INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF

THE FIFTIETH MEETING OF

THE EUROPEAN AIR NAVIGATION PLANNING GROUP

(Paris, 8 to 11 December 2008)

PREPARED BY THE EUROPEAN AND NORTH ATLANTIC OFFICE OF ICAO DECEMBER 2008

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0. INTRODUCTION

Place and duration

0.1 The 50th Meeting of the European Air Navigation Planning Group (EANPG) took place in Paris, France on 8-11 December 2008.

0.2 In order to commemorate its 50th Meeting, the Group had decided on an agenda that would accommodate deliberations on the challenges facing the planning and implementation activities in the European (EUR) Region in the future and to invite special guests and representatives of the media to participate in those deliberations.

0.3 Thanks to the generosity of the Direction Générale de l'Aviation Civile (DGAC) of France, this part of the agenda was dealt with in its premises in Paris in the afternoon of 8 December 2008 and was succeeded by a dinner. During the dinner, the Group was addressed by the President Emeritus of the Council of ICAO, Dr Assad Kotaite, by the President of the Air Navigation Commission, Mr Omari Nundu, by the former Chairman of the EANPG, Dr Giulio Martucci, as well as by other distinguished speakers.

0.4 The remaining parts of the agenda were dealt with in the premises of the European and North Atlantic (EUR/NAT) Office of ICAO on 9-11 December 2008.

Attendance

0.5 The deliberations on 8 December 2008 were attended by 26 special guests, 68 representatives of 31 member and non-member States and by observers from 9 international organisations. A list of participants on 8 December 2008 is at **Appendix A** to this report.

0.6 The Meeting on 9-11 December was attended by 71 representatives of 28 member and non-member States and by observers from 9 international organisations. A list of participants is at **Appendix B** to this report.

Officers and Secretariat

0.7 Mr Dirk Nitschke, the Chairman of the EANPG, presided over the meeting throughout its duration. Mr Karsten Theil, ICAO Regional Director, Europe and North Atlantic, was Secretary of the meeting and was assisted by Mr George Firican, Deputy Director, Mrs Carole Green Stewart, Mr Dimitar Ivanov, Mr Victor Kourenkov, Mr Elkhan Nahmadov, Mr Jacques Vanier, Mr Léon Vonlanthen from the ICAO EUR/NAT Office, Mr Mohamed Smaoui from the ICAO Middle East (MID) Office. Mrs Nancy Graham, Director Air Navigation Bureau and Ms Leslie Cary from ICAO Headquarters were also in attendance. Additional assistance was provided by Ms Leyla Suleymanova, Mrs Nikki Goldschmid, Mrs Mirelle Daulnay and Mrs Patricia Cuff from the EUR/NAT Office.

Conclusions, Decisions, Statements

0.8 The EANPG records its action in the form of Conclusions, Decisions and Statements with the following significance:

- Conclusions deal with matters which, in accordance with the Group's terms of reference, merit directly the attention of States or on which further action will be initiated by ICAO in accordance with established procedures.
- Decisions deal with matters of concern only to the EANPG and its contributory bodies.

- Statements deal with a position reached by consensus regarding a subject without a requirement for specific follow-up activities.

Agenda

0.9 The Group agreed to the following agenda for organising the work of the Meeting and the structure of the report:

Agenda Item 1: A Single Sky – Challenges for the Next Fifty Meetings

Agenda Item 2: Review of significant international aviation developments

Agenda Item 3: Previous EANPG follow up

Agenda Item 4: Aviation safety

Agenda Item 5: Planning and implementation issues

a) Management of the European Air Navigation Plan;
b) Proposals for amendments of ICAO provisions;
c) Air Traffic Management;
d) Communication, Navigation and Surveillance;
e) Language Proficiency Requirements;
f) Aeronautical Information Service;
g) Meteorology;
h) The implementation of the new concept of the ICAO Flight Plan (FPL) in 2012.

Agenda Item 6: Monitoring

Agenda Item 7: Deficiencies

Agenda Item 8: Work programme

Agenda Item 9: Election of the EANPG Chairman

Agenda Item 10: Any other business

1. A SINGLE SKY – CHALLENGES FOR THE NEXT FIFTY MEETINGS

A Single Global Challenge – A single Global Plan

1.1 The Director of the Air Navigation Bureau informed the Group about the Global Air Navigation Plan (ANP) and the Global Air Traffic Management (ATM) Operational Concept that would form the future basis for planning and implementation activities in the ICAO Air Navigation Regions. It was emphasised that the future standard setting would be driven by performance requirements rather than technical specifications, and that the end goal was interoperability and seamless transition across boundaries.

A Single Russian Sky – Consolidation of Flight Information Regions

1.2 The Representative of the Russian Federation informed the Group of the planning and implementation activities under the auspices of the Federal Air Navigation Authorities (FANA). The plan contained target dates for deliverables in the short, medium and long term, and the Group noted specifically the intention to consolidate the Flight Information Regions (FIRs) in the Russian Federation in order to defragment the airspace.

A Single European Sky – the Second Step

1.3 The Representative of the European Commission informed the Group about the "Second Package" of the Single European Sky and about the status of consolidation of the FIRs in the Western part of the EUR Region into Functional Airspace Blocks (FABs). The Group noted the similarities between the programme and the programme of the Russian Federation and welcomed the efforts across the EUR Region to defragment the airspace. Such efforts were considered to contribute not only to the efficiency of civil aviation but also to environmental benefits.

A Single Civil Military Sky

1.4 The Representative of the North Atlantic Treaty Organisation (NATO) Air Traffic Management Committee (NATMC) pointed out that increased civil/military coordination and cooperation, not only in the sharing of airspace but also with regard to common service provision and sharing of the air navigation infrastructure could lead to significant economies for the operation of civil as well as State aircraft. The Group noted that this issue had high priority on the ICAO work programme and that it was the intention to convene a high level symposium/workshop on civil/military cooperation at ICAO Headquarters in 2009.

A Single Service Provider

1.5 The Representative of EUROCONTROL informed the Group about the provision of services by the Maastricht Upper Area Control Centre within the upper airspace over Belgium, Germany, Luxembourg and the Netherlands. EUROCONTROL was deeply involved in the setting-up of the FABs but did not envisage that a single service provider would be tasked to provide the air navigation services over the European Union Member States in the foreseeable future.

A Single Interface with Other Regions

1.6 The Representative of Kazakhstan, speaking on behalf of the Eurasia Coordinating Council (ECC), informed the Group about the development of air navigation services and about the different interfaces between the flight level systems used in the Asia/Pacific (APAC) Region and States in the EUR Region. The Group noted that different transition procedures between different flight level systems was a safety related issue that had to be taken into account when the plans for implementation of Reduced Vertical Separation Minimum (RVSM) would be developed in 2009.

1.7 The Chairman of the North Atlantic (NAT) Systems Planning Group (SPG) highlighted the lack of an overall and global strategy for implementation of communications systems. The NAT Region has found itself in between diverging implementation plans in the EUR and in the North American (NAM) Regions. The Group noted that the divergence appeared to have been arrested and that further efforts to start convergence of the implementation plans rested with the Air Navigation Commission (ANC) of ICAO. The Group found that this issue had to be addressed with high priority.

A Single Voice from Stakeholders

1.8 The Representatives of IFALPA and IFATCA provided the Group with their common vision for the future. They commented that in the current environment of civil aviation, where a modern long-range airframe could pass through up to five ICAO Air Navigation Regions in 24 hours, different regional operational procedures and different regional equipage requirements would constitute not only an economic but also a safety issue. The Group noted the need to address the issue and provide interoperability and transparency across borders between air navigation regions.

A Single Conclusion

1.9 The Chairman, in his closing remarks on Agenda Item 1, noted that the interventions made had focussed on safety only to a limited degree. It was found, however, that safety should continue to be the over-riding priority of all planning and implementation efforts in the EUR Region, and that the need for globalisation of procedures in a performance driven framework should be the basis for prioritisation of items on the future work programme.

1.10 The Group therefore formulated the following statement:

EANPG Statement 50/1 – Safety stays No 1: seamlessness needs new attention

That EANPG, re-affirming that aviation safety is the overriding priority, taking into account global provisions, and considering information from States and International Organisations, gives special attention to the following issues on its work programme:

a) Harmonisation of flight level systems

b) Coordinated planning for future Communications system requirements at high level

c) Defragmentation of airspace

d) Transparent boundaries with adjacent Regions

e) Civil/military co-operation in air traffic services, airspace management and route network development

2. REVIEW OF SIGNIFICANT INTERNATIONAL AVIATION DEVELOPMENTS

Composition of the EANPG

2.1 The Group was informed that in March and July 2008 the Council of ICAO had reviewed a report from the ANC on the effectiveness of Planning and Implementation Regional Groups (PIRGs) and agreed on their terms of reference, their composition and the methodology for review of PIRG reports by the ANC and the Council.

2.2 The Council had decided to retain the terms of reference of the EANPG. With regard to the composition of the EANPG the Council had decided:

a) that all States providing services in the EUR Air Navigation Region and being part of the EUR Air Navigation Plan should be included in the membership of EANPG;

b) that user States[1] are entitled to participate in meetings of the EANPG as non-members; and

c) that international organisations recognised by the Council may be invited as necessary to attend as observers to EANPG meetings.

2.3 At present, 13 States had nominated individual representatives to the EANPG. Those States were: Belarus, Czech Republic, France, Greece, Ireland, Italy, Portugal, Russian Federation, Spain, Switzerland, Turkey, Ukraine and United Kingdom.

2.4 In addition, Germany had agreed to represent also Austria, and Croatia had agreed to represent also Bosnia and Herzegovina and The Former Yugoslav Republic of Macedonia.

2.5 Another 20 States had decided to be represented through five groups of States. The current groups of States were:

a) Baltic States: Estonia, Latvia and Lithuania;

b) Benelux States: Belgium, Netherlands, Luxembourg;

c) Caucasian States: Armenia, Azerbaijan and Georgia;

d) Central Asian States: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan; and

e) Nordic States: Denmark, Finland, Norway and Sweden.

2.6 As a result of the decision by the Council all 52 States providing services in the EUR Region should be invited to be represented in the EANPG as member States. The “new” member States were: Albania, Andorra, Bulgaria, Cyprus, Hungary, Malta, Monaco, Montenegro, Poland, Republic of Moldova, Romania, San Marino, Serbia, Slovakia and Slovenia.

2.7 The Group found that groupings of States should be encouraged. It was therefore decided that the ICAO Regional Director, Europe and North Atlantic, in his capacity of Secretary of the EANPG, should coordinate with EANPG member States to encourage groupings with common representation at meetings.

2.8 Previously, the following EUR user States had participated in meetings of the EANPG as non-members on a regular basis: Algeria, Morocco, Tunisia and United States.

[1] A user State is defined as a State which has notified ICAO that aircraft on its register or aircraft owned by an operator whose principal place of business or permanent residence is located in that State, operate or expect to operate into the EUR Region. (ICAO Doc 8144, paragraph 6.1 refers)

2.9 It was decided that the ICAO Regional Director, Europe and North Atlantic, in his capacity of Secretary of the EANPG, should extend invitations to future meetings of the EANPG to all interested EUR user States.

2.10 Previously, the following international organisations recognised by the Council had been invited to attend EANPG meetings as observers: ACI, ECAC, EUROCONTROL, European Commission, IAC, IAOPA, IACA, IATA, IBAC, IFALPA and IFATCA. When necessary, and as decided by the Chairman and the Secretary of the Group, NATMC had also been invited to attend meetings as an observer.

2.11 On the basis of its discussion, the EANPG adopted the following decision:

EANPG Decision 50/1 – Invitation to EANPG meetings

That the ICAO Regional Director, Europe and North Atlantic, in his capacity of Secretary of the EANPG:

a) invite all States providing services in the European (EUR) Air Navigation Region and being part of the EUR Air Navigation Plan to participate in the EANPG activities as members;

b) encourage groupings of EANPG member States to have common representation at meetings;

c) invite all interested EUR user States to participate in EANPG meetings as non-members; and

d) invite, in consultation with the Chairman of the EANPG, international organisations to attend EANPG activities as observers.

2.12 The Group noted that the changes in the composition of the Group would have to be reflected in the EANPG Handbook and that a proposal to amend the Handbook accordingly would be considered under Agenda Item 9.

ICAO Developments

2.13 The Group was informed that, in the previous year, amendments to ICAO Annexes 2, 6, 10, 11 and 16 had been adopted and amendments to *Procedures for Air Navigation Services - Air Traffic Management* (PANS-ATM) (Doc 4444), *Procedures for Air Navigation Services - ICAO Abbreviations and Codes* (PANS-ABC) (Doc 8400) and *Procedures for Air Navigation Services - Aircraft Operations* (PANS-OPS) (Doc 8168) had been approved. With regard to Amendment 1 to the 15th Edition of Doc 4444, the Group noted that significant planning would be necessary to ensure a coordinated implementation of the updated flight planning provisions (paragraph 5.8.6 also refers). The Group noted the establishment of the Aeronautical Information Services-Aeronautical Information Management Study Group (AIS-AIMSG) and the dissolution of several other Study Groups. The Group was provided with detailed information regarding updates to various ICAO documents and circulars.

2.14 The Group was advised that two workshops on introduction to Performance Based Navigation (PBN), organized by ICAO in collaboration with the United States Federal Aviation Administration (FAA) and EUROCONTROL, had been completed in the ICAO EUR Region. They outlined a path towards implementation of the PBN concept as laid down in the *ICAO Performance Based Navigation Manual* (Doc 9613) and in line with ICAO Assembly Resolution 36-23.

2.15 A workshop for senior representatives of the Civil Aviation Administrations (CAA) of States in the Black and Caspian Sea area took place on 2-3 July 2008. It was organised in response to the request of the States, voiced at the EANPG meeting in 2007. The workshop focussed on high level civil aviation management and international relationship issues in light of the ICAO Global Air Navigation Plan, the ATM Operational Concept and transition to a Performance Based future Air Navigation System (ANS). The

participants discussed ways and means to strengthen regional coordination and cooperation and agreed on further steps that needed to be undertaken in order to advance in this direction.

2.16 The Group was informed of several other activities which had taken place at the ICAO EUR/NAT Office of ICAO, including a number of Safety Management System (SMS) implementation training courses and workshops. The Group was pleased to note that, as a result of the certification of Ms. Leyla Suleymanova as an ICAO Safety Management Systems Training Course Instructor, the EUR/NAT Office of ICAO was now able to offer this course fully in the Russian language.

2.17 The Group was provided with a briefing regarding the second meeting of the ICAO Trans-Regional Airspace and Supporting ATM Systems Steering (TRASAS) Group, which took place at the Asia and Pacific (APAC) Office of ICAO in Bangkok, Thailand, 18-19 March 2008.

2.18 The Steering Group is regularly composed of high level representatives from Canada, China, Democratic People's Republic of Korea, Denmark, Finland, Iceland, Japan, Mongolia, Norway, Republic of Korea, Russian Federation, United States and from aircraft operators' international organisations (e.g. IACA, IATA, IBAC).

2.19 TRASAS/2 confirmed the need to continue its role in facilitating inter-regional co-ordination of the requirements of international civil aviation for a coherent and economically viable and operationally optimal structure of ATS routes, linking city-pairs in Europe and Asia, Europe and North America and Asia and North America.

2.20 The Group recalled that TRASAS did not substitute itself for other existing bodies which are active under the auspices of ICAO (e.g. EANPG, North Atlantic Systems Planning Group (NAT SPG), ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG), etc.) or bodies operating as bilateral/multilateral State initiatives. Its role is to provide guidance as well as a co-ordinating function for these Groups working on the various technical and operational aspects related to the intended transit route network and the supporting infrastructure and to ensure a coherent overall development and implementation plan.

2.21 The Group was advised that, in consideration of the discussions held at TRASAS/2, the NAT SPG had established a Surveillance and Communications in Northern Airspace Task Force (SCNATF). The task force would carry out an analysis of existing surveillance and communications facilities available to provide ANS North of 80° North, determine the future requirements for surveillance and communications facilities, propose ways and means to meet the requirements and report to the TRASAS through the NAT SPG. The SCNATF was composed of representatives from Canada, Iceland, Norway, the Russian Federation and the United States. Due consideration would be taken of the work carried out by the Cross Polar Working Group so as to avoid all duplication of effort or conflict of interests.

Regional and national approach to implementation of a global ATM system

2.22 The meeting noted that the ICAO planning objective was to achieve a performance-based global ATM system through the implementation of air navigation systems and procedures in a progressive, cost-effective and cooperative manner, the benefits of which were apparent. The performance-based approach adheres to the following principles: strong focus on results through adoption of performance objectives and targets; collaborative decision-making driven by the results; and reliance on facts and data for decision making. Assessment of achievements would be periodically checked through a performance review, which in turn required adequate performance measurement and data collection capabilities.

2.23 The performance-based approach was results oriented, transparent and promoted accountability, it shifted from prescribing solutions to specifying desired performance, employed quantitative

and qualitative methods, avoided a technology driven approach, helped decision makers to set priorities and allowed optimum resource allocation.

2.24 To facilitate the realization of a performance-based Global ATM system, the meeting was informed that ICAO had developed the following relevant guidance material:

- *Global Air Traffic Management Operational Concept* (Doc 9854);
- *Air Traffic Management System Requirements* (Doc 9882);
- *Manual on Global Performance of the Air Navigation System* (Doc 9883); and
- *Global Air Navigation Plan* (Doc 9750).

2.25 The meeting noted that a performance-driven planning process was in use in much of the ICAO EUR Region since 2002 through the adoption by EANPG/44 of the "*ICAO EUR Region Transition Plan to CNS/ATM*" V1.1 document (December 2002, revised as V2.0 in 2004). Also, the meeting highlighted the requirement to avoid any duplication of effort as the planning process for the European Union States was addressed through the Single European Sky ATM Research (SESAR) Master Plan and for European Civil Aviation Conference (ECAC) States through the Local Convergence and Implementation Plan (LCIP) mechanism developed by EUROCONTROL, both of which were in compliance with the requirements of Doc 9750 and Doc 9854.

2.26 The Group recognised that it was not appropriate to replace the existing processes in the Region with a new framework. Therefore the meeting suggested that any issues related to the proposed performance framework and performance objectives be addressed within the on-going activities toward development of the new electronic ANP and associated tools and through existing working arrangements in the ICAO EUR Region.

2.27 Considering the need to have a clearly defined strategy to implement ATM systems as well as the need to align work programmes of the remaining States of the EUR Region, the standardised process presented making use of the Performance Framework Form (PFF), a sample of which is shown in **Appendix C** to this report, was accepted. The PFF is applicable to both the regional and national planning framework and thus ensures harmonization. The explanatory notes provided in **Appendix D** to the report serve as a guide for completing the PFF. The meeting agreed that EANPG will identify the individual parties responsible for achieving the regional performance objectives and establish a monitoring mechanism. The regional plans will include information on progress achieved and provide periodic reports to ICAO Headquarters.

2.28 In terms of national performance planning, the applicable States, in cooperation with the ATM community, would evolve or develop national plans aligned with the regionally agreed performance objectives through the use of the same PFF template described in Appendix C. The meeting agreed that States would identify the individual parties responsible for achieving the national performance objectives as well as a means for monitoring the progress. The national plans should include information on progress achieved and provide periodic reports to EANPG.

2.29 The meeting acknowledged that the global ATM system would emerge through the implementation of many initiatives by States over several years on an evolutionary basis. The set of initiatives contained in the Doc 9750 were meant to facilitate and harmonize the work already underway within the regions and States so as to bring needed benefits to aircraft operators during the near and medium terms. To this end, the meeting agreed on the following Conclusions:

EANPG Conclusion 50/1 – Regional Air Navigation Planning Performance Framework

That, when developing the new electronic Air Navigation Plan (eANP), the ICAO Secretariat give due regard to the regional and national performance frameworks that should identify the regional and national performance objectives, on the basis of ICAO guidance material and ensure its their alignment with the Global Air Navigation Plan (Doc 9750) and the Global ATM Operational Concept (Doc 9850).

EANPG Conclusion 50/2 – ATMGE - Air Navigation Planning Performance Framework

That:

a) the Air Traffic Management Group – Eastern Part of the ICAO European Region (ATMGE) work programme be amended to adopt a performance framework identifying the regional performance objectives and the completion of regional performance framework forms; and

b) States in the Eastern part of the ICAO European Region be invited to adopt a national performance framework on the basis of ICAO guidance material and in line with the regional performance objectives, the regional air navigation plan and the Global ATM Operational Concept. The performance framework will include identification of national performance objectives and completion of national performance framework forms.

Considering the environmental effects from civil aviation

2.30 The meeting noted that although the contribution of aviation emissions to total global carbon dioxide (CO_2) emissions was relatively small, scheduled air traffic was currently growing at a rate of 5.8% per year and was projected to grow at a rate of 4.6% per year through 2025. This growth raised questions on the future contributions of aviation activity to climate change and on the most effective way of addressing those emissions in a future climate agreement. ICAO had been focusing on environmental issues since 1968, primarily through the Committee on Aviation Environmental Protection (CAEP).

2.31 The meeting was informed that CAEP Working Group 2 – Operations (WG2) was in the process of updating and augmenting the guidance provided in *Operational Opportunities to Minimize Fuel Use and Reduce Emissions* (ICAO Circular 303), in coordination with relevant ICAO Panels.

2.32 It was noted that CAEP WG2 had also defined an Independent Expert (IE) process, to examine and make recommendations for noise, oxides of nitrogen (NOx) and fuel burn goals with respect to operational improvements in the mid and long terms. The IE Panel would work in close collaboration with the ICAO Secretariat, ICAO Panels and other groups and organizations involved in the definition and implementation of CNS/ATM systems based on the Doc 9750 and Doc 9854 to support this effort.

2.33 Recognizing that a balance of operational and technological improvements were needed to address aviation environmental issues, CAEP Working Group 3 – Emissions Technical (WG3) was working to develop fuel burn engine and airframe technology goals for the mid and long terms that would consider the effects of 'major technologies' on fuel burn and efficiency, as well as combinations of improvements from aircraft and engines.

2.34 The meeting noted that a Carbon Emissions Calculator that estimates CO_2 emissions from air travel was available on the ICAO website (www.icao.int), and that the Group on International Aviation and Climate Change (GIACC) would develop and recommend to the Council a Programme of Action and common strategy on international aviation and climate change.

2.35 Furthermore, the meeting noted that while ICAO was working towards the development of greenhouse gas reduction measures and other goals at the global level, implementation of such measures took place at the regional and local levels. Acknowledging the high-level objectives set by ICAO, the

meeting recognized the need to keep environmental issues in mind when planning and implementing regional air navigation systems including new routes and terminal procedures and was advised that CAEP would be kept informed of developments in the region so as to support the assessment of the environmental benefits.

3. PREVIOUS EANPG FOLLOW UP

EANPG follow-up

3.1 The ICAO Secretariat provided the EANPG with an update on the outstanding EANPG/49 Conclusions and Decisions, based on the actions taken by the Secretariat and the review of the ANC on the report of EANPG/49. The Group noted the progress recorded in the majority of the activities.

Status of proposals for amendments stemming from the work programme of the EANPG

3.2 EANPG also considered the progress report of the status of all proposals for amendment to the EUR Air Navigation Plan (ANP), the *EUR Regional Supplementary Procedures* (SUPPs) (Doc 7030) as well as those developed to support the evolution of ICAO provisions in the Annexes to the Chicago Convention and the Procedures for Air Navigation Services (PANS). The update presented by the Secretariat was in response to the COG Conclusion 41/02 that invited the ICAO Regional Director, Europe and North Atlantic, to put in place a mechanism to follow up the progress in the ICAO machinery of proposals for amendment to ICAO provisions issued by EANPG.

4. AVIATION SAFETY

State Safety Programme

4.1 The Group was informed about the status of the State Safety Programme (SSP) Documentation and Training courses. Referring to the numerous SMS training courses given by the EUR/NAT Office over the last few years where about 1000 participants had been trained, there was now a need to offer to States training for the implementation of the SSP. State letter 08/70 of 13 November 2008 announced SSP training to start next spring. There was now an urgent requirement in the EUR Region for a “Train the Trainers” course. The dates would be announced when confirmed. Czech Republic mentioned the need to coordinate the activities between the EUR/NAT Office of ICAO and the European Commission with the aim of preparing a joint model encompassing all requirements for development of SSPs.

ICAO ECAC States ATM Safety Framework Monitoring

4.2 The Group reviewed the results of the 2008 ATM Safety Framework Maturity Study. The Group recalled that this study had been conducted in 2002, 2004, 2006 and 2007 and had initially included only the European Civil Aviation Conference (ECAC) States; since 2007, the additional 7 non-ECAC States of the ICAO EUR Region had been invited to participate and three additional North African States had been invited in 2008. The study methodology involved self-assessment surveys followed up by interviews. Although two additional EUR Region States participated in this year’s survey, the Group was disappointed to note that two States (Tajikistan and Turkmenistan) had not responded to the survey, along with two of the North African States. Accordingly, the Group agreed to the following:

EANPG Conclusion 50/3 – Safety maturity survey

That the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG:

a) re-emphasize to all ICAO EUR Region States the importance of the self-assessment surveys and urge States and Air Navigation Service Providers (ANSP) to participate in the 2009 survey and report as requested and in particular encourage Tajikistan and Turkmenistan to start participating; and

b) invite EUROCONTROL to continue providing appropriate assistance (i.e. through European Safety Programme for ATM (ESP)) to those States and ANSPs experiencing difficulties in raising their overall Safety Maturity Level.

4.3 The Group noted the results which indicated that the overall Safety Maturity Level was improving in participating States. As well, the Group was provided with detailed information regarding obstacles which were hindering the pace of improvement or which could prevent improvements. The Group noted that updates to the survey methodology and benchmarking would be taking place in recognition of the improvements that had already occurred and that the new methodology was expected to be used from 2010 onwards.

5. PLANNING AND IMPLEMENTATION ISSUES

5.1 MANAGEMENT OF THE EUROPEAN AIR NAVIGATION PLAN

All Weather Operations Group (AWOG)

5.1.1 The Group was presented with the outcome of the work in developing of the guidance material on the Management of Instrument Landing System (ILS) Critical and Sensitive Areas that was aimed at harmonising, as far as possible, the various practices in the ICAO EUR Region. The Group agreed that considering the discussions currently taking place about the new ICAO ILS guidance material and considering also the urgent need for European airports to prepare for A380 operations, the presented guidance material was a valuable contribution to the discussion and provide some initial guidance on how to deal with the new ILS protection areas. Therefore the Group agreed on the following:

EANPG Conclusion 50/4 – Interim Guidance material on the management of Instrument Landing System critical and sensitive areas

That:

a) EANPG endorse the interim guidance material on the management of Instrument Landing System (ILS) critical and sensitive areas for all categories of operation as presented at **Appendix E** to this report; and

b) the ICAO Regional Director, Europe and North Atlantic, be invited to publish the guidance material on the ICAO EUR/NAT website for use by States and possible comments.

5.1.2 The Group was presented with the outcome of the study on the existing and planned Approach Procedure with Vertical Guidance (APV) implementations in the ICAO EUR Region. The Group noted that the replies received from States indicated a general support to advance the Assembly Resolution 36-23 implementation, in the parts related to APV. Several APVs were already operational and a growth in implementation was foreseen. However, some States had difficulties in providing an exact answer due to unavailability of information at this stage. Several potential obstacles preventing successful progress of APV implementation were identified by some States, including:

- The standardisation activities on APV (Satellite-Based Augmentation System (SBAS) and Baro Vertical Navigation (VNAV)) expected to be completed by 2010. The European Aviation Safety Agency (EASA) Acceptable Means of Compliance (AMC) were still under development and the ICAO Doc 9613 was still to be published.
- As far as SBAS was concerned, it was noted that SBAS Localizer Performance with Vertical guidance (LPV) approach procedure was currently outside of the PBN Concept as laid down in ICAO draft Doc 9613. Also, in Europe, the augmentation of the United States Department of Defence Global Positioning System (GPS) would be supported through the European Geostationary Navigation Overlay Service (EGNOS). The certification of this service was not expected before 2010.
- On the regulatory side, some State responses highlighted that in accordance with European Commission Regulation 549/2004 the service providers (airports and air navigation services) in many States were independent from the National Supervisory Authorities (NSA). At the same time, a decision to introduce APV was entirely the responsibility of the appropriate service provider. The decision to implement APV would be made on the basis of business case driven considerations. Although the NSAs maintained a proactive approach in enabling and promoting APV implementation, their role was limited to providing regulatory oversight only. In such a regulatory and business environment the timeline for APV implementation, as resolved by ICAO Assembly, would be difficult to enforce.

5.1.3 The Group noted that in accordance with the Chicago Convention (Articles 28 and 38) it was the responsibility of the State to provide the facilities and services required for international aviation. These responsibilities remained with the State even in an environment where regulatory and service provision roles were separated. The overriding importance of adherence to the Chicago Convention and Standards and Recommended Practices (SARPs) was recognised by the European and National regulations. The ICAO Assembly Resolutions were also agreed by the States and their implementation would be the responsibility of the States.

5.1.4 Therefore, recognising:

- that the PBN Task Force (PBN TF) would be developing the ICAO EUR Regional PBN implementation Plan;
- that the EANPG AWOG was expected to produce an input to the PBN TF work related to APV implementation;
- that the Assembly Resolution 36-23 invited the PIRG to include in their work programme the review of the status of implementation of PBN by States according to the defined implementation plans; and
- that the same Assembly Resolution 36-23 also invited States to report to ICAO any deficiencies that may occur and constrain the successful progress of the Resolution,

the Group agreed to the following:

EANPG Conclusion 50/5 - Approach Procedure with Vertical guidance APV implementation

That the ICAO Regional Director, Europe and North Atlantic:

a) invite all States to take a proactive stance to enabling APV implementation in the ICAO EUR Region at the earliest opportunity;

b) with regard to Assembly Resolution 36-23 and based on the responses to the State Letter, inform the ICAO Council of any potential constraints or challenges associated with implementing APV procedures in the EUR Region.

5.1.5 In the same vein, the Group was presented with a draft Proposal for Amendment to the ICAO EUR ANP. The purpose of the proposal was to keep the planning criteria and operational requirements necessary for the planning and implementation of all weather operations in the EUR Region up to date. In addition, the proposal identified requirements for GNSS operations at international aerodromes and, specifically, for APV operations.

EANPG Conclusion 50/6 - Proposal for Amendment to ICAO EUR ANP and FASID, Part III – AOP

That:

a) EANPG endorse the Proposal for Amendment to ICAO EUR ANP FASID (Doc 7754), Part III – AOP as contained at **Appendix F** to this report; and

b) the ICAO Regional Director, Europe and North Atlantic, be invited to take necessary steps in formal processing of the endorsed proposal for amendment on behalf of the EANPG.

5.1.6 The Group noted the concerns reported on the approach naming convention and phraseologies for Microwave Landing System (MLS) and Global Navigation Satellite Systems (GNSS) operations. During the development of MLS procedures in one State, it was felt that the similarity between the terms "ILS" and "MLS" could lead to confusion on radiotelephony. This concern was also applicable to "ILS versus "GLS". While the new technology was implemented to reduce aircraft separation and increased capacity during low visibility procedures, this possible confusion raised safety concerns.

5.1.7 Ideally, the term "GLS" should be avoided, and alternative designators considered (e.g. "GBAS" or "GBS"). The use of proposed "GBAS" (or "GBS" if only 3 characters would be permitted on the flight deck) should be extended to the aeronautical chart titles, to ensure a consistency between the chart title, the flight deck annunciation and the phraseology. Therefore, the following conclusion was agreed:

EANPG Conclusion 50/7 – ILS/MLS/GLS phraseology

That the ICAO Regional Director, Europe and North Atlantic:

a) inform ICAO HQ on the perceived ILS/MLS/GLS phraseology inadequacy that may have safety implications; and

b) invite ICAO HQ to study the use of "GBAS" or "GBS" terminology instead of "GLS" as a possible solution to avoid confusion on radiotelephony.

5.1.8 The Group noted that some time had passed since the last LVP workshop in 2004. The increase in traffic in the States of the Eastern part of the ICAO EUR Region and the diversions and delays caused by poor weather conditions resulted in a greater interest in LVP operations in this area.

5.1.9 Therefore the Group agreed to the recommendation that a new ICAO workshop focussed on LVP issues be organised in 2009. On a similar note, considering the interest in APV and ICAO Assembly Resolution A36-23, an awareness-raising event on APV would also be beneficial. Therefore the following was agreed:

EANPG Conclusion 50/8 – Low Visibility Procedures/ Approach Procedure with Vertical guidance Workshop

That :

a) the ICAO Regional Director, Europe and North Atlantic, be invited to organise a Low Visibility Procedures/ Approach Procedure with Vertical guidance (LVP/APV) Workshop on 9-11 June 2009; and

b) States and International Organisations (e.g European Commission, EASA, EUROCONTROL, IATA) be invited to support the Workshop through active participation and presentation material.

