



Jammertest 2025 Transmission Plan

Jammertest Consortium

2025-06-30
10:46:07

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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 low-power handheld jammers inside and outside vehicles 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 attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	11:00-13:00 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)
12:00			
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 @ Test Area 1 (Site 1) Contact: Christian Skjetne (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: Jamming from the mountain top Contact: Jørn Skorstad (Nkom) <hr/> 14:25-14:35 - 1.2.5 Jammer F8.1: 50 W CW: L1, G1, L2, L5, E6 Comment: Jamming from the mountain top Contact: Jørn Skorstad (Nkom) <hr/> 14:50-15:00 - 1.3.1 Jammer F8.1: 50 W sweep: L1, 100 kHz Comment: Jamming from the mountain top Contact: Jørn Skorstad (Nkom)	14:00-14:12 - 1.1.1 Jammer S1.1 Contact: Øystein Karlsen (NKOM) <hr/> 14:16-14:28 - 1.1.4 Jammer S2.1 Contact: Øystein Karlsen (NKOM) <hr/> 14:32-14:44 - 1.1.8 Jammer U1.1 Contact: Øystein Karlsen (NKOM) <hr/> 14:48-15:00 - 1.1.12 Jammer H1.1 Contact: Øystein Karlsen (NKOM)	14:00-14:15 - 2.6.1 Spoofers (in vehicle with roof mounted antenna) stationary with dynamic spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA) <hr/> 14:20-14:40 - 2.6.2 Spoofers (in vehicle with roof mounted antenna) stationary and then moving with fixed spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA) <hr/> 14:50-15:10 - 2.6.3 Spoofers (in vehicle with roof mounted antenna) moving with fixed spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA)

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Table 1.1: Monday (Continued)

Monday 2025-09-15	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
15:00	<div>15:15-15:25 - 1.3.5 Jammer F8.1: 50 W sweep: L1, sweep rate: 1 kHz, BW: 6 MHz Comment: Jamming from the mountain top Contact: Jørn Skorstad (Nkom)</div> <div>15:40-15:50 - 1.4.5 Jammer F8.1: 50 W PRN: L1, Chiprate: 1.023 MHz Comment: Jamming from the mountain top Contact: Jørn Skorstad (Nkom)</div>	<div>15:04-15:16 - 1.1.13 Jammer H1.2 Contact: Øystein Karlsen (NKOM)</div> <div>15:20-15:32 - 1.1.16 Jammer H3.1 Contact: Øystein Karlsen (NKOM)</div> <div>15:36-15:48 - 1.1.18 Jammer H3.3 Contact: Øystein Karlsen (NKOM)</div> <div>15:52-16:04 - 1.1.19 Jammer H4.1 Contact: Øystein Karlsen (NKOM)</div>	<div>15:20-15:40 - 2.6.4 Spoofers (in vehicle with roof mounted antenna) stationary and then moving with first fixed and then dynamic spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div> <div>15:50-16:10 - 2.6.5 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div>
16:00	<div>16:05-16:15 - 1.4.6 Jammer F8.1: 50 W PRN: L1, G1, L2, L5, E6, Chiprate: 10.23 MHz Comment: Jamming from the mountain top Contact: Jørn Skorstad (Nkom)</div> <div>16:30-17:45 - 1.8.1 Jammer F8.1: PRN pyramid Power: 50W Comment: Pyramid jamming from the mountain top. Jamming bands in sequence: E6, E5b, L5, G2, L2, B1I, G1, L1 Contact: Jørn Skorstad (Nkom)</div>	<div>16:08-16:20 - 1.1.20 Jammer H6.1 Contact: Øystein Karlsen (NKOM)</div> <div>16:24-16:36 - 1.1.21 Jammer H6.2 Contact: Øystein Karlsen (NKOM)</div> <div>16:40-16:52 - 1.1.22 Jammer H6.3 Contact: Øystein Karlsen (NKOM)</div> <div>16:56-17:08 - 1.1.23 Jammer H6.4 Contact: Øystein Karlsen (NKOM)</div>	<div>16:20-16:40 - 2.6.6 Spoofing: Motorcade moving north, while the dynamic fixed position moves south Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div> <div>16:50-17:10 - 2.6.7 Spoofing: Motorcade driving south, while the spoofed speed is following the road at a high speed, stops and returns at low speed Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div>

