Belgian Airspace Infringement Reduction Plan B/AIRP

Kick-off meeting Portugal 12/2013

Federal Public Service Mobility and Transport
Belgian Civil Aviation Authority

DEFENSIE
LA DÉFENSE

Belgocontrol

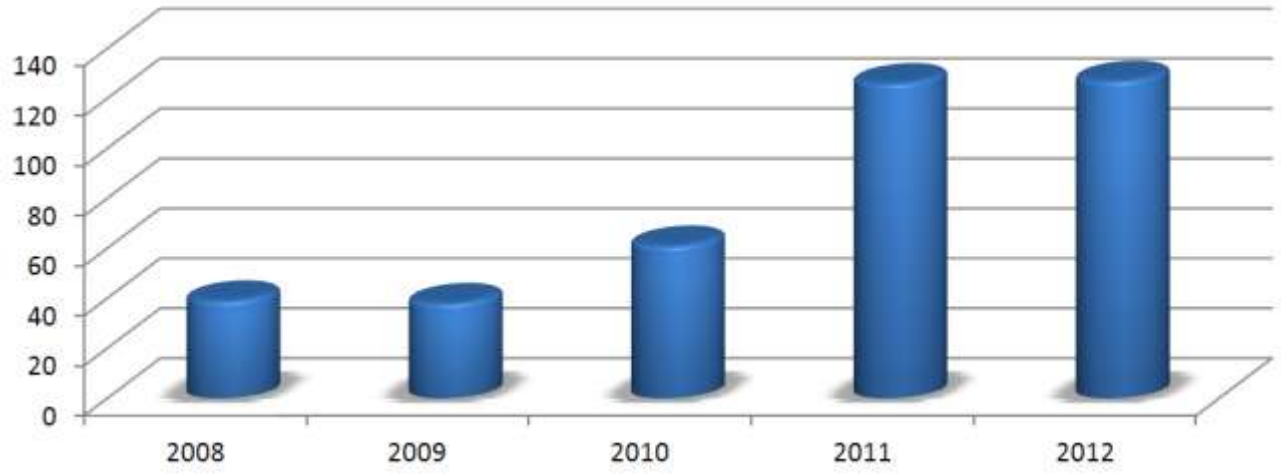
EUROCONTROL

0. Intro into B/AIRP:

- Ing. Jelle Vanderhaeghe
- Representative of the Belgian CAA, at the invitation of the Eurocontrol and the Portuguese colleagues
- Active in the Training Department, as compliance auditor of ATO (pilot training organizations)
- Engineering background and commercial pilot license holder
- Appointed as B/AIRP coordinator when the project was launched in 2012
- My goal today is to share with you our experiences with setting up an AI action plan in your country

1. History of B/AIRP:

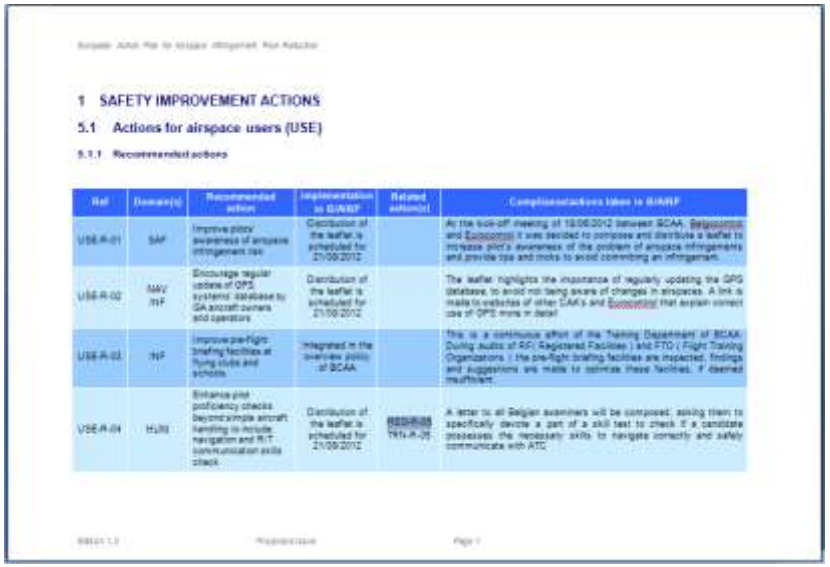
- Launched in the summer of 2012
- Based on safety/risk analysis for the Belgian State Safety Plan, Airspace Infringements was identified as one of the key threats of civil aviation safety in Belgium, together with:
- Runway Incursion, Runway Excursion, Laser Attacks, etc.



1. History of B/AIRP:

- The kick-off meeting was held in 06/2012
- The basis of B/AIRP was the European Airspace Infringement Action Plan