Originating Region Code Assignment Method and Centralised Code Assignment and Management System

5.1.10 The Group was provided with an overview of the issues facing the Originating Code Assignment Method (ORCAM) and the status of the implementation planning of the Centralised Code Assignment and Management System (CCAMS) Project. The Group noted the comments from the ORCAM experts and was advised that an indication of the growth in the number of code conflicts would be provided to COG/44 for their consideration and action if required. The EANPG also noted that through the efforts of national experts within the ORCAM working arrangements, temporary solutions and workarounds had been put in place for the most pressing code management problems. It was also noted that the consensus of the expert groups was that, due to the many ad-hoc solutions in place, it was no longer possible to produce a Code Assignment List (CAL) fully compliant with ORCAM principles.

5.1.11 The ORCAM experts underlined that the result of having an ORCAM no longer able to meet demand was additional workload to pilots and controllers and an increasing number of code conflicts (reported to the Secondary Surveillance Radar (SSR) Code Secretariat and the ICAO EUR/NAT Office). CCAMS had been proposed and developed by operational and national technical experts supported by the EUROCONTROL Agency to address the problems of ORCAM. Although it had been acknowledged that CCAMS was the only viable and economical solution to the code shortage problem which could be implemented in the 2011 timeframe, a decision on its go-ahead was still pending.

5.1.12 The Group recalled that a conditional phased implementation of CCAMS for the Initial Flight Plan Processing System (IFPS) zone was endorsed by EANPG/48 and approved by the Provisional Council of EUROCONTROL (PC) at the PC/26 meeting in November 2006. The strategy endorsed by PC/26 failed to ensure a firm commitment by all States and ANSPs concerned. In order to correct this, PC/29 (May 2008) requested the Air Navigation Services Board (ANSB) of EUROCONTROL to assess the issues and report back to PC/30.

5.1.13 The ANSB presented to PC/30 (November 2008) a report based on a survey performed by ANSB amongst several ANSPs. The report proposed a mixed strategy, consisting of improving the application of ORCAM within the national systems, the progressive implementation of Mode S Elementary Surveillance (ELS) and the implementation of CCAMS in areas where necessary.

5.1.14 The PC noted the proposed strategy and requested the ANSB and EUROCONTROL to develop it into a more concrete proposal that would take into account the operational and technical realities. Although not specifically defined, the strategy proposed by the ANSB would require an operational concept that provided for seamless transition of unambiguous aircraft identification between areas of different surveillance technologies and a strong link between the ELS implementation and Mode 3/A application.

5.1.15 The options and requirements for the development of such a new SSR Code management concept would be considered at the Provisional Council Coordinating Committee (PCC) in January 2009. The ANSB had been tasked to present a progress report at PC/31 in May 2009.

5.1.16 The Group noted the information that, due to the lack of a decision, the earliest possible estimated date to have an operational CCAMS system was the fourth quarter of 2011. This date was not dependant on the size of a CCAMS operational area, but on the technical requirements for national developments and system validation.

5.1.17 When commenting upon the information received from EUROCONTROL, the IATA representative expressed his frustration on the lack of progress on this issue. He considered as unacceptable

the perspective of having aircraft kept on ground due to the unavailability of sufficient SSR codes to cope with demand. Therefore, he requested that a solution be found as a matter of urgency and invited the European Commission to investigate the possibility of issuing an Implementing Rule regulating the management of SSR codes within the European Union.

5.1.18 EANPG noted the ongoing problems with the operational application of ORCAM in the EUR Region and the delay in the CCAMS project implementation. The Group invited EUROCONTROL to report further progress to COG/44.

5.2 PROPOSALS FOR AMENDMENTS OF ICAO PROVISIONS

Flexible Use of Airspace

5.2.1 The Group was informed that, in follow up to EANPG Conclusion 49/11, a Task Force on Flexible Use of Airspace (FUA) was established to initiate work to develop a concept for the application of the Flexible Use of Airspace in high seas airspace that took account of international agreements regarding freedom of use of and access to airspace over the high seas. The first meeting of the Task Force was held in the ICAO EUR/NAT Office from 20 to 22 May 2008 and the second meeting took place at EUROCONTROL from 23 to 24 October2008.

5.2.2 The Group recalled that Article 87 of the United Nations Convention on the Law of the Sea (UNCLOS) enshrines in international law [2] freedom of flight over the high seas. Article 9 of the Chicago Convention stipulates that States can only prohibit or restrict aircraft over its territory; therefore, they cannot prohibit the movement of aircraft over the high seas. Also, as indicated in its Foreword, Annex 2 constitutes Rules relating to flight and manoeuvres of aircraft within the meaning of Article 12 of the Chicago Convention and shall apply without exception over the high seas.

5.2.3 In addition, it was recalled that, although the Chicago Convention does not apply to State aircraft (Article 3 of the Convention), Article 3 paragraph d) however addresses State aircraft regulations in terms of due regard obligations for safety of navigation of civil aircraft. It was stressed that any proposals developed for the application of the FUA Concept over the high seas must not in any way contradict, or seem to contradict, the above legal instruments as well as others that may be applicable. Furthermore, any language used, whether in definitions or in agreements and/or procedures, must not give the appearance that they may contradict the legal instruments.

5.2.4 The Group was informed that the Task Force, when analysing its assignment, had divided the application of the FUA into various smaller components in order to identify those elements that needed to be addressed. In doing so, issues that were outside the remit of the Task Force as well as those that were already being addressed by others were disregarded. As a result, the following two scenarios were further analysed by the Task Force and were used to develop its recommendations:

a) State aircraft operating in high seas airspace for which their State has accepted the responsibility for the provision of ATS in accordance with the provisions of Annex 11. In this case, it was recognized that States would normally apply their national regulations regarding the application of the FUA Concept based on the EUROCONTROL Specification for FUA. It was agreed that this matter, whilst within the remit of the Task Force, was being addressed by the States concerned in accordance with their needs and that it was not necessary to further elaborate on this aspect of the FUA; and;

b) State aircraft from Nation A planning to operate over high seas for which Nation B has accepted the responsibility for the provision of ATS. It was acknowledged that access to the airspace could not be denied nor could these State aircraft be "forced" to participate in the

[2] The Group was informed that Turkey's position regarding the UNCLOS is well known and remained unchanged.

application of the FUA Concept. It was agreed that any procedures or agreements that were to be developed must not give the operators of these aircraft the sentiment that their operations would be restricted in any way. Therefore, the procedures and/or agreements must acknowledge that negotiating the use of the airspace was the ideal; however there would be circumstances when only notification of operation would be possible. Exceptionally, operational considerations may preclude either negotiation or notification.

5.2.5 The Group noted that the suggested the "best way" forward would be to develop a process whereby the users of the airspace would be encouraged to improve the exchange of information with the ANSP. To do so, the Task Force had recommended that the operators should be given some added value. Improved safety margins that the ANSPs could provide to these operations coupled with uninterrupted use of airspace could provide such added value. This could be achieved by providing reserved airspace in which the operations could be carried out and the ANSPs would ensure that controlled air traffic would be separated from the reservations. As regards operations in uncontrolled airspace, the value added would be the notification to all airspace users that operations that could jeopardise the safety of flight were taking place in a defined area and that caution should be used.

5.2.6 The Group endorsed the recommendation from the Task Force that some form of a Regional Air Navigation Agreement was necessary to ensure that all States applied the FUA procedures in a consistent manner. The Task Force had also recommended that the ICAO EUR ANP (Doc 7754), which contained a section on Airspace Management, appeared to be the best vehicle to set down the regional provisions related to the application of the FUA Concept over the high seas. It was recalled that the management of the EUR ANP was within the remit of the EANPG and as such, was easier to manage from a regional perspective. It was however stressed that any provisions developed should have a global view, although they would initially only be used in the EUR Region.

5.2.7 The Group also endorsed the Task Force recommendation that the initial implementation of the FUA provisions should not be mandated but should provide some flexibility in order to offer the operators of state aircraft the reassurance that their right to access the airspace was not being impinged; instead, they should feel that cooperation would provide the added value mentioned in paragraph 5.2.5 above.

5.2.8 The Group was informed that the task of developing the proposed amendment to the EUR ANP to include the application FUA Concept over the high seas would require resources. ICAO did not have any available resources to lead the development work although it could lead the overall task. At the request of the Group, EUROCONTROL agreed to provide the resources to support the development work. To effectively carry out the task and ensure regional agreement, the Group emphasised the importance that delegations include participation by military colleagues to ensure that their requirements were captured.

5.2.9 The Group accepted the Task Force's recommendation that an amendment to the Doc 7030 should not be pursued as it would not be possible to include definitions and it might be difficult to obtain a global consensus on this matter.

5.2.10 The Group noted that the Task Force had examined the proposal that had been submitted to EANPG/49 (EANPG/49 – WP/25) to amend Annex 11 and the Doc 4444. It was noted that the proposals did not contradict the overriding legal instruments. Nevertheless, as there was no consensus to support the proposed changes, the Group did not endorse the proposals for amendments and agreed that the Task Force should further refine them if necessary and submit any proposals for change with their final report.

5.2.11 The Group agreed that, based on the initial work of its Task Force, a form of the EUROCONTROL FUA Concept could be implemented in high seas airspace of the ICAO EUR Region. To accomplish the assignment, the Group agreed that the mandate of its Task Force should be prolonged to the end of October 2009 and that a final report should be submitted to EANPG/51. It was also agreed that at least two meetings would be required and it noted that the first one would be held from 10 to 11 February

2009 in Paris at the ICAO EUR/NAT Office. The Group noted with appreciation that the Russian Federation had agreed to participate in the work of the Task Force starting at the February 2009 meeting.

EANPG Decision 50/2 – Development of ICAO provisions to support the expansion of the Flexible Use of Airspace (FUA) concept over the high seas

That, the Task Force established pursuant to EANPG Conclusion 49/11:

a) develop a proposal for the amendment to the ICAO European Regional Air Navigation Plan regarding the expansion of the FUA concept to airspace over the high seas taking account of the need to:

   i) increase safety and improve the efficiency of airspace management over the high seas;

   ii) provide improved safety and undisturbed use by state aircraft of specified airspace over the high seas;

   iii) take account of national state aircraft use of the high seas airspace for which a State has accepted the responsibility for the provision of air navigation services; and

   iv) encourage the participation of non-national state aircraft to participate in the application of the FUA Concept in airspace for which a State has accepted the responsibility for the provision of air navigation services;

b) complete its work by October 2009; and

c) provide EANPG/51 with a final report.

EANPG Conclusion 50/9 - Invite EUROCONTROL to provide resources to assist in developing provisions for the application of the Flexible Use of Airspace concept over the high seas in the European Region

That ICAO Regional Director, Europe and North Atlantic, invite the Director General of EUROCONTROL to provide resources to assist in the development of provisions to support the application of the Flexible Use of Airspace (FUA) Concept over the high seas in the EUR Region.

Provision of altimeter setting information

5.2.12 The Group recalled that, in accordance with ICAO Annex 11, paragraph 4.3.6.1 f) relating to the provision of Automatic Terminal Information Service (ATIS), the ATS unit shall, when replying to an aircraft acknowledging receipt of ATIS information, provide the aircraft with the current altimeter setting. Furthermore, in paragraph 4.3.6.3 it is stated that: "Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which shall be provided in accordance with 4.3.6.1 f)". This was not reflected in the Doc 4444.

5.2.13 As regards the provisions of the Doc 4444 relating to the provision of certain elements of information including the current altimeter setting, it was mentioned that this information shall be provided "with the exception of such elements which it is known the aircraft has already received". It was acknowledged that the Annex 11 and the Doc 4444 provisions were not contradictory. However, there was a potential for misinterpretation of the Doc 4444 paragraphs as the relevant requirements regarding ATIS appeared in Annex 11 only.

5.2.14 Furthermore, in accordance with the Doc 8168, Part III, Section 1, Chapter 2, paragraph 2.2, "*A QNH altimeter setting shall be made available to aircraft in taxi clearances prior to take-off*", and in accordance with paragraph 2.4.1, "*The QNH altimeter setting shall be made available to aircraft in*

approach clearances and in clearances to enter the traffic circuit". It was considered appropriate that these provisions be clearly reflected in Doc 4444 as well.

5.2.15 The Group agreed that any ambiguity in basic texts should be removed and therefore supported the proposal to amend the PANS ATM. In doing so, the Group was cognizant that the EUROCONTROL Airspace and Navigation Team (ANT) and COG/42 had examined the proposal and had supported the following text:

> "4.10.4.5 A QNH altimeter setting shall be included in the descent clearance when first cleared to an altitude below the transition level, in approach clearances or clearances to enter the traffic circuit, and in taxi clearances for departing aircraft, except when it is known that the ~~aircraft has already received the~~ information has already been received through direct controller-pilot communication."

EANPG Conclusion 50/10 – Provision of altimeter setting information

> That the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG, submit the draft proposal for amendment to PANS-ATM, Doc 4444, on the subject of the Provision of altimeter setting information as shown in **Appendix G** to this report.

Use of ATS surveillance systems in the aerodrome control service

5.2.16 The Group was informed that the PANS-ATM included a list of functions for which an ATS surveillance system may be used in the provision of aerodrome control service; however, the list did not include the possibility of maintaining separation between successive aircraft on the same final approach.

5.2.17 It was noted that, in the context of "Vectoring to pilot-interpreted final approach aid", Doc 4444 paragraph 8.9.4.2 indicated that the responsibility for providing separation between succeeding aircraft on the same final approach may be transferred to the aerodrome controller in accordance with procedures prescribed by the appropriate ATS authority and provided that an ATS surveillance system was available to the aerodrome controller. It was further noted that, in accordance with Doc 4444, paragraph 8.10.1.1 relating to the functions for which an ATS surveillance system may be used in the provision of aerodrome control services, these functions were limited to flight path monitoring of aircraft on final approach and on the vicinity of aerodrome and for establishing separation between departing aircraft.

5.2.18 The Group agreed that it appeared that, in the presence of a suitable ATS surveillance system available to an appropriately rated aerodrome controller, the provisions of paragraph 8.9.4.2 as regards aircraft on final approach should also prevail. Consequently, there was a need to reflect this in paragraph 8.10.1.1. Accordingly, the Group endorsed the proposal for amendment to the Doc 4444 which is included in **Appendix H** and agreed that the proposal for amendment be submitted to ICAO on behalf of the EANPG.

EANPG Conclusion 50/11 – Use of Air Traffic Services (ATS) surveillance systems in the aerodrome control service

> That the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG, submit the draft proposal for amendment to *Procedures for Air Navigation Services - Air Traffic Management* (Doc 4444), on the subject of the use of ATS surveillance systems in aerodrome control service, as shown in **Appendix H** to this report.

Limits of a vector

5.2.19 The Group was informed that Amendment 5 to Doc 4444 had changed the provisions regarding the information to be provided when an aircraft was given an initial radar vector. It was noted that some States considered that the change was inappropriate for a number of reasons detailed in paragraph 5.2.20 below. The provisions in Doc 4444 now stated "When an aircraft is given its initial vector deviating it from a previously assigned route, the pilot shall be informed what the vector is to accomplish, and the limit of the vector shall be specified (e.g. to …position for …approach)".

5.2.20 The current provisions in Doc 4444 could result in a significant increase in radio communications loading with no perceived benefit and could add the potential for pilot confusion and uncertainty. In today's high intensity European ATM environment, transmitting additional information in all circumstances would generate unnecessary additional radio transmissions (RT). Furthermore, the limits of the vector were frequently unknown to the air traffic controller and such information was not necessary in order to comply with communications failure procedures. Changing the verb from "shall" to "should" would provide the air traffic controller with greater flexibility and would reduce RT. It was therefore proposed that Doc 4444 should be amended as follows:

> "When an aircraft is given its initial vector diverting it from a previously assigned route, the pilot should be informed what the vector is to accomplish, and when possible the limit of the vector should be specified (e.g. to…position, for … approach.".

5.2.21 When considering the above, the Group noted that ICAO did not have any definition for what constituted a significant difference to the PANS approved by the Council and what should therefore be published as differences in the National Aeronautical Information Publication (AIP). Therefore there was some uncertainty as to whether this change constituted a significant change which should be published as a difference.

5.2.22 The Group felt that it had insufficient information to recommend that a change to Doc 4444 be pursued. For example, it did not have any safety work related to the proposal to change the Doc 4444 which would support the change or identify mitigation if required.

EANPG Decision 50/3- Procedures regarding initial radar vectoring

That, the EANPG COG:

a) carries out a review of the current *Procedures for Air Navigation Services - Air Traffic Management* (PANS ATM) (Doc 4444) provisions regarding initial radar vectoring;

b) develops a proposal for amendment if required; and

c) reports any progress to the EANPG.

Regional Supplementary Procedures (SUPPs) (Doc 7030) on Controller Pilot Data Link Communications / Very High Frequency (VHF) Data Link Mode 2 (CPDLC/VDL2)

5.2.23 The Group recalled that the 49th Meeting of the European Air Navigation Planning Group (EANPG) in reviewing the progress of the Data Link Service Implementing Rule (DLS IR) developed by EUROCONTROL on the request of the European Commission, recognised that the DLS IR necessitates an amendment to the *EUR Regional Supplementary Procedures* (SUPPs) (Doc 7030) to reflect the mandatory carriage requirements.

5.2.24 A Proposal for Amendment to Doc 7030 with respect to the mandatory carriage of CPDLC/VDL2 equipment in the ICAO EUR region was developed in cooperation between ICAO EUR/NAT

and EUROCONTROL LINK2000+ programme and presented to the Group. In reviewing the draft proposal for amendment it was pointed out that some references were not in accordance with the procedures related to drafting amendments and that this would have to be clarified before it would be submitted to ICAO HQ for comments prior to circulation. The Group agreed that the Secretariat should review the content of the proposal for amendment stressing however that the underlined principle remains unchanged.

EANPG Conclusion 50/12 - Proposal for Amendment European Regional Doc 7030 – Controller Pilot Data Link Communications / Very High Frequency (VHF) Data Link Mode 2 (CPDLC/VDL2)

That the ICAO Regional Director, Europe and North Atlantic, process, on behalf of the EANPG and in accordance with the established formal procedure, the draft proposal for amendment to Doc 7030 as presented at **Appendix I** to this report.

Company callsign allocations

5.2.25 The United Kingdom informed the Meeting about changes to company callsign allocations which, due to the lack of a formal process for the timely notification of changes could cause difficulties to air traffic controllers unaware of the changes and/or in adapting ATC systems to reflect the new allocations. So far, callsign changes would be made public through a new edition of ICAO *Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services* (Doc 8585) (twice a year).

5.2.26 The Group considered the possible negative aspect of this situation and discussed possible solutions. The Group was not able to reach consensus on a preferred solution but did agree that any solution should involve a change to the current ICAO procedures. The Group agreed the following conclusion:

EANPG Conclusion 50/13 – Improved procedure for coordination of callsign allocations

That the ICAO Regional Director, Europe and North Atlantic, be invited to submit to ICAO Headquarters, for further consideration, the suggestions for changes to the callsign allocation procedures as presented at **Appendix J** to this report.

5.3 AIR TRAFFIC MANAGEMENT

Performance Based Navigation Implementation Task Force (PBN TF)

5.3.1 The Group reviewed the progress report of the PBN implementation Task Force (PBN TF). The Group was presented with the following draft "PBN Implementation & Harmonisation Strategy for the ICAO EUR Region" as developed by the PBN TF:

a) Implementation of any RNAV or RNP application shall be in compliance with the ICAO PBN Manual (Doc 9613);

b) Recognizing that B-RNAV/P-RNAV can be regarded as equivalent to RNAV5/RNAV1, as defined in the ICAO PBN Manual, their use will continue for en-route and terminal applications at least until 2015;

c) The target date for the completion of implementation for the approach procedures with vertical guidance (APV) (APV/Baro-VNAV and/or APV/SBAS) for all instrument runway ends is 2016;

d) Replacement of RNAV5/RNAV1 (BRNAV/PRNAV) specification by RNP specifications (e.g. Basic RNP-1 and advanced-RNP) for the use in the en-route and terminal airspace to commence by 2015.

Note: Although APV/SBAS is currently not referenced in ICAO Doc 9613, in accordance with the ICAO Assembly Resolution A36-23, it is included in this Strategy as part of APV.

e) The Group noted the agreement of the PBN TF that the operational approvals for BRNAV and PRNAV should not be changed to the globally accepted terms RNAV5 and RNAV1 respectively. The reason to keep the BRNAV/PRNAV terminology was to avoid any unnecessary costs in the approval process. However, in keeping the spirit of global harmonization, it was agreed that for the publication purposes (e.g. charting) the ICAO terms RNAV1 and RNAV5 should be used in the EUR Region. In order to avoid any confusion it was also agreed that any EASA approval guidance documents (AMC 20-16 and 20-4) should also make equivalency statements between BRNAV and RNAV5 as well as between PRNAV and RNAV1.

5.3.2 The Group felt that the endorsement of this Strategy by the EANPG would serve as a reminder to the States in the ICAO EUR Region regarding the timelines established by ICAO Assembly Resolution A36-23 and would support and reinforce the provisions of the Resolution.

5.3.3 As a next step, this Strategy would be supported by a PBN Regional Implementation Plan (Roadmap), which would be developed by the PBN TF in the process of developing the EUR ANP amendment. The Group noted the intention of the Task Force to make use of the ECAC Navigation Strategy as a basis for the Roadmap development, provided that it would be suitable for the whole ICAO EUR Region. In the same vein, the PBN TF was planning to make use of the information on PBN implementation plans available in the EUROCONTROL LCIP database. The non-ECAC States would be requested to provide information on their PBN implementation plans in a similar format.

5.3.4 The Group agreed to the following:

EANPG Conclusion 50/14 – Performance Based Navigation Implementation

That:

a) EANPG/50 endorse the Performance Based Navigation (PBN) Regional Implementation and Harmonisation Strategy as presented in **Appendix K** to this report;

b) the ICAO Regional Director, Europe and North Atlantic, invite EUROCONTROL to provide to the PBN Task Force available information on the PBN national planning data for the States in the ECAC area for assessment;

c) PBN TF support the ICAO EUR/NAT Office in drafting a PBN national planning data questionnaire for the States beyond the ECAC area;

d) the ICAO Regional Director, Europe and North Atlantic, invite States to develop their National PBN Implementation Plans in line with the principles set out in the ICAO Assembly Resolution 36-23; and

e) the ICAO Regional Director, Europe and North Atlantic, be invited to include the PBN Regional Implementation and Harmonisation Strategy as a regional planning policy statement in the ICAO EUR Air Navigation Plan (Doc 7754).

5.3.5 In the same vein, the Group was informed that two ICAO PBN workshops were organised in the ICAO EUR Region in 2008 with the support of FAA and EUROCONTROL. The Group expressed its gratitude to DGAC France and CAA Azerbaijan for hosting these important events.

5.4 COMMUNICATION, NAVIGATION AND SURVEILLANCE

8.33 implementation progress

5.4.1 The Group was provided with an update on the 8.33 kHz implementation progress. It was noted that the implementation above FL195 was progressing well and approaching completion. Therefore the following conclusion was agreed:

EANPG Statement 50/2 – Close-out of 8.33 kHz above FL195

That all States and stakeholders concerned be congratulated on their achievements in support of the above FL195 phase.

EANPG Conclusion 50/15 – Close out of 8,33 kHz above FL195

That the ICAO Regional Director, Europe and North Atlantic, invite EUROCONTROL:

a) to proceed with the close-out of the above FL195 phase, and

b) to report the outcome of the Close-Out Report and the Post Implementation Safety Case confirming that 8.33 kHz above FL195 has been safely implemented and will continue to operate in a safe manner - to COG/44.

5.4.2 The Group recalled that implementation below FL195 was awaiting the outcome of the frequency usage audit study which was carried out by EUROCONTROL on request of the EU. The outcome of the first phase of the study was introduced to the Group. The study concluded that the existing frequency assignment processes in place were efficient, but set of complementary measures was identified that should be implemented to increase the short term capacity. However, these complementary measures would be insufficient to satisfy the demand for VHF assignments in the medium and long-term, and therefore a 8.33 kHz below FL195 implementation programme was required.

5.4.3 The Group endorsed the following statement and conclusions:

EANPG Statement 50/3 - The outcome of frequency usage study

That the Frequency Usage Audit:

a) acknowledged the high efficiency on the technical part of the aeronautical frequency management process as carried out by the ICAO EANPG FMG; and

b) identified potential for improvement by sharing the best practices in the area of operational requirements

EANPG Conclusion 50/16 – Follow up to the frequency usage audit

That:

a) the EANPG FMG use the outcome of the Frequency Usage Audit to identify solutions on the possible improvements in the use of the aeronautical frequency spectrum;

b) the ICAO Regional Director, Europe and North Atlantic, invite, on behalf of the EANPG, the International Organizations (e.g. IFATCA, IFALPA, IATA, IAOPA, EUROCONTROL) to contribute actively to the FMG work in order to identify the best operational practices that could lead to the efficiency improvement in the use of the aeronautical spectrum.

EANPG Conclusion 50/17 – 8.33 kHz implementation below FL195

That the ICAO Regional Director, Europe and North Atlantic:

a) encourage all States and entities concerned to proceed with the implementation of 8.33 kHz below FL195 in the ICAO EUR Region, further to the ICAO EANPG Conclusion 48/29

b) invite EUROCONTROL to:

i) finalise the Implementation Plan for 8.33 kHz Below FL195, including revised business case and safety assessment, in liaison with affected stakeholders, in line with the EANPG Conclusion 49/16;

ii) provide advanced notice to affected stakeholders on the potential timescales for an 8.33 Below FL195 implementation, and

iii) report developments to COG/44.

Final report of the EUR/NAT Data Link Steering Group (DLSG)

5.4.4 The Group was presented with the DLSG final report. In reviewing the report, the Group acknowledged that the DLSG had completed its work programme and in doing so had gone as far as it could in arresting divergence and obtaining convergence in data link implementations on the regional level. A global approach was now needed. In the light of the expected Operational Data Link Panel (OPLINK) reestablishment by the ICAO Headquarters, it was concluded that the revised Data Link Harmonisation Strategy, as developed by the DLSG, should be used until such time when a global approach would be developed by the OPLINK. Subsequently, the Group agreed that the DLSG had exhausted its tasks and decided to disband it.

5.4.5 Therefore the following Conclusions were agreed by the Group:

EANPG Conclusion 50/18 - Data Link Harmonisation Strategy – ADS-C and CPDLC

That EANPG Conclusion 49/19 be updated in accordance with the revised Data Link Harmonisation Strategy presented at **Appendix L** to this report.

EANPG Conclusion 50/19 - Dissolution of the Data Link Steering Group (DLSG)

That, the Data Link Steering Group be dissolved taking into account that the work assigned to it has been completed.

5.4.6 In closing remarks on this issue the Group expressed its gratitude to the members of the DLSG for their efficient and successful work.

Aeronautical Fixed Service Group (AFSG)

5.4.7 The Group noted the progress of work on the developments of the AFS Security Guidelines document. The work undertaken was concentrated on identifying security requirements and measures for the various AFS applications and corresponding network services and elaborating appropriate security guidelines.

5.4.8 All available security related information was collected from available sources in order to avoid duplication of effort and to the extent allowed by respective disclosure policies. ICAO, WMO, EUROCONTROL and EU documentation was reviewed, so that particular security requirements and advised security measures concerning the AFS would be reflected in the “EUR AFS Security Guidelines” document, as far as possible.

5.4.9 Furthermore, in line with the comprehensive nature of the document, subjects such as security implications of the human factor and delimitation of security responsibilities have also been addressed. Finally, because experience on specific security incidents was rather limited in this domain, a security assessment questionnaire had been introduced, to promote communication security awareness and support the initial evaluation of the effectiveness of security measures. Subsequently the Group endorsed the following Decision:

EANPG Decision 50/4 - Aeronautical Fixed Service Security Guidelines Document

That:

a) the EANPG endorse the Aeronautical Fixed Service (AFS) Security Guidelines document Version 1.0 as ICAO EUR Doc 022R (restricted); and

b) the ICAO EUR/NAT regional Director take necessary steps to make this document available on request for the use by the States in the ICAO EUR Region.

5.4.10 Further more, the Group reviewed and endorsed the Terms of Reference of the AFSG that were developed with the aim to streamline the working processes and improving efficiency.

EANPG Decision 50/5 - Terms of Reference for the EANPG Aeronautical Fixed Service Group

That the EANPG endorse the Aeronautical Fixed Service Group (AFSG) Terms of Reference as presented at **Appendix M** to this report.

Frequency Management Group (FMG)

5.4.11 The Group was presented with the progress of the SAFIRE implementation for COM2 assignments coordination. SAFIRE was implemented for COM2 frequency assignments coordination as of 1 January 2008 and had demonstrated a high level of availability and reliability that were meeting design criteria. 45 States were using SAFIRE. Transition to the use of COM3 and 4 tables coordination process over SAFIRE was also planned. However, about 10 States had not yet joined SAFIRE in the ICAO EUR Region. This had led to the co-existence of the SAFIRE and AFTN based coordination and therefore placing an additional burden on SAFIRE users and the ICAO Regional Office in terms of resources commitment. It was also posing a risk of interruption in the coordination chain, possibly leading to interference.

5.4.12 The Group recalled the previous EANPG Conclusion 49/15 that was urging States in the ICAO EUR Region to start using SAFIRE for COM2 coordination. The Group agreed that this action had been advanced as much as was possible. In the light of the successful SAFIRE implementation for COM2 coordination and considering the existing risk posed by the simultaneous use of SAFIRE and AFTN in the transition period, the Group agreed that setting a cut-off starting date for the sole use of the SAFIRE in the ICAO EUR Region for COM2 coordination was now required. The following conclusion was agreed:

EANPG Conclusion 50/20 - Implementation of the SAFIRE for COM2 coordination

That starting on 1 January 2009, the on-line system SAFIRE be used as the only means of frequency assignments coordination and registration for COM2 Tables in the ICAO EUR Region.

5.4.13 In concluding on this issue, the Group was also informed that there were number of unresolved priority issues in SAFIRE that required urgent resolution and therefore agreed with the following Conclusion:

EANPG Conclusion 50/21 - Unresolved issues in SAFIRE

That the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG, invite EUROCONTROL to urgently resolve the identified priority issues in SAFIRE as presented at **Appendix N** to this report.

5.4.14 The Group noted the progress on the VDL sub-band reallocation programme. The fact that there were still 57 non VDL assignments in the band was of concern for the Group since that could delay the introduction of the second VDL2 channel, thus endangering the successful implementation of the CPDLC/VDL2 programme. Therefore the Group agreed that measures should be taken to ensure the soonest removal of Operational Control Communications (OPC) assignments from the sub-band and the rapid completion of the VDL sub-band reallocation programme.

EANPG Conclusion 50/22 - Regional VDL spectrum requirements

That the ICAO Regional Director, Europe and North Atlantic, invite States in the ICAO EUR Region to ensure:

a) the timely completion of the VDL sub-band reallocation programme; and

b) the removal of the Operational Control Communications (OPC) assignments from the data link sub-band, as a matter of urgency.

5.4.15 In the same vein, the Group was presented with the issues related to the VDL frequency channel capacity and access by various service providers. The Group noted that the access to the frequency channel was not limited to any particular Service Provider; however, there were some physical capacity constraints on the channel in general. The Group was informed that for the moment there were not perceived any difficulties on this issue but it was important to keep abreast of the developments as the issue may have a wide impact on various issues, including licensing.

EANPG Conclusion 50/23 - VDL traffic capacity issues

That the ICAO Regional Director, Europe and North Atlantic, invite States and international VDL2 Service Providers (ARINC and SITA) to provide regularly to Frequency Management Group (FMG) Meetings information on the traffic evolution to enable the effective VDL capacity planning.

5.4.16 Furthermore, the Group reviewed and endorsed the FMG Terms of Reference that were developed aiming at streamlining the working processes and improving efficiency.

EANPG Decision 50/6 - Frequency Management Group Terms of Reference

That EANPG endorse the revised Frequency Management Group (FMG) Terms of Reference as presented at **Appendix O** to this report.

5.5 LANGUAGE PROFICIENCY REQUIREMENTS

ICAO language proficiency requirements implementation

5.5.1 The Group recalled that EANPG/49 noted that a number of States in the ICAO European Region, particularly from its Eastern part, continued to experience difficulties in complying with the ICAO language proficiency requirements. In this respect it was also agreed that the ICAO Regional Director,

Europe and North Atlantic, would make all necessary arrangements to provide assistance to these States and conduct a language proficiency requirements implementation (LPRI) workshop (EANPG Conclusion 49/31 refers).

5.5.2 The Group was informed that thanks to the kind invitation and sponsorship of Kazakhstan, the above LPRI workshop was conducted in Almaty from 30 September to 1 October 2008. The Summary Report of this workshop, including the determinations and difficulties which the States continue to experience, is at the **Appendix P** to this report. The workshop was organised and supported by the COG ATM Training Task Force.

5.5.3 The Group was also informed that the COG ATM Training Task Force, mandated by COG, continued to review the Recommended ICAO European Region Action Plan for the language proficiency requirements implementation on a regular basis. The last version of the Plan developed on the basis of the A36-11 Resolution: Proficiency in the English language used for radiotelephony is at the **Appendix Q** to this report.