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Table 1.1: Monday (Continued)

Monday 2025-09-15	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
17:00		<div>17:12-17:24 - 1.1.26 Jammer H8.1 Contact: Øystein Karlsen (NKOM)</div> <div>17:28-17:40 - 1.1.27 Jammer F6.1 Contact: Øystein Karlsen (NKOM)</div> <div>17:44-17:56 - 1.1.29 Jammer H2.1 Contact: Øystein Karlsen (NKOM)</div>	
18:00	<div>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Contact: Christian Skjetne (NPRA)</div>	<div>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)</div>	<div>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)</div>
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 attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendance at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
09:00	09:00-09:28 - 1.6.5 Jammer F8.1: 0.2 μW (-37dBm) to 50 W (47dBm) with 2 dB increments PRN: L1 Comment: Power ramping test from the mountain top Contact: Jørn Skorstad (Nkom) <hr/> 09:45-10:13 - 1.6.6 Jammer F8.1: 0.2 μW (-37dBm) to 50 W (47dBm) with 2 dB increments PRN: L1, G1, L2, L5, E6 Comment: Power ramping test from the mountain top 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 Power: 0.171W Contact: Øystein Karlsen (NKOM) <hr/> 09:16-09:26 - 1.19.2 3 jammers at 100 meters from center S1.1, S1.2 and S1.3 Power: 0.171W Contact: Øystein Karlsen (NKOM) <hr/> 09:32-09:42 - 1.19.3 3 jammers at 150 meters from center S1.1, S1.2 and S1.3 Power: 0.171W Contact: Øystein Karlsen (NKOM) <hr/> 09:48-09:58 - 1.19.4 3 jammers at 50 meters from center S2.1, S2.2 and S2.3 Power: 1.26W 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)

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Table 2.1: Tuesday (Continued)

Tuesday 2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
10:00	<div><div>10:30-10:40 - 3.1.3 Meaconing with F1.1: RX1 at 10 W Contact: Jørn Skorstad (Nkom)</div><div>10:55-11:05 - 3.1.4 Meaconing with F1.1: RX1 at 10 W with initial jamming Contact: Jørn Skorstad (Nkom)</div></div>	<div><div>10:04-10:14 - 1.19.5 3 jammers at 100 meters from center S2.1, S2.2 and S2.3 Power: 1.26W Contact: Øystein Karlsen (NKOM)</div><div>10:20-10:30 - 1.19.6 3 jammers at 150 meters from center S2.1, S2.2 and S2.3 Power: 1.26W Contact: Øystein Karlsen (NKOM)</div><div>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)</div><div>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)</div></div>	

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Table 2.1: Tuesday (Continued)

Tuesday 2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
11:00	11:20-11:56 - 3.3.1 Meaconing with F1.1: RX1 with ramping power Power: 10W Contact: Jørn Skorstad (Nkom)	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: H3.2,H4.1,H3.3,H8.1 Contact: Jahn Erik Røhme (NPRA)
		11:24-11:34 - 1.19.10 3 jammers at 50 meters from center H6.4, H6.5 and H6.6 Power: 1.58W Contact: Øystein Karlsen (NKOM)	
		11:40-11:50 - 1.19.11 3 jammers at 100 meters from center H6.4, H6.5 and H6.6 Power: 1.58W 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 Power: 1.58W Contact: Øystein Karlsen (NKOM)	
12:00	12:10-12:26 - 3.2.6 Meaconing with F1.1: RX1 and RX2 at 10 W alternating with decreasing durations without breaks Contact: Jørn Skorstad (Nkom)	12:12-12:22 - 1.19.13 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Power: 0.1W Contact: Øystein Karlsen (NKOM)	
	12:40-13:00 - 3.2.7 Meaconing with F1.1: RX1 and RX2 at 10 W alternating with different switching frequencies. 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 Power: 0.1W 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 Power: 0.1W Contact: Øystein Karlsen (NKOM)	

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Table 2.1: Tuesday (Continued)

