HOTDOG

Site Acceptance Test

Handover tests of HotDog on the Lynx M20 at a substation

Version 1.0 · 2026-11-01

For the commissioning technician and the substation's representative, who run the tests together and sign the result.

Revision history

Version	Date	Changes
1.0	2026-11-01	First version

Run after the commissioning (docs/commissioning.md) is complete, at the substation, with the routes the robot will patrol. Pass criteria marked "site" are agreed before the test and written into the row. Repeat the test yearly and after a major change (new robot, new payload, new routes, a new HotDog version).

Contents

1 About this test 4
1.1 Purpose 4
1.2 Needed 4
1.3 Record 4
2 Before the test 5
3 Safety functions 6
4 Navigation 8
5 Inspection 9
6 Reports and alerts 10
7 Resilience 11
8 Handover 12
8.1 Result 12

1 About this test

1.1 Purpose

The test shows, at the site, with its routes and its people, that HotDog:

1. stops safely when it must (emergency stops, protective field, the watchdog);
2. repeats the taught routes and stops where it was taught;
3. measures overheating and partial discharge and reports them;
4. tells the crew (reports, alerts) and keeps doing so after failures (network, power).

1.2 Needed

Item	For
a laptop on the robot's and the substation's network, SSH, browser	commands, reports
a phone in the crew's Telegram group	alerts
a tape measure, chalk or tape for marks	stop point positions
a cardboard box about 40 × 40 × 60 cm	protective field
a calibrated contact thermometer or a blackbody source	thermal check
a known partial discharge source, if available (or a known defect)	acoustic check
this document, a pen	results and signatures

1.3 Record

Fill in every row: the measured value, **P** (pass) or **F** (fail), and a note. A failed row is fixed and the row run again; write both runs.

Site		Robot (serial)	
Date		HotDog version (`git -C ~/dev/HotDog describe --always`)	
Technician		Substation representative	

2 Before the test

#	Check	How	Pass when	Result
1.1	every component installed	`scripts/setup.sh`	every line ok	
1.2	HotDog starts at boot	power cycle the robot; `hotdog status` after 2 min	every line has a value	
1.3	health OK	`hotdog status`	health OK	
1.4	pod and acoustic camera connected	`hotdog status`	pod ok, acoustic ok	
1.5	the clock right, the time zone the site's	`timedatectl`	within 1 s, zone as the site	
1.6	the routes walked: walkways only, safe distances kept	walk each route with the representative	the representative agrees	
1.7	settings backed up	Technician Guide, Back up	archive exists	

3 Safety functions

Run in an open part of the site, robot standing, people at a safe distance, the M20 remote in the technician's hand.

#	Test	How	Pass when	Result
2.1	M20 emergency stop	during a patrol, press the remote's emergency stop	the robot stops at once	
2.2	HotDog e-stop latches	during a patrol, `hotdog estop` ; wait 30 s	stops; does not move until `hotdog release` + `hotdog resume`	
2.3	protective field, front	the box on the route ahead, patrol at cruise speed	stops or steps around, never touches it	
2.4	protective field, rear and sides	a person walks slowly towards the standing robot from the back and from each side while it patrols	it stops before the person every time	
2.5	a LiDAR lost	unplug the rear Airy's network cable while the robot stands in AUTO	health WARN/ ERROR; the robot does not start moving; plug back: OK	
2.6	operator return	mid-route, `hotdog return`	walks the route back, no inspections, docks; patrol STOPPED, returned	
2.7	low battery return	`ros2 param set /patrol_node abort.min_battery <current battery + 0.05>` mid-route	returns and docks; Telegram: back at the dock (battery); set it back	

#	Test	How	Pass when	Result
2.8	blocked	`ros2 param set /patrol_node abort.hold_timeout_sec 30` ; the box across a narrow part of the route	after 30 s blocked: returns to the dock; set it back to 180	
2.9	no patrol on a low battery	`ros2 param set /patrol_node start.min_battery 0.99` ; `hotdog patrol`	FAILED at checks: battery; set it back to 0.3	
2.10	REMOTE is never overruled	mid-route, take the robot with the M20 remote for longer than the hold timeout	the watchdog does nothing while the remote has it	

4 Navigation

#	Test	How	Pass when	Result
3.1	teach	teach each route of the site (User Manual, chapter 4)	saved; `hotdog routes` lists it	
3.2	mark the stop points	on the first patrol, mark where the robot's centre stops at each stop point	marks on the ground	
3.3	repeatability	three patrols of the longest route; measure each stop from its mark	every stop within (site) cm	
3.4	the end of the route and docking	after each patrol of 3.3	the robot docks and charges	
3.5	duration	patrol/status elapsed at the end of 3.3	within (site) min; `abort.max_duration_min` about twice it	
3.6	scheduled patrol	a schedule time 5 minutes ahead in the site file, `hotdog restart`	the patrol starts at that time	

5 Inspection

#	Test	How	Pass when	Result
4.1	every target measured	the patrol of 3.3: report pages	every point `done`, every target with its images	
4.2	thermal against a reference	a target on a warm part measured with the contact thermometer (or a blackbody at a known temperature in front of the pod)	the pod's value within the maker's accuracy of the reference	
4.3	the three phases compared	a three-phase target with `strips=3` or regions	three regions in the report, the hottest compared with the others	
4.4	a hot spot found	a heat source (a hot-air gun at a safe place, a known hot joint) in a target's view	a finding with the right severity; in the report and on Telegram	
4.5	partial discharge	the known source in an acoustic target's view, or the healthiest equipment	discharge type as the source / noise on healthy equipment	
4.6	ambient	`hotdog ambient <today>`; the next patrol	the ambient check uses today's value	

6 Reports and alerts

#	Test	How	Pass when	Result
5.1	reports reachable	`http://<robot>:8088/` from the substation network	front page, day, patrol pages open; images shown	
5.2	the last round	the second patrol of 3.3	every finding shows the value of the first round	
5.3	print	print a patrol page to PDF	one point per page, readable	
5.4	test alert	`hotdog alert-test`	arrives in the group	
5.5	a finding alert with its image	from 4.4	arrives within a minute, with the thermal image	
5.6	a failed patrol alert	from 2.8	arrives with the reason	
5.7	offline	unplug the robot's uplink; `hotdog alert-test`; wait 2 min; plug back	`hotdog status`: 1 waiting; it arrives after the link is back	
5.8	webhook (if used)	`hotdog alert-test`	the receiving system shows it	

7 Resilience

#	Test	How	Pass when	Result
6.1	power cycle on the dock	switch the robot off and on	`hotdog status` OK within 3 min; the schedule still on	
6.2	the service restarts itself	`sudo pkill -f "ros2 launch hotdog"`	running again within 30 s	
6.3	a report missed while off	stop HotDog right after a patrol ends, start it again	the patrol's page exists	
6.4	disk	`hotdog status` : disk	more than (site) GB free; retention set	

8 Handover

#	Item	Result
7.1	the operators trained on the User Manual, each ran a patrol and an e-stop	
7.2	the robot's address, user and password handed to the substation	
7.3	the Telegram group's members agreed with the substation	
7.4	the limits (thermal, partial discharge) agreed and in the site file	
7.5	the maintenance schedule (Technician Guide) handed over, first date set	
7.6	the User Manual, Technician Guide and this record handed over	

8.1 Result

Rows run		Passed		Failed (fixed and re-run)	

The robot is accepted for patrols at this site: ☐ yes ☐ yes, with the open points below ☐ no

Open points:

	Name	Signature	Date
Technician			
Substation representative			