

Description of emission	Necessary bandwidth		Designation of emission
	Formula	Sample calculation	
Radio-relay system frequency division multiplex.	$B_n=2M+2DK, K=1$	Microwave radio relay systems specifications: 1200 telephone channels occupying baseband between 60 and 5564 kHz; rms per channel deviation 200 kHz; continuity pilot at 6199 kHz produces 140 kHz rms deviation of main carrier. Computation of $B_n: D=(20^3 \times 10^3 \times 3.76 \times 3.63)=2.73 \times 10^6$ ; $M=5.64 \times 10^6$ Hz; $P=6.2 \times 10^6$ Hz; $(2M+2DK) < 2P$ ; Bandwidth $16.59 \times 10^6$ Hz	16M6F8E
Radio-relay system, frequency division multiplex.	$B_n=2P$	Microwave radio relay system specifications: Multiplex 600 telephone channels occupying baseband between 60 and 2540 kHz; continuity pilot at 8500 kHz produces 140 kHz rms deviation of main carrier. Computation of $B_n: D=(200 \times 10^3 \times 3.76 \times 2.565)=1.93 \times 10^6$ Hz; $M=2.54 \times 10^6$ Hz; $2DK \leq 2P$ Bandwidth: $17 \times 10^6$ Hz	17M0F8E
Unmodulated pulse emission.	$B_n=2K+t, K$ depends upon the ratio of pulse rise time. Its value usually falls between 1 and 10 and in many cases it does not need to exceed 6	Primary Radar Range resolution: 150 m, $K=1.5$ (triangular pulse where $t=t_r$ , only components down to 27 dB from the strongest are considered) Then $t=2 \times$ range resolution $\div$ velocity of light $= 2 \times 150 \div 3 \times 10^8 = 1 \times 10^{-6}$ seconds, Bandwidth: $3 \times 10^6$ Hz = 3 MHz	3M00P0N
6. Composite Emissions			
Radio-relay system .....	$B_n=2K+t, K=1.6$	Pulse position modulated by 36 voice channel baseband; pulse width at half amplitude = 0.4 us, Bandwidth: $8 \times 10^6$ Hz = 8 MHz (Bandwidth independent of the number of voice channels)	8M00M7E

[28 FR 12465, Nov. 22, 1963, as amended at 37 FR 8883, May 2, 1972; 37 FR 9996, May 18, 1972; 48 FR 16492, Apr. 18, 1983; 49 FR 48698, Dec. 14, 1984]

**Subpart D—Call Signs and Other Forms of Identifying Radio Transmissions**

AUTHORITY: Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082; 47 U.S.C. 154, 155, 303.

**§ 2.301 Station identification requirement.**

Each station using radio frequencies shall identify its transmissions according to the procedures prescribed by the rules governing the class of station to which it belongs with a view to the elimination of harmful interference and the general enforcement of applicable radio treaties, conventions, regulations, arrangements, and agreements in force, and the enforcement of the Communications Act of 1934, as amended, and the Commission's rules.

[34 FR 5104, Mar. 12, 1969]

**§ 2.302 Call signs.**

The table which follows indicates the composition and blocks of international call signs available for assignment when such call signs are required by the rules pertaining to particular classes of stations. When stations operating in two or more classes are authorized to the same licensee for the same location, the Commission may elect to assign a separate call sign to each station in a different class. (In addition to the U.S. call sign allocations listed below, call sign blocks AAA through AEZ and ALA through ALZ have been assigned to the Department of the Army; call sign block AFA through AKZ has been assigned to the Department of the Air Force; and call sign block NAA through NZZ has been assigned jointly to the Department of the Navy and the U.S. Coast. Guard.

