

American Radio Relay League



DOC 3: WHAT YOU'LL NEED FOR A SANCTIONED ARDF EVENT

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ARRL Sanctioned ARDF Events: What You'll Need

I. Purpose

This document describes the various items that organizers need in order to put on a sanctioned ARDF event. All the items are divided into three broad categories: Equipment, Venues, and Personnel. Example checklists in the appendices may be modified as needed to reflect the needs of a particular event, and the summary of lessons learned can help you avoid potential pitfalls discovered during previous events.

II. Equipment

The equipment required to hold an ARDF event is specialized and can be difficult to find. But organizers should not be concerned about locating all the equipment themselves. The ARRL ARDF Committee can help organizers locate many of the difficult-to-find items. Some items may be available from competitors or visitors who will be attending the event. See the appendices for equipment checklists.

Most of the equipment required for an ARDF event falls into two categories: radio and orienteering.

A. Radio Equipment

ARDF radio equipment is specialized. The radio transmitters are portable, they transmit autonomously, and operate on Amateur Radio frequencies. The receivers are highly portable, they can handle weak to extremely strong signals, and are generally attached securely to directional antennas. Most radio clubs do not own the radio equipment needed to put on a championship ARDF event. Fortunately, much of the radio equipment can be made available to organizers. Contact the ARRL ARDF Committee for assistance.

B. Orienteering Equipment

The orienteering equipment needed for ARDF events is similar to that used for orienteering competitions. Flags, registration devices, timing systems, and all the usual paraphernalia used in orienteering are used for ARDF. Most orienteering clubs have the

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orienteering equipment needed to put on a championship ARDF event. As for radio clubs, and others lacking orienteering paraphernalia, much of the equipment can be provided to organizers. Contact the ARRL ARDF Committee for assistance.

C. Other Items

Tables, chairs, tape, scissors, signage, first-aid kits, rain gear, portable shelters, are among the items that belong to this equipment category. This equipment is similar to that needed for any outdoor athletic event. If not already available, it can be readily borrowed, rented, or purchased from brick-and-mortar retailers or online.

III. Venues

A. General Considerations

Selecting appropriate venues for each competition is essential for a successful event. It is rare to find a single park or forest of adequate size and all the necessary features to conduct all the competitions. So, when more than one or two competitions are planned, it is usually necessary to hold competitions at multiple venues located reasonably close to one another.

You should arrange for permissions and reserve the venue(s) for the planned event dates as soon as possible after receiving confirmation of event sanction and before advertising a venue as a competition site. See the USAARDF Rules for Sanctioned Events for more information on secrecy, embargo, and technical requirements for course designs.

Take under consideration any other activities scheduled to be held at the venues on the event's dates. Avoid having ARDF competitions conflict with other venue users, and vice versa. If other activities are scheduled, try to contact their organizers ahead of time to avoid conflicts.

B. Maps

A suitable map must be available for any venue selected for a sanctioned event. This requirement effectively limits suitable venues to those which orienteering groups have mapped. It also means that it will be necessary for the map copyright holder to grant permission to purchase or print their maps for use in the event.

Most orienteering groups are familiar with the International Orienteering Federation (IOF) standards for orienteering maps. See the USA ARDF Rules for Sanctioned Events

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for map technical requirements for ARDF competitions. Other organizers may need to familiarize themselves with the ARDF map requirements. See ARDF rules Section 23.

It is desirable to minimize the overlap of competition maps. Overlapped areas can give competitors an advantage for having navigated the same terrain in an earlier competition. Use a different mapped area for each competition format, with a minimum of overlap between maps.

1. Classic Competitions

Realistically, a usable mapped area of 1000 acres (4 square kilometers) or more is required to provide adequate course-design flexibility for championship-quality courses for all age/gender categories. Avoid long, narrow competition areas in favor of square to slightly rectangular ones, since a broader region offers more diverse transmitter placement opportunities.

When selecting venues for classic competitions, it will be necessary to consider suitable locations for the start and finish that provide ready drop-off and pick-up options for competitors and volunteers. Also, keep in mind that the Finish Beacon (and all other transmitters) must be located outside the start exclusion area. And both the start and finish should be located such that competitors will not run through them on their way between control transmitters.

The mapped terrain should be mostly runnable, with a minimum of restricted, keep-out, or hazardous regions within the competition area. Avoid mapped areas containing large obstacles within them, such as a large lake or a fenced compound, since such obstacles reduce the usable area and are likely to restrict course design options and the competitors' route choices.

Before settling on a particular venue, consult with an experienced course designer to analyze the map to judge its suitability. Contact the ARRL ARDF Committee for help locating an experienced course designer.