Tuesday 2025-09-16	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: Christian Skjetne (NPRA)	13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
14:00	14:00-14:45 - 3.2.10 Meaconing with F1.1: RX1 and RX2 at 10 W alternating with different switching frequencies and with jamming 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: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) <hr/> 14:48-15:00 - 1.20.2 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Power: 1W 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)
15:00	15:10-15:25 - 1.18.5 Jammer F8.1: CW signal drift: 1545 to 1620 MHz, 15 minutes sweep time Comment: Out of band jamming from the mountain top Contact: Jørn Skorstad (Nkom) <hr/> 15:35-15:50 - 1.18.7 Jammer F8.1: CW signal drift: 1620 to 1545 MHz, 15 minutes sweep time Comment: Out of band jamming from the mountain top 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: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) <hr/> 15:24-15:36 - 1.20.4 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM) <hr/> 15:42-15:54 - 1.20.5 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)	

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Table 2.1: Tuesday (Continued)

Tuesday 2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
16:00	<div><div>16:00-16:15 - 1.18.13 Jammer F8.1: 50 W drift: 1150 to 1300 MHz, with CW and sweep time of 15 minutes Contact: Jørn Skorstad (Nkom)</div><div>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 Contact: Jørn Skorstad (Nkom)</div></div>	<div><div>16:00-16:12 - 1.20.6 3 jammers at 150 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)</div><div>16:18-16:30 - 1.20.7 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)</div><div>16:36-16:48 - 1.20.8 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)</div><div>16:54-17:06 - 1.20.9 3 jammers at 150 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)</div></div>	<div><div>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)</div></div>

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Table 2.1: Tuesday (Continued)

Tuesday			
2025-09-16	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
17:00	<div><div>17:00-17:20 - 3.4.1 Meaconing with F1.1: RX1 and spoofing from M1.1 Winnie the Spoof Comment: Meaconing from the mountain top and spoofing from the cemetery at the same time. Contact: Jørn Skorstad (Nkom)</div><div>17:40-18:00 - 3.4.2 Meaconing with F1.1: RX1 and spoofing from M1.1 Winnie the Spoof Comment: Meaconing from the mountain top and spoofing from the cemetery at the same time. Contact: Jørn Skorstad (Nkom)</div></div>	<div><div>17:12-17:24 - 1.20.10 3 jammers at 50 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)</div><div>17:30-17:40 - 1.20.11 3 jammers at 100 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)</div><div>17:46-17:58 - 1.20.12 3 jammers at 150 meters from center H1.1, H1.4 and H1.5 Power: 1W Comment: 30dBm from each direction, A, B and C Contact: Øystein Karlsen (NKOM)</div></div>	
18:00	<div>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Contact: Christian Skjetne (NPRA)</div>	<div>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)</div>	<div>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendance at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)</div>
19:00	<div>19:00-22:00 - 1.16.5 High Power PRN jamming from two locations: L1, G1, L2, L5, E6 Power: 100W Comment: One hour jamming from the mountain top, then one hour jamming from both the mountain top and the cemetery, then one hour of jamming from the cemetery. Contact: Jørn Skorstad (Nkom)</div>		
20:00			
21:00			
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

Booking of timeslots available for custom testing.

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 attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendance 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 circle above position A150, B150 and C150. Spoofing signal will perform power ramp from uW to 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) <hr/> 09:50-10:55 - 2.10.2 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. 15 minutes of initial jamming first. Then spoofing starts, same spoofing route as test 2.10.1 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)

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Table 3.1: Wednesday (Continued)

Wednesday 2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
10:00	<p>10:00-10:15 - 2.1.3 Large position and time jump. Galileo E1 only Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>10:20-10:35 - 2.1.2 Large position and time jump. GPS L1 C/A only Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>10:40-10:55 - 2.1.4 Large position and time jump. GPS L1 and Galileo E1 only Power: 0.316W Contact: Jørn Skorstad (Nkom)</p>		
11:00	<p>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)</p> <hr/> <p>11:45-12:00 - 2.1.10 Simulated driving (route 1), with initial jamming Power: 0.316W Contact: Jørn Skorstad (Nkom)</p>	<p>11:05-12:00 - 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. 15 minutes of initial jamming first. Then spoofing starts, same spoofing route as test 2.10.1 Contact: Øystein Karlsen (NKOM)</p>	<p>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)</p>

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Table 3.1: Wednesday (Continued)

