





#### Other Radio Services



- Communicators, not radio hobbyists
- Cellphone limitations
- FCC Part 95
- CB, FRS, GMRS, MURS, ....
- Specific frequency allocations in HF, VHF, and UHF.
- Licenses may be required, but no tests
- How do these affect us?

#### **Amateur Radio Service**



	Amateur Radio
FCC Part:	97
<b>Intended Users:</b>	Hobbyists
Business:	No
License:	Yes/\$35
Duration:	10 years
Age:	Any
ID:	10 minutes
Frequencies:	DC - Light
Power:	1500 watts
PL Tones:	Yes
Text:	Yes
Antenna:	Any
Repeaters:	Yes Can be linked

#### Citizens Band Radio Service



- Since 1945
- Exploded in 1970's
- Millions of users
- Out of control
- Great animosity from hams\*

\*We rejected millions of prospective hams!

	<b>Amateur Radio</b>	СВ
FCC Part:	97	95
<b>Intended Users:</b>	Hobbyists	Good buddies
Business:	No	Yes
License:	Yes/\$35	No
<b>Duration:</b>	10 years	
Age:	Any	Any
ID:	10 minutes	
Frequencies:	DC - Light	26 - 27 MHz 40 Channels
Power:	1500 watts	4 watts (AM/FM) 12 watts (SSB)
PL Tones:	Yes	No
Text:	Yes	No
Antenna:	Any	60 feet
Repeaters:	Yes Can be linked	No

### Multi-Use Radio Service (MURS) PART OF WESTFORD

- Since 2000
- VHF band, 5 channels
- Many uses: intercoms, dog training collars, wireless switches, wireless callboxes...

	<b>Amateur Radio</b>	MURS
FCC Part:	97	95
<b>Intended Users:</b>	Hobbyists	Eclectic
Business:	No	Yes
License:	Yes/\$35	No
<b>Duration:</b>	10 years	
Age:	Any	Any
ID:	10 minutes	
Frequencies:	DC - Light	151 - 154 MHz 5 Channels
Power:	1500 watts	2 watts
PL Tones:	Yes	Yes
Text:	Yes	No
Antenna:	Any	60 feet
Repeaters:	Yes Can be linked	No

#### Family Radio Service (FRS)



- Since 1996
- UHF band, 22 channels
- Small groups



	Amateur Radio	FRS
FCC Part:	97	95
<b>Intended Users:</b>	Hobbyists	Small groups
<b>Business:</b>	No	Yes
License:	Yes/\$35	No
<b>Duration:</b>	10 years	
Age:	Any	Any
ID:	10 minutes	•••
Frequencies:	DC - Light	462 - 467 MHz 22 Channels
Power:	1500 watts	0.5 - 2 watts Dep. on channel
PL Tones:	Yes	Yes
Text:	Yes	No
Antenna:	Any	Fixed
Repeaters:	Yes Can be linked	No

### Family Radio Service (FRS)





Walkie Talkies for Kids, Spider Toys 2 Pack Outdoor 2 Way Radio Toy Gifts Camping Brithday Gift Walkie Talkies for 3 4 5 6 7 8 9 10 Year Old Boys

Brand: SOGAWEBB

4.5 ★★★★★ (103) | Search this page 200+ bought in past month

-20% **\$15**99

List Price: \$19.99

✓prime Tomorrow

Redeem Save 10% promo code: XTIZ573X Terms

Brand SOGAWEBB
Number of 2

Channels

Special Long Range

Feature Long Rang

Frequency 450-470 MHz Range 30 Meter

Talking 30 Met Range



Cobra RX180 Walkie Talkies (2-Pack) – Lightweight, Easy-to-Use Compact Two Way Radios Long Range, 22 Preset Channels, NOAA Weather Alerts, VOX Feature, LED Flashlight (Orange/Black)

Visit the Cobra Store

4.1 ★★★★☆ (2,387) | Search this page

Amazon's Choice

200+ bought in past month

\$3995

FREE Returns >

Get a \$150 Gift Card: Pay \$0.00 \$39.95 upon approval for

May be available at a lower price from other sellers, potentially without free Prime shipping.