5.5.4 The Group endorsed the up-dated version of the Action Plan which would be forwarded to States as a guidance material for the implementation and maintenance of the ICAO language proficiency requirements and published on the ICAO EUR/NAT website.

5.5.5 The Group was informed that the States which had participated at the Almaty LPRI Workshop had requested ICAO to continue to provide all possible assistance to those States who were not in a position to timely implement the ICAO language proficiency requirements and to continue to up-date the Action Plan, if and when required, based on the experience gained by States and developments in the Region.

5.5.6 Based on the above the following Conclusion was adopted by the Group:

EANPG Conclusion 50/24 – Continued assistance to States with regard to the language proficiency

That:

a) the ICAO Regional Director, Europe and North Atlantic, invite States use the up-dated version of the Recommended Action Plan for the full implementation and maintenance of the ICAO language proficiency requirements;

b) ICAO continues to provide assistance to States who were not able to timely implement the language proficiency requirements, monitor the implementation of the Action Plan and report the results to COG; and

c) the ICAO Regional Director, Europe and North Atlantic, based on the outcome of the Almaty LPRI workshop and in close coordination with the COG ATM Training Task Force initiate a special workshop for raters and examiners in 2009.

5.6 AERONAUTICAL INFORMATION SERVICE

AIS/MAP activities in the Eastern Part of the European Region

5.6.1 The Group was informed that the fifteenth meeting of ICAO Project Team on AIS/MAP (COG/AIS/MAP/15) was held in Paris, ICAO EUR/NAT office, from 13 to 15 May 2008. The Group noted that based on the analysis of the results of the survey carried out in the Eastern part of the European Region, the COG/AIS/MAP PT raised concern regarding many issues, in particular, the lack of development/update of national AIS regulations, the implementation of WGS-84 and Quality Management System (QMS) and training of AIS personnel.

5.6.2 The Group noted that the Project Team further used the results of the survey to develop some Tables reflecting the status of AIS/MAP requirements in the States of the Eastern part of the EUR Region. With regard to WGS-84 implementation, it was noted with concern that although the implementation of WGS-84 should have been completed since 1998, only 6 States out of 15 had completed the implementation of the system. In addition, the implementation of WGS-84 was in progress in 6 additional States.

5.6.3 With respect to the implementation of QMS for the AIS/MAP services, it was highlighted that out of 15 States, only 5 States had implemented the required QMS in accordance with Annex 15 requirements and achieved ISO 9001 certification. The meeting noted that the Project Team was of a view that special workshops/seminars on QMS should be organised and States that had already implemented QMS should share their experience with the rest of States.

5.6.4 IATA expressed great concern regarding the delay observed in the implementation of AIS/MAP services in some States from the Eastern part of the EUR Region, especially WGS-84 and QMS which are considered important pre-requisites for the implementation of e.g. PBN and accordingly invited concerned States to take urgent action to implement WGS-84 and QMS as soon as possible.

5.6.5 The Group agreed to the following:

EANPG Conclusion 50/25 – WGS-84 Implementation in the Eastern Part of the European Region

That:

a) the ICAO Regional Director, Europe and North Atlantic, urge States that have not yet done so to:

   i) develop effective WGS-84 implementation plans with clear timelines and inform the ICAO EUR/NAT Office, accordingly;

   ii) update their civil aviation regulations to introduce provisions related to the use of the WGS-84 system as the standard geodetic reference system;

   iii) achieve the total implementation of the WGS-84 System, in accordance with ICAO Annexes 4, 11, 14 and 15 provisions;

   iv) adopt appropriate procedures to validate the WGS-84 data and ensure the quality (accuracy, integrity and resolution) of the published WGS-84 coordinates;

   v) report the status of implementation of WGS-84 on a regular basis until the system is fully implemented; and

b) the COG/AIM TF monitor and follow up with greater efficiency the implementation of WGS-84 in the Eastern part of the European Region.

EANPG Conclusion 50/26 – QMS for the AIS/MAP services in the eastern part of the EUR Region

That:

a) the ICAO Regional Director, Europe and North Atlantic, urge States that have not yet implemented QMS for their AIS/MAP services to put greater emphasis at the highest levels on the need for management commitment for the implementation of the required QMS in accordance with Annex 15 requirements;

b) States that have not yet done so, are urged to develop effective QMS implementation plans with clear timelines and inform the ICAO EUR/NAT Office, accordingly;

c) ICAO consider carrying out a Special Implementation Project (SIP) for the States of the Eastern part of the EUR Region with a view to assist States in the implementation of QMS for their AISs;

d) States that have already implemented QMS share their experience with the rest of States; and

e) the COG/AIM TF:

i) in coordination with the States of the Region and with the ICAO EUR/NAT Office, develop a programme of AIS/MAP Seminars/Workshops to be organised in the Eastern Part of the ICAO EUR Region with emphasis on QMS;

ii) monitor and follow up the implementation of QMS in the Eastern part of the European Region.

Aeronautical Information Management

5.6.6 The Group reiterated the need for a strategic transition from AIS to AIM. The latest developments on the subject were presented. The group recalled that EANPG/49 developed 4 Conclusions and 1 Decision related to the transition from AIS to AIM. The meeting noted that the Air Navigation Commission, on 20 March 2008 agreed to the establishment of the AIS-AIM Study Group (AIS-AIMSG).

5.6.7 The Group noted that experts nominated by the following Contracting States and international organizations had been accepted as members of the Study Group: Australia, Brazil, China, France, Japan, Kenya, Russian Federation, United Kingdom, United States, CANSO, EUROCONTROL and IATA.

5.6.8 The Group was apprised of the work programme of the AIS-AIMSG and the expected deliverables and associated timelines.

5.6.9 The Group noted that the work of the AIS-AIMSG was expected to be completed within a four year period, taking into account the material which existed already for initial input to the study group. The work programme of the AIS-AIMSG includes mainly, the development of:

a) a global strategy/roadmap for the transition from AIS to AIM;

b) SARPs and guidance material related to the provision of a standard aeronautical information conceptual model and standard aeronautical information exchange model to enable the global exchange of data in digital format; and definition of a means to allow the further evolution of these models in a managed and supportable manner;

c) SARPs and guidance material related to an appropriate presentation of digital aeronautical information to the end user, including eAIP, electronic charts and use of geographic information systems (GIS) within the context of AIM;

d) guidance material and further development of SARPs related to the quality system to support AIM;

e) guidance and training material related to staffing and training for the transition from AIS to AIM; and

f) a proposed work plan to consider key legal and institutional issues.

5.6.10 The meeting noted that the first meeting of the AIS-AIMSG was held at ICAO HQ in Montreal, from 2 to 4 December 2008. It was highlighted that, inter-alia, the AIS-AIMSG/1 meeting:

- reviewed a draft Roadmap for the transition from AIS to AIM and agreed that a revised draft Roadmap taking into account the comments raised be presented to the Air Navigation Commission in February 2009;

- agreed that the proposal for amendment to Annex 15 endorsed by COG/41 meeting, (EANPG Decision 49/12 refers) be included in Amendment 36 to Annex 15;
- developed a text to introduce a requirement in Annex 15 to enable data exchange. It was also agreed that the group will act as the primary body for reviewing and endorsing the evolution of the model at the global level based on mature proposals emanating from regional and multi-national agreements; and
- considered that it was important to establish the minimum regulatory requirements for data provision by States, and that these requirements should be clearly distinguishable from commercial value-added products or services. It was also noted that third parties would need a clear definition of the boundaries between regulatory provision and value-added services where competition rules apply.

5.6.11 Based on the above, the meeting recognized that an ICAO Work Programme that supported the transition from AIS to AIM had been defined. However, much work needed to be done and the timescales were very tight. Accordingly, the meeting agreed to the following:

EANPG Conclusion 50/27 – Transition from AIS to AIM

That, considering the importance of the transition from AIS to AIM and with a view to ensure that a consolidated European vision is taken into account in the development of the required deliverables of the AIS-AIMSG:

a) the ICAO Regional Director, Europe and North Atlantic:

   i) invite States to follow-up closely the activities of the AIS-AIMSG and participate actively in the development of the AIM strategy/roadmap and related SARPs and guidance material; and

   ii) ensure that input would be coordinated through the ICAO EUR/NAT Regional Office; and

b) EUROCONTROL be invited to present a progress report on the activity/outcome of the AIS-AIMSG to the COG/44 meeting.

Electronic Terrain and Obstacle Data (eTOD)

5.6.12 The meeting was reminded that on 23 February 2004, the Council adopted Amendment 33 to Annex 15 which included mainly the addition of a new Chapter 10 — Electronic Terrain and Obstacle Data, a new Appendix 8 – Terrain and Obstacle Data Requirements. The applicability dates for Amendment 33 to Annex 15 (paragraph 10.6.1 refers) are as follows:

a) 20 November 2008 for those parts of the amendment related to the availability of terrain and obstacle data in accordance with Area 1 specifications (entire territory of a State) and for the availability of terrain data in accordance with Area 4 specifications (Category II or III operations area); and

b) 18 November 2010 for those parts of the amendment related to the availability of terrain and obstacle data in accordance with Area 2 (terminal control area) and Area 3 (aerodrome/heliport area) specifications.

5.6.13 In the context of the above, it was noted that Annex 15 required States to provide terrain and obstacle data at different precisions for different areas as necessary to accommodate current and planned new air navigation systems or functions. Four coverage areas had been defined for which specific levels of precision are required, with Area 1 requiring the least precision and Area 4 requiring the most.

5.6.14 The meeting recognized that implementation of eTOD requirements was a challenging process that must be accomplished with a high level of commitment, careful planning, sharing of resources and a structured tracking of regional progress.

5.6.15 The Group noted that as a follow-up action to the EANPG/49 Conclusions 49/37 and 49/38, the ICAO EUR/NAT Office issued on 28 May 2008 State Letter Ref.: 08-0234.SLG requesting States to provide their eTOD implementation plan/roadmap specifying clearly the status of implementation of EANPG Conclusions 49/37 and 49/38. The meeting noted that from the 7 replies received, no State would meet the timelines specified in Chapter 10 of ICAO Annex 15 for the implementation of eTOD and 4 States had already filed differences against Chapter 10 of ICAO Annex 15 (Finland, Serbia, Sweden and UK). The meeting further noted that Armenia, Czech Republic, Denmark, France, Germany, Italy, Netherlands, Norway and Slovakia had also notified ICAO with a difference on Annex 15 Chapter 10.

5.6.16 The Group noted that, the COG/41 meeting, based on the outcome of the COG/AIS/MAP/15 meeting, under Conclusion 41/7, agreed that a survey on the implementation of eTOD in the Eastern part of the European Region be carried out, with a view to obtain information from the States of the Eastern part of the European Region regarding their Action Plan/Roadmap for the implementation of eTOD and the difficulties they might encounter to meet the applicability dates specified in Annex 15.

5.6.17 The meeting noted that the questionnaire was sent to concerned States on 12 June 2008 and that the replies were expected to be received prior to 15 August 2008. However, only 6 States replied to the questionnaire. It was noted that two States had not yet started eTOD planning and implementation activities, 3 States had started some planning activities for the implementation of eTOD in accordance with EANPG Conclusion 49/37, and 1 State (Latvia) was in a relatively advanced phase for the implementation of eTOD.

5.6.18 Based on the above, the meeting agreed to the following:

EANPG Conclusion 50/28 – ICAO support to eTOD implementation

That, recognizing the implementation of eTOD requires a consistent approach, including technical, legal and financial aspects:

a) the ICAO Regional Director, Europe and North Atlantic, invite States to:

   i) exchange their experience in eTOD implementation, so that the main lessons learnt can be shared by all Stakeholders;

   ii) make maximum use of the already existing data with other international bodies (e.g. EuroDEM of EuroGeographics); and

   iii) manage eTOD implementation as a national programme, supported by all required resources;

b) ICAO participates in the work of the EUROCONTROL eTOD activities, as necessary;

c) EUROCONTROL be invited to:

   i) provide regular updates on eTOD related activities to COG and EANPG; and

   ii) develop eTOD implementation guidance material, consolidating the existing eTOD technical activities and taking in due consideration the lessons learnt from initial implementation activities in Europe; and

d) ICAO be invited to take a leading role and develop, in coordination with various Stakeholders (States, International Organisations, ANSPs, aerodromes, mapping agencies, etc) consistent legal and financial eTOD provisions.

5.6.19 The Group was presented with an overview of the current status of eTOD implementation activities being undertaken by EUROCONTROL.

5.6.20 The Group recalled that EANPG/49, under Conclusion 49/39, agreed that EUROCONTROL develop and present to:

a) COG/42 a draft proposal for amendment to Annex 15 related to the eTOD requirements in order to refine the current SARPs contained in Chapter 10 of Annex 15; and

b) EANPG/50 the final version of the eTOD guidance material currently under development with a view to propose it to ICAO for global use as a complement to Doc 9881.

5.6.21 It was noted that a consensus had been reached on Areas 1, 3 and 4 and on the general changes to Chapter 10 of ICAO Annex 15. The change proposals, along with the rationale for the changes, are included in a draft proposal for amendment to Annex 15 as at **Appendix R** to this report. The meeting agreed accordingly that the ICAO Regional Director, Europe and North Atlantic, forward the draft proposal for amendment to Annex 15, chapter 10 to ICAO for processing in accordance with standard procedure.

EANPG Conclusion 50/29 – Proposal for Amendment to Annex 15 related to eTOD

That the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG, submit to ICAO the draft proposal for amendment to ICAO Annex 15, Chapter 10, Electronic Terrain and Obstacle Data, presented in **Appendix R** to this report, for processing in accordance with standard procedure.

Note: this conclusion supersedes EANPG Conclusion 49/39.

5.6.22 The Group noted that an agreement on Area 2 had been difficult to achieve and that further work would be needed by the EUROCONTROL TOD Working Group to revise the proposals for this area. However, the meeting noted that consensus had been reached at the eighth TOD WG meeting held in Brussels, Belgium, 3-4 December 2008, on a possible way to address the difficulties with implementing Area 2 requirements, and that this consensus would be confirmed by a six-month consultation process in Europe.

5.6.23 The meeting further noted that, if an agreement would be achieved through the public consultation, and a high-level safety assessment would support the agreed way forward, there would still be a consequent need for a full safety analysis to be carried out. Accordingly, the meeting noted that the final proposal on area 2 would not be available before the third quarter of 2009.

5.6.24 The meeting noted that the AIS-AIMSG/1 meeting agreed to create an ad hoc group to develop a proposal on eTOD for inclusion in Amendment 36 to Annex 15 based on information that had become available through the European consultation process. It was also agreed that the State letter that will accompany Amendment 36 will mention the ongoing consultation process and indicate that changes to Area 2 are anticipated and will likely be reflected on States' comments.

5.6.25 The meeting noted that work was ongoing to support regulators address institutional issues and develop comprehensive guidance material for eTOD implementation. Accordingly, the meeting agreed to the following Conclusion

EANPG Conclusion 50/30 – Sustained eTOD activity

That, the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG, invites EUROCONTROL:

a) to continue work:

i) concerning Area 2, developing a common European proposal for amendment to Annex 15; and

ii) to support regulators, addressing institutional and financial issues by developing comprehensive guidance material for eTOD implementation, taking into account the ICAO guidance material available in Doc 9881; and

b) to coordinate with ICAO when carrying out the safety analysis to ensure global acceptance and avoid regional differences.

Note: this Conclusion supersedes EANPG Conclusion 49/39.

5.7 METEOROLOGY

Outcome of the Eighteenth Meeting of the Meteorology Group

5.7.1 The meeting reviewed the outcome of the eighteenth meeting of the Meteorology Group of the European Air Navigation Planning Group (METG/18) which was held at the EUR/NAT Office of ICAO from 22 to 26 September 2008. The meeting was attended by 90 experts from 41 States and four international organizations.

5.7.2 METG/18 formulated three Decisions and nine draft Conclusions for consideration by EANPG/50. The full report of METG/18 is available on the ICAO Paris website on:

http://www.paris.icao.int/documents_eanpg/

Follow-up of EANPG Conclusions and Decisions

5.7.3 The Group noted the progress of the follow-up actions on the EANPG/49 Conclusions related to meteorology with 9 of the tasks assigned to METG being completed or closed and 3 on-going tasks. With regard to the outstanding Conclusions from previous EANPG meetings, the Group acknowledged the completion of the action on Conclusion 46/27, calling for a workshop on the MET support to ATM, and Conclusion 47/31, requiring the publication of the EUR OPMET Data Management Handbook (EUR Doc 018) on the ICAO EUR/NAT web site.

Implementation of the WAFS and SADIS in the EUR Region

5.7.4 The meeting noted the information provided by the World Area Forecast centre (WAFC) London on the recent and planned developments of the WAFS and SADIS. The most important improvements to the WAFS and SADIS foreseen for the period 2008 – 2013 were as follows:

- Migration from GRIB 1 to GRIB 2 WAFS upper-air forecasts;
- Improved WAFS forecasts for icing, turbulence and cumulonimbus clouds in the GRIB 2 code form;
- Establishment of a web-based distribution of WAFS forecasts;
- Further development of WAFC Performance Indicators;
- Cessation of SADIS 1G satellite broadcast system;
- Enhancements to the SADIS File Transfer Protoco (FTP) service.

5.7.5 In view of the importance of the above developments to all WAFS users, the meeting agreed that the information provided by the WAFC London should be circulated by the Regional Office under a State letter to all States in the EUR Region in order to increase the awareness of the forthcoming changes to the WAFS and SADIS systems. The meeting adopted the following conclusion:

EANPG Conclusion 50/31 – Providing EUR States with information on recent and forthcoming developments to WAFS and SADIS

That, in order to increase the regional awareness on the planned developments of the World Area Forecast System (WAFS) and the Satellite distribution system for information relating to air navigation (SADIS), the ICAO Regional Director, Europe and North Atlantic, circulate to the EUR States the information provided by the World Area Forecast Centre (WAFC) London, as shown in **Appendix S** to this report.

Review the implementation of the International Airways Volcano Watch (IAVW) in the EUR Region

5.7.6 The meeting noted the establishment by the COG/41 and NAT SPG/44 meetings of a EUR/NAT Volcanic Ash Exercises Steering Group (VOLCEX SG) with the following objectives: develop a programme for volcanic ash exercises in the EUR and NAT regions, coordinate the planning and conduct of the exercises, analyse the results and use the lessons learned to improve the EUR and NAT volcanic ash contingency plans.

5.7.7 The Group noted that, as a follow-up of the EANPG Conclusion 49/41, the ICAO Regional Office developed a web page on volcanic ash which was launched in the beginning of September 2008. The plan for future activities, as well as the reports of the exercises, together with other useful information on volcanic ash issues could be found on this page: http://www.paris.icao.int/Volc_Ash/index.htm.

5.7.8 The meeting reviewed a proposal by the Volcanic Ash Advisory Centre (VAAC) Toulouse for changes to the format of the VA advisory and VA SIGMET messages used in the volcanic ash tests and exercises. It was agreed that, pending the publication of a global guidance, the changes to the test messages formats should be finalized by the Bulletin Management Group of the METG and published in the EUR OPMET Handbook, (EUR Doc 018). The following conclusion was agreed:

EANPG Conclusion 50/32 - Format of the test Volcanic Ash (VA) advisory and test VA SIGMET messages

That:

a) the Bulletin Management Group (BMG) be tasked to review and finalize the proposed changes to the test Volcanic Ash (VA) advisory and VA SIGMET formats, as shown in **Appendix T** to this report, and submit to the ICAO Regional Office an update to the EUR OPMET Handbook (EUR Doc 018), as necessary;

b) the ICAO Regional Office publish the updated version of the EUR OPMET Handbook containing the new VA advisory and VA SIGMET formats on the ICAO EUR/NAT website and notify the States in the European Region accordingly.

Implementation of Amendment 74 to Annex 3 – new provisions related to TAF

5.7.9 EANPG noted the thorough discussion held by METG/18 on the implementation of the new TAF provisions in Amendment 74 to Annex 3, as of 5 November 2008. It was noted that the EUR ANP has been amended in 2008 and provided updated regional provisions on the TAF period of validity and frequency of issuance. With regard to some outstanding issues raised by METG experts, the meeting noted that the Aerodrome Meteorological Observations and Forecasts Study Group (AMOF SG) had formed an ad-hoc working group to address those issues and propose solutions to the next meeting of AMOF SG in February 2010. In view of this, METG decided to dissolve its Project Team on TAF (METG decision 18/4 refers).

Progress report on the transition from MOTNE to RODEX

5.7.10 As a follow-up of the EANPG Decision 49/06, Transition from MOTNE to RODEX, the BMG has developed a detailed plan for the transition consisting of work packages for each of the three RODEX Centres (ROC) Toulouse, Vienna and London. The meeting was informed that the progress of the transition to RODEX was slower than anticipated due to the complexity of the tasks. The completion of all work packages was expected prior to BMG meeting in June 2009 and a declaration of completion of the project was expected at METG/19 (September 2009). The meeting supported the request of the BMG to encourage closer cooperation of the States with the respective ROCs in order to expedite the completion of the work packages and agreed on the following conclusion:

EANPG Conclusion 50/33 – States support to the transition to RODEX

That, in order to expedite the transition from MOTNE to RODEX, the States within the RODEX Centre (ROC) Work Packages be invited to meet and coordinate with the respective Work Package Managers any outstanding issues and undertake the actions required to fulfil the agreed schedule of the transition.

Note: The Bulletin Management Group (BMG) to provide information to the ICAO Regional Office regarding the issuance of the letters to the States concerned.

Monitoring of AFI OPMET Data by ROC Toulouse

5.7.11 The Group noted the difficulties experienced by the Toulouse OPMET centre in monitoring the data (METAR and TAF) required from the AFI Region due to the lack of up-to-date information about the WMO bulletin headers and the AFTN addresses of the AFI OPMET centres. The monitoring of the availability and regularity of the AFI OPMET was considered important since the frequent shortfalls of METAR and TAF from the AFI aerodromes was caused serious safety issues for the airline users. In this regard, the following was agreed:

EANPG Conclusion 50/34 – Monitoring of the AFI OPMET data

That the ICAO Regional Director, Europe and North Atlantic, coordinate with the ICAO Regional Offices in Nairobi and Dakar measures ensuring the provision of regular updates regarding the World Meteorological Organization (WMO) headers of the Africa-Indian Ocean (AFI) OPMET bulletins and the Aeronautical Fixed Telecommunication Network (AFTN) addresses of the OPMET centres in the AFI Region in order to facilitate the monitoring of the availability and regularity of the AFI OPMET data.

Period of validity of the amended TAF (TAF AMD) and examples in Annex 3

5.7.12 The Group noted a proposal by the METG/18 for reviewing the Annex 3 provisions related to the period of validity of the amendments to the TAF (TAF AMD). It was proposed to consider the possibility to indicate the period of validity of the TAF AMD not only in whole hours as currently specified in Annex 3, but also in hours and minutes, or to specify that the period of validity of TAF AMD should start from the next whole hour. In addition, the only example of TAF AMD currently in Annex 3 (Example A5-2) was not providing enough guidance to the forecasters and users. The meeting agreed that the proposal would bring certain benefits and adopted the following conclusion:

EANPG Conclusion 50/35 – Review of the provisions on the period of validity of the amended TAF (TAF AMD) and related example in Annex 3

That, ICAO be invited to:

a) review the provisions related to the period of validity of the amendments to the TAF (TAF AMD) in Annex 3 and consider the possibility of their refinement; and

b) provide additional example of TAF AMD in Appendix 5 to Annex 3.

Issues related to the definition of AIRMET in Annex 3

5.7.13 METG/18 proposed that the definition of the AIRMET in Annex 3 should be reviewed and aligned with the definition of the SIGMET. The reason for this was that, while both SIGMET and AIRMET were warning messages of the same priority level, the conditions for the issuance of AIRMET, as specified in the Annex 3 definition, differed from those for SIGMET. The issuance of AIRMET was required only if the hazardous phenomena, for which the warning was issued, were not already included in the routine forecasts for low-level flights. METG considered that such a "conditional" issuance included in the AIRMET definition might lead in some situations to non-provision of safety information about hazardous en-route phenomena for low-level flights.

5.7.14 The meeting agreed that the proposed change to the definition of the AIRMET in Annex 3 would bring operational benefits and also noted that, when considering this proposal, the relevant ICAO body should pay attention to an eventual increase of the forecaster's workload due to the expected grater number of AIRMETs to be issued. The meeting agreed on the following conclusion in this regard:

EANPG Conclusion 50/36 – Definition of AIRMET in Annex 3

That ICAO be invited to consider, if appropriate, amending the definition in Annex 3 by deleting the text "and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof", and aligning the relevant provisions related to AIRMET throughout Annex 3 accordingly.

Meteorological services for low-level flights

5.7.15 METG/18 identified that the provision of meteorological services for the low-level flights in the EUR Region was not harmonized and the service was provided to the users in a variety of forms and contents. It was also recognized that the demand for such services in the EUR Region had been growing steadily. In view of this, the meeting agreed to establish a Project Team to address the need for regional harmonization of the MET services for low-level flights.

5.7.16 In order to promote the harmonization of the MET services for low-level flights and facilitate the exchange of knowledge and best practices, the Group supported a proposal for conducting a regional Seminar to be organized in 2009 by ICAO in coordination with the WMO. The meeting appreciated the kind proposal by Germany to host this seminar at Airport Schönhagen near Berlin. The seminar programme and the dates should be further coordinated. The following conclusion was agreed:

EANPG Conclusion 50/37 – Seminar on MET Service for low-level flights for the EUR Region

That:

a) ICAO, in coordination with the World Meteorological Organization (WMO), be invited to organize in 2009 a Seminar on the provision of meteorological service for low-level flights for the States in the European (EUR) Region; and

b) the ICAO Regional Director, Europe and North Atlantic, invite the EUR States with well established meteorological services for low-level flights to support the Seminar and nominate experts to serve as lecturers and facilitators.

Review of the provision of meteorological observations and reports from offshore structures

5.7.17 The meeting recalled that Annex 3 contained recommended practices relating to weather reporting from offshore structures in support of helicopter operations. In addition, regional requirement for weather reporting from offshore structures was stipulated in the EUR Basic ANP, Part VI, paragraph 10. It was considered necessary to expand the regional provisions with more detail on the current and planned weather observing and reporting practice, in particular, the provision of OPMET data (METAR).

5.7.18 A study conducted with the four States currently responsible for the provision of meteorological information in support of helicopter operations in the North Sea: United Kingdom, Denmark, Norway and the Netherlands, indicated the need to align further the best practices by increasing the discussions between the MET service providers and regulators of these States. It was also noted that there was no repository for the above information and that it would be appropriate to publish details of the aeronautical MET stations in the North Sea and the information that they provide.

5.7.19 In view of the foregoing, the meeting agreed that a new table should be included in the EUR FASID in order to ensure harmonized implementation of the observing and reporting practices from the offshore structures. In this regard, the following conclusion was adopted:

EANPG Conclusion 50/38 – Adding information in the EUR Air Navigation Plan regarding the meteorological observations and reports from offshore structures

That:

a) the States providing meteorological observations and reports from offshore structures in the North Sea be invited to provide data as per the format in **Appendix U** to this report; and

b) based on this information, the ICAO Regional Office develop an amendment proposal to the EUR Basic ANP and FASID to reflect the regional requirements for meteorological observations and reports from offshore structures.

Meteorological support for air traffic management

5.7.20 The Group noted the information from the METG related to the identification of the user requirements for weather radar data for the ATC. METG was of the opinion that the use of weather radar should be viewed in a broader sense as a major source of information for forecasting and nowcasting with benefits to all aviation users. The lack of detailed guidance and standardized technical specifications for the weather radar data was a major obstacle that prevented the harmonization and the exchange of the data between the States. The METG intended to continue the work on identification of the user requirements for weather radar data, however, it was clear that the task could not be fulfilled without broader participation of ATC/ATM experts in the future discussions.

5.7.21 The METG had identified new user requirements for “wind aloft” data in the terminal areas. These additional requirements for detailed observed and forecast (nowcast) upper wind information were related to the forthcoming introduction of new ATM procedures, such as continuous descent approaches (CDA), improved departure operations, time-based separation and 4-D trajectory management based on optimized routes.

5.7.22 Recognizing that some States in the EUR Region had already started the provision of wind aloft data as a “non-Annex 3” service, the meeting agreed that there was a need to develop ICAO provisions

and guidance on this matter. Recognizing further the difficulties in developing ICAO standards on wind aloft data provision for global implementation, it was suggested that inclusion of guidance in the form of description of "best practices" in an appropriate ICAO Manual (e.g. Doc 8896) should be very useful for those States in a position to commence the provision of wind aloft data/products if required by the ATM. However, concerns were expressed that such an approach would not allow for recovering of the additional costs incurred by the meteorological service providers. Nevertheless, the Group agreed that the guidance regarding best practices could be the first step, eventually followed by Annex 3 SARPs when the requirements matured. The following conclusion was adopted:

EANPG Conclusion 50/39 – Provision of information on "wind aloft" in support to Air Traffic Management

That ICAO be invited to consider the identified user requirements for observed and forecast wind aloft data and develop relevant provisions and guidance material, e.g., inclusion of "best practices" in the *Manual on Aeronautical Meteorological Practice* (Doc 8896).

ICAO/EUROCONTROL Seminar on MET Support to ATM

5.7.23 The Group was informed that the ICAO/EUROCONTROL Seminar on the MET Support to ATM, held at EUROCONTROL from 24 to 26 November 2008, with the support from the WMO and the FAA, was very successful. One of the achievements of the Seminar was the notably improved participation of ATM experts, which formed a basis for a fruitful future dialogue between the MET and ATM communities. The outcome of the Seminar would be reviewed by the METATMG meeting in January 2009 in order to prepare relevant proposals to the EANPG/51 meeting and actions for the future METG work programme.

5.8 THE IMPLEMENTATION OF THE NEW CONTENTS OF THE FPL IN 2012

5.8.1 The Group was informed that the Air Navigation Commission, acting under delegated authority, at its 177th Session, on 22 and 24 January 2008, approved Amendment 1 to Doc 4444. The amendment was approved on 27 May 2008 by the President of the Council on behalf of the Council in accordance with established procedure (ICAO State Letter (Ref: AN 13/2.1-08/50, dated 25 June 2008 announced these changes and specified an applicability date of 15 November 2012).

5.8.2 Amendment 1 to the 15th Edition of the PANS-ATM, Doc 4444 was developed to make short-term improvements to the contents of flight plans and associated messages. In summary, the following were some of the improvements:

a) changes to indications of equipment on board as described in Items 10 and 18 of the FPL so as to permit modern navigation and communications capabilities to be indicated;

b) a change to the allowed filing time with a requirement for the Date of Flight (DOF/) in Item 18;

c) a change to the description of significant points which are described by range and bearing in the route (Item 15); and

d) changes to the contents of several Item 18 indicators as well as the inclusion of new indicators.

5.8.3 It was not expected that all stakeholders would transition their flight data processing systems simultaneously on 15 November 2012; so it must be foreseen that there would be a transition period during which both the present and the new flight plan contents may exist in the ATM network. The transition period would start as soon as one stakeholder implemented the changes, and would end when all stakeholders had

completed implementing the changes. Guidelines for the transition period were being prepared by ICAO and would be made available as soon as they had been finalised.

5.8.4 From an initial analysis of the changes, EUROCONTROL had concluded that a significant number of actions needed to be addressed as part of the transition planning. In particular, all FPL processing systems, whether those of ATS providers, of airlines or of other operators would need to be modified. It was recognised that the changes needed to be global and that any transition period would need to be kept as short as possible. It was recognised that the responsibility to implement updates to systems was that of the organisations who maintained the systems; however, there was a need to coordinate the implementations in order to ensure that the transition takes place as smoothly as possible with nil or minimum negative effect on on-going operations.

5.8.5 It was therefore agreed that an FPL 2012 Implementation Plan should be developed for the EUR Region. The Group was informed that EUROCONTROL, being responsible for the operation of the Central Flow Management Unit (CFMU), was preparing such an Implementation Plan that would take account of all stakeholders' needs to ensure that the Plan was complete, feasible and optimised as far as possible. In order to avoid duplication of effort, the Group agreed that EUROCONTROL should be requested to act as a central point to develop a EUR Region-wide implementation plan, to monitor its execution, to identify any issues and to facilitate solutions as far as possible.

5.8.6 The Group agreed that the changes included in Amendment 1 to the 15th Edition of the Doc 4444 were significant in complexity and thgat considerable time to develop the software modifications may be required. Also, considering that all Flight Data Processing Systems (FDPS) and many Radar Data Processing Systems (RDPS) would need to be modified and that they all ran safety critical software that necessitated significant lead times to implement changes, the Group agreed that work on the implementation plan should begin immediately and that it should be available at the latest by EANPG/51. It was also agreed that the EANPG COG should manage the programme on behalf of the EANPG and that they should be provided with updates at their regular meetings. Finally, the Group agreed that, to ensure a successful implementation of Amendment 1 to the 15th Edition of Doc 4444, coordination with adjacent ICAO Regions must be assured.

