RTCA Special Committee 186, Working Group 5
ADS-B UAT MOPS
Meeting #12

Action Items 9-9 and 11-04
Multi-Aircraft UAT Simulation Results for Current European Scenario

Prepared by

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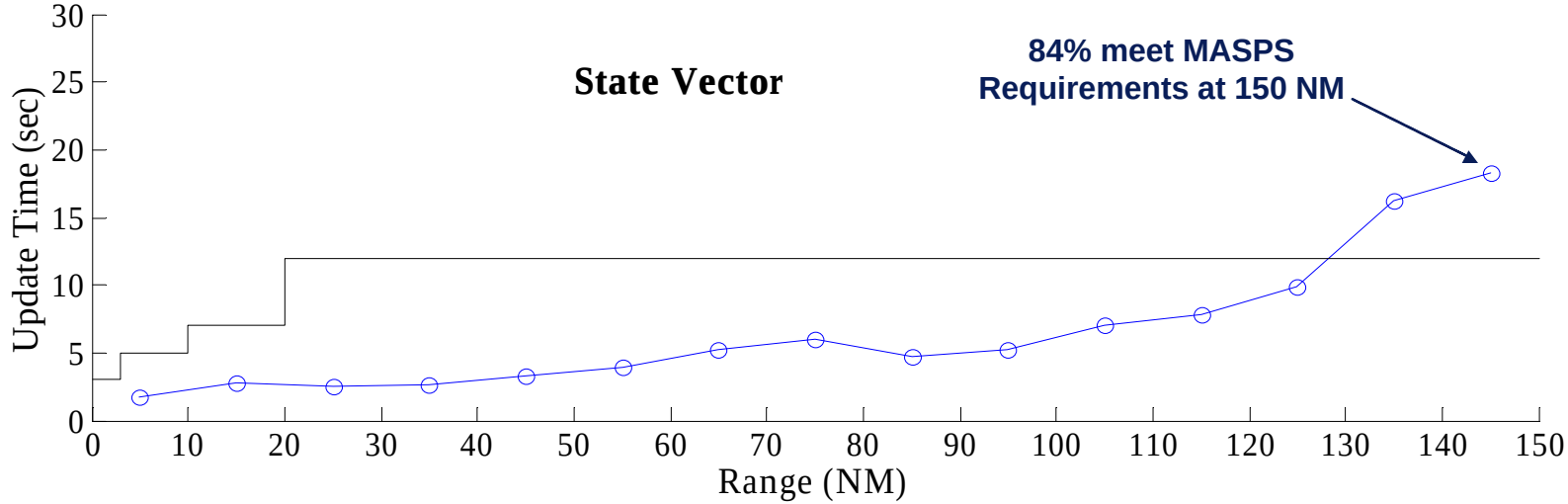
SUMMARY

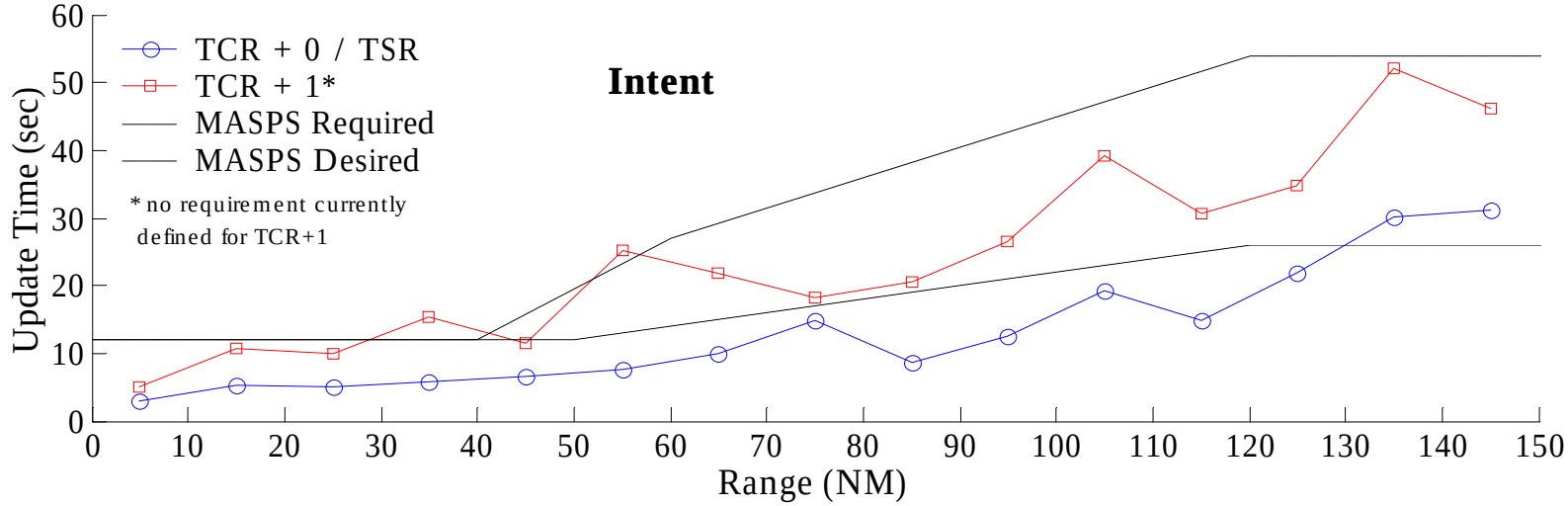
Results from the Multi-Aircraft UAT Simulator in the current Core Europe scenario are presented for review in response to Action Items 9-9 and 11-04. These results assess the level of UAT equipage that could be accommodated in Europe now, without reassigning any TACAN or DME frequencies.

Assumptions

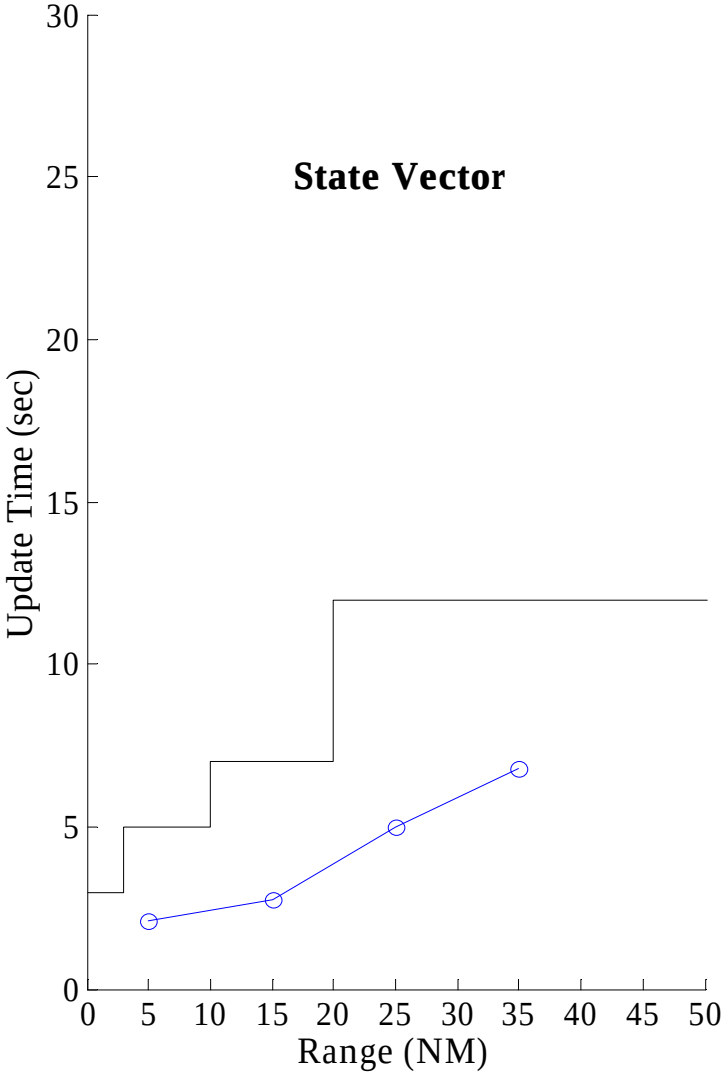
- 154 UAT equipped aircraft centered on Brussels
  - 10 Scenarios used to increase statistics
- Standard Interference Environment for current Core Europe
  - 5 DMEs: 3 at 978 MHz and 2 at 979 MHz
  - Link 16 Baseline B
  - UAT Interference
  - Co-site Interference
- Receiver is located at Worst Case DME position
- No ground vehicles

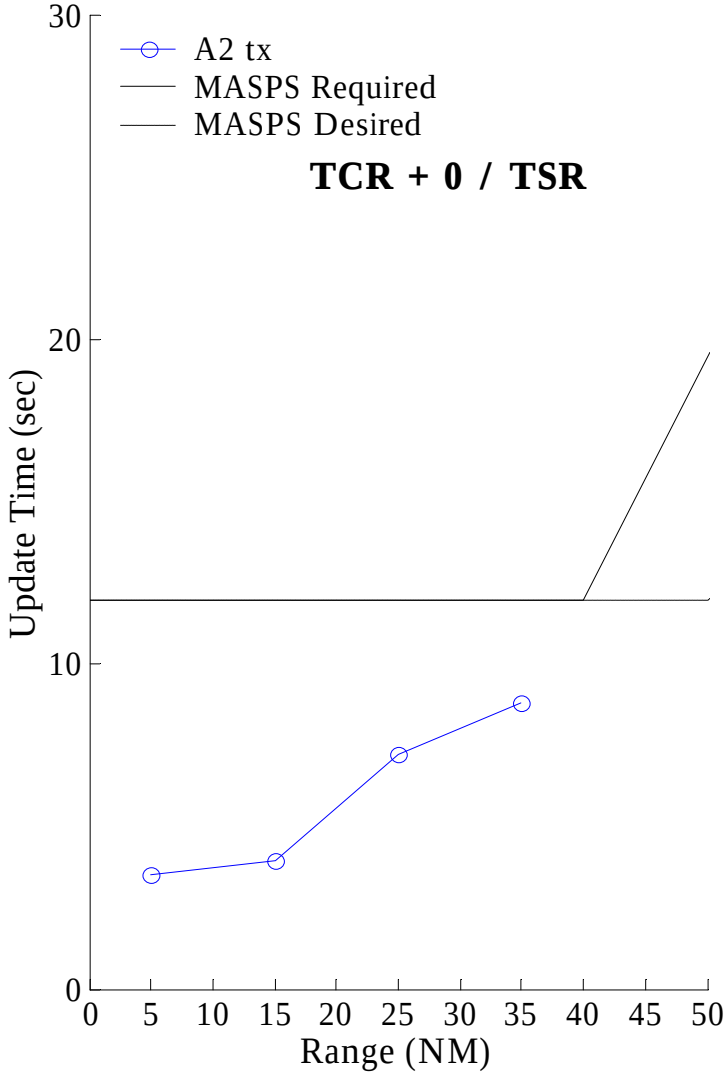
A3 receiver at High Altitude Receiving A3 Transmitters