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Class of station	Composition of call sign	Call sign blocks
Coast (Class I) except for coast telephone in Alaska.	3 letters .....	KAA through KZZ. WAA through WZZ.
Coast (Classes II and III) and maritime radio-determination.	3 letters, 3 digits .....	KAA200 through KZZ999. WAA200 through WZZ999.
Coast telephone in Alaska .....	3 letters, 2 digits. 3 letters, 3 digits (for stations assigned frequencies above 30 MHz).	KAA20 through KZZ99. WAA20 through WZZ99. WZZ200 through WZZ999.
Fixed .....	3 letters, 2 digits .....	KAA20 through KZZ99.
	3 letters, 3 digits (for stations assigned frequencies above 30 MHz).	WAA20 through WZZ99. WAA200 through WZZ999.
Marine receiver test .....	3 letters, 3 digits (plus general geographic location when required).	KAA200 through KZZ999. WAA200 through WZZ999.
Ship telegraph .....	4 letters <sup>1</sup> .....	KAAA through KZZZ. WAAA through WZZZ.
Ship telephone .....	2 letters, 4 digits, or 3 letters, 4 digits <sup>1</sup>	WA2000 through WZ9999, through WZZ9999.
Ship telegraph plus telephone .....	4 letters .....	KAAA through KZZZ. WAAA through WZZZ.
Ship radar .....	Same as ship telephone and/or telegraph call sign, or, if ship has no telephone or telegraph: 2 letters, 4 digits, or 3 letters, 4 digits.	WA2000 through WZ9999, through WZZ9999.
Ship survival craft .....	Call sign of the parent ship followed by 2 digits.	KAAA20 through KZZZ99. WAAA20 through WZZZ99.
Cable-repair ship marker buoy .....	Call sign of the parent ship followed by the letters "BT" and the identifying number of the buoy.	
Marine utility .....	2 letters, 4 digits .....	KA2000 through KZ9999.
Shipyards mobile .....	2 letters, 4 digits .....	KA2000 through KZ9999.
Aircraft telegraph .....	5 letters .....	KAAAA through KZZZZ. WAAAA through WZZZZ.
Aircraft telegraph and telephone .....	5 letters <sup>2</sup> .....	KAAAA through KZZZZ. WAAAA through WZZZZ.
Aircraft telephone .....	5 letters <sup>2</sup> (whenever a call sign is assigned).	KAAAA through KZZZZ. WAAAA through WZZZZ.
Aircraft survival craft .....	Whenever a call sign <sup>2</sup> is assigned, call sign of the parent aircraft followed by a single digit other than 0 or 1.	
Aeronautical .....	3 letters, 1 digit <sup>2</sup> .....	KAA2 through KZZ9. WAA2 through WZZ9.
Land mobile (base) .....	3 letters, 3 digits .....	KAA200 through KZZ999. WAA200 through WZZ999.
Land mobile (mobile telegraph) .....	4 letters, 1 digit .....	KAAA2 through KZZZ9. WAAA2 through WZZZ9.
Land mobile (mobile telephone) .....	2 letters, 4 digits .....	KA2000 through KZ9999. WA2000 through WZ9999.
Broadcasting (standard) .....	4 letters <sup>3</sup> (plus location of station) .....	KAAA through KZZZ. WAAA through WZZZ.
Broadcasting (FM) .....	4 letters (plus location of station) .....	KAAA through KZZZ. WAAA through WZZZ.
Broadcasting with suffix "FM" .....	6 letters <sup>3</sup> (plus location of station) .....	KAAA-FM through KZZZ-FM. WAAA-FM through WZZZ-FM.
Broadcasting (television) .....	4 letters (plus location of station) .....	KAAA through KZZZ. WAAA through WZZZ.
Broadcasting with suffix "TV" .....	6 letters <sup>3</sup> (plus location of station) .....	KAAA-TV through KZZZ-TV. WAAA-TV through WZZZ-TV.
Television broadcast translator .....	1 letter—output channel number—2 letters.	K02AA through K83ZZ. W02AA through W83ZZ.
Disaster station, except U.S. Government .....	4 letters, 1 digit .....	KAAA2 through KZZZ9. WAAA2 through WZZZ9.
Experimental (letter "X" follows the digit) .....	2 letters, 1 digit, 3 letters .....	KA2XAA through KZ9XZZ. WA2XAA through WZ9XZZ.
Amateur (letter "X" may not follow digit) .....	1 letter, 1 digit, 1 letter <sup>4</sup> .....	K1A through K0Z. N1A through N0Z. W1A through W0Z.
Amateur .....	1 letter, 1 digit, 2 letters <sup>4</sup> .....	K1AA through K0ZZ. N1AA through N0ZZ. W1AA through W0ZZ.
Do .....	1 letter, 1 digit, 3 letters <sup>4</sup> .....	K1AAA through K0ZZZ. N1AAA through N0ZZZ. W1AAA through W0ZZZ.