  The European Action Plan was filled in for the first time



1 SAFETY IMPROVEMENT ACTIONS

5.1 Actions for airspace users (USE)

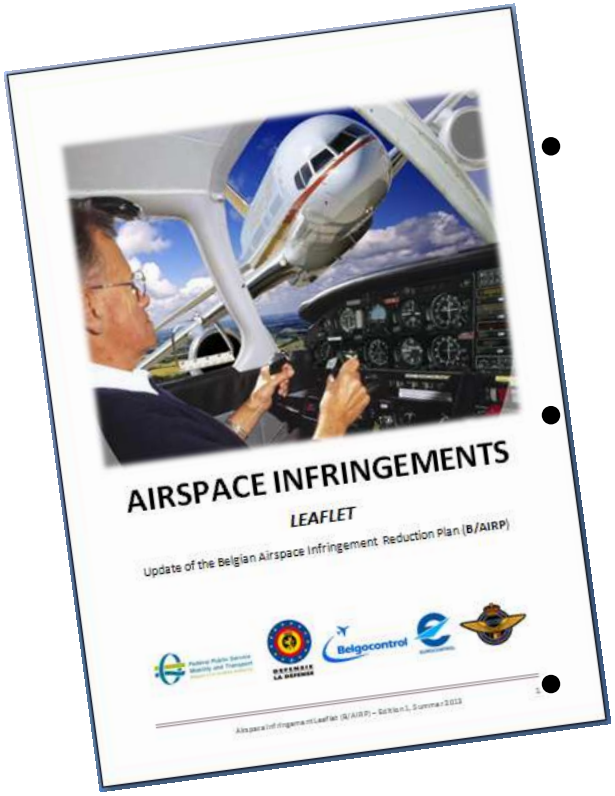
5.1.1 Recommended actions

Ref	Domain(s)	Recommended action	Implementation in B/AIRP	Related action(s)	Comments/actions taken in B/AIRP
USE-R-01	SAF	Improve pilots' awareness of airspace infringement risk	Distribution of the leaflet is scheduled for 21/09/2012		At the kick-off meeting of 19/06/2012 between BCAA, Belgocontrol and Eurocontrol it was decided to compose and distribute a leaflet to increase pilot's awareness of the problem of airspace infringements and provide tips and tricks to avoid committing an infringement.
USE-R-02	NAV INF	Encourage regular update of GPS systems' database by GA aircraft owners and operators	Distribution of the leaflet is scheduled for 21/09/2012		The leaflet highlights the importance of regularly updating the GPS database, to avoid not being aware of changes in airspaces. A link is made to websites of other CAA's and Eurocontrol that explain correct use of GPS more in detail
USE-R-03	INF	Improve pre-Flight briefing facilities at flying clubs and schools	Integrated in the overview points of BCAA		This is a continuous effort of the Training Department of BCAA. During audits of RF(Registered Facilities) and FTO (Flight Training Organizations) the pre-flight briefing facilities are inspected, findings and suggestions are made to optimize these facilities. If deemed insufficient.
USE-R-04	HUM	Enhance pilot proficiency checks beyond simple aircraft handling to include navigation and R/T communication skills check	Distribution of the leaflet is scheduled for 21/09/2012	[redacted] TRN-R-05	A letter to all Belgian examiners will be composed, asking them to specifically devote a part of a skill test to check if a candidate possesses the necessary skills to navigate correctly and safely communicate with ATC

1. History of B/AIRP:

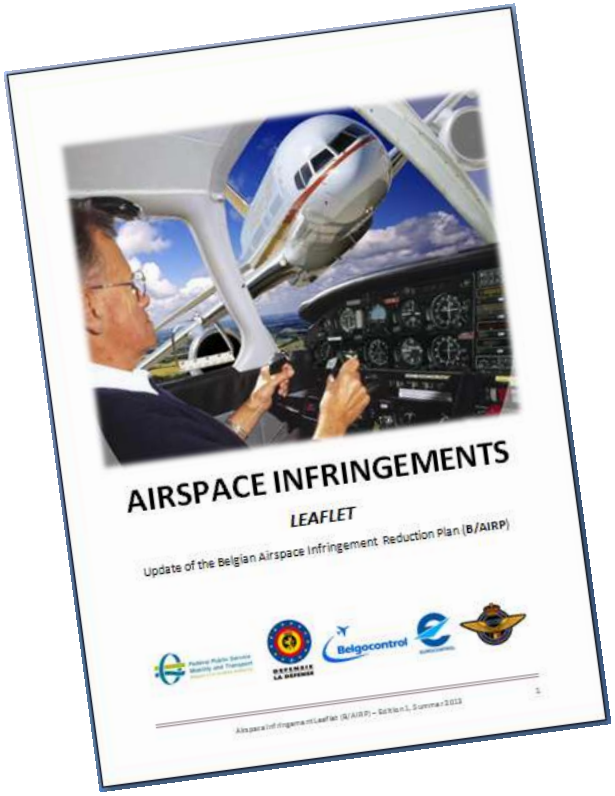
- Various meetings were organized with representatives of the stakeholders of the issue of Airspace Infringements:
- Belgian CAA, Belgocontrol, Eurocontrol, Belgian Air Force, Airspace Users (federations of recreational aviation)
- Based on the input from Eurocontrol , it was decided to focus initially on “Quick wins”

2. Leaflet:



- A lot of time was invested in an Airspace Infringement Awareness Leaflet:
- This to raise awareness to the problem and provide tips and tricks to the airspace users
- The leaflet was publicized in may 2013, both in Belgium and our neighbouring countries
- There were quite some downloads of the online available leaflet, feedback was positive

2. Leaflet: Tips & Tricks:

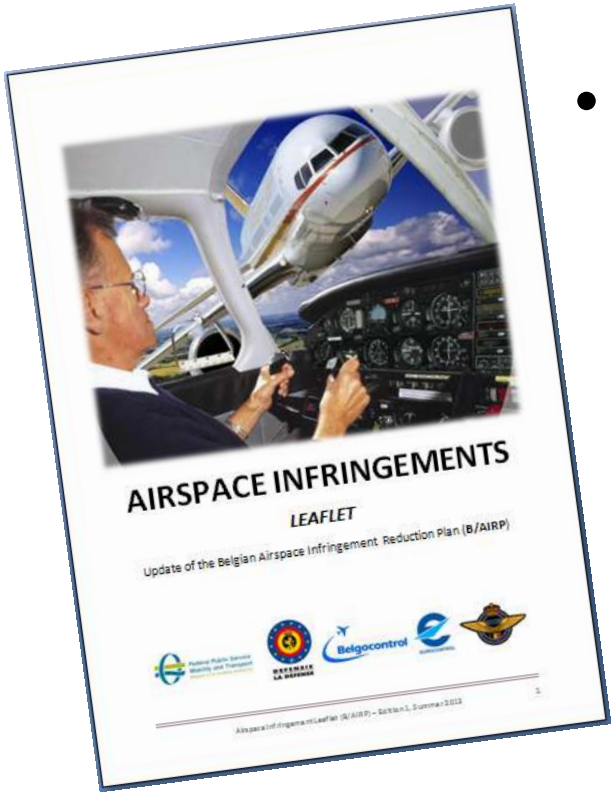


- A lot of time was spent on the choise of words: ~~hobby pilot~~ -> General Aviation Traffic, etc. Do not offend or blame any of the people your are trying to reach
- Rather dramatic images were used on purpose to draw the attention
- A positive approach was used: no blame, but raising awareness and providing tips and tricks instead

