Radio Altimeters and 5G, a European perspective.

FPAW 2022 SPRING MEETING

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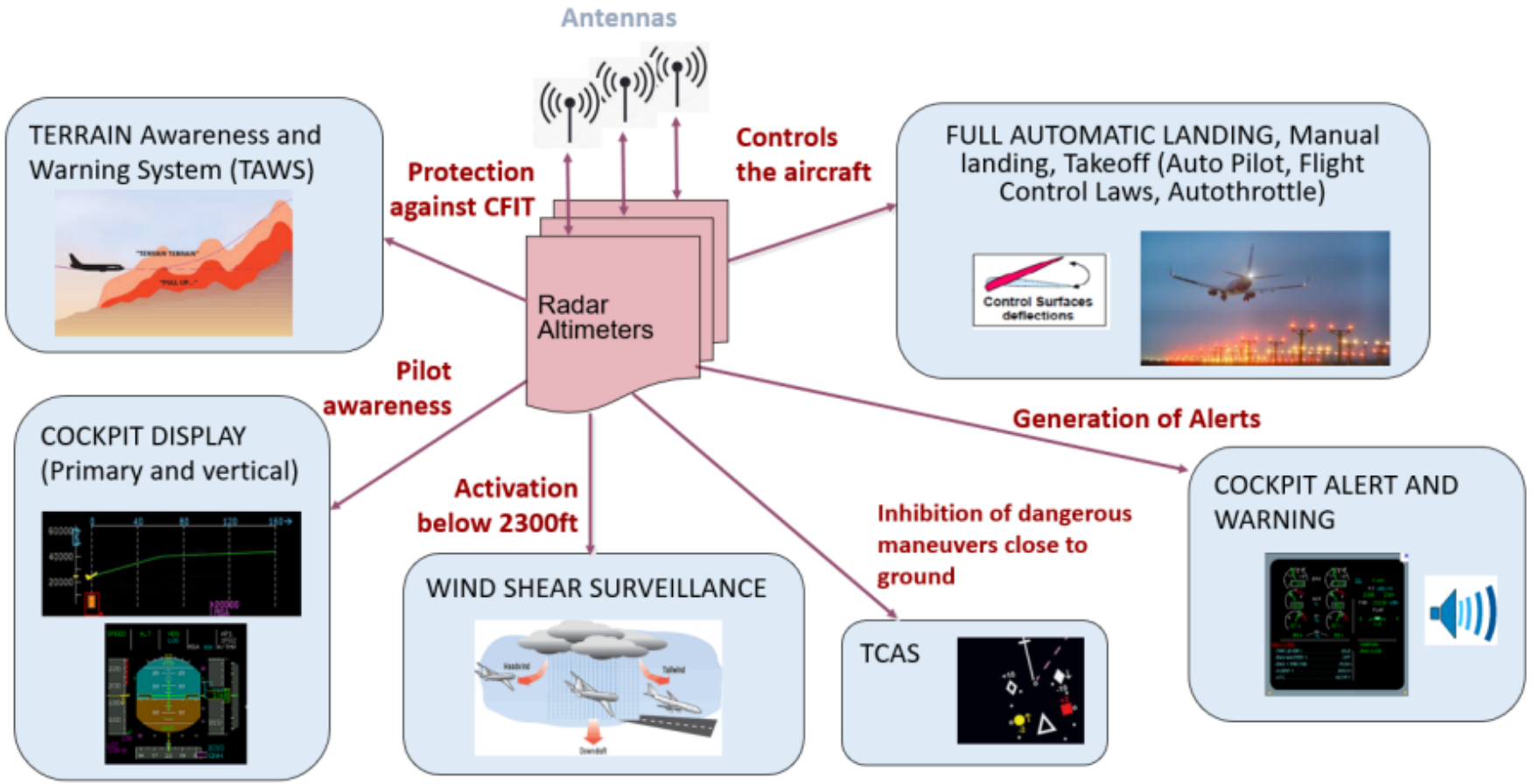
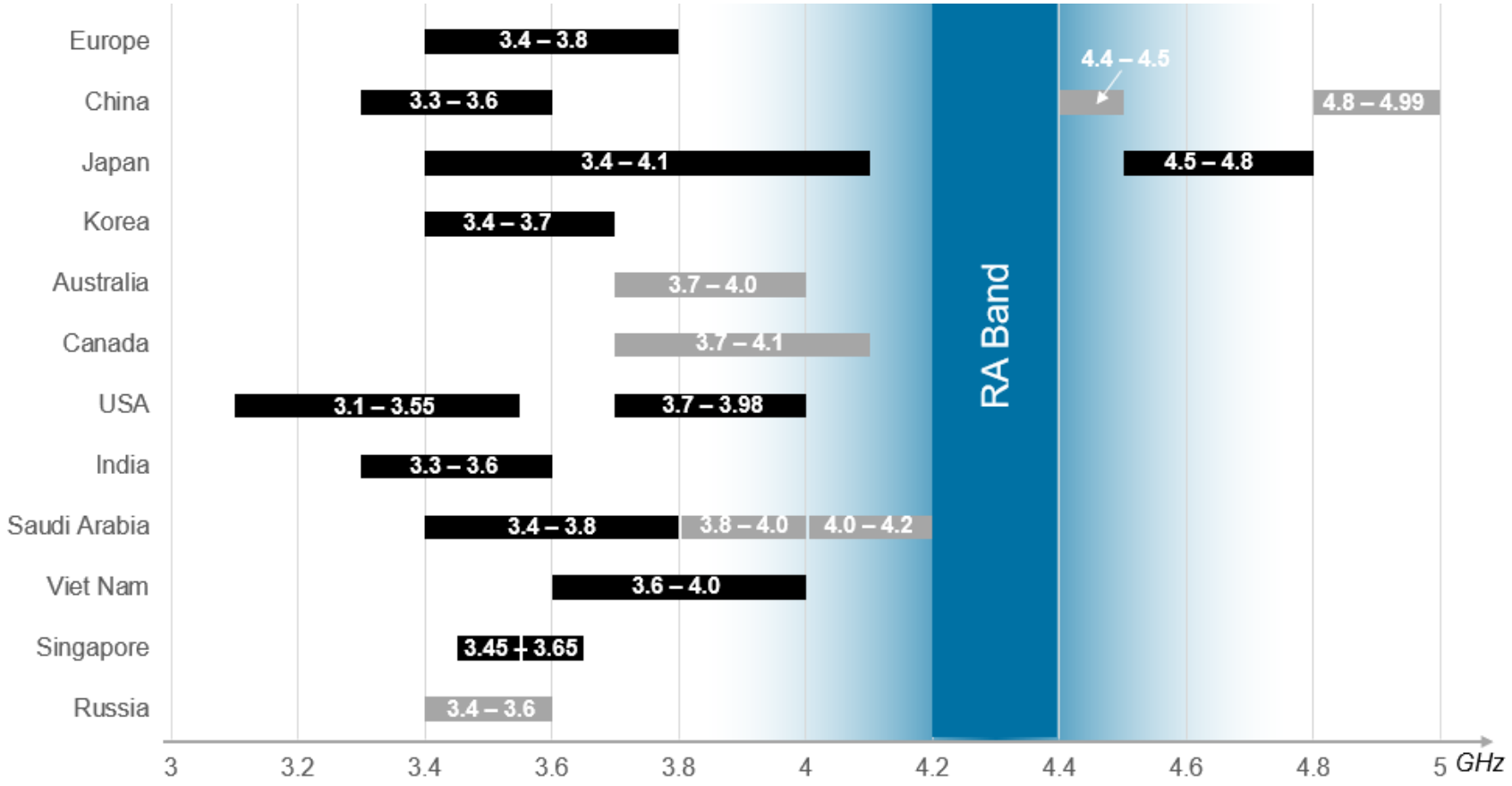
The Challenge
A Brief Summary of Telecom &5G