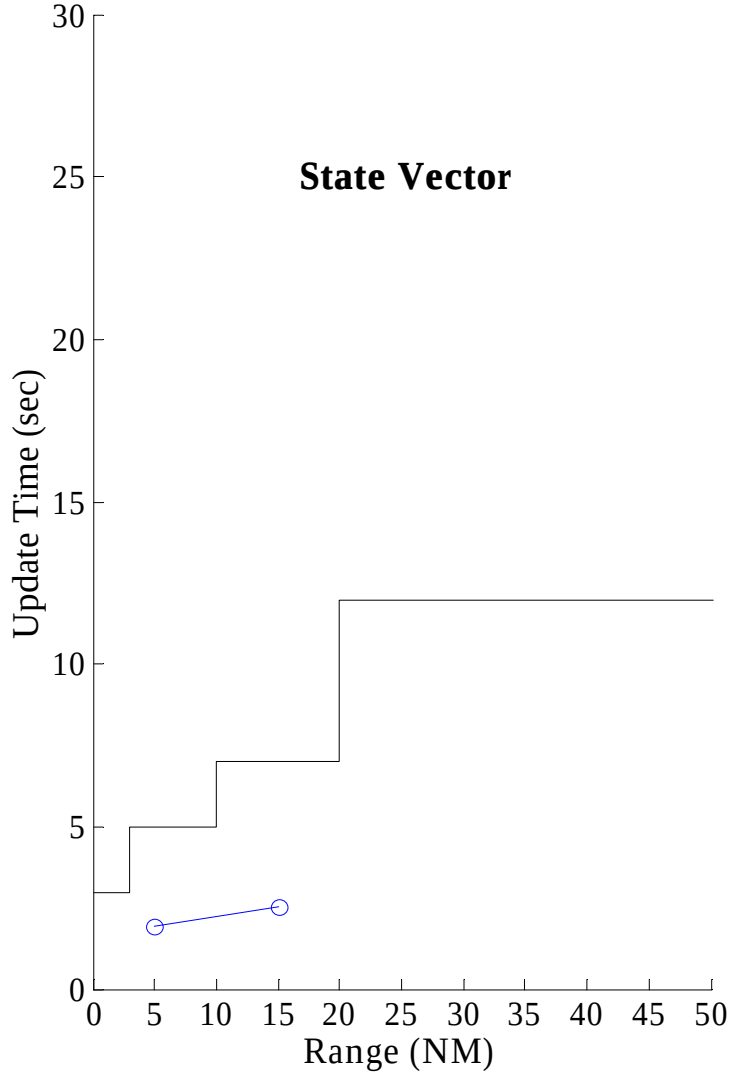


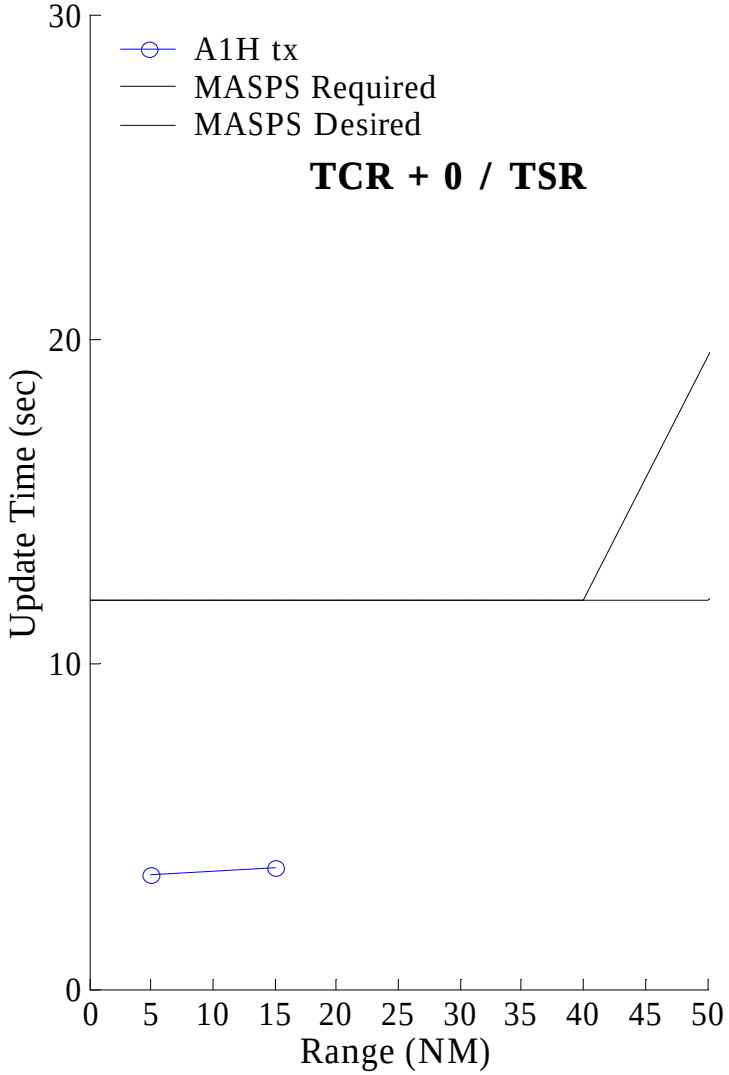
A3 Receiver at High Altitude Receiving A2 Transmissions



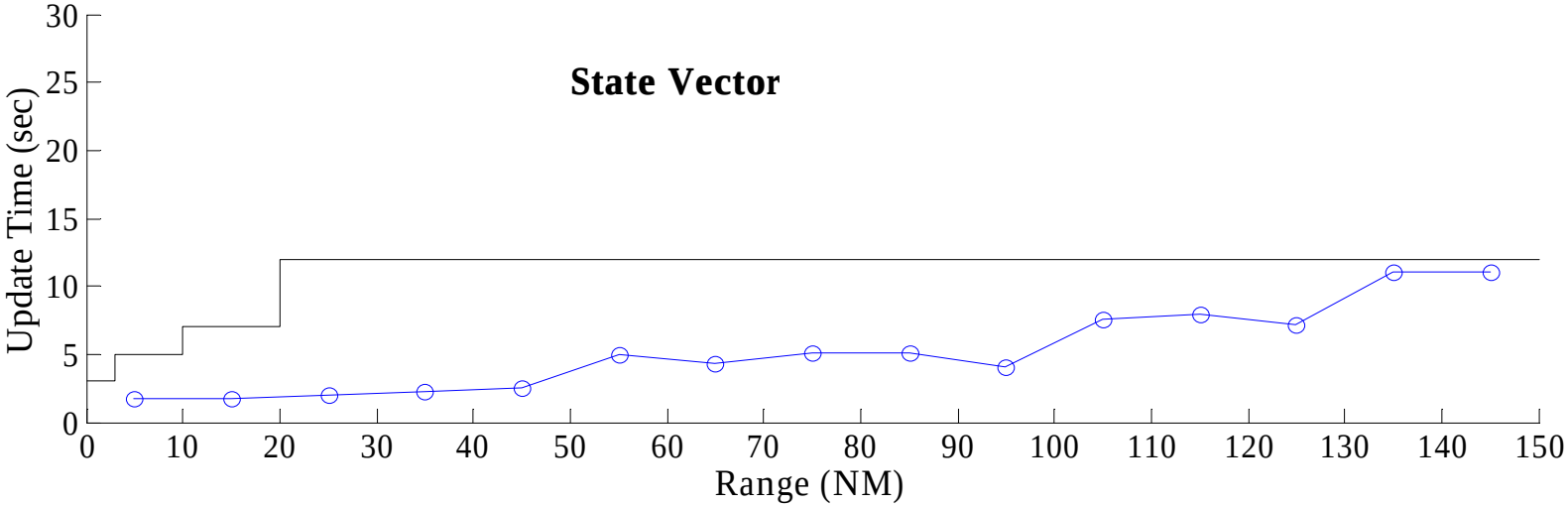


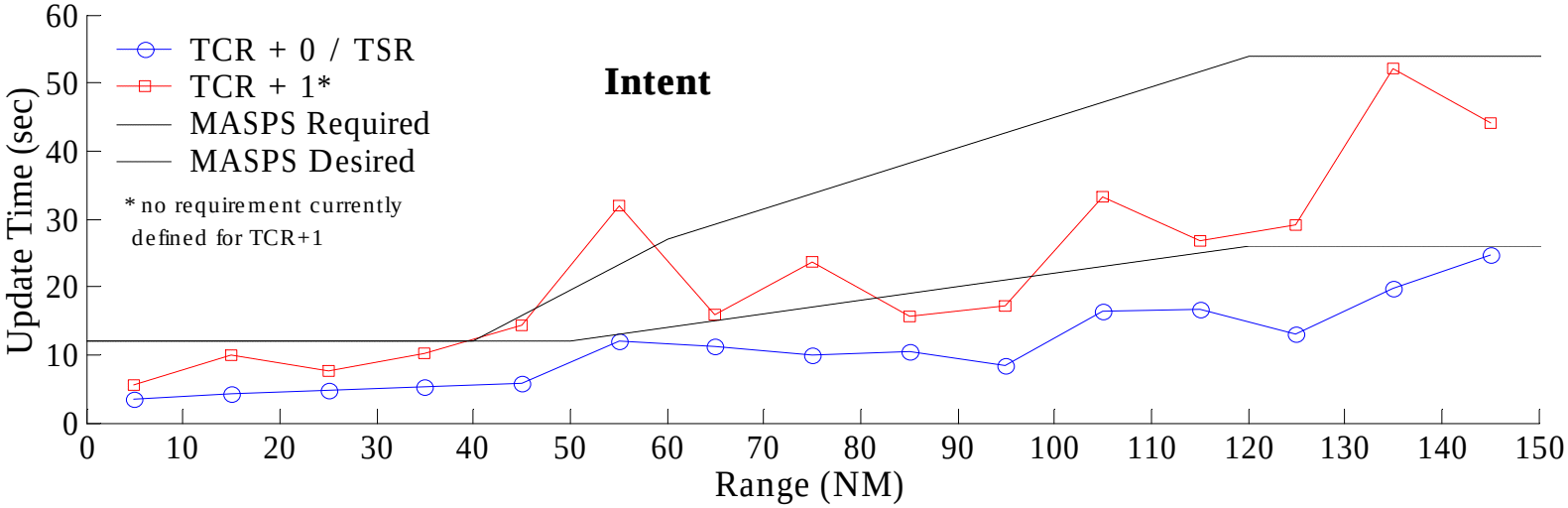
A3 receiver at High Altitude Receiving A1H Transmitters



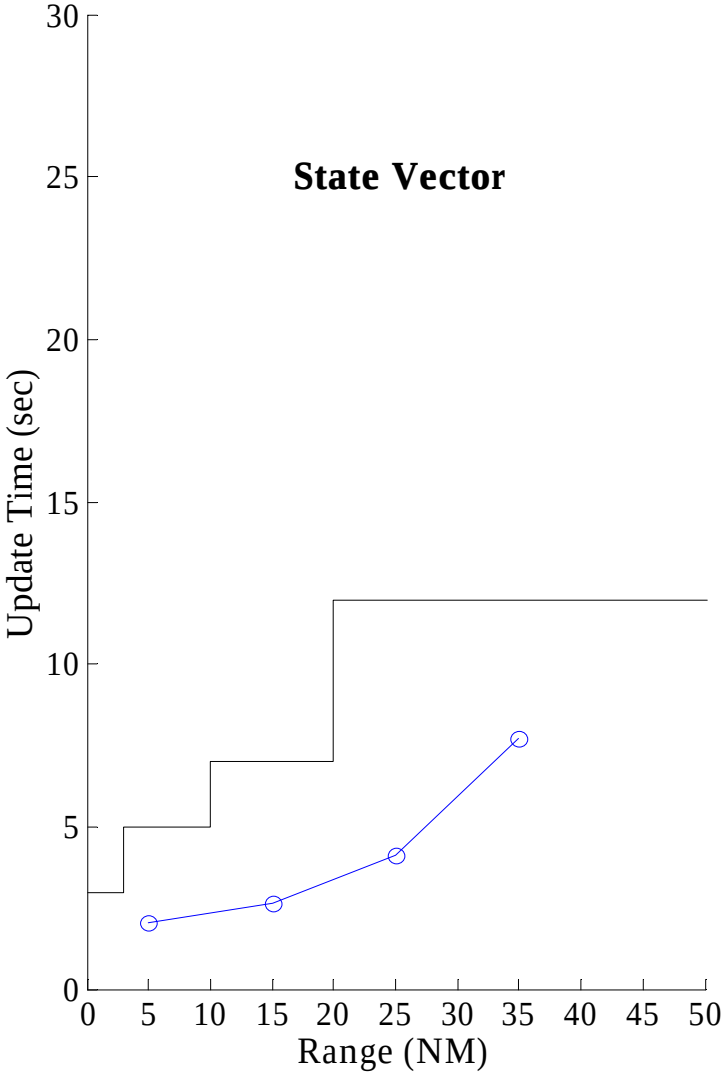


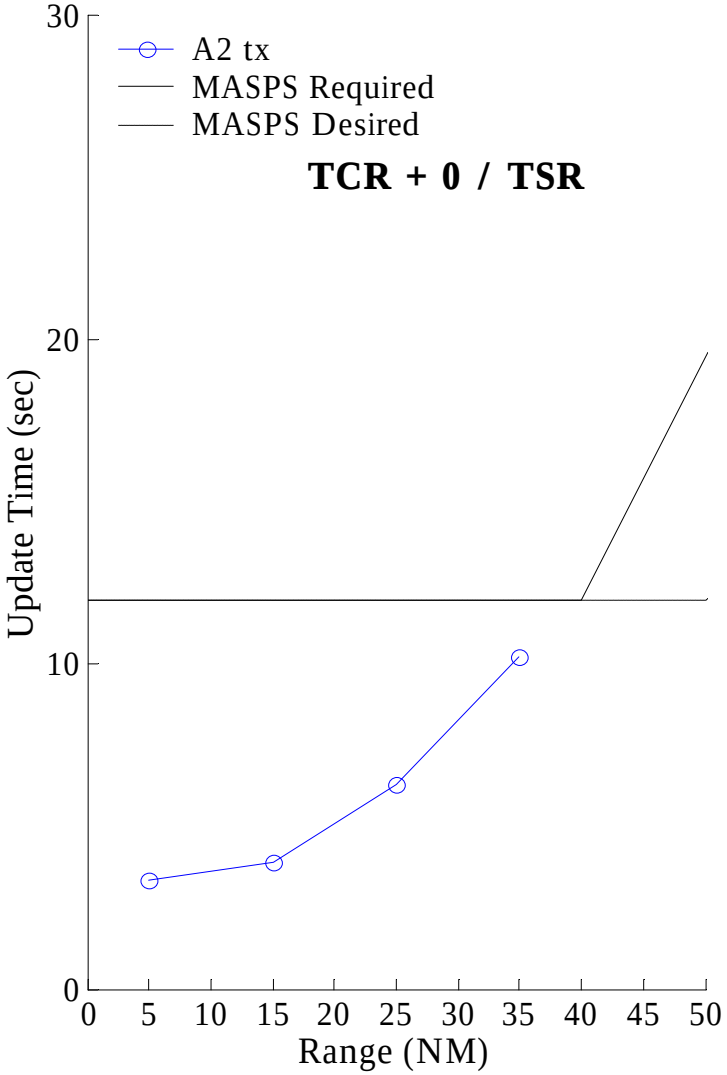
A3 Receiver at FL150 Receiving A3 Transmissions



