

### Jammertest 2025 Transmission Plan

Jammertest Consortium

2025-06-30 07:00:50

# Contents

| Monday    | 3  |
|-----------|----|
| Tuesday   | 7  |
| Wednesday | 15 |
| Thursday  | 21 |
| Friday    | 27 |

### Monday

#### Location 1 Bleik

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.

#### Location 2 Grunnvatn

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

#### □ Location 3 Motorcade

No activity before lunch. Testing of low-power handheld jammers inside and outside vehicles after lunch.

| 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 50 W CW: L1 Comment: Jamming from the mountain top Contact: Jørn Skorstad (Nkom)  14:25-14:35 - 1.2.5 50 W CW: L1, G1, L2, L5, E6 Power: 50W Contact: Jørn Skorstad (Nkom)  14:50-15:00 - 1.3.1 50 W sweep: L1, 100 kHz Power: 50W 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) |

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 50 W sweep: L1, sweep rate: 1 kHz, BW: 6 MHz  Power: 50W Contact: Jørn Skorstad (Nkom)  15:40-15:50 - 1.4.5 50 W PRN: L1, Chiprate: 1.023 MHz  Power: 50W 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 50 W PRN: L1, G1, L2, L5, E6, Chiprate: 10.23 MHz  Power: 50W Contact: Jørn Skorstad (Nkom)  16:30-17:45 - 1.8.1 50 W PRN pyramid: E6, E5b, L5, G2, L2, B1I, G1, L1  Power: 50W 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) |

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<br>Jammer H8.1<br>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<br>Mandatory afternoon (de)briefing<br>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

#### Location 1 Bleik

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

#### Location 2 Grunnvatn

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

#### Location 3 Motorcade

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 Power ramp: 0.2 μW (-37dBm) to 50 W (47dBm) with 2 dB increments PRN: L1 Power: 50W Contact: Jørn Skorstad (Nkom)  09:45-10:13 - 1.6.6 Power ramp: 0.2 μW (-37dBm) to 50 W (47dBm) with 2 dB increments PRN: L1, G1, L2, L5, E6 Power: 50W 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)  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)  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)  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) |

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 RX1 at 10 W Power: 10W Contact: Jørn Skorstad (Nkom)  10:55-11:05 - 3.1.4 RX1 at 10 W with initial jamming Power: 10W 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 Power: 1.26W 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 Power: 1.26W 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) |                |

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<br>RX1 with ramping power<br>Power: 10W<br>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: |
|   |  | 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)   | H3.2,H4.1,H3.3,H8.1<br>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  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) |   |   |
| 12:10-12:26 - 3.2.6 RX1 and RX2 at 10 W alternating with decreasing durations without breaks  Power: 10W Contact: Jørn Skorstad (Nkom)  12:40-13:00 - 3.2.7 RX1 and RX2 at 10 W alternating with different switching frequencies.  Power: 10W Contact: Jørn Skorstad (Nkom) | RX1 and RX2 at 10 W alternating with<br>decreasing durations without breaks<br>Power: 10W                                  | 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)    |   |
|   | 12:28-12:38 - 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)   |   |

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 RX1 and RX2 at 10 W alternating with different switching frequencies and with jamming  Power: 10W 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) |

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 "Porcus Maior": 50 W drift: 1545 to 1620 MHz, with CW and sweep time of 15 minutes Power: 50W Contact: Jørn Skorstad (Nkom)  15:35-15:50 - 1.18.7 Jammer F8.1 "Porcus Maior": 50 W drift: 1620 to 1545 MHz, with CW and sweep time of 15 minutes Power: 50W 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) |                |

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 "Porcus Maior": 50 W drift: 1150 to 1300 MHz, with CW and sweep time of 15 minutes  Power: 50W Contact: Jørn Skorstad (Nkom)  16:25-16:40 - 1.18.15  Jammer F8.1 "Porcus Maior": 50 W drift: 1300 to 1150 MHz, with CW and sweep time of 15 minutes  Power: 50W 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) |