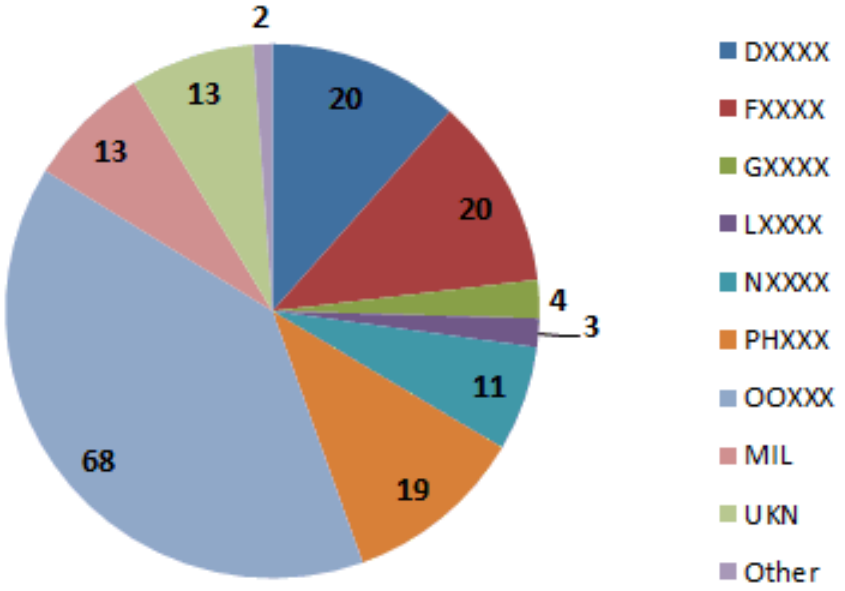
2. Leaflet: Tips & Tricks:

- The Portuguese authorities are welcome to use our template, to compose a similar leaflet (the Word template is freely available if wanted)
- Our publication was slightly late: get the timing right! (Very little flying during the Belgian winter, ideal timing to brief the pilots). Our leaflet came slightly late for publications, briefings, etc.
- Ideal timing: november/december

2. Leaflet: Tips & Tricks:



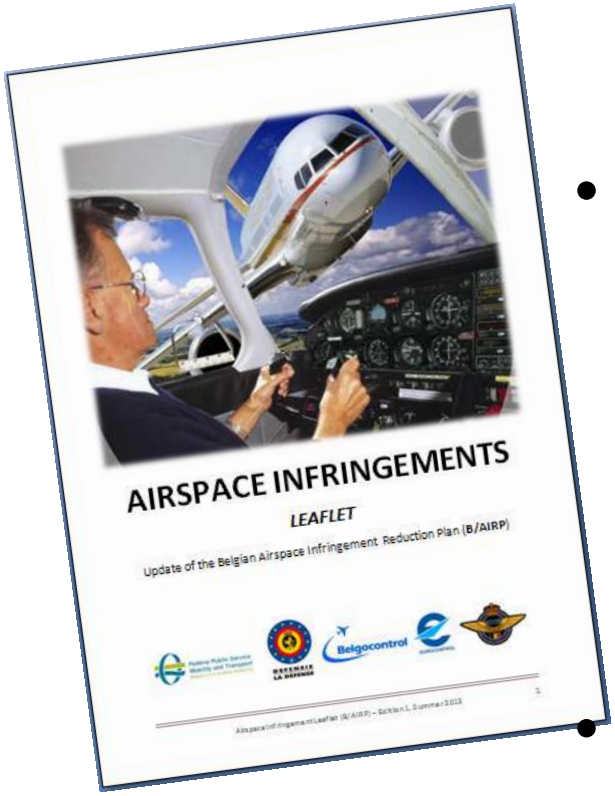
- The B/AIRP leaflet was distributed also to the Belgian neighboring countries:
- France, Germany, England and Holland, as half of the Belgian reported infringements is caused by foreign registered airplanes



