

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

**ADS-B UAT MOPS**

**Meeting #4**

**Link-16 Interference Environments**

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**SUMMARY**

This paper presents three Link-16 interference environments against which to evaluate UAT (modified) performance. Scenarios include:

- The previously presented “Baseline” scenario (for evaluation in all UAT self-interference environments)
- A “Heavy” scenario simulating major exercise activity (for evaluation in the “Low-Density” UAT self-interference environment)
- A “Light” scenario simulating a carefully controlled operation (for evaluation in the “High-Density” UAT self-interference environment)

## **Scenario One (Uncoordinated Operations-L16 Baseline)**

### **Emitters: 100/50/(300)**

#### **Emitter 1 (Foreground)**

Effective Radiated Power: 200W at transmitter antenna

TSDFs:

*Option A: TSDF 50% at -50 dBm (1.8nm-3nm)*

*Option B: TSDF 50% at -39 dBm (1000 ft vertical)*

*Option C: TSDF 20% at -39 dBm (1000 ft vertical) and 30% at -50 dBm (1.8nm-3nm)*

#### **Emitter 2 (Near Background)**

Effective Radiated Power: 200W at transmitter antenna

TSDF: 50% at -60 dBm (5.9nm)

#### **Emitter 3 (Far Background)**

Effective Radiated Power: 200W at transmitter antenna

TSDF: 300% at -84.5 dBm (100nm)

### **Participant Dispositions:**

Emitters 2-3 maintain same relative disposition from “victim” receiver for duration of run.

## Scenario Two (Coordinated Operations-L16 Heavy)

### Emitters: 400/50

#### Emitter 1 (Foreground)

Effective Radiated Power: 200W at transmitter antenna

*Option A: TSDF 50% at -39 dBm (1000 ft)*

*Option B: TSDF 50% at -50 dBm (1.8nm-3nm)*

*Option C: TSDF 50% at -60 dBm (5.9nm)*

#### Emitter 2 (Near Background)

Effective Radiated Power: 200W at transmitter antenna

TSDF: 50% at -60 dBm (5.9nm)

#### Emitter 3 (Near Background)

Effective Radiated Power: 200W at transmitter antenna

TSDF: 150% at -78 dBm (46nm)

#### Emitter 4 (Far Background)

Effective Radiated Power: 200W at transmitter antenna

TSDF: 150% at -82 dBm (73nm)

### Participant Dispositions:

Emitters 2-4 maintain same relative disposition from “victim” receiver for duration of each run. Second run simulates controlling relative position of nearest foreground emitter from “victim” aircraft.

## **Scenario Three (Uncoordinated Operations-L16 Light)**

### **Emitters: 100/20/(300)**

#### **Emitter 1 (Foreground)**

Effective Radiated Power: 200W at transmitter antenna  
TSDF: 20% at -39 dBm (1000 ft)

#### **Emitter 2 (Near Background)**

Effective Radiated Power: 200W at transmitter antenna  
TSDF: 80% at -60 dBm (5.9nm)

#### **Emitter 3 (Far Background)**

Effective Radiated Power: 200W at transmitter antenna  
TSDF: 300% at -90 dBm (200nm)

### **Participant Dispositions:**

All emitters maintain same relative disposition from “victim” receiver for duration of run.