

References

CW Parse Tree

<https://commons.wikimedia.org/wiki/File:Morse-code-tree.svg>

World Maidenhead Grid Map

<https://www.dxengineering.com/techarticles/dxgeneralnews/download-a-free-worldwide-grid-square-map-from-dx-engineering>

ARRL Frequency Allocation Chart

<https://www.arrl.org/graphical-frequency-allocations>

ARRL Considerate Operator's Frequency Guide

<https://www.arrl.org/considerate-operator>

ARRL Communicating with Other Hams

<https://www.arrl.org/files/file/Get%20on%20the%20Air/Comm%20w%20Other%20Hams-Q%20Signals.pdf>

Icom US Grid Square Map

https://www.icomamerica.com/lineup/amateur/Band_Plan_Map/

Icom Common Prefixes of Countries

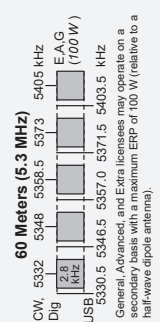
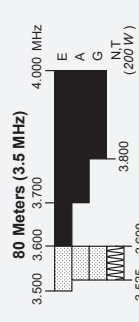
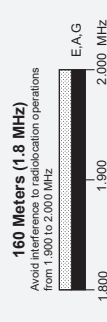
<https://www.hamqsl.com/bandchar.pdf>

US Amateur Radio Bands

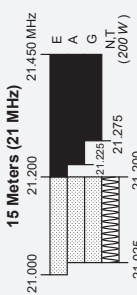
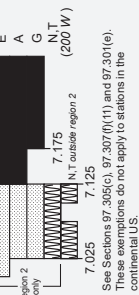
US AMATEUR POWER LIMITS – FCC 97.313

An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

Amateurs wishing to operate on either 2,200 or 630 meters must first register with the Utilities Technology Council online at <https://utc.org/plc-database-amateur-notification-process/>. You need only register once for each band.



General, Advanced, and Extra licensees may operate on a secondary basis with a maximum ERP of 100 W (relative to a half-wave dipole antenna).



* Geographical and power restrictions may apply to all bands above 420 MHz. See FCC Part 97.303 for information about your area.



All licensees except Novices are authorized all modes on the following frequencies:
2300-2310 MHz 10.0-10.5 GHz ‡
2390-2450 MHz 24.0-24.25 GHz 134-141 GHz
3400-3450 MHz 47.0-47.2 GHz 241-250 GHz
5650-5925 MHz 76.0-81.0 GHz All above 275 GHz
‡ No pulse emissions



KEY

Note: CW operation is permitted throughout all amateur bands.
NCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.
Test transmissions are authorized above 51 MHz, except for 219-220 MHz

= RTTY and data
 = phone and image
 = CW only
 = SSB phone
 = USB phone, CW, RTTY, and data.
 = Fixed digital message forwarding systems only

E = Amateur Extra
A = Advanced
G = General
T = Technician
N = Novice

See www.arrl.org/band-plan for detailed band plans.

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ARRL Order Dept.
Toll-Free 1-800-368-3942 (860-594-0355)
email: news@arrl.org

