

Jammertest 2025 Transmission Plan

Jammertest Consortium

2025-09-18 11:59:11

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Monday

Test Area 1

Monday morning before lunch will be used for setting up equipment and checking that all systems are operational. After lunch the testing will start with high power jamming with different waveforms, CW, Sweep, PRN at different GNSS bands.

Test Area 2

No activity before lunch. Testing of low-power handheld jammers after lunch.

Test Area 3

No activity before lunch. Testing of mobile spoofing after lunch.

Table 1.1: Monday

Monday			
2025-09-15	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
Start time:	11:00	11:00	11:00
08:00			
09:00			
10:00			
11:00	11:00-13:00 - 0.0.1 Mandatory morning briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)	11:00-13:00 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendence at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	11:00-13:00 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendence at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)
12:00	Ongoing event. See above.	Ongoing event. See above.	Ongoing event. See above.
13:00	13:00-14:00 - 0.1.1 Grace period Comment: Lunch Contact: Christian Skjetne (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
14:00	14:00-14:10 - 1.2.1 Jammer F8.1: 50 W CW: L1 Comment: 47dBm Jamming from Porcus Maior at Ramnan. Contact: Jørn Skorstad (Nkom) 14:25-14:35 - 1.2.5 Jammer F8.1: 50 W CW: L1, G1, L2, L5, E6 Comment: 47dBm Jamming from Porcus Maior at Ramnan. Contact: Jørn Skorstad (Nkom) 14:50-15:00 - 1.3.10 Jammer F8.1: 50W frequency sweep, Sweep rate: 100kHz, BW: 20MHz, Bands: L1 Comment: 47dBm Jamming from Porcus Maior at Ramnan.	14:00-14:12 - 1.1.1 Jammer S1.1 Contact: Øystein Karlsen (NKOM) 14:16-14:28 - 1.1.4 Jammer S2.1 Contact: Øystein Karlsen (NKOM) 14:32-14:44 - 1.1.8 Jammer U1.1 Contact: Øystein Karlsen (NKOM) 14:48-15:00 - 1.1.12 Jammer H1.1 Contact: Øystein Karlsen (NKOM)	14:00-14:15 - 2.6.1 Spoofing: Motorcade is stationary with dynamic spoofed position moving south Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 14:20-14:40 - 2.6.2 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 14:50-15:10 - 2.6.3 Spoofing: Motorcade is driving while the spoofed position is moving south Power: 0.001W Contact: Jahn Erik Røhme (NPRA)

Table 1.1: Monday (Continued)

Monday			
2025-09-15	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
15:00	15:15-15:25 - 1.3.11 Jammer F8.1: 50W frequency sweep, Sweep rate: 100kHz, BW: 20MHz, Bands: L1, G1, L2, L5, E6 Comment: 47dBm Jamming from Porcus Maior at Ramnan. Contact: Jørn Skorstad (Nkom) 15:40-15:50 - 1.4.5 Jammer F8.1: 50 W PRN: L1, Chiprate: 10 MHz Comment: 47dBm Jamming from Porcus Maior at Ramnan. Contact: Jørn Skorstad (Nkom)	15:04-15:16 - 1.1.13 Jammer H1.2 Contact: Øystein Karlsen (NKOM) 15:20-15:32 - 1.1.16 Jammer H3.1 Contact: Øystein Karlsen (NKOM) 15:36-15:48 - 1.1.18 Jammer H3.3 Contact: Øystein Karlsen (NKOM) 15:52-16:04 - 1.1.19	15:20-15:40 - 2.6.4 Spoofing: Motorcade is driving while the spoofed position is driving in the terrain next to the road. Spoofing route will be route 8 (See appendix F) Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 15:50-16:10 - 2.6.5 Spoofing: Motorcade moving from Crossroads northbound to Stave, while the spoofed position moves southbound towards Nordmela
16:00	16:05-16:15 - 1.4.6 Jammer F8.1: 50 W PRN: L1, G1, L2, L5, E6, Chiprate: 10 MHz Comment: 47dBm Jamming from Porcus Maior at Ramnan. Contact: Jørn Skorstad (Nkom) 16:30-17:45 - 1.8.1 Jammer F8.1: PRN pyramid Power: 50W Comment: 47dBm Pyramid jamming from Porcus Maior at Ramnan. Adding jamming bands in sequence: E6, E5b, L5, G2, L2, B1I, G1, L1 Contact: Jørn Skorstad (Nkom)	Jammer H4.1 Contact: Øystein Karlsen (NKOM) 16:08-16:20 - 1.1.20 Jammer H6.1 Contact: Øystein Karlsen (NKOM) 16:24-16:36 - 1.1.21 Jammer H6.2 Contact: Øystein Karlsen (NKOM) 16:40-16:52 - 1.1.22 Jammer H6.3 Contact: Øystein Karlsen (NKOM) 16:56-17:08 - 1.1.23 Jammer H6.4 Contact: Øystein Karlsen (NKOM)	Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 16:20-16:40 - 2.6.6 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 16:50-17:10 - 2.6.7 Spoofing: Motorcade is driving from Crossroads to Stave, while the spoofed location is following the road at a higher speed 100km/h Power: 0.001W Contact: Jahn Erik Røhme (NPRA)