EANPG Conclusion 50/40 – Implementation of the new contents of the Flight Plan (FPL)

That:

a) the ICAO Regional Director, Europe and North Atlantic, invite all States to:

   i) Take urgent action, if they have not already done so, to plan for the implementation of the new contents of the ICAO FPL;

   ii) Make best usage of the work undertaken by EUROCONTROL in this direction and support its future planning and implementation activities;

   iii) Support EUROCONTROL to develop an "Implementation Plan of the new contents to the ICAO FPL" (Plan) for the ICAO EUR Region, in order to ensure the required level of coordination for modifications to the Flight Data Processing Systems (FDPS) (with reference to the ICAO SL AN13/2.1-08/50 of 25 June 2008);

b) the ICAO Regional Director, Europe and North Atlantic, invite EUROCONTROL to coordinate and monitor the progress of the Plan to ensure its timely implementation (November 2012); and

c) COG and EANPG be informed regularly on progress.

6. MONITORING

European Regional Monitoring Agency (EUR RMA) Terms of Reference

6.1 The Group recalled that, in accordance with *The Manual on Implementation of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive* (Doc 9574), it was the responsibility of the regional planning group to establish an RMA. Accordingly, at its 45th Meeting, the Group had agreed that EUROCONTROL should continue to act as the EUR RVSM RMA (EANPG Conclusion 45/29 refers). The Group was advised that, from an organizational standpoint, the EUR RMA was provided as a service to the EANPG by the EUROCONTROL Agency. The Group agreed that work of the EUR RMA would be better supported by the EANPG through the formal establishment of Terms of Reference. This would clarify the role of the EUR RMA and simplify the administrative and organizational processes associated with its work and serve to provide a clear basis upon which to understand the current work of the EUR RMA and facilitate future amendments as and when deemed necessary by the EANPG.

EANPG Conclusion 50/41 – European Regional Monitoring Agency Terms of Reference

That the EANPG Handbook be updated to include the European Regional Monitoring Agency (EUR RMA) Terms of Reference as detailed in **Appendix V** to this report.

Report from the EUR RMA

6.2 The Group was presented with the 2008 Safety Monitoring Report prepared by the EUR RMA and an update regarding the EUR RMA's progress in addressing EANPG Conclusions 49/47 and 49/49. In support of the implementation of RVSM in the EUR Region, the EUR RMA carries out a programme of aircraft height monitoring and safety assessments according to the requirements of Annex 11 and the guidance contained in ICAO Doc 9574.

6.3 The Group recalled that, in accordance with Doc 9574, the four following Safety Objectives had been established by the EANPG with regard to implementation of RVSM (EANPG Conclusion 42/23 refers):

- **Objective 1** – In accordance with ICAO Guidance Material, the risk of mid-air collision in the vertical dimension within RVSM airspace, due to technical height-keeping performance, shall meet a Target Level of Safety (TLS) of 2.5×10^{-9} fatal accidents per flight hour.
- **Objective 2** - In accordance with ICAO Guidance Material, the management of overall vertical-collision risk within RVSM airspace shall meet a TLS of 5×10^{-9} fatal accidents per flight hour.
- **Objective 3** - Improve safety levels by ensuring that the numbers of ATM-induced accidents and serious or risk-bearing incidents do not increase and, where possible, that they decrease. Therefore, the continued operation of RVSM shall not adversely affect the risk of en-route mid-air collision.
- **Objective 4** - Discharge all recommendations made in previous RVSM Safety Monitoring Reports and address any new safety-related issues that have come up since the issue of the latest Report.

Main results of the 2008 annual safety monitoring report

6.4 The 2008 Safety Monitoring Report was made available to the Group as a separate document. The Group was presented with the main results and the principal conclusions that could be drawn from the 2008 Safety Monitoring Report. As was done in previous years, the 2008 report provided quantitative estimates of collision risk and qualitative arguments that the Safety Objectives shown above were being met.

6.5 As regards Safety Objective 1, in 2008 the computed vertical collision risk due to technical height-keeping performance had been estimated at 0.037×10^{-9} fatal accidents per flight hour. The 2008

technical risk estimate is well below relevant TLS of 2.5 x 10^{-9} fatal accidents per flight hour. Therefore, Safety Objective 1 was being met.

6.6 As for Safety Objective 2, the 2008 computed overall vertical collision risk had been estimated at 1.73 x 10^{-9} fatal accidents per flight hour. This estimate respects the TLS of 5.0 x 10^{-9} fatal accidents per flight hour. Safety Objective 2 was also being met.

6.7 The Group recalled that the overall vertical risk estimate presented in the 2007 report suffered from a number of limitations including the extremely conservative nature of the methodology used when only a limited amount of operational error reports were received from States, therefore biasing the risk estimate produced. An additional factor affecting the quality of the report was the limited time available for analysis due to a demanding work schedule. To remedy the situation, the EUR RMA had carried out a detailed analysis of its activities and the risk estimation process. This resulted in a change to align the reporting periods of the different components (traffic density estimates, aircraft height keeping samples and the operational error data reporting periods) and bring them all into a calendar year cycle. This change also allowed the EUR RMA to more closely audit and check the different steps of the risk estimation.

6.8 The process audit showed shortcomings in the methodology in determining the technical risk estimate. The software used in calculating the technical risk was found to be excluding some outlier aircraft measurements when constructing the probability density functions. This was due to software programme parameters that set cut off limits in the numerical processing of the density function. The tool was modified to take higher cut off limit parameters and incorporate more technical risk in the process. The immediate and expected effect of this change was to produce a higher technical risk estimate, as shown in paragraph 6.5 above.

6.9 The overall vertical collision risk is composed of the vertical collision risk due to technical risk and the vertical collision risk due to other causes of error or “operational risk”. The reduction in the risk estimate from 2007 to 2008 of 32% was due to the improvement in rates of error reporting. For the 2008 report, Altitude Deviation Reports (ADR) were received from 16 States and another 12 States reported zero occurrences for the reporting period.

6.10 The combination of such a reduction of the proportion of time exposed to risk, together with the application of the improved methodology and software for the estimation of the technical parameters provided an estimate of the overall technical risk which was 3 times smaller than the estimate reported in 2007. Finally, the effect of future traffic growth on the vertical collision risk had been assessed using the new risk estimation and the outcome was that the overall risk would continue to be within the TLS in 2010.

6.11 The Group was pleased to note the positive information regarding system risk and in particular, that risk in the medium term should be within the TLS. However, considering the significant reduction in risk in 2008 compared to 2007, the Group requested reassurance that the new risk estimation methodology was providing accurate information. In response, the Group was informed that the audit used too detect the software problems were well documented in the 2008 Safety Monitoring Report as an attachment and that the information had been subjected to peer review and that this would continue with complete transparency.

6.12 The Group was informed that Altimetry System Error (ASE), although not highlighted in the report, continued to be an issue but that this matter was being addressed at the global level. In a similar context, it was pointed out that monitoring would continue in light of ASE issues and evolving international requirements. It was also pointed out that monitoring would probably need to be reinforced as a more performance based system was implemented.

EANPG Statement 50/4 - Reduced Vertical Separation Minimum (RVSM) monitoring

That, the EANPG at its 50th meeting, was pleased to receive the results of the revised modelling which demonstrated that the previous situation regarding the high levels of estimated risk which had been of concern to the EANPG appeared to have been resolved. As a consequence, the Target Level of Safety would not be breached contrary to what had been previously anticipated.

6.13 With regard to RVSM Safety Objective 3, the ADRs received from States had shown that, in terms of occurrence frequency and compared with the previous reporting periods before and after EUR RVSM implementation, this objective was being met for current report.

6.14 RVSM Safety Objective 4 addresses the resolution of issues raised in the 2007 Safety Monitoring Report. All the issues outstanding when the 2007 RVSM Safety Monitoring Report was released have either been resolved or addressed as ongoing issues. Therefore this safety objective has been met.

Follow up to EANPG/49 Conclusions 49/47 and 49/49

6.15 The Group was informed that a Safety Reminder Message had been issued on 11 February 2008 by EUROCONTROL Safety, Security and Human Factors (SSH) on behalf of the EUR RMA and distributed to all aviation safety professionals.

6.16 A major element of the EUR RMA activities and infrastructure was devoted to active monitoring. A technical scrutiny group reviewed the monitoring protocols every month and decided whether further actions, including contacting airspace users, was required. The feedback loop with operators and airspace users was effective and the technical risk estimates remained low. The EUR RMA, in close coordination with the EUR/NAT Office and the EUROCONTROL Safety Regulation Unit (SRU), initiated a series of actions to improve the error reporting and make the reporting mechanism more robust or less prone to personnel and organisational changes within States. As can be seen from the calculated risk estimates, the programme has been effective as more States are reporting regularly. This activity will continue through awareness campaigns and by reinforcing the Safety Requirements for Airspace Monitoring.

6.17 The Group noted that all of the actions stemming from EANPG Conclusion 49/47 and most of EANPG Conclusion 49/49 had been completed. As regards EANPG Conclusion 49/49 c) i), this was an ongoing quality management process, which was inherently addressed in the EUR RMA Terms of Reference which had been endorsed (paragraph 6.1 above refers). Accordingly, the Group agreed that the EUR RMA should address the tasks outlined in Decision 50/6 below.

EANPG Decision 50/7 - Tasks to be carried out by the European Regional Monitoring Agency

That the European Regional Monitoring Agency (EUR RMA):

a) review the method of computation for calculating the frequency of horizontal overlap;

b) review the content and structure of its aircraft monitoring groups;

c) continue its work of active monitoring of the technical risk and liaison with airspace users;

d) continue collecting Altitude Deviation Reports (ADR) for the next reporting period;

e) continue to encourage states to provide ADRs; and

f) continue to take steps to incorporate Reduced Vertical Separation Minimum (RVSM) altitude deviation reports into the Annual Summary Template mechanisms.

6.18 In concluding its discussions on the 2008 Safety Monitoring Report, the Group expressed it's appreciation to the EUROCONTROL Agency and in particular to the EUR RMA team for the effective and efficient work carried out during 2008. The quality of the product and the proactive response to requests from the EANPG and from the COG provided a good example of a "customer focussed" approach to carrying out this important task on behalf of the EANPG and the States of the EUR Region.

7. DEFICIENCIES

Notification by States on resolved deficiencies

7.1 The Group recalled that the EANPG/49 meeting adopted a new structure of the EUR air navigation deficiencies database according to which the deficiencies were listed by air navigation field and by State (EANPG Conclusion 49/50 – *Deficiencies Data Base*, refers). By 31 January 2008, the ICAO EUR/NAT Office received notification about the resolution of the deficiencies EUR-ATM-01-01 for Georgia, EUR-ATM-04-07 for Germany and EUR-ATM-04-27 for Lithuania. The database had been updated accordingly.

New deficiencies identified by the COG AIS/MAP Project Team

7.2 Other changes to the database had been proposed by the COG AIS/MAP PT/15 meeting held in May 2008 in Paris. It was agreed that the non-implementation of Quality Management System (QMS) by the AIS providers, as required by Annex 15, 3.2, should be regarded as deficiency. Following this, ten new entries had been added to the deficiency database. The meeting also added three new entries related to the non-implementation of WGS-84 in East European States.

Review of the deficiencies by COG/41

7.3 COG/41 June 2008 meeting had reviewed the status of the air navigation deficiencies in the EUR Region and formulated two conclusions on the subject.

7.4 As a follow-up of COG Conclusion 41/4, *Expediting the resolution of deficiencies in the EUR Region*, the ICAO Regional Director, Europe and North Atlantic, sent a State letter on 11 September 2008 to all States included in the EANPG deficiency database requesting an update on the progress with the corrective action undertaken to resolve the deficiencies. By 20 October 2008 responses have been received from 4 States: Cyprus, Romania, Serbia, and Spain, stating that the deficiency related to the non-provision of air space safety monitoring data to the EUR RMA has been resolved through introducing procedures for regular reporting of the required data. The database had been amended by removing the deficiencies: EUR-ATM-04-05 (Cyprus), EUR-ATM-04-12 (Romania), EUR-ATM-04-15 (Spain), and EUR-ATM-04-30 (Serbia).

7.5 With regard to COG Conclusion 41/6, *Status of implementation of WGS-84*, the ICAO Regional Director, Europe and North Atlantic, sent a letter to those States having deficiencies related to the WGS-84 implementation. Responses had been received from Azerbaijan, Kazakhstan, Kyrgyzstan, the Russian Federation and Ukraine providing information on the national plans established for the implementation of the WGS-84. The database had been updated accordingly.

Deficiencies reported by IFALPA

7.6 A regional list of identified operational problems/deficiencies had been regularly reviewed and updated by the IFALPA European Regional Meeting. According to the *Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies*, this list should be considered by the EANPG as an important information source for identifying air navigation deficiencies. However, the Group

noted that the IFALPA definition of deficiency was different to the ICAO one, thus the reported issues should be evaluated in consultation with the States concerned before eventual inclusion in the EANPG deficiency list. In this regard, the meeting agreed that the ICAO Regional Office should notify those States listed by IFALPA and request further information on the perceived deficiencies.

Proposal for European Supplement to the Uniform methodology

7.7 The meeting recalled that in November 2001 the ICAO Council approved *the Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies* to be used by all PIRGs and Regional Offices in dealing with the deficiencies. Though this methodology provided a good general guidance, there had been difficulties due to the lack of detailed practical procedures.

7.8 A regional approach to overcome the above difficulties had been pursued by the APANPIRG which in 2005 adopted a Regional (APAC) Supplement to the Uniform Methodology detailing the procedures to be used in reporting, validation and resolution of deficiencies. The ICAO Council recommended this approach to the other PIRGs and regions. In view of this, the Regional Office developed a draft EUR Supplement to the Uniform Methodology for consideration by the EANPG. As an example of its applicability, the Supplement would provide specific guidance on the practical steps to be undertaken for addition or removal of deficiencies to/from the EANPG deficiencies data base. It also outlined the responsibilities of the different stakeholders involved in the process of the identification and resolution of the air navigation deficiencies: States, Regional Office, relevant International Organizations.

7.9 EANPG/50 reviewed and agreed an the draft EUR Supplement to the Uniform Methodology and adopted the following Conclusion:

EANPG Conclusion 50/42 – Regional Supplement to the Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies

That:

a) the EUR Supplement to the *Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies,* as presented in **Appendix W** to this report, be adopted and included in the EANPG Handbook; and

b) the ICAO Regional Director, Europe and North Atlantic, inform the EUR States and the international organizations concerned about the adoption of the EUR Supplement and encourage them to adhere to the prescribed procedures.

Deficiencies in the AIS/MAP field

7.10 The meeting noted that the deficiencies in the AIS/MAP field currently included in the EANPG deficiency database had been identified mainly through the work of the COG AIS/MAP Project Team which was composed by experts from the Eastern part of the EUR Region. Thus, the current list of the AIS/MAP deficiencies was incomplete and there was a need for monitoring the implementation of the AIS/MAP services in the rest of the region. Since the AIS/MAP activities in the ECAC member States were coordinated through EUROCONTROL it was agreed that EUROCONTROL should provide information about the status of implementation of those services in order to identify any deficiencies. In this regard, the Group agreed on the following conclusion:

EANPG Conclusion 50/43 – Identification of deficiencies in the Aeronautical Information Services/Aeronautical Charts field

That, in order to facilitate the identification of deficiencies in the Aeronautical Information Services/Aeronautical Charts (AIS/MAP) field in the European Civil Aviation Conference (ECAC) area of the EUR Region, EUROCONTROL be invited to inform EANPG Coordination Group (COG) meetings on the status of implementation of the required AIS/MAP facilities and services in the ECAC member States.

Updated List of Deficiencies

7.11 The meeting reviewed the updates to the EANPG List of deficiencies based on inputs received from States in response to the State letters circulated by the ICAO Regional Director, Europe and North Atlantic, urging States to develop corrective action plans to resolve the identified deficiencies and report back to the ICAO Regional Office.

7.12 The Group acknowledged that the activities related to the resolution of the deficiencies in the EUR Region since the last EANPG meeting have shown a positive trend. For instance, about 20% of the deficiencies related to non-reporting of height monitoring data to the EUR RMA had been resolved. Improvement was also seen with regard to the provision of corrective action plans by the States for those deficiencies that require longer time for their resolution.

7.13 The meeting felt that the new EUR Supplement to the Uniform Methodology would be instrumental in the EANPG management of the deficiency list. In order to evaluate the new procedures for the identification, risk assessment and reporting on resolution of deficiencies, the Group agreed that a trial period should be established until the time of COG/44 in June 2009. After assessment by COG/44 an updated list of deficiencies should be posted on the EANPG website for preparation of EANPG/51 meeting.

7.14 The EANPG agreed with the following statement:

EANPG Statement 50/5 – Continuous improvement of safety

That, the EANPG at its 50th meeting, recognizing the ICAO Strategic Objective A, Safety – Enhance global civil aviation safety, and the Assembly Resolution A36-2, Unified Strategy to resolve safety-related deficiencies, restated that the Group will continue in according its highest priority to the identification, reporting and resolution of the safety related air navigation deficiencies based on the Uniform Methodology adopted by the ICAO Council.

The Group recognized that the EANPG List of Deficiencies should not be regarded as a “name and blame” list, but as an important mechanism aimed at assisting States to resolve deficiencies through a collaborative effort of the EANPG, the ICAO Regional Office, States and the users’ organizations. In order to expedite the resolution of safety related deficiencies, the EANPG, in accordance with its terms of reference, will endeavour to develop further efficient and transparent procedures related to the identification and reporting of deficiencies, in consultation with all stakeholders concerned, and to provide effective assistance to States in developing corrective actions.

8. WORK PROGRAMME

5th Edition of the EANPG Handbook

8.1 Further to the discussion under Agenda Item 2 concerning the composition of the Group, the meeting reviewed an update to the 4th Edition of the EANPG Handbook.

8.2 The revised EANPG Handbook contained minor editorial changes as well as the following updates:

a) Terms of Reference of the EANPG Contributory Bodies and Task Forces which report to the EANPG COG;

b) a graphical overview of the EANPG Contributory Bodies and Task Forces which report to the EANPG COG; and.

c) introduction of "Statements" as a new format of expression, in addition to Conclusions and Decisions, which is defined as: "Statements deal with a position reached by consensus regarding a subject without a requirement for specific follow-up activities" (paragraph 0.8 also refers).

8.3 The ICAO Secretariat informed the meeting that it was in the process of developing a Compendium of the complete working structure of the EANPG which would be a stand-alone document, in complement of the Handbook.

8.4 Due to the size of the Handbook, it was agreed that it would not be attached to this Report but be made available on the ICAO EUR/NAT website: [http://www.paris.icao.int].

EANPG Conclusion 50/44 – 5th Edition of the EANPG Handbook

That the ICAO Regional Director, Europe and North Atlantic, publish on the ICAO EUR/NAT Office website (http://www.paris.icao.int) the 5th Edition of the EANPG Handbook.

9. ELECTION OF THE EANPG CHAIRMAN

9.1 The Chairman of the Group, Mr Dirk Nitschke of Germany, informed the EANPG that he would have to resign from the Chair due to the workload associated with his new position in his administration.

9.2 Following a nomination from the Vice-Chairman, Mr Ladislav Mika of the Czech Republic, the Group unanimously elected Mr Phil Roberts of the United Kingdom as its new Chairman.

9.3 The Group expressed its appreciation and gratitude to Mr Dirk Nitschke for his dedication to the Chairmanship during four meeting cycles and assured Mr Phil Roberts of its support in his new function.

10. ANY OTHER BUSINESS

Workshops and Seminars

10.1 The Czech Republic informed the Group that the Advanced Aircraft Accident Prevention and Investigation international course will be held in Prague from 20 April to 1 May 2009. The course will be focused on two main subjects: Safety Management Systems and Aircraft Accident Investigation. Detailed information can be found at the following website address: www.scsi-inc.com.

Next meeting of the EANPG

10.2 The Group agreed to convene its Fifty-First Meeting in the EUR/NAT Office of ICAO, Paris from 1 to 3 December 2009.

Appendix A –
EANPG Symposium - Attendance List

(Paragraph 0.5 refers)

CHAIRMAN
Dirk NITSCHKE

EANPG Secretary
Karsten THEIL

SYMPOSIUM – SPEAKERS

Paul SCHWACH Adjoint au Directeur Général de l'Aviation Civile Directeur de la Direction des Transports Aériens	*(DGCA France*)
Nancy GRAHAM Director, Air Navigation Bureau, ICAO Montreal	*(ICAO)*
Dmitriy SAVITSKIY Deputy Director Federal Air Navigation Authority, Russian Federation	*(A Single Russian Sky)*
Alfonso ARROYO Directorate General for Energy and Transport Single European Sky and Modernisation of Traffic Control – International Relations	*(A Single European Sky)*
Giorgio CIONI Head, Airspace Management - NATO International Staff	(*A Single Civl/Military Sky)*
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(Paragraph 0.6 refers)

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Appendix C - Performance Framework Form (a sample)

(Paragraph 2.27 refers)

<table>
<tr><td colspan="5">REGIONAL PERFORMANCE OBJECTIVES /NATIONAL PERFORMANCE OBJECTIVES —
OPTIMIZE THE ATS ROUTE
STRUCTURE IN EN-ROUTE AIRSPACE</td></tr>
<tr><td colspan="5">Benefits</td></tr>
<tr><td>Environment
Efficiency</td><td colspan="4">• reductions in fuel consumption;
• ability of aircraft to conduct flight more closely to preferred trajectories;
• increase in airspace capacity;
• facilitate utilization of advanced technologies (e.g., FMS based arrivals) and ATC decision support tools (e.g., metering and sequencing), thereby increasing efficiency.</td></tr>
<tr><td colspan="5">Strategy
Short term (2010)
Medium term (2011 - 20015)</td></tr>
<tr><td>ATM OC COMPONENTS</td><td>TASKS</td><td>TIMEFRAME START-END</td><td>RESPONSIBILITY</td><td>STATUS</td></tr>
<tr><td rowspan="8">AOM</td><td rowspan="8">En-route airspace
• analyze the en-route ATS route structure and implement all identifiable improvements;
• implement all remaining regional requirements (e.g. RNP 10 routes); and
• finalize implementation of WGS-84
• monitor implementation progress
• develop a strategy and work programme to design and implement a trunk route network, connecting major city pairs in the upper airspace and for transit to/from aerodromes, on the basis of PBN and, in particular, RNAV/5, taking into account interregional harmonization;
• monitor implementation progress</td><td rowspan="8">2005-2008</td><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>linkage to GPIs</td><td colspan="4">GPI/5: performance-based navigation, GPI/7: dynamic and flexible ATS route management, GPI/8: collaborative airspace design and management, GPI/11: RNP and RNAV SIDs and STARs and GPI/12: FMS-based arrival procedures.</td></tr>
</table>

Appendix D - Performance Framework Form - Explanatory Notes

(Paragraph 2.27 refers)

1. **Performance framework form:** This form is an output and management form which is applicable to both regional and national planning and includes references to the Global Plan. Other formats may be appropriate but should contain as a minimum the elements described below

2. **Performance objective:** Regional /national performance objectives should be developed using a performance based approach that best reflects the necessary activities needed to support regional/national ATM systems. During their life cycle, performance objectives may change depending on the ATM system's evolution; therefore, throughout the implementation process, these should be coordinated with and be available to all interested parties within the ATM Community. The establishment of collaborative decision making processes ensures that all stakeholders are involved in and concur with the requirements, tasks and timelines.

3. **Regional performance objective:** Regional performance objectives are the improvements required to the air navigation system in support of the global performance objectives, and are related to the operating environments and priorities applicable at the regional level.

4. **National performance objective:** National performance objectives are the improvements required to the air navigation system in support of the regional performance objectives, and are related to the operating environments and priorities applicable at the State level.

5. **Benefits:** The regional/national performance objectives should meet the expectations of the ATM community as described in the operational concept and should lead to benefits for stakeholders and be achieved through operational and technical activities aligned with each performance objective.

6. **Strategy:** ATM evolution requires a clearly defined progressive strategy including tasks and activities which best represent the national and regional planning processes in accordance with the global planning framework. The goal is to achieve a harmonized implementation process evolving toward a seamless global ATM system. For this reason, it is necessary to develop short (1 to 5 years) and medium term (6 to 10 years) work programmes, focusing on improvements to the system indicating a clear work commitment for the parties involved.

7. **ATM operational concept components;** Each strategy or set of tasks should be linked with associated components of the ATM operational concept. The designators for ATM components are as follows:

- AOM – Airspace organization and management
- DCB – Demand and capacity management
- AO – Aerodrome operations
- TS – Traffic synchronization
- CM – Conflict management
- AUO – Airspace user operations
- ATM SDM – ATM service delivery management

8 **Tasks:** The regional/ national work programmes, using this PFF templates, should define tasks in order to achieve the said performance objective and at the same time maintain a direct relation with ATM system components. The following principles should be considered when developing work programme:

- The work should be organized using project management techniques and performance-based objectives in alignment with the strategic objectives of ICAO.

- All tasks involved in meeting the performance objectives should be developed using strategies, concepts, action plans and roadmaps which can be shared among parties with the fundamental objective of achieving seamlessness through interoperability and harmonization.

- The planning of tasks should include optimizing human resources as well as encouraging dynamic use of electronic communication between parties such as the Internet, videoconferences, teleconferences, e-mail, telephone and facsimile. Additionally, resources should be efficiently used, avoiding any duplication or unnecessary work.

- The work process and methods should ensure that performance objectives can be measured against timelines and the national and regional progress achieved can be easily reported to PIRGs and ICAO Headquarters respectively.

9. **Timeframe:** Indicates start and end time period of that particular task(s).

10. **Responsibility:** Indicates the organization/entity/person accountable for the execution or management of the related tasks.

11**.** **Status:** The status is mainly focused on monitoring the progress of the implementation of that task(s) as it progresses toward the completion date.

12**.** **Linkage to global plan initiatives (GPIs)*:*** The 23 GPIs, as described in the Global Plan, provide a global strategic framework for planning for air navigation systems and are designed to contribute to achieving the regional/national performance objectives. Each performance objective should be mapped to the corresponding GPIs. The goal is to ensure that the evolutionary work process at the State and regional levels will be integrated into the global planning framework.

Appendix E – ILS Interim Guidance Material

(Paragraph 5.1.1 refers)

EUROPEAN INTERIM GUIDANCE MATERIAL ON MANAGEMENT OF ILS LOCALIZER CRITICAL AND SENSITIVE AREAS

CONTENT

1. INTRODUCTION

ICAO Annex 10 SARPs contain the integrity and continuity of service requirements for ILS ground systems. In order to safeguard the ILS signal-in-space air navigation service providers (ANSP) have to establish and protect critical and sensitive areas. Infringement of these areas may cause a shutdown of the ILS or even an undetected out-of-tolerance signal.

Tests and simulations conducted by a number of European ANSP in 2006[1] indicate that large aircraft require new localizer critical and sensitive areas that will extend beyond the currently established dimensions. Some protection measures applied today may be implemented in a more flexible manner thus avoiding unnecessarily limiting the runway capacity.

2. OBJECTIVE

The objective of this document is to provide guidance on the management of the localizer critical and sensitive areas in a way to both protect the ILS signal-in-space and reduce the potential impact on runway capacity.

3. SCOPE

This document provides guidance on the management of ILS localizer critical and sensitive areas. It does not cover the management of ILS glide path critical and sensitive areas; it is considered that the glide path critical area is sufficiently well protected all of the time and the sensitive area is controlled as appropriate in accordance with current practices.

The definition of localizer critical and sensitive area dimensions is not the purpose of this document. The current example critical and sensitive area dimensions as identified in Annex 10, Volume I, Attachment C [1] are likely to change as a result of updated modelling tools and associated studies. Respective updated guidance material was developed and agreed in April 2008 by Working Group 1 of the ICAO Navigation Systems Panel (NSP) and is envisaged to become effective in November 2009 [7].
For the purpose of this document the updated guidance material will be used.

4. DEFINITIONS

Integrity: The probability that a system will not radiate incorrect navigation guidance information.

Continuity of Service: The probability that a system will not fail to radiate navigation guidance information during a defined time interval.

Critical Area: see Appendix A.

Sensitive Area: see Appendix A.

ILS operation: ILS operation is the use of ILS signals by one or more aircraft within the defined coverage volume.

[1] The A380 Workshop documentation is available on the ICAO Paris website (http://www.paris.icao.int) under “Other Meetings, Seminars & Workshops”, activity “MISC”.

5. ABBREVIATIONS

AIP	Aeronautical Information Publication
A-SMGCS	Advanced Surface Movement Guidance and Control System
ANSP	Air Navigation Service Provider
ATC	Air Traffic Control
CAT	Category
CDI	Course Deviation Indicator
DDM	Difference in Depth of Modulation
IAP	Instrument Approach Procedure
ILS	Instrument Landing System
LOC	Localizer
LVP	Low Visibility Procedures
MSA	Minimum Sector Altitude
NSP	ICAO Navigation Systems Panel
PFD	Primary Flight Display
SARPs	Standards and Recommended Practices
TWY	Taxiway

6. ASSESSMENT OF CURRENT PRACTICE

6.1. Application of localizer critical and sensitive areas

The localizer critical and sensitive areas are established and protected by the responsible ANSP by using guidance provided in ICAO Annex 10, Volume I, Chapter 3 and Attachment C, recommendations from the respective ILS manufacturer and through site specific studies. On major European airports with high traffic density, simulations and measurements were used to verify and fine tune the dimensions of the localizer critical and sensitive areas.

However, it should be noted that in a few cases the localizer critical and sensitive areas as established led in some instances to pilot complaints about ILS signal quality thus indicating that these areas were not sufficient to protect the ILS signal.

6.2. Protection of localizer critical and sensitive areas

It is common practice to prohibit aircraft and vehicles within the ILS critical area during all ILS operations which in many cases is regulated by the national aviation authority. In some States the entrance of persons into the critical area is also restricted.

At many airports critical and sensitive areas outside runways and taxiways are marked by signs and other visual indicators in order to provide deterrent and visual warning that there is to be no unauthorized access to this area. Examples are provided in Appendix C.

With respect to the protection of the localizer sensitive area in LVP it is commonly accepted that the sensitive area has to be clear at least when the

next arriving aircraft is within 2 NM before threshold provided that radar monitoring is available. In some States reference is made to the touchdown instead of threshold. In current operations landing clearance may exceptionally be delayed until 1 NM from touchdown, provided that flight crews are warned to expect a late landing clearance and also provided that the position of the approaching aircraft can be monitored [4].

With respect to the localizer sensitive area in CAT I operations it should be noted that in most cases this area, which is much smaller than the sensitive areas for CAT II/III, is covered by the runway protection surfaces. Some States therefore do not define or protect a CAT I sensitive area in the same way as for CAT II/III.

In one State it is foreseen to downgrade the operation from CAT II/III to CAT I or from CAT I to another IAP when the respective sensitive area is not vacated. In the latter case this happens only when the arriving aircraft is within 2 NM to threshold and the meteorological conditions are close to CAT I limits.

6.3. Controller awareness

In order to make informed decisions controllers need to know the size and location of the localizer critical and sensitive areas. Currently this is mostly done by depicting the localizer critical and sensitive areas on aerodrome maps. In at least one State the information is published in AIP. However with critical and sensitive areas varying by category of operation and type of aircraft (as described in 8.1) it may be more difficult in the future to do so.

On more advanced controller systems size and location of the localizer critical and sensitive areas are shown on aerodrome surface movement displays that make it much easier to assess whether the localizer critical and sensitive areas are free from violations. An example is provided in Appendix D.

7. CONSEQUENCES OF UPDATED ICAO ANNEX 10 GUIDANCE MATERIAL ON ILS CRITICAL AND SENSITIVE AREAS

7.1. Extension of localizer critical and sensitive areas

At most European airports the localizer critical area was defined as being “300 m or the near end of the runway whichever is greater”. Based on this “definition” by Annex 10 and environmental constraints localizers are mostly located between 300 m and 400 m from the runway end.

A measurements campaign based on theoretical modelling and validation flight testing by European ANSP concluded that for large aircraft (e.g. 747, A380) current localizer critical and sensitive area dimensions do not provide adequate protection to the ILS signal. However experience of 747 (and smaller aircraft) operations has not resulted in corresponding numbers of reported incidents of

localizer fluctuations given that there are considerable numbers of aircraft operations [6].

As a consequence of the above-mentioned measurement campaign the NSP undertook a major review and update of the ILS critical and sensitive area guidance taking into account the results of tests and simulations performed in 2006 on A380 and 747 impacts on ILS signal-in-space performance. The new dimensions for ILS localizer critical and sensitive areas are presented in Appendix B for information.

Considering a typical location of the localizer as mentioned above it has to be noted that for some types of aircraft the localizer critical areas will now extend onto significant portions of the runway.

Note: It is expected that the new guidance material will formally be applicable by November 2009.

