ICAO WRC-23 PREPARATORY WORKSHOP

AI 1.10: NON-SAFETY AMS IN 15.4-15.7 GHz AND 22-22.21 GHz

Date: 22/02/2022

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01 | Description of proposed non-safety system operating under new AMS allocation

02 | Coexistence studies with ARNS in 15.4-15.7 GHz

01 | **Description of proposed non-safety system operating under new AMS allocation**

Principle

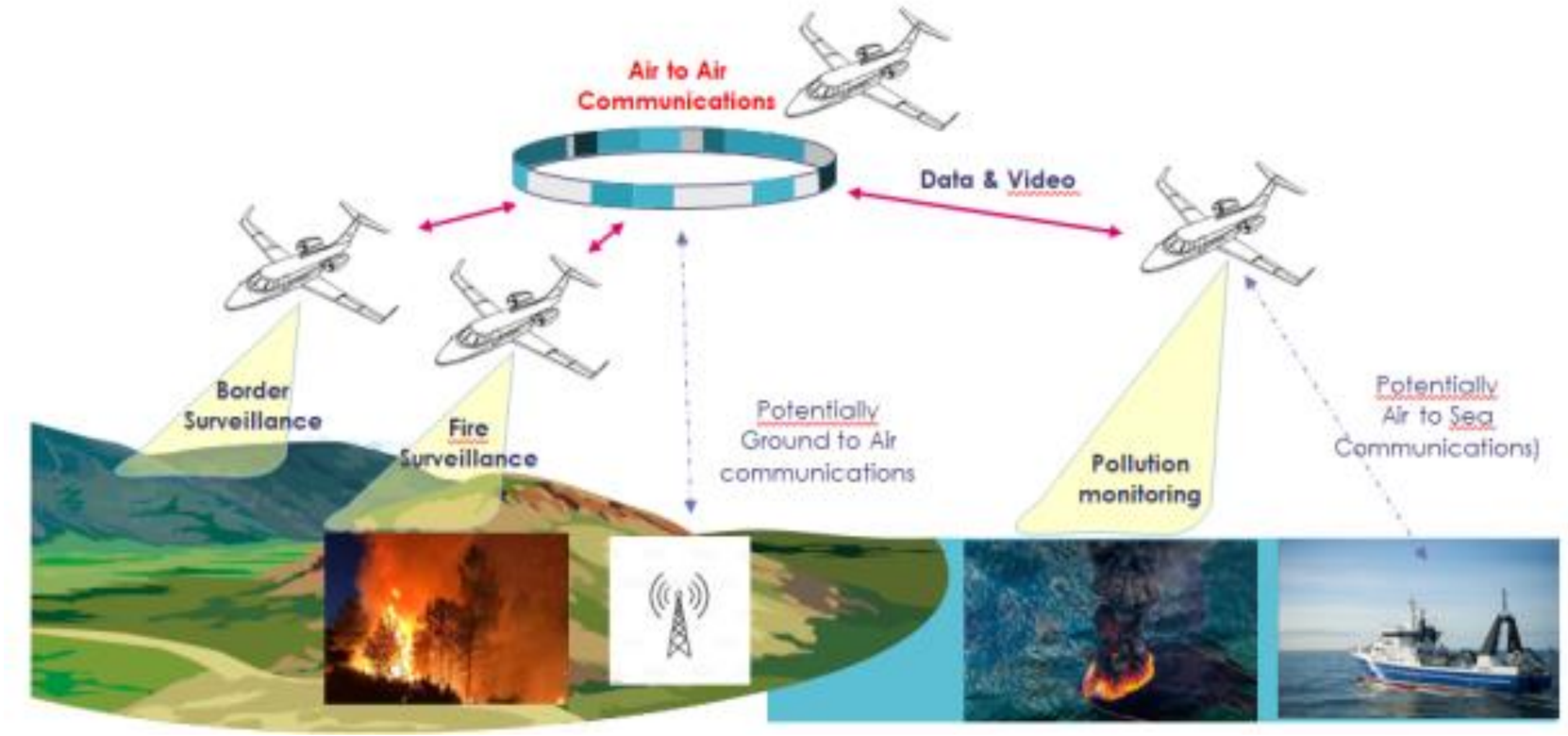


Figure from WDT PDN Rep. ITU-R [NON-SAFETY AMS CHARACTERISTICS AND SHARING STUDIES]

02 | **Coexistence studies with ARNS in 15.4-15.7 GHz**

ICAO position

*“To support ITU-R studies as called for by Resolution **430 (WRC-19)**.*
To support, based on the agreed results of studies, new allocations to the aeronautical mobile service only for use by non-safety aeronautical mobile applications.
To ensure that any such modification does not adversely affect the status or provision of aeronautical safety services.”