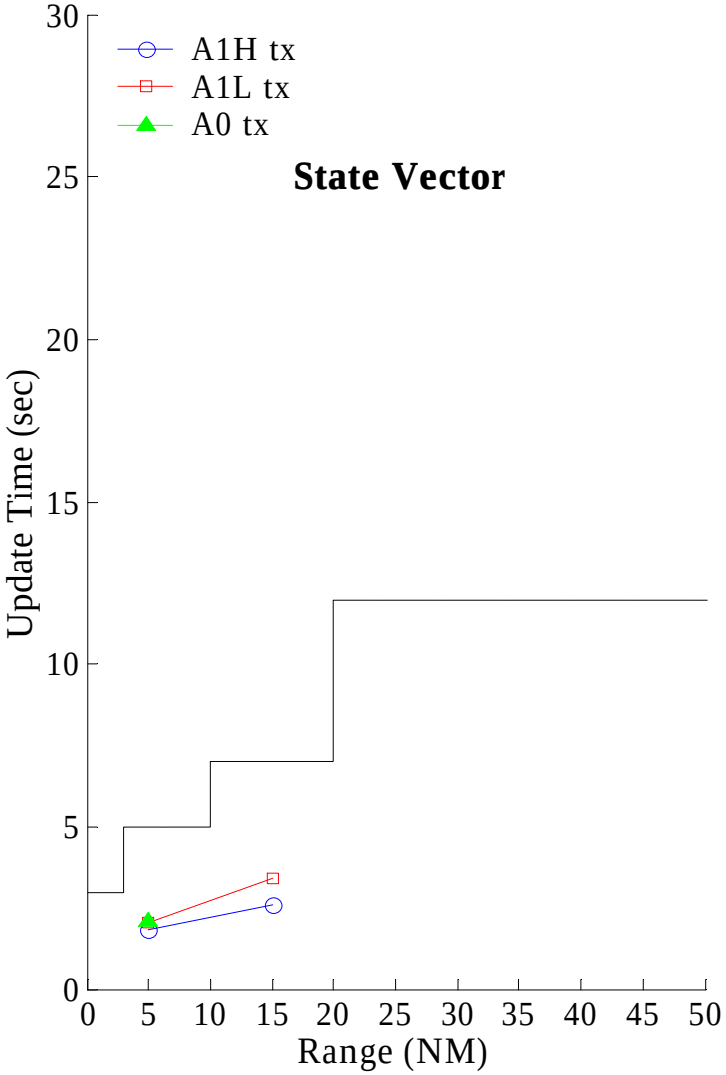


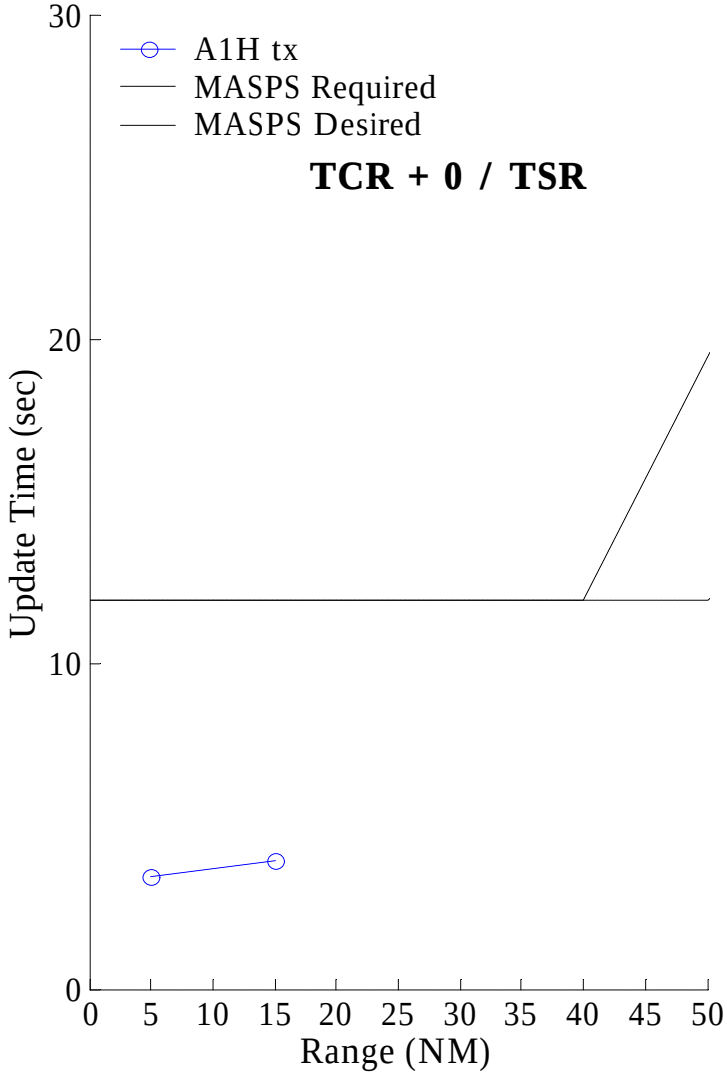
A3 Receiver at FL150 Receiving A2 Transmissions



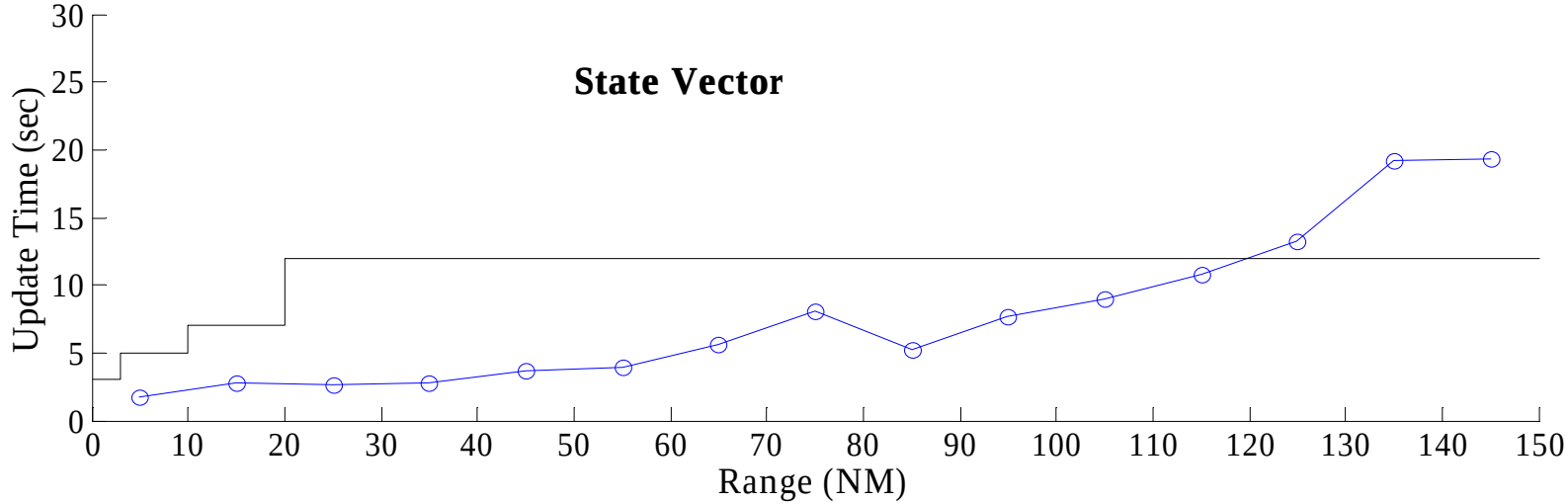


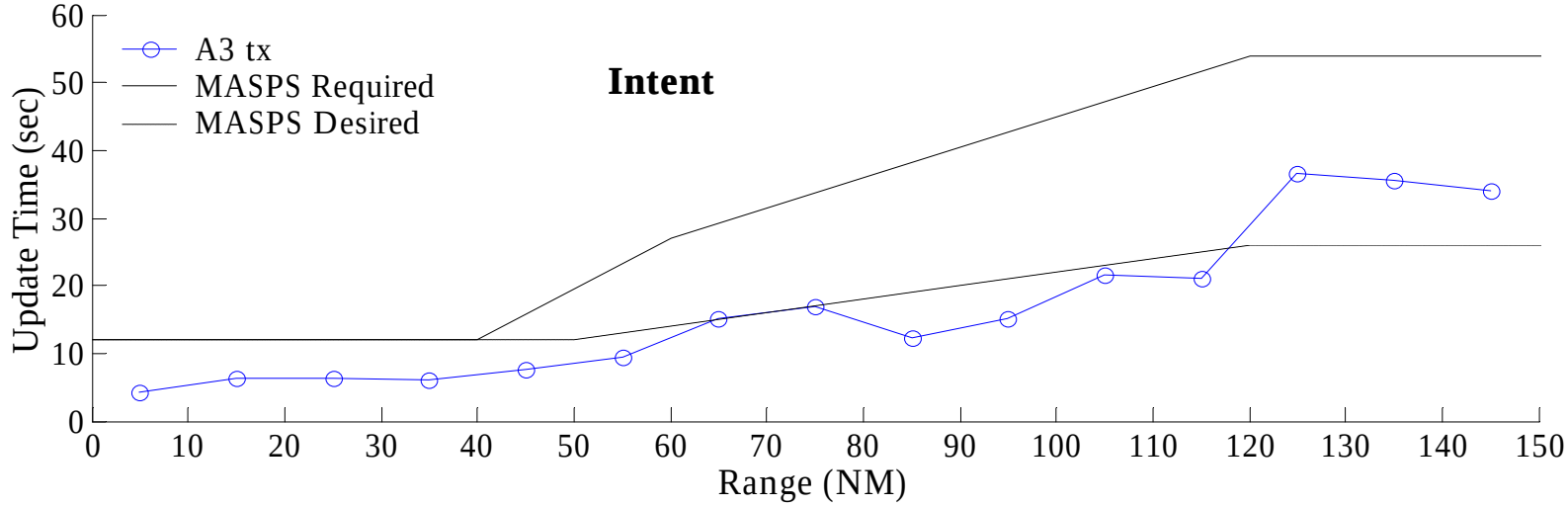
A3 Receiver at FL150 Receiving A1 and A0 Transmissions



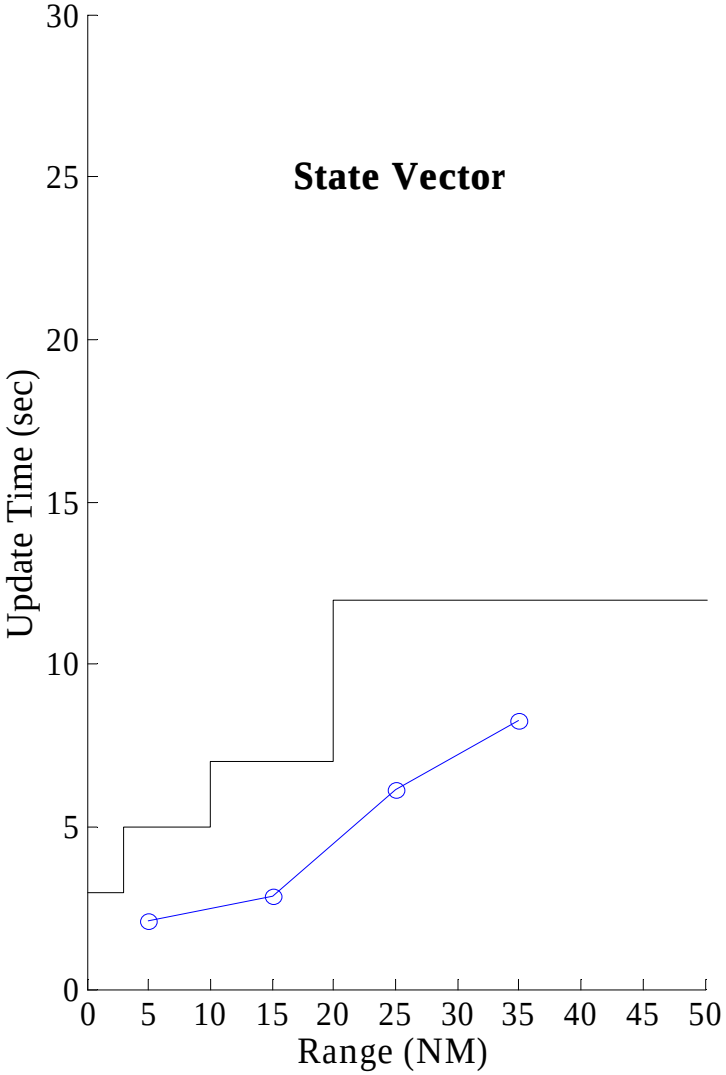


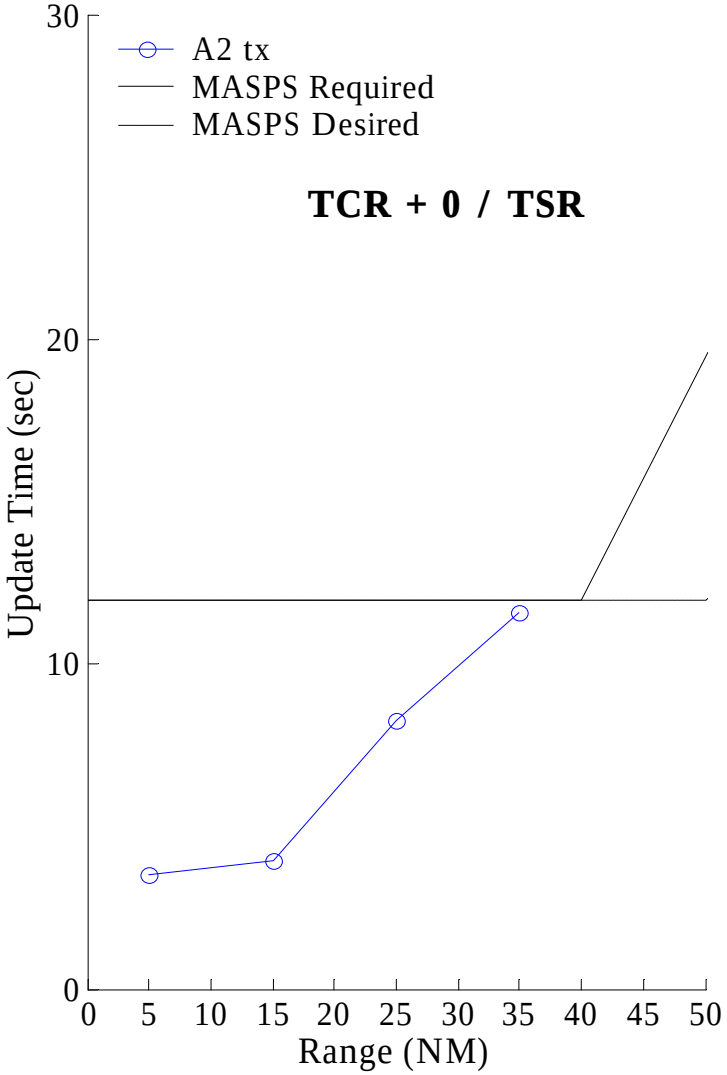
A2 receiver at High Altitude Receiving A3 Transmitters