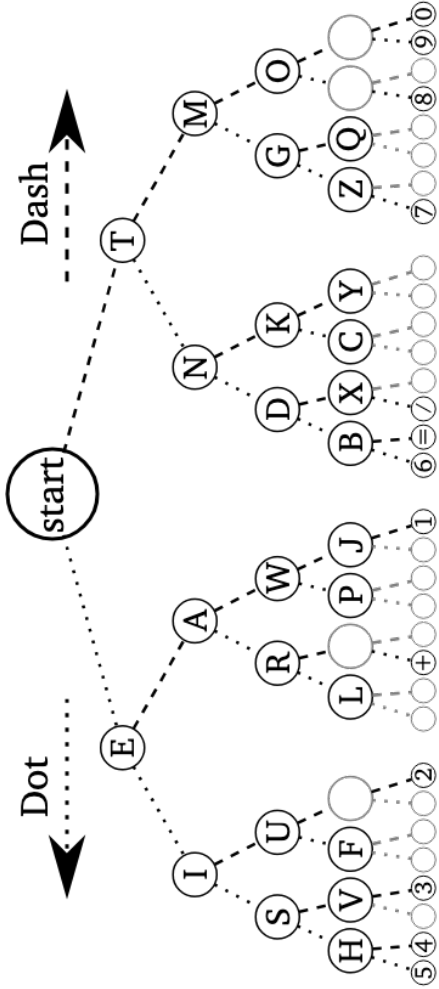
Exams: 860-594-0300 email: ve@arrl.org

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CN70	CN80	CN90	DN00	DN10	DN20	DN30	DN40	DN50	DN60	DN70	DN80	DN90	EN00	EN10	EN20	EN30	EN40	EN50	EN60	EN70	EN80	EN90	FN00	FN10	FN20	FN30	FN40	FN50	FN60
CN71	CN81	CN91	DN01	DN11	DN21	DN31	DN41	DN51	DN61	DN71	DN81	DN91	EN01	EN11	EN21	EN31	EN41	EN51	EN61	EN71	EN81	EN91	FN01	FN11	FN21	FN31	FN41	FN51	FN61
CN72	CN82	CN92	DN02	DN12	DN22	DN32	DN42	DN52	DN62	DN72	DN82	DN92	EN02	EN12	EN22	EN32	EN42	EN52	EN62	EN72	EN82	EN92	FN02	FN12	FN22	FN32	FN42	FN52	FN62
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CN74	CN84	CN94	DN04	DN14	DN24	DN34	DN44	DN54	DN64	DN74	DN84	DN94	EN04	EN14	EN24	EN34	EN44	EN54	EN64	EN74	EN84	EN94	FN04	FN14	FN24	FN34	FN44	FN54	FN64
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FN27	FN37	FN47	FN5																										

AR BR CR DR ER FR GR HR IR JR KR LR MR NR OR PR QR RR

AQ	BQ	CQ	DQ	EQ	FQ	GQ	HQ	IQ	JQ	KQ	LQ	MQ	NQ	OQ	PQ	QQ	RQ
	BP	CP	DP	EP	FP	GP	HP	IP					MP	NP	OP	PP	RP
AO	BO	CO	DO	EO	FO	GO	HO	IO					MO	NO	PO	QO	RO
AN	BN	CN	DN	EN	FN	GN	HN	IN					MN	NN	ON	PN	RN
AM	BM	CM	DM	EM	FM	GM	HM	IM					MM	OM	QM	RM	
AL	BL	CL	DL	EL	FL	GL	HL	IL					KL	OL	PL	QL	RL
AK	BK	CK	DK	EK	FK	GK	HK	IK					JK	LK	PK	OK	RK
AJ	BJ	CJ	DJ	EJ	FJ	GJ	HJ	IJ					MJ	NJ	OJ	QJ	RJ
AI	BI	CI	DI	EI	FI	GI	HI	II					LI	MI	NI	OI	RI
AH	BH	CH	DH	EH	FH	GH	HH	IH					JH	KH	LH	OH	RH
AG	BG	CG	DG	EG	FG	GG	HG	IG					JG	KG	OG	QG	RG
AF	BF	CF	DF	EF	FF	GF	HF	IF					JF	KF	LF	PF	RF
AE	BE	CE	DE	EE	FE	GE	HE	IE					JE	KE	LE	OE	RE
AD	BD	CD	DD	ED	FD	GD	HD	ID					JD	KD	LD	OD	RD
AC	BC	CC	DC	EC	FC	GC	HC	IC					JC	KC	LC	OC	RC
AB	BB	CB	DB	EB	FB	GB	HB	IB					JB	KB	LB	OB	RB