Table 1.1: Monday (Continued)

Monday			
2025-09-15	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
17:00		17:12-17:24 - 1.1.26 Jammer H8.1 Contact: Øystein Karlsen (NKOM)	17:20-17:35 - 2.6.8 The motorcade is stationary at Stave. The clock will jump forward in time by
		17:28-17:40 - 1.1.27 Jammer F6.1 Contact: Øystein Karlsen (NKOM)	1 hour and 15 minutes Power: 0.001W Contact: Jahn Erik Røhme (NPRA)
		17:44-17:56 - 1.1.29 Jammer H2.1 Contact: Øystein Karlsen (NKOM)	
18:00	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Contact: Christian Skjetne (NPRA)	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
19:00			
20:00			
21:00			
22:00			

Tuesday

Test Area 1

Tuesday will be used for jamming and meaconing and unintentional RFI test. During the evening there will be a high power jamming running until 22:00.

Test Area 2

Test of multiple low-power handheld jammers in circular configuration. Relevant for mobile testing in car, drones and CRPA antennas.

Test Area 3

Testing of low-power handheld jammers inside and outside vehicles.

Table 2.1: Tuesday

Tuesday			
2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
Start time:	08:00	08:00	08:00
08:00	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
09:00	09:00-09:23 - 1.6.7 Jammer F8.1: 7.9 μW (-21dBm) to 50 W (47dBm) with 2 dB increments PRN: L1 Comment: Power ramping test from Porcus Maior at Ramnan Contact: Jørn Skorstad (Nkom) 09:40-10:03 - 1.6.8 Jammer F8.1: 7.9 μW (-21dBm) to 50 W (47dBm) with 2 dB increments PRN: L1, G1, L2, L5, E6 Comment: Power ramping test from Porcus Maior at Ramnan Contact: Jørn Skorstad (Nkom)	09:00-09:10 - 1.19.1 3 jammers at 50 meters from center S1.1, S1.2 and S1.3 Contact: Øystein Karlsen (NKOM) 09:16-09:26 - 1.19.2 3 jammers at 100 meters from center S1.1, S1.2 and S1.3 Contact: Øystein Karlsen (NKOM) 09:32-09:42 - 1.19.3 3 jammers at 150 meters from center S1.1, S1.2 and S1.3 Contact: Øystein Karlsen (NKOM) 09:48-09:58 - 1.19.4 3 jammers at 50 meters from center S2.1, S2.2 and S2.3 Contact: Øystein Karlsen (NKOM)	09:00-11:00 - 1.10.3 Vehicle starting in dual-band denied environment Power: 6.31W Comment: Jammers available for testing: H1.6,H1.6,H3.2,F6.1 Contact: Jahn Erik Røhme (NPRA)

Table 2.1: Tuesday (Continued)

Tuesday			
2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
10:00	10:20-10:30 - 3.1.3 Meaconing with F1.1: RX1 at 10 W Comment: 40dBm meaconing from Porcellus at Ramnan Contact: Jørn Skorstad (Nkom)	10:04-10:14 - 1.19.5 3 jammers at 100 meters from center S2.1, S2.2 and S2.3 Contact: Øystein Karlsen (NKOM)	Ongoing event. See above.
	10:45-11:00 - 3.1.4 Meaconing with F1.1: RX1 at 10 W with initial jamming Comment: 10 minutes of 40dBm meaconing from	10:20-10:30 - 1.19.6 3 jammers at 150 meters from center S2.1, S2.2 and S2.3 Contact: Øystein Karlsen (NKOM)	
	Porcellus preceded by 5 minutes of PRN jamming (L1, L2, L5, G1, E6 and E5b) from Porcus Maior at Ramnan Contact: Jørn Skorstad (Nkom)	10:36-10:46 - 1.19.7 3 jammers at 50 meters from center U1.1, U1.2 and U1.3 Contact: Øystein Karlsen (NKOM)	
		10:52-11:02 - 1.19.8 3 jammers at 100 meters from center U1.1, U1.2 and U1.3 Contact: Øystein Karlsen (NKOM)	
11:00 11:15-11:49 - 3.3.1 Meaconing with F1.1: RX1 with ramping power Power: 10W Comment: Ramping up meaconing signal power from 0dBm to 40dBm with Porcellus at Ramnan Contact: Jørn Skorstad (Nkom)	Meaconing with F1.1: RX1 with ramping power Power: 10W	11:08-11:18 - 1.19.9 3 jammers at 150 meters from center U1.1, U1.2 and U1.3 Contact: Øystein Karlsen (NKOM)	11:00-13:00 - 1.10.2 Driving while passing a parked car with multi-band jammer Power: 1W Comment: Jammers available for testing:
	11:24-11:34 - 1.19.10 3 jammers at 50 meters from center H6.4, H6.5 and H6.6 Contact: Øystein Karlsen (NKOM)	H3.2,H4.1,H3.3,H8.1 Contact: Jahn Erik Røhme (NPRA)	
		11:40-11:50 - 1.19.11 3 jammers at 100 meters from center H6.4, H6.5 and H6.6 Contact: Øystein Karlsen (NKOM)	
	11:56-12:06 - 1.19.12 3 jammers at 150 meters from center H6.4, H6.5 and H6.6 Contact: Øystein Karlsen (NKOM)		