2. Leaflet: Briefings & promotion:

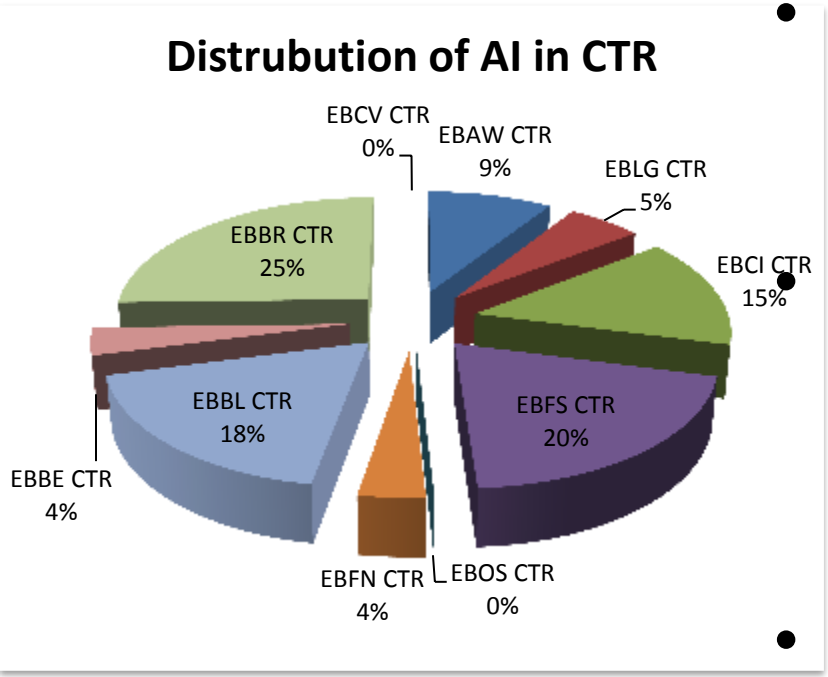
- Together with the distribution of the leaflet to all the pilot training organizations, a ppt-presentation on the AI-subject was sent along
- This allowed for a cascade system, in which all instructors can use the presentation to draw attention to the AI problem, during f.e. winter refresh courses
- This allowed the B/AIRP work group to limit the “road show” to attendance at very specific, federal gatherings

2. Leaflet: Tips & Tricks:



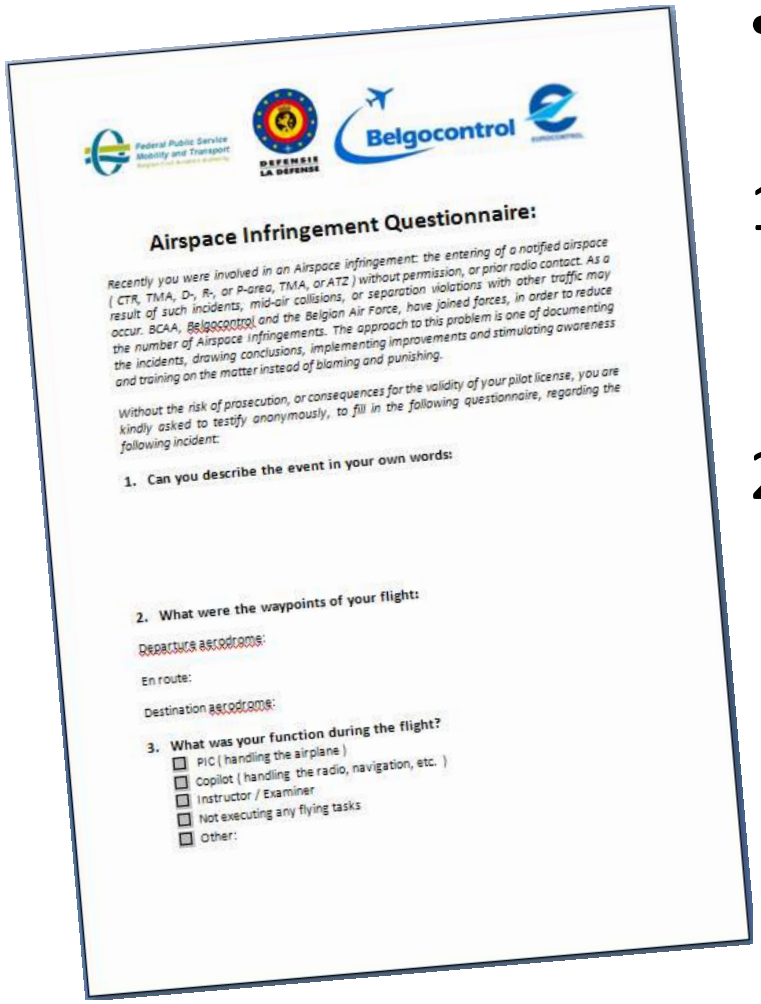
- Make the leaflet sufficiently specific for the proper airspace and sufficiently recognizable for the users
- Get the necessary attention for it: The leaflet was distributed among all Belgian aeroclubs, pilot training organizations, in and around Belgium, with the kind request to distribute it as much as possible.
- Many pilots testified they received it via multiple sources.
- Reactions were positive

3. Statistical Analysis:



- ATCO are stimulated to report AI
- This way a correct image of the AI causes and nature can be composed
- A thesis student (Master in Aeronautical Engineering) will devote the thesis to Airspace Infringements
- All European CAA suffer from understaffing, working with Universities allows us to fully assess the AI problem in Belgium

3. Statistical Analysis:



Airspace Infringement Questionnaire:

Recently you were involved in an Airspace infringement: the entering of a notified airspace (CTR, TMA, D-, R-, or P-area, TMA, or ATZ) without permission, or prior radio contact. As a result of such incidents, mid-air collisions, or separation violations with other traffic may occur. BCAA, Belgocontrol and the Belgian Air Force, have joined forces, in order to reduce the number of Airspace infringements. The approach to this problem is one of documenting the incidents, drawing conclusions, implementing improvements and stimulating awareness and training on the matter instead of blaming and punishing.

