



International Civil Aviation Organization

**Eight Meeting of the Communications/Navigation/Surveillance and
Meteorology Sub-Group (CNS/MET SG/8) of APANPIRG**

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Agenda Item 5: Radio Navigation Aids

DECOMMISSIONING OF GROUND-BASED NAVIGATION AIDS

(Presented by IATA at the Working Group of the whole of NSP
St. Petersburg, Russia from 25 May to 4 June 2004)

SUMMARY

This paper supports development by ICAO of a global roadmap for decommissioning of ground-based navigation aids based on existing models, to be included in the next update of ICAO Doc 9750 Global Air Navigation Plan for CNS/ATM Systems. It urges ICAO Regional Planning Groups to adjust ICAO Regional Plans to reflect planning schedules for decommissioning of ground-based navigation aids (navaids) within a reasonable timeframe, including the length of the transition period and which ground facilities should be withdrawn and when. It proposes that the NSP develop international guidelines for the coordinated withdrawal of navaids on a worldwide basis, including regional deadlines and covering legal, institutional, economic and technical aspects of the process.

1. INTRODUCTION

1.1 IATA traffic data confirms a return to real growth is underway. March results for passenger traffic show an improvement of 13.3 % over March 2003, and a 9.6% improvement comparing first quarter 2004 to same period 2003.

1.2 Although we are moving in the right direction, many airlines are still in financial difficulty. Air navigation service providers, regulators and airlines are all part of one business value chain and must join forces to improve efficiency and reduce costs.

1.3 The aviation industry must renew with vigour the task of modernising air traffic management (ATM) to reduce infrastructure costs, avoid future capacity constraints and improve airspace efficiency. At the same time, we must maintain the industry's high technical standards to ensure that safety is maintained.

1.4 In the perspective of the move to satellite-based navigation, IATA believes that a coordinated worldwide and regional strategies on decommissioning of ground-based navaids has the potential to reduce costs to air navigation service providers, lead to reduced user charges and allow users to plan and rationalize onboard avionics equipage.

1.5 The Navigation Systems Panel work programme includes ANC task number CNS-9401, to develop guidance material for inclusion in various ICAO documents to support operational implementation strategies for advanced applications and elements. This task could potentially encompass the development international guidelines for the coordinated withdrawal of navaids on a worldwide basis covering legal, institutional, economic and technical aspects of the process.

2. IATA'S ROADMAP TO ONE SKY ... GLOBAL ATM

2.1 In 2003, IATA promoted new ways to achieve more flexible and efficient use of airspace. IATA's programme for seamless operations devoid of national borders - *One Sky ... global ATM* - was well received at the ICAO 11th Air Navigation Conference.

2.2 *One Sky ... global ATM* proposes a single global ATM transition roadmap with region-by-region implementation within a worldwide framework. It contains a transition strategy that leverages quick wins, long-term achievements and user benefits. It reflects IATA's conviction that many benefits can be gained from relatively small investments and re-jigging of current solution sets. The IATA ATM transition roadmap is included in the Attachment.

2.3 IATA accepts that there will be many layers of planning below this roadmap – but at the very least it offers a sequential picture of what needs to be done to achieve the goal of global ATM. It is a checklist, against which the most senior influencers of change – including Airline CEOs, Directors General of Civil Aviation, and General Managers of Air Navigation Service Providers - can challenge ATM change proposals. They should be able to ask – “will your proposal deliver a benefit”, and “is your proposal aligned with the global roadmap”. This holistic picture has been missing from previous global planning.

3. TRANSITIONING TO GNSS

3.1 With the advent of Galileo, modernized GPS and GLONASS, and their respective augmentations, the aviation community is in a position to seize the opportunities offered by GNSS. ICAO has approved Standards and Recommended Practices (SARPs) for some GNSS elements such as ground-based augmentation system (GBAS), satellite-based augmentation system (SBAS), GPS and GLONASS. ATM GNSS-based procedures are in place and many aircraft are equipped to take advantage of these procedures.

3.2 GNSS navigation will enhance airlines operations by allowing increased flexibility and capacity, independent routing and lower infrastructure costs. A satellite-based system will meet the need for additional navigation and landing capabilities and improve safety while avoiding the cost of replacing, expanding and maintaining many of today's ground-based nav aids.

3.3 IATA's *One sky...global ATM* advocates rapid and uniform global implementation of the concept of Required Navigation Performance (RNP) developed by ICAO, and supports GNSS as the primary radio navigation system for positioning and timing in the near future. This should not, however, be construed to mean that GNSS is supported at any cost.

4. DECOMMISSIONING OF GROUND-BASED INFRASTRUCTURE

4.1 The annual costs of navigation aids upgrade, operations and maintenance drive a significant portion of global user charges. Within the fiercely competitive world of commercial aviation, the provision of safe navigation infrastructure must be done in the harsh reality of economic efficiency.

4.2 Decommissioning of ground-based nav aids has the potential to reduce costs to air navigation service providers, leading to reduced user charges, while allowing users to plan and rationalize onboard avionics equipage.

4.3 The business case for decommissioning ground based navigation aids should include the cost of early depreciation/decommissioning of aircraft equipment and functionality, and retrofit of equivalent GNSS-based equipment & functionality. Air navigation service providers should be encouraged to enter into early operational assessment programs. Due notice should be given to the various airspace users to enable them to plan the transition.