⇒ **Coexistence studies between ARNS in 15.4-15.7 GHz and the new system under AMS non-safety**

ITU Working documents

WDT PDN Rec. ITU-R M.[15.4-15.7_GHZ_ARNS]

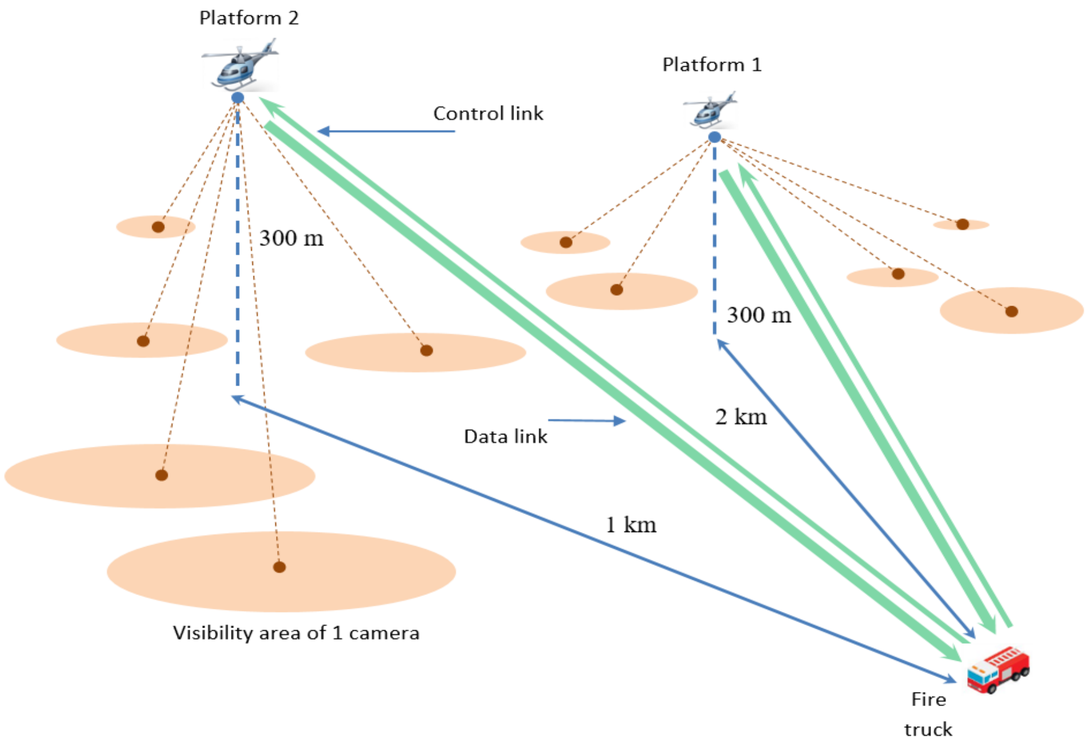
- Proposals for Detect And Avoid (DAA) and Automatic Landing System (ALS) characteristics

WDT PDN Rep. ITU-R M.[NON-SAFETY AMS CHARACTERISTICS AND SHARING STUDIES]