7.2. Impact analysis of the new ICAO guidance material on ILS critical and sensitive areas

Previous dimensions of the critical area were defined based on the largest aircraft operating to a particular airport using the “one-size-fits-all” principle. In most cases the critical area did not include the runway, so aircraft infringements of the critical area did not occur.

The sensitive area for CAT I operations was considered negligible. For CAT II/III operations the sensitive area was the dominating factor for triggering the landing clearance for ILS operations.

The previously noted measurement campaign performed with A380 and 747 has shown that for A380 and to a lesser extent for the 747 operations, extended critical and sensitive areas are required to fully protect the localizer signal-in-space. It was also demonstrated during this campaign that the movement of large aircraft towards the stop end of runway cause significant effects to the signal-in-space within the ILS coverage volume and especially for the final approach segment.

In order to protect the signal-in-space it is expected that in most cases the critical areas will have to extend onto a portion of the runway at stop end. Guidance on typical dimensions is to be included within Annex 10, Volume I, Attachment C (see Appendix B). Critical areas need to be determined for the specific antenna systems, static multipath environment and aerodrome layout.

The revised sensitive area guidance material will also show extended areas for all aircraft with a height of more than 14 m (e.g. A300, 777, MD-11, 747, AN-124, A380) during all categories of operation. This is of greater importance during CAT II/III operations. The application of these extended protections will only be required whilst large aircraft are moving on the aerodrome surface. Smaller critical and sensitive areas for aircraft with a height up to 14 m can be used for the majority of operations.

It has been demonstrated that where previous critical and sensitive areas have been determined as a fixed set of dimensions current operational requirements dictate that multi-dimensional critical and sensitive areas may be required to accommodate the varied mix of aircraft types while maintaining capacity.

In considering what is operationally manageable it can be shown that for:

- aircraft with a height of up to 14 m existing critical area is acceptable while it was determined that the localizer sensitive area is contained within the critical area;
- aircraft with a height above 14 m and up to 20 m significant increases in the critical area is expected to be required while there will be no major change to the size of the sensitive area;
- aircraft with a height greater than 20 m large increases in critical and sensitive areas are expected to be required to accommodate movement around the aerodrome.

8. PROPOSED MANAGEMENT OF CRITICAL AND SENSITIVE AREAS

8.1. Establishing the localizer critical and sensitive areas

Localizer critical and sensitive areas should be established on a site by site basis as determined by the responsible ANSP based on ICAO Annex 10, Volume I, Chapter 3 requirements and taking into account guidance provided in ICAO Annex 10, Volume I, Attachment C.

Note: An updated guidance material has been agreed by NSP and is envisaged to become applicable in November 2009 (see Ref. 7). An excerpt of the proposed new guidance material for ILS localizer is provided in Appendices A and B. It should be highlighted that the boundaries for critical areas or rear sensitive areas apply to the entire longitudinal axis (both tail and fuselage) of the interfering aircraft and boundaries for sensitive areas apply only to the tail of the interfering aircraft.

For airports with low traffic density a worst case critical and sensitive area may be defined based on the largest aircraft in operation at that airport to cover all operations (“one-size-fits-all”). Even in this case it may be advisable to establish separate areas for CAT I and CAT II/III operations so as to prevent overly restrictive practices.

For those airports where traffic mix and density dictates it is considered essential to define critical and sensitive areas for different categories of operation and aircraft.

The critical and sensitive areas need to be revised based on airport development plans and changing traffic mix.

Wherever possible it is recommended to plan future ILS localizer installations in such a way that the critical area is outside the runway system, this is down to airport planning criteria with assessments required for compliance with Annex 14 requirements, capacity analysis for critical area management on and off runway and signal-in-space prediction from potential localizer sites.

For large aircraft operations it may be considered to position the localizer at a distance from the stop end of the runway commensurate with the required critical area (e.g. 700 m or more) provided that no other sitting criteria takes precedence. A distance of 300 m is to be considered as a typical value for aircraft with a height of up to 14 m.

When local constraints do not allow a sufficient distance of the localizer to the stop end of the runway corresponding operational measures have to be applied.

In addition to the considerations above it should be taken into account that ICAO EUR Doc 013 requires that in LVP the aircraft taking off has passed over the ILS localizer antenna before the arriving aircraft reaches a point 2 NM (typically) from touchdown. To achieve this it is recommended that the departing aircraft must commence its take-off run before the arriving aircraft reaches a point 6 NM from touchdown. A larger distance of the localizer from the stop end of the runway may require a larger separation between departing and arriving aircraft.

8.2. Protection of localizer critical and sensitive areas

In accordance with the updated definitions provided in Appendix A infringements of the localizer critical area will cause out-of-tolerance disturbances to the ILS signal within the localizer coverage volume or in other words a situation where the integrity of the ILS signal is no longer maintained. The operational impact of these out-of-tolerance disturbances depends on various factors like category of operation, distance to threshold and also aircraft specific factors.

Under specific circumstances it may be permissible to accept infringements of the critical area provided that operational procedures which have been derived from a thorough safety assessment are in place to mitigate the adverse effects. However, the general rule should be and remain that the critical area has to be free from aircrafts or vehicles during all ILS operations.

According to the new definition in Appendix A infringements of the sensitive area will not cause unacceptable ILS signal distortions at a distance beyond 2 NM to threshold. Therefore the sensitive area needs to be protected only when the next arriving aircraft is within a distance of 2 NM to threshold.

Due to the fact that the arriving aircraft is at 2 NM to threshold in a critical landing phase there is no room for exceptions from this rule in CAT II/III operations.

As it can be seen in Appendix B aircraft with tail fin heights up to 14 m (e.g. A320) will be able to vacate the runway without infringing the respective sensitive area if the LOC is at least at a distance 300 m to the stop end of the runway and no small aperture antenna is used.

Additional considerations for CAT I operations are provided in 8.4.

Critical and sensitive areas outside runways and taxiways should be marked by suitable signs and visual markers in order to prevent unauthorized access from vehicles and persons. For this purpose the area dimensions established for large ground vehicles ($H \leq 6$ m) may be used (see Appendix B and Appendix C).

Measures should be taken to make controllers aware of the location of localizer critical and sensitive areas in force. It is recommended to show the localizer critical and sensitive areas position on the aerodrome surface movement display. An example is provided in Appendix D. More information on the dynamic management of ILS critical and sensitive areas is provided in section 8.6.

8.3. Effects of infringements of critical and sensitive areas

Note: An example is provided in Appendix E.

8.3.1. Effects on Aircraft Systems

It has been shown that critical and sensitive area violations have an effect on the aircraft systems. The magnitude and impact of these effects is dependent upon many factors including aircraft type, position, speed, geometry, equipment, size and speed of the violating object. Aircraft systems may absorb short time ILS signal fluctuations through filtering effects of onboard equipment and the performance criteria of the airframe.

Anomaly detection algorithms have been implemented in some autopilots to detect and mitigate perturbations in the ILS signal. For example, if an aircraft takes off and flies over the localizer, it will cause a disturbance in the beam for aircraft on approach. If those aircraft have anomaly detection algorithms they would be unaffected. The anomaly detection works well for disturbances with a relatively quick onset. However, slow or bias type errors are not easily detected. So, the anomaly detection may not be reliable with respect to detecting problems with the signal caused by aircraft or vehicles moving in the ILS critical or sensitive areas.

Slow or bias type errors that are not smoothed by the anomaly detection algorithms result in indications to the pilot either through flags, aircraft control actions (from autopilot) or fluctuations on the cockpit display indicators. The length and magnitude of fluctuations are linked to the speed and time of the critical and / or sensitive area violation.

The magnitude of these effects needs to be analysed in order to determine what is acceptable from an operational point of view taking into account the aircraft systems and aircraft certification criteria.

8.3.2. Effects on Pilots

In good visibility the pilot might fly the aircraft manually possibly with the help of a flight director. In that case the pilot could decide not to "chase the needle" and keep the aircraft attitude steady if he observes unsteady LOC deviations. In automatic flight he might disconnect the autopilot if the aircraft's attitude becomes unstable due to the autopilot tracking the localizer and take over manually. If visual contact with the runway is established, the localizer might even be ignored.

In CAT I conditions the aircraft might be controlled manually or automatically by the autopilot. In manual flight, temporary and unsteady deviations can be absorbed better for the same reason as above. The pilot will have a maximum allowable localizer deviation from the centreline (normally 1 dot on the LOC display). When this is exceeded the approach should be discontinued.

In CAT II/III conditions the aircraft will usually be flown automatically. The pilot will initiate a missed approach when certain maximum deviations of the flight parameters are exceeded. These are usually more stringent than the ones in CAT I conditions, for example LOC deviation of 1/4 of a dot, bank angle of more than 7° (which could be caused by the autopilot tracking a LOC deviation), etc.

In addition, modern aircraft will display a track symbol on the PFD compass scale. If the aircraft is tracking the correct and undisturbed localizer beam, this track symbol should be exactly on the runway magnetic heading. Especially during LVP, deviation of this track symbol from the runway magnetic heading will be a trigger for initiating a go-around.

The pilot will especially pay attention to these maximum deviation parameters if the aircraft is below a certain altitude, for example 1000ft (depending on operator's standard operating procedures) during LVP and/or MSA during other operations. Any deviation of the parameters beyond the limits will necessitate a go-around.

8.4. CAT I Operations

8.4.1. Introduction

ICAO Annex 6, Part I [3] defines CAT I operations as:

“A precision instrument approach and landing with a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m.”

There is no upper meteorological limit defined so that all ILS operations with limits better than the ones specified above have to be considered as CAT I operations.

In addition to the considerations above the following needs to be taken into account:

ICAO Annex 10 requirements for ILS CAT I signal-in-space are less stringent than for CAT II/III. This therefore translates to much smaller dimensions of the localizer critical and sensitive areas for ILS CAT I compared to those required for CAT II/III operations. In particular, under the assumptions used in Appendix B and provided that a large aperture antenna is used and located approximately 300 m to the stop end of the runway only aircraft with a height greater than 14 m could cause unacceptable ILS signal distortions in those cases when they need the full runway length. For airports operating smaller aircraft, this situation may also occur when the full runway length is used and the critical area overlaps onto the runway or at airports where no large aperture antenna arrays are used.

With respect to the integrity and continuity of service requirements for CAT I ground systems Annex 10 contains only recommendations (Chapter 3.1.3.12). However, it should be noted that these recommended practices are specifications “the uniform application of which is recognized as desirable in the interest of safety, regularity or efficiency of international air navigation, and to which Contracting States will endeavour to conform in accordance with the Convention.” (Foreword to Annex 10, Volume I).

In addition Attachment C of Annex 10 highlights that ensuring integrity in the case of CAT I operations is more or less completely the responsibility of the pilot (Att. C, Chapter 2.8.1.3).

8.4.2. General principles

Considering the technical consequences of infringements of the localizer critical area (out-of-tolerance-signal) the general rule should be that also in CAT I operations the CAT I localizer critical area should be free of aircraft and vehicles during ILS operations.

The same applies for the CAT I sensitive area when an arriving aircraft is within the last 2 NM before threshold until decision height.

Note 1: The CAT I localizer critical and sensitive areas are not to be confused with the CAT II/III areas. It is to be noted as well that for a given airport and a given localizer the dimensions of these areas vary with the size of moving objects (aircraft or vehicles).

Note 2: It can be assumed that the aircraft remains on runway centreline until it starts the turn to exit the runway. As long as the aircraft is on runway centreline no out-of-tolerance signals are to be expected. Therefore the dimensions of

critical and sensitive areas could be shortened to the beginning of the next runway exit in the direction to the localizer.

Example: The x-dimension of the critical area for A380 operation is 790 m. The localizer is located 320 m to the stop end of the runway which leads to 470 m critical area on the runway. Only the last runway exit is affected. The turn to this exit starts 140 m before stop end of the runway. Therefore the size of the critical area could be shortened to 460 m what is of particular importance when the duration of critical area infringements has to be considered (see 8.4.3).

Note 3: Autoland operations when LVP are not in operation are not covered in this document. Respective guidance is provided in ICAO EUR Doc 013.

Arriving-Arriving Operations

If the CAT I critical area (e.g. the area for A380 operation) overlaps parts of the runway and runway exits and the aircraft is required to use one of these exits within the critical area, then the ILS localizer signal will be disturbed beyond allowed tolerances.

Under certain meteorological conditions and with additional operational mitigation measures in place, these disturbances may be considered acceptable (see 8.4.3).

If the CAT I sensitive area (e.g. the area for A380 operation) overlaps parts of the runway and runway exits and the aircraft is required to use one of these exits within the sensitive area, then the ILS localizer signal will be disturbed beyond allowed tolerances for the next arriving aircraft within 2 NM until decision height.

Under certain meteorological conditions and with additional operational mitigation measures in place these disturbances may be considered acceptable (see 8.4.3).

Departure-Arriving Operations

Departing aircraft may cause short-time ILS signal distortions due to shadowing effects by the aircraft body. These fluctuations are considered acceptable in CAT I operations. This is applicable irrespective of arriving aircraft position.

8.4.3. Short-time infringements of the localizer critical and sensitive areas in CAT I operations

Infringements of the localizer critical and sensitive areas could be allowed when the pilots on final approach have visual contact with the runway and are being warned that ILS distortions are to be expected.

All operational procedures which would allow infringements of the localizer critical and sensitive areas in CAT I operations when the pilots have no visual contact with the runway should be based on a safety assessment and should be approved by the responsible national aviation authority.

8.5. CAT II/III operations

8.5.1. CAT II/III normal operation

In CAT II/III operations the localizer critical areas should be free of any aircraft or vehicles at all times. In the event that an aircraft vacating or crossing the

runway infringes the localizer critical area the ILS must be considered unusable for the period of the infringement.

Procedures to be followed in the respect of the localizer sensitive area can be found in ICAO EUR Doc 013 and are not repeated here.

Note : The current second edition of ICAO EUR Doc 013 requires an update to reflect the changes proposed by the NSP [7]. In particular the issuance of a late landing clearance at 1 NM has to be reviewed in the light of the new definition of the sensitive area.

8.5.2. Short-time infringements of the localizer critical area in CAT II/III operations

A safety assessment should be approved by the responsible national aviation authority for all operational procedures that may allow short-time infringements of the localizer critical area during CAT II/III operations.

8.6. Dynamic management of localizer critical and sensitive areas as used for different categories of aircraft and operation

At aerodromes where a mix of traffic exists, such that the use of multiple critical and sensitive areas have a capacity benefit then dynamic management of these areas is required from ATC.

In this case, different sized critical and sensitive areas are used for the protection of the following arrival (and for guided take-off – departure) by protecting the appropriate sized critical and sensitive areas according to the size of the aircraft using the runway.

In order to manage the different critical and sensitive areas, for the varying traffic mix, ATC must have aircraft positional information in relation to the critical and sensitive areas. This can be displayed through A-SMGCS or other means as appropriate.

For example a single operational runway where medium (737, A320), heavy (777, A340, 747) and very large aircraft (A380) are operating, up to three separate localizer critical and sensitive areas could be used. In order to maintain adequate protection of the ILS localizer, the appropriate areas must be enforced for the type of aircraft that is using the runway.

Note: It is the size of the aircraft on the runway or taxiway and therefore likely to infringe the critical and sensitive area that is taken into consideration NOT the size of the aircraft on final approach.

Depending on traffic density and controller workload it is foreseen that as many or as few critical and sensitive areas may be used in order to provide benefits without jeopardising the requirements of the ILS signal-in-space. Human factor issues need to be considered for operational procedures covering the dynamic management.

For these cases, where dynamic management of critical and sensitive areas is not practical, it is recommended that the critical and sensitive areas for the largest aircraft are used; however this may adversely affect aerodrome capacity when the largest aircraft is not present.

9. REFERENCES

1. ICAO Annex 10 to the Convention on International Civil Aviation, Volume I (incorporating amendments 1 to 82), Sixth edition, July 2006.

2. ICAO Annex 14 to the Convention on International Civil Aviation, Volume I, Fourth edition, July 2004.

3. ICAO Annex 6 to the Convention on International Civil Aviation, Part I, Eighth edition, July 2001.

4. ICAO EUR Doc 013 – European Guidance Material on Aerodrome Operations under Limited Visibility Conditions, Second Edition, 2005.

5. ICAO Doc 4444, Fifteenth Edition, 2007.

6. Joint ANSP Study Group, Assessment of ILS protection areas impact on large aircraft operations, V 1.3, November 2006.

7. Proposal for the amendment of Annex 10, Volume I, concerning ground-based navigation aids and general provisions for radio navigation aids, ICAO State letter AN 7/1.3.93-08/48, 20 June 2008

1. APPENDIX A – CRITICAL AND SENSITIVE AREAS

Updated definitions for critical and sensitive areas used in this document[2]

"2.1.11 *Protection Areas.* The presence of aircraft or other vehicles in the vicinity of the ILS antennas can cause signal-in-space tolerances to be exceeded. States differ somewhat in the way that they choose to define the ILS protection areas (Chapter 3, 3.1.2.8 refers) for development and management of vehicle movement restrictions. One method is to define critical areas and sensitive areas as follows:

a) the ILS critical area is an area of defined dimensions about the localizer or glide path antenna, such that aircraft and other vehicles within the area cause out-of-tolerance disturbances to the ILS signals-in-space within the ILS coverage;

b) the ILS sensitive area is an area of defined dimensions about the localizer or glide path antenna, such that aircraft and other vehicles within the area cause out-of-tolerance disturbances to the ILS signals-in-space within 3.7 km (2 NM) of the landing threshold or on the runway (up to ILS Point "E").

Note.- An infringement of the critical area may cause out-of-tolerance disturbances to the ILS signals-in-space along the whole approach, including the segment starting at 3.7 km (2NM) from the landing threshold, indicating that the sensitive area is also infringed."

Current definitions as described in ICAO Annex 10, Volume I, Attachment C, Chapter 2.1.10 (not used in this document)

"a) the ILS critical area is an area of defined dimensions about the localizer and glide path antennas where vehicles, including aircraft, are excluded during all ILS operations. The critical area is protected because the presence of vehicles and/or aircraft inside its boundaries will cause unacceptable disturbance to the ILS signal-in-space;

b) the ILS sensitive area is an area extending beyond the critical area where the parking and/or movement of vehicles, including aircraft, is controlled to prevent the possibility of unacceptable interference to the ILS signal during ILS operations. The sensitive area is protected against interference caused by large moving objects outside the critical area but still normally within the airfield boundary.

Note 1.— The objective of defining critical and sensitive areas is to afford adequate protection to the ILS. The manner in which the terminology is applied may vary between States. In some States, the term "critical area" is also used to describe the area that is referred to herein as the sensitive area.

Note 2.— It is expected that at sites, where ILS and MLS are to be collocated, the MLS might be located within ILS critical areas in accordance with guidance material in Attachment G, Section 4.1."

[2] See Ref. 7.

2. APPENDIX B – LOCALIZER CRITICAL AND SENSITIVE AREAS DIMENSIONS[3]

Note: The following material is not yet official ICAO guidance. Some changes may occur during the ICAO approval process.

2.1.12 *Sizes of Critical and Sensitive Areas.* Localizer and glide path antennas with optimized radiation patterns, especially when combined with two-frequency transmitters, can be very effective in reducing the disturbance possibilities and hence the sizes of the critical and sensitive areas. Other factors affecting the sizes of the critical and sensitive areas include the category of approach and landing operation to be supported, the amount of static disturbance, and the locations, sizes and orientations of aircraft and other vehicles, particularly of their vertical surfaces. The maximum height of vertical surface likely to be encountered must be established, together with the "worst case" orientation at a given location, which may not be parallel or perpendicular to the runway.

2.1.12.1 Typical examples of critical and sensitive areas to be protected are shown in Figures C-3 and C-4. These examples show four different classes of vehicle/aircraft heights and several localizer and glide path antenna types. The dimensions are based on assumptions of flat terrain, 3° glide path, allocations of 60% of applicable tolerances for static multipath and 80% for dynamic multipath, an approaching aircraft with a 0.1 Hz low pass filter and an omni-directional receiving antenna pattern. The examples consider typical orientations of reflecting surfaces of taxiing, holding and manoeuvring vehicles/aircraft.

2.1.12.2 A site-specific study for a particular airport can address different assumptions for the static multipath environment, airport topography, types and effective heights of ILS arrays, and other orientations of manoeuvring aircraft, such as runway crossings, 180° turns at threshold or holding orientations other than parallel or perpendicular.

2.1.12.3 The localizer sensitive areas for Category III operations may be particularly large to protect the ILS signal-in-space from potential reflections from larger aircraft. This may lead to operational constraints that may impact airport operations. Reductions of these areas around runway threshold are possible considering the height and the speed of the approaching aircraft and the type of localizer array. These potential reductions are presented on Figure C-3 via the Y_3 and X_{TH} parameters, which are specific to a site and mainly driven by the ILS transmitting antennas characteristics. Without any specific rationale for such reductions, X_{TH} is set to zero, allowing no reduction of the Localizer sensitive area dimensions.

[3] See Ref. 7.

2.1.12.4 Although Figures C-3 and C-4 show two-dimensional areas, protection is actually extended to volumes, as departing aircraft and/or manoeuvring helicopters/aircraft can cause also disturbances to the ILS signals. The vertical profiles of the protection volumes depend upon the vertical patterns of the transmitting arrays.

2.1.13 *Traffic management for critical and sensitive areas.* The parking and/or movement of aircraft and other large vehicles is controlled:

a) to minimize the impact of signal-in-space disturbances caused by aircraft and other vehicles transiting through the critical areas during ILS operations; and

b) to exclude aircraft and large vehicles from the sensitive area when a landing aircraft is within 3.7 km (2 NM) of the threshold or on the runway.

2.1.13.1 Operational procedures need to be developed for the protection of critical and sensitive areas. To control the presence of vehicles, the critical area determined for each localizer and glide path should be clearly marked with suitable signs or signal devices where taxiways or roadways cross the critical area boundaries. If the critical or sensitive area boundaries fall outside the airport property, cooperation with the appropriate parties will be needed.

2.1.13.2 Guidance on operational procedures for the protection of critical and sensitive areas is provided in ICAO EUR DOC 013, “European Guidance Material on Aerodrome Operations under Limited Visibility Conditions”.

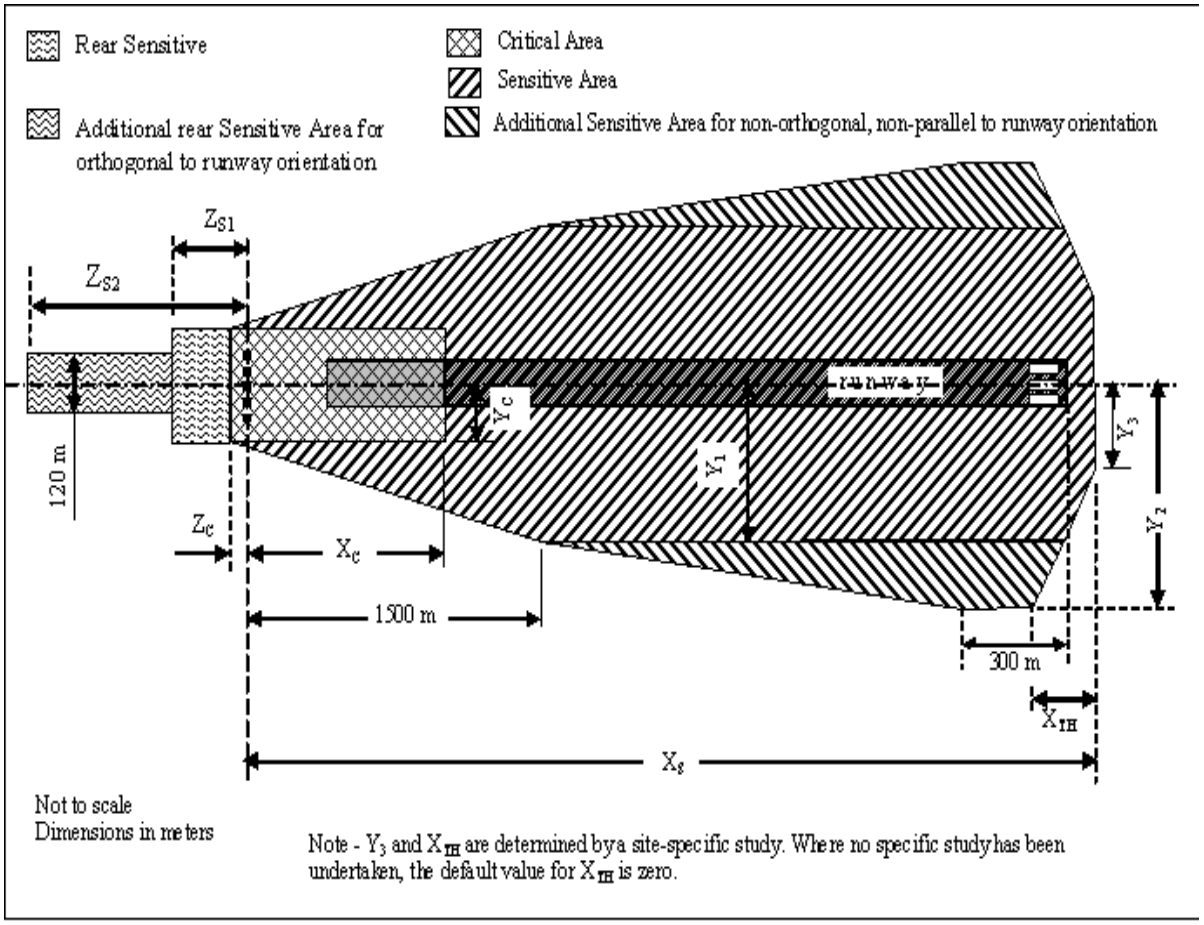


Figure C-3. Typical localizer critical and sensitive area sizes

Aircraft/Vehicle Height		H ≤ 6 m (Note 1) e.g. Large Ground Vehicle			6 m < H ≤14 m e.g. B757, A320			14 m < H ≤ 20 m e.g. B747SP			20 m < H ≤ 25 m e.g. A380, AN124		
Antenna Aperture Note 3		Small	Medium	Large	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
Critical Area CAT I	X_C	180m	140m	100m	360m	290m	205m	670m	600m	470m	1040m	860m	790m
	Z_C	10m	10m	10m	35m	35m	35m	50m	50m	50m	60m	60m	60m
	Y_C	50m	50m	50m	110m	80m	70m	160m	130m	100m	200m	160m	110m
Critical Area CAT II/III	X_C	Note5	210m	130m	Note5	420m	320m	Note5	850m	710m	Note5	1330m	1070m
	Z_C	Note5	10m	10m	Note5	35m	35m	Note5	50m	50m	Note5	60m	60m
	Y_C	Note5	60m	50m	Note5	100m	75m	Note5	150m	110m	Note5	190m	130m
Sensitive Area CAT I	X_S	200m	300m	300m	500m	300m	300m	1100m	600m	600m	2000m	1500m	950m
	Y_1	40m	60m	60m	90m	60m	60m	150m	60m	60m	200m	135m	60m
	Y_2	40m	60m	60m	90m	60m	60m	150m	60m	60m	230m	135m	60m
	Z_{S1}	15m	15m	15m	35m	35m	35m	50m	50m	50m	60m	60m	60m
Note 6	Z_{S2}	15m	15m	15m	35m	35m	35m	50m	50m	50m	60m	60m	60m
Sensitive Area CAT II	X_S	Note5	300m	300m	Note5	300m	300m	Note5	LLZ to Threshold distance	LLZ to Threshold distance	Note5	LLZ to Threshold distance + 200m	LLZ to Threshold distance
	Y_1	Note5	60m	60m	Note5	60m	60m	Note5	150m×K	120m×K	Note 5	205m×K	145m×K
	Y_2	Note5	60m	60m	Note5	60m	60m	Note5	175m×K	125m×K	Note 5	225m×K	150m×K
	Z_{S1}	Note5	15m	15m	Note5	35m	35m	Note5	60m	60m	Note 5	70m	70m
Note 6	Z_{S2}	Note5	15m	15m	Note5	45m	45m	Note5	160m	160m	250m	250m	250m
Sensitive Area CAT III	X_S	Note5	300m	300m	Note5	300m	300m	Note5	LLZ to Threshold distance + 100m	LLZ to Threshold distance + 50m	Note 5	LLZ to Threshold distance + 200m	LLZ to Threshold distance + 200m
	Y_1	Note5	60m	60m	Note5	60m	60m	Note5	160m×K	130m×K	Note 5	210m×K	145m×K
	Y_2	Note5	60m	60m	Note5	60m	60m	Note5	250m×K	185m×K	Note 5	350m×K	225m×K
	Z_{S1}	Note5	15m	15m	Note5	35m	35m	Note5	60m	60m	Note 5	70m	70m
Note 6	Z_{S2}	Note5	15m	15m	Note5	45m	45m	Note5	160m	160m	Note5	250m	250m

Notes :

1. For vehicles smaller than 2.5 m in height, Z_C = 3m, assuming a 23 dB front/back ratio for the transmitting antenna.
2. For systems with near-field monitor antennas, vehicles must not enter between the monitor antennas and the transmitting antenna.
3. Small aperture: 11 elements or less. Medium aperture: 12 to 15 elements. Large aperture: 16 elements or more. A directional array with 23 dB front/back ratio is assumed.
4. $K = \sqrt{\frac{\text{Localizer to Threshold Distance}}{3300\ \text{m}}}$
5. For Category II and III, small aperture arrays are not considered
6. The rear dimensions for sensitive areas may be reduced based on specific study results considering fielded antenna pattern characteristics.
7. Boundaries for critical areas or rear sensitive areas apply to the entire longitudinal axis (both tail and fuselage) of the interfering aircraft. Boundaries for sensitive areas apply only to the tail of the interfering aircraft.
8. For localizer arrays with very low height, additional critical area will be needed due to the greater attenuation of the direct signal at low vertical angles.
9. A specific study for a particular airport, considering realistic orientations, static multi-path environment, and airport topography and type of ILS antennas, may define different critical and sensitive area dimensions.

3. APPENDIX C – MARKING OF CRITICAL AND SENSITIVE AREAS


Betreten und Befahren
streng verboten!

600 mm


STOP
ILS CRITICAL AREA
DO NOT ENTER THIS AREA
WITHOUT THE PRIOR APPROVAL OF
AIR TRAFFIC CONTROL
Contact VHF XXX.X MHZ
Or UHF Channel Y
TELEPHONE:
ANSP / SPONSOR?

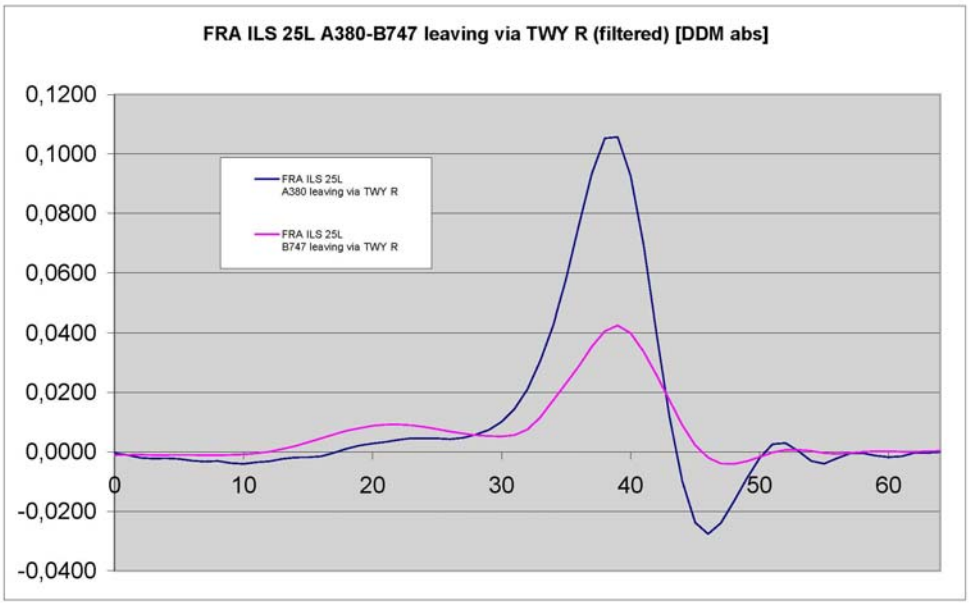
600 mm

4. APPENDIX D – DISPLAY OF CRITICAL AND SENSITIVE AREAS

5. APPENDIX E – EXAMPLES OF LOC DEVIATIONS AND AIRCRAFT REACTION

1. Measured LOC deviations

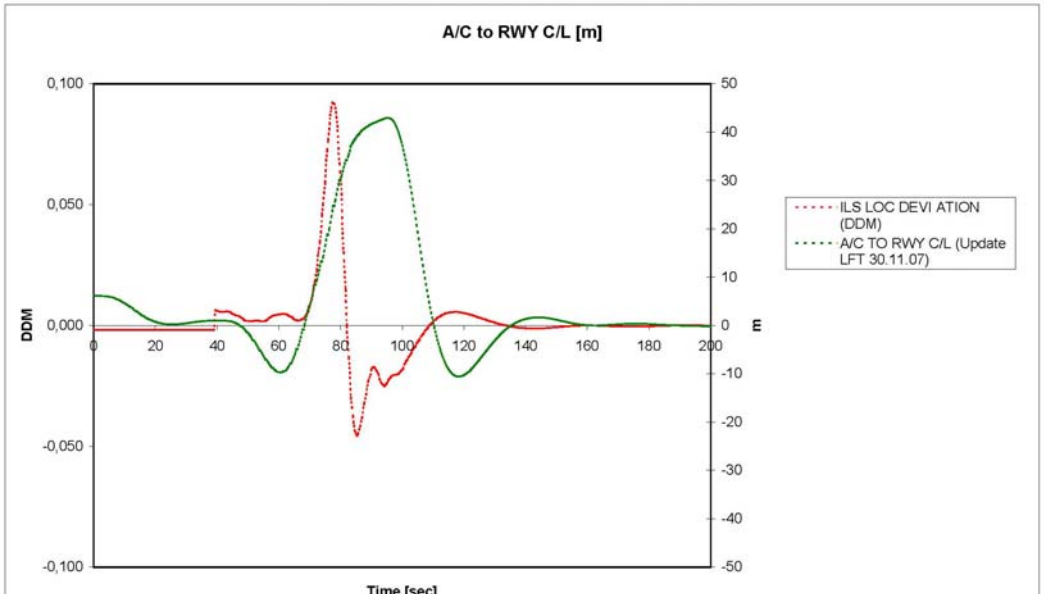
The following picture shows measured LOC deviations with an A380 and a 747 respectively when leaving runway 25L via taxiway “R” at Frankfurt airport.
The distance between aircraft and LOC 25L is 260 m.

