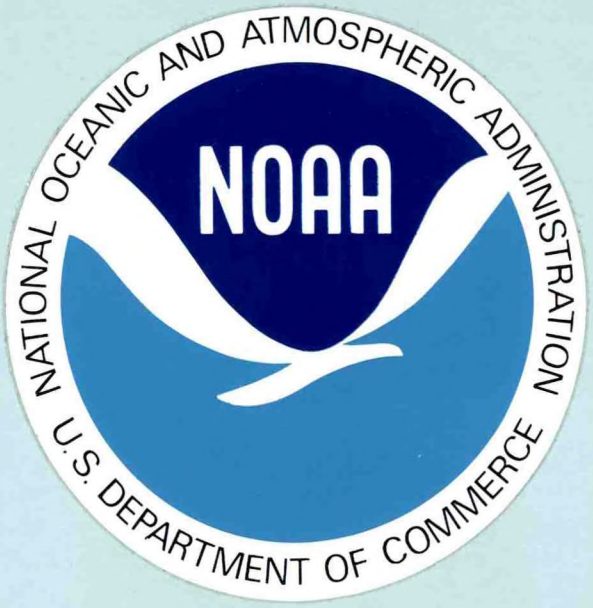
NATIONAL OCEAN SURVEY

RADIO FREQUENCIES



DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL OCEAN SURVEY

LIST OF RADIO FREQUENCIES AND CALL LETTERS

IRAC AUTHORIZATIONS

Letter Spelling Table

Letter	Code Word	Pronunciation of code word 1/
A	Alfa	AL FAH
B	Bravo	BRAH VOH
C	Charlie	CHAR LEE or SHAR LEE
D	Delta	DELL TAH
E	Echo	ECK OH
F	Foxtrot	FOKS TROT
G	Golf	GOLF
H	Hotel	HOH TELL
I	India	IN DEE AH
J	Juliett	JEW LEE ETT
K	Kilo	KEY LOH
L	Lima	LEE MAH
M	Mike	MIKE
N	November	NO VEM BER
O	Oscar	OSS CAH
P	Papa	PAH PAH
Q	Quebec	KEH BECK
R	Romeo	ROW ME OH
S	Sierra	SEE AIR RAH
T	Tango	TANG GO
U	Uniform	YOU NEE FORM or OO NEE FORM
V	Victor	VIK TAH
W	Whiskey	WISS KEY
X	X-Ray	ECKS RAY
Y	Yankee	YANG KEY
Z	Zulu	ZOO LOO

1/ The syllables underlined carry the accent.

DESIGNATION OF EMISSIONS

SECTION 1. CLASSIFICATION

I. EMISSIONS ARE CLASSIFIED AND SYMBOLIZED ACCORDING TO THE FOLLOWING CHARACTERISTICS:

(1) Type of modulation of main carrier
(2) Type of transmission
(3) Supplementary characteristics

II. TYPES OF MODULATION OF MAIN CARRIER	SYMBOL
(a) Amplitude	A
(b) Frequency (or phase)	F
(c) Pulse	P

III. TYPES OF TRANSMISSION

(a) Absence of any modulation intended to carry information.	0
(b) Telegraphy without the use of a modulating audio frequency.	1
(c) Telegraphy by the on-off keying of a modulating audio frequency or audio frequencies, or by on-off keying of the modulated emission (Special case: An unkeyed modulated emission).	2
(d) Telephony (including sound broadcasting).	3
(e) Facsimile (with modulation of main carrier either directly or by a frequency modulated sub-carrier).	4
(f) Television (vision only).	5
(g) Four-frequency diplex telegraphy.	6
(h) Multichannel voice-frequency telegraphy	7
(i) Cases not covered by above.	9

IV. SUPPLEMENTARY CHARACTERISTICS

(a) Double sideband	(None)
(b) Single sideband:	
-reduced carrier	A
-full carrier	H
-suppressed carrier	J
(c) Two independent sidebands	B
(d) Vestigial sideband	C
(e) Pulse:	
-amplitude modulated	D
-width (or duration) modulated	E
-phase (or position) modulated	F
-code modulated	G