Table 2.1: Tuesday (Continued)

Tuesday			
2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
	12:05-12:41 - 3.2.7 Meaconing with F1.1: RX1 and RX2 at 10 W alternating with different switching frequencies.	12:12-12:22 - 1.19.13 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Contact: Øystein Karlsen (NKOM)	Ongoing event. See above.
	Comment: 40dBm Meaconing from Porcellus at Ramnan. Two-minute intervals with more and more rapid switching between receiving antennas RX1 and RX2. Contact: Jørn Skorstad (Nkom)	12:28-12:38 - 1.19.14 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Contact: Øystein Karlsen (NKOM)	
		12:44-12:54 - 1.19.15 3 jammers at 150 meters from center H1.1, H1.4 and H1.5 Contact: Øystein Karlsen (NKOM)	
13:00	13:00-14:00 - 0.1.1 Grace period Comment: Lunch Contact: Christian Skjetne (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
14:00	14:00-14:36 - 3.2.10 Meaconing with F1.1: RX1 and RX2 at 10 W alternating with different switching frequencies and with jamming Comment: 40dBm Meaconing from Porcellus at Ramnan with increasing switching frequency between receiving antennas RX1 and RX2. Accompanied by PRN jamming on L5, G1, G2, B1I, E5b and E6 from Porcus Maior. Contact: Jørn Skorstad (Nkom) 14:55-15:10 - 1.18.5 Jammer F8.1: CW signal drift: 1545 to 1620 MHz, 15 minutes sweep time Comment: 47dBm Out of band jamming from Porcus Maior at Ramnan Contact: Jørn Skorstad (Nkom)	14:30-14:42 - 1.20.1 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) 14:48-15:00 - 1.20.2 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)	14:00-16:00 - 1.11.11 Motorcade while jammer vehicle is in the middle of the motorcade Power: 1W Comment: Jammers available for testing: H6.1,H3.3 Contact: Jahn Erik Røhme (NPRA)

Table 2.1: Tuesday (Continued)

Tuesday			
2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
15:00	15:25-15:40 - 1.18.7 Jammer F8.1: CW signal drift: 1620 to 1545 MHz, 15 minutes sweep time Comment: 47dBm Out of band jamming from Porcus Maior at Ramnan Contact: Jørn Skorstad (Nkom) 15:55-16:10 - 1.18.13 Jammer F8.1: 50 W drift: 1150 to 1300 MHz, with CW and sweep time of 15 minutes Comment: 47dBm Out of band jamming from Porcus Maior at Ramnan Contact: Jørn Skorstad (Nkom)	15:06-15:18 - 1.20.3 3 jammers at 150 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) 15:24-15:36 - 1.20.4 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) 15:42-15:54 - 1.20.5 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)	Ongoing event. See above.

Table 2.1: Tuesday (Continued)

Tuesday			
2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
16:00	16:25-16:40 - 1.18.15 Jammer F8.1: 50 W drift: 1300 to 1150 MHz, with CW and sweep time of 15 minutes Comment: 47dBm Out of band jamming from Porcus Maior at Ramnan Contact: Jørn Skorstad (Nkom)	16:00-16:12 - 1.20.6 3 jammers at 150 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) 16:18-16:30 - 1.20.7 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) 16:36-16:48 - 1.20.8 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) 16:54-17:06 - 1.20.9 3 jammers at 150 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)	16:00-18:00 - 1.11.4 Driving with dual-band jammer in vehicle overtaking the test vehicle Power: 6.31W Comment: Jammers available for testing: H1.6,H3.3,H4.1,F6.1 Contact: Jahn Erik Røhme (NPRA)

Table 2.1: Tuesday (Continued)