2. Foxoring

As with Classic competitions, a usable mapped area of 1000 acres (4 square kilometers) or more is required to provide adequate course-design flexibility for championship-quality courses. Other considerations for Foxoring venues are also much the same as those for Classic competitions.

3. Sprint

A regulation Sprint ARDF competition requires at least 100 acres (0.4 square kilometers) to provide adequate course-design flexibility for championship-quality courses for all age/gender categories. Too large a competition area may work against

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allowing spectators to view the action. Sprint is well suited for a park-like setting, so an urban park can work well. Quality orienteering maps are required, but the highest quality isn't so crucial in Sprint since most competitors rely less on the map in this competition. A location providing a panoramic vantage point offering a broad view of the competition area is a significant consideration in choosing a Sprint venue. The spectator area should offer excellent opportunities to observe the runners.

C. Facilities

Consider what accommodations are available for volunteers and competitors for the duration of the event. The distance of venues from a regional airport, parking availability near the start areas, and the distance from the venues to the nearest housing accommodations will all impact transportation options and costs. Suitable staging areas for competitors and volunteers will need to be identified, with consideration given to trash receptacles and restrooms.

IV. Personnel

Volunteers play a crucial role in all ARDF events. Helpers of all descriptions can be employed for logistics, planning, organizing, and handling all the details of an ARDF event. Successful events have been held with just a few individuals wearing many hats, but more helpers make things less stressful for everyone and help ensure that all bases are covered even if someone falls ill.

A. Event Director

The Event Director has overall responsibility for managing the event, and ideally, should not have specific setting-up duties the day of the event, but be constantly available to answer questions, handle emergencies, and keep things running smoothly. Everyone should be informed how to quickly contact the Event Director.

B. Start Attendant(s)

A Start Attendant is responsible for keeping things organized and running smoothly in the start area. The Start Attendant needs to inform competitors of where they need to be and when they need to be there. Answering competitors' questions, and helping them deal with logistics and equipment issues, tend to occupy most of a Start Attendant's time.

The number of Start Attendants you'll need depends on several factors: the experience level of the competitors, how organized and clearly-marked the start stations are, and

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any language barriers to be hurdled. As many as three Start Attendants might be called for: one to handle the call up 15 min before the start, checking them in, and retrieving their equipment from impound; another to hand out maps 10 minutes before their starts, help them find the supplies provided for preparing their map boards; and a the third to be at the starting line to coordinate their starts.

In addition, a Start Attendant (or someone near the Start) should monitor the course transmitters and finish beacon to determine when they are ready for competitors to begin.

Once the last competitor has left the start, a Start Attendant is free to take on a different role. Note that, in a pinch, the final competitors to start could be called on to serve as Start Attendants.

C. Finish Attendant

The Finish Attendant is responsible for keeping things organized and running smoothly at the finish area. The Finish Attendant should monitor the finish beacon (and other course transmitters if possible) to ensure that they are operating normally. Directing finishers to the finish registration device and ensuring adherence to finish corridor rules tend to occupy most of a Finish Attendant's time.

A Finish Attendant needs to be at his/her station before the first finisher arrives, and remain there until the last finisher crosses the finish line.

D. First Aid

At least one person trained to administer basic first aid, and to identify injuries requiring emergency care, should be available at all times during a competition. If only one such person is available, that individual should always be reachable and able to move to those requiring assistance. If possible, first-aiders should be certified in CPR/AED and first-aid by the American Heart Association, the American Red Cross, or have received equivalent training. Encouraging volunteers to become first-aid certified can help increase access to care during the event.

E. Download Attendant(s)

A Download Attendant is responsible for ensuring that finishers locate the download station and successfully download their results. Most results-recording systems are not foolproof, so the Download Attendant spends much of his/her time assisting finishers with the download procedure, checking that results were recorded accurately and resolving any issues. A Download Attendant will also be responsible for posting the

downloaded results to a common-area where finishers can view the results as they come in.

F. Communicators

Often, cell phones or other unlicensed communication devices are used, allowing workers to communicate directly with one another. But in cases where cellular service is unreliable, or it is desirable to free other workers from handling message delivery, dedicated communicators can be used. Amateur Radio operators, or others trained to communicate accurately and efficiently, can improve communications significantly and avoid many problems that might otherwise arise.

G. Logisticians

Dedicating certain persons to locate, store, and move equipment as needed can make a huge difference in helping an event run smoothly and with less effort. If such volunteers are available, then it is wise to make good use of them.

