

ARRL FIELD DAY, JUNE 27-28

The ARRL Field Day Exercise is the grandfather of emergency drills. It has been an annual event since the first one in the 1930's, except during WWII.

For many hams it their favorite event of the year. Clubs and other groups put up large antennas, operate all day and night making contacts all over the US and Canada. Some hams like the construction, some take it as a serious contest to see how many contacts they can make, some take it as a weekend long picnic with some radio mixed in. My first FD was 1965. Everyone is a different because of some unanticipated changes in equipment, people, weather, etc.

FD 2020 will be different because social distancing will prevent groups from working together. It will be a great opportunity for individual hams to explore the limits of their radio equipment and improve their skill in communication over the radio. Given the density of hams in the Bay Area, it should be possible to make many contacts just using an HT. It will definitely be different from just talking on your favorite repeater.

Here is a distillation of the Field Day rules and other suggestions to guide an individual ham to a successful Field Day operation. More info and the official rules can be found at <http://www.arrl.org/field-day> A nice video is at: <https://www.youtube.com/watch?v=A2LRCvabjuA>

CLASS

The first thing is a basic plan for your operation. You need to choose between setting up at a temporary location, operating mobile or staying home. The FD rules list 5 classes.

- A is for the big groups setting up a temporary station.
- B, is one or two operators setting up a temporary station
- C, mobile, capable of operating while moving. This includes boats and airplanes. You do not have to be moving, just capable of moving.
- D, home station using utility power.
- E, home station using emergency power, batteries or generator.

All classes, except C, must have all of the equipment in a 1000 ft circle. This was intended make some constraint for the clubs setting up many stations. Was it West Valley that used to operate 22A?

A change of rules just for 2020 is that Class D stations can work other D stations.

A mobile station could be as simple as an HT and a mag-mount. Such a station might start in Santa Cruz, then drive to a spot on Summit Road and finish the day in San Mateo.

MESSAGE EXCHANGE

Making a Field Day contact requires exchanging call signs and some other information.

The first part of the exchange is the number of simultaneous transmitters. If you're by yourself, it's obviously 1, but you might hear stations with larger numbers.

Next is the class, A-E, as defined above.

Lastly the ARRL Section where you are operating

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- **SF**, San Francisco is San Francisco, Marin County and north to Oregon.
- **SCV**, Santa Clara Valley: San Mateo, Santa Clara, Monterey and San Benito Counties
- **EBAY**, East Bay, Alameda, Contra Costa, Napa and Solano Counties.
- You may also hear Sacramento Valley, **SV**, and San Joaquin Valley, **SJV**

Putting it together

For example, if you are operating from your home in Redwood City, you would say "1D SCV" or "one Delta, Santa Clara Valley".

If you don't copy the other stations location, you might say "your section?" Knowing the best way to say the exchange, comes with experience. Listen to other stations. Don't be afraid to try something different. Every FD, I have worked a few stations when the other ham had just turned on his rig, didn't know anything about Field Day and had to be helped to figure out his own exchange.

VHF/UHF FM

If you only have an HT, Field Day can be an excellent opportunity to find out how far you can communicate. Maybe you have participated in various public service or ARES activities. These usually have HT's communicating over a short range or using repeaters.

The Field Day rules forbid using repeaters. All contacts must be simplex. More on frequencies below.

To increase your signal range, (and make more contacts) you want to think about the antenna and batteries. A better or higher antenna will give you more range and more contacts. Simple possibilities include a ground plane on a 10 foot pole or a wire J-Pole hanging by a string from a tree branch.

You will likely be using the 2 or 5 watt setting, so you might need more spare batteries or external batteries and possibly a solar charger.

Referring to the previous section, you could operate class B using an antenna on a mast on a hilltop. Just be aware that the rules, which served well in normal times, mean you have to operate from the one place all weekend. BTW, FM "usually" uses vertically polarized antennas because that is compatible with the vertical antennas on most mobile rigs.

You could put a mag-mount on your car and operate class C. Then you could move from place to place and contact stations that beyond your range from a fixed location. Consider having a power cable to tap into the car battery. I don't suggest trying to operate while driving.

You could operate from home. Now is the time to install the roof-top antenna you have been putting off. If you have enough spare batteries or a solar charger go for class E.

