



International Civil Aviation Organization

**NINETEENTH MEETING OF THE COMMUNICATIONS/NAVIGATION
AND SURVEILLANCE SUB-GROUP (CNS SG/19) OF APANPIRG**

Bangkok, Thailand, 20 – 24 July 2015

Agenda Item 3: Aeronautical Fixed Services (AFS)

- 3.1 **Review Report of the Second Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/2) including the outcome of the Fourth Meeting of CRV Task Force (CRV TF/4);**

TEMPLATE AND GUIDANCE FOR CRV LOCAL SAFETY ASSESSMENT

(Presented by France)

SUMMARY

This paper presents a safety assessment way forward regarding CRV implementation at ANSP level.

1. INTRODUCTION

1.1 In the frame of CRV project, a generic safety study using a safety assessment process was performed. However, this generic safety study is not formally recognized by any National Surveillance Authority. This paper suggests a way forward by instantiating the generic safety study, in accordance with the local operational needs.

1.2 During ACSICG second meeting, a draft conclusion was proposed:

Draft Conclusion 2/3 - CRV preliminary Safety Analysis Follow-up

That, CRV Participating States/Administrations be urged to consider the CRV safety requirements specified in the CRV Preliminary Safety Analysis v1.0 as a basis for their local safety case, perform their local safety case, and report to APANPIRG through the appropriate body.

Note: to support the local safety case, a template will be provided, as well as educational material on the safety case.

1.3 This paper proposes the aforementioned template.

2. DISCUSSION

2.1 Since there is no harmonized safety assessment process within APAC region, the preliminary safety assessment was conducted in a pragmatic way, as follows :

1. delineation of the services (AFTN, surveillance, voice...) to be conveyed with the CRV;
2. identification of corresponding operational hazards considering several failure modes (loss, corruption of the service) as well as the operational environment categorization;
3. for each hazard, assignment of severity and probability. To do so, a risk classification scheme aligned with ICAO Doc 9859 Safety Management manual principles (5 levels of severity and qualitative probabilities) was enriched with probabilistic figures leading to a Safety Objectives Classification Scheme model (SOCS); and
4. Given a hazard, derivation of safety requirements for both protective and preventive mitigation means. Protective mitigations are means that can reduce the severity of a hazard where preventive mitigation means can reduce the probability of occurrence of a hazard. This process resulted in expressing safety requirements at both CSP and ANSP level for Human/Procedure and Equipment components of the ATM/CNS system. Of course, these requirements were part of the tender package.

2.2 From that standpoint, as there was no visibility on the level of redundancy nor diversity of the CSP regarding the logical and physical implementations, the generic safety study could not figure out to which extent the CSP could satisfy the safety objectives assigned for the hazards. Consequently, for critical services (surveillance, air-voice communication...) mainly, different options were envisioned as were considered key safety topics for the tenders.

2.3 The generic safety study ended up with generic safety requirements and different options presuming the full or partial ability of the CSP to satisfy the Safety Objectives of the HAZ.

2.4 Moreover, as there is **no formal recognition** at NSA level of the generic safety assessment process as presently performed, ANSP instantiate should follow up with respect to NSA-recognized safety assessment methodology.

2.5 Hereafter is a proposed way forward to perform this instantiation.

- Select which services are intended to be delivered through the CRV;
- Endorse the severity of the hazards (by assessing the efficiency of the protective mitigation means). Adjust accordingly;
- Endorse the safety objectives. Adjustment may occur at this stage to comply with recognized safety criteria; and

- Demonstrate satisfaction of the safety objectives using CSP contribution. Decide whether or not the CSP contribution is to be completed by CRV-independent mitigation means.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss and adopt the attached guidance material; and
- c) discuss any relevant matters as appropriate.



CRV-related safety case instanciation template



BASIC QUESTIONS

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Direction générale de l'Aviation civile

Ministère de l'Écologie, du Développement durable et de l'Énergie

Why a safety case with CRV implementation ?

Any change of the ATM/CNS system shall, demonstrate that induced risk is acceptable.

No formal recognition from the National Supervisory Authorities (NSA) of the CRV safety



When to produce a safety case with CRV implementation ?

Any change of the ATM/CNS system shall, once known, be notified to the NSA with respect to agreed deadlines.

Guidance of how to conduct safety assessment

- Step 1 Identify which services are implemented with CRV (AFTN, Air Voice, Surveillance etc...)
- Step 2 For the resulting Operational Hazards :
 - confirm severity and probability classification scheme or adjust where necessary to locally safety criteria agreed with NSA:
 - Review of the protective mitigation means

• Modify the safety criteria where needed.