H. Course Attendants

Having attendants placed inconspicuously near fox transmitters is an excellent idea. Attendants should be trained to handle the most common issues that are likely to occur during a competition: an injured or exhausted competitor, transmitter or antenna malfunctions, and the like. Course Attendants must be instructed not to provide any assistance to competitors except in emergencies.

I. Assistants

Most of the volunteer positions can benefit from having a second (or third) person to help. If assistants are available, then make good use of them.

Appendix A: Example Master Checklist

Below is a list of the items most often needed to hold a successful ARDF Championship event. Starred * items are mandatory. Other items are highly recommended.

See Appendices B-E for checklists of equipment for each of the competition formats that will be held.

Start

- Start Banner
- Start corridor tape/stands/markers*
- Start SI devices: clear/check/start* (preferably 2 start punches)
- PA / Start timing clock or beeper*
- Large Clock
- Holder and display for start list*
- Impound area tarp / markers / cover / hangars*
- Marking tape / stands / holders for start sequence areas*
- Map preparation table(s) with tape, staplers, map bags, and markers
- Personnel: At least one attendant until the last starter has left*
- First-aid Kit
- Radio receiver for monitoring finish beacon and course transmitters
- Communication device for contacting the Event Director (cell phone, handy talky, etc.)

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Finish

- Finish Banner
- Tape or rope / stands / markers for finish corridor*
- Beacon flag / marker*
- Beacon SI punch (preferably 2) and stand*
- Finish flag / marker*
- Finish SI punch (preferably 2) and stand*
- Personnel: At least one attendant*
- First-aid Kit*
- Radio receiver for monitoring finish beacon and course transmitters
- Communication device for contacting the Event Director (cell phone, handy talky, etc.)

Download/Results

- SI download stations (2)*
- Individual results / splits printer for competitors
- Minimum of 2 results displays
- Results available via local WiFi / web browser if possible

Weather

- Be prepared for bad weather like rain. Shelters, tarps, and rain gear for the volunteers should be available if precipitation is a possibility.

Comfort

- Tables, chairs, bug spray, etc.

Appendix B: Example 2-Meter Classic Checklist

Course Controls

___ x 2m transmitters (5 controls + ___ spares) conforming to the classic equipment rules, including horizontally polarized antennas and accessories to mount/place transmitters and antennas safely at control locations

5 x Time registration devices (SI or equivalent) including stands

5 x Control marker flags

Finish Control

___ x 2m transmitters (1 beacon + ___ spares) conforming to the Classic equipment rules, including horizontally polarized antennas and accessories to mount/place transmitters and antennas safely at the entrance to the finish corridor

1 x long-endurance power source (big battery)

2 x Time registration devices (SI or equivalent) including stands: finish beacon + finish line

1 x Finish beacon marker flag

Appendix C: Example 80-Meter Classic Checklist

Course Controls

- ___ x 80m transmitters (5 controls + ___ spares) conforming to the classic equipment rules, including vertically polarized antennas and ground radial system, and accessories to mount/place transmitters and antennas safely at control locations
- 5 x Timing devices (SI or equivalent) including stands
- 5 x Control marker flags

Finish Control

- ___ x 80m transmitters (1 beacon + ___ spares) conforming to the classic equipment rules, including vertically polarized antennas and accessories to mount/place transmitters and antennas safely at the entrance to the finish corridor
- 1 x long-endurance power source (big battery)
- 2 x Time registration devices (SI or equivalent) including stands: finish beacon + finish line
- 1 x Finish beacon marker flag

Appendix D: Example Sprint Checklist

Course Controls

___ x 80m transmitters (10 controls + ___ spares) conforming to the sprint equipment rules, including vertically polarized antennas and accessories to mount/place transmitters and antennas safely at control locations

10 x Time registration devices (SI or equivalent) mounted on stands with red and white stripes and without an orienteering control marker flag. **Note: most orienteering clubs will not have stands of this type.**

Spectator / Finish Controls

___ x 80m transmitters (1 beacon + 1 spectator if used + ___ spares) conforming to the sprint equipment rules, including vertically polarized antennas and accessories to mount/place transmitters and antennas safely at the entrance to the finish corridor

3 x Time registration devices (SI or equivalent) including stands: finish beacon + finish line + spectator if used

2 x Finish beacon marker flag + spectator marker flag if used

Appendix E: Example Foxoring Checklist

Course Controls

___ x 80m transmitters (___ controls + ___ spares) conforming to the Foxoring equipment rules, including vertically polarized antennas and accessories to mount/place transmitters and antennas safely at control locations.