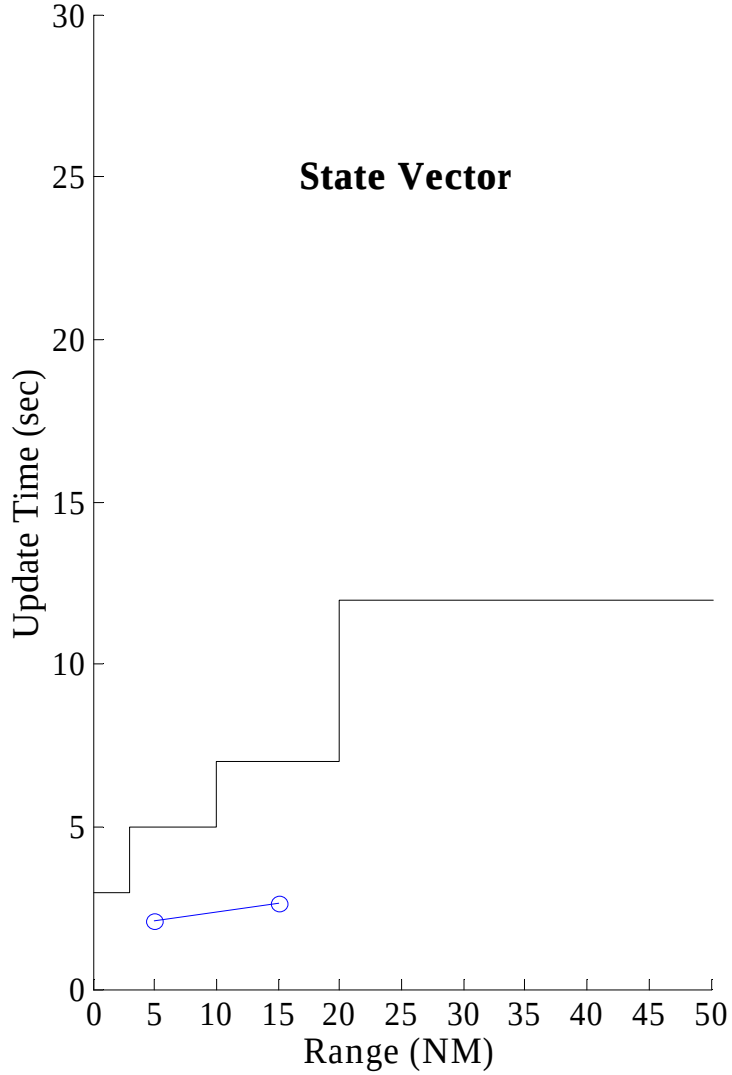


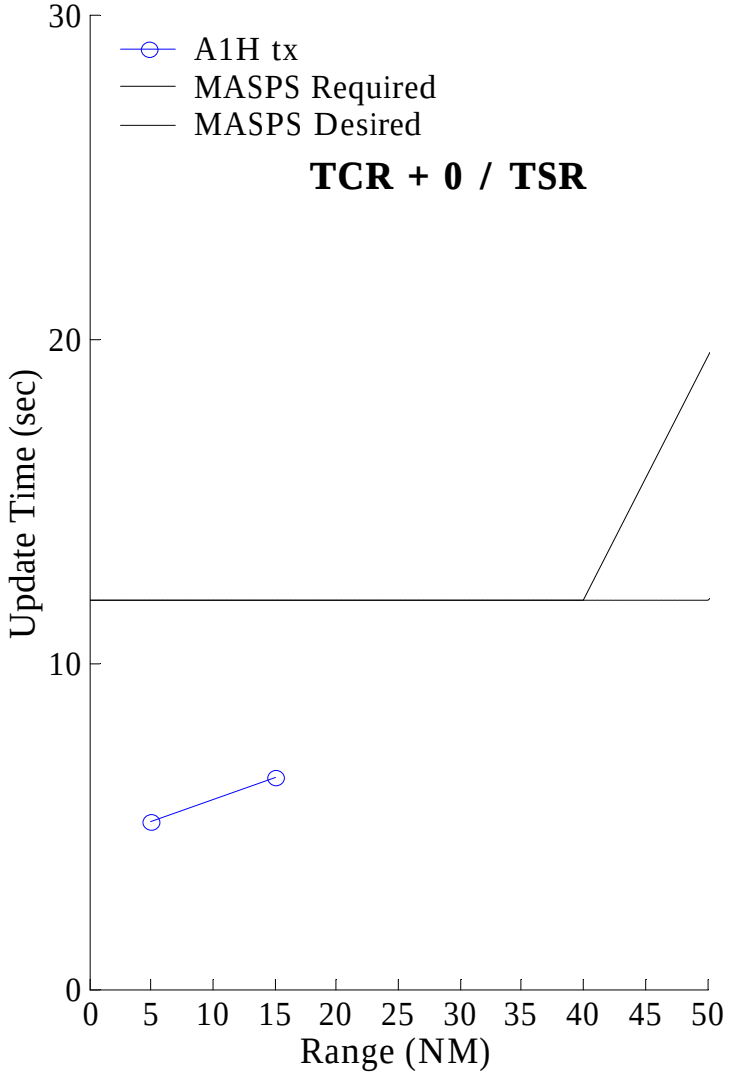
A2 Receiver at High Altitude Receiving A2 Transmissions



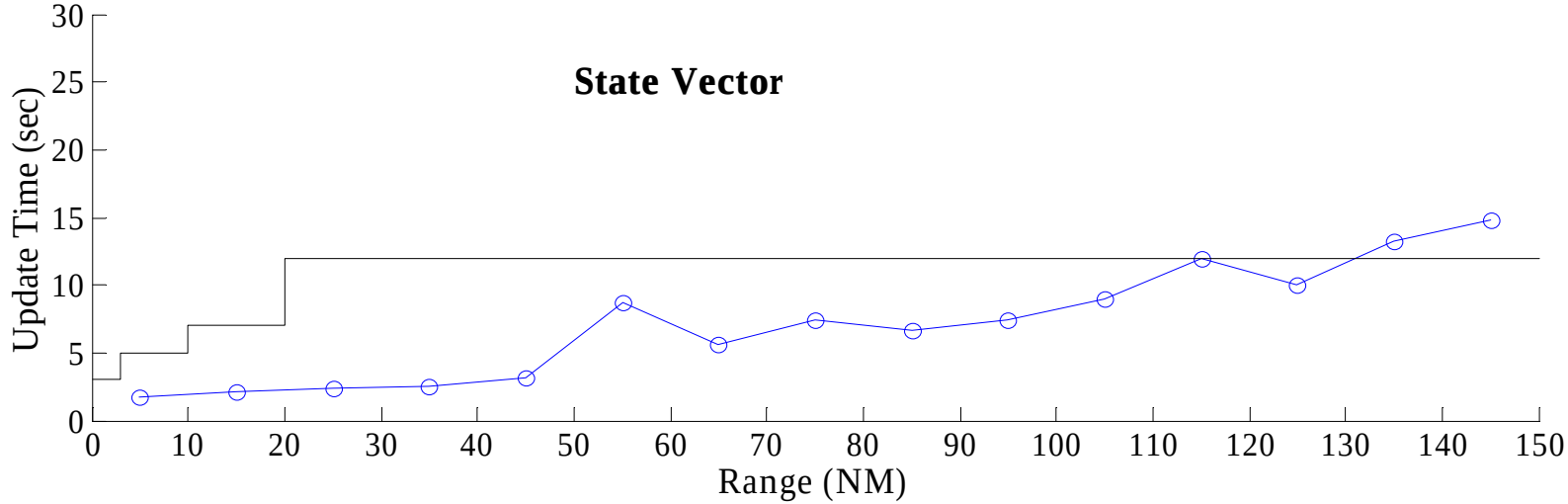


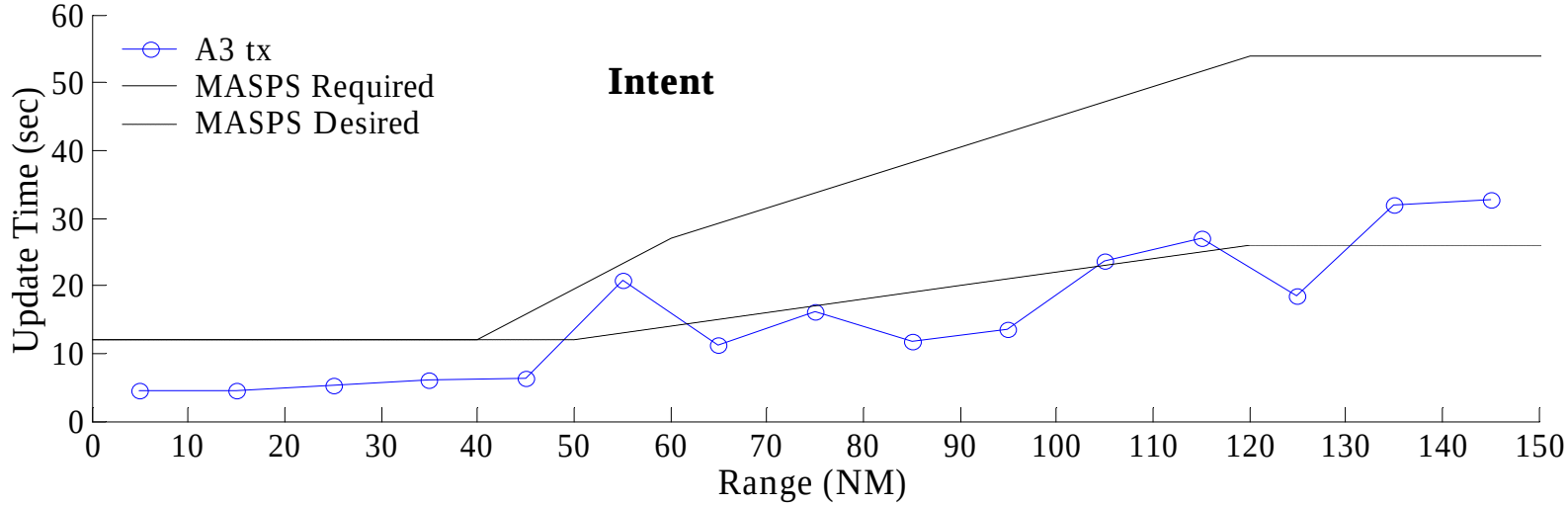
A2 receiver at High Altitude Receiving A1H Transmitters