Wednesday 2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
12:00	<p>12:30-12:40 - 2.8.1 EGNOS with "Do Not Use GPS" commands Power: 1W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>12:45-13:00 - 2.8.1 EGNOS with "Do Not Use GPS" commands Power: 1W Contact: Jørn Skorstad (Nkom)</p>	<p>12:10-13:05 - 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. 15 minutes of initial jamming first. Then spoofing starts, same spoofing route as test 2.10.1. Contact: Øystein Karlsen (NKOM)</p>	
13:00	<p>13:00-14:00 - 0.1.1 Grace period Comment: Lunch Contact: Christian Skjetne (NPRA)</p>	<p>13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Christian Skjetne (NPRA)</p>	<p>13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)</p>
14:00	<p>14:00-14:15 - 2.2.3 Position jump Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>14:20-14:35 - 2.3.3 Small position jump Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>14:40-14:55 - 2.3.2 Small position jump with initial and continuous jamming Power: 0.316W Contact: Jørn Skorstad (Nkom)</p>	<p>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 circle above position A150, B150 and C150. Spoofing signal will perform power ramp from uW to 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)</p>	<p>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)</p>

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Table 3.1: Wednesday (Continued)

Wednesday 2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
15:00	<p>15:25-15:35 - 2.3.8 Simulated driving (route 1). Galileo only Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>15:40-15:50 - 2.3.5 Simulated driving (route 1). GPS only Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>15:55-16:05 - 2.3.10 Simulated driving (route 1) Power: 0.316W Contact: Jørn Skorstad (Nkom)</p>	<p>15:00-15:55 - 2.10.2 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. 15 minutes of initial jamming first. Then spoofing starts, same spoofing route as test 2.10.1 Contact: Øystein Karlsen (NKOM)</p>	
16:00	<p>16:10-16:25 - 2.3.11 Simulated driving (route 1) with initial and continuous jamming. Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>16:55-17:05 - 2.3.15 Flying (route 2) - "helicopter scenario" Power: 0.316W Contact: Jørn Skorstad (Nkom)</p>	<p>16:05-17:00 - 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. 15 minutes of initial jamming first. Then spoofing starts, same spoofing route as test 2.10.1 Contact: Øystein Karlsen (NKOM)</p>	<p>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)</p>

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Table 3.1: Wednesday (Continued)

Wednesday 2025-09-17	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
17:00	<p>17:10-17:20 - 2.3.12 Flying (route 4) - "drone scenario" GPS L1 C/A only Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>17:30-17:40 - 2.3.13 Flying (route 4) - "drone scenario" Power: 0.316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>17:45-18:00 - 2.3.15 Flying (route 2) - "helicopter scenario" Power: 0.316W Contact: Jørn Skorstad (Nkom)</p>	<p>17:10-18:05 - 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. 15 minutes of initial jamming first. Then spoofing starts, same spoofing route as test 2.10.1 Contact: Øystein Karlsen (NKOM)</p>	
18:00	<p>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)</p>	<p>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)</p>	<p>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendance at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)</p>
19:00	<p>19:00-22:00 - 2.3.16 Longer period with drifting position and time spoofing Power: 0.316W Contact: Jørn Skorstad (Nkom)</p>		
20:00			
21:00			
22:00			

Thursday

Test Area 1

Thursday will be used for time spoofing. During the evening there will be long time meaconing running untill 22:00.

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

Mobile SDR spoofing. Timeslot after lunch is still not decided.

Table 4.1: Thursday

Thursday 2025-09-18	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 attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	08:00-08:30 - 0.0.1 Mandatory morning briefing Comment: MANDATORY attendance at Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)
09:00	09:00-09:25 - 2.4.2 Time offset 15 minutes from real time, with power ramp Power: 0.0316W Contact: Jørn Skorstad (Nkom) <hr/> 09:40-09:55 - 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 Spoofers (in vehicle with roof mounted antenna) stationary with dynamic spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA) <hr/> 09:20-09:40 - 2.6.2 Spoofers (in vehicle with roof mounted antenna) stationary and then moving with fixed spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA) <hr/> 09:50-10:10 - 2.6.3 Spoofers (in vehicle with roof mounted antenna) moving with fixed spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA)

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Table 4.1: Thursday (Continued)

