

Where You Can Transmit

Verified against 47 CFR Part 97 and the ARRL band plan

United States amateur privileges by license class. Morse code (CW) is authorized on every frequency you hold, so the splits below tell you where data and voice are allowed. Novice and Advanced licenses are no longer issued and are not shown.

BAND	BAND LIMITS	TECHNICIAN	GENERAL	AMATEUR EXTRA
160 m	1.800 – 2.000	no privileges	1.800 – 2.000 all modes	same as General
80 m	3.500 – 4.000	3.525 – 3.600 CW only , 200 W	3.525 – 3.600 data 3.800 – 4.000 phone	3.500 – 3.600 data 3.600 – 4.000 phone
60 m	see box below	no privileges	4 channels + 5351.5 – 5366.5 kHz USB phone, CW, RTTY, data	same as General
40 m	7.000 – 7.300	7.025 – 7.125 CW only , 200 W	7.025 – 7.125 data 7.175 – 7.300 phone	7.000 – 7.125 data 7.125 – 7.300 phone
30 m	10.100 – 10.150	no privileges	10.100 – 10.150 CW and data only, 200 W No phone on this band, any class	same as General
20 m	14.000 – 14.350	no privileges	14.025 – 14.150 data 14.225 – 14.350 phone	14.000 – 14.150 data 14.150 – 14.350 phone
17 m	18.068 – 18.168	no privileges	18.068 – 18.110 data 18.110 – 18.168 phone	same as General
15 m	21.000 – 21.450	21.025 – 21.200 CW only , 200 W	21.025 – 21.200 data 21.275 – 21.450 phone	21.000 – 21.200 data 21.200 – 21.450 phone
12 m	24.890 – 24.990	no privileges	24.890 – 24.930 data 24.930 – 24.990 phone	same as General
10 m	28.000 – 29.700	28.000 – 28.300 data 28.300 – 28.500 SSB phone only 200 W	28.000 – 28.300 data 28.300 – 29.700 phone	same as General
6 m	50 – 54	CW only 50.0 – 50.1 all modes 50.1 – 54	CW only 50.0 – 50.1 all modes 50.1 – 54	CW only 50.0 – 50.1 all modes 50.1 – 54
2 m	144 – 148	CW only 144.0 – 144.1 all modes 144.1 – 148	CW only 144.0 – 144.1 all modes 144.1 – 148	CW only 144.0 – 144.1 all modes 144.1 – 148
1.25 m	222 – 225	Full band, all modes	Full band, all modes	Full band, all modes
70 cm	420 – 450	Full band, all modes	Full band, all modes	Full band, all modes
33 cm	902 – 928	Full band, all modes	Full band, all modes	Full band, all modes
23 cm	1240 – 1300	Full band, all modes	Full band, all modes	Full band, all modes
630 m	472 – 479 kHz	no privileges	Full band, 5 W EIRP (1 W in Alaska within 800 km of Russia) UTC notice required	same as General
2200 m	135.7 – 137.8 kHz	no privileges	Full band, 1 W EIRP UTC notice required	same as General

60 METERS IS NOT A NORMAL BAND

Four fixed channels plus one narrow segment. The rules changed on February 13, 2026; charts printed before then show five channels and are wrong. General class and above only.

Channel center	USB dial	Power
5332.0 kHz	5330.5	100 W ERP
5348.0 kHz	5346.5	100 W ERP
5373.0 kHz	5371.5	100 W ERP
5405.0 kHz	5403.5	100 W ERP
5351.5 – 5366.5 kHz	keep the whole signal inside	9.15 W ERP

ERP is referenced to a half-wave dipole. 2.8 kHz maximum bandwidth everywhere on the band. 5358.5 kHz was a 100 W channel and is not any more.

ANTENNA MATH

Length in feet, frequency f in MHz.

Full wavelength	984 / f
Half wave, free space	492 / f
Half wave, real wire	468 / f

468 is an empirical number, not physics. The true figure drifts with height above ground, wire diameter and anything nearby. Cut long, then trim to resonance with an analyzer at the antenna's final installed height.

POWER LIMITS

Maximum, any license class	1500 W PEP
30 m (10.100 – 10.150)	200 W PEP
Technician on HF	200 W PEP
60 m channels / segment	100 W / 9.15 W ERP
630 m / 2200 m	5 W / 1 W EIRP
Spread spectrum	10 W PEP

Lower caps also apply on 219 – 220 MHz and near White Sands and some military bases. The first rule in Part 97 is not a number: use the minimum power needed to make the contact.

THE FINE PRINT · CW is legal anywhere you hold privileges; the splits above govern data and phone. · Image and RTTY follow the phone and data segments. · 70 cm: no transmitting 420 – 430 MHz north of Line A near the Canadian border. · 33 cm: no transmitting from the White Sands Missile Range area of Texas and New Mexico, 50 W max within 241 km of it, and 902.4 – 902.6, 904.3 – 904.7, 925.3 – 925.7 and 927.3 – 927.7 are off limits in parts of Colorado and Wyoming. · 70 cm, 33 cm and 23 cm are secondary allocations: accept interference, cause none. · 630 m and 2200 m: notify the Utilities Technology Council and wait 30 days before your first transmission; fixed stations only.

