

STATUS REPORT
JURG IATA/AEA DISCUSSION WITH EASA
ON
AMC 20-27 BAROVNAV APPROVAL
(vs 12 Sep 2011)

1. ISSUE:

- 1.1 Member airlines expressed serious concerns about the operational approval and airworthiness requirements set forth in AMC 20-27, which document allows for BaroVNAV operations, and which requirements could potentially result in:
- a. Inability to use airline investments in modern navigation avionics
 - b. Stalling the safety, environmental and economic advantages of Performance Based Navigation

2. BACKGROUND (JURG Letter to EASA Aug 2010):

- 2.1 Airlines became aware that their NAA do not interpret AMC20-27 material in accordance with the EASA intent of the AMC. Either the interpretation appears erroneous and/or NAA's use different approval material (FAA versus EASA of which the FAA material is less stringent) leading to an unbalanced playing field for airlines.
- 2.2 Airlines reported a lack of consultation prior to NPA publication of the AMC. Consequently, airlines are of the opinion that certain operational requirements resulted to be too conservative which could have been avoided when direct input from airline operators was sought. E.g. pilot monitoring requirements of the +/- 75 ft and the 5000 ft limit.
- 2.3. Airlines reported a lack of published APV procedures in the European Region as required by ICAO resolution 36-26 of 2007 through which the agreed timelines of PBN implementation is being delayed. It appeared that States and ANSP's amongst others do not have the relevant knowledge to fully understand the PBN concept and consequently are failing to provide PBN design procedures.
- 2.4 Airlines became aware that NAA's are not responsible for airworthiness certification approval, whereas EASA is. Airlines need to ask the OEM to provide this certificate for the aircraft concerned which is a cumbersome procedure to fulfil.

3. EASA RESPONSE (Jan 2011 after JURG meeting with EASA on 26 Nov 11)

- 3.1 **Difference in ICAO/FAA and EASA requirements for vertical FTE:**
EASA will not actively invite the OEMs. In order to have a statement of compliance with the requirements of AMC 20-27 added to the Flight Manual, the OEMs should follow the normal process for certification.
- 3.2 **Actual Vertical Path Deviation Display Sensitivity -50/+100 ft:**
The requirement is not only about display sensitivity. In fact, AMC 20-27 contains two requirements: One for the display to be designed such that it enables the flight crews to "readily distinguish +75/-75 ft". This is an airworthiness requirement. Then there is an operational requirement for the pilots to monitor the deviation from the projected flight path and execute a go around if the deviation exceeds +75 feet or -75 ft.
- Deviation from AC 20-129 values: the +75/-75 ft criteria have been shown to be fully compatible with ICAO PANSOPS and can therefore be applied anywhere in the world. There is no need for EU operators to use the +100/-50 ft values while operating in US airspace. Therefore we disagree with the statement that our requirements are not operationally feasible.
- 3.3 **Non-level playing field**
Some airlines may have been granted operational approval based on early drafts of the AMC. We do acknowledge that this is regrettable from an equal treatment point of view, but this cannot be attributed to any wrongdoing by EASA. Since EASA has no remit on operational approvals, we can only suggest the operators to raise this issue at the appropriate levels within the national authorities and/or the Commission.

3.4 **Limitation of APV above 5000 ft:**

Some OEMs (TC Holders) did not want to engage in an extensive certification program to re-certify their aircraft models to the vertical FTE values of AMC 20-27. In response to their comments, EASA offered to alleviate the burden on the OEMs by granting credit for previously accomplished demonstrations to the criteria of AC 20-129, albeit with certain limitations, one being operations to airfields with an elevation of < 5000 ft. EASA disputes that the majority of airfields are above 5000 ft. as suggested in the paragraph.

3.5 **Lack of constructive consolidation of the industry pre-NPA publication:**

According to EASA the representative bodies of the industry were consulted on the team composition before the drafting process.

The content of basic regulation (EC) No. 216/2008 is non-negotiable from an EASA point of view. This needs to be discussed at the States/Commission level.

3.6 **Effect of ICAO resolution 36-23:**

This process of publishing an APV BaroVNAV approach is not considered to be dependent on the operators' difficulties to obtain operational approval. We acknowledge that the effect on the intent of ICAO resolution 36-23 may be limited when the airlines are facing these issues.