Without the risk of prosecution, or consequences for the validity of your pilot license, you are kindly asked to testify anonymously, to fill in the following questionnaire, regarding the following incident:

1. Can you describe the event in your own words:

2. What were the waypoints of your flight:

Departure aerodrome:

En route:

Destination aerodrome:

3. What was your function during the flight?
   - ☐ PIC (handling the airplane)
   - ☐ Copilot (handling the radio, navigation, etc.)
   - ☐ Instructor / Examiner
   - ☐ Not executing any flying tasks
   - ☐ Other:

- The analysis focuses different aspects of the AI problem:

1. Identifying the most problematic areas, but also the “hotspots” within these areas
2. Link between experience of the pilot – point of departure/destination – meteo – navigational tools used etc, based on replies on the **questionnaire** that is sent to the pilot, after a reported Airspace Infringement

3. Statistical Analysis:

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Without the risk of prosecution, or consequences for the validity of your pilot license, you are kindly asked to testify anonymously, to fill in the following questionnaire, regarding the following incident:

- The questionnaire is sent to demand more explanation to the pilot (an often heard remark is the lack of the point of view of the pilot)
- It is a voluntary (not mandatory) standardized feedback form for the B/AIRP workgroup to get more insight in the AI problem in Belgium

3. Statistical Analysis:

4. What kind of license do you hold:

- ☐ Training license
- ☐ ULM
- ☐ PPL
- ☐ CPL or higher
- ☐ Other:

6. What flight preparation did you make for this flight:

- ☐ M&B calculation
- ☐ Filling out a Nav Log
- ☐ Check NOTAM's
- ☐ Check Meteo
- ☐ Make route descriptions on a chart
- ☐ Programmed the flight in a GPS/iPad application
- ☐ Other/explanation:

7. Which navigation aid did you use:

☐ Low level chart 1/250.000		Year:	Used as main navigation aid? ☐
☐ Jeppesen 1/500.000 The Netherlands		Year:	Used as main navigation aid? ☐
☐ Jeppesen 1/500.000 France		Year:	Used as main navigation aid? ☐
☐ ADF			Used as main navigation aid? ☐
☐ VOR			Used as main navigation aid? ☐
☐ VOR/DME			Used as main navigation aid? ☐
☐ RMI			Used as main navigation aid? ☐
☐ GPS	Type:		Used as main navigation aid? ☐
☐ PAD application	Type:		Used as main navigation aid? ☐
☐ Other/explanation:			

9. What do you think is the main cause of the infringement?

- ☐ Insufficient preparation of the flight
- ☐ Insufficiently equipped airplane / old - poorly maintained systems
- ☐ Technical failure of the navigation aids used
- ☐ Navigation error by pilot / navigator
- ☐ Misunderstanding in CRM between the crew (pilot flying – pilot navigating)
- ☐ Wrong interpretation of the airspace / map / environment
- ☐ Wrong interpretation/ use of navigation instruments
- ☐ Wrong interpretation/ use of GPS
- ☐ Database errors in the GPS
- ☐ Distraction, work load in the cockpit, late observation of the airspace
- ☐ Other traffic
- ☐ Meteorology (deteriorating weather, reduced visibility, etc.)
- ☐ Unfamiliarity with the airspace/area/country
- ☐ Unobserved changes in airspace
- ☐ Not updated navigation tools (chart/navigation software,…)
- ☐ Use of wrong frequencies (COMM/NAV)
- ☐ Loss, or reduction of skill, due to low annual flying hours
- ☐ Loss, or reduction of skill, due to long period between this flight and the previous
- ☐ Loss, or reduction of skill, due to unavailability of recurrent/refresher training

5. What is your level of flying experience:

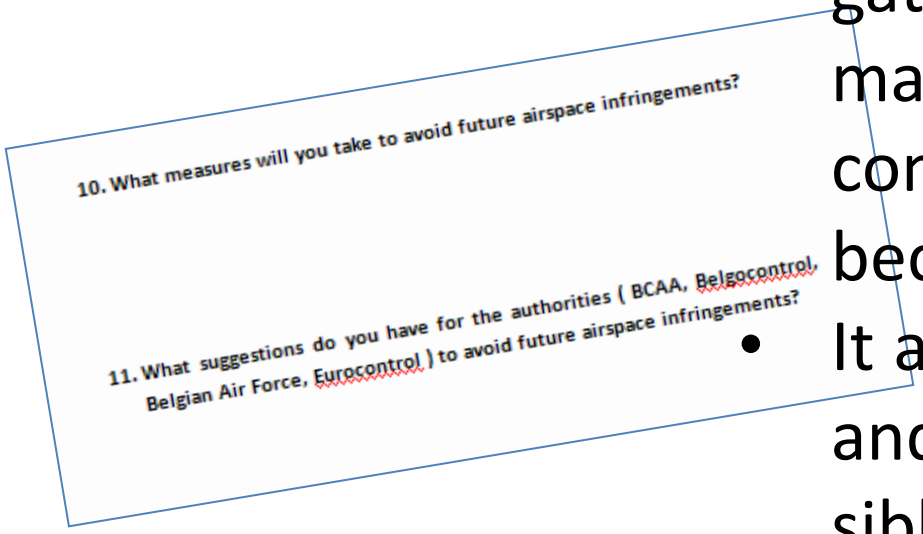
Date/year your initial license was issued:

Total flight time (approximately in hours):

Average flight time per year:

Brief chronology of your flight training/flying experiences:

3. Statistical Analysis:



- The questionnaire allows to gather more standardized information regarding AI and allows comparison between multiple AI, because detailed info is available
- It allows to analyze an AI in depth and look for root causes and possible “hot spots” in CTR/TMA
- Most questionnaires come back well documented by the pilot
- A copy of our template is available for the Portuguese CAA

4. VFR-guide:

- As a second part of the thesis, the student will compose a proposal for a VFR-guide for the Belgian Airspace
- The Belgian Airspace is regarded as more complex and has some particularities that lead to a significant amount of AI
- A VFR guide will hopefully give a more complete/comprehensive overview of these particularities

4. VFR-guide:

- Some European countries have a VFR-guide. In order to save money, time and other resources, Belgium will use existing templates of VFR-guides
- Money/time/expertise will be required, for updates, once the initial version is launched
- Every change to the airspace, or air law, this will have to be updated in the VFR-guide!