Telecom Industry (GSMA figures)	Aviation Industry (IATA figures)
$USD 3.9 trillion or **4.6%** of world GDP (2018)	$USD 899 billion or **1%** of world GDP (2019)
14 million direct jobs (2018)	2.9 million jobs (2019)

Critical Roles of Aircraft Radio Altimeters



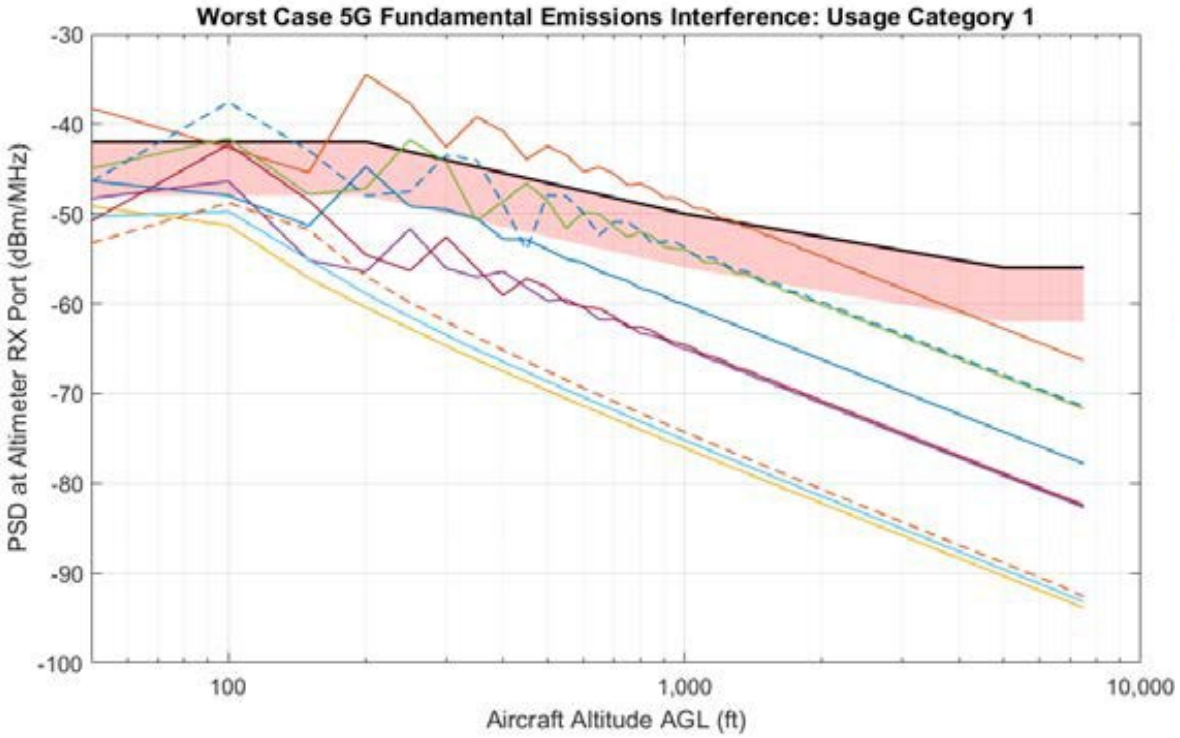
5G Deploymemt Across the Globe



Activities overview

- RTCA & EUROCAE reviewing Minimum Operational Performance Standards (MOPS) to consider worldwide Radio Frequency Interference signals.
- EASA is investigating the vulnerability of Radio Altimeters to 5G signals and is engaging with European spectrum regulators.
- European CEPT/Electronic Communications Committee is studying compatibility between 5G and Radio Altimeters.

One risk assessment



With emission levels as defined by RTCA:

- No risks / observable effects

In case of 5G emissions above established RTCA standards :
Similar symptoms as the ones observed in the past with other types of Radiofrequency interferences (RFI)

New analysis and tests have to be conducted according to FCC report and order that grants higher emission levels.

EASA's approach

Applied a risk management approach, as for any other threat to aviation safety.

→Current assessment: No hard evidence of an unsafe condition such that immediate action is required to mitigate the risk.

EASA's actions

Issued a Continued Airworthiness Review Item (CARI) to aircraft and equipment manufacturers, in order to:

- Identify radio altimeter models that show susceptibilities to 5 G Interferences;
- Assess the impacts at aircraft level that might be caused by such Interferences.