4.3 IATA recognises that for the foreseeable future, a rationalized terrestrial infrastructure must be retained. Sufficient experience and confidence must be gained to validate GNSS operations in terms of safety, efficiency and cost-effectiveness. The frequency bands allocated to VOR/DME/ILS/GLS/MLS must be protected. The exact timetable of decommissioning will depend on the performance of the satellite-based systems, international agreements and user acceptance.

4.4 There is need for a worldwide strategy for decommissioning of ground-based navaids. Such a strategy must be developed at a global level under the auspices of ICAO. Every opportunity to rationalise existing navigation infrastructure must be identified and pursued.

5. WORLDWIDE DECOMMISSIONING ROADMAP

5.1 The potential cost-savings of decommissioning of navaids should at all times be present in the considerations of CNS/ATM planners. Such opportunities should be actively sought out.

5.2 IATA believes that NDBs can be phased out worldwide in the immediate future, providing badly coveted near-term cost savings with no negative impact on safety and capacity. Exceptions should be considered on a case-to-case basis at the regional planning level. VORs should also be considered as a candidate for medium term withdrawal, and be the subject of feasibility studies during navigation planning at a worldwide level.

5.3 The roadmap for withdrawal of ground-based navaids should allow a reasonable period of transition. The full benefits of GNSS-based applications will only become available when a majority of airspace users has assessed and agreed to equip.

5.4 Guidelines are needed to ensure that the worldwide decommissioning of navaids is done in an efficient and coordinated manner.

5.5 A sub-set of the global transition roadmap proposed in *One sky...global ATM* provides a high level perspective on the sequence for decommissioning navaids during the transition to GNSS. It shows the near term phasing out of NDB, and middle term phasing out of VOR and diminishing use of ILS and DME.

5.6 In the document entitled Navigation Strategy for ECAC (NAV.ET1.ST16-001), Eurocontrol has included a roadmap for Rationalisation of the Ground Infrastructure. It provides an integrated common framework for decommissioning, taking due account of the principle of global interoperability. Refer to http://www.eurocontrol.int/eatmp/library/documents/navigationstrategy2_1.pdf.

5.7 In the US, the Federal Radionavigation Plan is the official source of navigation policy and planning for the Federal Government. The FRP covers common-use navigation systems (i.e. systems used by both civil and military sectors), and is updated every two years. Refer to <http://ostpxweb.dot.gov/policy/Data/FRP2001.pdf>

5.8 Based on the above models, IATA recommends that a global roadmap for decommissioning of ground-based navigation aids be adopted by ICAO and reflected in the next update of ICAO Doc 9750: Global Air Navigation Plan for CNS/ATM Systems. The phasing out of non-directional beacons NDBs in the near term and of VORs in the medium term should be featured.

5.9 The decommissioning roadmap should be completed before Dec. 2004 to be consistent with the time frame of the planned Industry input to the Air Navigation Commission planned for early December 2004 in Montreal, where Industry has also committed to provide a global implementation Roadmap for inclusion in the Global Air Navigation Plan.

5.10 An ICAO global roadmap will serve as the basis for a decommissioning worldwide strategy developed at a global level under the auspices of ICAO. The transition roadmap will allow users and other stakeholders to make short, medium and long-term investment decisions with stability, predictability and consistency. Planning based on a decommissioning roadmap will help control costs for users and providers, thereby driving user GNSS equiptage and associated operational benefits.

6. REGIONAL DECOMMISSIONING STRATEGIES

6.1 IATA recognizes that the transition period to satellite based navigation services will vary by region. It is vital that the political, institutional, technical and financial sectors of the aviation industry maintain a high degree of co-ordination and co-operation during the transition period.

6.2 ICAO Regional Plans should be adjusted to reflect regional planning schedules for decommissioning of navaids, including the length of the transition period and which ground facilities should be withdrawn and when. The transition period should be as short as possible.

6.3 Detailed technical input to identify redundant equipment will be necessary for each region. It is conceivable that in certain regions none of the conventional systems will be required to perform certain operations.

7. IMPACT ON USER CHARGES

7.1 Where the evaluation of navigation requirements determines that a number of elements in the navigation mix are no longer required by the air transport community, costs associated with the continuation of those elements should immediately be removed from air navigation charges to the air transport community.

8. RECOMMENDATIONS

8.1 The working group is invited to:

- note the views of the airline community on the benefits of world wide and regional programs to decommission of navaids;
- urge ICAO to develop and adopt a global roadmap by end 2004 for decommissioning of ground-based navigation aids, based on existing models, and to include it in the next update of ICAO Doc 9750: Global Air Navigation Plan for CNS/ATM Systems. The roadmap should plan for the phasing out of NDBs in the near term and VORs in the medium term, and should be completed before Dec. 2004 to be consistent with the time frame of the of the Industry input to the Commission planned for early December 2004;
- urge ICAO Regional Planning Groups to adjust ICAO Regional Plans to reflect regional planning schedules for decommissioning of navaids, including the length of the transition period and which ground facilities should be withdrawn and when; and
- develop, within the framework of [ANC task number CNS-940](#), international guidelines for the coordinated withdrawal of navaids on a worldwide basis covering legal, institutional, economic and technical aspects of the process.

ATTACHMENT

One Sky ... Global ATM Global ATM Transition Roadmap

