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## Family Radios

The FCC limits the power and range of FRS radios, but there are differences between brands and models. In our review of seven popular radios, the Motorola TalkAbout T5200 rates highest and is our Best Buy, followed by the Uniden Ecolink and GE Deluxe.

Five years ago, when the Federal Communications Commission (FCC) authorized the use of 14 high-frequency channels for low power “walkie-talkies,” its intent was to reduce congestion on traditional marine and land-based radios, such as VHF and CB. Judging by the popularity of Family Radio Service (FRS), it was a well-timed move. The number of companies making FRS units is at least in the dozens, and the number of total models in the hundreds. You find them in marine stores, sporting good outlets, department and discount stores, and on numerous websites.



From the left: Cobra MicroTALK FRS 220, GE Deluxe ûFamily Radio 35840, ICOM IC-4008A, Midland SpeakEasy û#75-517, Motorola TalkAbout T5200, Standard SportTalk ûHX625A and Uniden Ecolink FRS500.

### FRS for Sailors

You may ask, and rightly so, why one needs FRS when handheld VHF radios have been around for years. The answer is that the FCC does not allow use of 5-watt handheld VHF radios for so-called “bow-to-stern” communications, or from ship to shore; the reason is that such “frivolous” use of the radios clogs the airways and prevents more serious communications from taking place.

FRS radios have just 1/2 watt power output, so range is considerably less—about 2 miles. However, range can be greater on the water, where there are no obstructions. Some manufacturers claim a 5-10 mile range on the water, but in our experience 3-4 miles has been maximum for reliable and audible communications.

The 14 synthesized channels are in the 460MHz frequencies and are three times higher than VHF frequencies; frequency modulation makes reception very clear. These ultra-high frequencies (UHF) can do some strange things, bouncing off buildings and such. The first seven channels are shared with users of General Mobile Radio Service (GMRS), while channels 8-14 are for the exclusive use of FRS. Some radio models include both GMRS (2 watts power output, giving much longer ranges) and FRS, but GMRS requires an operator’s license whereas FRS does not. No fees are charged; the purchase cost of the two units is the only cost.

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FRS units are easy to use ... indeed, the word "family" is operative. On board, they are ideal for communicating bow to stern, say between the helmsman and bow lookout while navigating through coral heads, or searching for the best spot to anchor in a bay; ship to ship when cruising in tandem; ship to tender, when the kids are exploring a harbor by dinghy; ship to shore; bridge to bilge, etc. On land, you'll find them more and more in use by families on the expressway traveling in more than one car or on ski slopes, where parents want to keep tabs on their children.

The better FRS units have a feature called CTCSS or continuous tone-coded squelch systems whose purpose is to prevent interference by other radio signals, except a call directed to you using one of the 38 subaudible tones. CTCSS doesn't prevent others from using the same combination of 14 channels and 38 tones (for a total of 532 possible), but it does make it less likely your conversation will be interfered with. If that does happen, you can ask your conversation partner to switch to another channel or tone. When you transmit, only those radios set to the same channel (frequency) and squelch tone (and are within range) will hear your message. However, not all FRS units have CTCSS, so if you transmit on channel 8, squelch tone 10, for example, a person with a non-CTCSS radio on channel 8 will hear you.

One radio tested, the Midland, has in addition to the by-now usual 14/38 channel/code combinations an additional 83 DCS (digital coded squelch) codes.

### **How They're Used**

FRS units operate essentially the same as a handheld VHF. In practice, both parties leave their radios "on." Most units have a battery saver standby mode, which they lapse into after a fixed period of inactivity.

Most units also have a call feature in which you can "ring" the other party. Some units let you select from several types of "rings." When your party hears the radio ring, he or she acknowledges by pressing the talk button and speaking into the built-in microphone.