Thursday 2025-09-18	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
10:00	<p>10:10-10:25 - 2.4.12 Static + Pseudorange error Power: 0.0316W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>10:40-10:55 - 2.4.13 Static + Pseudorange error, with initial and continous jamming Power: 0.001W Contact: Jørn Skorstad (Nkom)</p>	<p>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)</p>	<p>10:20-10:40 - 2.6.4 Spoofers (in vehicle with roof mounted antenna) stationary and then moving with first fixed and then dynamic spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</p> <hr/> <p>10:50-11:10 - 2.6.5 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</p>
11:00	<p>11:25-11:40 - 2.5.6 Time offset 15 minutes from real time Power: 0.001W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>11:55-12:10 - 2.5.3 Time offset -3 minutes from real time, with power jump Power: 0.001W Contact: Jørn Skorstad (Nkom)</p>	<p>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)</p>	<p>11:20-11:40 - 2.6.6 Spoofing: Motorcade moving north, while the dynamic fixed position moves south Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</p> <hr/> <p>11:50-12:10 - 2.6.7 Spoofing: Motorcade driving south, while the spoofed speed is following the road at a high speed, stops and returns at low speed Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</p>
12:00	<p>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)</p>	<p>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)</p>	
13:00	<p>13:00-14:00 - 0.1.1 Grace period Comment: Lunch Contact: Christian Skjetne (NPRA)</p>	<p>13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Christian Skjetne (NPRA)</p>	<p>13:00-14:00 - 0.1.1 Grace period Comment: Lunch @ Stave (Site 3) Contact: Jahn Erik Røhme (NPRA)</p>

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Table 4.1: Thursday (Continued)

Thursday 2025-09-18	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
14:00	<div><div>14:00-14:15 - 2.5.5 Time offset 15 minutes from real time. Galileo E1 Power: 0.0316W Contact: Jørn Skorstad (Nkom)</div><div>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)</div><div>14:40-14:55 - 2.5.6 Time offset 15 minutes from real time Power: 1e-05W Contact: Jørn Skorstad (Nkom)</div></div>	<div><div>14:00-15:00 - 0.3.1 Ad hoc test Contact: Øystein Karlsen (NKOM)</div></div>	<div><div>14:00-14:15 - 2.6.1 Spoofers (in vehicle with roof mounted antenna) stationary with dynamic spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div><div>14:20-14:40 - 2.6.2 Spoofers (in vehicle with roof mounted antenna) stationary and then moving with fixed spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div><div>14:50-15:10 - 2.6.3 Spoofers (in vehicle with roof mounted antenna) moving with fixed spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div></div>
15:00	<div><div>15:25-15:40 - 2.5.13 Static + Pseudorange error. GPS L1 and Galileo E1 only Power: 0.001W Contact: Jørn Skorstad (Nkom)</div><div>15:45-16:00 - 2.5.15 Static + Pseudorange error Power: 1e-05W Contact: Jørn Skorstad (Nkom)</div></div>	<div><div>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, H6.3, H6.4, H6.5 Contact: Øystein Karlsen (NKOM)</div></div>	<div><div>15:20-15:40 - 2.6.4 Spoofers (in vehicle with roof mounted antenna) stationary and then moving with first fixed and then dynamic spoofed position. Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div><div>15:50-16:10 - 2.6.5 Spoofing: Motorcade moving with fixed spoofed position Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</div></div>

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Table 4.1: Thursday (Continued)

