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Guide to radio controls

For planners



Why radio controls?

- Provide information to commentators so they can tell the unfolding story of the races
- Informed spectators cheer on leading athletes, and make an exciting atmosphere
- Can also be used in relays as warning of incoming runners (e.g. Harvester)
- Potential safety feature



Technology



- Radio Controls
 - Both SPORTident and EMIT have online controls, with RS232 outputs which connect to GPProjects equipment to get punch data back to the commentators
 - SPORTident Short Range Radio (SRR) technology (as used in Air+) is incorporated in to GPProjects products. However, EMIT fly-by technology cannot be used with GPProjects equipment
- Radio Network
 - GPProjects equipment is based on three types of telemetry – wired, radio and mobile. The choice of telemetry used depends on the location of the radio control

Radio Network Technology

Product	Telemetry	Capacity	Latency	Range
Merge	Cable (serial, Ethernet)	250 / min	< 10 sec	< 500m
Kestrel	Radio	30 / min	< 20 sec	< 1Km
Eider	Mobile phone network	40 / min	< 30 sec	GSM



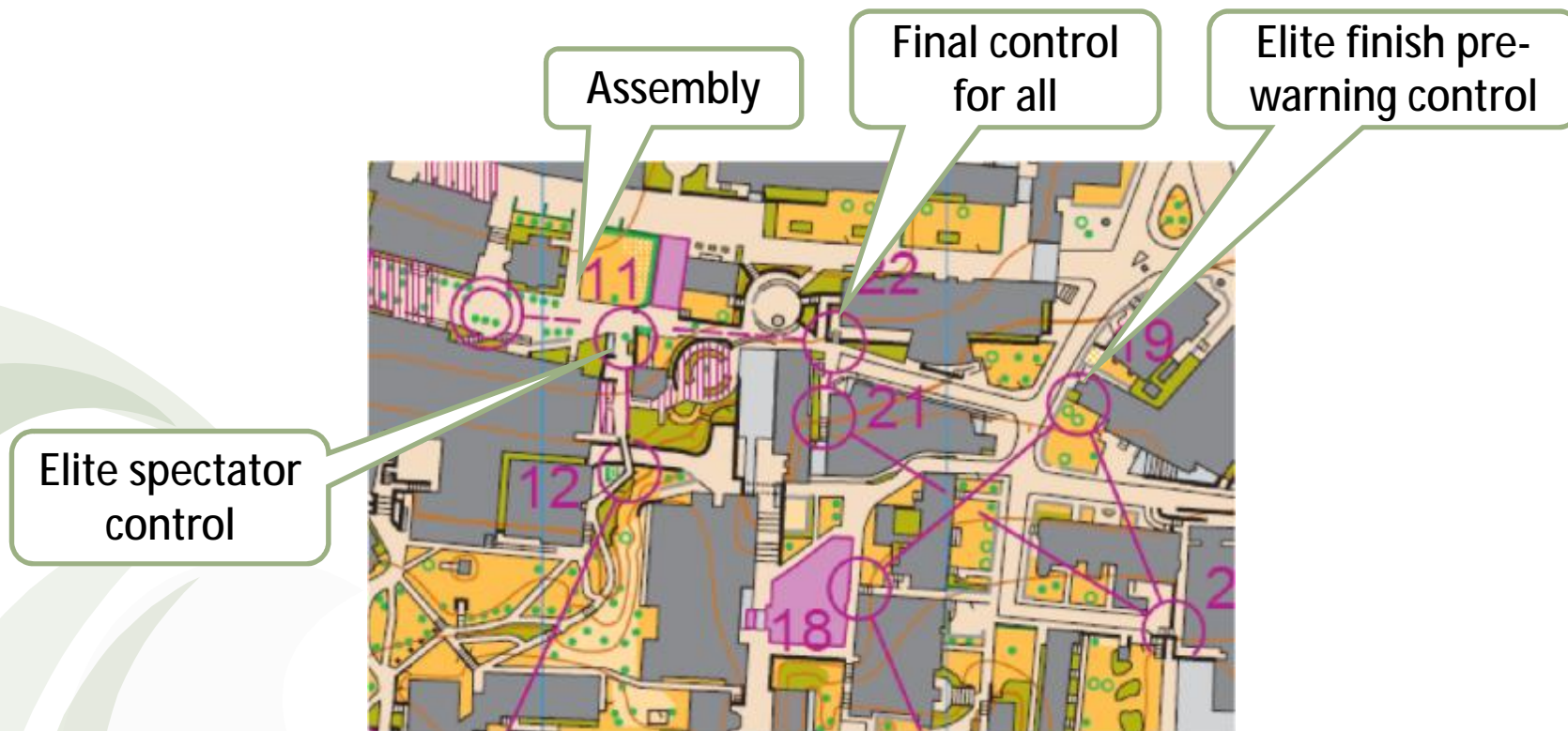
Which controls?

