Class V ships wishing to participate in the Public Correspondence Service shall also provide for transmission of type A3A emissions:

(b) Receiver—The receiver shall be capable of receiving A3, A3A, A3H, and A3J signals in the Maritime Mobile Bands within the range 1605 to 6525 kHz. This requirement shall be met by spot frequency reception on 2182 kHz together with facilities for operation on at least 9 other spot frequencies for Class III ships and at least 6 other spot frequencies for Class IV and Class V ships. Reception of A3A emissions by a receiver operating in the A3J mode shall be acceptable.

Envelope detection shall be used for reception of 2182 kHz.

(2) Frequency Selection—

(a) For Class III ships completely independent selection of transmit and receive frequencies shall be provided, except that 2182 kHz may be selected by a single switch:

(b) For Class IV and Class V ships, single frequency and two-frequency simplex operation shall be possible.

(3) *Power Supply*—The equipment shall be capable of being operated from the source or sources of electrical energy required by these performance standards for a radiotelephone installation.

(4) Receiver Output—

(a) Class III ships shall have provision for both headphone and loud speaker reception:

(b) Class IV and Class V ships shall have provision for loudspeaker reception.

(5) *Sideband*—The upper sideband only shall be used.

(6) *Transmitter Controls*—The transmitter shall comply with the following requirements in regard to the number and type of external controls:

(a) Selection of the frequency of 2182 kHz shall be by not more than 2 controls. For frequencies other than 2182 kHz, more than 2 controls may be used only in the case of generation of the frequencies by means of an unprogrammed synthesiser or similar device:

(b) Unless aerial tuning is automatic, a fine-tuning control shall be provided to enable the transmitter to be adjusted to maximum output with any practical combination of aerial characteristics and frequency. The range of the control must not permit tuning to any spurious frequency derived from the frequency of operation:

(c) A non-locking control shall be provided to enable radiation of 1 or more frequencies for tuning purposes:

(d) A power reduction control shall be provided to enable reduced power operation as required by clause 6 (8) of this Schedule:

(e) The control or controls which select 2182 kHz shall be