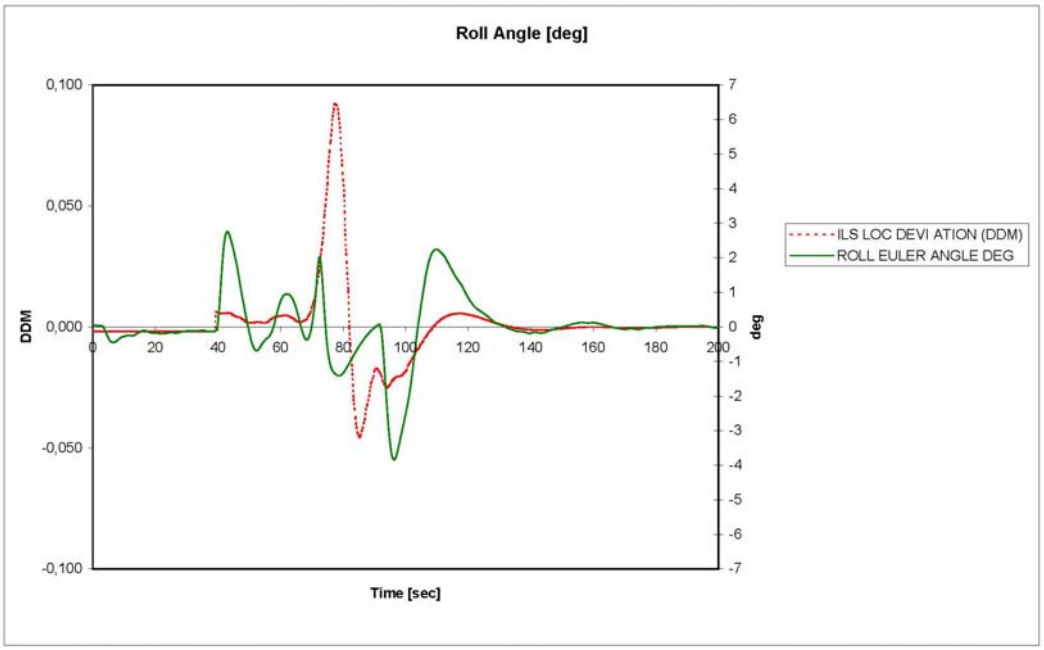


The two scenarios on the following pages depict the LOC deviations as seen on aircraft (747 and 737) and the aircraft reactions (distance to centreline and roll angle).

2. Scenario 1: A380 leaving runway at a distance of 260m to LOC

Scenario 1a: Impact on approaching 747 at 5.5 to 4 NM (A380-747)



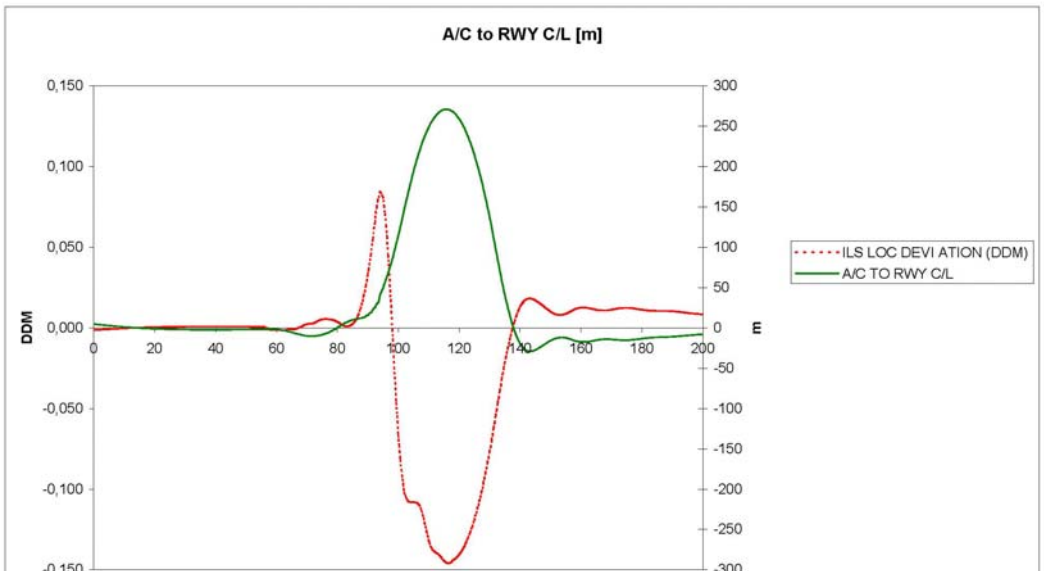


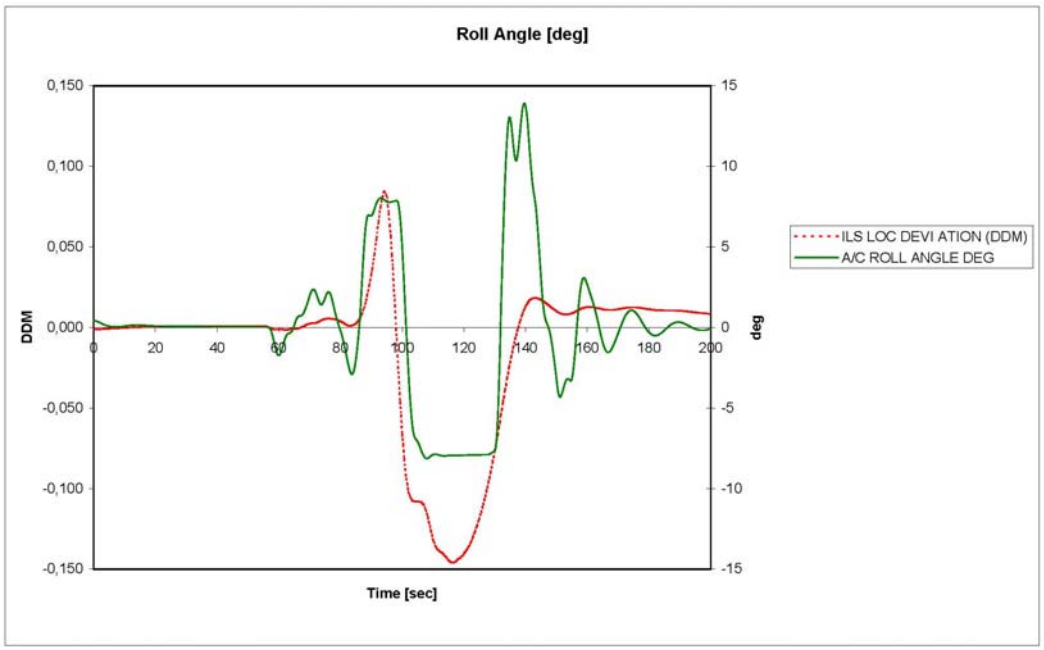
CDI: ~ 1 dot

Autopilot: no reaction

Pilot opinion: tolerable, would contact ATC

Scenario 1b: Impact on approaching 737 at 5.5 to 4 NM (A380-737)





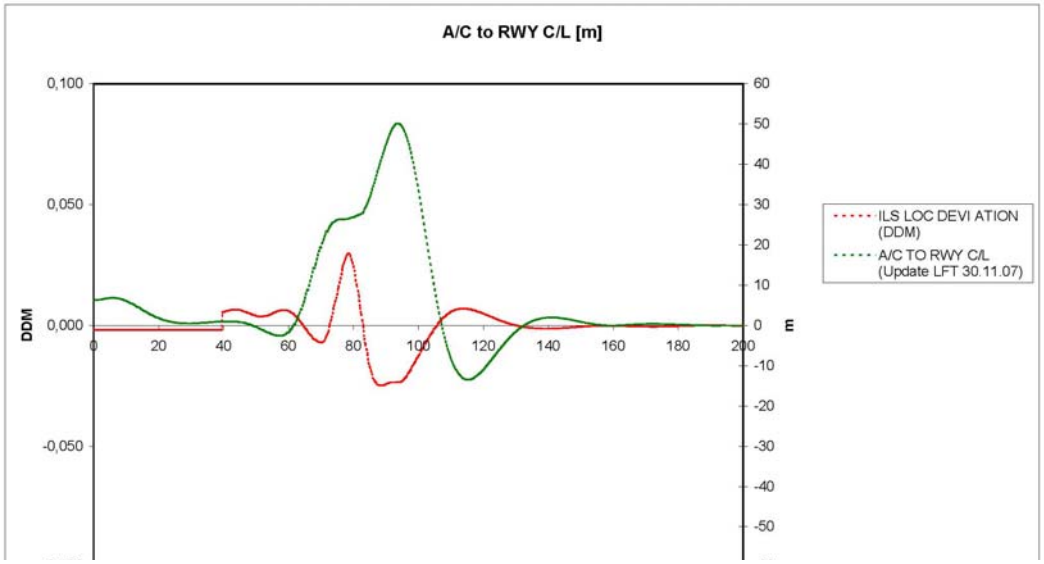
CDI: 1 to 1.9 dot

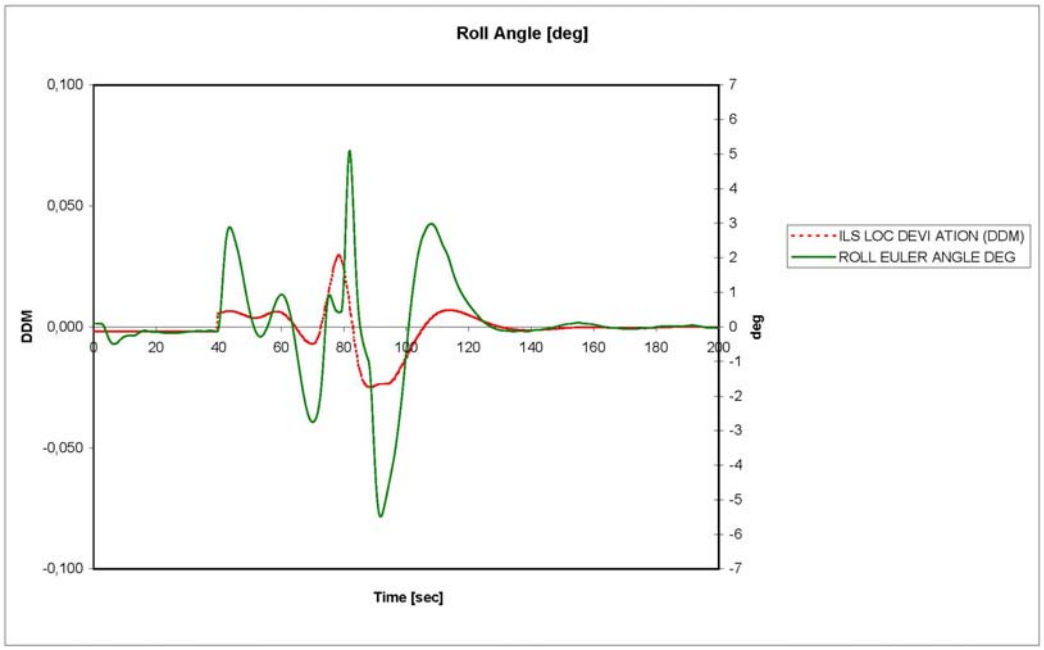
Autopilot: disengaged at 3.6 NM to threshold

Pilot opinion: would initiate go-around during all categories of operation

Scenario 2: 747 leaving runway at a distance of 260m to LOC

Scenario 2a: Impact on approaching 747 at 5.5 to 4 NM (747-747)



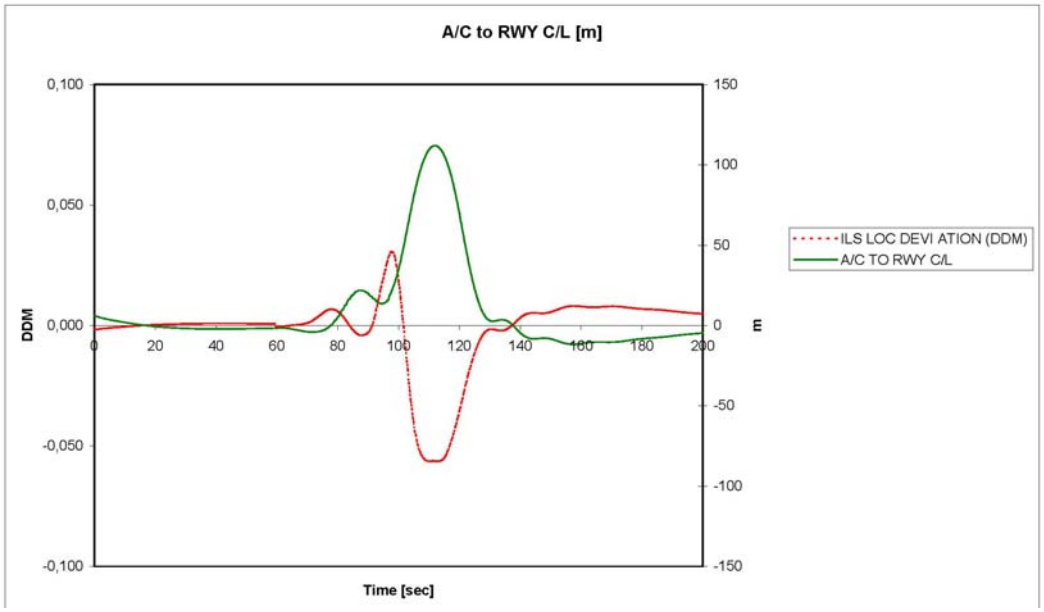


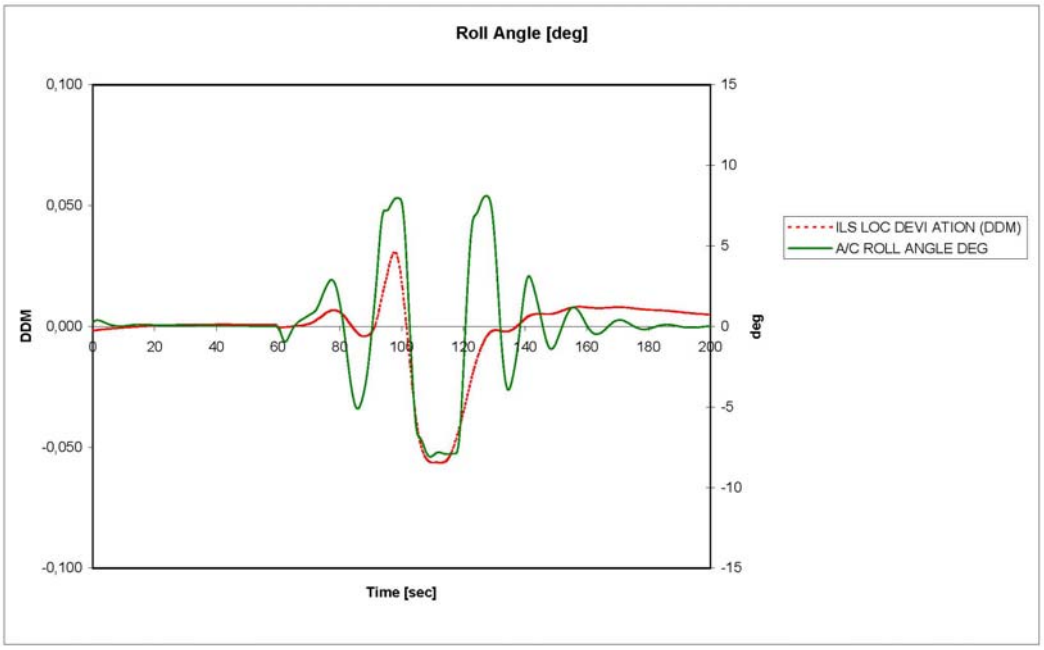
CDI: 0.5 dot

Autopilot: remained engaged, 5° bank angle

Pilot opinion: not “nice” but acceptable, would contact ATC during LVP

Scenario 2b: Impact on approaching 737 at 5.5 to 4 NM (747-737)





CDI: 0.8 dot

Autopilot: remained engaged, 8° bank angle

Pilot opinion: tolerable, ATC information required

Appendix F -

Proposal for Amendment ICAO *Air Navigation Plan - European Region* (EUR ANP) (Doc 7754)
And Facilities and Services Implementation Document (FASID)
PART III – AOP

(Paragraph 5.1.5 refers)

Part III

AERODROME OPERATIONAL PLANNING (AOP)

GENERAL

1.~~For regular and alternate aerodromes used for international operations, the general physical characteristics, marking, visual aids and services should be in accordance with the relevant ICAO provisions.~~
This part of the document presents the ICAO EUR regional provisions related to the Aerodrome Operation Planning of facilities and services required for international air navigation.

~~AIRPORTS~~AERODROMES

2.For regular and alternate aerodromes, used for international operations, the general physical characteristics, marking, visual aids and services should be in accordance with the relevant ICAO provisions.

Physical characteristics

3~~2~~.The specific physical characteristics for each regular use international aerodrome should meet the requirements of the critical aircraft.
[Annex 14, Volume I, Chapter 3]

4~~3~~.The specific physical characteristics for each alternate use international aerodrome should be based on the requirements of the diverted critical aircraft.
[Annex 14, Volume I, Chapter 3]

5~~4~~.In those cases where the extension or development of an aerodrome in accordance with the provisions contained in §3~~2~~ and 4~~3~~ above would only be required to meet infrequent operations of the critical aircraft but would entail disproportionate expenditures, specific arrangements should be made between operators and the State concerned regarding the reasonable practical development of the aerodrome in question. The results of such arrangements, together with relevant reasons, should be reflected in Table AOP of the FASID.

~~5.The specific physical requirements for each aerodrome used by international general aviation (IGA) only should be based on the requirements of those IGA aircraft likely to use the aerodrome in question most frequently.~~
~~[Annex 14, Volume I, Chapter 3]~~

Aerodrome services

Rescue and fire fighting services

6. Rescue and fire fighting services at international aerodromes should be provided at the required level of protection, as expressed by means of required aerodrome category for rescue and fire fighting in accordance with Annex 14, Volume I and reflected in Table AOP~~1~~ of the FASID. Rescue and fire fighting services should keep abreast of latest techniques and should practice these through exercises at regular intervals. Such exercises should also be organized for any off-aerodrome rescue and fire fighting services which may be called upon to assist in an emergency occurring at the aerodrome.
[Annex 14, Volume I, 9.2]
7.Rescue and fire fighting services at international aerodromes should be capable of meeting the specified response time and be kept in a state of readiness throughout those times when the aerodrome is available for use.
[Annex 14, Volume I, 9.2]

Runway surfaces

8. In amplification of relevant provisions in Annex 14, Volume I, runway surfaces should be constructed and/or treated so as to ensure continuous good friction characteristics when wet. Runway markings should consist of non-slip materials.
[Annex 14, Volume I, 3.1.22 and 5.2]

Runway visual range
~~9.In order to facilitate aircraft operations in low visibility, runway visual range (RVR) information should be available for runways intended for use when either the horizontal visibility or the RVR is less than 1 500 m. The provision of such information is essential for CAT II and CAT III operations.~~

9~~10~~. ~~A secondary power supply should be provided for RVR observing systems which use instrumental means. Local ATS units shall be kept informed of changes in the operational status of RVR observing systems.~~ A secondary power supply should be provided for RVR observing systems which use instrumental means.

Visual and non-visual aids for aerodrome operations
1~~1~~0. The provision of non-visual and visual aids for aerodrome operations should take into account:

a) aircraft performance characteristics of those aircraft likely to use the aerodrome in question;

b) prevailing meteorological conditions;

c) use of the aerodrome at night or during low visibility conditions;

d) aerodrome layout;

e) expected traffic density; and

f) other relevant local conditions.

11~~2~~. The provision of approach, runway ~~lighting~~ and taxiway lighting, should be in accordance with the Standards and Recommended Practices detailed in Annex 14, Vol-ume I, for the appropriate runway type of approach or take-off operations ~~as required in Table AOP 1 of the FASID.~~ and the *European Guidance Material on Aerodrome Operations under Limited Visibility Conditions*, EUR Doc 013~~XX, should be taken into account~~.

12. In addition to the Standards of Annex 14, Chapter 5, 5.3.5.1, visual approach slope indicator systems should be provided for all runways to be used by aircraft engaged in commercial air transport operations.

13.During Low Visibility Operations, t~~T~~he sensitive area associated with ~~around~~ radio navigation aids ~~and the immediate vicinity of visual aids~~ required for the conduct of instrument approaches and take-offs should

be ~~made accessible so that these areas can be~~ kept clear ~~of snow, ice and/or~~from obstacles likely to interfere with their correct functioning and use.

14. The immediate vicinity of visual aids required for the conduct of instrument approaches and take-offs should be made accessible so that this area can be kept clear from snow, ice and obstructions likely to interfere with their correct functioning and use.

Non-precision approach aids

15~~4~~. Where required by the topographic and/or environmental situation of an aerodrome, improved track guidance during departure and/or approach by specific non-visual and/or visual aids should be provided even if such aids would not normally be required in accordance with the above provisions.

16~~5~~. At aerodromes used by international general aviation only, ~~non-visual and visual aids for approach and landing should be provided on the basis of the expected type of traffic, its density and the utilization of the aerodrome in question. C~~consideration should ~~then~~ be taken of the location of navigation aids provided for other purposes in relation to the aerodrome in question and their potential use for approach purposes. Specific aids should only be provided if this is warranted from a cost effectiveness point of view.

17~~6~~. When it has been determined that navigation guidance to an aerodrome without precision approach is required and this requirement cannot be met by use of a suitable ground based radio navigation aid ~~already provided for en-route or TMA purposes, (see also Part IV – CNS)~~ or by GNSS (baro VNAV or SBAS), it should be covered by the provision of a VOR on or in the vicinity of that aerodrome and located so that it permits the establishment of a straight-in non-precision approach procedure for the aerodrome, based on that VOR.

Precision approach aids

18~~7~~. Regardless of prevailing weather conditions,~~turbine-engine transport~~ aircraft engaged in commercial air transport operations have a need for precise approach path guidance during approach and landing. ~~For all runways to be used by turbine-engine transport aircraft, visual approach slope indicator systems should be provided~~. The main landing runway of aerodromes, catering for a significant number of operations by such aircraft should be provided with an ILS/MLS or ~~/~~GBAS but CAT I operations only presently ~~)~~ and associated appropriate visual aids.

Note 1. — ~~GNSS~~GBAS might be considered in the future as an alternative navigation aid for CAT II and III precision approach and landing.
Note 2 – ICAO RNPSORG is currently in charge of a new approach classification scheme.This is mainly to accommodate APV approaches which are not precision approaches but provides vertical guidance.

~~19. At aerodromes where frequent poor weather conditions require the provision of precise approach path guidance during approach and landing, the main landing runway should be provided with an ILS and/or MLS and associated appropriate visual aids regardless of the operating characteristics of the aircraft using the aerodrome concerned. The category for precision approach should be I, II or III depending on the weather records of the aerodrome, and the type of traffic expected, and the period of day when arrivals normally take place.~~

~~*Note. — Pending the development of corresponding worldwide provisions, the additional procedures described in Attachment E to Part III – AOP of the EUR FASID should be used for the calibration of Category I ILS installations and the promulgation of the results of such calibration. Some guidance is also available in Doc 8071, Volume I (4th Edition – 2000).*~~

18.At aerodromes where there is a requirement to conduct Low Visibility Take-offs, the appropriate visual and non-visual aids should be provided.

1920. At aerodromes where auto-coupled approaches are madeconducted on a routine basis, the ILS signal quality of the signal in space of the supporting precision approach aid should be suitable for auto-coupled approaches even though a facility performance CategoryCategoryCAT I would otherwise be sufficient.

20. When an ILS auto-coupled approach to a runway is being conducted outside Low Visibility Conditions (LVP not in force), it is possible that some disturbance of the ILS signal may occur. Flight crew should inform ATC if they wish to conduct an autoland with protection of the localizer sensitive area (LSA). In this case, ATC should inform the flight crew if protection of the LSA cannot be provided.

ILS/MLS

21. ILS services implemented in accordance with the ANP, and as outlined in Table AOP 2 of the FASID, should be retained, at least, until 1 July 1996.

22. The MLS implementation programme at major international airports in the EUR region should be substantially completed by 1 July 1996. The category of service of facilities implemented should be that indicated in Table AOP 1 of the FASID for the runway concerned.

Note.— The approved EUR ILS/MLS transition plan is contained in Table AOP 2 of the FASID.

23. Although it is permissible to withdraw ILS facilities after 1 July 1996 when the specified category of service, based on MLS, has been provided, a number of ILS facilities will have to be maintained in service in the 1996-1998 period. In some cases the level of operation of the remaining ILS services can be downgraded.

Note. — This operational requirement is intended to cover the possible needs arising from the progress in ILS/MLS transition in regions other than EUR.

Implementation strategy of landing DMEs during the ILS/MLS transition associated to the approach and landing operations

Note. — Within the European region, two phases in the transition are foreseen. In the first phase of the transition the majority of aircraft will be equipped with ILS only. In the second phase the majority of aircraft will be equipped with ILS and MLS or MLS only.
Note. — Within the EUR Region it is likely that various types of operations on the same runway will be are supported by different approach aids, such as ILS, or MLS or augmented GNSS. For these conditions, specific requirements related to the use of the distance information supporting the approach and landing phase have been developed.

24. To avoid operational confusion during the transition,in case of ILS/MLS simultaneous operations, and when a DME is associated with an MLS and a separate DME is associated with an ILS, both DMEs should provide the same distance indication along theILS approach.

25. For economic and operationalspectrum efficiency reasons, where:

a) ILS and associated DME are implemented; or

b) ILS is implemented and associated DME is planned; or

c) both ILS and associated DME are planned;

triple frequency pairing with MLS should be implemented

26.As a consequence of 24 and 25 above, the implementation of DME should:

~~a) in the first phase of the transition, follow as far as possible the current ILS practice for siting and zero range reading at threshold or touchdown zone; and~~

~~b) in the second phase of the transition, follow the practice recommended for MLS, i.e. site the DME at the azimuth site and avoid reply delay adjustment of the DME. The ILS/MLS approach procedures should be promulgated with DME plate values.~~

~~*Note.— In the transition from the first to the second phase, a DME located with an ILS must be relocated to the MLS Azimuth Station.*~~

26. To avoid operational confusion in case of ILS/GNSS and/or MLS/GNSS simultaneous operations, the GNSS distance reading along the approach should be the same as the ILS/MLS DMEs.

OPERATIONS

General

27. Measures should be taken to reduce, to the extent possible, the risk of collision between aircraft and birds during all flight phases conducted on or in the vicinity of aerodromes. Such measures should include:

a) the reduction of bird concentrations at and near aerodromes, both by appropriate planning and practical measures;

b) the collection and dissemination, in appropriate form, of information on bird movements; and

c) the development of procedures permitting ATS to alert flight crews of potential bird collision hazards.

[Annex 14, Volume I, ~~2.9 and~~ 9.5]

Runway visual range

~~28. In order to meet the requirements for all-weather operations, RVR information should normally be provided from the following observation sites:~~

~~*Non-precision approach and Category I operations:* One site providing information representative of the touchdown zone.~~

~~*Category II operations:* As for Category I, plus a second site representative of the mid-point of the runway.~~

~~*Category III operations:* As for Category II, but normally with a third position representative of the stop-end of the runway, unless observations at two sites are adequate for the operations planned.~~

Note 1.— Where RVR information is required for operations in both directions of the runway, the same sites would normally be used for both directions, e.g. RVR information representative of the stop-end of the runway would normally be provided from the site serving the touchdown zone of the opposite direction.

Note ~~2~~.— RVR requirements for take-off in low visibility are usually met by facilities provided to support landings under such conditions.

Low visibility operations

289. ~~As the take-off minima are normally less than landing minima,~~For departure operations in RVR conditions less than a value of 550 m, sufficient visual and non-visual guidance should be available to control the aircraft in the event of both a discontinued take-off in adverse circumstances and a continued take-off after failure of the critical engine.

2930. ~~Take-off~~Low Visibility operations ~~under low visibility~~ should also require the existence of ~~suitable~~appropriate runway incursion protection measures, surface movement guidance and control systems, and emergency procedures provided in conjunction with suitable Low Visibility Procedures.~~and apron management. The implementation of these requirements is the responsibility of the appropriate State and aerodrome authorities.~~

Reduced runway declared distances for take-off

Note.— In the following operational requirements the term "intersection" is used to cover both intersection and junction concepts.

301. Paragraph 2.8 of Annex 14, Volume I, requires that the following full runway declared distances be calculated and promulgated for each runway intended to be used by aircraft operators engaged in international commercial air transport:

a) Take-off run available (TORA);

b) Take-off distance available (TODA);

c) Accelerate stop distance available (ASDA); and

d) Landing distance available (LDA).

312. The reduced runway declared distances for take-off should consist, as for full runway declared distances, of TORA, TODA and ASDA.

323.The datum-line from which the reduced runway declared distances for take-off should be determined is defined by the intersection of the downwind edge of the specific taxiway with the runway edge. The loss, if any, of runway length due to alignment of the aeroplane prior to take-off should be taken into account by the operators for the calculation of the aeroplane's take-off weight.
[Annex 6, Part I, 5.2.8]

Note.— Diagrams depicting the datum-line for declared distances are contained in the Introduction to Part III — AOP of the EUR FASID.

334.Intersections used as intermediate take-off positions should be identified by the "taxiway designator" to which the datum-line of the associated reduced runway declared distance for take-off refers.

345.At each international aerodrome, specific minimum visibility for take-off should be established, regulating the use of intersection take-off positions. These minima should permit the appropriate ATC unit to maintain a permanent surveillance of the ground movement operations, and the flight crews ~~in command~~ to constantly secure their position on the manoeuvring area, so as to exclude any potential risk of confusion as to the identification of the aircraft and intersections used for take-off. The minima should be consistent with the surface movement guidance and control system (SMGCS) provided at the aerodrome concerned.

356.The provision of marking and lighting aids together with signs should ensure the safe control and guidance of aircraft towards and at take-off intersections appropriate to the minimum visibility criteria

retained. At the taxi holding position of the associated intersection take-off position, such signs should indicate the runway heading and the remaining take-off run available (TORA) in metres.

Air traffic services

Note.— The following operational requirement relates to the provisions of Air Traffic Services for all traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

367. Aerodrome control service should be provided at all regular and alternate aerodromes. Aerodrome control service should also be provided at those aerodromes used by international general aviation aircraft, but only when the type and density of traffic warrant it.

Surface movement guidance and control systems (SMGCS)

378.Surface movement radar (SMR) should not be used for other than monitoring tasks unless identification procedures are implemented.

Note.— Material on the application of advanced SMGCS is presented in Attachment G to Part III — AOP of the EUR FASID.

Specific aeroplane ~~New larger aeroplanes (NLA)~~ operations

B747-400 Operations — General

Note.— Material on the impact of operations of NLA on aerodromes is presented in Attachment F to Part III — AOP of the EUR FASID.

389.Where the minimum separation/clearance distances as specified in Annex 14, Volume I, Table 3-1 cannot be provided by the existing layout of an aerodrome, States may introduce lower separation standards provided that an aeronautical study indicates that such lower separation distances do not adversely affect the safety or significantly affect the regularity of operations of aeroplanes. Experience in some States with operation of B747-400 has shown that it may be permissible, if specific measures have been implemented to reduce separation distances on taxiways, apron taxiways and aircraft stand taxilanes to the dimensions specified in Attachment H to Part III — AOP of the EUR FASID. (Cf. Aerodrome Design Manual (Doc 9157), Part 2, Table 1-4.)