- The choice of control(s) to link for commentary is critically important, and should be considered early in the planning process.
- It's not possible to follow everyone, so focus is on the Elites. However commentators aim to announce top three in ALL classes.
- Less is more – restrained numbers and efficient use of radio controls can feed exciting commentary. Too much information is overwhelming
- Aim for:
 - One or two 'far' radio controls ~35-65% round course, depending on course length
 - Pre-Spectator / Pre-finish
 - 1-2mins (~300-500m) before athletes can be seen by spectators
 - Final control and finish for everybody
 - Timed road crossings
 - Some of these can be combined, e.g. if spectator control is 1Km from finish, this can act as a pre-warning and a further pre-finish radio control is not needed.

Technological constraints

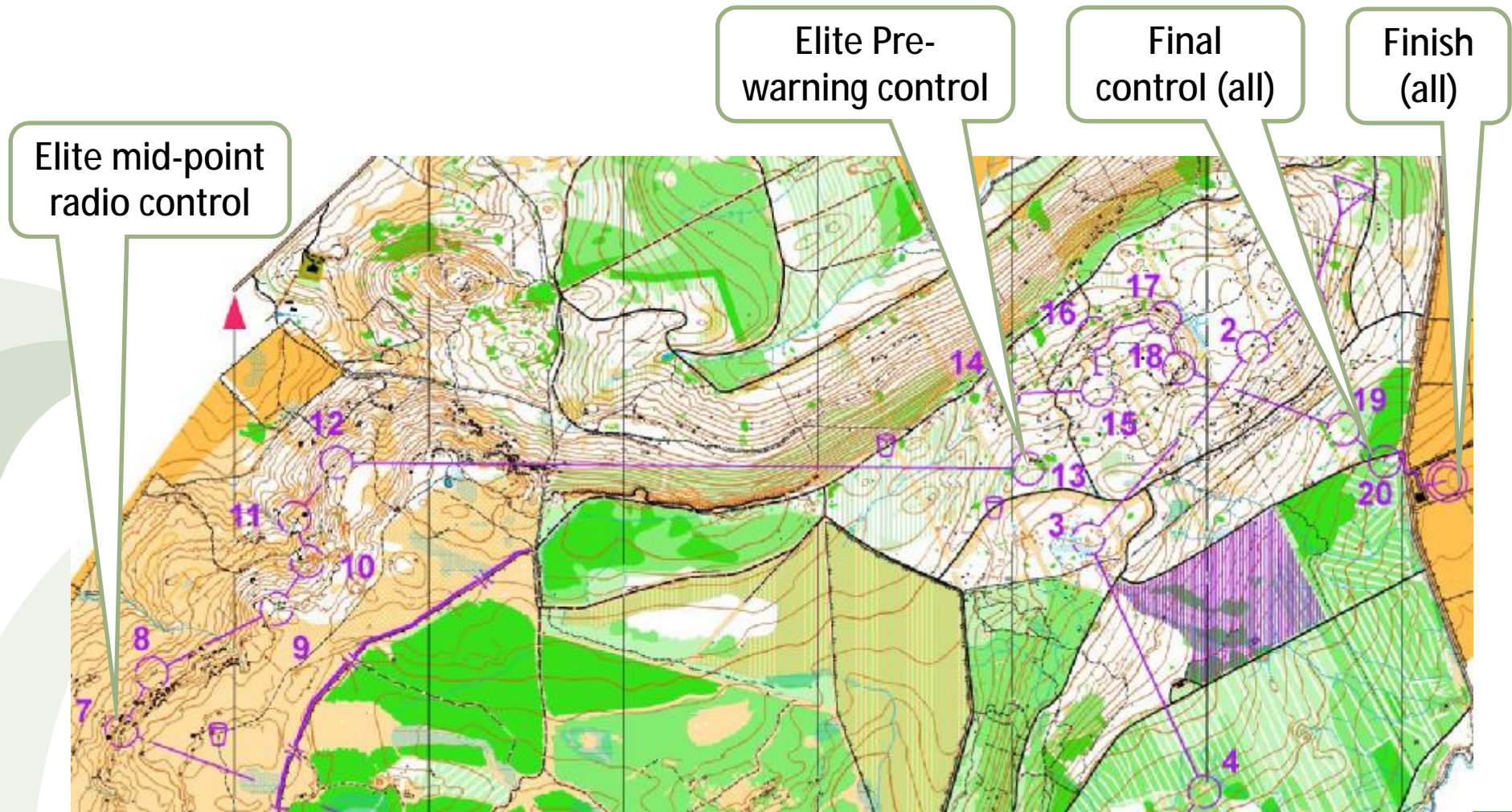
- Radio controls can only be visited once in the race
- Remote radio controls need mobile phone coverage (see slide 11)
- Radio controls in relays need to be on common controls
- Allow ~1-2 min running time (usually ~300-500m) from pre-warning controls *before athletes can be seen*
- Timed road crossings need to have radio links both before and after, and the commentary software needs to be able to subtract the time for subsequent radio controls
- Final and finish controls should be same for all courses, even WRE courses, unless not possible for TD reasons.
- Avoid having the Elite spectator control the same as final control for others.
- Limiting numbers of low priority classes visiting the radio controls is good practice, but not essential.