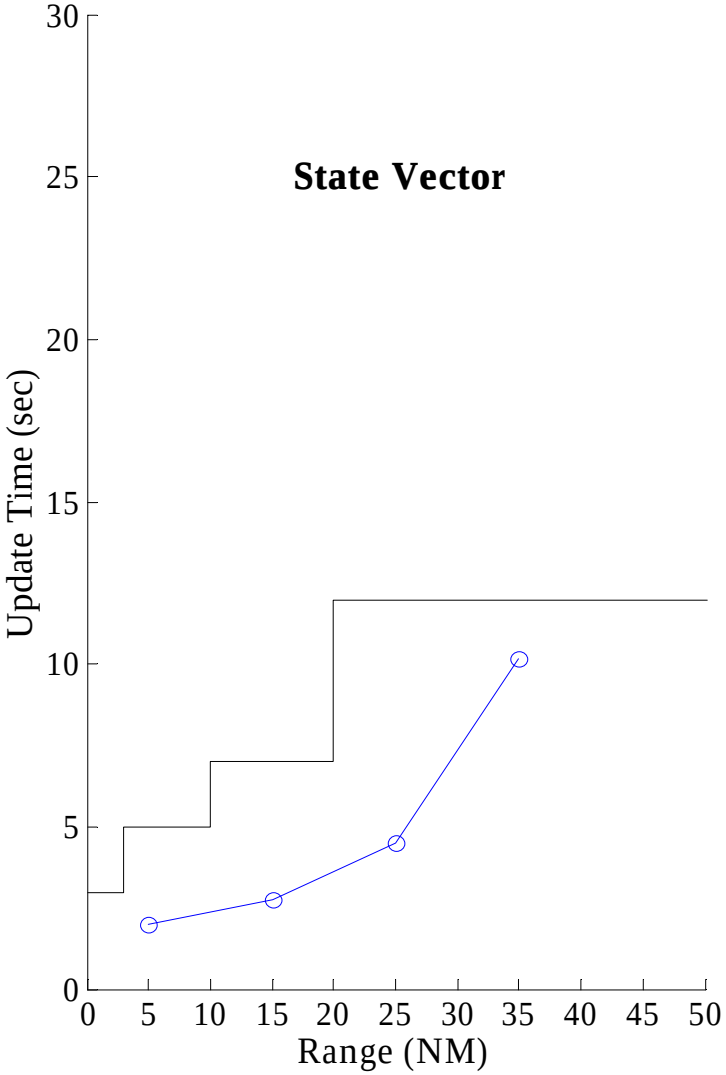


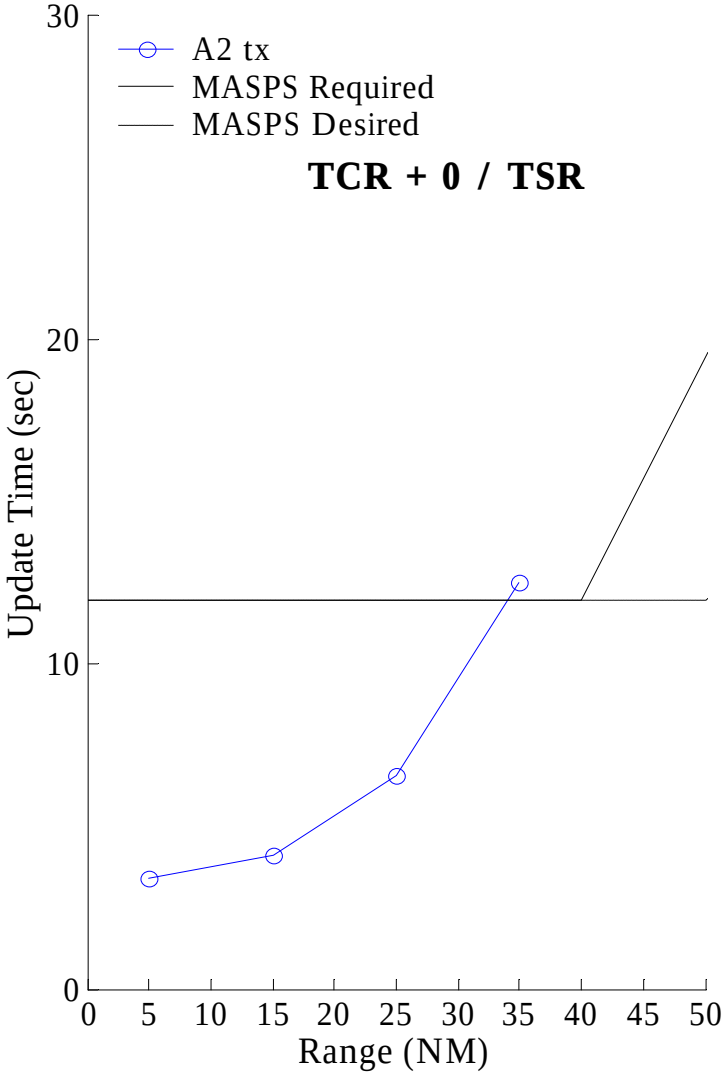
A2 Receiver at FL150 Receiving A3 Transmissions



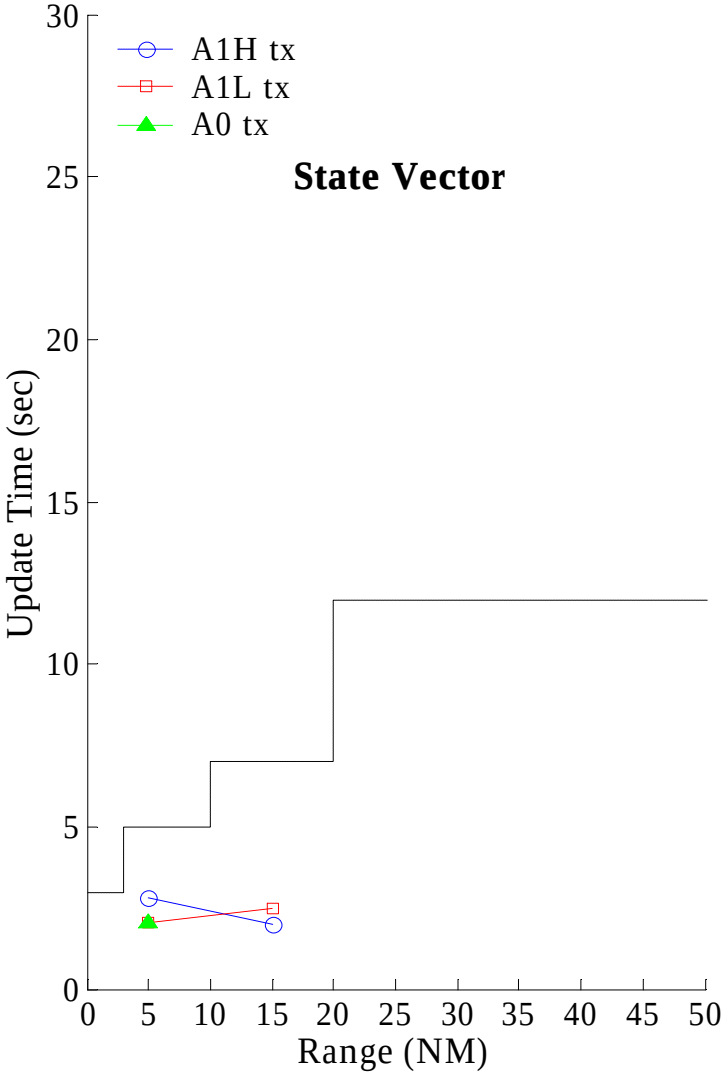


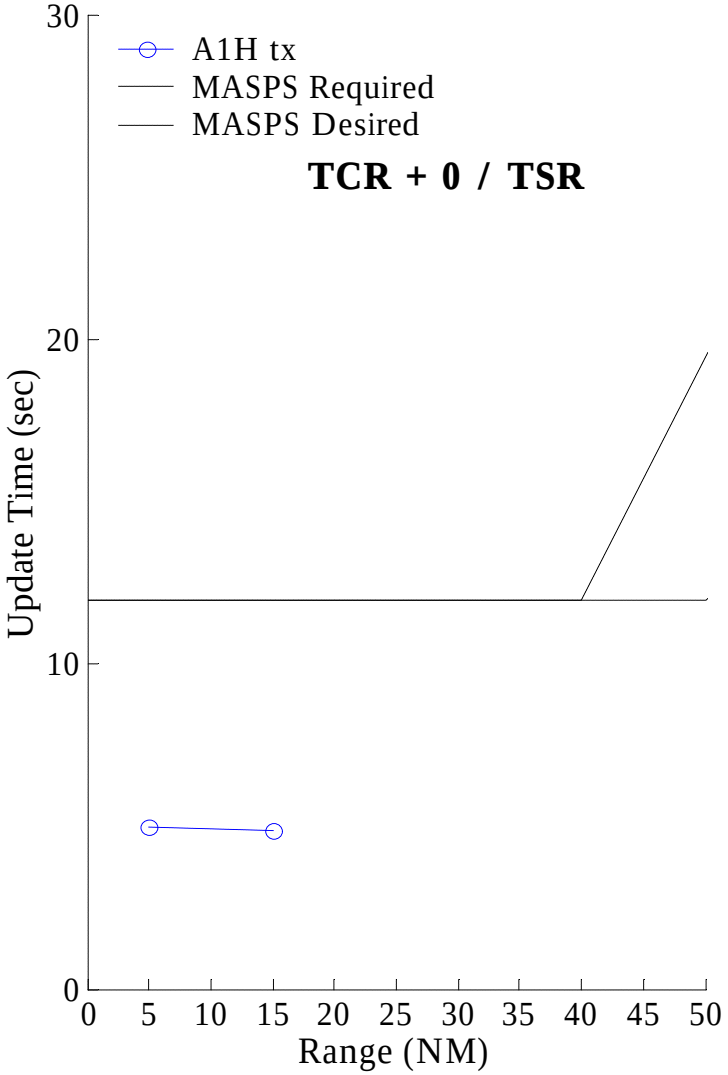
A2 Receiver at FL150 Receiving A2 Transmissions



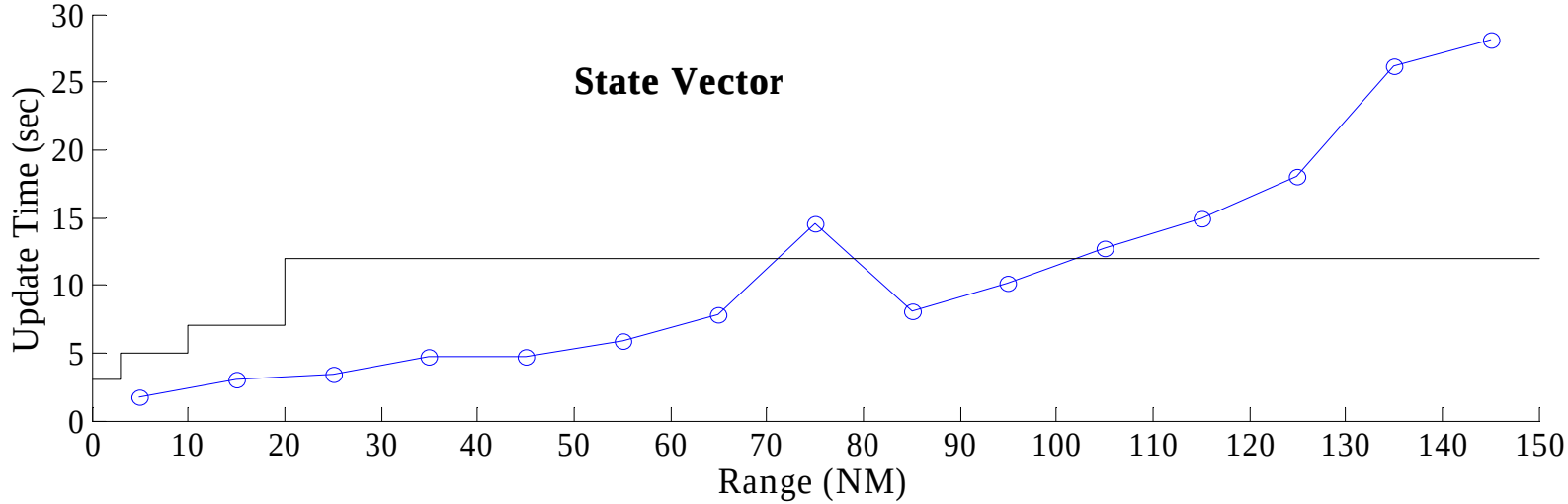


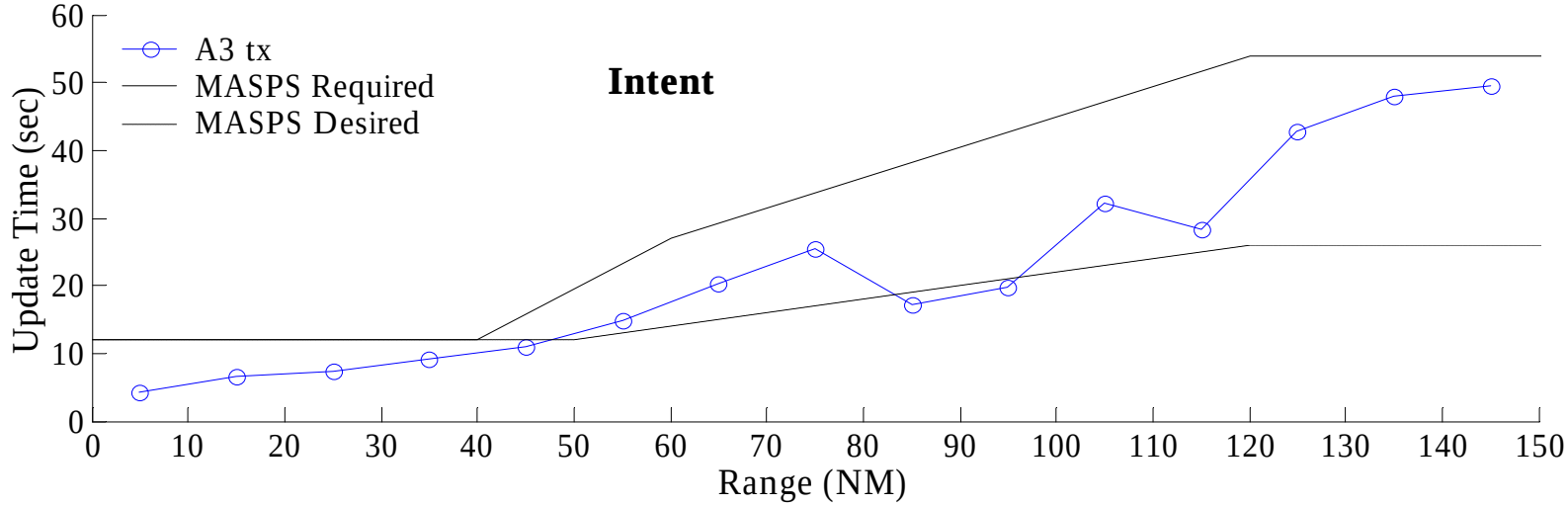
A2 Receiver at FL150 Receiving A1 and A0 Transmissions