Class of station	Composition of call sign	Call sign blocks
Do .....	2 letters, 1 digit, 1 letter <sup>4</sup> .....	AA1A through AI0Z. KA1A through KZ0Z. NA1A through NZ0Z. WA1A through WZ0Z.
Do .....	2 letters, 1 digit, 2 letters <sup>4</sup> .....	AA1AA through AL0ZZ. KA1AA through KZ0ZZ. NA1AA through NZ0ZZ. WA1AA through WZ0ZZ.
Amateur (letter "X" may not follow digit) .....	2 letters, 1 digit, 3 letters <sup>4</sup> .....	AA1AAA through AL0ZZZ. KA1AAA through KZ0ZZZ. NA1AAA through NZ0ZZZ. WA1AAA through WZ0ZZZ.
Standard frequency .....	.....	WWV, WWVB through WWVI, WWVL, WWVS.
Personal radio .....	3 letters, 4 digits, or 4 letters, 4 digits.	KAA0001 through KZZ9999, WAA0001 through WPZ9999, KAAA0001 through KZZZ9999.
Personal radio, temporary permit .....	3 letters, 5 digits .....	KAA00000 through KZZZ99999.
Personal radio in trust territories. ....	1 letter, 4 digits .....	K0001 through K9999.
Business radio temporary permit .....	2 letters, 7 digits .....	WT plus local telephone number.
Part 90 temporary permit .....	2 letters, 7 digits .....	WT plus local telephone number.
Part 90 conditional permit .....	2 letters, 7 digits .....	WT plus local telephone number.
General Mobile Radio Service, temporary permit.	2 letters, 7 digits .....	WT plus business or residence telephone number.

NOTE: The symbol 0 indicates the digit zero.

<sup>1</sup> Ships with transmitter-equipped survival craft shall be assigned four letter call signs.

<sup>2</sup> See § 2.303.

<sup>3</sup> A 3 letter call sign now authorized for and in continuous use by a licensee of a standard broadcasting station may continue to be used by that station. The same exception applies also to frequency modulation and television broadcasting stations using 5 letter call signs consisting of 3 letters with the suffix "FM" or "TV".

<sup>4</sup> Plus other identifying data as may be specified.

[34 FR 5104, Mar. 12, 1969; as amended at 54 50239, Dec. 5, 1989]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 2.302, see the List of CFR Sections Affected in the Finding Aids section of this volume.

**§ 2.303 Other forms of identification of stations.**

(a) The following table indicates forms of identification which may be used in lieu of call signs by the specified classes of stations. Such recognized means of identification may be one or more of the following: name of station, location of station, operating agency, official registration mark,

flight identification number, selective call number or signal, selective call identification number or signal, characteristic signal, characteristic of emission or other clearly distinguishing form of identification readily recognized internationally. Reference should be made to the appropriate part of the rules for complete information on identification procedures for each service.

Class of station	Identification, other than assigned call sign
Aircraft (U.S. registry) telephone .....	Registration number preceded by the type of the aircraft, or the radiotelephony designator of the aircraft operating agency followed by the flight identification number.
Aircraft (foreign registry) telephone .....	Foreign registry identification consisting of five characters. This may be preceded by the radiotelephony designator of the aircraft operating agency or it may be preceded by the type of the aircraft.
Aeronautical .....	Name of the city, area, or airdrome served together with such additional identification as may be required.
Aircraft survival craft .....	Appropriate reference to parent aircraft, e.g., the air carrier parent aircraft flight number or identification, the aircraft registration number, the name of the aircraft manufacturer, the name of the aircraft owner, or any other pertinent information.
Ship telegraph .....	When an official call sign is not yet assigned: Complete name of the ship and name of licensee. On 156.65 MHz: Name of ship. Digital selective call.
Ship telegraph .....	Digital selective call.
Public coast (radiotelephone) and Limited Coast (Radiotelephone).	The approximate geographic location in a format approved by the Commission.