Example – JK2016



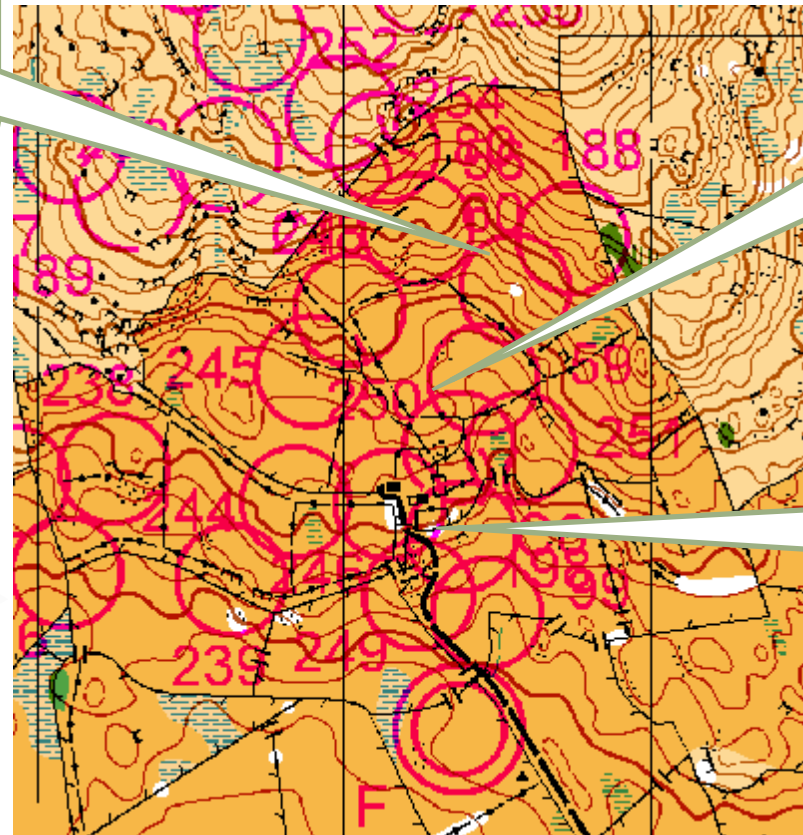
Given the length of sprint races, and the positioning of the spectator control around the course, no pre-spectator control was linked. Instead the spectator control itself was used to provide mid-race information.