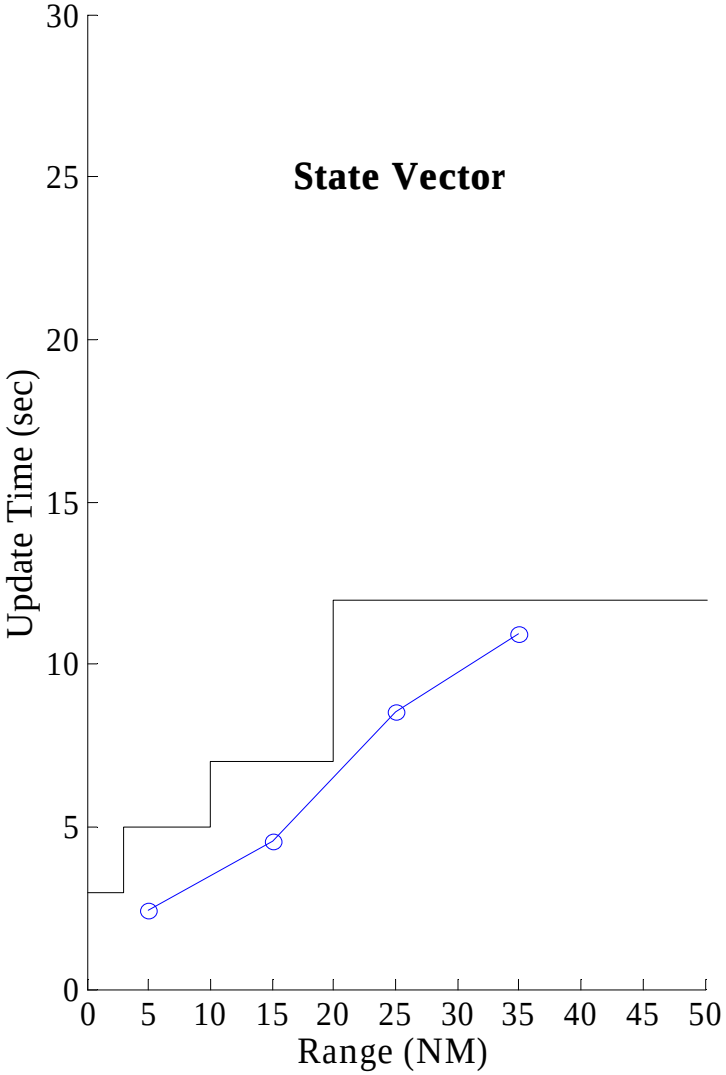


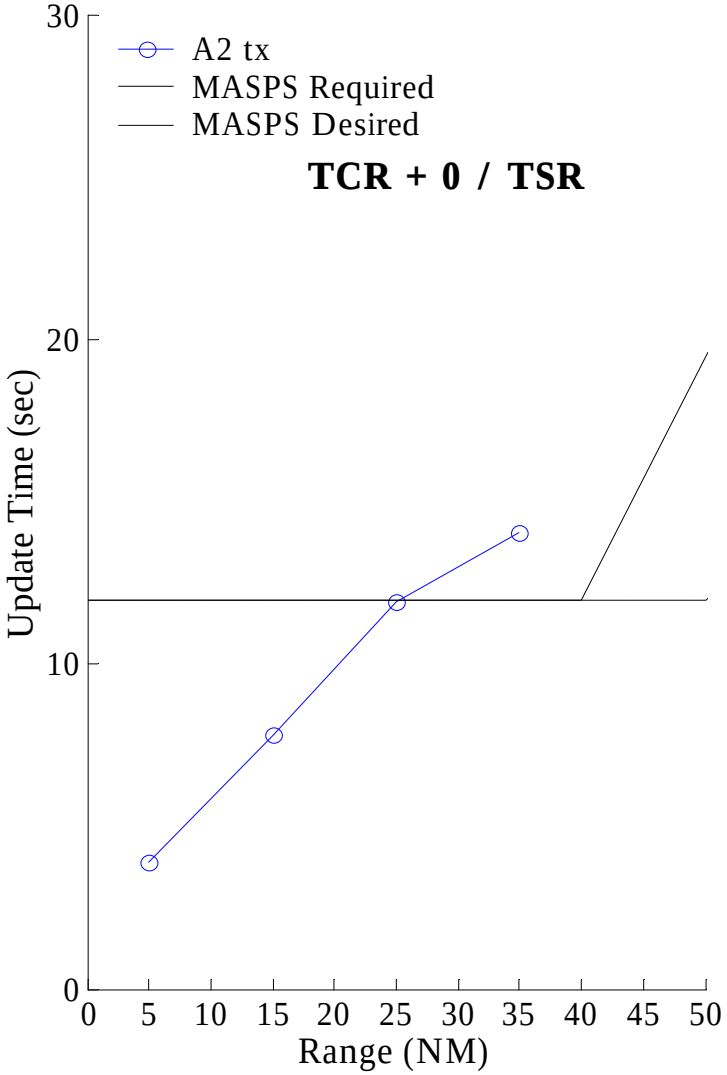
A1H receiver at High Altitude Receiving A3 Transmitters



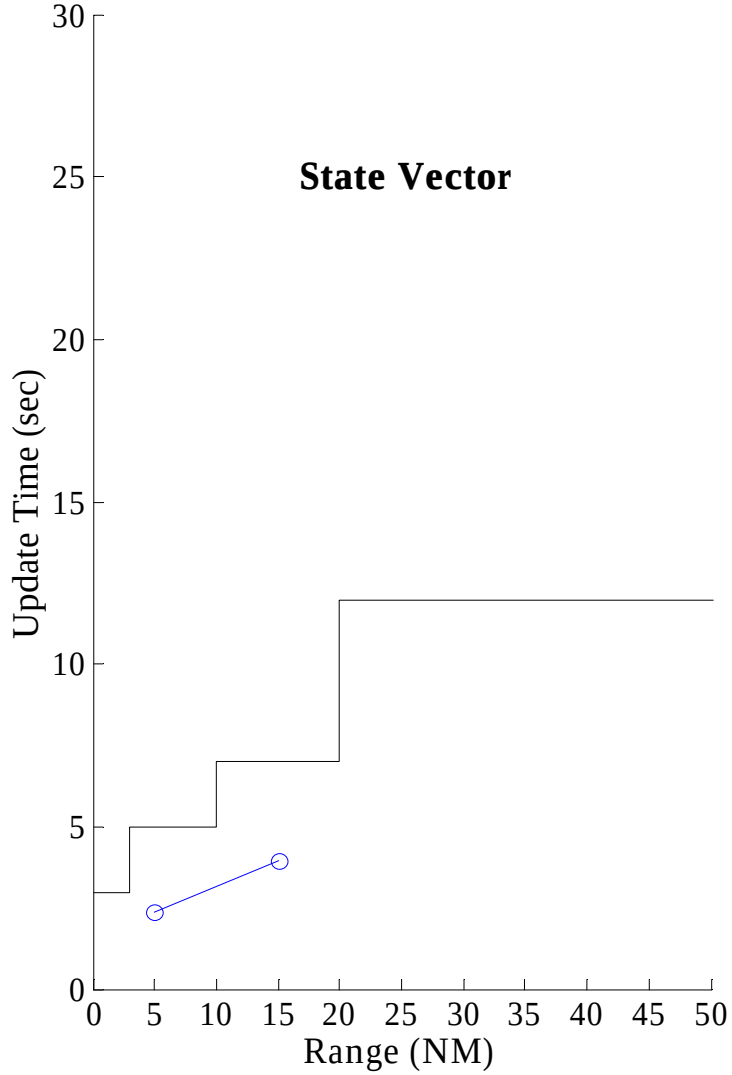


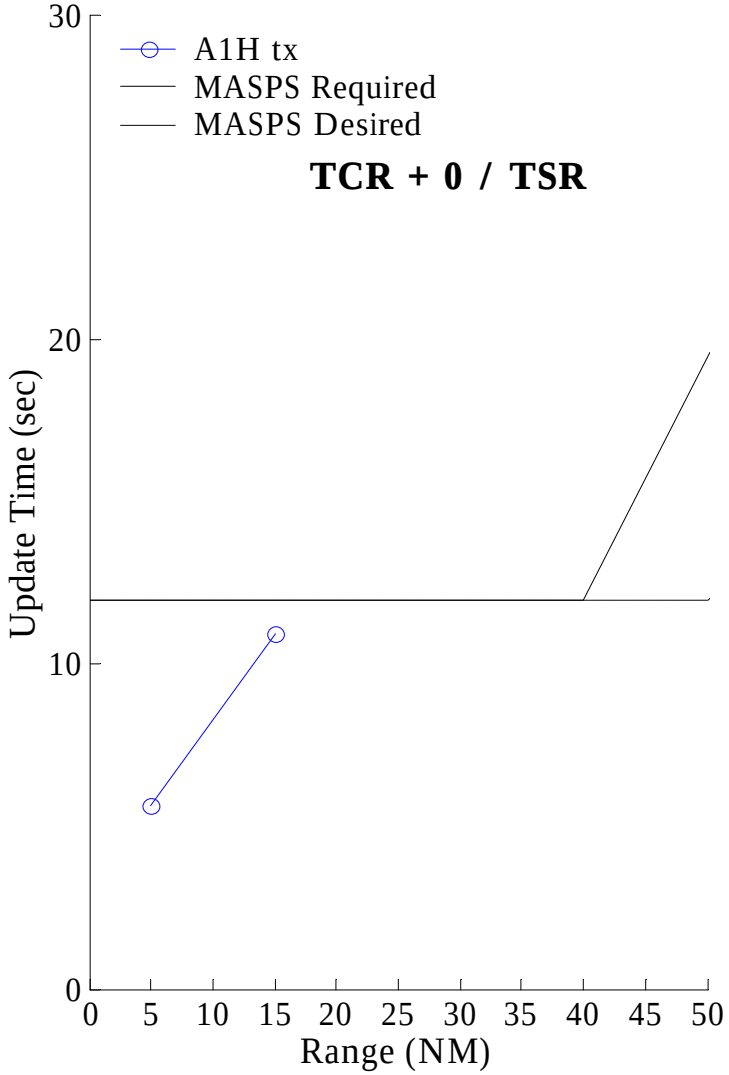
A1H Receiver at High Altitude Receiving A2 Transmissions



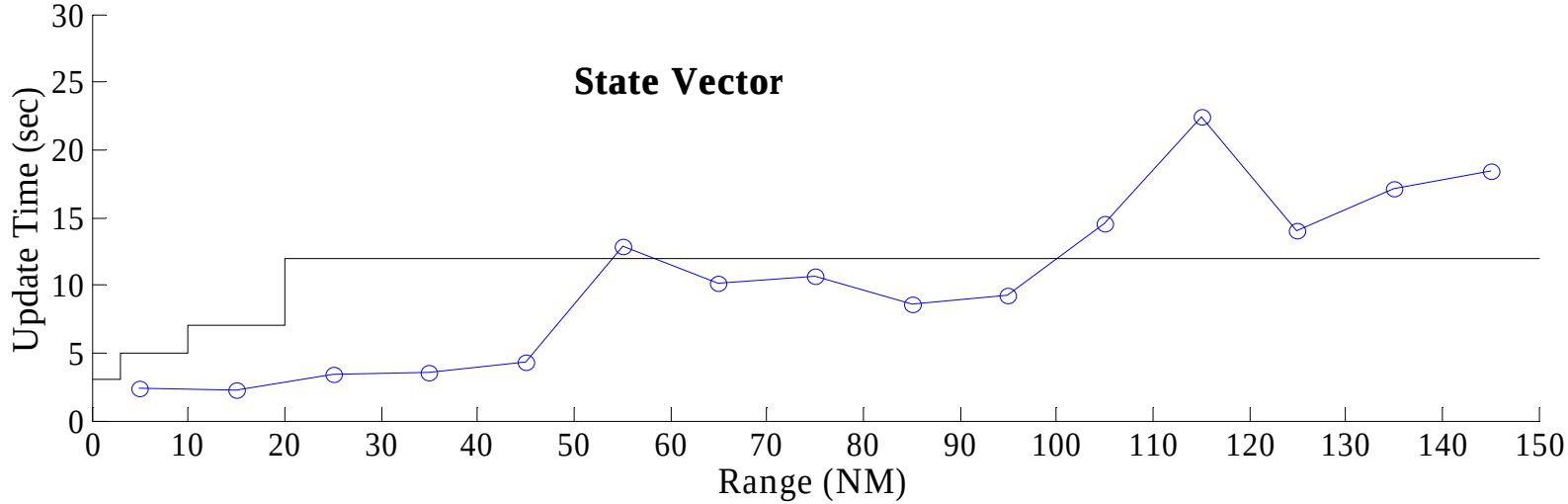


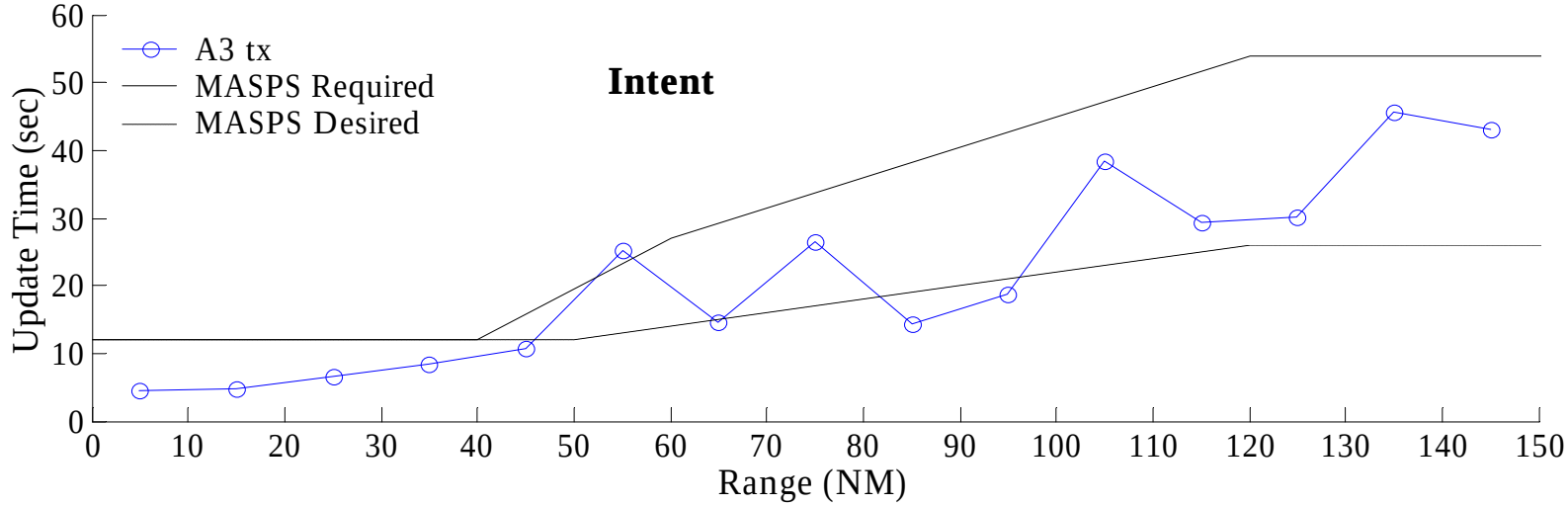
A1H receiver at High Altitude Receiving A1H Transmitters