<i>Class of station</i>	<i>Identification, other than assigned call sign</i>
Public coast (radiotelegraph) .....	Coast station identification number.
Fixed .....	Coast station identification number. Geographic location. When an approved method of superimposed identification is used, QTT DE (abbreviated name of company or station).
Fixed: Rural subscriber service .....	Assigned telephone number.
Land mobile: Public safety, forestry conservation, highway maintenance, local government, shipyard, land transportation, and aviation services.	Name of station licensee (in abbreviated form if practicable), or location of station, or name of city, area, or facility served. Individual stations may be identified by additional digits following the more general identification.
Land mobile: Industrial service .....	Mobile unit cochannel with its base station: Unit identifier on file in the base station records. Mobile unit not cochannel with its base station: Unit identifier on file in the base station records and the assigned call sign of either the mobile or base station. Temporary base station: Unit designator in addition to base station identification.
Land mobile: Domestic public and rural radio	Special mobile unit designation assigned by licensee or by assigned telephone number.
Land mobile: Railroad radio service .....	Name of railroad, train number, caboose number, engine number, or name of fixed wayside station or such other number or name as may be specified for use of railroad employees to identify a specific fixed point or mobile unit. A railroad's abbreviated name or initial letters may be used where such are in general usage. Unit designators may be used in addition to the station identification to identify an individual unit or transmitter of a base station.
Land mobile: Broadcasting (remote pickup) ....	Identification of associated broadcasting station.
Broadcasting (Emergency Broadcast System)	State and operational area identification.
Broadcasting (aural STL and intercity relay) ...	Call sign of the broadcasting station with which it is associated.
Broadcasting (television auxiliary) .....	Call sign of the TV broadcasting station with which it is licensed as an auxiliary, or call sign of the TV broadcasting station whose signals are being relayed, or by network identification.
Broadcasting (television booster). .....	Retransmission of the call sign of the primary station.
Disaster station .....	By radiotelephony: Name, location, or other designation of station when same as that of an associated station in some other service. Two or more separate units of a station operated at different locations are separately identified by the addition of a unit name, number, or other designation at the end of its authorized means of identification.

(b) Digital selective calls will be authorized by the Commission and will be formed by groups of numbers (0 through 9), however, the first digit must be other than 0, as follows:

- (1) Coast station identification number: 4 digits.
- (2) Ship station selective call number: 5 digits.
- (3) Predetermined group of ship stations: 5 digits.

(c) Ship stations operating under a temporary operating authority shall identify by a call sign consisting of the letter "K" followed by the vessel's Federal or State registration number, or a call sign consisting of the letters "KUS" followed by the vessel's documentation number. However, if the vessel has no registration number or documentation number, the call sign shall consist of the name of the vessel and the name of the licensee as they appear on the station application form.

[28 FR 12465, Nov. 22, 1963, as amended at 40 FR 57675, Dec. 11, 1975; 41 FR 44042, Oct. 6, 1976; 42 FR 31008, June 17, 1977; 44 FR 62284, Oct. 30, 1979]

**Subpart E—Distress, Disaster, and Emergency Communications**

**§2.401 Distress messages.**

Each station licensee shall give absolute priority to radiocommunications or signals relating to ships or aircraft in distress; shall cease all sending on frequencies which will interfere with hearing a radiocommunication or signal of distress and except when engaged in answering or aiding the ship or aircraft in distress, shall refrain from sending any radiocommunications or signals until there is assurance that no interference will be caused with the radiocommunications or signals relating thereto; and shall assist the ship or aircraft in distress, so far as possible, by complying with its instructions.

**§2.402 Control of distress traffic.**

The control of distress traffic is the responsibility of the mobile station in distress or of the mobile station which, by the application of the provisions of §2.403, has sent the distress call. These