Pressing the talk button is a one-handed operation, with your fingers wrapped around the back and far side of the case. After pressing the button, you release it and wait for a response. This is called "simplex" operation, as opposed to the "duplex" operation of your home telephone. As with traditional VHF and CB radios, you might complete your message by saying, "over," indicating that you're finished and it's okay for the other party to answer. Many FRS units, however, now offer a "Roger" tone, a beep that indicates to the other party that you've finished talking.

### **What We Tested**

When we first evaluated FRS in the March 1997 issue, these units were fairly new. At that time, we examined nine units from Motorola, Radio Shack, Midland, Standard, Kenwood, Alinco, Maxon and Cobra. Of the group, we favored the Motorola TalkAbout models and the Kenwood UBZ-LF14. Both companies are well established in the radio communications business, not only with FSR but with ham, SSB and VHF as well.

This year we tested models from Cobra, GE, ICOM, Midland, Motorola, Standard Communications and Uniden. Lord knows there are many more models out there, but this lot seems representative. Some of the above brands have other models with more or fewer features than the models tested here. We tried to get a set of Kenwoods, but they were hopelessly backordered.

All those in the test have the same 14 base channels plus 38 subchannels, "codes" or "tones" (CTCSS). The only notable exception is the Midland, which also has 83 DCS channels.

Unlike most of the others that are sold individually, the Motorola model is sold in pairs. When checking prices, be sure to determine whether you're getting one or two units. The idea behind

selling them individually is that some families may want more than two.

### **The Tests**

We worked with each radio pair both in the shop and on the water with a test partner. Besides the obvious set of features, we quickly became attuned to ease of use. Most units were okay, but there were some exceptions, such as the need to use a pointed object to turn on the ICOM (the power button is recessed so much that you can't activate it with your finger ... unless you have a very long, pointed fingernail).

Previous experience with FRS suggested to us that some models might transmit farther and more clearly than others, at least where obstructions are factors. So we set up a test in which we first tried to communicate within cars. This was done at 0.5, 1.0, 1.5 and 2.0 miles.

The signal strength of all radios was audible at 1.5 miles, though three of the seven were noticeably weaker than the other four. When we tested for maximum range, there were virtually no differences between the seven radios. No doubt this was due to the fact that FCC regulations strictly limit the radios to 1/2-watt output. The distinctions we did note were mainly in terms of volume and noise. Range for all models is affected by the state of battery charge, obstacles and atmospheric conditions.

Claims of battery life range from 25 to 50 hours. This discrepancy can be attributed to differences in definitions of use: percentage estimates of time spent transmitting, receiving, and on standby.

Many of these radios' features are the same (all have belt clips, display lights, low-battery indicators, etc.), so in the descriptions below we focus mostly on differences.

### **Cobra MicroTALK FRS 220**

The FRS 220 is one of five models in the MicroTALK series by Cobra, the popular maker of CB and other radios. In terms of the number of features, it is the second lowest. More expensive models have an AM/FM radio, weather alert, voice scrambling, silent paging and stereo headphones. The most noticeable feature absent from the 220 is the scan function, which scrolls through the channels looking for active communications. This can be helpful if you're not sure which channel your party is using (usually you and your walkie-talkie partner will agree on a channel ahead of time, and a backup in case your first choice is in use by other parties).

The Cobra uses 4 AAA batteries, the only one of our seven test models not to use AA batteries. A NiMH (nickel metal hydride) rechargeable battery pack is optional, as is a desktop charger. The Power Saver mode reduces current after 10 seconds of inactivity.

We found the Cobra to be one of the easier radios to operate one-handed. The PTT (push to talk) button is located on the left side, as it is on most of these radios, and the channel up-down button is on the right side, easily operated with the thumb of your right hand. The "call" button is right below the PTT button. Volume is adjusted by "-" and "+" buttons on the front. Other controls include the display light, keypad lock and mode buttons. Mode buttons usually access advanced features, such as the CTCSS tones in the case of this Cobra.