Style: 180



**680** \$89.95

#### Family Radio Service (FRS)





Rocky Talkie Mountain Radio - Long Range Walkie Talkie, FRS Handheld Radio, 4 Day Battery Life, Max Durability, 1 Pack Brand: Rocky Talkie

Brand: Rocky Talkie

4.4 ★★★★★ ✓ (70) | Search this page

100+ bought in past month

\$11000

Mountain Radio

ROCKY TALKIE

CH V

Good videos on RockyTalkie.com website



- "Big Brother" of FRS
- More channels, higher power
- Users: larger groups, mountaineers, skiers, offroad clubs
- License required (per family)
- "WXXX123"
- Repeaters
- GMRS & FRS can talk to each other on FRS channels

	<b>Amateur Radio</b>	GMRS
FCC Part:	97	95
<b>Intended Users:</b>	Hobbyists	Larger groups
<b>Business:</b>	No	Yes
License:	Yes/\$35	Yes/\$35
<b>Duration:</b>	10 years	10 years
Age:	Any	18*
ID:	10 minutes	15 minutes
Frequencies:	DC - Light	462 - 467 MHz 30 Channels
Power:	1500 watts	0.5 - 50 watts Dep. on channel
PL Tones:	Yes	Yes
Text:	Yes	Yes
Antenna:	Any	Any
Repeaters:	Yes Can be linked	Yes 8 extra channels are repeater inputs No linking





Cobra Trailblazer 450 GMRS
Radio (2-Pack) – IP54 Weather
Resistant, 16hr Battery, 2.5W
Long Range Walkie Talkies, Large
LCD Display, NOAA,
Programmable Software,
Removable Antenna, Repeater
Capable

Visit the Cobra Store
4.1 ★★★☆ ✓ (34) | Search this page
200+ bought in past month

\$12995

Or \$43.32 /mo (3 mo). Select from 3 plans

**√prime** Tomorrow

FREE Returns >

Pay \$13.06/month or less for 12 months with Affirm.

May be available at a lower price from other sellers, potentially without free Prime shipping.

Style: TrailBlazer 450 - Dust and Water Resistant

TrailBlazer 250 -... \$99.95 FREE Delivery

TrailBlazer
450 – Dust...
\$129.95
FREE Delivery Tomorrow

TrailBlazer
500 –...
\$149.95
FREE Delivery Wednesday

rand



Midland® MXT500 50-Watt GMRS Mobile Radio - for Farms, Ranches, Overlanding, Trails, and Off-Roading - 8 Repeater Channels, Compact Design, External Magnetic Mount, 2.1dB Unity Gain Antenna

Visit the Midland Store

4.5 ★★★★☆ (362) | Search this page

\$38325

Or \$27.87 /mo (18 mo). Select from 2 plans

**√prime** Tomorrow

FREE Returns 🗸

May be available at a lower price from other sellers, potentially without free Prime shipping.

Style: Waterproof

\$419.99
FREE Delivery
Overnight 7 AM...

**Overland** \$399.99 \$383.25 FREE Delivery Tomorrow

Brand Midland
Color Black
Number of 99

Channels

Special Feature Call Alert, Channel Scan, Backlit Display, Digital Volume Control, Mic Gain Control, Long Range,

Volume Control, Mic Gain Control, Long Range, Public alert, Weather Alert, Repeater Capable, 14...





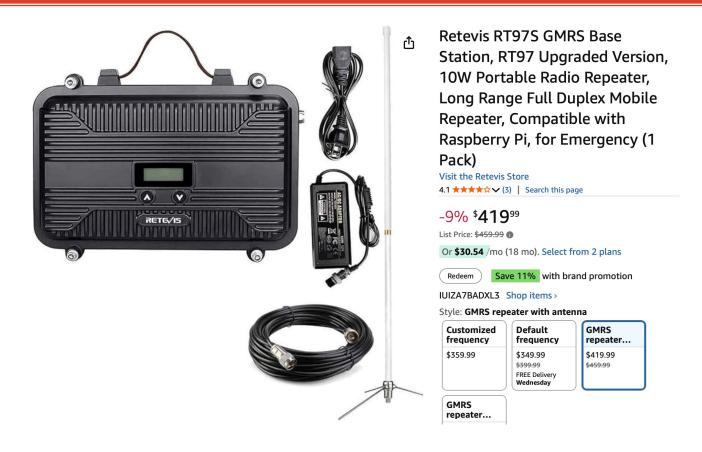


Rocky Talkie 5 Watt Radio - GMRS Radio with IP67 Waterproofing, Long Range Walkie Talkie, NOAA Weather Alerts, 5 Day Battery Life,1 Pack