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 RX1 and spoofing frm M1.1 Winnie the Spoof  Power: 10W Contact: Jørn Skorstad (Nkom)  17:40-18:00 - 3.4.2 RX1 and spoofing from M1.1 Winnie the Spoof  Power: 10W 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<br>Mandatory afternoon (de)briefing<br>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 multiple locations: L1, G1, L2, L5, E6  Power: 100W Contact: Jørn Skorstad (Nkom)  |  |   |
| 20:00      |   |  |   |
| 21:00      |   |  |   |
| 22:00      |   |  |   |

# Wednesday

#### Location 1 Bleik

Wednesday will be used for position and SBAS spoofing.

#### Location 2 Grunnvatn

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

### Location 3 Motorcade

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 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) | O9:00-09:40 - 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)  O9:50-10:55 - 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) |

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) | 11:05-12:00 - 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) |
|            | 11:45-12:00 - 2.1.10 Simulated driving (route 1), with initial jamming  Power: 0.316W 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)  |
| 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) |

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    | 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  |   |
|            | Simulated driving (route 1). GPS only Power: 0.316W Contact: Jørn Skorstad (Nkom)  | 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   |   |
|            | 15:55-16:05 - 2.3.10<br>Simulated driving (route 1)<br>Power: 0.316W<br>Contact: Jørn Skorstad (Nkom)                              | 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) | 16:05-17:00 - 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) |
|            | 16:55-17:05 - 2.3.15<br>Flying (route 2) - "helicopter scenario"   |   |   |
|            | Power: 0.316W<br>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)  |
| 17:00      | Flying (route 4) - "drone scenario"  GPS L1 C/A only  Power: 0.316W  Circle of 3 stationary jammers, 5 moving jammers and spoofing route  GPS L1 and Galileo E1 only | Circle of 3 stationary jammers, 5<br>moving jammers and spoofing route<br>GPS L1 and Galileo E1 only<br>Power: 5W  |   |
|            | 17:30-17:40 - 2.3.13 Flying (route 4) - "drone scenario" Power: 0.316W Contact: Jørn Skorstad (Nkom)   | 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. |   |
|            | 17:45-18:00 - 2.3.15<br>Flying (route 2) - "helicopter scenario"   | 15 minutes of initial jamming first. Then spoofing starts, same spoofing route as test 2.10.1  Contact: Øystein Karlsen (NKOM)   |   |
|            | Power: 0.316W<br>Contact: Jørn Skorstad (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 Longer period with drifting position and time spoofing  Power: 0.316W Contact: Jørn Skorstad (Nkom)   |  |   |
| 20:00      |  |  |   |
| 21:00      |  |  |   |
| 22:00      |  |  |   |

## Thursday

#### Location 1 Bleik

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

#### Location 2 Grunnvatn

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

### Location 3 Motorcade

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 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) | O9:00-09:15 - 2.6.1 Spoofer (in vehicle with roof mounted antenna) stationary with dynamic spoofed position.  Power: 0.001W Contact: Jahn Erik Røhme (NPRA)  O9:20-09:40 - 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)  O9:50-10:10 - 2.6.3 Spoofer (in vehicle with roof mounted antenna) moving with fixed spoofed position.  Power: 0.001W Contact: Jahn Erik Røhme (NPRA) |

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)   |

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)  |

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)  |

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 RX1 at 10 W Power: 10W Contact: Jørn Skorstad (Nkom) |                |                |
| 20:00      |  |                |                |
| 21:00      |  |                |                |
| 22:00      |  |                |                |

### Friday

#### Location 1 Bleik

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.

#### Location 2 Grunnvatn

There will be no testing on this site on Friday.

### Location 3 Motorcade

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  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 Power ramp: 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)                           |   |   |

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      |   |                |                |

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      |                |                |                |