In this radio, as in the others, we particularly liked the "Roger" feature. This is a quick series of electronic beeps that sounds sort of like a xylophone; it is heard by the receiving party when the sender finishes speaking. It eliminates the need for the sender to say "over."

A feature found on most other test models, but by a different name, is the Maximum Range Extender mode. This removes the automatic squelch so that all signals are received.

The manual is better than most, with good graphics and explanations, plus a list of optional accessories and their prices.

Bottom Line: In field tests the Cobra was noticeably the noisiest and had the weakest signal.

### **GE Deluxe Family Radio 35840**

GE has its name on the package, but this radio seems to have been packaged for it by another outfit. Service and warranty contact information in the manual lists Atlinks USA in Indianapolis, IN, and Thomson Multimedia Inc. in Socorro, TX.

In any case, these units operate fairly conveniently with one hand. Six buttons are oriented around the LCD display, with a seventh, the page button, somewhat farther down near the speaker, making it a bit difficult to press with one hand. The large four-way button is for channel up and down in the vertical axis, and volume up and down in the horizontal axis.

The features list includes most of the major ones, such as "Scan," whereby the radio searches for communications on any of the 14 channel/38 CTCSS combinations. Just to show you how these things work, to activate "Scan" you first press the "Mode" button. Then use the left or right arrow buttons (normally used for volume up and down) to scroll through the list of special functions until you see the word "Scan" on the display. If you need glasses to read you'd better have them handy as the lettering is very small.

Once you see "Scan" you use the up and down arrows until you see the word "on." The LCD segments are a bit odd, so at first you might not recognize the word. Then press "Mode" to confirm your actions, and then wait while the display shows in rapid order all the channels and CTCSS codes. If it finds a conversation, it stops.

To exit "Scan" you again press "Mode" and use the left or right arrows to find "Scan." When "Scan" flashes on the display you use the up or down buttons until you see the word "off," which is actually spelled "oF." Then you press "Mode" again to confirm and exit. Got that?

Note that the GE scans only channels and codes saved to Memory and not all possible combinations.

Two unusual features are temperature, which can be displayed in Fahrenheit or Celsius, and NOAA weather broadcasts, accessed by the press of a button. All 7 US and Canadian channels and two international channels are available by pressing the arrow buttons.

There are jacks for a headphone and microphone, but the manual contains no information on how to order these accessories.

Bottom Line: This GE product had the least noise in field tests. It has most of the essential features other than Roger. We worry about the genealogy of the product. It seems to be a GE in label only.

### **ICOM IC-4008A**

ICOM, maker of single-sideband (SSB), VHF and other radios, now offers its version of an FRS radio. There is not a lot that distinguishes the IC-4008A from the others in our group, but we did note a few things.



First, the antenna folds down flush with the case when not in use. While it is flexible like the antennas on other models, the ability to pivot should theoretically make it less likely to break. And it does make for a somewhat smaller package for carrying in a pocket.

Like most of the others, there is a squelch circuit to minimize unwanted noise; it can be turned off by the "Mode" key when trying to receive weak signals.

Whereas many of the other radios use "-" and "+" keys to adjust volume, the IC-4008A has a conventional knob on top that some users may find easier to use. Of course, it's strictly a matter of personal preference.

There's a feature called "Smart Ring," in which the caller can press PTT and the "up" key at the same time when calling the other party. According to the manual, "This allows you to confirm whether or not a call has reached the receiving party even if the operator is temporarily away from the transceiver." If the other radio is on, your radio sounds a beep tone for 10 seconds. If the other radio is not on, your radio sounds three short beeps.

The standard call is done by pressing PTT and the "down" key simultaneously. You can choose from 10 different tones, but they are all electronic synthesizations, each about as cold as the next.

Absent are two features we like: the Roger tone and Scan. A NiCd battery pack and desk charger are optional, as are various speaker/mics and a headset with VOX (voice-activated transmission). The manual is excellent, perhaps the best of the group.