3940.The provision of unambiguous and conspicuous taxi guidance to flight crews under all operational conditions prevailing at the aerodrome by appropriate means (e.g. visual aids, marshaller, etc.) is an essential prerequisite for operations conducted with lower separation distances. Equally important is the provision of good taxiway surface friction conditions at all times to ensure proper braking and nosewheel steering capability of aeroplanes.

401.Regarding turns, reduced separations/clearance distances are based on the assumption that the cockpit should remain above the taxiway centre line marking/lighting as accurately as possible and at taxi speeds commensurate with actual operating conditions prevailing, except that for aircraft stand taxilanes a different technique, as specified in the AIP, may apply.

Reduced separation distances on taxiways/apron taxiways

412.Whenever minimum separation distances between the centre lines of parallel taxiways or between taxiway/apron taxiway centre line and object, as specified in Annex 14, are reduced in accordance with

Attachment H to Part III — AOP of the EUR FASID, taxiway centre line lighting should be provided for night, winter or low visibility operations.

423.On parallel taxiways, the separation distances between the centre lines should be not less than 76 m (Attachment H to Part III — AOP of the EUR FASID refers).

434.In straight portions of a taxiway or apron taxiway, the separation distance between the centre line and an object such as a building or a parked aircraft should be not less than 41.5 m (Attachment H to Part III — AOP of the EUR FASID refers).

445.In taxiway or apron taxiway curves, the separation distances between the centre line and an object should be not less than 45.5 m (Attachment H to Part III — AOP of the EUR FASID refers).

Reduced separation distances on aircraft stand taxilanes

456.On aircraft stand taxilanes, where reduced separation distances exist, proper guidance such as centre line lights or equivalent guidance (e.g. marshaller, etc.) should be provided for night, winter or low visibility operations.

467.All objects not providing the minimum separation/clearance distance as specified in Annex 14, should be properly marked or lighted (Annex 14, Chapter 5 refers).

478.Apron service roads should be properly marked with service road boundary lines and apron safety lines (Annex 14, Chapter 5 refers).

489. Along straight portions of an aircraft stand taxilane, the separation distance between the centre line and an object such as a parked aircraft or a building should be not less than 40 m, whereas the wing tip clearance of an aircraft turning from a taxilane into an aircraft stand should not be less than 7.5 m as recommended in Annex 14, Chapter 3, 3.12.6.

Note.— The separation distance between the taxilane, centre line and an object or edge of a service road may further be reduced to not less than 37.5 m provided that the object (e.g. blast fence) does not exceed a height of 3 m above the relative taxilane centre line.

49~~50~~.In curves of aircraft stand taxilanes the separation distances should not be less than 42.5 m, as specified in Annex 14, Table 3-1, whereas the wingtip clearance of an aircraft taxiing on a curved taxilane or turning from one taxilane into another taxilane/taxiway should not be less than 7.5 m.

Note.— Where vertical clearance criteria are being considered, the separation distance between the taxilane centre line and the edge of the service roads or an object, which may not exceed a height of 3 m above the relative taxilane centre line, should be not less than 41.5 m.

Reduced clearance distances on aircraft stands

501.On aircraft stands, where reduced clearance distances exist, guidance by visual docking guidance system should be provided.

512.All objects for which reduced clearances apply, should be properly marked or lighted (Annex 14, Chapter 6).

523..An aircraft stand equipped with a visual docking guidance system should provide the minimum clearance of 5 m between an aircraft using the stand and any adjacent building, aircraft on another stand and other objects.

Note.— The clearance distance between an aircraft on a stand provided with azimuth guidance by a visual docking guidance system and an object or edge of a service road may further be reduced subject to local circumstances provided that the object (e.g. blast fence) does not exceed a height of 3 m above the surface of the relative aircraft stand.

CAPACITY

Aerodrome~~Airport~~ capacity

534.States should ensure that adequate consultation and, where appropriate, cooperation between airport authorities and users/other involved parties is executed at all international aerodromes to satisfy the provisions of 59 to 69.

545. States should provide and coordinate communication and exchange of information between the States' international ~~airports~~aerodromes and international organizations involved with ~~airport~~aerodrome capacity issues.

556. Consultation procedures should be established between ~~airport~~aerodrome authorities and users commensurate with local conditions and appropriate to the specific purpose the consultation process is intended to serve (capacity assessment/demand forecasting, etc.).

567. Regular consultation between airport authority and users should preferably be effected by local working groups composed of all parties involved, including ATS where applicable. Alternatively, a local group may be replaced by a national committee.

578. At ~~airports~~aerodromes where environmental concerns prevail with a potential impact on ~~airport~~aerodrome capacity, a dialogue-oriented activity with communities will be required in which users should actively participate.

~~Airport~~Aerodrome capacity assessment and requirement

589. The declared capacity/demand condition at ~~airports~~aerodromes should be periodically reviewed in terms of a qualitative analysis for each system component and, when applicable, the result of the qualitative assessment upon mutual agreement be used for information in Table AOP~~1~~ of the FASID.

5960. The future capacity/demand, based on a forecast for the next seven years, should be agreed upon after close cooperation between airport authorities and affected users and the relevant capacity requirements reflected in Table AOP~~1~~ of the FASID.

601. Operators should consult with aerodrome authorities when future plans indicate a significant increased requirement for capacity resulting in one of the elements reaching a limiting condition. This forecast should then be shown as an updated requirement in Table AOP~~1~~ of the FASID for the appropriate element.

612. Each ~~airport~~aerodrome in the region will have its own requirement in the mix of the above-mentioned elements. However, if there is a capacity limitation at an ~~airport~~aerodrome this will have an impact on the surrounding links in the overall capacity chain and vice versa. Therefore, it is essential that the specific element that causes the limitation in the traffic flow be identified and adjusted.

623. ~~Airport~~Aerodrome capacity should be assessed and declared by ~~airport~~aerodrome authorities in consultation with the parties involved for each component (terminal/apron/aircraft operations) using agreed methods and criteria for level of delays.

Note 1.— The result of the ~~airport~~aerodrome capacity assessment, as required by and detailed in paragraphs 59 to 62, ~~must~~ shall be reflected in Table AOP ~~1~~ of the FASID against each airport entry listed in this table.

Note 2.— The figures used to reflect this assessment, together with the updating process of these elements, are detailed in the explanation of Table AOP~~1~~ of the FASID.

6~~3~~4. Where restrictions in ~~airport~~aerodrome capacity are identified, a full range of options for their reduction or removal should be evaluated by the ~~airport~~aerodrome authority, in close cooperation with the operators and other involved parties. Such options ~~she~~ould include technical/operational/procedural and environmental improvements and facility expansion.

6~~4~~5. At many aerodromes, airspace capacity has influence on the ~~airport~~aerodrome capacity. If the declared capacity of a specified airspace has influence on airport operations, this should be indicated and action undertaken to reach a capacity in this airspace corresponding to the airport capacity.

6~~5~~6. Major research and development programmes should be undertaken in order to implement new initiatives for increasing airport capacity.

6~~6~~7. Due to lack of capacity at many international airports, a better and more efficient utilization of existing runways is required. Runway selection procedures and standard taxi routes at aerodromes should ensure an optimum flow of air traffic with a minimum of delay and a maximum use of available capacity. They should also, if possible, take account of the need to keep taxiing times for arriving and departing aircraft to a minimum.

6~~7~~8. Extreme traffic peaking at ~~airports~~aerodromes generates congestion and severe economic penalties, such as under-utilization of costly ~~airport~~aerodrome facilities and services, inefficient facility design criteria and delays to aircraft and passengers. Improvements should be obtained from effective consultation between the airlines, ~~airport~~aerodrome and government authorities to achieve maximum capacity utilization.

6~~8~~9. The possibility of overcoming capacity limitations should also take the use of other ~~airports~~aerodromes in the vicinity into consideration.

Note.— Guidance material on capacity and level of service is presented in Attachment C to Part III — AOP of the EUR FASID. Issues related to the Management of Critical Areas for navigation aids need to be taken into account when assessing aerodrome capacity.

PLANNING CONSIDERATIONS

Alternate aerodromes

6~~9~~70. Requirements for alternate aerodromes should, if at all possible, be satisfied by ~~the appropriate~~existing regular aerodromes. However, where in specific cases the designation of an~~other~~ aerodrome in close proximity to a regular aerodrome would result in appreciable fuel conservation or other operational advantages, this aerodrome may be designated for use as an alternate aerodrome only.

7~~0~~1. Planning of alternate aerodromes should be made on the basis of the following objectives:

a) to ensure that at least one suitable alternate is available for each international operation;

b) to ensure that the facilities at the designated alternate aerodrome(s) are appropriate for the alternate operation.

Physical characteristics

712. Even though at specific aerodromes CAT II or III operations may not be a requirement during the period covered by the plan, account should nevertheless be taken in the planning for such aerodromes of possible future requirements in order to avoid costly and disruptive modifications at a later date. This applies in particular whenever replacement or improvement programmes are undertaken. However, investments needed to prepare for future CAT II or III operations at specific aerodromes should always be subject to cost-benefit analysis.

Non-visual aids for aerodrome operations

72. When developing implementation and/or decommissioning plans for all weather operations at international aerodromes, due consideration should be given to specific operations requirements of general aviation.

Non-precision approaches

73. At aerodromes used by international general aviation only, potential use of navigations aid(s) already required for other purposes should be considered to support instrument approach procedures at these aerodromes.

74. APV approach procedures with vertical guidance may allow for a more safe and efficient operation. Moreover, they may provide an opportunity for the progressive rationalization of NDBs and VORs, while ensuring the provision of necessary backup. The impact of any reduction in the ground based navigation infrastructure, due to its replacement by new technology (e.g. GNSS), on the requirement for airborne equipment should be the subject of early assessment during the planning process.

~~*ILS/MLS transition*~~ *Precision approaches*

~~*Note 1. The approved ILS/MLS Transition Plan is contained in Table AOP 2 of the FASID.*~~

75. The ICAO EUR Strategy for the planning of All Weather Operations, based on the Global Strategy (paragraph 4 of Attachment B to Annex 10, Volume I refers), is to:

a) continue ILS operations to the highest level of service as long as operationally acceptable and economically beneficial;

b) implement MLS where operationally required and economically beneficial;

c) promote the use of MMR or equivalent airborne capability to maintain aircraft interoperability;

d) validate the use of GNSS, with such augmentations as required, to support approach and departure operations, including CAT I operations, and implement GNSS for such operations as appropriate; and

e) complete feasibility studies for CAT II and III operations, based on GNSS technology, with such augmentations as required. If feasible, implement GNSS for CAT II and III operations where operationally acceptable and economically beneficial.

76. On the basis of the above ICAO EUR Strategy for the planning of all weather operations, recognizing the need for consultation among all parties concerned, (e.g. States, aerodrome authorities, aircraft operators) as well as to monitor the evolution of the Transition Key Issues (TKIs), a *Road Map for All Weather Operations in the EUR Region (EUR Doc 017)* has been developed and should be used as the basis for the planning of all weather operations at international aerodromes in the European Region.

77. The *Road Map for All Weather Operations in the EUR Region* is kept under permanent review by the EANPG and should be used as the basis for the development and updating of the Air Navigation Plan and/or Regional Supplementary Procedures (SUPPS) necessary for the planning and implementation of all weather operations at international aerodromes in the European Region.

78. The agreed level of service (i.e. non-precision, precision CAT I, etc.) is reflected in Table AOP of Part III of the EUR FASID, while the agreed technical plan for ILS, MLS and GNSS implementation and decommissioning is reflected in Supplement Table CNS-~~4~~b to Part IV of the EUR FASID. The agreed plan, elaborated along the principles defined in the *Transition methodology for individual aerodromes* (Attachment D to Part III of the EUR FASID refers),

~~73. Until the introduction of specific MLS procedures, the planning of approach and landing procedures for MLS should be based on ILS procedures.~~

~~74. The installation of MLS should be considered when aerodrome infrastructure plans or FM interference may cause a degradation of ILS signal in space quality such that it cannot meet the basic operational requirements for that aerodrome. Furthermore, w~~Where required and possible, advantage should be taken of the improved performance and any alleviation of siting constraints and signal protection requirements of the MLS to improve the efficiency of precision approach operations at difficult sites. MLS may also offer capacity improvements or in low visibility conditions.

~~75. At runways with CAT II/III requirements, t~~The introduction of MLS~~a new precision approach aid into operational service should be planned on the basis of achieving initially a precision approach performance equivalent to ILS Category I.~~

~~*Note. It is expected that such use could be approved within a short period following the introduction of MLS into service.*~~

~~76. The implementation of MLS at runways with performance Category II or III should be made sufficiently ahead of the planned date of withdrawal of the ILS. ILS services should not be withdrawn or downgraded before a similar service by the MLS is available on the ground and a sufficiently high number of aircraft using that facility are certified for MLS operations.~~

~~77. When the national MLS implementation plan is presented, a plan for withdrawal of ILS should be established by each State and should be made available to ICAO for coordination purposes. The plan of withdrawal of ILS~~should contain the optimal time for economical balance between airborne and ground equipment replacement (technical/economical lifetime) and should be the subject of prior consultation with aircraft operators. Operational aspects (i.e. no reduction of airspace capacity, ATC means and methods, etc.) and planning consequences (i.e. coordination in the EUR region) should be given adequate consideration.~~78. The installation of new ILS or MLS facility, or the replacement of existing ILS facility, should take into account the physical location of the future MLS azimuth, MLS back-azimuth, MLS elevation and DME system, when applicable.~~

~~79.New DME/transponders associated with MLS should be of the DME/P type, initially operating on X or Y channel. This will provide:~~

~~a) the opportunity for all aircraft equipped with DME/P to have the full benefit of the higher precision; and~~

~~b) the opportunity for all aircraft fitted with DME/N to benefit from the use of ground DME/P (IA mode only) service for approach and landing purposes. 80. For those runways where it is intended to install DME associated with ILS and where early MLS/RNAV operations are planned, DME/P should be installed~~

~~81. In conjunction with the purchase of new aircraft or the replacement of DME interrogators, aircraft operators should consider the provision of DME/P capability in order to have the full benefit of the improved distance accuracy.~~

~~82. When considering possible relocation of the localizer, such factors as obstacle clearance, approach and runway lighting, effect of turbojet blast, etc., should be taken into account.~~

~~83. The runway approach type requirement will remain as stated in Table AOP 1 of the FASID. However, the performance of MLS will provide advanced application irrespectively of the performance category listed in the ANP.~~

~~84. It is one of the objectives of EUR ILS/MLS transition planning to achieve the transition in the most cost-effective manner possible and to harmonize the MLS ground equipment implementation timetable with the needs and numbers of MLS-equipped aircraft.~~

~~85. From 1990 onwards, MLS implementation should take place on the preferred landing runway at all international airports in the region. The MLS will be installed in addition to the ILS, which will remain in service and perform to the category required by the EUR ANP. Where parallel or multiple runways exist, it may not be necessary to implement MLS on all other runways in the early part of the 1990 to 1998 transition period. Where the preferred landing runway provides a Category III service, and tests or local knowledge show that MLS cannot be installed without degradation of the ILS service (e.g. reversion to Category I), then a secondary landing runway should be chosen for the first MLS installation. Where a landing direction is served by two runways with Category III ILS facilities, and a temporary reversion to a lower category of service of one of them is unavoidable when MLS is introduced, this can be accepted provided that the remaining Category III ILS service can be maintained.~~

~~86. The withdrawal of an ILS equipment should be effected with an advance notice of not less than two years from the intended date of the actual time of closing.~~

OPERATIONS

General

~~87~~79. Where noise abatement methods are applied to ~~turbo-jet transport~~ aircraft engaged in commercial air transport operations while on approach to land, the low power approach technique should be utilized, provided ~~that~~ the necessary facilities and services are available at the aerodrome concerned. These comprise:

a) the availability of positive glide path information on the landing runway;

b) the use of ATC TMA procedures compatible with the low power approach technique;

c) the provision of significant range information along the approach path (distance from touchdown).

Note 1.— Such range information could be provided by different means, such as radar, DME or appropriate airborne navigation equipment.

Note 2.— Guidance material on low power approach techniques for noise abatement purposes is contained in Attachment B to Part III — AOP of the EUR FASID.

Air traffic services

Note.— The following requirements relate to the provision of Air Traffic Services for all traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

Aerodrome flight information service (AFIS)

808. At aerodromes used by international general aviation, where the provision of aerodrome control service is not yet justified, aerodrome flight information service (AFIS) should be provided by a unit located at the aerodrome.

Note.— The term AFIS is used to describe a service at IGA aerodromes where an aerodrome control service is not provided (Annex 11 and guidance material on AFIS contained in ICAO Circular 211 refer).

819. In determining whether aerodrome control service or AFIS should be provided at a given IGA aerodrome, the appropriate ATS authority is expected to give due consideration to the type(s) of air traffic involved, the density of air traffic, the topographical and meteorological conditions, and such other factors as may be pertinent to safety and efficiency, including the language or languages to be used in air-ground communications.

8290. Where an aerodrome control service is not clearly justified by the complexity, density of air traffic, topographic and prevailing meteorological conditions, an aerodrome flight information service (AFIS) should be provided by a unit located at those aerodromes. An AFIS should also be provided as an intermediate step between no service at all and an aerodrome control service.
[Annex 11, 2.5.1 and 2.3.2]

Aerodrome control service and surface movement guidance and control systems (SMGCS)

83. Low Visibility Procedures, as required by PANS-ATM 7.10, should be based on the provisions of the *Manual on All-Weather Operations* (Doc 9365) and the *European Guidance Material on Aerodrome Operations under Limited Visibility Conditions* (EUR DOC 013).

Note.— Material on the application of advanced SMGCS is presented in Attachment G to Part III — AOP of the EUR FASID.

~~91. Where the traffic density is high and the layout of the airfield is complex, the implementation of surface movement radar (SMR) should be considered when the procedural aerodrome control service is a limiting factor for the overall air traffic services and the traffic volume. (Air Traffic Services Planning Manual (Doc 9426), Part II, Section 5 and Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476) also refer.)~~

84.~~92.~~Guidance material has been produced on SMR identification procedures. In order to harmonize the use of SMR in the region, it is recommended that these procedures be implemented to allow more effective use of SMR. Where SMR identification procedures are already in operation it is recommended that they be reviewed taking into account the guidance material now available.

Note.— Guidance material on SMR identification procedures is contained in ICAO Doc 9426, Air Traffic Services Planning Manual, *Part II, Section 5, Chapter 4.*

8593. Due to the difficulty in maintaining aircraft and vehicle identification on primary SMR displays only, significant increases in ATS capacity can be achieved when identification labelling is made available.

~~*Note.— Identification labelling trials and development are taking place in certain States.*~~

8694. In order to fully exploit capacity gains, the advanced surface movement guidance and control systems (SMGCS) ~~must~~ shall operate from runway to parking position and vice versa. The use of advanced SMGCS will require the controlling authority to accept an increasing responsibility for aircraft safety in low visibility

conditions. The level of service provided ~~must~~ shall be maintained from the runway to the stand and should be provided by properly trained and/or licensed personnel.

8795. Where an advanced SMGCS is used to provide guidance from one area of responsibility to another, coordination procedures should be implemented taking into account all the aspects of the changing division in responsibility for collision avoidance during low visibility conditions.

Note.— Guidance material on responsibility aspects can be found in ICAO Doc 9476, Manual of Surface Movement Guidance and Control Systems (SMGCS), *Chapter 3.*

8896. Where radar service is ~~required~~provided for approach control ~~and the traffic mixture is so composed~~, the possibility to provide aerodrome control service with ~~assistance~~information from radar~~information,~~ for the final approach segment, ~~based on the same source as~~similar to the information provided to the approach control, should be considered. With appropriate regulations the ~~need for~~ coordination ~~and handover~~ could be ~~reduced and the mix~~ improved and the management of arrivals and departures more efficiently conducted.

~~**ILS/MLS transition**~~

~~97. Initially ILS and MLS procedures will be identical, with aircraft being navigated by pilots or radar vectored to intercept the final approach procedure in accordance with current practices. When traffic density is not a constraint (e.g. during night hours) or at certain aerodromes, MLS/RNAV procedures should be introduced during the ILS/MLS transition period. These MLS/RNAV procedures should be identical to existing approach procedures based on another navigation aid or result from an operational benefit and improvement in airspace management for aircraft equipped with suitable avionics.~~

~~New Larger Airplanes~~Specific aeroplanes operations

B747-400 Operations

Note.— Material on the impact of NLA on aerodromes is presented in Attachment F to Part III — AOP of the EUR FASID.

8998. Where the minimum separation/clearance distances as specified in Annex 14, Volume 1, Table 3-1, do not permit B747-400 operations at existing airports the following options to overcome such problems should be considered by the appropriate authority in consultation with the operators:

— apply selective taxi routes where feasible;
— remove objects where feasible;
— reduce size of aircraft stands where feasible;
— implement reduced separation distances.

Note.— Although these options may have a degrading effect on either the provision of suitable stands or on the ground movement capacity/efficiency of the aerodrome, they should however be given particular attention so as to permit best and early B747-400 operations.

909. In order to achieve an efficient operation of aeroplanes on existing layouts of major aerodromes with high B747-400 traffic where the separation/clearance distances as specified in Annex 14, Volume I, 3.8.7 and Table 3-1 are not being provided, lower separation/clearance distances may be introduced conditional to the prior conduct of an aeronautical study substantiating that there are no consequential adverse effects on the safety or regularity of operations at the aerodrome and by taking specific measures.

91~~10~~0. The safe and efficient operations with B747-400 at existing European aerodromes requires a careful analysis regarding the separation/clearance distances provided on taxiways or apron taxiways, aircraft stand taxilanes and aircraft stands. On taxiways and taxilanes the clearance between the wingtip and an object such

as a parked aircraft or a building should be not less than 7.5 m. Therefore, a detailed evaluation will be required in all cases of reduced separations/clearances to determine the path followed by the wingtip on the inside and on the outside of the turn. Smaller or larger turn radii of taxiways, or taxilanes or taxi-lane/aircraft stand centre line intersections may be required to meet the minimum clearance requirements. In the case of taxilanes and stands, the clearance distances provided in the vertical plane between wingtips and objects may additionally be accounted for.

92~~101~~. Reduced separation distances between parallel taxiway centre lines and between taxiway/apron taxiway centre line and an object may be introduced based on the assumption that the lateral deviation of B747-400 will not exceed 2.5 m, if specific measures are introduced (e.g. taxiway centre line lights, etc.).

93~~102~~. Where on aircraft stand taxilanes or stands, objects do not exceed a height of 3 m above the relative apron surface, the clearance distances may be further reduced accounting for the fact that the minimum wingtip height of a B747-400 is more than 5 m above the ground.

Reduced runway declared distances for take-off

94~~103~~. At aerodromes regularly used by international commercial air transport, take-offs from runway/taxiway intersections may be justified for the following reasons:

a) runway capacity improvement;

b) taxi routes distances reduction;

c) noise alleviation; and

d) air pollution reduction.

95~~104~~. To this end, the appropriate authorities should, upon prior consultation with aircraft operators, agree on the selection of suitable intermediate intersection take-off positions along the runway(s). Accordingly, authorities should determine the reduced runway declared distances for take-off associated with each selected intersection take-off position and establish the specific ATC rules and operational procedures/limitations. Such provisions should be published in the State AIP.

Note.— Detailed operational requirements governing the implementation of reduced runway declared distances for take-off are contained in 31 to 36. Additional guidance is contained in Part III — AOP of the EUR FASID.

Part III

AERODROME OPERATIONAL PLANNING (AOP) - FASID

~~*Note. — All material in this part will provide the formal basis for an in-depth and on-going review currently being carried out by the European Air Navigation Planning Group (EANPG).*~~

INTRODUCTION

1. The material in this part complements that contained in Part I — BORPC of the Basic ANP and should be taken into consideration in the overall planning processes for the EUR region.

2. This part contains the details of the facilities and/or services to be provided to fulfil the basic requirements of the plan and/or as agreed between the provider and user States concerned. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. This element of the FASID, in conjunction with the EUR ANP, is kept under constant review by the EANPG in accordance with its schedule of management, in consultation with user and provider States and with the assistance of the ICAO EUR/NAT Regional Office.

~~ILS/MLS TRANSITION~~

~~3. When, due to radio interference including that from FM broadcasting, the performance of ILS, particularly Category III, is degraded resulting in restrictions having to be imposed at aerodromes on the use of lowest value minima and when such interference cannot be eliminated by other means, MLS should be implemented there at an early stage so as to enable the restoration of the optimum aerodrome operating minimum.~~

~~RESCUE AND FIRE FIGHTING SERVICES~~

~~4. Rescue and fire fighting services should keep abreast of latest techniques and should practice these through exercises at regular intervals. Such exercises should also be organized for any off-aerodrome rescue and fire fighting services which may be called upon to assist in an emergency occurring at the aerodrome.~~
~~[Annex 14, Volume I, 9.1.11 and 9.1.12]~~

AIDS FOR AERODROME OPERATIONS

3.~~5~~.In the provision of non-visual and visual aids at specific aerodromes, priorities should be established in co-operation with the operators so that those aids likely to result in major improvements are installed first and also that the sequence of installation of successive aids has the least impact on the continued use of the aerodrome.

~~Note. —~~The outcome of this coordination ~~may~~should be reflected ~~as"Remarks" in Table AOP 1 of the FASID.~~in the "Remarks" column of Table AOP.

OPERATIONS

4~~6~~. ~~—~~Non-visual and visual aids at aerodromes should be monitored so as to ensure their satisfactory operation throughout the operating hours at the aerodrome concerned. In addition, flight testing and routine maintenance of these aids should be arranged so as to least interfere with the normal use of the aerodrome.

~~**RUNWAY VISUAL RANGE**~~

~~7. Whenever RVR is assessed by instrumental means, the reporting scale should consist of increments of 25 m for RVR up to 400 m, and increments of 50 m for RVR between 400 m and 800 m. For RVR above 800 m, the increments should be 100 m.~~
~~[Annex 3, 4.7.13]~~

~~8. In the promulgation and notification of RVR values, reporting sites should be identified as "touchdown zone", "mid-point" and "stop-end", relative to the runway in use. The value of the touchdown zone report should always be given first, followed by mid-point and stop-end when these RVR assessment sites are provided.~~
~~[Annex 3, 4.7.16]~~

~~*Note. When notifying RVR values to pilots, it is not necessary to identify the positions, provided that they are passed in the order specified above, except on those occasions when a position is out of service.*~~

~~**TAKE-OFF RUNWAY**~~

Low visibility operations

59. Specific requirements for take-off runways should be established between the airport authority, ~~and~~ the operators and any other relevant parties in order to ensure ~~the~~that required facilities are cost-effective and in accordance with operational procedures. Once established, the requirement(s) should be included in FASID Table AOP~~1~~ (i.e. T/O).

6. In addition to being based on the requirements of Annex 11 and PANS-ATM, Low Visibility Procedures should take into account the guidance set forth in the *Manual on All-Weather Operations* (Doc 9365) and the *European Guidance Material on Aerodrome Operations under Limited Visibility Conditions* (EUR Doc 013).

~~**Reduced runway declared distances for take-off**~~

~~10. Figures III-1 and III-2 depict the datum-line from which reduced runway declared distances for take-off should be determined as defined in paragraph 33 of Part III — AOP of the EUR Basic ANP.~~

~~11. In the case of an intersection made of a number of taxiways connected to the runway, the "taxiway of reference", for distance measurement, should be the one which will allow expeditious aircraft alignment on the runway, and for which the distances, calculated from the datum-line as defined in paragraph 33 of Part III — AOP of the EUR Basic ANP will be the shortest. Operators using the identified intersection take-off position should make sure that the actual line-up position provides at least the published reduced distances, regardless from which taxiway the runway alignment is conducted (see Figures III-3 and III-4).~~

~~12. Intersection take-offs are, in all cases, subject to pilot-in-command acceptance based on current provisions (Annex 6, Part I, 5.2.8). ATC should not be authorized to impose nor require a take-off from any intersection take-off positions.~~

~~13. Publication of the reduced runway declared distances for take-off should be identical to the publication of full runway distances, i.e.:~~

~~a) on ICAO type A chart;~~

~~b) on ICAO type C chart; and~~

c) in paragraph 39 of the AGA section, or in the AD2 section, of the AIP.

14. In order to avoid any confusion in the use of reduced runway declared distances, such figures should be clearly distinguished from the full runway distances and published as separate information within the relevant State AIP (1516. below refers).

15. The reduced runway declared distances should be published by means of a separate table (see Table III-1 below) in paragraph 39 of the AGA section, or in the AD2 section, of the AIP, which should contain the following items:

a) runway heading (QFU);

b) identification of each intersection take-off position in sequence from runway threshold;

c) TORA, TODA and ASDA associated with each intersection take-off position;

d) definition of the origin used for the calculation of the reduced runway declared distances (paragraph 33 of Part III — AOP of the EUR Basic ANP refers);

e) the required take-off operating minima (visibility/RVR) together with other local provisions if necessary; and

f) the identification of associated marking and lighting aids and signs.

16. Appropriate phraseology, taxiway designators and procedures should be developed when necessary to eliminate any risk of misunderstanding, in particular over the identification of junctions/intersections and alignment clearances. Procedures should also take account of the fact that take-offs from intersections can be performed only by agreement between pilot and air traffic services, or on a standing basis by agreement between the operator and the responsible airportAerodrome authorities (2324. refers).

Air Traffic Services

7.17. Measuring and reporting of runway state information should be done in accordance with the guidance given in Attachment A to this part.

Procedures

8.18. Whenever possible, arrangements should be made to permit turbine-engine aircraft engaged in commercial air transport operations to apply low-power and low-drag approach procedures. Such procedures should be developed in coordination with the operators and ATC and other all parties concerned. Guidance is provided in Attachment B to this part.

19. At aerodromes where preferential landing and departure directions have been established in order to minimize nuisance effects on third parties in the vicinity of the aerodrome caused by flight operations, due regard should be taken of cross-wind or tail-wind effects on aircraft when requiring them to use these directions in preference to those which, without these restrictions, would be preferred by the pilotspilotflight crew of affected aircraft.
[Doc 4444, Parts IV and V]

~~NEW LARGER AEROPLANES (NLA~~SPECIFIC AEROPLANES~~)~~ OPERATIONS

Reduced separation distances on taxiways/apron taxiways

9.~~20.~~ Taxiway portions, where reduced separation distances apply, should be identified and the information published in the State AIP.

Reduced separation distances on aircraft stand taxilanes

10.~~21.~~ Aircraft stand taxilanes, where reduced separation distances are provided, should be identified and published in the State AIP.

~~22. To ensure discipline for traffic of mobile objects on the apron, drivers should adhere to stringent rules and procedures established by the appropriate authority (Annex 14, Volume I, 8.8).~~

Reduced clearance distances on aircraft stands

11.~~23.~~ Aircraft stands, where reduced clearance distances apply, should be identified and the information published in the State AIP.

AERODROME FACILITIES/SERVICES AND CAPACITY ASSESSMENT (TABLE AOP~~ 1 AND TABLE AOP 2~~)

General Description

12.~~24.~~ Table AOP ~~1~~ of the FASID shows ~~only~~ the ~~agreed~~ operational requirements for physical characteristics, air traffic services, rescue and fire fighting services and type of operation at each aerodrome included in 59 to 63 of the EUR Basic ANP. These operational requirements included in Table AOP should be used for the planning and implementation of services and facilities at ~~all~~ international ~~airports. Operational~~aerodromes. Table AOP shows the operational requirements which should be implemented within ~~a~~the seven year period ~~beginning from their date of inclusion in the table.~~ahead.

13~~25~~. Pertinent information or comments on specific requirements or identification of particular issues affecting the provision of ~~a system~~the required system, and target dates for the implementation of ~~a facility/service may be shown as "Remarks" (in italics) in the table.~~services/facilities should be shown in the "Remarks" column (10) of Table AOP. Such information ~~must~~should be provided by the State in which the aerodrome is located.

~~Note.—~~ When no information or requirement has been ~~shown~~provided or agreed upon, the related ~~entry(ies) in Table AOP 1 is(are) omitted.~~column in Table AOP remains blank. The specific requirements and the aerodrome capacity assessment are the subject of a regional review conducted on the basis of a 2 years cycle. Guidance for the conduct of the review of Table AOP is contained in Attachment D.

~~*Time frame for the Annual Review of Table AOP 1*~~

14. ~~29~~ Bearing in mind the continuing need for ILS facilities, further guidance is provided in Attachment E of this part on the calibration and operation of CAT I ILS ground installations.

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EUR ANP, VOLUME II, FASID

PART IV - CNS

Supplement Table CNS 4b
INSTRUMENT APPROACH PROCEDURES and ASSOCIATED NAVIGATION SERVICES AND FACILITIES

RECORD OF AMENDMENTS

AMENDMENTS

No.	Originator	Date entered	remarks

No.	Originator	Date entered	remarks

Appendix G -
Proposal for Amendment to PANS-ATM, Doc 4444

(Paragraph 5.2.15 refers)

Chapter 4 – General Provisions for Air Traffic Services

. . .