V. The classification of typical emissions is tabulated as follows:

TYPE OF MODULATION	TYPE OF TRANSMISSION	SUPPLEMENTARY CHARACTERISTICS	SYMBOL
Amplitude Modulation	With no modulation	_____	A0
	Telegraphy without the use of a modulating audio frequency (by on-off keying)	_____	A1
	Telegraphy by the on-off keying of an amplitude modulating audio frequency or audio frequencies, or by the on-off keying of the modulated emission (Special case: An unkeyed emission amplitude modulated)		A2
	Telephony	Double sideband	A3
		Single sideband, Reduced carrier	A3A
		Suppressed carrier	A3J
		Two independent sidebands	A3B
	Facsimile (with modulation of main carrier either directly or by a frequency modulated sub-carrier)		A4
		Single sideband, reduced carrier	A4A
	Television	Vestigial sideband	A5C
	Multichannel voice frequency telegraphy	Single sideband, reduced carrier	A7A
	Cases not covered by the above, e.g., a combination of telephony and telegraphy	Two independent sidebands	A9B
Frequency (or phase) Modulation	Telegraphy shift keying without the use of a modulating audio frequency: One of two frequencies being emitted at any instant	_____	F1
	Telegraphy by the on-off keying of a frequency modulating audio frequency or by the on-off keying of a frequency modulated emission (Special case: An unkeyed emission, frequency modulated).	_____	F2

TYPE OF MODULATION	TYPE OF TRANSMISSION	SUPPLEMENTARY CHARACTERISTICS	SYMBOL
	Telephony	_____	F3
	Facsimile by direct frequency modulation of the carrier	_____	F4
	Television	_____	F5
	Four-frequency diplex telegraphy	_____	F6
	Cases not covered by the above, in which the main carrier is frequency modulated	_____	F9
Pulse Modulation	A pulsed carrier without any modulation intended to carry information (e.g. radar)	_____	P0
	Telegraphy by the on-off keying of a pulsed carrier without the use of a modulating audio frequency	_____	P1D
	Telegraphy by the on-off keying of a modulating audio frequency or audio frequencies, or by the on-off keying of a modulated pulsed carrier (Special case: An unkeyed modulated pulsed carrier)	_____	
		Audio frequency or audio frequencies modulating the amplitude of the pulses	P2D
		Audio frequency or audio frequencies modulating the width (or duration) of the pulses	P2E
		Audio frequency or audio frequencies modulating the phase (or position) of the pulses	P2F
	Telephony	Amplitude modulated pulses	P3D
		Width (or duration) Modulated pulses	P3E

TYPE OF MODULATION	TYPE OF TRANSMISSION	SUPPLEMENTARY CHARACTERISTICS	SYMBOL
		Phase (or position) modulated pulses	P3F
		Code modulated pulses (after sampling and quantization)	P3G
	Cases not covered by the above, in which the main carrier is pulse modulated		P9

BANDWIDTHS

Whenever the full designation of an emission is necessary, the symbol for that emission, as given above, shall be preceeded by a number indicating in kilo Hertz (kHz) per second the necessary bandwidth of the emission.

EXAMPLES OF EMISSION DESIGNATIONS

3.A3	3 kHz bandwidth
0.1A1	100 Hertz bandwidth Morse Code at twenty-five words per minute, or less.
15.F2	15 kHz bandwidth, frequency modulation by audio tone.
3.A3J	3 kHz bandwidth single sideband (upper), suppressed carrier.

The letters Hz have come into use to replace cs, in abbreviation for frequency; hence Kcs is being changed to kHz, etc.

DEFINITION OF SYMBOLS

EX EXPERIMENTAL station. A station utilizing radio waves in experiments with a view to the development of science or technique. This definition does not include amateur stations.

IRAC/FAS DEFINITIONS USED IN FREQUENCY ALLOCATIONS

USA Conterminous United States. Includes 48 contiguous states and D. Columbia.

US The term United States includes the 50 states and D. Columbia.

US&P United States and Possessions. The term includes the 50 states, D. Columbia, territories and possessions and the Canal Zone.

FL LAND station. A station in the mobile service not intended to be used while in motion.

FX FIXED station. A station in the fixed service.

FXH HYDROLOGICAL AND METEOROLOGICAL FIXED station. A fixed station, the emissions of which are used for the automatic transmission of either hydrological or meteorological data, or both.

LR RADIO LOCATION LAND station. A station in the radio-location service not intended to be used while in motion.

MO MOBILE station. A station in the mobile service intended to be used while in motion or during halts at unspecified points.

MR RADIOLOCATION MOBILE station. A station in the radio-location service intended to be used while in motion or during halts at unspecified points.

MS SHIP station. A mobile station in the maritime mobile service located on board a vessel, other than a survival craft, which is not permanently moored.

