

Event control placement and range checking.

When setting out the radio controls, you must check they have adequate reception to ensure the competitors punches will be able to get back to the event centre. Orienteering controls are normally set up in features that are not ideal for broadcasting radio signals from. For example, behind trees, in re-entrants or behind rocks. The O-Lynx system copes with this by making it easy to use repeaters to allow the signals to reach the desired control point. A repeater can be just another separate O-Lynx radio or it could be another radio and control close by. No setup is required as the system automatically chooses the best route to get the punch messages to their destination at the event centre. The O-Lynx system was designed to make the use of radios as easy as possible for course-setters and their helpers.

Setup the O-Lynx Master.

At the event centre, the first thing to do is to set up the master radio on a control stand so it is active while you are setting out the other radios. Later, before the event is under way, the master radio should be mounted higher and plugged into the PC. Usually this involves taping the master stand to one of the poles of the shelter. Bodies are good at blocking the radio waves and as it is difficult to know exactly where the crowds will gather during the event, mounting the master radio high will help eliminate another unknown.



Figure 1: O-Lynx master taped to tent pole to increase height



Figure 2: O-Lynx master out in the open.



Now back to putting out the radios....

Turn on the master by pushing the button at the base of the unit. The top red light (power) will intermittently flash. On the side of the master is a green button. Ensure this button is pushed in to enable the radio heartbeat. This broadcasts a heartbeat message every 3 seconds to all other radios that is used to determine reception. On the master the second light down (TX) will now also be flashing to indicate a message is being transmitted.

How the radios are put out will differ slightly depending on whether there is a dedicated radio person or if the planner and controller are putting them out. If the person setting up the radio controls is not the course planner or controller, ensure that a standard control and sportident box has been

put at the desired place. This is because the radios are often the last controls to go out and so their position may not get re-checked or vetted as is normally required when controls are put out. Also it is a fail-safe that if for some reason the radios don't go out, then the courses will still work OK. If the planner and controller are doing it as part of their control placement then setting up the radios will just be part of putting out the controls.

The radio controls will use the larger BSM7 Sportident stations, and so will need control stands with larger plates or the BSM728 adapters (or similar) to convert them over at installation time.

Organise the equipment you will need to take out on the course. This usually involves the following put in a small backpack.

- Radios – allow enough for the controls and any possible repeaters you may need. Take extra stands to mount the repeaters as well.
- BSM7 serial sportident stations
- Radio mounting plates – if not attached to the control stands already.
- Cable ties – for attaching the radio mounting plates
- BSM728 adapters – if the control stands have BSM8 mounting plates on them.
- SI Stick for waking up and checking the controls.
- Pen to mark repeater positions on a map for control collectors

Planning tips.

Studying the map and relative positions of the radio controls will give you a feel for how the controls will be set up and the repeaters required, if any. Here a few tips....

- Hilltops are good places for repeaters if you are trying to reach a far-away control.
- Use the opposite side of valleys when reaching up into reentrants.
- Straight tracks can be useful for getting distance in forests before a repeater is mounted to get the signal off into a control in the forest.
- The main rule is that the radios don't go through earth, so for example, to reach a control on the other side of a spur will require a repeater.
- The more and thicker the vegetation the shorter the range will be.
- Height of the radios has a big effect on the range. At the control the radios should be mounted on the control stand at control height so that the radio doesn't affect the controls visibility and the cable is not likely to get tripped over. However if there is a way to mount any repeaters higher such as on a knoll or hanging from a tree, then it can help range.
- The range across a valley or between hilltops will be a lot greater than if the signal is parallel to the ground e.g. along a flat road.
- Try them out before the main event. If possible get out on the map and get some experience of what the radios are capable of.

Putting out the radios

With the bag of radio gear, head out to the first control. If possible, carry a radio in your hand and switch on every so often to check reception as you go. The radios flash their lights every 3 seconds. The radios flash their lights every 3 seconds. The photo to the left shows a radio with the top red light on. This light flashes to indicate the radio is powered on.



The bottom 3 lights indicate radio reception similar to a cellphones reception bars. These lights are labelled RX1, RX2 and RX3 on the units label. 3 lights are excellent. 2 are great and 1 is good. The lights indicate how good the signal is to the next closest radio that is being used to get the heartbeat signal from the master radio. The main thing to look for is that the flashes of these lights are regular when compared to the power light. For example every flash of the power light should have a corresponding flash of at least the RX1 light. If a flash misses a beat or is not

present at all then reception is not good enough and a repeater needs to be sited somewhere to improve reception.

It is important to stress that just one regular flashing RX light is still very good for getting the punch information back to the event centre. If you try to play safe and always have at least 2 lights then you will not be able to get very far with the radios.

At the control

First mount the radio mounting plate with the cable tie. Note that the large slot is at the top. If you mount this the wrong way up the radio will fall off part way through the event and be useless. In the event you accidentally mount one of these plates the wrong way up (easy to do under pressure) then either remove and mount it again or simply mount another one above or below it.

Take the sportident box and check its control ID by punching it to wake it up and then checking its LCD screen. Why ? Often these controls are renumbered for each event to suit the number the course setter has used. As the person doing the radios may be doing it after all other course checking has taken place, it is very important to ensure what they do is correct and it is easy for a control to be miss-programmed.

Tip : If you don't have a SI card with you, the controls can be woken up by plugging into the radio and then switching the radio on.

If all is correct, then mount the BSM station on the control stand (using an adapter if necessary), plug in the radio, mount it and switch it on.

For one last check (checks the cable from the radio to the sportident station and that the 'Autosend' was programmed in the station) , punch the control and watch the lights on the radio. You should see the TX light (second from top) light up when you punch.

Checking reception

As discussed previously, the bottom 3 lights should be indicating the reception of the heartbeat signal. If at least one of them is not pulsing at all or the pulses are not regular then you will need to put a repeater in. If this is the case, use a spare radio to go back to a place where the reception improves and place the radio as a repeater – preferably on a point that will be best for getting the signal to the control such as a spur, hilltop, track, clearing etc. Then go back to moving on towards the control point, checking reception as you go.

Note that as the controls repeat off each other, if you have another control on when checking reception, you may not get a true indication of the signal strength at the controls position/height e.g. one of the controls in your backpack accidently is turned on.

As the repeaters will be similar to controls, they should ideally be located at least 30m from the control to avoid confusion for runners. It is also a good idea to mark their point on a map so control collectors will be able to find them.