Tuesday			
2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
17:00	17:00-17:28 - 3.4.4 Meaconing and spoofing from four emitters in three locations in sequence. Comment: Meaconing and spoofing from four emitters in three locations (Ramnan, Cemetery and the Community House), one at a time. 5 minutes per	17:12-17:24 - 1.20.10 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)	Ongoing event. See above.
	emitter, then 2 minutes each with 10 second overlapping. Contact: Jørn Skorstad (Nkom)	17:30-17:40 - 1.20.11 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Power: 3W	
	17:45-18:00 - 3.4.1 Meaconing and spoofing at the same time from different locations.	Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)	
	Comment: Meaconing and spoofing from Ramnan, the cemetery and the community house at the same time. Contact: Jørn Skorstad (Nkom)	17:46-17:58 - 1.20.12 3 jammers at 150 meters from center H1.1, H1.4 and H1.5 Power: 3W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)	
18:00	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Contact: Christian Skjetne (NPRA)	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Christian Skjetne (NPRA)	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
19:00	19:00-22:00 - 1.16.5 High Power PRN jamming from two locations: L1, G1, L2, L5, E6 Power: 50W Comment: One hour of 50dBm jamming from Porcus Maior at Ramnan, then one hour jamming from both Porcus Maior and Winnie the Spoof at the cemetery, then one hour of jamming from Winnie the Spoof. Contact: Jørn Skorstad (Nkom)		
20:00	Ongoing event. See above.		
21:00	Ongoing event. See above.		
22:00			

Wednesday

Test Area 1

Wednesday will be used for position and EGNOS spoofing. During the evening there will be a long period with drifting position and time spoofing until 22:00.

Test Area 2

Test of stationary coherent spoofing with circle of jammers. Relevant for mobile testing in car, drones and CRPA antennas.

Test Area 3

Testing of low-power handheld jammers inside and outside vehicles.

Table 3.1: Wednesday

Wednesday			
2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
Start time:	08:00	08:00	08:00
08:00	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendence at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
09:00	09:00-09:40 - 2.1.1 Large position and time jump, with power ramp Power: 0.316W Contact: Jørn Skorstad (Nkom)	09:00-09:40 - 2.10.1 Spoofing route GPS L1 and Galileo E1 only Power: 0.001W Comment: Spoofing route that start at LOK2-ORIG, and goes out forming a spoofing cirle above position A150,B150 and C150. Spoofing signal will perfom power ramp from 1 uW to 1 mW during the first 30 minutes of the test. Signals: GPS L1 C/A. Galileo E1. No initial jamming. Spoofing route duration is 40 minutes. Contact: Øystein Karlsen (NKOM)	09:00-11:00 - 1.10.3 Vehicle starting in dual-band denied environment Power: 1W Comment: Jammers available for testing: H3.2,H4.1,H6.1,H6.3 Contact: Jahn Erik Røhme (NPRA)
10:00	10:00-10:15 - 2.1.3 Large position and time jump. Galileo E1 only Power: 0.316W Contact: Jørn Skorstad (Nkom) 10:20-10:35 - 2.1.2 Large position and time jump. GPS L1 C/A only Power: 0.316W Contact: Jørn Skorstad (Nkom) 10:40-10:55 - 2.1.5 Large position and time jump. GPS and Galileo. Power: 0.316W Contact: Jørn Skorstad (Nkom)	Circle of 3 stationary jammers, L1, L2 and spoofing route GPS L1 and Galileo E1 only Power: 3W Comment: Jamming from A50, B50 and C50, with jammer H1.1, H1.4 and H1.5, L1, L2, CHIRP. HIGH PWR. The Jammers are connected to RHCP antennas to boost the power. 5 minutes of initial jamming first. Then spoofing starts. Spoofing route will start at LOK2-ORIG, and goes out forming a spoofing cirle above position A150, B150 and C150. Spoofing signal will perfom power ramp from 1 uW to 1 mW during the first 10 minutes of the test. Spoofing signals: GPS L1 C/A. Galileo E1. Spoofing route duration is 40 minutes. 20 minutes into the test jammer, H1.1, H1.4 and H1.5 we will reduce the jammers to CHRIP LOW PWR. Contact: Øystein Karlsen (NKOM)	Ongoing event. See above.

Table 3.1: Wednesday (Continued)