RL RADIONAVIGATION LAND station. A station in the radio-navigation service not intended to be used while in motion.

RO RADIONAVIGATION MOBILE station. A station in the radio-navigation service not intended to be used while in motion.

FC COAST station. A land station in the maritime mobile service.

RADIO CALL LETTERS

WTEA DISCOVERER OSS-02
WZ2608 thru WZ2619 sub-party

WTEB FAIRWEATHER MSS-20
WZ2645 thru WZ2650 sub-party

WTEF RAINIER MSS-21
WZ2572 thru WZ2582 sub-party

WTEG MT. MITCHELL MSS-22
WZ3015 thru WZ3029 sub-party

WTEJ McARTHUR CSS-30
WZ3030 thru WZ3038 sub-party

WTEK DAVIDSON CSS-31
WZ3039 thru WZ3049 sub-party

WTEO PATHFINDER OSS-30
WZ2520 thru WZ2529 sub-party

WTEP OCEANOGRAPHER OSS-01
WZ2633 thru WZ2642 sub-party

WTEQ PEIRCE CSS-28
WZ2598 thru WZ2602 sub-party

WTER RESEARCHER OSS-03
WZ2540 thru WZ2549 sub-party

WTES SURVEYOR OSS-32
WZ2560 thru WZ2569 sub-party

WTET RUDE ASV-90
WZ2625 thru WZ2627 sub-party

WTEW WHITING
WZ2603 thru WZ2627 sub-party

WDAA LAIDLY (Detroit)

WDAG SHENEHON "

WDAJ JOHNSON "

KVH NORFOLK Atlantic Marine Center

KVK MIAMI Engineering Development Laboratory

KVJ SEATTLE Pacific Marine Center

WCGS This is a general call for any or all National Ocean Survey Ships or Coast Stations.

WTEY HECK ASV-91
WZ2620 thru WZ2622 sub-party

WTEZ FERREL LAUNCH FE-2
WZ2629 thru WZ2630 sub-party

WZ2513 thru WZ2516 Boston Office

WZ2517 thru WZ2519 New York Office

WZ2530 thru WZ2534 PHOTOGRAMMETRY
KD7998 thru KD7999 PHOTOGRAMMETRY
KE8227 thru KE8234 PHOTOGRAMMETRY
KF3700 thru KF3711 PHOTOGRAMMETRY

WZ2535 thru WZ2537 Field #242

WZ2538 thru WZ2539 New Orleans Office

WZ2550 thru WZ2552 Los Angeles Office

WZ2553 thru WZ2559 San Francisco Office

WZ2570 thru WZ2571 Portland Office

WZ2593 thru WZ2594 Honolulu Office
KD7994 thru KD7995 Honolulu, Geophysics

WZ2623 thru WZ2624 Field #245

WZ3050 thru WZ3059 Atlantic Marine Center

WZ3060 thru WZ3070 Pacific Marine Center

KA8129 thru KA8134 Rockville Office

KD7992 thru KD7993 Geophysics, College, Alaska

KD7996 thru KD7997 Geophysics, Tucson, Arizona

KD7986 thru KD7991 Geophysics, Rockville, Maryland

KE8200 thru KE8226 GEODESY
KF3712 thru KF3742 GEODESY
KF3742 thru KF3802 GEODESY

KAW51	Tucson, Arizona
KAW52	Honolulu, Hawaii
KAW53	College, Alaska
KAW54	Pt. Barrow, Alaska
KAW55	Seattle, Washington
KAW56	Fredericksburg, Virginia
KAW57	Sitka, Alaska
KAW58	Guam
KAW60	Norfolk, Virginia
KVD	Rockville, Maryland
KCU721 thru KCU730	Rockville, Maryland
KD8000 thru KD8050	Detroit, Michigan

UNASSIGNED

KAW61 thru KDC736
KD8051 thru KD9999

When communicating with Coast Stations, Navy, Coast Guard, NOS, or Commercial, both Domestic and Foreign, answer them on the frequency they designate, even though it may not be listed in the pamphlet.

Detailed information on usage of communications equipment, Simplex vs. Duplex, etc., can be found in the Manual for use by the Maritime Mobile Service, International Telecommunications Union, Geneva, 1968, which is part of the radio station instruction file.