4. EASA Workshop for NAA's to clarify the interpretation of AMC20-27 – 26 Apr 11

4.1 **Conclusions of the EASA workshop for NAA's on AMC20-27:**

The CAA-UK and DGAC-F presentations show that there are feasible and sensible alternative solutions to AMC 20-27, which are consistent with the contents of the EASA internal policy on acceptance of FAA AC 20-129 criteria for AMC 20-27 airworthiness certification and therefore acceptable to EASA.

EASA was requested to provide additional guidance on the following subjects:

- Use of FAA 20-129 for operational approval
- Use of angular guidance on APV approaches

The guidance will most likely be provided in the form of a Certification Memo. No update to AMC 20-27 is foreseen in the near future. The internal policy Memo is an in-house document which allows certification of aircraft to AMC 20-27 requirements without demonstration of the more stringent FTE criteria. It addresses credit for compliance demonstration against FAA AC 20-129 criteria for AMC 20-27 airworthiness approval. The allowable operations will however be limited to those below 5000 ft MSL.

5 JURG 50 CNS conference - 30 May - 1 Jun

5.1 EASA explained its interpretation of AMC 20-27. In relation to RNP APCH (APV with BaroVNAV), FAA AC 20-129 may be used by the Regulator to approve aircraft but only under certain conditions. It is the opinion of IATA that EASA 20-27 is still too restrictive despite the Associations' interventions and will not result to alleviate the non-level playing field.

5.2 Besides the approval according to AC 20-129, further proof has to be presented, i.e.

5.2.1 The applicant shall provide to the Agency a document stating how the requirements of AMC 20-27 have been complied with, with the exception of FTE requirements.

Airline comments: This is not acceptable. It should be sufficient to have the approval for AC 20-129.

5.2.2 The aircraft shall be equipped with a suitably scaled indicator to enable the flight crews to readily distinguish the +75ft and -75 ft boundaries. Note: +100/-50ft scale markings, alerts or attention getters may not be accepted.

Airline comments: This is not acceptable. Why should a US operator be allowed to fly an APV Baro with +100/-50ft scale and an European operator is not?

5.2.3 The AFM shall include a limitation that RNP BaroVNAV approaches to airfields at elevations of 5000 ft or higher are not permitted.

Airline comments: This is not right. The limit applies to FAP altitudes above 5000ft. This limit should be revised or cancelled after the new design criteria for APV Baro are available.

6. NEXT STEPS

JURG is requested to

- Note the discussions with EASA on the constraints airlines have with AMC-20-27 to achieve approval for BaroVNAV
- Little progress has been made and EASA regulations are blocking proliferation of PBN
- Agree on further steps to be taken that could require high level intervention

DRAFT
AEA/IATA JOINT USER REQUIREMENT GROUP (JURG)
POSITION ON
A FUTURE SATCOM SYSTEM
(version date 1 Sep 2011)

INTRODUCTION

The European ATM Master Plan envisages modernising Air Traffic Management communications systems by enhanced usage of ATM and AOC satellite communication services (SATCOM). The European Space Agency (ESA) and the European Commission are promoting a new ATM SATCOM system called IRIS as a consequence, the future European ATM SATCOM system will most likely be driven by an EU political decision.

PROGRAMMES AND INVOLVED PARTIES

ESA launched the IRIS programme to design and validate an ATM satellite communication solution. IRIS is part of the ANTARES research program.

It enables ATC data communications to support 4D trajectory operations as required in the SESAR IP3 stage (2020 and beyond). ESA states that current data communication systems cannot provide enough bandwidth to support 4D trajectory communications. Furthermore the current communication systems do not provide enough data integrity.

According to ESA, the user requirements for IRIS were derived from SJU WP15 as well as specifications from Eurocontrol and FAA. The system is an open system. In this way ESA hopes to open ways for users outside Europe.

Coverage is initially concentrated in European airspace, in later stages worldwide coverage is foreseen. IRIS focuses on ATS and AOC communication functionalities only.

It's business model is based on a flat fee per flight basis. Currently this is envisaged to be around 5 Euro per flight for ATS communication. AOC communication is optional and users must contract a provider. Multiple providers will be participating in order to achieve competition.

There is no monopoly for airborne equipage since an open standard allows avionics vendors to develop IRIS Airborne systems.

THAUMAS, a competitive system to IRIS, is based upon re-using the Inmarsat space segments.

