Jammertest 2025

Transmission Plan

Jammertest Consortium

2025-06-30
12:23:00

Contents

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 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			
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: 47dBm Jamming from Porcus Maior at the mountain top. 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 the mountain top. Contact: Jørn Skorstad (Nkom) --- **14:50-15:00 - 1.3.1** **Jammer F8.1: 50 W sweep: L1, 100 kHz** Comment: 47dBm Jamming from Porcus Maior at the mountain top. Contact: Jørn Skorstad (Nkom)	**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** **Spoofer (in vehicle with roof mounted antenna) stationary with dynamic spoofed position.** Power: 0.001W Contact: Jahn Erik Røhme (NPRA) --- **14:20-14:40 - 2.6.2** **Spoofer (in vehicle with roof mounted antenna) stationary and then moving with fixed spoofed position.** Power: 0.001W Contact: Jahn Erik Røhme (NPRA) --- **14:50-15:10 - 2.6.3** **Spoofer (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	**15:15-15:25 - 1.3.5** **Jammer F8.1: 50 W sweep: L1, sweep rate: 1 kHz, BW: 6 MHz** Comment: 47dBm Jamming from Porcus Maior at the mountain top. Contact: Jørn Skorstad (Nkom) --- **15:40-15:50 - 1.4.5** **Jammer F8.1: 50 W PRN: L1, Chiprate: 10.23 MHz** Comment: 47dBm Jamming from Porcus Maior at the mountain top. 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** **Jammer H4.1** Contact: Øystein Karlsen (NKOM)	**15:20-15:40 - 2.6.4** **Spoofer (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) --- **15:50-16:10 - 2.6.5** **Spoofing: Motorcade moving with fixed spoofed position** Power: 0.001W Contact: Jahn Erik Røhme (NPRA)
16:00	**16:05-16:15 - 1.4.6** **Jammer F8.1: 50 W PRN: L1, G1, L2, L5, E6, Chiprate: 10.23 MHz** Comment: 47dBm Jamming from Porcus Maior at the mountain top. 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 the mountain top. Jamming bands in sequence: E6, E5b, L5, G2, L2, B1I, G1, L1 Contact: Jørn Skorstad (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)	**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) --- **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)

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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		**17:12-17:24 - 1.1.26** **Jammer H8.1** Contact: Øystein Karlsen (NKOM) --- **17:28-17:40 - 1.1.27** **Jammer F6.1** Contact: Øystein Karlsen (NKOM) --- **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 Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	**18:30-19:00 - 0.0.2** **Mandatory afternoon (de)briefing** Comment: MANDATORY attendence at Test Area 1 (Site 1) Contact: Christian Skjetne (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 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	**09:00-09:28 - 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 Porcus Maior at the mountain top Contact: Jørn Skorstad (Nkom) --- **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 Porcus Maior at 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** 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)

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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	**10:30-10:40 - 3.1.3** **Meaconing with F1.1: RX1 at 10 W** Comment: 40dBm meaconing from Porcellus at the mountain top Contact: Jørn Skorstad (Nkom) **10:55-11:05 - 3.1.4** **Meaconing with F1.1: RX1 at 10 W with initial jamming** Comment: 40dBm meaconing from Porcellus at the mountain top 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) **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) **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	**11:20-11:56 - 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 the mountain top 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) **11:24-11:34 - 1.19.10** **3 jammers at 50 meters from center H6.4, H6.5 and H6.6** 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** 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)	**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)

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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)
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** Comment: 40dBm Meaconing from Porcellus at the mountain top. More and more rapid switching between receiving antennas RX1 and RX2. Contact: Jørn Skorstad (Nkom) --- **12:40-13:00 - 3.2.7** **Meaconing with F1.1: RX1 and RX2 at 10 W alternating with different switching frequencies.** Comment: 40dBm Meaconing from Porcellus at the mountain top. More and more rapid switching between receiving antennas RX1 and RX2. 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** Contact: Øystein Karlsen (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: 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** Comment: 40dBm Meaconing from Porcellus at the mountain top. More and more rapid switching between receiving antennas RX1 and RX2. Now also with jamming from Porcus Maior. 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) --- **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)

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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)
15:00	**15:10-15:25 - 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 the mountain top Contact: Jørn Skorstad (Nkom) --- **15:35-15:50 - 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 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) --- **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) --- **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	**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** Comment: 47dBm Out of band jamming from Porcus Maior at the mountain top Contact: Jørn Skorstad (Nkom) --- **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 the mountain top 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: 1W 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: 1W 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: 1W 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: 1W 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)

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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	**17:00-17:20 - 3.4.1** **Meaconing with F1.1: RX1 and spoofing from M1.1 Winnie the Spoof** Comment: 40dBm Meaconing from Porcellus at the mountain top and spoofing from the cemetery at the same time. Contact: Jørn Skorstad (Nkom) --- **17:40-18:00 - 3.4.2** **Meaconing with F1.1: RX1 and spoofing from M1.1 Winnie the Spoof** Comment: 40dBm Meaconing from Porcellus at the mountain top and spoofing from the cemetery at the same time. Contact: Jørn Skorstad (Nkom)	**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) --- **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) --- **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)	
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 Test Area 1 (Site 1) 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: 100W Comment: One hour of 50dBm jamming from Porcus Maior at the mountain top, 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			
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
Lorem Ipsum, NPRA add text.