ASSIGNED FREQ.	EMISSION	CLASS	POWER	COMMENT
410.0 kHz	0.1A1	MS	.5 KW	
425.0	"	"	"	
444.0	"	"	"	U.S. Navy Only
454.0	"	"	"	
468.0	"	"	"	
480.0	"	"	"	
500.0	"	"	"	DISTRESS
512.0	"	"	"	
2089.0	0.1A1/1.24F1	"	1 KW	
2091.0	"	"	"	
2092.5	"	"	"	
2099.0	"	"	"	
2100.0	"	"	"	
2182.0	6A3	"	"	DISTRESS
2183.4	2.8A3H	"	"	DISTRESS USB
2492.0	0.1A1/0.8A2	FX-FL-MO	.1	
2493.5	3.A3J	"	"	
2670.0	6.A3J	MS	"	COAST GUARD
3333.0	0.1A1/3.A3J	FC-MO-FL	1 KW	
4140.9	2.8A3J	FC-MS	"	
4178.5	0.1A1	MS	"	
4185.0	"	"	"	
4198.0	"	"	"	
4200.0	"	"	"	
4222.5	"	"	"	
4224.5	"	"	"	
4225.0	"	"	.2	
4337.0	"	"	.1	COAST GUARD PACIFIC
4353.0	0.1A1/1.24F1	FC-MS	1 KW	
4404.4	2.8A3J	FC	.5	
4433.2	"	"	1 KW	
6211.8	"	FC-MS	"	
6270.0	0.1A1	MS	"	
6277.5	"	"	"	
6297.0	"	"	"	
6300.0	"	"	"	
6333.75	"	"	"	
6336.75	"	"	"	
6379.5	0.1A1/1.24F1	FC-MS	"	
6393.5	"	"	"	
6394.5	"	"	"	
6516.8	2.8A3J	FC	"	
8282.6	"	FC-MS	"	
8357.0	0.1A1	MS	"	
8364.0	"	"	"	DISTRESS
8370.0	"	"	"	
8396.0	"	"	"	
8400.0	"	"	"	
8445.0	"	"	"	
8449.0	"	"	"	
8450.0	"	"	.1	

ASSIGNED FREQ.	EMISSION	CLASS	POWER	COMMENT
8646.0	0.1A1/1.24F1	FC-MS	1 KW	
8650.0	0.1A1	MS	.1	COAST GUARD PACIFIC
8710.0	0.1A1/1.24F1	FC-MS	1	
8800.6	2.8A3J	FC	"	
12401.4	"	MS	"	
12422.4	"	FC-MS	"	
12425.9	"	"	"	
12429.4	"	"	"	
12535.5	0.1A1	MS	"	
12555.0	"	"	"	
12594.0	"	"	"	
12600.0	"	"	"	
12667.5	"	"	"	
12673.5	"	"	"	
12675.0	"	"	.1	
12750.0	"	"	"	COAST GUARD PACIFIC
12894.0	0.1A1/1.24F1	FC-MS	1 KW	
13065.0	"	"	"	
13180.4	2.8A3J	FC	"	
16485.9	"	MS	"	
16566.4	"	FC-MS	"	
16573.4	"	"	"	
16714.0	0.1A1	MS	"	
16740.0	"	"	"	
16792.0	"	"	"	
16800.0	"	"	"	
16890.0	"	"	"	
16898.0	"	"	"	
17084.0	0.1A1/1.24F1	FC-MS	"	
17175.2	"	"	"	
17280.9	2.8A3J	FC	"	
22025.9	"	MS	"	
22099.4	"	FC-MS	"	
22106.4	"	"	"	
22109.9	"	"	"	
22225.0	0.1A1	MS	"	
22260.0	"	"	"	
22297.5	"	"	"	
22302.5	"	"	"	
22360.0	"	"	"	
22365.0	"	"	"	
22473.0	0.1A1/1.24F1	FC-MS	"	
22563.0	"	"	"	
22651.4	2.8A3J	FC	"	

NOTES: Seattle KVJ Delete 6379.5, 6393.5
Add 6394.5, 4404.4
Norfolk KVH Delete 6394.5, 4404.4
Miami KVK Delete 6394.5, 4404.4

Use of frequency 4433.2 is subject to non-interference with Canadian Stations.