In 2012 a Ministerial Conference will take a decision to continue IRIS or THAUMAS and the amount of sponsoring to the deployment phase provided by the EC.

IATA/AEA position

- The airline industry has invested heavily in current SATCOM systems as provided by INMARSAT and IRIDIUM, in association with Communications Service Providers (CSP) ARINC and SITA.
- The operational need for a business case to support an entirely new solution has yet to be made, and accepted, by the airline industry.
- Any EU mandate imposing a new SATCOM system would require substantial pre-financing by the European Commission and can only be considered when a clear operational requirement exists. It is currently not clear that such a situation pertains, even within the timeframe of the SESAR programme.

- Other new communications technologies such as LDACS need to be evaluated to determine the overall future ATM communications landscape in Europe, and globally.
- The foreseen functionalities (ATS/AOC) are very limited to the capabilities of the IRIS system. From the Airspace User perspective ESA should be challenged to research support of other functionalities (ADS-B via Iris, Optimi via Iris, Voice over IP via Iris, Pax Communication via Iris). This would make the system more interesting for airlines and can save installation of other dedicated systems for the functions mentioned.
- As it is predicted now, the EC will fund the additional research phase with an additional 42M Euro.
- Airspace Users must ensure this research will not be recovered from them in ATC charges.

PROPOSALS for NEW Community Specification

The following three topics are proposed as being suitably mature for CS development:

- **Aeronautical Information Services and Meteorological Data Link Services**
- **Terrain and Airport Data Bases**
- **Voice over IP**

AIS/MET Data Link Services

AIS/MET Data Link Services are an important element of the transition of AIS to AIM which will lead to real-time provision of AIS and MET related information in the cockpit.

AIS/MET Data Link Services is not currently an explicit element of the ATM Master Plan; however, the EUROCAE document (see below) is referenced as an enabler (AGDLS-INFO-1) and links to four systems:

- Uplink of aeronautical or MET data for use by relevant onboard system of service (D-OTIS)
- Ground broadcast of aeronautical or MET data for use by relevant onboard system or service.
- Flight Data updates transmitted by AGDLGMS to the Aircraft
- AGSWIM-43 - AGDLGMS in support to provide weather information to the aircraft

These systems are not required until IP2/3. There is no corresponding ESSIP objective.

Terrain and Airport Database

High integrity terrain and airport Databases are important enablers of PBN and navigation services at airports as envisaged by the European ATM Master Plan.

Voice over IP

Digital voice (VoIP) is deployed for ground-ground telephony as a cost-effective alternative to analogue technology. The future voice ground telephony will be mainly based on IP technology. A number of ANSP are understood to have already implemented VOIP.

Ground-ground VOIP is enabler CTE-C8 in the ATM Master Plan with an IOC of 2010. CTE-C8 is not mapped to OI steps.

Existing standards: VOIP is included in the ICAO ATN/IPS Manual (Doc 9896).

CONCLUSION

The IOP Sub-group, here the JURG members are kindly invited to discuss the information provided in this paper to recommend the need for CS in the suggested areas.

LATO and I-GWG Status

AWOG/17 6-7/09/2011

Lendina Smaja, Andreas Lipp

SITUATION OF RATF

- RATF (RNAV Approaches Task Force) is integrated in PBN activities
- ICAO EUR/NAT has started the PBN taskforce, where RATF activities have been extensively reported (last meeting and subsequent APV workshop 23-27/05/2011)
- Overlap between EUR PBN TF and AWOOG is undesirable
- RATF reporting should be removed from AWOOG programme and referred to EUR PBN TF

LATO situation

- Landing And Take-Off task force of EUROCONTROL Navigation Steering Group (NSG)
- Chair: Andreas Lipp
Secretary: Lendina Smaja
- Last meeting: 18-19/10/2010, Thales Academy, Stuttgart
- Next meeting: 13-14/09/2011, EEC, Brétigny s/Orge
- About 30 participants
- Presentations and Minutes available on GBAS OneSky team:
extranet.eurocontrol.int

LATO/18 Topics

- No ILS or MLS topics submitted
- GBAS status reports: Italy, Switzerland, Indra
- GBAS CAT I technical aspects
 - WG review, FAS data exchange format, PEGASUS status
 - LINA flight trials (DLR)
 - Munich VDB Coverage tests (DFS)
- **GBAS operations (next slide)**
- GBAS CAT II/III aspects
 - CAT II simulation report, GAST-D Baseline standard, SESAR activities
 - GBAS CAT III ops requirements
- GBAS Ionospheric Issues
 - EUROCONTROL study, Plasma bubble effects, CAT I threat model validation, GAST-D threat model