Brand: Rocky Talkie 4.7 ★★★★★ ✓ (26) | Search this page 50+ bought in past month

\$18000





# General Mobile Radio Service (GMRS) Licensing

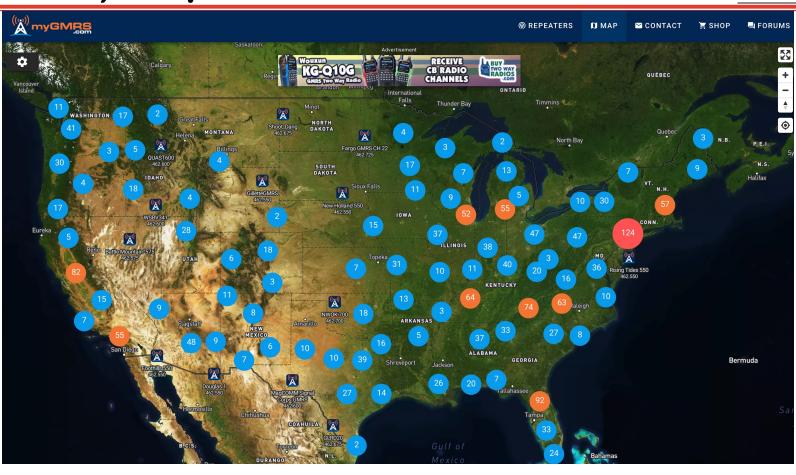


- FCC License Manager website
- Use your current FRN
- \$35 fee
- Every GMRS maker website has instructions



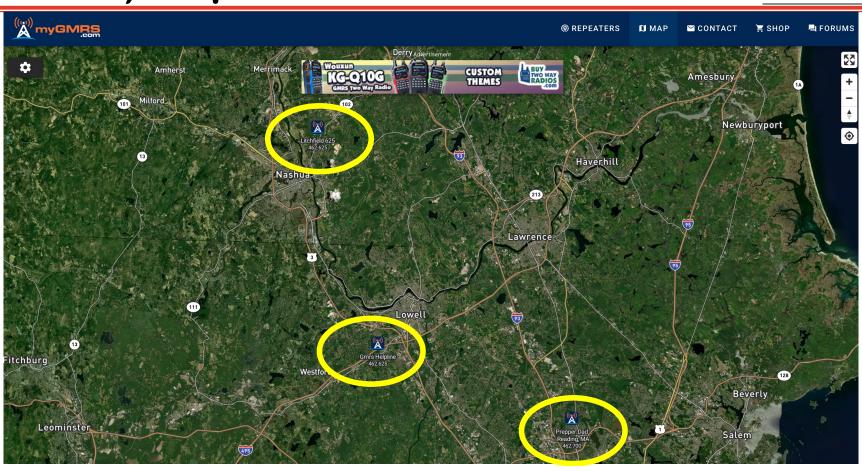
# General Mobile Radio Service (GMRS) Repeaters





# General Mobile Radio Service (GMRS) Repeaters





# General Mobile Radio Service (GMRS) Websites



- mygmrs.com
  - Licensing info, repeater sites
- gmrs.app
  - Enter ham or GMRS license and show all licenses held

## What's the Most Popular GMRS/FRS Radio?





Click to see full view

Ham Radio Baofeng UV-5R Radio Long Range UV5R Dual Band Handheld Rechargeable High Power Two Way Radio Walkie Talkies with 1800mAh Liion Battery and Earpiece for Hunting Camping Survival Gear,2 Pack

Brand: BAOFENG

4.6 ★★★★★ (2,037) | Search this page

Amazon's Choice

300+ bought in past month

#### Lowest price in 30 days

-7% \$29<sup>23</sup>

Typical price: \$31.47

#### prime Tomorrow

FREE Returns 🗸

Exclusive Prime price

Color: Black-2Pack



Brand BAOFENG

Color Black-2Pack

128

Number of Channels

#### **How Does This Affect Us?**



- Should you get a GMRS license?
- You may see GMRS/FRS users in parks (POTA), on the beach, or other places
- These are all prospective hams!
- Many may not even need a new radio!

### LoRa ("Long Range")



- Proprietary protocol for network communications
- FCC Part 15
- Spread-spectrum
- Low power, low bit rate, IoT
- North America: 902-928 MHz
- Meshtastic

#### **Almost Radios**





- "Unlimited range walkie-talkie"
- Channelized cell phone