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 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) --- **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	**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 - 2.1.4** **Large position and time jump. GPS L1 and Galileo E1 only** Power: 0.316W Contact: Jørn Skorstad (Nkom)		
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)	**11:05-12:00 - 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)	**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)

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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	**12:30-12:40 - 2.8.1** **EGNOS with "Do Not Use GPS" commands** Power: 1W Contact: Jørn Skorstad (Nkom) --- **12:45-13:00 - 2.8.1** **EGNOS with "Do Not Use GPS" commands** Power: 1W Contact: Jørn Skorstad (Nkom)	**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)	
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	**14:00-14:15 - 2.2.3** **Position jump** Power: 0.316W Contact: Jørn Skorstad (Nkom) --- **14:20-14:35 - 2.3.3** **Small position jump** Power: 0.316W Contact: Jørn Skorstad (Nkom) --- **14:40-14:55 - 2.3.2** **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 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)	**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)

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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	**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)	**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)	
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 Contact: Jørn Skorstad (Nkom)	**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)	**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)

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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	**17:10-17:20 - 2.3.12** **Flying (route 4) - "drone scenario"** **GPS L1 C/A only** Power: 0.316W Contact: Jørn Skorstad (Nkom) --- **17:30-17:40 - 2.3.13** **Flying (route 4) - "drone scenario"** Power: 0.316W Contact: Jørn Skorstad (Nkom) --- **17:45-18:00 - 2.3.15** **Flying (route 2) - "helicopter scenario"** Power: 0.316W Contact: Jørn Skorstad (Nkom)	**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)	
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 Test Area 1 (Site 1) 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 - 2.3.16** **Long duration with slowly drifting position and time spoofing** Power: 0.316W Contact: Jørn Skorstad (Nkom)		
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 until 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
Lorem Ipsum, NPRA add text

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 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	**09:00-09:25 - 2.4.2** **Time offset 15 minutes from real time, with power ramp** Power: 0.0316W Contact: Jørn Skorstad (Nkom) --- **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** **Spoofer (in vehicle with roof mounted antenna) stationary with dynamic spoofed position.** Power: 0.001W Contact: Jahn Erik Røhme (NPRA) --- **09:20-09:40 - 2.6.2** **Spoofer (in vehicle with roof mounted antenna) stationary and then moving with fixed spoofed position.** Power: 0.001W Contact: Jahn Erik Røhme (NPRA) --- **09:50-10:10 - 2.6.3** **Spoofer (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	**10:10-10:25 - 2.4.12** **Static + Pseudorange error** Power: 0.0316W Contact: Jørn Skorstad (Nkom) --- **10:40-10:55 - 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** **Spoofer (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) --- **10:50-11:10 - 2.6.5** **Spoofing: Motorcade moving with fixed spoofed position** Power: 0.001W Contact: Jahn Erik Røhme (NPRA)
11:00	**11:25-11:40 - 2.5.6** **Time offset 15 minutes from real time** Power: 0.001W Contact: Jørn Skorstad (Nkom) --- **11:55-12:10 - 2.5.3** **Time offset -3 minutes from real time, with power jump** 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 north, while the dynamic fixed position moves south** Power: 0.001W Contact: Jahn Erik Røhme (NPRA) --- **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)
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)	
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)

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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	**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** **Spoofer (in vehicle with roof mounted antenna) stationary with dynamic spoofed position.** Power: 0.001W Contact: Jahn Erik Røhme (NPRA) --- **14:20-14:40 - 2.6.2** **Spoofer (in vehicle with roof mounted antenna) stationary and then moving with fixed spoofed position.** Power: 0.001W Contact: Jahn Erik Røhme (NPRA) --- **14:50-15:10 - 2.6.3** **Spoofer (in vehicle with roof mounted antenna) moving with fixed spoofed position.** 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, H6.3, H6.4, H6.5 Contact: Øystein Karlsen (NKOM)	**15:20-15:40 - 2.6.4** **Spoofer (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) --- **15:50-16:10 - 2.6.5** **Spoofing: Motorcade 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)
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 north, while the dynamic fixed position moves south** Power: 0.001W Contact: Jahn Erik Røhme (NPRA) **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)
17:00	**17:30-18:00 - 2.5.27** **Static + UTC-parameter nav. data manipulation (removing leap seconds)** Power: 1e-05W Contact: Jørn Skorstad (Nkom)	**17:05-17:15 - 1.1.18** **Jammer H3.3** Comment: TBD Contact: Øystein Karlsen (NKOM) **17:20-17:30 - 1.1.19** **Jammer H4.1** Comment: TBD Contact: Øystein Karlsen (NKOM) **17:35-17:45 - 1.1.22** **Jammer H6.3** Comment: TBD Contact: Øystein Karlsen (NKOM) **17:50-18:00 - 1.1.23** **Jammer H6.4** Comment: Lunch @ Stave (Site 3) Contact: Christian Skjetne (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 Test Area 1 (Site 1) Contact: Christian Skjetne (NPRA)	**18:30-19:00 - 0.0.2** **Mandatory afternoon (de)briefing** Comment: MANDATORY attendence at Test Area 1 (Site 1) Contact: Christian Skjetne (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)
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 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	**09:00-09:10 - 0.3.1** **Ad hoc test** Power: 0.316W Comment: L2 only spoofing Contact: Jørn Skorstad (Nkom) --- **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) --- **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 - 0.1.1** **Grace period** Comment: SITE IS CLOSED! 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) --- **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, B1I 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			