A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Thiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

Callsign Prefix Codes

K, N, W	United States	EA	Spain
AA–AL	United States	CT	Portugal
VE	Canada	LU	Argentina
VA, VO, VY	Canada	PY	Brazil
ZL	New Zealand	CX	Uruguay
VK	Australia	YV	Venezuela
JA, JE, JH	Japan	XE	Mexico
G, M	United Kingdom	TI	Costa Rica
F	France	OA	Peru
DL	Germany	CE	Chile
I	Italy	HL	South Korea
ON	Belgium	BY, BG, BH	China
PA	Netherlands	HS	Thailand
SM, SA	Sweden	9V	Singapore
OH	Finland	VU	India
LA, LB	Norway	4X, 4Z	Israel
OE	Austria	ZS	South Africa
OK	Czech Republic	SU	Egypt
SP	Poland	A6	United Arab Emirates
HA	Hungary	A7	Qatar
YU	Serbia	A9	Bahrain
		9K	Kuwait

Frequency Uses

1.800–2.000	CW	14.233	D-SSTV
1.800–1.810	Digital Modes	14.236	Digital Voice
1.810	CW QRP calling	14.285	QRP SSB calling
1.843–2.000	SSB, SSTV and	14.286	AM calling
1.910	SSB QRP	18.100–	RTTY/Data
1.995–2.000	Experimental	18.105–	Automatically
1.999–2.000	Beacons	18.110	IBP/NCDXF
3.500–3.510	CW DX window	18.162.5	Digital Voice
3.560	QRP CW calling	21.060	QRP CW calling
3.570–3.600	RTTY/Data	21.070–	RTTY/Data
3.585–3.600	Automatically	21.090–	Automatically
3.590	RTTY/Data DX	21.150	IBP/NCDXF
3.790–3.800	DX window	21.340	SSTV
3.845	SSTV	21.385	QRP SSB calling
3.885	AM calling	24.920–	RTTY/Data
3.985	QRP SSB calling	24.925–	Automatically
7.030	QRP CW calling	24.930	IBP/NCDXF
7.040	RTTY/Data DX	28.060	QRP CW calling
7.070–7.125	RTTY/Data	28.070–	RTTY/Data
7.100–7.105	Automatically	28.120–	Automatically
7.171	SSTV	28.190–	Beacons
7.173	D-SSTV	28.200	IBP/NCDXF
7.285	QRP SSB calling	28.385	QRP SSB calling
7.290	AM calling	28.680	SSTV
10.130–	RTTY/Data	29.000–	AM
10.140–	Automatically	29.300–	Satellite downlinks
14.060	QRP CW calling	29.520–	Repeater inputs
14.070–	RTTY/Data	29.600	FM simplex
14.095–	Automatically	29.620–	Repeater outputs
14.100	IBP/NCDXF		
14.1005–	Automatically		
14.230	SSTV		

SSB

A (Calling CQ): “CQ CQ CQ, this is K1ABC, Kilo One Alpha Bravo Charlie, calling CQ and standing by.”

B (Responding): “K1ABC, this is W2XYZ, Whiskey Two X-ray Yankee Zulu.”

A: “W2XYZ, good afternoon, you’re 59 here in Boston, Massachusetts. Name is John, Juliet Oscar Hotel November. Back to you, W2XYZ from K1ABC.”

B: “Thanks John, you’re 59 as well in New Jersey. Name is Mike, Mike India Kilo Echo. Nice to meet you, John. K1ABC, this is W2XYZ.”

A: “Very good Mike, thanks for the QSO. 73 and have a great day. K1ABC is now clear.”

SSB Contest

Activator (A) calling: “CQ POTA, CQ Parks on the Air, this is K1ABC, Kilo One Alpha Bravo Charlie, calling CQ POTA and standing by.”

Hunter (B) responds: “K1ABC, this is W2XYZ.”

Activator (A): “W2XYZ, you’re 59 into park K-1234.”