LATO/18 Operational Topics

- AWOG discussions and DOC 017
- IFPP aspects (parallel approaches, OFZ, GLS data dissemination – AIP)
- IR-OPS and OTS/LTS operations
- GBAS FAS data chain integrity
IFPP 10-8 value possibly not sufficient for CAT III?
- ILS/GBAS differences in continuity allocation
(protection of sensitive areas not in continuity allocation)
- DLR Air Berlin flight tests on noise-reduced approaches
Dual-gradient approaches ($5.5-3^\circ$) and diverse trajectories
based on existing RNAV approaches
- Air Berlin Status (>70% Boeing fleet GBAS equipped by 2011)

International GBAS Working Group of FAA and EUROCONTROL

- Co-Chairs: John Warburton and Andreas Lipp
Co-Secretaries: Dieter Guenter and Lendina Smaja
- Last meeting: 22-25/02/2011, Convention Center, Osaka, Japan
- Next meeting: 15-18/11/2011, FAA TC, Atlantic City, USA
- Participation steadily increasing; now >100 participants
- Topics centred on all GBAS aspects
- 6 working sessions for in-depth discussions
- Presentations and Minutes available on GBAS OneSky team:
extranet.eurocontrol.int

I-GWG Agenda

- Status reports
- Working sessions
 1. Data collection/sharing/evaluation, test case harmonization; site specific configuration requirements and testing requirements
 2. CAT I Post Approval/Implementation Activities
 3. Ionospheric Aspects and Monitors
 4. GBAS Future Operations:
Operational and Implementation Aspects
 5. GS siting and ground monitoring aspects
 6. Cockpit and aircraft integration aspects for new GBAS operations
- Special topics
- Excursion (GBAS installation/site visit)



GBAS Implementation Status

Source : <http://flygls.net/>

- European commitment to GBAS CAT II/III implementation through SESAR (Industry, ANSP's, Airports, Airspace Users)
- European ANSPs and/or airports represented on GBAS projects: France, Germany, Italy, Spain, Switzerland, UK
- GBAS Implementation in USA, Japan, Australia, Brasil
- Wide implementation of GBAS in Russia
- Planned GBAS projects in Korea

I-GWG Operational Sessions(1/2)

Objective: To discuss implementation and post implementation aspects of current and future GBAS operations

CAT I Post Implementation Aspects

- GBAS/GLS Phraseology
- Flight Plan – indication of GLS capability
- GBAS Missed Approach
- GBAS and the ICAO PBN Manual
- Australia In Service Evaluation of GBAS Operations

I-GWG Operational Sessions(2/2)

GBAS Future Operations

- RNP to xLS
- GBAS CAT II/III
- ..more information on EUROCONTROL Work on SESAR

Cockpit and Aircraft Integration Aspects:

- Morse Code on approach plates
- Chart division in approach types
- RNP transitions on cockpit

SESAR GBAS Work Packages -EUROCONTROL Involvement

SESAR WP 6.8.5 : GBAS operational aspects

SESAR WP 9.12 : GBAS CAT II/III avionics specific

SESAR WP 15.3.4 : GBAS iono investigations

SESAR WP 15.3.6 : GBAS CAT II/III L1 ATM

SESAR WP 15.3.7 : GBAS CAT II/III multi GNSS ATM (end 2011)

EUROCONTROL Role (Operational tasks)

- Provide the technical and operational expertise particularly on GBAS CAT II/III development
- Provide existing CONOPS, Safety Assessment, operational studies and simulations as input to SESAR work to validate and implement the GBAS systems and operations
- Coordinate between different work packages, to ensure overall coherence on technical and operational aspects
- Report, coordinate and propose changes to standards when deemed necessary

Summary

- Several changes since early 2011
 - Change in team composition due to Agency restructuring
 - Closer integration into SESAR – Topics now centred on GBAS CAT III
 - FAA GBAS orientation changed through Nextgen priority update (acquisition -> research)
- LATO Activities are continuing, focus stronger on GBAS
- I-GWG has stabilised and continues to grow

Questions?