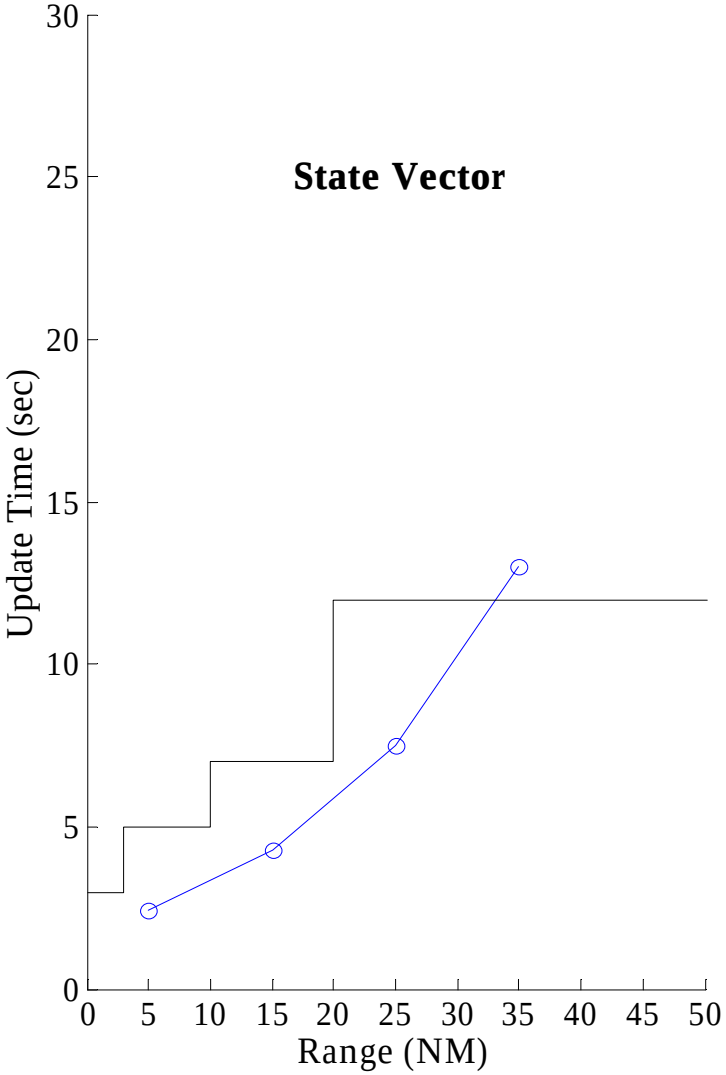


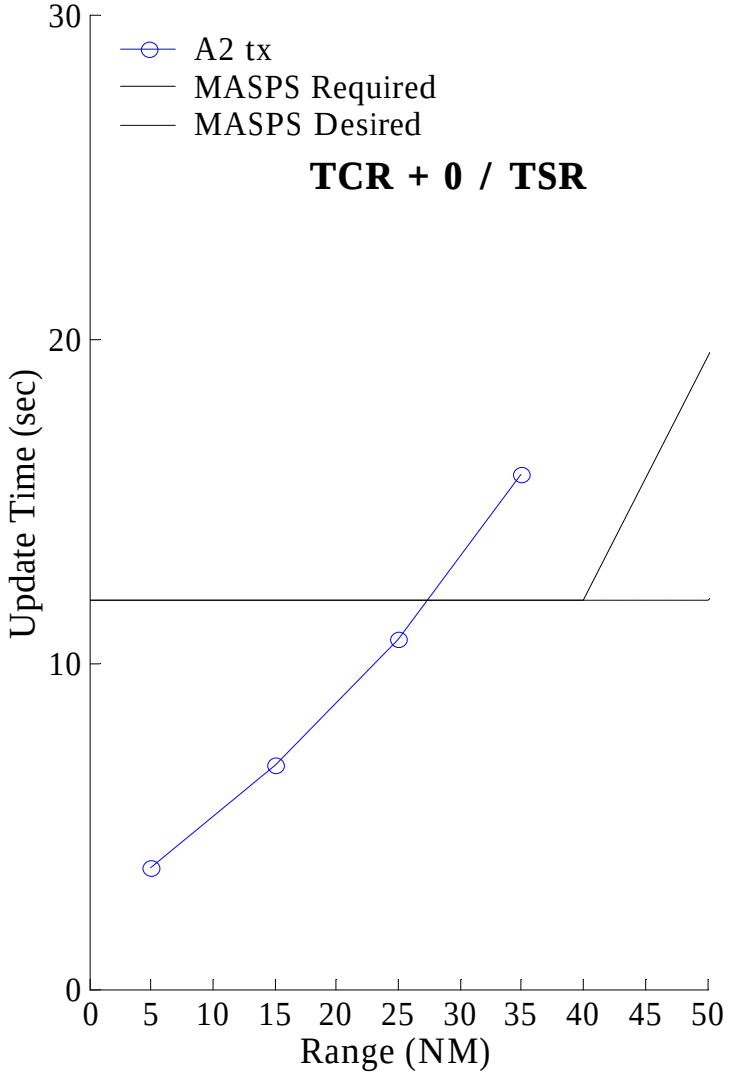
A1 Receiver at FL150 Receiving A3 Transmissions



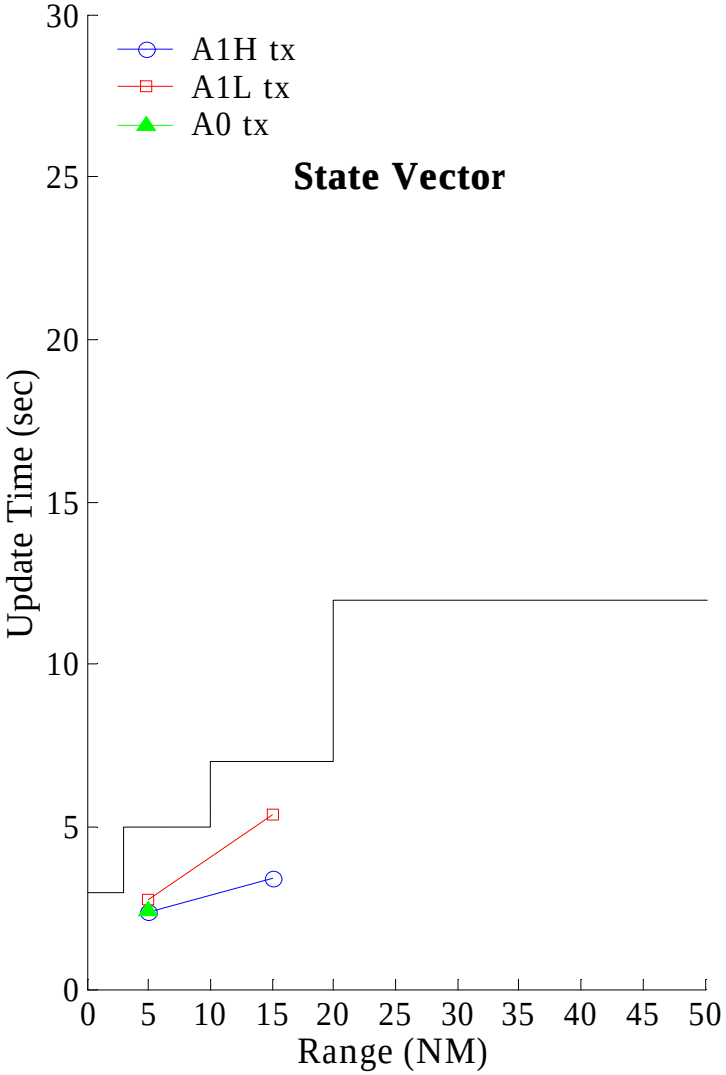


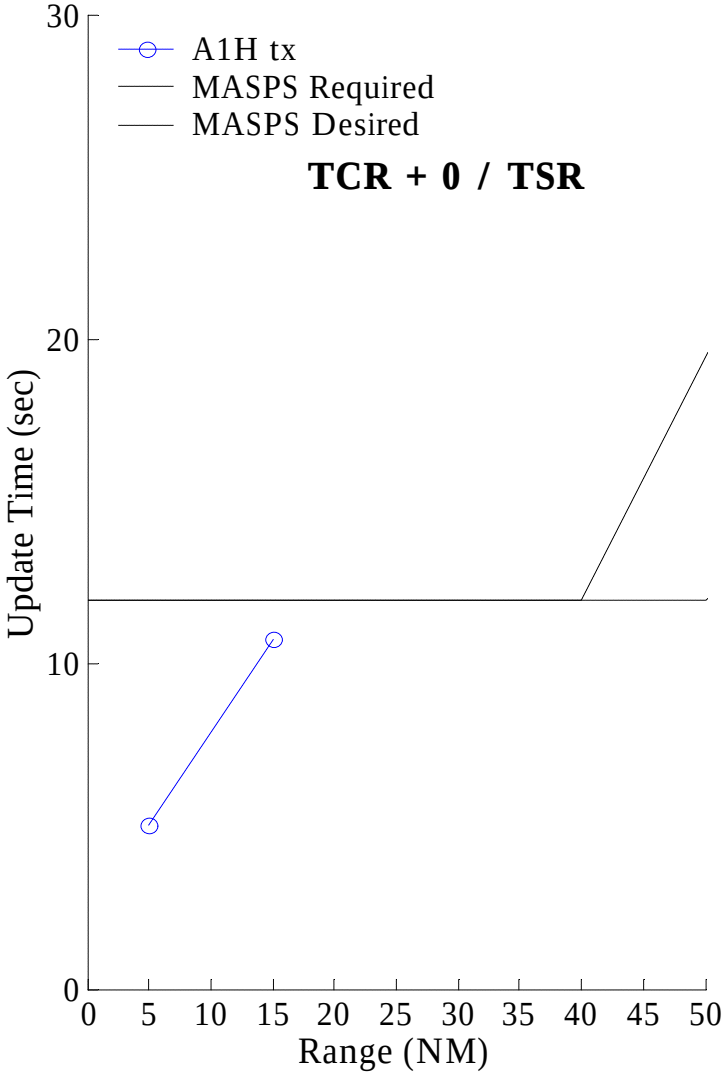
A1 Receiver at FL150 Receiving A2 Transmissions