Example – BOC 2014



Example – JK2011

5 different
pre-warnings



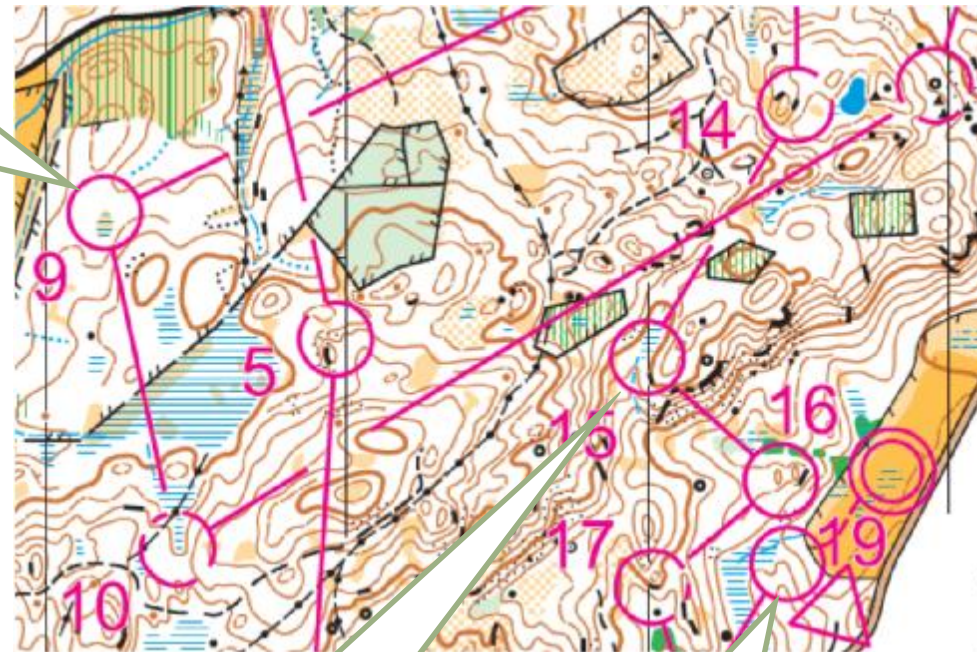
Highly visible
area

Multiple final
controls

One pre-warning on fence crossing and one final control would have reduced equipment and set up time without compromising the courses or the spectator value

Relay Example – JK2015

Common control
on all course 1
and 2 gaffles



Spectator & finish
pre-warning (all)

Final control
(all)

How to check mobile coverage

- Does your mobile phone have signal at the control and at the arena?
 - Even a weak signal will work
- If not, are other networks available:
 - Find 'select operator' function on your phone (usually in the 'phone settings' menu)
 - Change from 'automatic' to 'manual'
 - You'll generate a list of available networks
- Alternatively, GPProjects can supply a piece of equipment that can test mobile phone coverage at key sites. Please arrange several months in advance.

Controls and stakes

- SPORTIdent radio controls use BSM v7 master stations, and stakes/cradles need to accommodate these
 - BSM7 master stations don't fit in BSF8 to BSM7 adaptor cradles.
 - We can provide suitable stakes if necessary
- EMIT radio controls are provided attached to stakes, and are supplied through EMIT UK



Control Hanging

- Please hang controls, including units, as you would normally
 - Controller should check sites
 - Allows radio controls to be swapped in / out during the race with no impact to the competitor
- Control hangers may be requested to put out remote radio controls
 - Briefing and or instructions will be provided
- Radio controls are often programmed separately
 - Use Rugby / internet / Radio time throughout

Information please

- Logistics form used to collate information we require:
 - Area, directions, access issues, 1st start, courses close etc
 - Control codes, stakes, courses and mobile reception
- Map of control sites
 - Check terrain to decide most appropriate technology
 - Suggest controls to use as radio controls, in conjunction with commentators
 - In order for us to be able to put out the equipment!
 - OCAD, Purple pen and Condes files can be handled, but image file extracts acceptable.
 - N.B. we deliberately don't run the elite class so we can advise on these course(s) as needed

Timelines

What	When (T-)	Who
Initial contact	~6 months	Organiser
Draft courses / plans	3-6 months	Planner
Finalised courses / plans	2 weeks – 1 month	Planner
Logistical information	2 weeks	Planner / organiser