

- Unofficial translation -

Notification of the National Telecommunications Commission
On Technical Standards for Telecommunication Equipment
Re: 27 MHz CB Radiocommunication Equipment on Board Ship

Whereas the National Telecommunications Commission has authorized the use and installation of 27 MHz CB radiocommunication equipment on board ship for the purposes of maritime communication and safety, particularly in times of natural disasters, such as floods and earthquakes, and has prescribed that such radiocommunication equipment shall operate in the radio frequency bands and conform with the technical standards as prescribed by the National Telecommunications Commission;

Pursuant to Section 29 (4) of the Radiocommunications Act B.E. 2498 (1955), together with Section 51 (21) and Section 78 of the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunication Services B.E. 2543 (2000), the National Telecommunications Commission hereby issues the Notification on Technical Standards for Telecommunication Equipment regarding 27 MHz CB Radiocommunication Equipment on Board Ship, as detailed in the Standard No. NTC TS 1020-2550 appended hereto.

This Notification shall come into force as from the day following the date of its publication in the Government Gazette.

Announced on the 8th day of November B.E. 2550 (2007)

General Choochart Promphrasid

Chairman of the National Telecommunications Commission

This English version is prepared by International Organizations Bureau with the sole purpose of facilitating the comprehension of foreign participants in the telecommunication rules and regulations and shall not in any event be construed or interpreted as having effect in substitution for or supplementary to the Thai version thereof.

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Technical Standards for Telecommunication Equipment

NTC TS 1020-2550

27 MHz CB Radiocommunication Equipment on Board Ship

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Technical Standards for Telecommunication Equipment

NTC TS 1020-2550

Re: 27 MHz CB Radiocommunication Equipment on Board Ship

1. Scope

This technical standard specifies the minimum technical characteristics of 27 MHz Citizens Band (CB) radiocommunication equipment on board ship, employing frequency modulation (FM), double-sideband amplitude modulation (AM DSB), or single-sideband amplitude modulation (AM SSB), and having channel spacing of 10 kHz.

2. General Requirements

- 2.1 Usage of the equipment** For fixed installation on board ship
- 2.2 Reception and transmission of signal** Use of the same radio frequency for both signal reception and transmission (simplex) only
- 2.3 Radio frequency band** Permissible operating channels appear in the Annex.
Frequencies of 27.155 MHz and 27.215 MHz shall be used for distress, safety and calling.

3. Requirements for Transmitter

3.1 Rated carrier power

Definition **Rated carrier power** is the carrier power of the equipment declared by the manufacturer in its technical documents. The carrier power is the average power delivered to the artificial antenna. The measured carrier power shall be within ± 1.5 dB of the rated carrier power.

Limit The rated carrier power shall not exceed the values given in the table below:

Modulation	Rated carrier power
Frequency modulation (FM)	10 watts (P)
Double-sideband amplitude modulation (AM DSB)	10 watts (P)
Single-sideband amplitude modulation (AM SSB)	20 watts (PEP)

Remarks PEP is peak envelope power in watt (W)

P is mean power in watt (W).

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3.2 Frequency tolerance

Definition **Frequency tolerance** is the tolerable deviation of a transmitter's radio frequency, by comparing the median frequency of emissions with the assigned frequency (in case of frequency modulation), or by comparing the easily measurable characteristic frequency, such as the carrier frequency in the absence of modulation, with the reference frequency which is correlated to the assigned frequency (in case of amplitude modulation).

Limit Frequency tolerance shall not exceed the values given in the table below:

Modulation	Rated carrier power
Frequency modulation (FM)	± 0.6 kHz
Double-sideband amplitude modulation (AM DSB)	± 1.4 kHz
Single-sideband amplitude modulation (AM SSB)	± 1.4 kHz

3.3 Frequency deviation in case of frequency modulation

Definition **Frequency deviation** is maximum difference between the instantaneous frequency of the modulated radio frequency signal and the carrier frequency in the absence of modulation.

Limit The frequency deviation shall not exceed ± 2 kHz.

3.4 Conducted spurious emissions

Definition **Conducted spurious emissions** are emissions at the antenna connector on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

Limit The power levels of conducted spurious emissions within the frequency range of 9 kHz - 1 GHz shall be as given in the table below:

Modulation	Power of conducted spurious emissions
Frequency modulation (FM)	Below carrier power in the absence of modulation at least $43 + 10 \log P$ (dB) or 60 dBc whichever is less stringent
Double-sideband amplitude modulation (AM DSB)	
Single-sideband amplitude modulation (AM SSB)	Below carrier power (PEP) at least 43 dB

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4. Requirements for Receiver

4.1 Reference sensitivity

Definition **Reference sensitivity** is the lowest level of a receiver's input signal at the specified frequency, with the specified modulation, that will result in the standard SINAD or standard S/N at the output of the receiver.