Now let's get down to actual operating. Listen on a simplex frequency. Find another station calling. A typical exchange might go like this.

| What you hear on the air | What it means |
|-------------------------------------|---|
| Field Day, Field Day, this is K6XXX | K6XXX is looking for someone to "contact" or "work" |

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| | |
|-----------------------------|--|
| K6XXX this is KE6ABC | KE6ABC calls K6XXX |
| KE6ABC | Shorter version of KE6ABC calling K6XXX, when there are no other stations on the frequency. |
| KE6ABC please copy 1E SCV | This is K6XXX giving his message. |
| Roger, 1Charle East Bay | Roger: KE6ABC has received the message and gives his information. K6XXX records 1C EBAY in his log. |
| QSL Field Day this is K6XXX | QSL is Q-Signal to acknowledge the message. K6XXX is now trying for another contact. |

If when things are slow, you can also chat about signal strength and your location and rigs, etc.

For some periods of time, there might be several stations listing on one frequency. They have all worked each other, and are hoping a new station will tune hear them.

| What you hear on the air | What it means |
|-------------------------------------|--|
| Field Day, Field Day, this is K6XXX | K6XXX calls hoping for contact |
| | 10 seconds, plus or minus, nothing heard |
| CQ CQ Field Day KE6ABC | KE6ABC makes his call |
| | 10 seconds, plus or minus, nothing heard |
| Field Day, this is K6YA | K6YA calls. |
| | 10 seconds, plus or minus, nothing heard |

This will take a combination of persistence and politeness. You have just as much right to use the frequency as anyone else, but the other hams are your neighbors. You want to be able to remain friends when you see each other at a meeting.

If you haven't made any contacts in maybe 10 minutes, try changing "something". Listen on different frequencies. Try a different band, if you have the equipment. If you have a beam, point the antenna in a different direction. All the while, make some notes of how far away you can hear other stations and how far others can hear you.

When the weekend is over, you will have gained valuable knowledge about how well your radio works. This will be very important in a real emergency.

Most of all, try to have fun. Be ready to discuss your experience, so we can all learn.

All contacts must be simplex, no repeaters. Also do NOT exchange messages on 146.520 which is the National Calling Frequency. I believe it is OK to transmit on 146.520, "This is AA6PZ FD, listening on 145.595" Then listen for calls and make the message exchange on 145.595. Doing this will require a radio that can handle multiple frequencies at the same time along with some effort by the operator.

Having said no repeaters, what simplex frequencies to use? Table 1 lists the FM simplex frequencies from the ARRL band plan with the addition of four frequencies on 2 meters for FD. 146.460 is

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suggested as the FD calling frequency. When 146.460 is crowded try the secondary FD frequencies in the table.

With so many hams in the Bay Area, there will be times when even 4 channels won't be enough. The RACES/ARES hams in Santa Clara County have already considered this issue for the purposes of communications after a major disaster and have mapped out simplex frequencies for individual cities. These are listed in Table 2. There is some frequency reuse. Gilroy and Palo Alto are both assigned 147.480, but those cities are far enough apart that it is unlikely that there will be mutual interference. So when there are many stations on 2 meters, try the frequencies for your city or the next city. Especially with an HT, you should have more success than with competing with a big station on a prime frequency.

You should program some of these frequencies into your radio before the event and also have your manual handy so you can add other frequencies as needed.

Field Day is always a bit of an experiment. You turn your rig to some frequency and hear 4 stations already there. That is 4 contacts you can make and 4 stations that also want to contact you. A few minutes later, those contacts are complete. Now what?

You can stay with the group and wait for a new station to come along or you can see who might be on a different frequency. There is no perfect right answer. The choice will depend on what everyone else is doing. How crowded is a particular frequency? Have you already worked everyone you can hear on this frequency? Is it a time of night when there aren't many hams awake? Try to sense what others are doing.

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TABLE 1. VHF/UHF band plan for FM simplex from <http://www.arrl.org/band-plan>

| | |
|-------------------|---------------------------|
| 53.020 | FM simplex |
| 53.040 | Simplex |
| 52.525 | Primary simplex |
| 52.540 | Secondary simplex |
| | |
| 146.40-146.58 | FM simplex |
| 146.520 | Do not use |
| 147.420-147.570 | FM simplex band |
| 146.460 | Primary Field Day |
| 146.430 | Secondary FD |
| 146.490 | Secondary FD |
| 146.550 | Secondary FD |
| | |
| 223.40-223.52 | FM simplex |
| 223.71-223.85 | FM simplex, packet |
| | |
| 446.000 | Simplex Calling Frequency |
| 441.000 | Simplex Calling Frequency |
| 446.500 | Simplex Calling Frequency |
| | |
| 927.075-927.125 | FM / other including DV |
| 927.500 | Simplex Calling Frequency |
| | |
| 1294.000-1295.000 | FM simplex |
| 1294.500 | Simplex Calling Frequency |