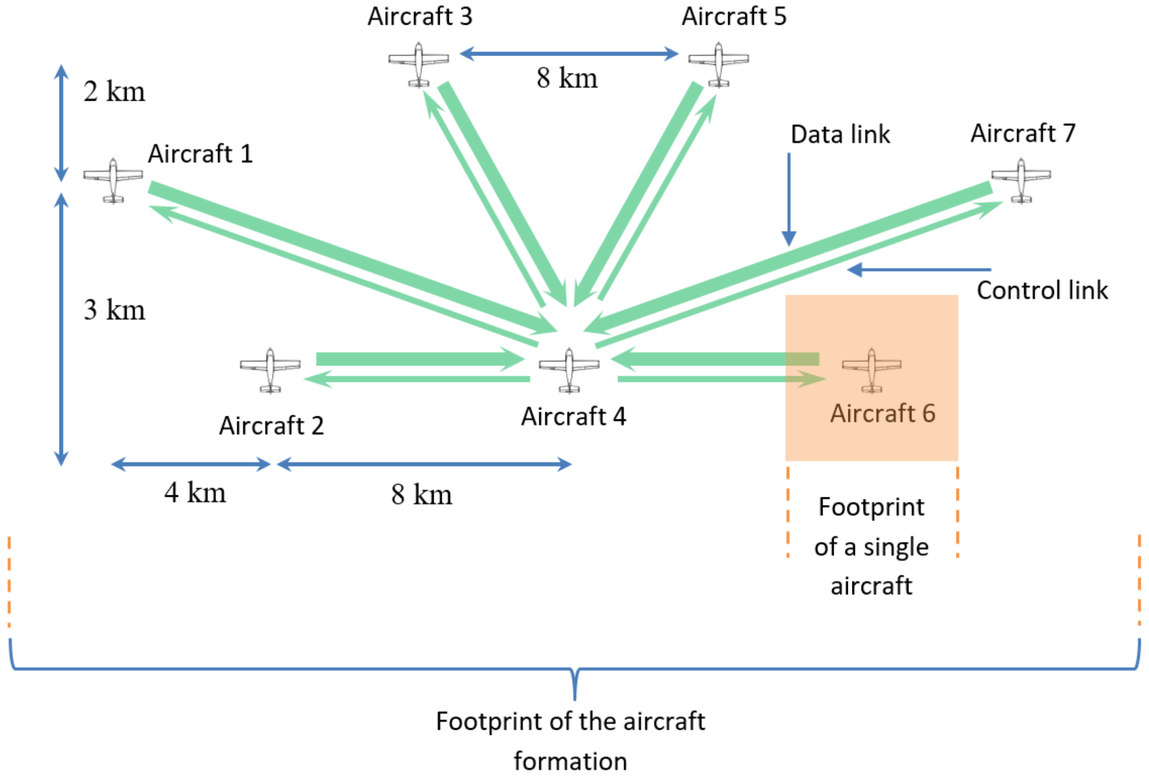
- Proposals for AMS systems in 15.4-15.7 GHz and 22-22.21 GHz
- Compatibility studies