Setting Up and Working Your Radio

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Simplex means both stations transmit and receive on one frequency, radio to radio. Duplex means you transmit on one frequency and listen on another. That is how a repeater works, and the difference between the two is the offset.

FM Simplex Calling Frequencies

BAND	CALLING FREQUENCY	tone
6 m	52.525 MHz	None
2 m	146.520 MHz	None
1.25 m	223.500 MHz	None
70 cm	446.000 MHz	None
33 cm	927.500 MHz	None
23 cm	1294.500 MHz	None

33 cm changed. The ARRL band plan designates 927.500. The older 906.500 is still used in some regions, but 927.3 – 927.7 MHz is off limits entirely inside a box over Colorado and Wyoming.

Etiquette: a calling frequency is for making contact, not for having one. Once you have the other operator, agree on another frequency and move there.

Standard Repeater Offsets

The middle column is the repeater's OUTPUT, the frequency you hear it on. The offset is where your radio transmits.

BAND	REPEATER OUTPUT	OFFSET
10 m	29.610 – 29.700	–100 kHz
6 m	51.62 – 51.98, 52.50 – 52.98, 53.50 – 53.98	–500 kHz (ARRL); some regions –1 or –1.7 MHz
2 m	145.20 – 145.50	–600 kHz
2 m	146.61 – 146.97	–600 kHz
2 m	147.00 – 147.39	+600 kHz
1.25 m	223.85 – 224.98	–1.6 MHz
70 cm	442 – 445	+5 MHz (local option)
70 cm	447 – 450	–5 MHz (local option)
23 cm	1282 – 1288	–12 MHz

Worked example. A repeater puts out 146.640. That falls in 146.61 – 146.97, so the offset is minus 600 kHz. You listen on 146.640 and transmit on 146.040. Most radios do this automatically once you enter the output frequency.

70 cm and 6 m offsets vary by region. Your regional frequency coordinator has the last word. Many repeaters also need a CTCSS tone.

Sources

Privileges by license class: 47 CFR 97.301. Sixty meter channels and segment: 97.303(h). Where phone begins on each band: 97.305(c). Technician CW-only and SSB-only rules: 97.307(f)(9) and (10). Power limits: 97.313. Read them yourself at ecfr.gov. FM calling frequencies and repeater offsets: the ARRL band plan at arrl.org/band-plan. Talkgroup rules: help.brandmeister.us. APRS Voice Alert: aprs.org. Band plans are voluntary; Part 97 is not. Where a regional coordinator differs from this sheet, the coordinator wins.

DMR Talkgroups (BrandMeister)

These talkgroups apply to the BrandMeister network. Check which network your repeater or hotspot is on. You need a DMR ID from radioid.net before any of this works.

TG	NAME	USE IT FOR
3100	USA nationwide	Main US talkgroup, nationwide calling
91	World-wide	Global calling
93	North America	Continental calling
310 – 312	TAC 310 / 311 / 312	Move a QSO off a calling channel; bridged to c-Bridge
313 – 319	TAC 313 – 319	Same purpose, BrandMeister only
3101 – 3156	Your state	Calling and short QSOs; move to a TAC after about 10 minutes
3169 – 3177	Your region	See regional numbers below
9	Local	Traffic on your repeater or hotspot only
4000	Disconnect	Unlink the current dynamic talkgroup
9990	Parrot	Echo test, sent as a PRIVATE call

US regional talkgroups: 3169 Midwest · 3172 Northeast · 3173 Mid-Atlantic · 3174 Southeast · 3175 Southern Plains · 3176 Southwest · 3177 Mountain

TAC 310 – 319 are not calling channels and are not for nets. Do not park a hotspot or repeater on them.

DMR simplex: set talkgroup 99 as a group call, color code 1, timeslot 1, admit criteria Always. Both radios must match. There is no official national DMR simplex frequency; 446.500 and 145.510 are commonly used, but check with your local frequency coordinator before you settle on one.

APRS

1200 baud is the standard on VHF and UHF. Voice Alert is a tone squelch trick: set CTCSS 100.0 on 144.390 and your radio stays quiet until another Voice Alert station is within simplex range. Say "Voice Alert" when you call, then move to a voice frequency.

REGION	FREQUENCY	VOICE ALERT
United States / North America	144.390	100.0 Hz
Europe and most of Region 1	144.800	136.5 Hz
Australia	145.175	91.5 Hz
New Zealand	144.575	–
Japan (1200 baud)	144.660	–
Russia	144.800	–

Digipeater path: use WIDE1-1,WIDE2-1. That is two hops: the first is picked up by a local fill-in digipeater, the second by a wide-area one. Older guides show WIDE1-1,WIDE2-2, which is three hops. More hops does not mean better coverage; it means more copies of your packet crowding everyone else.

APRS on HF: 30 meters carries the US activity. Tune 10.147.600 MHz USB, which is the dial frequency you actually type in. It is 300 baud FSK with a 200 Hz shift, which puts the two tones on 10.149.200 and 10.149.400. There is no agreed US frequency on 40 meters.