Thursday 2025-09-18	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
16:00	<p>16:15-16:40 - 2.5.16 Static + Pseudorange error, with initial and continuous jamming Power: 1e-05W Contact: Jørn Skorstad (Nkom)</p> <hr/> <p>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)</p>	<p>16:05-16:15 - 1.1.1 Jammer S1.1 Contact: Øystein Karlsen (NKOM)</p> <hr/> <p>16:20-16:30 - 1.1.4 Jammer S2.1 Contact: Øystein Karlsen (NKOM)</p> <hr/> <p>16:35-16:45 - 1.1.8 Jammer U1.1 Contact: Øystein Karlsen (NKOM)</p> <hr/> <p>16:50-17:00 - 1.1.12 Jammer H1.1 Contact: Øystein Karlsen (NKOM)</p>	<p>16:20-16:40 - 2.6.6 Spoofing: Motorcade moving north, while the dynamic fixed position moves south Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</p> <hr/> <p>16:50-17:10 - 2.6.7 Spoofing: Motorcade driving south, while the spoofed speed is following the road at a high speed, stops and returns at low speed Power: 0.001W Contact: Jahn Erik Røhme (NPRA)</p>
17:00	<p>17:30-18:00 - 2.5.27 Static + UTC-parameter nav. data manipulation (removing leap seconds) Power: 1e-05W Contact: Jørn Skorstad (Nkom)</p>	<p>17:05-17:15 - 1.1.18 Jammer H3.3 Comment: TBD Contact: Øystein Karlsen (NKOM)</p> <hr/> <p>17:20-17:30 - 1.1.19 Jammer H4.1 Comment: TBD Contact: Øystein Karlsen (NKOM)</p> <hr/> <p>17:35-17:45 - 1.1.22 Jammer H6.3 Comment: TBD Contact: Øystein Karlsen (NKOM)</p> <hr/> <p>17:50-18:00 - 1.1.23 Jammer H6.4 Comment: Lunch @ Stave (Site 3) Contact: Christian Skjetne (NPRA)</p>	
18:00	<p>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY Contact: Christian Skjetne (NPRA)</p>	<p>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)</p>	<p>18:30-19:00 - 0.0.2 Mandatory afternoon (de)briefing Comment: MANDATORY attendance at Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)</p>

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Table 4.1: Thursday (Continued)

Thursday			
2025-09-18	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
19:00	19:30-22:00 - 3.1.3 Meaconing with F1.1: RX1 at 10 W Power: 10W Contact: Jørn Skorstad (Nkom)		
20:00			
21:00			
22:00			

Friday

Test Area 1

Friday will be used for time spoofing and repetitions 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	09:00-09:10 - 0.3.1 Ad hoc test Power: 0.316W Comment: L2 only spoofing Contact: Jørn Skorstad (Nkom) <hr/> 09:20-09:40 - 0.3.1 Ad hoc test Power: 10W Comment: 3.1.3 + 2.1.2, meaconing (10 W) + spoofing (20 dBm) Contact: Jørn Skorstad (Nkom) <hr/> 09:50-10:00 - 3.2.5 Meaconing with F1.1: RX1 and RX2 at 10 W alternating with breaks Power: 10W Comment: Only using RX1 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 - 0.0.1 Mandatory morning briefing Comment: No tests planned Contact: Christian Skjetne (NPRA)
10:00	10:10-10:33 - 1.6.4 Jammer F8.1: 0.2 µW (-37dBm) to 50 W (47dBm) with 2 dB increments PRN: L1, G1, L2, L5 Power: 50W Comment: 20 seconds per step, power ramp (up and down) from -21 (to 47) dBm Contact: Jørn Skorstad (Nkom) <hr/> 10:50-11:10 - 2.7.12 Static + Time manipulation (2 years forwards), with power ramp Power: 0.0316W Contact: Jørn Skorstad (Nkom)		

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Table 5.1: Friday (Continued)

Friday 2025-09-19	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
11:00	11:30-11:50 - 2.7.16 Static + Time manipulation (April 2019), with initial and continuous jamming Power: 0.0316W Contact: Jørn Skorstad (Nkom)		
12:00	12:00-12:22 - 2.4.2 Time offset 15 minutes from real time, with power ramp Power: 0.0316W Contact: Jørn Skorstad (Nkom)		
	12:30-12:40 - 2.5.5 Time offset 15 minutes from real time. Galileo E1 Power: 0.0316W Contact: Jørn Skorstad (Nkom)		
	12:50-13:00 - 0.3.1 Ad hoc test Power: 0.316W Comment: Jamming of L1, G1, BII from S (the spoofing system) Contact: Jørn Skorstad (Nkom)		
13:00	13:00-14:00 - 0.1.1 Grace period Comment: Lunch Contact: Christian Skjetne (NPRA)		
14:00	14:00-14:30 - 0.0.2 Mandatory afternoon (de)briefing Comment: Summary briefing and closing of event Contact: Christian Skjetne (NPRA)		
15:00			
16:00			
17:00			

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Table 5.1: Friday (Continued)

Friday			
2025-09-19	Test Area 1(1)	Test Area 2(2)	Test Area 3(3)
18:00			
19:00			
20:00			
21:00			
22:00			