Wednesday			
2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
11:00	11:25-11:40 - 2.1.9 Simulated driving (route 1). GPS L1 C/A and Galileo E1, with initial jamming Power: 0.316W Contact: Jørn Skorstad (Nkom) 11:45-12:00 - 2.1.10 Simulated driving (route 1), with initial jamming Power: 0.316W Contact: Jørn Skorstad (Nkom)	11:00-11:45 - 2.10.3 Circle of 3 stationary jammers, 2 moving jammers L1, L2 and spoofing route GPS L1 and Galileo E1 only Power: 4W Comment: Jamming from A50, B50 and C50, with jammer H1.1, H1.4 and H1.5, L1, L2, CHIRP. HIGH PWR. The Jammers are connected to RHCP antennas to boost the power. Two additional mobile jammers will be added H1.6 and H1.7 with L1, L2 NB, HIGH PWR. 5 minutes of initial jamming first. Then spoofing starts. Spoofing route will start at LOK2-ORIG, and goes out forming a spoofing cirle above position A150, B150 and C150. Spoofing signal will perform power ramp from 1 uW to 1 mW during the first 10 minutes of the test. Spoofing signals: GPS L1 C/A. Galileo E1. Spoofing route duration is 40 minutes. All jammers will stay on HIGH PWR for the duration of the test. Contact: Øystein Karlsen (NKOM)	11:00-13:00 - 1.10.2 Driving while passing a parked car with multi-band jammer Power: 6.31W Comment: Jammers available for testing: H3.3,H4.1,H8.1,F6.1 Contact: Jahn Erik Røhme (NPRA)
12:00	12:30-12:40 - 2.8.1 EGNOS with "Do Not Use GPS" commands Power: 1W Contact: Jørn Skorstad (Nkom) 12:45-13:00 - 2.8.2 EGNOS with "Do Not Use GPS" commands and normali spoofing Power: 1W Contact: Jørn Skorstad (Nkom)	12:00-12:45 - 2.10.4 Circle of 3 stationary jammers, 5 moving jammers and spoofing route GPS L1 and Galileo E1 only Power: 5W Comment: Jamming from A50, B50 and C50, with jammer H1.1, H1.4 and H1.5, L1, L2, CHIRP. HIGH PWR. The Jammers are connected to RHCP antennas to boost the power. Five additional mobile jammers will be added H1.6 and H1.7 with L1, L2 NB, HIGH PWR, and H6.3, H6.4 and H6.5, L1, L2. 5 minutes of initial jamming first. Then spoofing starts. Spoofing route will start at LOK2-ORIG, and goes out forming a spoofing cirle above position A150, B150 and C150. Spoofing signal will perform power ramp from 1 uW to 1 mW during the first 10 minutes of the test. Spoofing signals: GPS L1 C/A. Galileo E1. Spoofing route duration is 40 minutes. All jammers will stay on their initial power level for the duration of the test. Contact: Øystein Karlsen (NKOM)	Ongoing event. See above.

Table 3.1: Wednesday (Continued)

Wednesday			
2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
13:00	13:00-14:00 - 0.1.1 Grace period Comment: Lunch Contact: Christian Skjetne (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
14:00	14:00-14:15 - 2.2.3 Position jump Power: 0.316W Contact: Jørn Skorstad (Nkom) 14:20-14:35 - 2.2.5 Small position jump Power: 0.316W Contact: Jørn Skorstad (Nkom) 14:40-14:55 - 2.2.2 Small position jump, with initial and continuous jamming Power: 0.316W Contact: Jørn Skorstad (Nkom)	14:10-14:50 - 2.10.1 Spoofing route GPS L1 and Galileo E1 only Power: 0.001W Comment: Spoofing route that start at LOK2-ORIG, and goes out forming a spoofing cirle above position A150,B150 and C150. Spoofing signal will perfom power ramp from 1 uW to 1 mW during the first 30minutes of the test. Signals: GPS L1 C/A. Galileo E1. No initial jamming. Spoofing route duration is 40 minutes. Contact: Øystein Karlsen (NKOM)	14:00-16:00 - 1.11.11 Motorcade while jammer vehicle is in the middle of the motorcade Power: 6.31W Comment: Jammers available for testing: H3.3,H6.1,H8.1,F6.1 Contact: Jahn Erik Røhme (NPRA)
15:00	15:25-15:35 - 2.3.8 Simulated driving (route 1). Galileo only Power: 0.316W Contact: Jørn Skorstad (Nkom) 15:40-15:50 - 2.3.5 Simulated driving (route 1). GPS only Power: 0.316W Contact: Jørn Skorstad (Nkom) 15:55-16:05 - 2.3.10 Simulated driving (route 1) Power: 0.316W Contact: Jørn Skorstad (Nkom)	Circle of 3 stationary jammers, L1, L2 and spoofing route GPS L1 and Galileo E1 only Power: 3W Comment: Jamming from A50, B50 and C50, with jammer H1.1, H1.4 and H1.5, L1, L2, CHIRP. HIGH PWR. The Jammers are connected to RHCP antennas to boost the power. 5 minutes of initial jamming first. Then spoofing starts. Spoofing route will start at LOK2-ORIG, and goes out forming a spoofing cirle above position A150, B150 and C150. Spoofing signal will perfom power ramp from 1 uW to 1 mW during the first 10 minutes of the test. Spoofing signals: GPS L1 C/A. Galileo E1. Spoofing route duration is 40 minutes. 20 minutes into the test jammer, H1.1, H1.4 and H1.5 we will reduce the jammers to CHRIP LOW PWR. Contact: Øystein Karlsen (NKOM)	Ongoing event. See above.