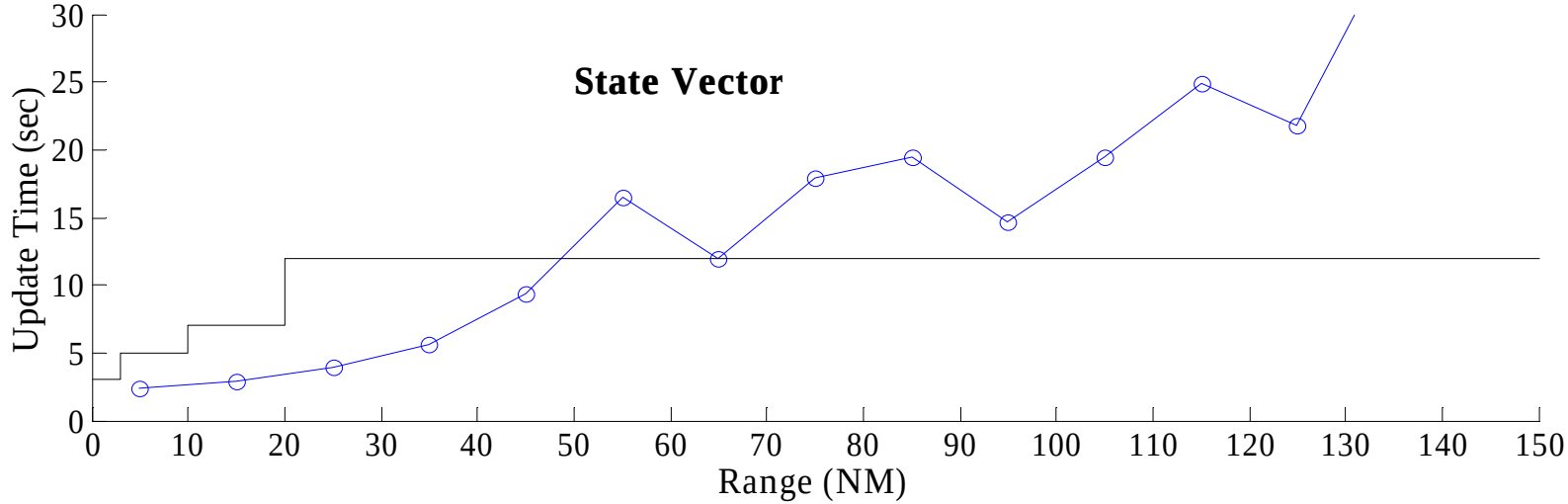


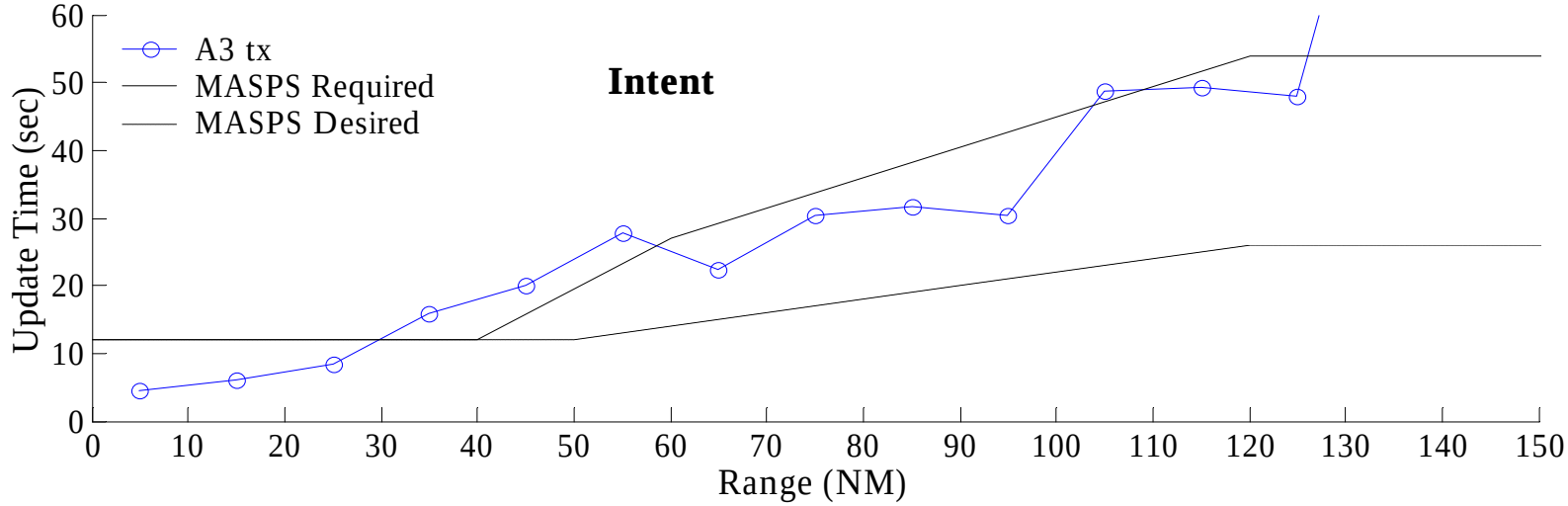
A1 Receiver at FL150 Receiving A1 and A0 Transmissions



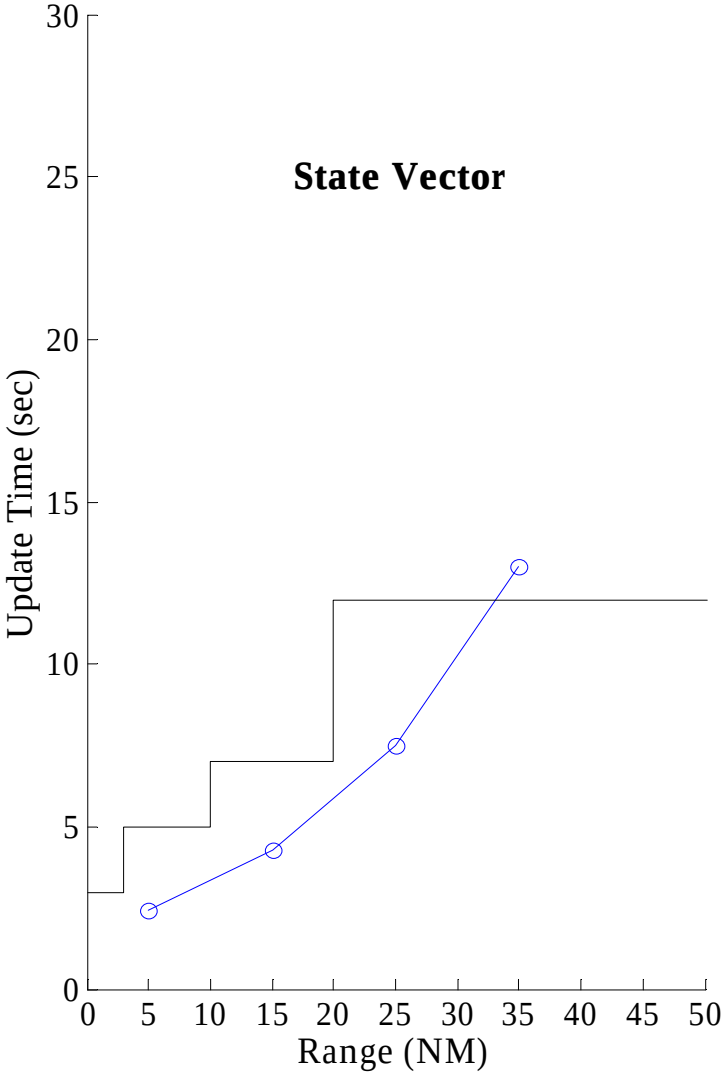


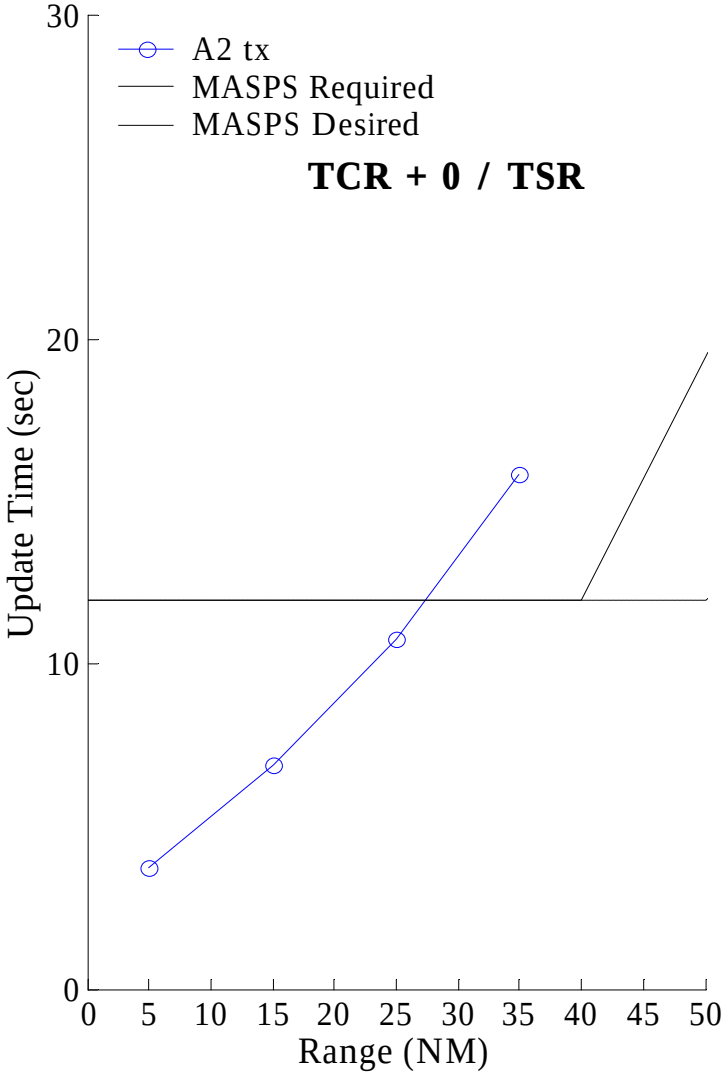
A0 Receiver at FL150 Receiving A3 Transmissions



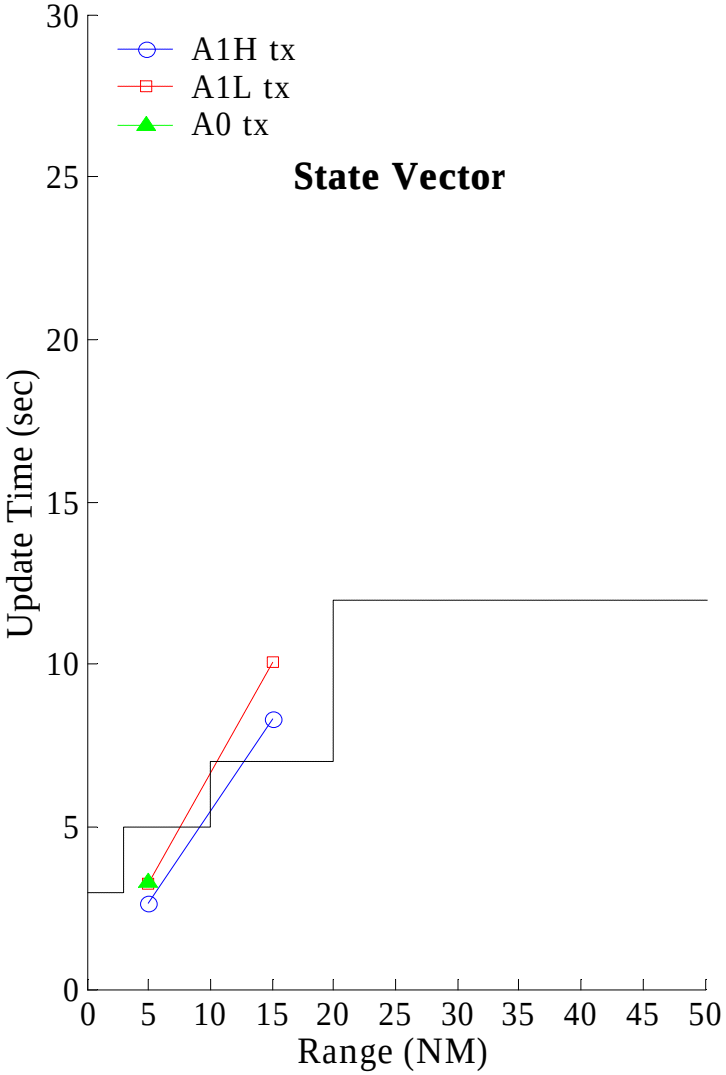


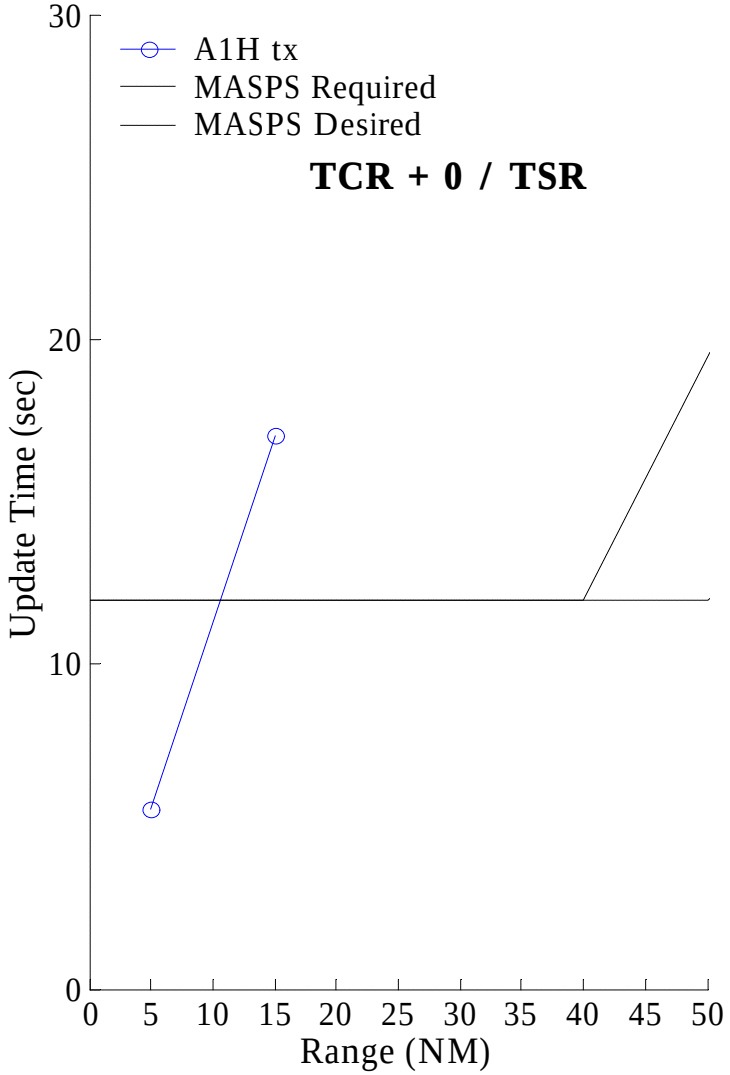
A0 Receiver at FL150 Receiving A2 Transmissions





A0 Receiver at FL150 Receiving A1 and A0 Transmissions





Conclusions

- UAT system was evaluated in current European environment with the following assumptions
  - Worst case position (over western Germany) with respect to DME interference - 3 on-channel and 2 off-channel TACAN transmitters
  - 150 UAT aircraft in 300 NM radius
- Almost all Air-Air cases meet MASPS requirements
  - A3 at high altitude receives A3 transmissions at 95% level to 130 NM (84% level at 150 NM)
  - A2 at FL 150 receives A2 TCR+0 transmissions to 35 NM