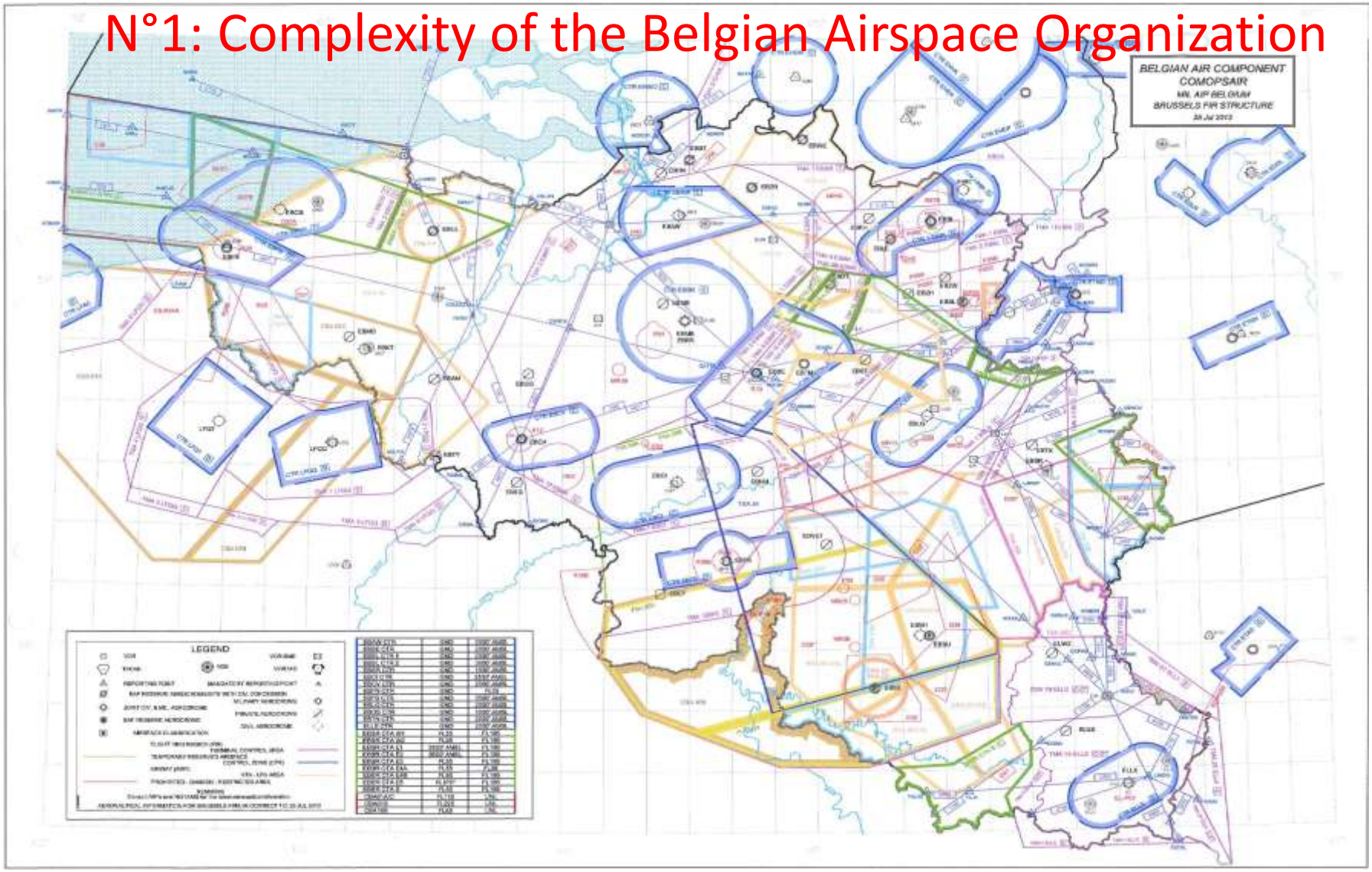
5. Summary of the quick wins:

- In 1 and ½ years, especially the following “quick wins” were addressed:

1. Leaflet
2. Questionnaire
3. Statistical analysis
4. VFR-guide

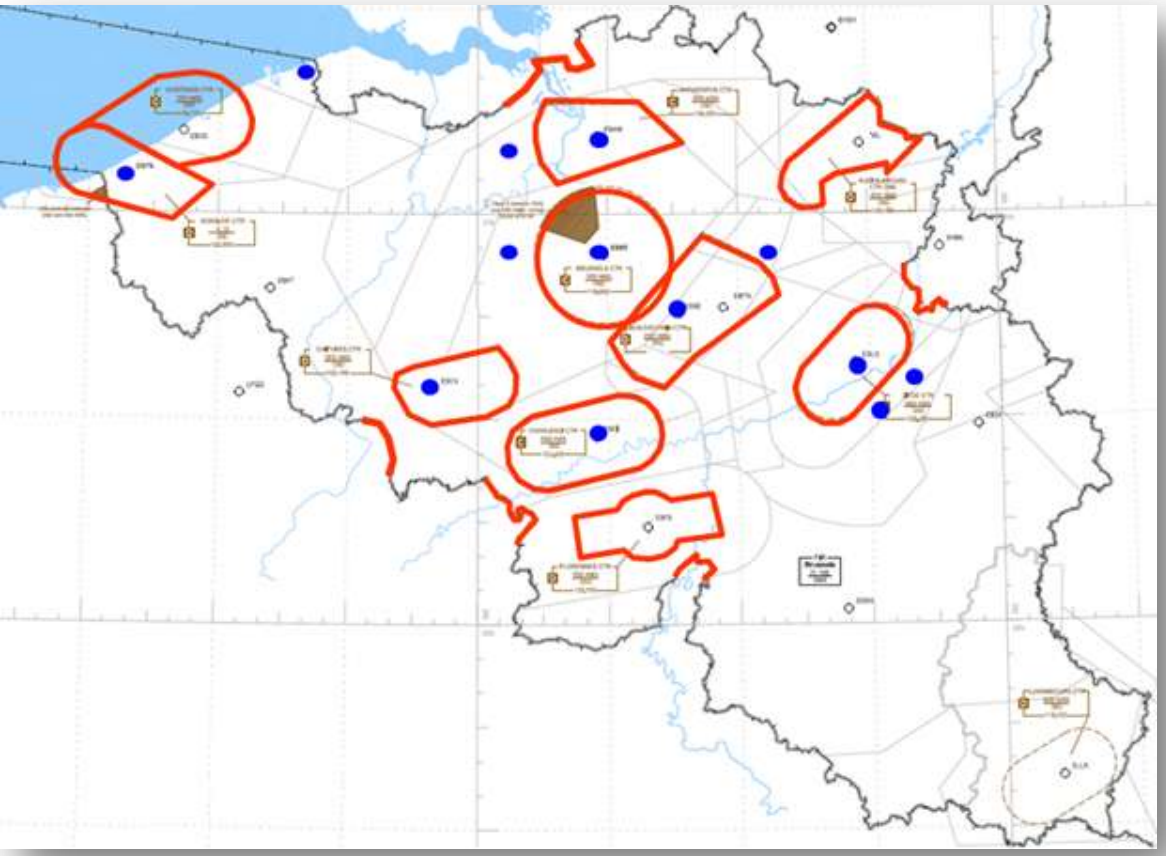
- The B/AIRP work group is gained a profound insight in the AI problem in the Belgian Airspace, but should now move to the next phase…