Table 3.1: Wednesday (Continued)

Wednesday			
2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
16:00	16:10-16:25 - 2.3.11 Simulated driving (route 1) with initial and continuous jamming. Power: 0.316W Contact: Jørn Skorstad (Nkom) 16:55-17:05 - 2.3.15 Flying (route 2) - "helicopter scenario" Power: 0.316W Comment: Actual test not decided yet, will depend on helicopters need Contact: Jørn Skorstad (Nkom)	16:00-16:45 - 2.10.3 Circle of 3 stationary jammers, 2 moving jammers L1, L2 and spoofing route GPS L1 and Galileo E1 only Power: 4W Comment: Jamming from A50, B50 and C50, with jammer H1.1, H1.4 and H1.5, L1, L2, CHIRP. HIGH PWR. The Jammers are connected to RHCP antennas to boost the power. Two additional mobile jammers will be added H1.6 and H1.7 with L1, L2 NB, HIGH PWR. 5 minutes of initial jamming first. Then spoofing starts. Spoofing route will start at LOK2-ORIG, and goes out forming a spoofing cirle above position A150, B150 and C150. Spoofing signal will perform power ramp from 1 uW to 1 mW during the first 10 minutes of the test. Spoofing signals: GPS L1 C/A. Galileo E1. Spoofing route duration is 40 minutes. All jammers will stay on HIGH PWR for the duration of the test. Contact: Øystein Karlsen (NKOM)	16:00-18:00 - 1.11.4 Driving with dual-band jammer in vehicle overtaking the test vehicle Power: 6.31W Comment: Jammers available for testing: H3.3,H6.1,H8.1,F6.1 Contact: Jahn Erik Røhme (NPRA)
17:00	17:10-17:20 - 2.3.12 Flying (route 4) - "drone scenario" GPS L1 C/A only Power: 0.316W Comment: Actual route not yet decided Contact: Jørn Skorstad (Nkom) 17:30-17:40 - 2.3.13 Flying (route 4) - "drone scenario" Power: 0.316W Comment: Actual route not yet decided Contact: Jørn Skorstad (Nkom)	17:00-17:45 - 2.10.4 Circle of 3 stationary jammers, 5 moving jammers and spoofing route GPS L1 and Galileo E1 only Power: 5W Comment: Jamming from A50, B50 and C50, with jammer H1.1, H1.4 and H1.5, L1, L2, CHIRP. HIGH PWR. The Jammers are connected to RHCP antennas to boost the power. Five additional mobile jammers will be added H1.6 and H1.7 with L1, L2 NB, HIGH PWR, and H6.3, H6.4 and H6.5, L1, L2. 5 minutes of initial jamming first. Then spoofing starts. Spoofing route will start at LOK2-ORIG, and goes out forming a spoofing cirle above position A150, B150 and C150. Spoofing signal will perform power ramp from 1 uW to 1 mW during the first 10 minutes of the test. Spoofing signals: GPS L1 C/A. Galileo E1. Spoofing route duration is 40 minutes. All jammers will stay on their initial power level for the duration of the test. Contact: Øystein Karlsen (NKOM)	Ongoing event. See above.
	17:45-18:00 - 2.3.15 Flying (route 2) - "helicopter scenario" Power: 0.316W Comment: Actual test not decided yet, will depend on helicopters need Contact: Jørn Skorstad (Nkom)		

Table 3.1: Wednesday (Continued)

Wednesday			
2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
18:00	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
19:00	19:00-22:00 - 2.3.17 Longer period with drifting position and time spoofing Power: 0.316W Comment: 2.3.16 or 2.3.17 Contact: Jørn Skorstad (Nkom)		
20:00	Ongoing event. See above.		
21:00	Ongoing event. See above.		
22:00			

Thursday

Test Area 1

Thursday will be used for time spoofing.

Test Area 2

Test of multiple low-power handheld jammers, and Jammer onbaord a drone. Relevant for mobile testing in car, drones and CRPA antennas.

Test Area 3

Testing of mobile spoofing. Repetitions of tests from Monday except the last test of the day.

Table 4.1: Thursday

Thursday 2025-09-18 Start time:	Test Area 1(1) 08:00	Test Area 2(2) 08:00	Test Area 3(3) 08:00
08:00	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendence at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendence at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
09:00	09:00-09:30 - 2.5.2 Time offset 15 minutes from real time, with power ramp Power: 0.0316W Contact: Jørn Skorstad (Nkom) 09:55-10:10 - 2.4.3 Time offset -3 minutes from real time, with power jump Power: 0.0316W Contact: Jørn Skorstad (Nkom)	09:00-10:00 - 1.23.1 Jammer S1.1 with 10dB gain at 50 meters above ground Power: 0.316W Comment: Drone with jammer onboard. Dependent on weather conditions Contact: Øystein Karlsen (NKOM)	09:00-09:15 - 2.6.1 Spoofing: Motorcade is stationary with dynamic spoofed position moving south Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 09:20-09:40 - 2.6.2 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 09:50-10:10 - 2.6.3 Spoofing: Motorcade is driving while the spoofed position is moving south Power: 0.001W Contact: Jahn Erik Røhme (NPRA)

Table 4.1: Thursday (Continued)