02 | Coexistence studies with ARNS in 15.4-15.7 GHz

Scenarios under study



Wildfire monitoring

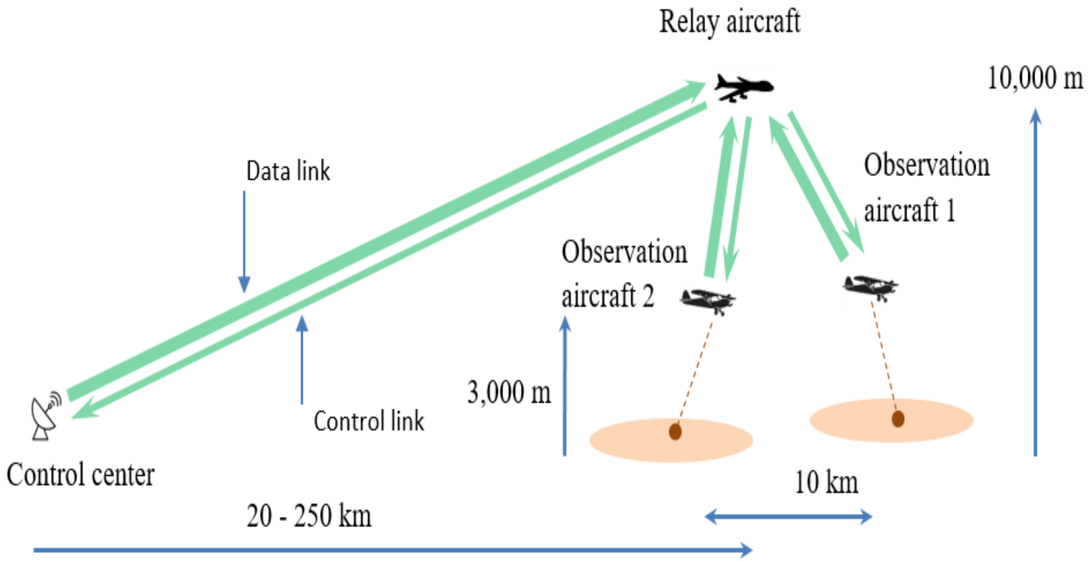


Search and rescue

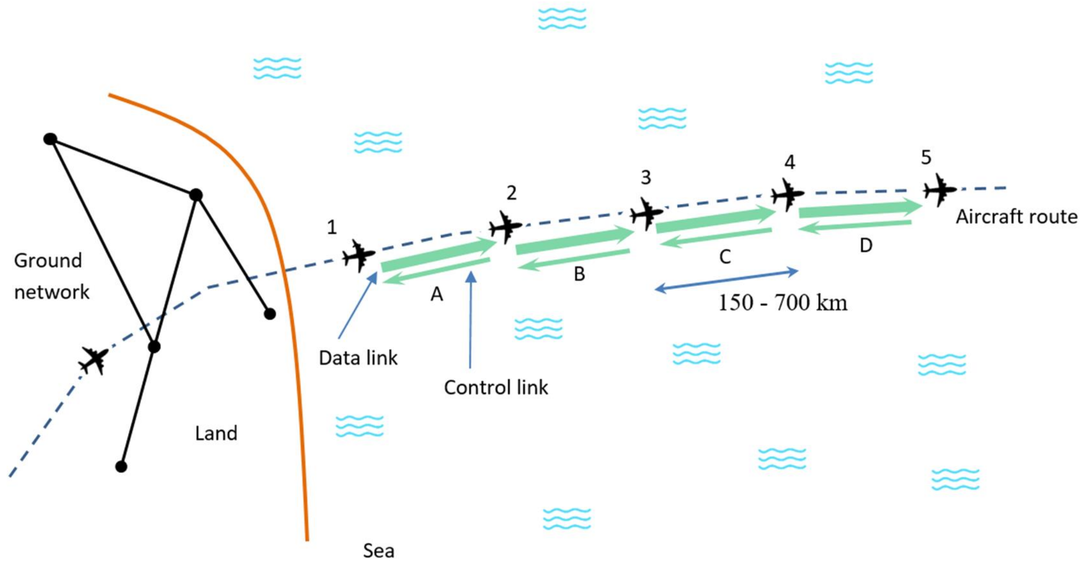
Figures from WDT PDN Rep. ITU-R [NON-SAFETY AMS CHARACTERISTICS AND SHARING STUDIES]

02 | Coexistence studies with ARNS in 15.4-15.7 GHz

Scenarios under study



Border surveillance



Air-to-air relaying

Figures adapted from WDT PDN Rep. ITU-R [NON-SAFETY AMS CHARACTERISTICS AND SHARING STUDIES]