6. Main causes of AI in Belgium:



6. Main causes of AI in Belgium:

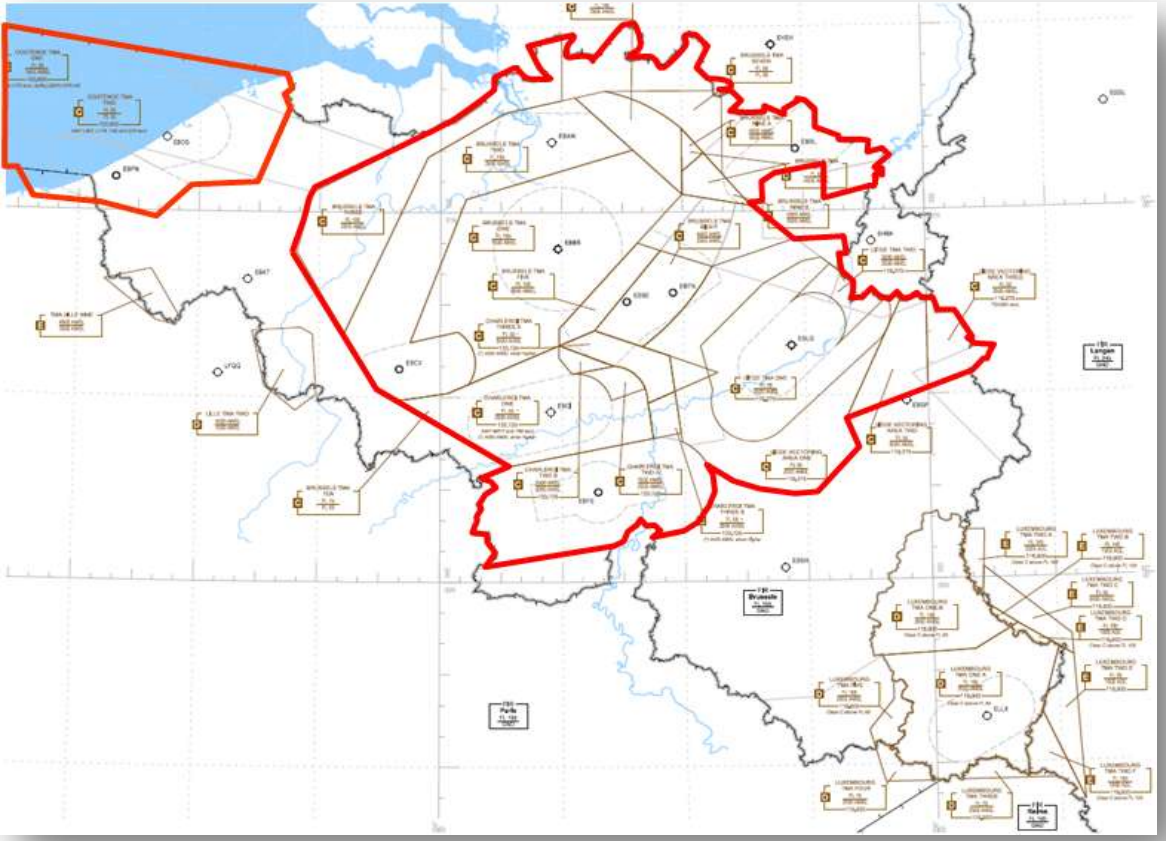
N°1: Complexity of the Belgian Airspace Organization



- 8 CTR's in the centre of Belgium
- CTR are very large, often located near national borders
- Very narrow VFR-corridors
- VOR's are useless for navigation in G-class airspace

6. Main causes of AI in Belgium:

N°1: Complexity of the Belgian Airspace Organization



- Above 1.500 – 2.500 ft, it's hard to find uncontrol-led airspace
- Complex patch-work of TMA's, CTA's, to satisfy all requests of all the players in the field

6. Main causes of AI in Belgium:

N°1: Complexity of the Belgian Airspace Organization

Reasons/explanations:

1. Many players (military/civil/professional/recreational/…) on a small area
2. “Historical evolution”
3. Compromise
4. “With every change the situation became even more complex”