Thursday			
2025-09-18	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
10:00	10:20-10:35 - 2.4.12 Static + Pseudorange error Power: 0.0316W Contact: Jørn Skorstad (Nkom) 10:50-11:05 - 2.4.13 Static + Pseudorange error, with initial and continous jamming Power: 0.001W Contact: Jørn Skorstad (Nkom)	10:00-11:00 - 1.23.1 Jammer S1.1 with 10dB gain at 50 meters above ground Power: 0.316W Comment: Drone with jammer onboard. Dependent on weather conditions Contact: Øystein Karlsen (NKOM)	10:20-10:40 - 2.6.4 Spoofing: Motorcade is driving while the spoofed position is driving in the terrain next to the road. Spoofing route will be route 8 (See appendix F) Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 10:50-11:10 - 2.6.5 Spoofing: Motorcade moving from Crossroads northbound to Stave, while the spoofed position moves southbound towards Nordmela Power: 0.001W Contact: Jahn Erik Røhme (NPRA)
11:00	11:35-12:00 - 2.5.22 Static + Nav data manipulation (clock/frequency related), with initial and continuous jamming. Power: 0.001W Contact: Jørn Skorstad (Nkom)	11:00-12:00 - 1.23.2 Jammer S1.1 with 10dB gain at 100 meters above ground Power: 0.316W Comment: Drone with jammer onboard. Dependent on weather conditions Contact: Øystein Karlsen (NKOM)	11:20-11:40 - 2.6.6 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 11:50-12:10 - 2.6.7 Spoofing: Motorcade is driving from Crossroads to Stave, while the spoofed location is following the road at a higher speed 100km/h Power: 0.001W Contact: Jahn Erik Røhme (NPRA)
12:00	12:25-13:00 - 2.5.25 Static + UTC-parameter nav. data manipulation (adding leap seconds), with initial and continuous jamming Power: 0.001W Contact: Jørn Skorstad (Nkom)	12:00-13:00 - 1.23.2 Jammer S1.1 with 10dB gain at 100 meters above ground Power: 0.316W Comment: Drone with jammer onboard. Dependent on weather conditions Contact: Øystein Karlsen (NKOM)	12:20-12:35 - 2.6.8 The motorcade is stationary at Stave. The clock will jump forward in time by 1 hour and 15 minutes Power: 0.001W Contact: Jahn Erik Røhme (NPRA)

Table 4.1: Thursday (Continued)

Thursday			
2025-09-18	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
13:00	13:00-14:00 - 0.1.1 Grace period Comment: Lunch Contact: Christian Skjetne (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
14:00	14:00-14:15 - 2.5.5 Time offset 15 minutes from real time. Galileo E1 Power: 0.0316W Contact: Jørn Skorstad (Nkom) 14:20-14:35 - 2.5.4 Time offset 15 minutes from real time. GPS L1 C/A Power: 0.0316W Contact: Jørn Skorstad (Nkom) 14:40-14:55 - 2.5.6 Time offset 15 minutes from real time Power: 1e-05W Contact: Jørn Skorstad (Nkom)	14:00-15:00 - 0.3.1 Ad hoc test Contact: Øystein Karlsen (NKOM)	14:00-14:15 - 2.6.1 Spoofing: Motorcade is stationary with dynamic spoofed position moving south Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 14:20-14:40 - 2.6.2 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 14:50-15:10 - 2.6.3 Spoofing: Motorcade is driving while the spoofed position is moving south Power: 0.001W Contact: Jahn Erik Røhme (NPRA)
15:00	15:25-15:40 - 2.5.13 Static + Pseudorange error. GPS L1 and Galileo E1 only Power: 0.001W Contact: Jørn Skorstad (Nkom) 15:45-16:00 - 2.5.15 Static + Pseudorange error Power: 1e-05W Contact: Jørn Skorstad (Nkom)	15:00-16:00 - 1.22.1 12 jammers at 50 meters from center Comment: U1.1, U1.2, U1.3, S2.1, S2.2, S2.3, H1.1, H1.4, H1.5, H6.4, H6.5, H6.6 Contact: Øystein Karlsen (NKOM)	15:20-15:40 - 2.6.4 Spoofing: Motorcade is driving while the spoofed position is driving in the terrain next to the road. Spoofing route will be route 8 (See appendix F) Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 15:50-16:10 - 2.6.5 Spoofing: Motorcade moving from Crossroads northbound to Stave, while the spoofed position moves southbound towards Nordmela Power: 0.001W Contact: Jahn Erik Røhme (NPRA)

Table 4.1: Thursday (Continued)