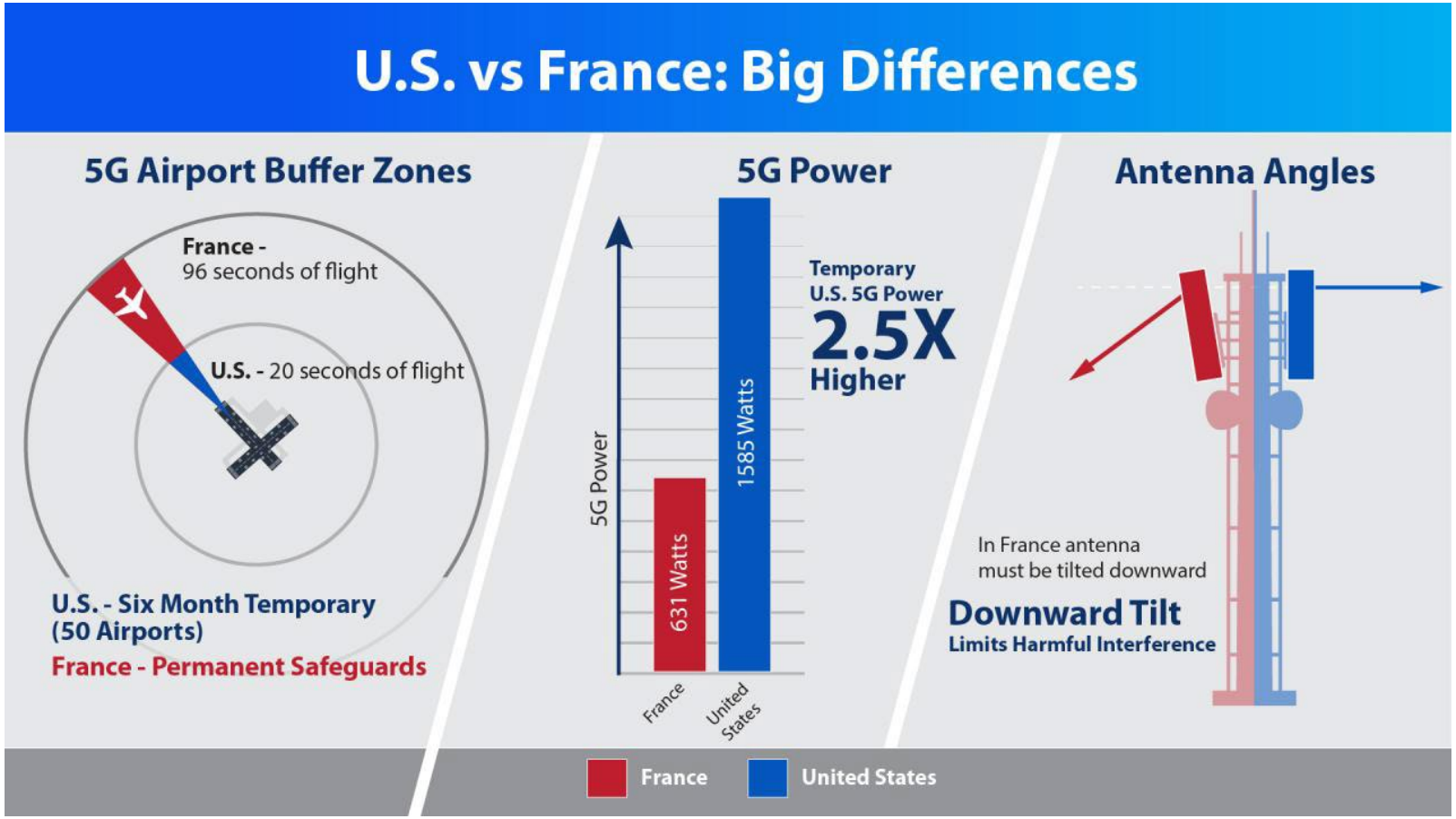
Issued a Safety Information Bulletin (SIB) SIB 2021-16

