

**RTCA Special Committee 186, Working Group 5**

**ADS-B UAT MOPS**

**Meeting #4**

**Analysis of Modifications Proposed to UAT**

**Presented by Larry Bachman, JHU-APL**

**SUMMARY**

**This presents some preliminary analysis on the changes that have been proposed to UAT as they relate to the LA-2020 scenario and to the UAT model evaluated by the TLAT.**



# UAT Mods

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## Presentation to Working Group 5

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# Outline

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- UAT system changes
  - ◆ Effects on performance in LA Basin compared to TLAT UAT system
- JTIDS scenario
  - ◆ Preliminary results on effects on performance in LA Basin



# Modifications to UAT System Description

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- Transmit powers

- ◆ TLAT

- A0/A1: 44-48 dBm
- A2/A3: 50-54 dBm

- ◆ New System

- A0/A1: 37-41 dBm
- A2: 41-45 dBm
- A3: 50-54 dBm

- Message Sequence

- ◆ TLAT

- All aircraft transmitted one extended message per second

- ◆ New System

- A0/A1 transmit two basic messages per 4-second epoch



# UAT Success Rate (A2/A3) in Co-Channel Interference (TLAT)

No. Overlaps	Success Rate
0	.92
1	.32
2	.11
3	.05
4	.02
>4	.01

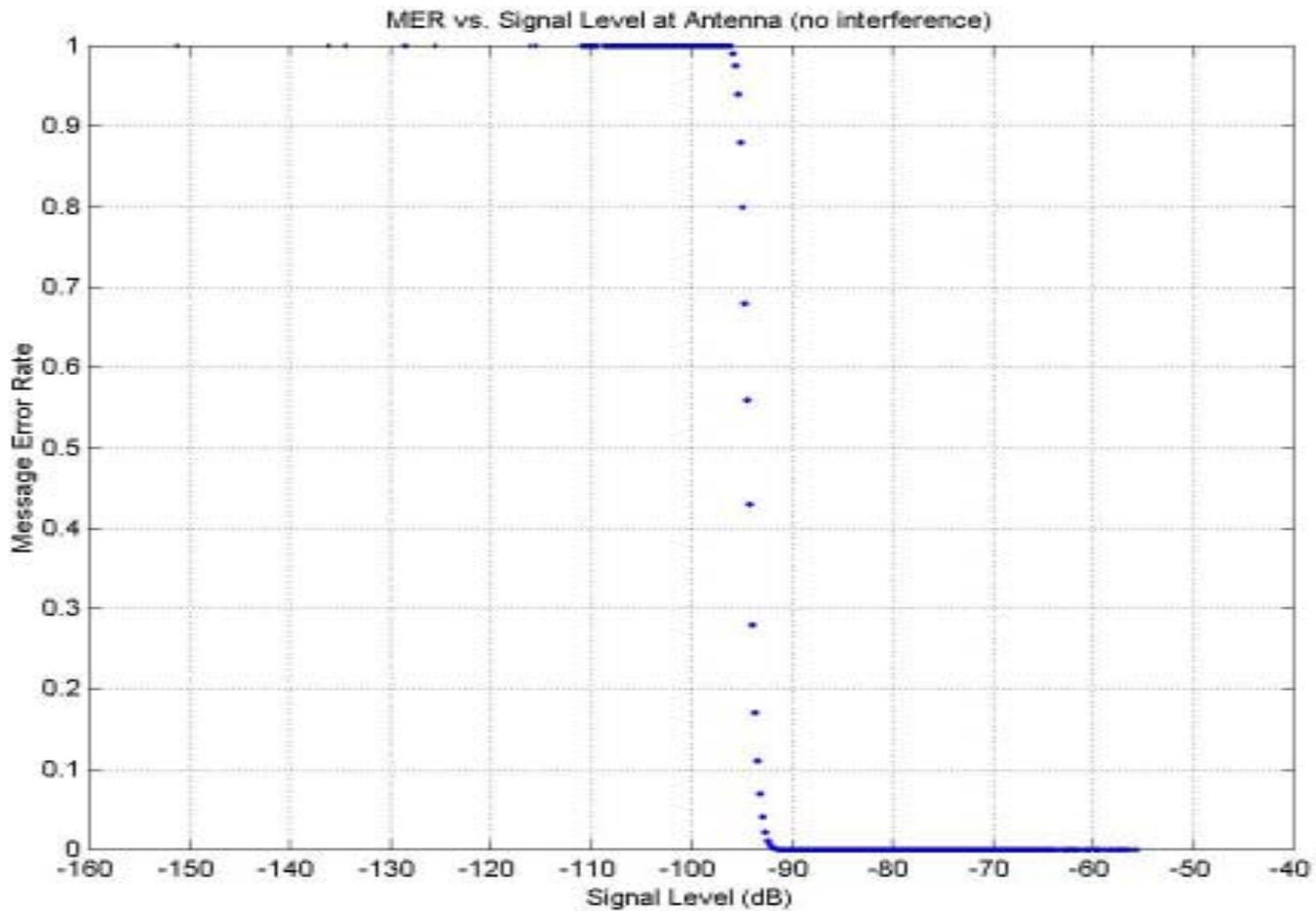


# UAT Success Rate (A3) in Co-Channel Interference (w/mods)

No. Overlaps	Success Rate