Thursday			
2025-09-18	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
16:00	16:15-16:40 - 2.5.16 Static + Pseudorange error, with initial and continuous jamming Power: 1e-05W Contact: Jørn Skorstad (Nkom) 16:55-17:20 - 2.5.26 Static + UTC-parameter nav. data manipulation (removing leap seconds). GPS L1 C/A Power: 1e-05W Contact: Jørn Skorstad (Nkom)	16:05-16:15 - 1.1.1 Jammer S1.1 Contact: Øystein Karlsen (NKOM) 16:20-16:30 - 1.1.4 Jammer S2.1 Contact: Øystein Karlsen (NKOM) 16:35-16:45 - 1.1.8 Jammer U1.1 Contact: Øystein Karlsen (NKOM) 16:50-17:00 - 1.1.12 Jammer H1.1 Contact: Øystein Karlsen (NKOM)	16:20-16:40 - 2.6.6 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA) 16:50-17:10 - 2.6.7 Spoofing: Motorcade is driving from Crossroads to Stave, while the spoofed location is following the road at a higher speed 100km/h Power: 0.001W Contact: Jahn Erik Røhme (NPRA)
17:00	17:30-18:00 - 2.5.28 Static + UTC-parameter nav. data manipulation (removing leap seconds), with initial and continuous jamming Power: 1e-05W Comment: 2.5.28 or 2.5.27 (with or without initial jamming) Contact: Jørn Skorstad (Nkom)	17:05-17:15 - 1.1.18 Jammer H3.3 Contact: Øystein Karlsen (NKOM) 17:20-17:30 - 1.1.19 Jammer H4.1 Contact: Øystein Karlsen (NKOM) 17:35-17:45 - 1.1.22 Jammer H6.3 Contact: Øystein Karlsen (NKOM) 17:50-18:00 - 1.1.23 Jammer H6.4 Contact: Øystein Karlsen (NKOM)	17:20-17:35 - 2.6.9 The motorcade is stationary at Stave. The clock will jump forward in time by 13 years (to the year 2038) Power: 0.001W Comment: Warning: This test could 'brick' some equipment. Contact: Jahn Erik Røhme (NPRA)
18:00	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendence at Bleik (Site 1) Contact: Christian Skjetne (NPRA)	18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendence at Bleik (Site 1) Contact: Christian Skjetne (NPRA)
19:00			
20:00			

Table 4.1: Thursday (Continued)

Thursday			
2025-09-18	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
21:00			
22:00			

Friday

Test Area 1

Friday will be used for time spoofing and repitions of previous tests. Time after lunch will be used for tearing down and packing up equipment.

Test Area 2

There will be no testing on this site on Friday.

Test Area 3

There will be no testing on this site on Friday.

Table 5.1: Friday

Friday			
2025-09-19	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
Start time:	08:00	09:00	09:00
08:00	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)		
09:00	09:00-09:15 - 3.4.1 Meaconing and spoofing at the same time from different locations. Comment: 10w meaconing from Ramnan combined with about 10-30w spoofing from winnie the spoof at the cemetery. Contact: Jørn Skorstad (Nkom) 09:30-09:45 - 3.2.5 Meaconing with F1.1: RX1 and RX2 at 10 W alternating with breaks Comment: Meaconing RX1 and RX2 alternating with breaks. 1 min RX1 on, 1 min off, 1 min RX2 on, 1 min off, repeat. Contact: Jørn Skorstad (Nkom)	09:00-16:00 - 0.1.1 Grace period Comment: SITE IS CLOSED! Contact: Øystein Karlsen (NKOM)	09:00-16:00 - 0.1.1 Grace period Comment: SITE IS CLOSED! Contact: Christian Skjetne (NPRA)
10:00	10:00-11:00 - 0.3.1 Ad hoc test Comment: Sequential powering on of jammers with 2 minutes intervals: 5 small jammers at Bleik (one lifted), Mountain Top, Cemetery and finally Meaconing from Cemetery. After 14 minutes all jammers are turned on, and will stay on for the rest of the hour. Small jammers: L1, high power jammers: L1,L2,L5,G1,E6. Meaconing of all bands Contact: Jørn Skorstad (Nkom)	Ongoing event. See above.	Ongoing event. See above.

Table 5.1: Friday (Continued)

Friday			
2025-09-19	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
11:00	11:15-11:35 - 2.7.15 Static + Time manipulation (April 2019) Power: 0.001W Comment: Spoofing, time jump back to 2019 - GPS week rollover Contact: Jørn Skorstad (Nkom)	Ongoing event. See above.	Ongoing event. See above.
	11:50-12:05 - 2.7.10 Static + Time manipulation (2 years forwards) Power: 0.001W Comment: Spoofing, time jump 2 years forward Contact: Jørn Skorstad (Nkom)		
12:00	12:20-12:35 - 2.3.10 Simulated driving (route 1) Power: 0.001W Comment: Spoofing route 1 Contact: Jørn Skorstad (Nkom)	Ongoing event. See above. Ongo	Ongoing event. See above.
	12:45-13:00 - 2.3.13 Flying (route 4) - "drone scenario" Power: 0.001W Comment: Spoofing Jammertest route. Changed from catalog: 5 minutes of static start Contact: Jørn Skorstad (Nkom)		
13:00	13:00-14:00 - 0.1.1 Grace period Comment: Lunch, summary briefing and closing of event Contact: Christian Skjetne (NPRA)	Ongoing event. See above.	Ongoing event. See above.
14:00		Ongoing event. See above.	Ongoing event. See above.
15:00		Ongoing event. See above.	Ongoing event. See above.
16:00			
17:00			
18:00			

Table 5.1: Friday (Continued)

Friday			
2025-09-19	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
19:00			
20:00			
21:00			
22:00			