CEPT to develop an ECC Report

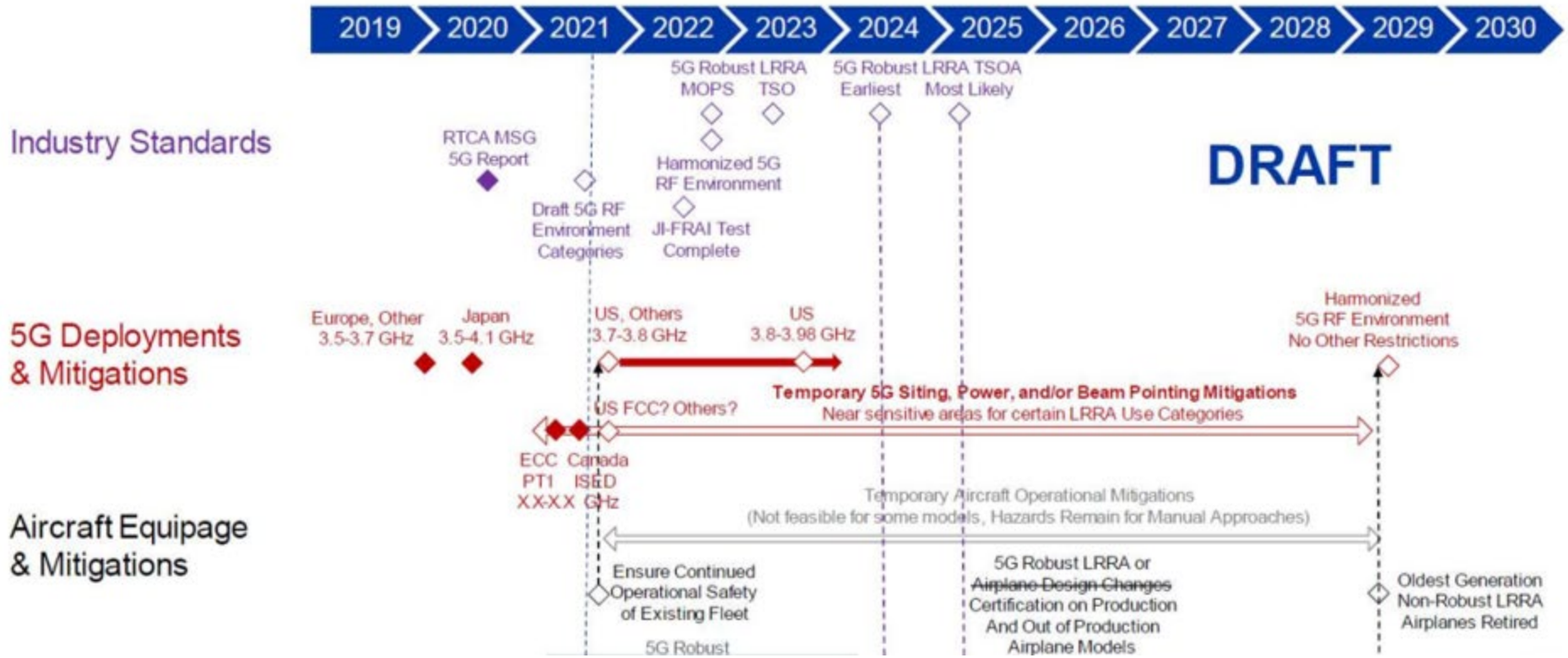
Assessment of susceptibility of deployed RA receivers operating in 4200 4400 MHz, while taking into account any civil aviation initiatives on improving RA receivers , in order to study the following compatibility scenarios:

- Unwanted emissions from MFCN operating in 3400 3800 MHz into 4200 4400 MHz radio altimeters band;
- Impact of blocking of radio altimeters from 3400 3800 MHz MFCN in band emissions.

Safeguards examples – evolving



Long Term Solution - 'Future Proof'



IATA position on 5G

IATA and its member airlines understand the economic importance of 5G deployments. However, in line with Article 4.10 of the ITU Radio Regulations and ICAO Standards and Recommended Practices, we insist that maintaining current levels of safety for civil aviation must continue to be one of governments' highest priorities.

IATA on 5G C-band Frequency Allocations and Assignments

- Ensure through testing sufficient spectrum separation between 5G C-band deployments and 4.2-4.4 GHz frequency band used by existing radio altimeters.
- Clearly codify and enforce the maximum power limit for 5G C-band transmission and downward tilting of all 5G antennae.
- Establishment of sufficient 5G C-band prohibition and pre-cautionary zones around airports.

- https://www.iata.org/en/programs/ops-infra/air-traffic-management/5g/

Thank you

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