

THALES

Workshop Drone

CEPT

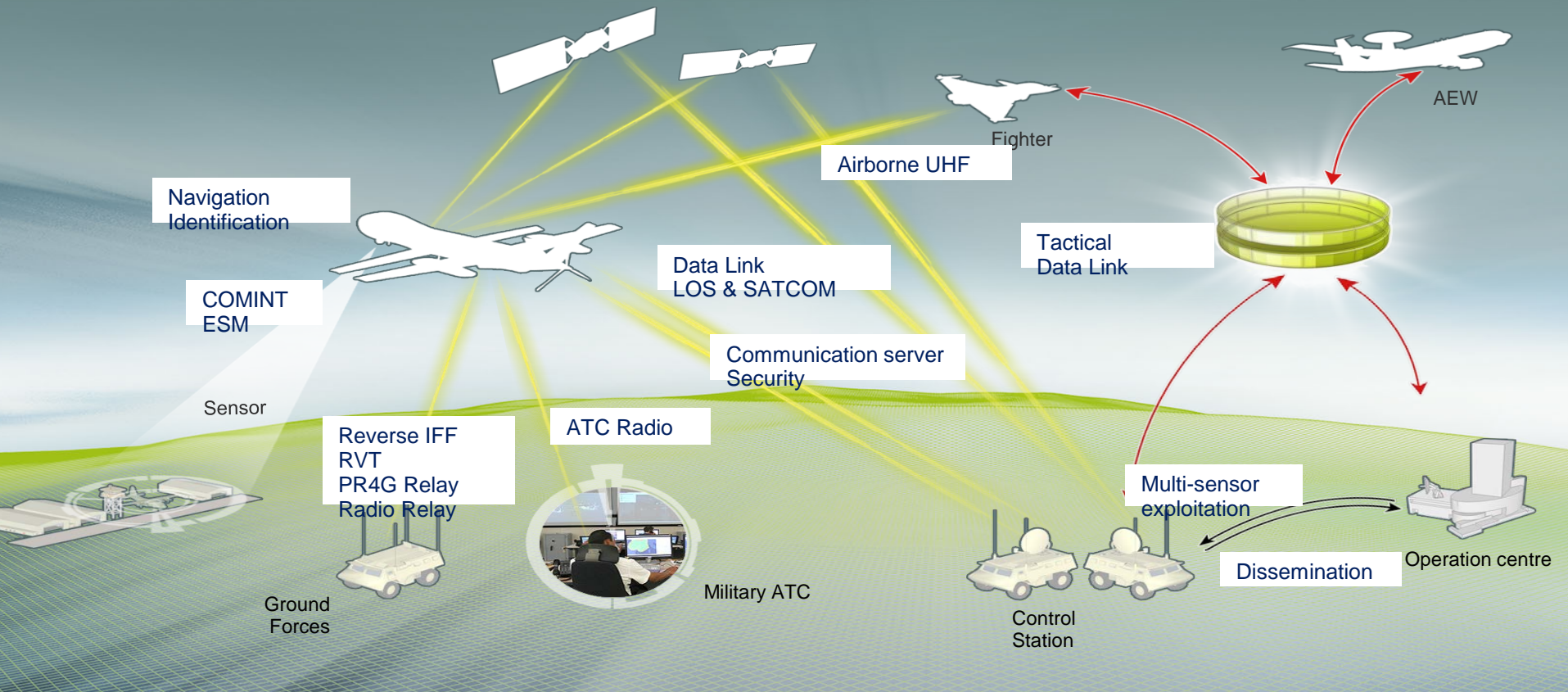
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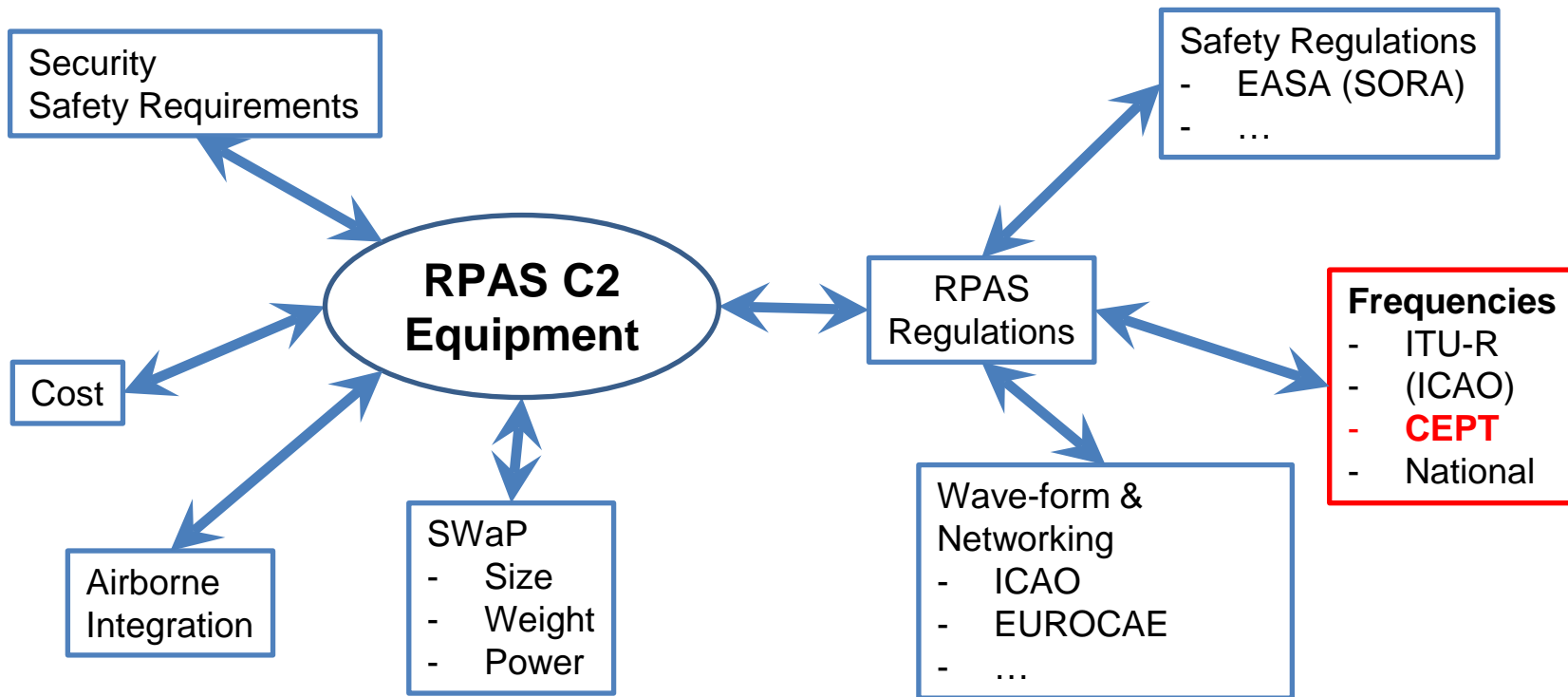
Agenda