Limit The maximum input signal shall not exceed the values given in the table below:

Modulation	Sensitivity
Frequency modulation (FM)	0.50 micro volts (μ V) at 12 dB SINAD
Double-sideband amplitude modulation (AM DSB)	1.0 micro volts (μ V) at 10 dB S/N
Single-sideband amplitude modulation (AM SSB)	1.0 micro volts (μ V) at 10 dB S/N

4.2 Adjacent channel selectivity

Definition **Adjacent channel selectivity** is the capability of a receiver to receive the wanted modulated signal at the specific frequency without exceeding a given degradation due to the presence of unwanted modulated signals in the adjacent channels.

Limit The adjacent channel selectivity shall not be less than the values given in the table below:

Modulation	Adjacent channel selectivity
Frequency modulation (FM)	60 dB (when the difference between frequency offset and nominal carrier frequency exceeds 10 kHz)
Double-sideband amplitude modulation (AM DSB)	55 dB (when the difference between frequency offset and nominal carrier frequency exceeds 10 kHz)
Single-sideband amplitude modulation (AM SSB)	65 dB (when frequency offset is 11 kHz higher than nominal carrier frequency or 9 kHz lower than normal carrier frequency)

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5. Safety Requirements

5.1 Electrical safety

The electrical safety requirements for the 27 MHz CB radiocommunication equipment on board ship shall conform to one of the following standards:

5.1.1 IEC 60950 - 1 : Information Technology Equipment – Safety - Part 1: General Requirements

5.1.2 TISI 1561 - 2548 : Information Technology Equipment – Safety: General Requirements

5.2 Radiation exposure

The installation and use of the 27 MHz CB radiocommunication equipment on board ship shall conform to the radiation exposure standards and requirements as prescribed by the National Telecommunications Commission.

6. Methods of Measurement

6.1 Transmitter

6.1.1 Rated carrier power

The method of measurement shall follow AS 4367-1996 [1], ETSI EN 300 135-1 [2], or any other equivalent method.

6.1.2 Frequency tolerance

The method of measurement shall follow AS 4367-1996 [1], ETSI EN 300 135-1, or any other equivalent method.

6.1.3 Frequency deviation in case of modulated frequency

The method of measurement shall follow ETSI EN 300 135-1, or any other equivalent method.

6.1.4 Conducted spurious emissions

The method of measurement shall follow ITU-R Rec. SM 329-10 [3], AS 4367-1996, or any other equivalent method.

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6.2 Receiver

6.2.1 Reference sensitivity

The method of measurement shall follow AS 4367-1996, or any other equivalent method.

6.2.2 Adjacent channel selectivity

The method of measurement shall follow AS 4367-1996, ETSI EN 300 135-1, or any other equivalent method.

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References for Methods of Measurement

- [1] AS 4367-1996: Australian Standard: Radiocommunications equipment used in the inshore boating radio service band
 - [2] ETSI EN 300 135-1 V1.1.2 (2000-08): Electromagnetic compatibility and Radio Spectrum Matters (ERM); Angle-modulated Citizens Band radio equipment (CEPT PR 27 Radio Equipment); Part 1: Technical characteristics and methods of measurement
 - [3] ITU-R Recommendation SM. 329-10: Unwanted emissions in the spurious domain
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Annex

Operating Frequency Bands for 27 MHz CB Radiocommunication Equipment on Board Ship

26.105	26.375		26.915	27.185	27.455	27.725
26.115	26.385	26.655	26.925		27.465	27.735
26.125	26.395	26.665	26.935	27.205	27.475	27.745
26.135	26.405	26.675	26.945	27.215	27.485	27.755
	26.415	26.685	26.955	27.225		27.765
26.155	26.425		26.965	27.235	27.505	27.775
26.165	26.435	26.705	26.975	27.245	27.515	27.785
26.175	26.445	26.715	26.985	27.255	27.525	27.795
26.185	26.455	26.725		27.265	27.535	28.805
	26.465	26.735	27.005	27.275		27.815
26.205	26.475		27.015	27.285	27.555	27.825
26.215	26.485	26.755	27.025	27.295	27.565	27.835
26.225	26.495	26.765	27.035	27.305	27.575	27.845
26.235	26.505	26.775		27.315	27.585	27.855
	26.515	26.785	27.055	27.325		27.865
26.255	26.525	26.795	27.065	27.335	27.605	27.875
26.265	26.535	26.805	27.075	27.345	27.615	27.885
26.275		26.815	27.085	27.355	27.625	
26.285	26.555	26.825		27.365	27.635	27.905
	26.565	26.835	27.105	27.375		27.915
26.305	26.575	26.845	27.115	27.385	27.655	27.925
26.315	26.585	26.855	27.125	27.395	27.665	27.935
26.325		26.865	27.135	27.405	27.675	
26.335	26.605	26.875		27.415	27.685	27.955
26.345	26.615	26.885	27.155	27.425	27.695	27.965
26.355	26.625	26.895	27.165	27.435	27.705	27.975
26.365	26.635	26.905	27.175		27.715	27.985