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TABLE 2, extracted from <https://www.scc-ares-races.org/freqs/freqs.html>

| | | | |
|---------------|---------|-------------|---------|
| Campbell | 146.565 | Palo Alto | 147.480 |
| Cupertino | 146.460 | Palo Alto | 147.540 |
| Cupertino | 147.570 | Palo Alto | 147.555 |
| Gilroy | 146.445 | San Jose | 146.430 |
| Gilroy | 146.595 | San Jose | 146.475 |
| Gilroy | 147.480 | San Jose | 147.435 |
| Los Altos | 146.595 | San Jose | 147.540 |
| Los Gatos | 146.595 | Santa Clara | 146.580 |
| Los Gatos | 147.480 | Santa Clara | 147.450 |
| Morgan Hill | 146.490 | Santa Clara | 147.510 |
| Morgan Hill | 146.555 | Saratoga | 146.505 |
| Morgan Hill | 147.540 | Saratoga | 146.595 |
| Mountain View | 146.415 | Stanford U | 146.490 |
| Mountain View | 146.535 | Stanford U | 146.550 |
| NASA-Ames | 146.445 | Sunnyvale | 146.415 |
| NASA-Ames | 146.505 | Sunnyvale | 147.405 |
| NASA-Ames | 146.550 | Sunnyvale | 147.585 |
| NASA-Ames | 147.465 | | |

San Mateo County has a similar chart

https://www.k6mpn.org/training/resources/SMSO-Ham-Band-Plan_2017_r18-FINAL.pdf

Anyone know where there is info for Alameda or other counties?

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VHF/UHF SSB

Many of us, myself included, have multi-mode radios but have left them in FM. SSB has the advantage of greater range than FM. There will also be many times when you absolutely know there is a weak station, but it is difficult to understand. Phonetics and repetition will be the keys. If signals are strong, operate just like the FM example. Other times you will need to repeat many times. If you have experience on HF, it's pretty much the same on VHF/UHF.

As with FM, batteries and antennas are important. By tradition, SSB operations usually use horizontal polarization. If you only have vertical try anyway. If you don't try you won't make any contacts!

Sometimes you will need to make long "3x3" calls, something like:

CQ CQ CQ this is K6XXX Kilo 6 Xray Xray Xray K6XXX Los Altos
CQ CQ Field Day this is K6XXX Kilo 6 Xray Xray Xray K6XXX Los Altos
CQ CQ CQ this is K6XXX Kilo 6 Xray Xray Xray K6XXX Los Altos
K6XXX calling Field Day and standing by

Part of experience as an operator is learning how much to repeat or not repeat.

Giving your location helps the other guy point his antenna, if he has a beam.

The table lists the portions of the VHF/UHF bands for SSB. SSB does not have channels like FM. Move 2 or 3 or 5 kHz away from other stations and try calling.

If you haven't made any QSO's (contacts) in 10 minutes change the beam heading, frequency, band, phonetics.

Remember that if you have contacted a station on SSB, you can not work him again on FM.

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TABLE 3. VHF/UHF band plan for SSB / CW from <http://www.arrl.org/band-plan>

| | | |
|-------------------|-------------|-------------------|
| 50.125 | SSB calling | calling frequency |
| 50.125-50.300 | SSB & CW | |
| 144.05-144.10 | CW | |
| 144.200 | SSB & CW | calling frequency |
| 144.200-144.275 | SSB calling | |
| 222.100 | SSB & CW | calling frequency |
| 222.10-222.15 | SSB & CW | |
| 432.07-432.10 | CW | |
| 432.100 | SSB & CW | calling frequency |
| 432.10-432.30 | SSB | |
| 902.075-902.125 | CW/SSB | |
| 902.100 | CW/SSB | calling frequency |
| 1296.080-1296.200 | CW, SSB | |
| 1296.100 | CW, SSB | calling frequency |

PACKET & DIGITAL

Packet and other digital modes can also be used. If you have the gear, get it on the air. Every station you work with digital modes can also be contacted on voice.

HF / QRP

Traditionally, most of the Field Day activity was on HF. If you have an HF rig, I can't add much knowledge in one or two paragraphs.

There are lots of QRP ops in the Bay Area. Maybe you want to pre-plan certain times and frequencies to contact each other away from the big gun stations.

LOGGING

Computer logging is essential if you want to submit your results to ARRL. I Computerized Contest Duplicate Checking, QST, June 1981. You can choose between the comfort of a full-size keyboard vs the portability of a smart phone.

(suggestions needed)