- Introduction: THALES and RF communications for drones
- C2 RPAS: what are the design constraints?
- Current issues on Frequency regulation
- Understanding of the Status on CEPT Frequencies
- Industrial perception about Frequency for RPAS
- Industry proposition for progressing on Frequency regulation

RPAS : high stake for Communication both civilian & military



Control / Command (C2) Equipment – Design Constraints



CEPT is key player defining stable and affordable frequency regulation for RPAS

Current issues on frequency regulation

➤ Frequencies compatible with the Level of Security/Safety

- Exclusive frequency bands
- Frequency bands in sharing (interference and compatibility issues)

➤ Identification of frequency

- AMR(S) / AMSR(S)
- Existing Civilian Aviation Frequencies
- Additional frequencies for RPAS (TBD)

➤ Authorisation regime

- General
- Licensed

➤ Harmonisation issues

- Countries coordination issues (interferences issues)
- European/worldwide harmonisation

➤ Dedicated network on specific frequencies

- National or Private agency
- LTE on operated network (operator)

Still a lot of issues to be solved for Frequency regulations for RPAS

Understanding of the Status on CEPT frequencies for drones

Frequencies for certified RPAS is expected in AM(R)S and AMS(R)S (ICAO RPAS Panel)

CEPT WG FM – CG (Correspondence group)

- Professional drones (open + specific)
- Frequency option initiated by the CG in charge of the Report ECC 268
 - Scope : Professional drones
 - C2 links frequencies for drones (RPAS) in non controlled airspaces
 - Initial list of frequencies identified for C2 link:

- 790 - 862 MHz	1900 – 1920 MHz	2010 - 2110 MHz
- 2200 - 2500 MHz	2300-2400 MHz	5000 – 5010 MHz
- 5091 – 5150 MHz	5150 – 5250 MHz	5150 - 5250 MHz
- 5855-5925 MHz		
 - Payload frequencies

CG has initiated preliminary work for the WG Frequency Management

OPEN

THALES

Industrial perception about C2 Frequencies for RPAS

Certified RPAS: OACI regulation (SARPs)

- Existing RPAS Panel works on frequencies & Existing solution in AM(R)S 5030 – 5091 MHz

To boost RPAS ecosystems development, it is necessary to take into account:

- Spectrum Commonalities with certified RPAS (e.g frequency bands)
- Spectrum need for specific/open categories to be assessed
- European vision

Payload data: Numerous Drones applications are pushing for very high throughput (video, high resolution, LIDAR, etc.)

Spectrum need assessment is necessary to identify frequency bands taking into account frequency band used for certified RPAS

Conclusions for C2 link frequency

For the development of C2 link equipment and drones ecosystems, it is necessary to have:

- A frequency harmonization
- A long term stable frequency regulation
- Payload frequencies should be:
 - The same as C2 link or
 - Close to C2 link

Need of stable and urgent frequency harmonization which takes into account safety/security and feasibility constraints

CEPT is invited to create a WG FM work item dedicated to drones frequency

QUESTIONS ?

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