Hunter (B): “Thanks for the 59. You’re 57 in New Jersey. 73!”

Activator (A): “Copy the 57 New Jersey. Thanks for hunting! QRZ, this is K1ABC, park K-1234.”

CW

A (Calling CQ): “CQ CQ CQ DE K1ABC K1ABC K1ABC K”
(Calling any station, this is K1ABC, standing by)

B (Responding): “K1ABC DE W2XYZ W2XYZ K”
(K1ABC, this is W2XYZ, over)

A: “W2XYZ DE K1ABC UR 599 IN MA. NAME JOHN. HW? W2XYZ DE K1ABC K”
(You're 599 in Massachusetts. My name is John. How do you copy?)

B: “K1ABC DE W2XYZ R UR 589 IN NJ. NAME MIKE. RIG KX3, 10W. WX SUNNY. K1ABC DE W2XYZ K”
(Roger, you're 589 in New Jersey. My name is Mike. My rig is a KX3 running 10 watts. Weather is sunny.)

A: “R TNX MIKE. 73 ES HPE CUAGN. W2XYZ DE K1ABC SK”
(Roger, thanks Mike. Best regards and hope to see you again. Signing off.)

QRG	Your exact frequency (or that of ___) is ___ kHz.	Will you tell me my exact frequency (or that of ___)?
QRL	I am busy (or busy with ___).	Are you busy? (Used to ask if frequency is in use)
QRM	Your transmission is being interfered with ___ (1–5).	Is my transmission being interfered with?
QRN	I am troubled by static ___ (1–5).	Are you troubled by static?
QRO	Increase power.	Shall I increase power?
QRP	Decrease power.	Shall I decrease power?
QRQ	Send faster (___ wpm).	Shall I send faster?
QRS	Send more slowly (___ wpm).	Shall I send more slowly?
QRT	Stop sending.	Shall I stop sending?
QRU	I have nothing for you.	Have you anything for me?
QRV	I am ready.	Are you ready?
QRX	I will call you again at ___ (on ___ kHz).	When will you call me again?
QRZ	You are being called by ___ (on ___ kHz).	Who is calling me?
QSB	Your signals are fading.	Are my signals fading?
QSK	I can hear you between signals.	Can I break in on your transmission?
QSL	I am acknowledging receipt.	Can you acknowledge receipt?
QSO	I can communicate with ___ direct (or via ___).	Can you communicate with ___ direct or by relay?
QSP	I will relay to ___.	Will you relay to ___?
QST	General call to all amateurs (CQ ARRL).	–
QSX	I am listening to ___ on ___ kHz.	Will you listen to ___ on ___ kHz?
QSY	Change to another frequency (or ___ kHz).	Shall I change to another frequency?
QTC	I have ___ messages for you (or for ___).	How many messages have you to send?
QTH	My location is ___.	What is your location?
QTR	The time is ___.	What is the correct time?

Prosigns

AR	End of message	Often sent as “di-dah-di-dah-dit” (•–•–•)
AS	Stand by	“di-dah-di-di-dit”; used to ask someone to wait
BK	Break	Used to invite the other station to transmit immediately
BT	Separator	Break between thoughts or paragraphs (“dah-di-di-di-dah”)
CL	Closing down	Used when signing off the air permanently or for the day
CQ	Calling any station	General call: “di-dah-di-dah” then “dah-dah-di-dah”
CT	Start of message	Used to begin formal traffic messages
EE	Error	Correcting a mistake; usually sent as “di-di-di-di” rapidly
K	Go ahead	Invitation for the other station to transmit
KN	Go ahead, named station only	Stronger version of K—only the called station should respond
R	Roger (message received)	Confirms receipt of last transmission
SK	End of contact	“Silent Key”; final sign-off (di-di-di-dah-di-dah)
SN	Understood	Used in formal message handling (equivalent to “QSL” or “Roger”)