6. Main causes of AI in Belgium:

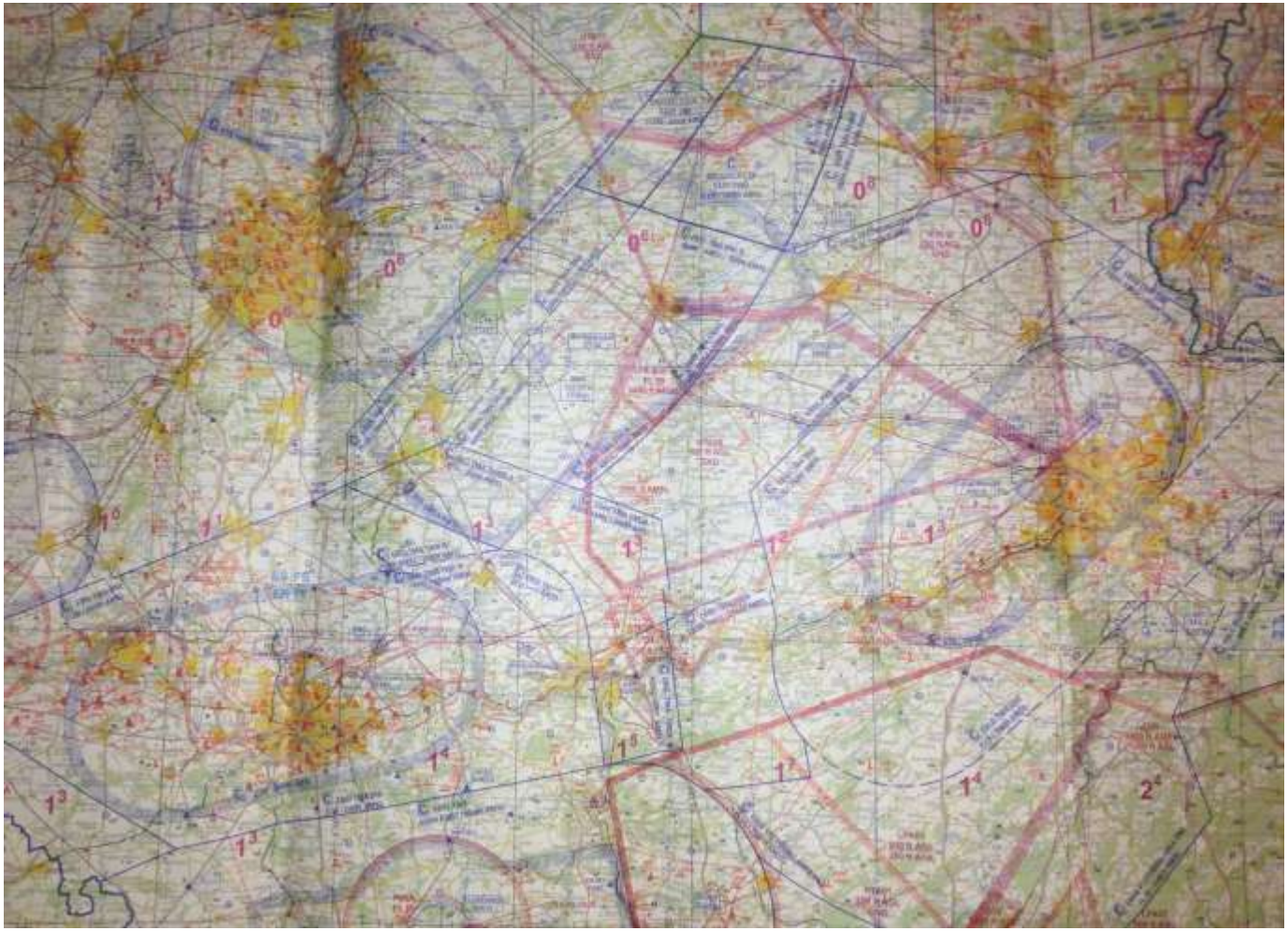
N°1: Complexity of the Belgian Airspace Organization

Ambitions of the B/AIRP work group:

- Get Top Management support + commitment + resources to REEVALUATE / SYMPLIFY the structure of the Belgian Airspace
- This is a major step, which will be slowly evolving, demanding input expertise and contributions from many involved parties
- Now that the “quick wins” are set up, but slowly running out, the time has come for the big steps for B/AIRP

6. Main causes of AI in Belgium:

N°2: Representation of the Belgian Airspace



6. Main causes of AI in Belgium:

N°2: Representation of the Belgian Airspace

- Not only is the Belgian Airspace very complex, the representation complicates the situation even more
- A 1/250.000th map is most commonly used for VFR-flights
- The map is fundamentally a military map that contains many for civil users irrelevant data (TACAN frequencies, all village names, military low level training areas,etc.)
- The map is hopelessly complex for a civil “hobby” user…

6. Main causes of AI in Belgium:

N°2: Representation of the Belgian Airspace

Ambitions of the B/AIRP work group:

- Creation of a “civil” variant of the existing map
- Omission of irrelevant data and addition of relevant civil data (civil radio frequencies, MSA, consequent use of colors -> KISS principle)
- This is only useful, if we can simplify the Belgian Airspace, but will also require serious financial resources

7. Conclusions after 1 and ½ years:

- The “quick wins” can provide an in depth insight of the local AI problem and its characteristics, for a limited price and effort
- The airspace users appreciate the positive approach and the CAA and other organizations reaching out to the flying community
- It is essential not only to also focus on what pilots have to improve/do better, but also to perform self-analysis about what “the State” can change/produce to facilitate the communication/ navigation skills of its pilots and cooperation with ATC

7. Conclusions after 1 and ½ years:

- After 1 and ½ years, B/AIRP has experience, insight and maturity to tackle the main sources of AI
- This however will require Top Management support and allocation of considerable resources (man hours, money, etc.)

- Questions?

- Thank you for listening!

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