0	.95
1	.40
2	.16
3	.07
4	.03
>4	.02

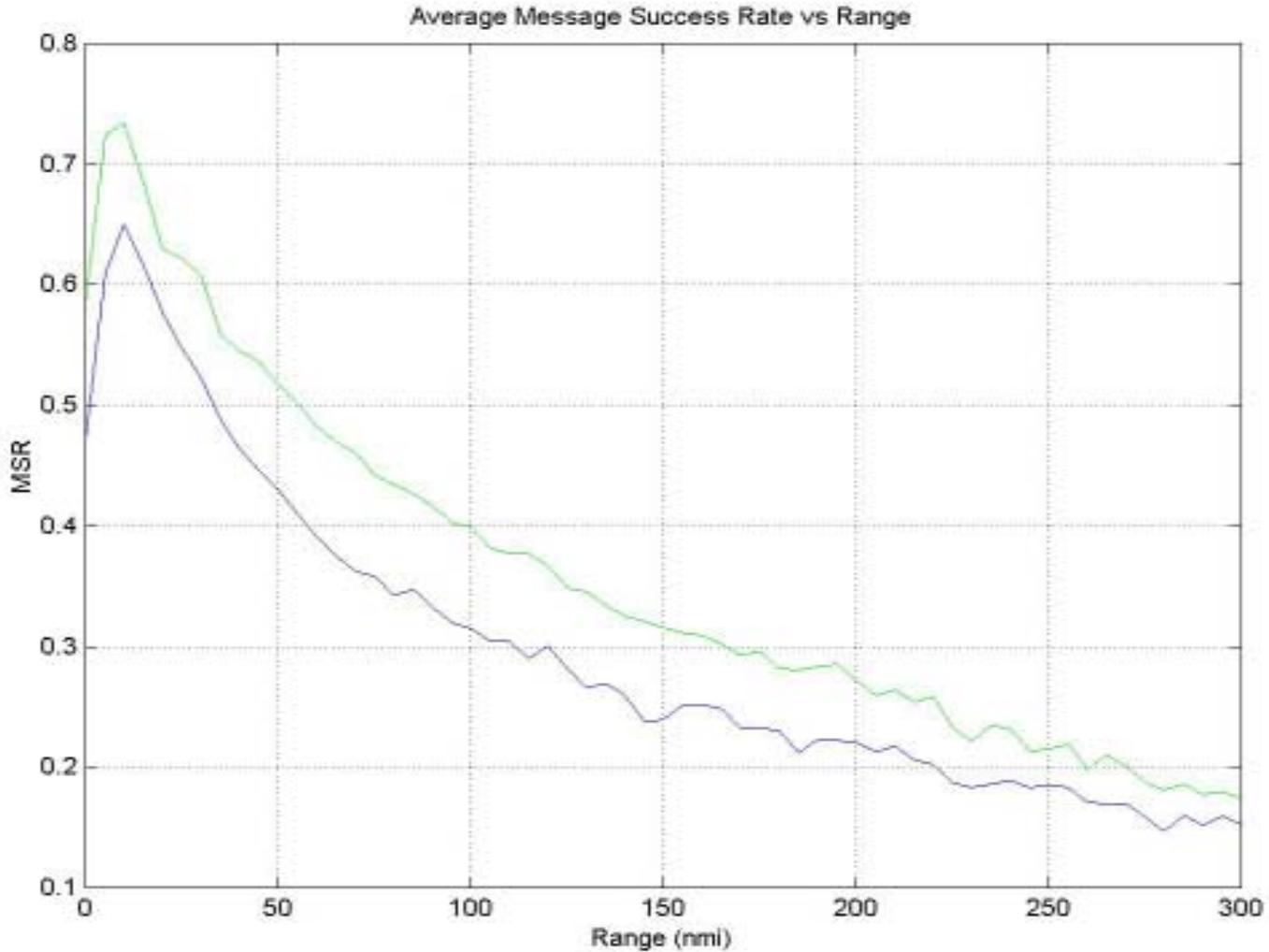


# Receiver Sensitivity Used



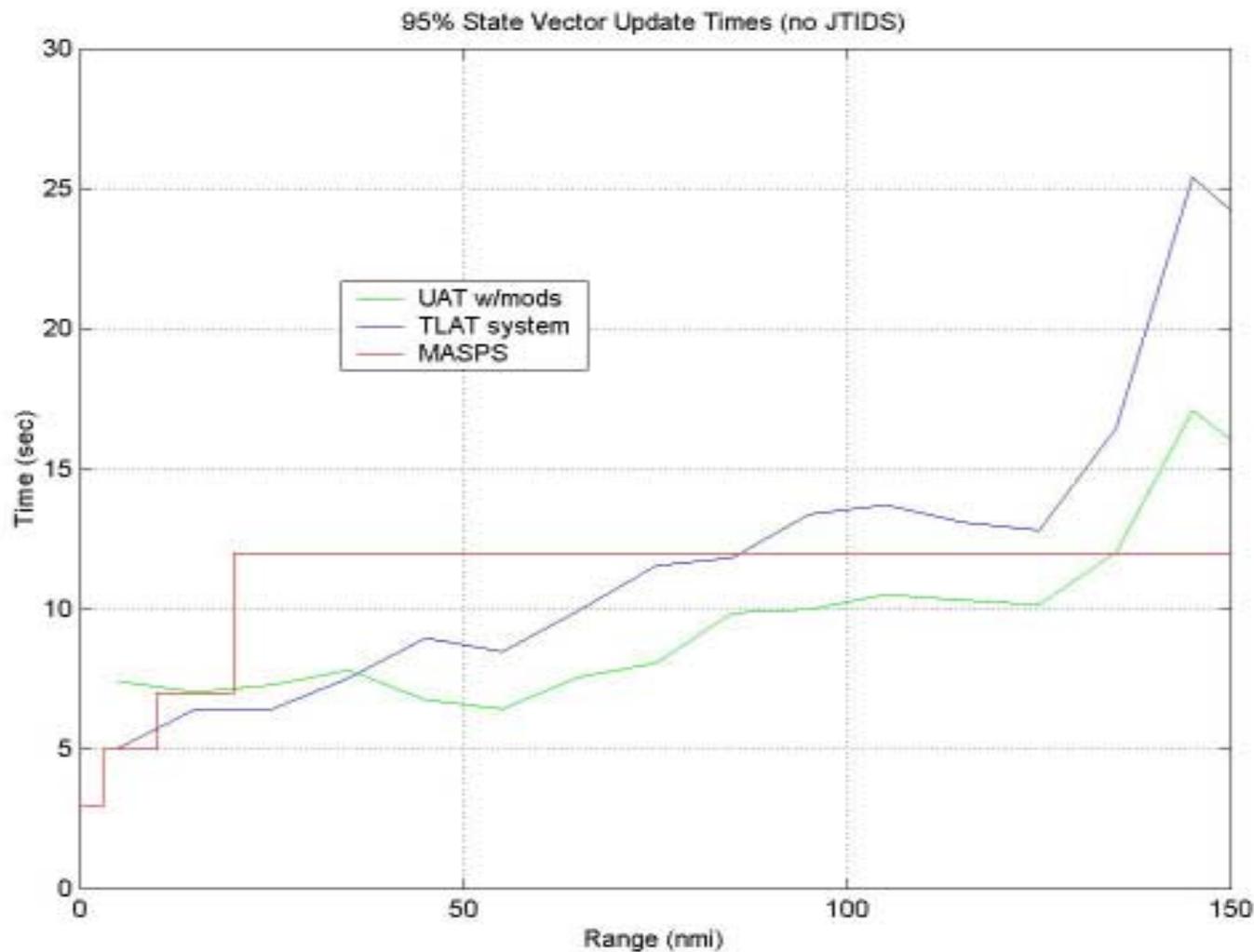


# Average MSR vs Range for Two Versions of UAT



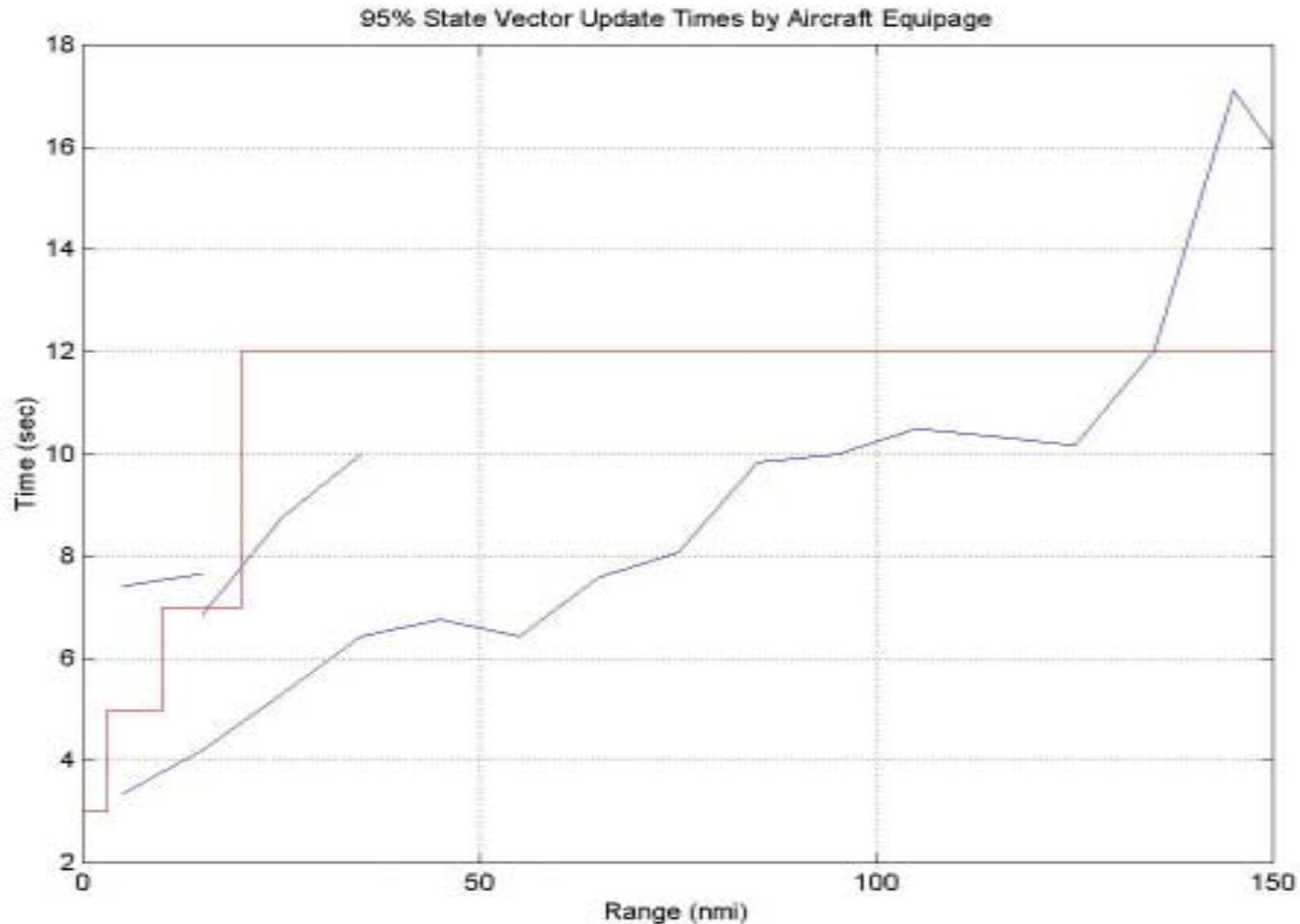


# State Vector Update Times for Two Versions of UAT





# State Vector Update Times by Aircraft Equipage (w/mods)





# State Vector Update Times by Equipage (15000') (w/mods)