**Bottom Line:** In field tests, the ICOM performed about the same as the other middle-of-the-road radios. Its feature set lacks some important ones, such as Roger and Scan. And at \$175.90, it's by far the most expensive set. Better choices abound.

#### **Midland SpeakEasy #75-517**

This radio has the most features of the seven models tested. A quick check of the Value Guide on pages 8-9 shows that the SpeakEasy has most of the important features, including Battery Saver, Roger, Call and Scan. It also receives NOAA weather broadcasts on all US and two international frequencies, and has 83 DCS privacy codes in addition to the standard 38 CTCSS codes. This increases the number of possible channel/code combinations from 532 (14 x 38) to 1,694 (14 x 38 + 14 x 83).



There are three scan modes: Busy, in which the radio stops on a channel that has conversation; Open, which stops on channels that are not busy so you can find a free one to talk on yourself; and Dual Watch, which keeps track of two channels.

Another feature exclusive to the Midland is the so-called "Baby Sitter" mode. While not intended in any way as a lifesaving device, you can leave one radio in, say, a baby's room. When programmed in the Baby Sitter mode, this remote unit will, on hearing a sound, automatically transmit for 10 seconds, allowing you to hear the sound from the other radio (peaceful snoring). The remote then goes to receive mode for 10 seconds so that you can send a message. This cycle is repeated three times before reverting to Monitor mode.

The SpeakEasy comes with charger and desktop stand, but there is no information in the manual about the stand. Other than this omission, the manual is rated Excellent.

Bottom Line: The Midland has the most features of the seven radios tested. However, its field testing was poorer than most of the others—its signal was weaker and static was greater than most of the others. And at \$125.98, it is the third most expensive.

### **Motorola TalkAbout T5200**

The on/off control is a rotating knob on top of the radio rather than a "Power" push-button that has to be held for a few seconds. As with most of the radios, the display light comes on briefly; it's red rather than the more popular green. This knob also controls volume, and you can preset it by holding down the Monitor button; this turns off squelch so you can hear static. The Monitor function also lets you hear if there is any activity on a given channel before transmitting.

Changing channels seemed to us more difficult than necessary. You must press the Menu button once to change the channel and twice to change the CTCSS code. After pressing the button and making the channel or CTCSS number blink, pressing the "+" or "-" buttons changes the channel. We found it took more time to change channels than with single-step routines, and that it took a few tries to hit the Menu button the correct number of times. Pressing the Menu button three times, for example, accesses the Call tone function. (There are five electronic sounds to choose from.)

The Motorola T5200 has the usual battery indicator icon on the display (with segments showing level of charge) and a low battery alert, but we could find no mention or other evidence of a Power Saver mode, which we think odd.

There is a Roger tone, which we like, and a Time-out Timer that turns the radio off if the PTT button is pressed for more than 60 seconds (like when it might get accidentally jammed on in your pocket), but no Scan or Auto Power Off.

Bottom Line: In the field, the Motorola was a steady performer. At \$76.99 per pair it's a very good value. The absence of a Battery Saver mode and Auto Power Off are unfortunate, but tolerable given the price. After all, the latter feature is mostly for people who aren't paying attention. The least expensive of the radios tested, the TalkAbout is our Best Buy.

### **Standard SportTalk HX625A**

Standard is another big name in marine communications, mostly VHF radios, both handheld and fixed mount.

As on the Motorola, volume can be preset by pressing the Monitor key and rotating the top-mounted volume knob.

Changing channels is straightforward with the "up" and "down" arrow buttons. But to change CTCSS tones you have to turn the radio off (with the volume knob), press down the Function button on the side of the radio, and then turn the radio back on. Now you have two zeros to the right of the channel number.

To activate a CTCSS tone you next must press and hold down the Function key and then press the "up" and "down" arrows to the desired number. It works reasonably well, but it takes longer than most of the other radios tested.

The SportTalk HX625A has a Scan function, but no Roger or Call function. We think omission of the latter is a significant shortcoming; how much bother can it be to include Call, especially when so much of the competition does so?