ASSIGNED FREQ.	EMISSION	CLASS	POWER	COMMENT
27.575 mHz	6.A2	MO	.005 KW	
27.585	"	"	"	
34.98	6.A3 -16.F3	MS	"	
34.98	0.1A1	FX	.06	
34.98	6.A3	FL	.01	
34.98	16.F2	MO	"	
34.98	16.F3	FXH	"	
36.19	16.F3	FL-MO	.06	
36.22	6.A3	MS-MO	.005	
36.22	16.F3	"	"	
36.22	0.1A1	FX	.06	
36.22	6.A3	FL	.01	
36.22	16.F3	MO	"	
36.22	16.F3	FXH	"	
38.22	0.1A1	FX	.06	
38.22	6.A3	MS	.005	
38.22	6.A3/16.F2/16.F3	FL-MO-FXH	.01	
38.26	16.F3	FL-MO	.005	
40.29	16.F2/16.F3	MS	.1	
156.3	16.F3	"	.025	
156.6	"	"	"	
156.65	"	"	"	
156.7	"	"	"	
156.8	"	"	"	DISTRESS
157.0	"	"	"	
164.025	"	FX-FL-MO	.06	
164.075	"	"	"	
170.20	16.F2	FX	"	
170.20	16.F3	FL-MO	.01	
170.325	0.1A1/16.F2/16.F3	FXH	.005	
171.8	16.F2 -16.F3	FX-FL-MO	.06-.01	
2800.000	36.F3 -21.F9	MR	.001	
2900.000	M10.P	RO	18.00	
9000.000	"	"	"	
9300.000	.0P	"	65.00	
10000.000	M40.F9	MR	.001	
10500.000	"	DME	"	

Pairs of frequencies 38.22 mHz, 38.26 mHz, and 164.025 mHz, 164.075 mHz may be used in dual frequency transceivers, such as "walkie-talkies."

	1618.65 kHz (Paired with 1798.50 for Lane - Ident)		
US&P COASTAL AREAS	0.1A1	LR MR	100 W Hi-Fix
	1619.64 kHz (Paired with 1799.60 for Lane - Ident)		
US&P COASTAL AREAS	0.1A1	LR MR	100 W Hi-Fix
	1640.3 kHz (Paired with 3281 kHz)		
ALASKA COASTAL AREA	AØ	LR MR	100 W Raydist
	1640.315 kHz/1640.725 kHz		
US&P COASTAL AREAS	0.37A2H-0.45A2H	LR MR	100 W Raydist
	1643.0 kHz		
US COASTAL AREAS	0.1A1	LR MR	100 W Hi-Fix
	1649.0 kHz		
US COASTAL AREAS	0.1A1	LR MR	100 W Hi-Fix
	1650.0 kHz (Paired with 3300.4 kHz)		
US&P INCLUDING ALASKA	AØ	LR MR	100 W Raydist
	1650.015 kHz/1650.425 kHz		
US&P COASTAL AREAS	0.37A2H-0.45A2H	LR MR	100 W Raydist
	1653.0 kHz		
ALASKA ALEUTIAN IS WEST OF 166 DEGREES WEST	0.1A1	LR MR	100 W Hi-Fix
	1653.0 kHz (Paired with 3306.4 kHz for Raydist)		100 W Hi-Fix
US&P EXCEPT ALASKA	AØ	LR MR	100 W Raydist
	1653.015 kHz/1653.425 kHz		
US&P COASTAL AREAS	0.37A2H/0.45A2H	LR MR	100 W Raydist
	1718.59 kHz		
US&P COASTAL AREAS	0.1A1	LR MR	100 W Hi-Fix
	1798.50 kHz (Paired with 1618.65 kHz for Lane - Ident)		
US&P COASTAL AREAS	0.1A1	LR MR	100 W Hi-Fix
	1799.6 kHz (Paired with 1619.64 kHz for Lane - Ident)		
US&P COASTAL AREAS INCLUDING ALASKA	0.1A1	LR MR	100 W Hi-Fix
	2398.0 kHz		
US&P EXCEPT ALASKA	0.8A2	LR MR	100 W Raydist

ALASKA AND GULF OF MEXICO	2456.0 kHz 0.8A2	LR MR	100 W Raydist
US&P EXCEPT ALASKA	2510.0 kHz 0.8A2	LR MR	100 W Raydist
ALASKA	2848.0 kHz 0.8A2	LR MR	100 W Raydist
ALASKA	3281.0 kHz (Paired with 1640.3 kHz) AØ	LR MR	100 W Raydist
US&P INCLUDING ALASKA	3300.4 kHz (Paired with 1650.0 kHz) AØ	LR MR	100 W Raydist
	3306.4 kHz (Paired with 1653.0 kHz)		100 W Raydist

Frequencies which are obtained for intermittent or single project use, and which are not normally renewed at the end of the project, are not listed in this pamphlet.