02 | **Coexistence studies with ARNS in 15.4-15.7 GHz**

Scenarios under study

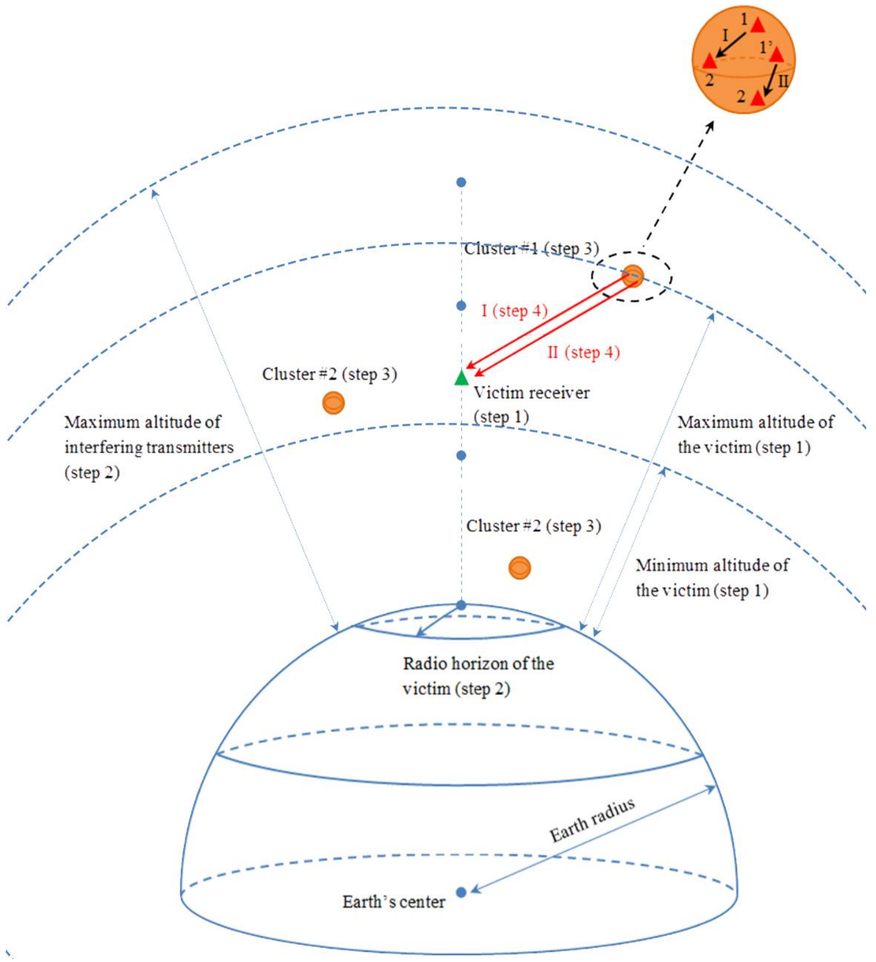


Figure adapted from WDT PDN Rep. ITU-R [NON-SAFETY AMS CHARACTERISTICS AND SHARING STUDIES]

02 | **Coexistence studies with ARNS in 15.4-15.7 GHz**

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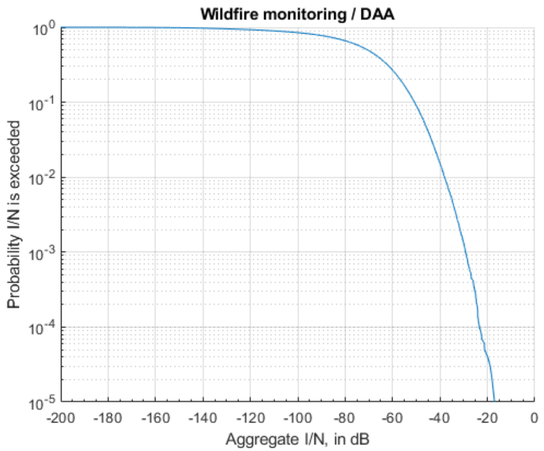
Methodology

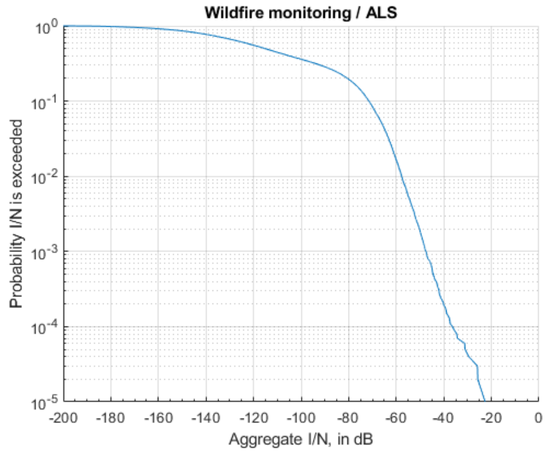
1. Locate the ARNS victim
2. Define a simulation radius $R_{Simulation}$, depending on the scenarios
3. Compute the number of clusters $N_{Clusters}$ to be deployed
4. Deploy the clusters of AMS systems within the simulation area
5. Compute the aggregate interference power I at the victim receiver, taking into account geographical and frequency separation
6. Repeat steps 1 to 5 in order to cover $N_{snapshots}$ times
7. Compare against the victim protection criterion

02 | **Coexistence studies with ARNS in 15.4-15.7 GHz**

Coexistence studies

Example of preliminary* result: ECDF of aggregate I/N on Automatic Landing Systems (ALS) and Detect And Avoid (DAA) for the wildfire scenario





*Results presented here are subject to future contributions to ITU-R WP 5B. They may be slightly different from material available in the current version of WDT PDN Rep. ITU-R M.[NON-SAFETY AMS CHARACTERISTICS AND SHARING STUDIES].

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