We also felt somewhat uncertain whether the PTT key had been pushed hard enough (it's a bit sticky), though there's an icon on the display that appears during transmission.

The usual options are available—NiCD battery pack and chargers, speaker/mics, but no VOX headset, in case that's important to you.

The manual is minimal and doesn't seem to contain any mention of a warranty.

**Bottom Line:** This SportTalk is not one of Standard's better efforts, in our opinion. The absence of a Roger tone is perhaps understandable, but we think omitting Call is a mistake. Worse, its performance in the field was only poor to fair—noise was high and its signal was weak. At \$159.10 per pair the HX625A seems to us overpriced.

When we contacted Standard to pass along some of our criticisms, we were told that the company has discontinued production of the HX625A and withdrawn from the FRS market completely. Even so, these radios are obviously still on the market, since we found and bought them. Even assuming that these will be available at close-out prices, there are much better choices.

### **Uniden Ecolink FRS500**

Our samples of these radios were bought as a pair, though we think you can buy individual units.

Some of the routines are standardized amongst many of these test radios, such as pushing Monitor to remove squelch so you can hear background noise for presetting volume; that's the way it works for the Ecolink, too.

For setting the CTCSS tone there is a dedicated CTCSS button on the front of the case.

There is a Scan mode. Set your radio's channel and CTCSS code to 0, or else the Scan function will only search for other radios with the same settings.

The Ecolink is the only one of the seven radios tested with a "Vibration alert." This feature actually causes the radio to shake slightly in your hand—not quite as badly as those old palm buzzer pranks of the 1950s, but enough to get your attention. It's an alternative to the conventional Call beep, which this radio also has, but you have to set your radio for it.

Shortcomings include the lack of a Roger tone and Auto Power Off. An external speaker/mic is available but no rechargeable battery option.

The manual is good and includes a troubleshooting section, but there is no mention of a warranty.

**Bottom Line:** At just under \$100 per pair, the Ecolink is seemingly a good value, but it lacks the Roger tone, Battery Saver mode and Auto Power Off. Performance in the field was on a par with the best.

### **Conclusion**

FRS radios have many more features than they did just a few years ago when they were first introduced. Many models then had, say, just two channels (A and B) and no CTCSS privacy codes or Roger tones. Now, the feature set is fairly uniform, though somewhat dependent on price.

In our tests, we found range very consistent, owing to the strictly controlled 1/2-watt power output. We did find differences in volume and noise. The GE was very good in this regard, and the Cobra and Midland were the poorest. We were not surprised that the two stalwarts of marine communication, ICOM and Standard, were the two most expensive, but we were surprised that their performance and feature sets did not compare favorably to lower-priced sets like the

Motorola TalkAbout and Uniden Ecolink, which earned our top ratings.

**Contacts**— Cobra Electronics Corp., 6500 W. Cortland St., Chicago, IL 60707; 773/889-3087; [www.cobraelec.com/](http://www.cobraelec.com/). General Electric, Atlinks USA Inc., PO Box 1976, Indianapolis, IN 46206; 800/448-0329. ICOM America, Inc., 2380 116th Ave. NE, Bellevue, WA 98004; 425/454-8155; [www.icomamerica.com/](http://www.icomamerica.com/). Midland Consumer Radio, 1670 N. Topping, Kansas City, MO 64120; 816/241-8500; [www.midlandradio.com/](http://www.midlandradio.com/). Motorola, Consumer Products Div., 1125 Satellite Rd., Suite 101, Suwanee, GA 30024-2880; 800/353-2729. Standard Horizon, Marine Division of Vertex Standard, 17210 Edwards Rd., Cerritos, CA 90703; 800/366-8431; [www.standardhorizon.com/](http://www.standardhorizon.com/). Uniden America, 4700 Amon Carter Blvd., Fort Worth, TX 76155; 800/586-0409.

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