___ x Timing devices (SI or equivalent) mounted on stands that are not brightly colored and without orienteering control flags. **Note: most orienteering clubs will not have stands of this type.**

1 x Start Sample Control: One 80m transmitter for each frequency (if more than one frequency is used on the course) conforming to the Foxoring equipment rules, including vertically polarized antennas and accessories to mount/place transmitters and antennas safely.

Finish

___ x 80m beacon transmitters (1 beacon + ___ spares) conforming to the Foxoring equipment rules, including vertically polarized antenna and accessories to mount/place transmitter and antenna safely at the entrance to the finish corridor

2 x Time registration devices (SI or equivalent) including stands with orienteering control flags: finish beacon + finish line

1 x Finish beacon marker flag

Appendix F: Lessons Learned

Listed below are some of the lessons recorded by organizers of previous USA ARDF Championships events.

- Receivers capable of receiving all transmitters need to be provided to the start and finish attendants, who should be trained to use them. This will allow start volunteers to determine when all transmitters are on the air so that an event may begin. It will also allow finish volunteers to determine if the finish beacon stops working, and monitor for course transmitter issues. The receiver at the start should have a digital frequency display so that volunteers can confirm transmitter frequencies are correct.
- Reliable communication between the start, finish, and the event director needs to be provided. This can be cell phones, Amateur or FRS radios, etc. Volunteers need to be trained in the use of communications equipment. This will allow volunteers to quickly report problems that arise.
- Have some spare 9V and AA batteries at the start area. This will allow competitors with battery issues to compete. A few spare earphones might also be a good idea.
- Have a small tool kit, or at least a small screwdriver set, and perhaps some electrical tape available at the start, again to assist competitors with equipment issues.
- Ensure that someone is responsible for monitoring all the transmitters during each event and that he/she can notify the equipment manager of any issues quickly.
- Purchase new well-stocked first-aid kits. One should be at the Finish, another at the Download Area if it isn't adjacent to the Finish. Another at the Start might also be prudent. Bee/wasp stings and cuts can happen anywhere. Try to have at least one volunteer with basic first-aid knowledge stationed near each kit.
- At the awards ceremony, have each group of medal winners move to a side "pictures area" after receiving their medals. This will allow awards for the next group of medal winners to begin immediately after the applause stops. It will also allow for a more suitable picture background and lighting situation to be provided.
- Combining all three types of results placement (USA, Region 2, Overall) on a single medal was a great idea. (I didn't hear any complaints, and it reduced cost & time.)

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- Set reasonable expectations for competitors. All event start times should be considered approximate. It is the nature of the sport - competitors should be prepared to be flexible.
- Place observers close to critical keep-out areas to warn competitors away from them. Practice and championship courses may need such observers to prevent issues that could impact the goodwill of venue administrators.
- Stress to competitors (especially youth) the importance of using caution near and when crossing roadways.
- Frequently, none of the following info is on any map. But including it would reduce confusion and cut down on the number of questions that the volunteers get asked:
 - Printing the required transmitters for each category on each map is a great idea.
 - Printing large boxes numbered 1-5 on each map for competitors to cross off transmitters as they find them, or to use as a punch should the registration system fail.
 - Printing the frequencies of all transmitters on each map is a great idea.
 - Having emergency contact numbers printed on the maps is a great idea. The "I AM LOST" English translation for non-English speakers has proved indispensable. (Note: competitors may not be permitted to carry cell phones or communication devices in the Start area or while on the course.)
- Transmitters should come on-the-air at least 15 minutes before the scheduled start time to confirm that all are working. Impoundment should be completed at least 10 minutes before the transmitters come on.
- Keeping the number of unique frequencies used throughout the championships to a minimum should be a goal, just to avoid confusion. Also, if any chosen frequencies fall outside the USA Technician Class portion of the 80m band (3.525 MHz - 3.600 MHz), consider highlighting that fact in the bulletins and utilize a control operator with privileges in that portion of the band.
- Have all the relevant technical information (frequencies, fox assignments, time limit, etc.) on printed cards distributed to all the volunteers and posted at the start area.
- Keep all site permits and copies of site fees paid and group shelter reservations, etc., in a folder close at hand. That will keep important documents readily accessible should a ranger or site manager request them.
- Reserve a meeting room at the recommended event motel. The meeting room can serve several important functions:
 - Competitor briefings

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- Awards
- Meetings among organizers, volunteers, or ARDF Committee
- Forums or classroom training for newcomers
- A private area where folks can hang out instead of a hotel lobby.
- See if a bulletin board can be placed there for posting event updates or results.
- The meeting room also serves as encouragement for folks to stay at the event hotel - thus giving the organizers more leverage to negotiate for a free conference room!