4.10 Altimeter setting procedures

. . .

4.10.4 Provision of altimeter setting information

. . .

4.10.4.5 A QNH altimeter setting shall be included in the descent clearance when first cleared to an altitude below the transition level, in approach clearances or clearances to enter the traffic circuit, and in taxi clearances for departing aircraft, except when it is known that the ~~aircraft has already received the~~ information has already been received through direct controller-pilot communication.

Note.– See Annex 11, 4.3.6.3

. . .

Chapter 6 – Separation in the Vicinity of Aerodromes

. . .

6.6 Information for arriving aircraft

6.6.1 As early as practicable after an aircraft has established communication with the unit providing approach control service, the following elements of information, in the order listed, shall be transmitted to the aircraft, with the exception of such elements which it is known the aircraft has already received:

a) type of approach and runway-in-use;

b) meteorological information, as follows:

. . .

7) altimeter setting(s);

. . .

Note 1.— The meteorological information listed above is identical to that required in ATIS broadcasts for arriving aircraft as specified in Annex 11, 4.3.7 j) to r) and is to be extracted from local meteorological routine and special reports, in accordance with Chapter 11, 11.4.3.2.2 to 11.4.3.2.3.9.

Note 2 – Regarding the provision of altimeter setting, see paragraph 4.10.4.5

. . .

Chapter 7 – Procedures for Aerodrome Control Service

. . .

7.3 Information to aircraft by aerodrome control towers

7.3.1 Information related to the operation of aircraft

. . .

7.3.1.2 AERODROME AND METEOROLOGICAL INFORMATION

7.3.1.2.1 Prior to taxiing for take-off, aircraft shall be advised of the following elements of information, in the order listed, with the exception of such elements which it is known the aircraft has already received:

a) the runway to be used;

b) the surface wind direction and speed, including significant variations therefrom;

c) the QNH altimeter setting and, either on a regular basis in accordance with local arrangements or if so requested by the aircraft, the QFE altimeter setting;

. . .

Note 1.— The meteorological information listed above is to follow the criteria used for meteorological local routine and special reports, in accordance with Chapter 11, 11.4.3.2.2 to 11.4.3.2.3.9.

Note 2 – Regarding the provision of altimeter setting, see paragraph 4.10.4.5.

. . .

7.3.1.2.3 Prior to entering the traffic circuit or commencing its approach to land, an aircraft shall be provided with the following elements of information, in the order listed, with the exception of such elements which it is known the aircraft has already received:

. . .

c) the QNH altimeter setting and, either on a regular basis in accordance with local arrangements or, if so requested by the aircraft, the QFE altimeter setting.

Note 1.— The meteorological information listed above is to follow the criteria used for meteorological local routine and special reports, in accordance with Chapter 11, 11.4.3.2.2 to 11.4.3.2.3.9.

Note 2 – Regarding the provision of altimeter setting, see paragraph 4.10.4.5.

Appendix H -
Proposal for Amendment to PANS-ATM, Doc 4444

*(Paragraph **Error! Reference source not found.** refers)*

Proposal for Amendment to PANS-ATM, Doc 4444

Chapter 8 – General Provisions for Air Traffic Services

. . .

8.10 USE OF ATS SURVEILLANCE SYSTEMS IN THE AERODROME CONTROL SERVICE

. . .

8.10.1 Functions

8.10.1.1 When authorized by and subject to conditions prescribed by the appropriate ATS authority, ATS surveillance systems may be used in the provision of aerodrome control service to perform the following functions:

a) flight path monitoring of aircraft on final approach;

b) maintaining separation between succeeding aircraft on the same final approach;

c~~b~~) flight path monitoring of other aircraft in the vicinity of the aerodrome;

d~~c~~) establishing separation specified in 8.7.3 between succeeding departing aircraft; and

e~~d~~) providing navigation assistance to VFR flights..

European and North Atlantic Office

Appendix I -
Proposal for Amendment of the ICAO Regional Supplementary Procedures (Doc 7030/5)

(Paragraph 5.2.24 refers)

(Serial No ..)

a) **Regional Supplementary Procedures:**

Doc 7030/5 – EUR

b) **Proposed Amendment:**

Insert the following in EUR SUPPs, Chapter 2 **–** Flights Plans, paragraph 2.1.14 - Data link applications:

Insert new text as follows:

"2.1.14.1 CPDLC

2.1.14.1.1 For flights conducted wholly or partly in the EUR CPDLC airspace, as specified in paragraph 3.3.1.1, in addition to the letter S and/or any other letters, as appropriate the letter J shall be inserted in Item 10 of the flight plan and the indicator DAT/V shall be inserted in Item 18 of the flight plan for aircraft equipped with CPDLC avionics, or the indicator STS/EXMCPDLC shall be included in Item 18 for aircraft not equipped but which have been granted an exemption."

End of new text

Insert the following in EUR SUPPs, Chapter 3 – Communications, paragraph 3.3 - Controller Pilot Data Link Communications (CPDLC)

Insert new text as follows:

3.3.1 **Area of applicability**

3.3.1.1 All aircraft operating flights as general air traffic in accordance with instrument flight rules in the airspace defined below shall be equipped with Controller Pilot Data link Communications capable equipment meeting the requirements of RTCA DO-280B/EUROCAE ED-110B standards:

a) from 7 February 2013, in the following FIRs/UIRs above FL285:

Amsterdam FIR, Wien FIR, Barcelona UIR, Brindisi UIR, Brussels UIR, Canarias UIR, France UIR, Hannover UIR, Lisboa UIR, London UIR, Madrid UIR, Milano UIR, Rhein UIR, Roma UIR, Scottish UIR and Shannon UIR; and

b) from 5 February 2015, in the following FIRs/UIRs above FL285:

Bratislava FIR, Bucuresti FIR, Budapest FIR, Kobenhavn FIR, Ljubljana FIR, Nicosia FIR, Praha FIR, Sofia FIR, Warszawa FIR, Finland UIR south of 61°30', Hellas UIR, Malta UIR, Riga UIR, Sweden UIR south of 61°30', Tallinn UIR, Vilnius UIR.

Note 1.- The volume of airspace specified in 3.3.1.1 shall be referred to as "EUR CPDLC airspace".

3.3.1.2 Conformance to the equipage requirement and operator's approval shall be verified by the State of Registry or the State of the Operator, as appropriate

3.3.1.3 Aircraft are exempted from the requirement stipulated in 3.3.1.1 in the following cases:

a) Aircraft with an individual certificate of airworthiness first issued before 1 January 2011 are exempted until 5 February 2015.

b) Aircraft with an individual certificate of airworthiness first issued before 1 January 2014 and fitted with data link equipment certified against requirements specified in RTCA DO-258A/EUROCAE ED-100A (or ED-100) are exempted for the life of that particular airframe.

c) Aircraft which have a certificate of airworthiness issued before 31 December 1997 and which will cease operation in the airspace referred to in Paragraph 3.3.1.1 before 31 December 2017 are exempted from the requirement stipulated in 3.3.1.1.

d) State aircraft.

e) Aircraft flying in the airspace referred to in Paragraph 3.3.1.1 for testing, delivery and for maintenance purpose.

3.3.1.3 Additional Exemptions

a) When particular circumstances, based on criteria defined in paragraph 3.3.1.3 c), prevent aircraft of specific types from complying with the requirements in paragraph 3.3.1.1, the operator concerned shall communicate to the European Commission detailed information justifying the need for granting exemptions to these aircraft types.

b) The Commission shall enter into consultation with the parties concerned after which it shall take a decision in accordance with the procedure referred to in Article 5(3) of Regulation (EC) No 549/2004.

c) The criteria referred to in a) shall be as follows:

i) aircraft types reaching the end of their production life and being produced in limited numbers; and
ii)aircraft types for which re-engineering costs required would be disproportionate due to old design.

End of new text

c) **Originated by:**

EANPG

d) **Originator's reason for amendment:**

e) **Intended date of implementation:**

f) **Proposal circulated to the following States and organisations:**

g) **Secretariat's comments:**

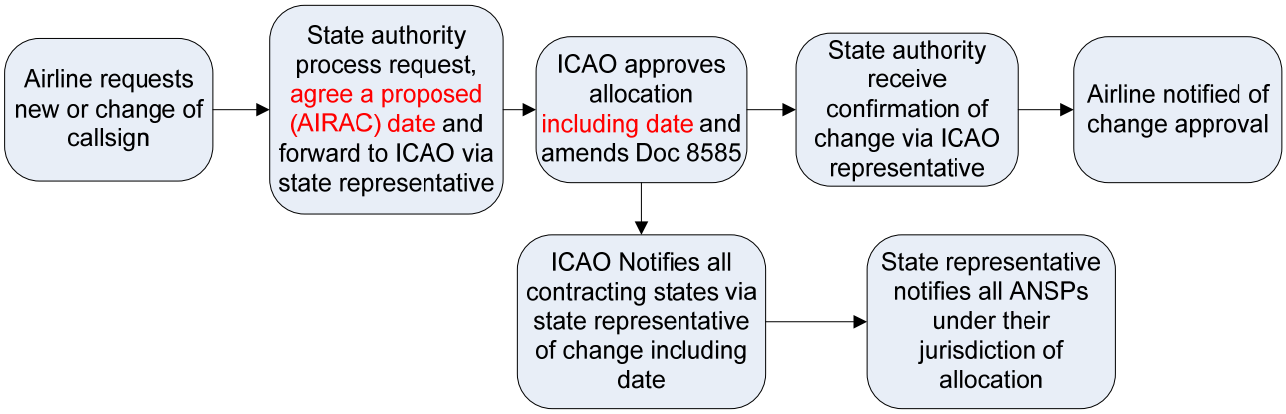
Appendix J – Improved procedures for coordination of callsign allocations

(Paragraph 5.2.26 refers)

Option one

On the assumption that this can affect all ICAO contracting states, the proposed solution would be to change current ICAO procedures.

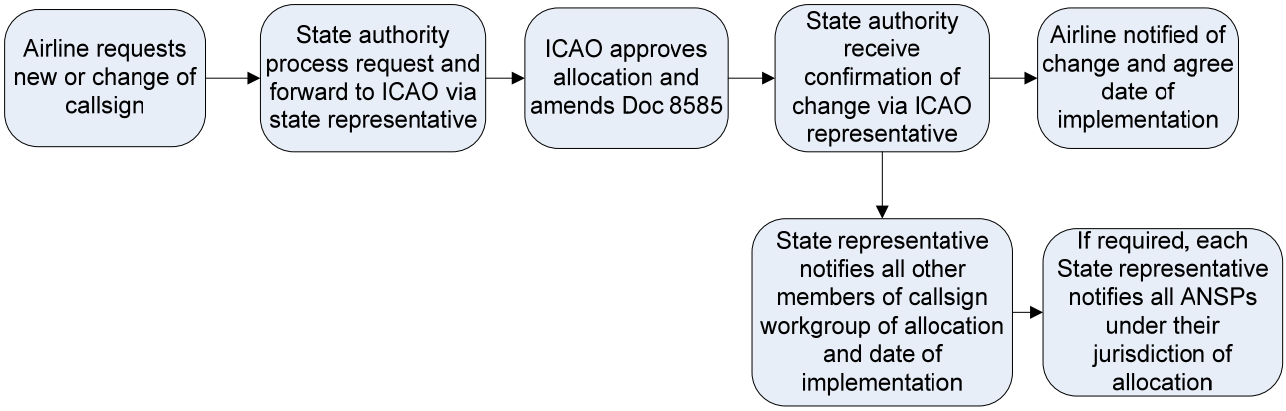
All new allocations should seek to become effective on an AIRAC date. Where possible, changes should also conform to the AIRAC cycle, unless the requirement to limit the number of aircraft in flight at the time of the change precludes this.



As an additional safeguard, to mitigate against short notice changes and to provide a forum to send out more detailed information about forthcoming allocations (such as flights affected, exact timings etc) each state representative should provide an email address to be used to set up a distribution group.

Option two

If callsign changes only affect a limited number of contracting states, which may only include some of the Eurocontrol states and possibly the US, a simpler solution could be proposed such as creating a callsign workgroup comprising a point of contact for each contracting state that would then coordinate changes as required.



Appendix K – Performance Based Navigation
Implementation Harmonisation and Implementation Strategy
for the ICAO EUR Region

(Paragraph 5.3.4 refers)

a) Implementation of any RNAV or RNP application shall be in compliance with ICAO PBN Manual (Doc 9613);

b) Recognizing that B-RNAV/P-RNAV can be regarded as equivalent to RNAV5/RNAV1, as defined in the ICAO PBN Manual, their use will be continued for en-route and terminal applications at least until 2015;

c) The target date for the completion of implementation for the Approach procedures with vertical guidance (APV) (APV/Baro-VNAV and/or APV/SBAS) for all instrument runway ends is 2016;

d) Replacement of RNAV5/RNAV1 (B-RNAV/P-RNAV) specification by RNP specifications (e.g. Basic RNP-1 and advanced-RNP) for the use in the en-route and terminal airspace to commence by 2015.

Appendix L – Data Link Harmonisation Strategy – ADS-C and CPDLC

(Paragraph 5.4.5 refers)

- Any additional aircraft implementation of automatic dependent surveillance - contract (ADS-C) should either:

  utilise without change the existing DO-258A/ED-100A[i] (FANS-1/A) ADS-C, or

  move to the full implementation of the internationally agreed common technical definition that will be defined based on relevant provisions and guidance material (*Manual of Air Traffic Services Data Link Applications* (Doc 9694)) developed by ICAO and its technical bodies.

  Partial or divergent aircraft data link evolutions should not be pursued, as they will continue to promote divergent paths to the detriment to the broader community. Interim steps or phases toward full implementation of the common technical definition in ground systems should only be pursued on a regional basis, after coordination between all States concerned.

- Any additional aircraft implementation of controller-pilot data link communications (CPDLC) should either;

  utilise without change the existing DO-258A/ED-100A (FANS-1/A) or DO-280B/ED-110B[ii] (ATN) CPDLC for ACM/ACL/AMC[iii] data link services, or

  move to the full implementation of the internationally agreed common technical definition, based on *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444), and other operational material as appropriate

  Partial or divergent aircraft data link evolutions that result in excluding messages from aircraft systems should not be pursued, as they will continue to promote divergent paths to the detriment to the broader community. Interim steps or phases toward full implementation of the common technical definition in ground systems should only be pursued on a regional basis, after coordination between all States concerned.

- Harmonization of operational procedures for implementation of the above packages is considered essential. States, planning and implementation regional groups (PIRGs), ANS providers and other ATS coordinating groups should adopt common procedures to support seamless ATS provision across flight information region (FIR) boundaries, rather than each State or Region developing and promulgating unique procedures for common functions.

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i RTCA/EUROCAE Interoperability Requirements for ATS Applications Using ARINC 622 Data Communications (FANS 1/A INTEROP Standard)

ii RTCA/EUROCAE Interoperability Requirements Standard For ATN Baseline 1 (ATN B1 INTEROP Standard)

iii Air traffic control communications management/Air traffic control clearances and information/Air traffic control microphone check

Appendix M – Aeronautical Fixed Service Group (AFSG) Terms of Reference

(Paragraph 5.4.5 refers)

1. Terms of reference

1.1 The Aeronautical Fixed Services Group (AFSG) is established by EANPG to pursue the tasks and issues related to Aeronautical Fixed Service (AFS) in support to the relevant ICAO Strategic Objectives with the following TORs:

a) Ensure the continuous and coherent development of the relevant sections of the European Air Navigation Plan (Basic ANP and FASID, Doc 7754), *Regional Supplementary Procedures* (SUPPS) (Doc 7030) and other relevant Regional documents, including EUR Doc 005 "EUR CIDIN Manual", EUR Doc 020 "AMHS Manual" and EUR Doc 021 "ATS Messaging Management Manual", taking into account the evolving operational requirements in the EUR Region and the need for harmonization with the adjacent regions in compliance with the Global Air Navigation Plan (Doc 9754);
b) Monitor and coordinate implementation of the relevant ICAO SARPs and regional procedures, facilities and services by the EUR States and where necessary ensure harmonization, taking due account of financial and institutional issues;
c) Identify any deficiencies in the AFS related matters in the EUR Region and ensure the development and implementation of relevant action plans by the States to resolve them;
d) Foster implementation by facilitating the exchange of know-how and transfer of knowledge and experience among States of the Region;
e) Provide input to the work of appropriate ICAO bodies in the field of AFS, according to the established procedures.

2. Work Programme

2.1 To ensure that the objectives of AFSG are met in accordance with the TORs, the group shall conduct its work according to a Work Programme endorsed by EANPG and kept under review by EANPG COG. The following are the main principles to be followed in setting up the Work Programme of AFSG:

a) The Work Programme shall be composed of tasks and projects with clearly identified deliverables, target dates and responsibilities;
b) The tasks/projects should cover the main implementation domains related to AFS which are subject to Regional planning and implementation;
c) The progress on the tasks/projects should be reviewed regularly by AFSG and reported to COG and EANPG to ensure that the target dates are met and the deliverables are of required quality;
d) To facilitate the execution of its work programme, AFSG may set up temporary working arrangements in the form of working sub-groups, study groups, task force and project teams, if and when required, charge them with specific tasks and define target dates for completion. These bodies shall work under the guidance of and in a close coordination with the ICAO EUR/NAT in the most time effective and result oriented way, with as fewer formalities as possible, and preferably by means of electronic communication. These bodies are dissolved after completion of the task(s);
e) The AFSG Work programme is an integral part of the general EANPG Work programme and is attached to the last EANPG Meeting report;
f) The detailed AFSG Task List providing a broke down list of actions aimed to fulfil the objectives of the Work programme is included in the latest AFSG Summary of Discussions.

3. In conducting its activities, the AFSG should follow the following guidance given to the Group by the EANPG COG:

a) Maintain close coordination with relevant EANPG contributory bodies to ensure harmonious development of the EUR air navigation system as a whole;
b) Conduct periodic reviews and originate, as necessary, proposals for amendment of Part VI - CNS of the EUR ANP and FASID (Doc 7754), EUR SUPPs (Doc 7030), EUR Doc 005, EUR Doc 020, EUR Doc 021;
c) Develop and maintain any other documentation related to the safe, secure and efficient implementation and operation of the EUR AFS.
d) Seek coordination and harmonization with the relevant planning and implementation activities in other ICAO Regions;
e) Use different techniques to monitor implementation in the States (such as, regional surveys, monitoring exercises, regional tests and simulations, etc.) and identify deficiencies; conduct risk analysis to prioritize the identified deficiencies and prepare proposals to EANPG to ensure the urgent resolution of safety-related AFS deficiencies;
f) Identify areas where assistance to individual States or sub-regions is necessary to eliminate deficiencies and improve harmonized implementation of the AFS through the established mechanisms and prepare proposals thereon;
g) Ensure close liaison with EANPG groups and with relevant ICAO Air Navigation Commission (ANC) panels/study groups in addressing AFS related matters; Provide feed-back received from States on problems impeding implementation which need to be addressed by appropriate ICAO bodies;
h) Assist the Secretariat in developing and keeping up-to-date of Regional guidance material as necessary to foster the implementation by the States of the global requirements and Regional procedures on AFS related matters;
i) Prepare proposals and support organisation of regional seminars and workshops in the AFS field with emphasis on implementation issues;
j) Coordinate Regional activities in the field of AFS; liaise closely with relevant international organisations on issues of common interest;
k) Identify and refer to COG and EANPG the emerging operational and institutional issues related to the planning and implementation of the AFS services and facilities in order to ensure that such issues are addressed in a coherent manner with the respective ICAO plans, strategies and provisions.

4. Composition of the AFSG

Algeria, Armenia, Austria, Azerbaijan, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, France, Georgia, Germany, Greece, Israel, Italy, Kazakhstan, Latvia, Lithuania, Morocco, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Tunisia, Ukraine, United Kingdom, United States, Uzbekistan and EUROCONTROL

Note:

The composition of a contributory body shall be kept as small as possible, however all States and ICAO recognized international organizations likely to make valid contributions are given the opportunity to participate in essential work programme issues.

Contributory body participants have the status and role only of technical experts, nominated by their State or ICAO recognized international organizations. They do not represent their State or organization in any formal way, and work on behalf of the EANPG.

Appendix N – SAFIRE unresolved issues

(Paragraph 5.4.13 refers)

Bug Id	Open date	component	Short Description
1	04-09-2006	Data Presentation	FMG10 - GRC2 - Use of Capital Letters
3	04-09-2006	Data Presentation	FMG10 - ICAO 1.1 - Order of messages/proposals
4	04-09-2006	Data Presentation	FMG10 - ICAO 1.2 - Order of messages/proposals - fixed column sorting
5	04-09-2006	Data Presentation	FMG10 - ICAO 1.3 - New Messages - Overdue Message Display
6	04-09-2006	Data Presentation	FMG10 - ICAO 1.4 - Registered Users Home Page - Layout
7	04-09-2006	Data Presentation	FMG10 - SUI 1.1 - Channels - Trailing Zero Suppression
9	04-09-2006	Data Presentation	FMG10 - SUI 1.3 - Order - Search Result Order
10	04-09-2006	Coordination Assignment	FMG10 - GRC1a - Assign Function - Behaviour issues
11	04-09-2006	Coordination Assignment	FMG10 - GRC4 - Procedure - loss of Internet Connectivity
12	04-09-2006	Coordination Assignment	FMG10 - ICAO 2.1 - ICAO Account - Rights and Delegation
13	04-09-2006	Coordination Assignment	FMG10 - ICAO 2.2 - Submission Date
14	04-09-2006	Coordination Assignment	FMG10 - ICAO 2.3 - Simultaneous Search for Assigned and Operational
15	04-09-2006	Coordination Assignment	FMG10 - ICAO2.4 - Search by submission date/reply date
19	04-09-2006	Coordination	FMG10 - Hol2 - COM Parallel Operations
22	04-09-2006	Additional Fields	FMG10 - GER - Coordination history
23	04-09-2006	Additional Fields	FMG09 - EUROC - Cordination History
24	04-09-2006	Additional Fields	FMG10 - SUI3.1 - Notes field
25	04-09-2006	Additional Fields	FMG10 - SUI3.2 - CLIMAX Legs missing.
26	04-09-2006	Data import/export	FMG10 - GER4.1 - SpectraAir XML Format
27	04-09-2006	Data import/export	FMG10 - GER4.2 - Batch data upload/import
30	04-09-2006	Data import/export	FMG10 – UK3.2 - Batch Processing
31	04-09-2006	Search	FMG10 - GRC - Assignment Date Ordering
32	04-09-2006	Search	FMG10 - SUI4.1 - Ordering of Assignments as per AppendixA and AppendixB
33	04-09-2006	Security	FMG10 – UK3.1 - Optional Field Access Control
41	12-09-2006	System Admin	SAP User Management Permissions
42	12-09-2006	System Admin	Formal Method for Single User to Operate on Behalf of a State - Delegation Rights
48	12-09-2006	Data import/export	Export approach different for each output type
51	12-09-2006	DAO	SQL Statement Optimisation
55	12-09-2006	DAO	No rollback on manual transaction control exceptions
79	21-09-2006	Presentation	Getting back from search results to search definition page
87	13-11-2006	DAO	Nov 06 Data Meeting - Action 3 - Mobile services
88	13-11-2006	DAO	Nov 06 Data Meeting - Action 4 - Coverage Type
89	13-11-2006	DAO	Nov 06 Data Meeting - Action 5 - Antenna Definition
90	13-11-2006	DAO	Nov 06 Data Meeting - Action 6 - COM3 Issues
91	13-11-2006	Data import/export	Nov 06 Data Meeting - Action 7 - Data Tagging
92	13-11-2006	DAO	Nov 06 Data Meeting - Action 8 - Sub Element Table
93	13-11-2006	DAO	Nov 06 Data Meeting - Action 9 - Polygon Modification
100	28-11-2006	Data Presentation	Training Course - Bug 4 - Objected status not shown
102	28-11-2006	Security	Training Course - Bug 6 - COM2 Permissions give access to all bands
106	28-11-2006	Search	Training Course - Bug 10 - Tailor facility type search options to user permissions

Bug Id	Open date	component	Short Description
107	28-11-2006	Assignment Coordination	Training Course - Procedural Issue 1 - Delegate Access Permissions
108	28-11-2006	Assignment Coordination	Training Course - Suggestion 1 - SUM Message on assignment delete
109	28-11-2006	Data Presentation	Training Course - Suggestion 2 - Spectrum Details Page content
110	28-11-2006	Assignment Coordination	Training Course - Suggestion 3 - BPM Freeze period indication/action
111	28-11-2006	Data Presentation	Training Course - Suggestion 4 - Geographical representation of sector data
113	28-11-2006	Data Presentation	DFS - D1185 Mismatch between channel and frequency
114	28-11-2006	Data import/export	DFS - Frequency Rounding Issues
119	28-11-2006	Data import/export	DFS - XML export - XML not escaped properly
120	28-11-2006	Assignment Coordination	DFS - Create Reference ID only on submission
125	01-12-2006	Data Presentation	FMG10 - Greece Comments - a - Additional Information on Show All Proposals
126	01-12-2006	Data Presentation	FMG10 - Greece Comments - b - Summary Information Missing
127	01-12-2006	System Admin	FMG10 - Greece Comments - c - FM Site Editing Capability
132	04-12-2006	Security	Mismatch between band permissions and subscriptions
133	07-12-2006	System Admin	Admin Email Facility
150	05-02-2007	Assignment Coordination	Non-critical assignment fields editing: Channel Spacing/Remarks
151	05-02-2007	Assignment Coordination	Proposal response period time limit enforcement
152	05-02-2007	Assignment Coordination	Assignment deletion confimation
153	05-02-2007	Data import/export	Safire outstanding proposal migration
154	05-02-2007	Assignment Coordination	Loss of service procedures - postpone coordination notifications
174	04-04-2007	Data import/export	Error message attempting to export superseding draft proposal
175	05-04-2007	Presentation	Return to previous screen link
180	18-04-2007	Assignment Coordination	Only creator can delete a draft proposal
181	25-04-2007	Data import/export	Export draft proposal erroneous access log update
192	05-06-2007	Presentation	Spectrum report file upload token mechanism anomaly
193	22-06-2007	Live User Issue	Bug with search save facility
196	17-07-2007	Live User Issue	Error 500 thrown when creating location
220	01-11-2007	Data import/export	Premature global export failure
231	15-01-2008	DAO	Test system 'emailMessage' table access error
238	30-01-2008	System Admin	Outstanding Registration Acceptance Not Working
239	30-01-2008	System Admin	Registration Notification for States with no SAP
240	30-01-2008	System Admin	ASECNA load - Element Links - Creation Error
242	30-01-2008	DAO	Static Lookup Data Initialization
244	05-02-2008	Search	Admin search for withdrawn proposals
246	08-02-2008	System Admin	User Account Validation Timeout
281	10-03-2008	Search	Search Form Frequency Validation
290	26-03-2008	Data import/export	Global Export National Aero. Omissions
298	10-04-2008	Assignment Coordination	Non-mandatory Field Mods. Notifications
378	22-05-2008	Assignment Coordination	Superseding proposal withdrawal/re-submission reference fork
380	27-05-2008	Presentation	Error on help link
402	17-06-2008	Data Model	State subscriptions lost when FM unassigned

Appendix O – Frequency Management Group
Terms of Reference

(Paragraph 5.4.16 refers)

1. Terms of reference

1.1 The Frequency Management Group (FMG) is established by EANPG to pursue the tasks of the Group in the field of aeronautical frequency spectrum management in support to the relevant ICAO Strategic Objectives with the following TORs:

a) Ensure the continuous and coherent development of the relevant sections of the CNS Part of the European Air Navigation Plan (Basic ANP and FASID, Doc 7754) and other relevant regional documents, including EUR Doc 011 Frequency Management Manual, taking into account the evolving operational requirements in the EUR Region and the need for harmonization with the adjacent regions in compliance with the Global Air Navigation Plan;

b) Monitor and coordinate implementation of the relevant ICAO SARPs and regional procedures, facilities and services by the EUR States and where necessary ensure harmonization, taking due account of financial and institutional issues;

c) Identify any deficiencies in the aeronautical frequency spectrum management related matters in the EUR Region and ensure the development and implementation of relevant action plans by the States to resolve them;

d) Foster implementation by facilitating the exchange of know-how and transfer of knowledge and experience among States of the Region;

e) Provide input to the work of appropriate ICAO bodies in the field of aeronautical frequency spectrum, according to the established procedures.

2. Work Programme

2.1 To ensure that the objectives of FMG are met in accordance with the TORs, the group shall conduct its work according to a Work Programme endorsed by EANPG and kept under review by the COG. The following are the main principles to be followed in setting up the Work Programme of FMG:

a) The Work Programme shall be composed of tasks and projects with clearly identified deliverables, target dates and responsibilities;

b) The tasks/projects should cover the main implementation domains related to aeronautical frequency spectrum management which are subject to regional planning and implementation;

c) The progress on the tasks/projects should be reviewed regularly by FMG and reported to COG and EANPG to ensure that the target dates are met and the deliverables are of required quality.

d) To facilitate the execution of its work programme, FMG may set up working sub-groups, study groups and project teams, if and when required, charge them with specific tasks and define target dates for their completion. After completion of their task(s), the working groups/study groups/project teams will be dissolved.

e) The Work Programme is included as an Attachment to the EANPG report;

f) The detailed FMG Task List providing a break down list of all FMG activities is included into the FMG plenary meeting Summary of Discussions.

3. In conducting its activities, FMG should follow the following guidance given to the Group by the EANPG and COG:

a) Maintain close coordination with relevant EANPG contributory bodies to ensure harmonious development of the EUR air navigation system as a whole;

b) Conduct periodic reviews and originate, as necessary, proposals for amendment of Part VI - CNS of the EUR Basic ANP and FASID (Doc 7754), EUR SUPPs (Doc 7030) and EUR Doc 011 Frequency Management Manual;

c) Seek co-ordination and harmonization with the relevant planning and implementation activities in other ICAO Regions;

d) Use different techniques to monitor implementation in the States (such as, regional surveys, monitoring exercises, regional tests and simulations, etc.) and identify deficiencies; conduct risk analysis to prioritize the identified deficiencies and prepare proposals to EANPG to ensure the urgent resolution of safety-related aeronautical frequency spectrum management deficiencies;

e) Identify areas where assistance to individual States or sub-regions is necessary to eliminate deficiencies and improve harmonized implementation of the aeronautical frequency spectrum management processes through the established mechanisms and prepare proposals thereon;

f) Ensure close liaison between EANPG and with relevant ANC panels/study groups in addressing aeronautical frequency spectrum management related matters; Provide feed-back received from States on problems impeding implementation which need to be addressed by appropriate ICAO bodies;

g) Assist the Secretariat in developing and keeping up-to-date of regional guidance material as necessary to foster the implementation by the States of the global requirements and regional procedures on the aeronautical frequency spectrum management related matters;

h) Prepare proposals and support organization of regional seminars and workshops in the aeronautical frequency spectrum managements field with emphasis on implementation issues;

i) Coordinate regional activities in the field of aeronautical frequency spectrum management with appropriate ITU bodies; liaise closely with EUROCONTROL, IATA and IAOPA on issues of common interest;

j) Identify and refer to COG and EANPG emerging operational and institutional issues related to the planning and implementation of the services and facilities related to the aeronautical frequency spectrum management in order to ensure that such issues are addressed in a coherent manner with the respective ICAO plans, strategies and provisions.

4. Composition of the FMG

Armenia, Austria, Azerbaijan, Belgium, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Turkey, Ukraine, the United Kingdom, EUROCONTROL, IAOPA and IATA

Note: According to the EANPG Handbook: *The composition of a contributory body shall be kept as small as possible, however all States and ICAO recognized international organizations likely to make valid contributions are given the opportunity to participate in essential work programme issues.*

Contributory body participants have the status and role only of technical experts, nominated by their State or ICAO recognized international organizations. They do not represent their State or organization in any formal way, and work on behalf of the EANPG

Appendix P – ICAO Language Proficiency Requirements Implementation Workshop

(Almaty, Kazakhstan, 30 September to 1 October 2008)

(Paragraph 5.4.2 refers)

Summary Report

1. Introduction

1.1 In support of the ICAO Strategic Objective A2 and in follow-up of the European Air Navigation Planning Group (EANPG) Conclusion 49/31, the EANPG Programme Coordinating Group (COG) ATM Training Task Force in close coordination and support by the European and North Atlantic Office (EUR/NAT) of ICAO organised and conducted the ICAO Workshop on Language Proficiency Requirements Implementation for the States from the Eastern part of the ICAO European Region.

1.2 Thanks to the kind invitation and sponsorship of Kazakhstan the workshop was held in Almaty from 30 September to 1 October 2008. The workshop was attended by 57 participants from 12 States and 3 international organisations. The workshop was conducted in English and Russian languages.

1.3 The main objective of the workshop was to assist States from the Eastern part of the ICAO European Region in implementing the ICAO language proficiency requirements (Annex 1, 6, 10, 11 and PANS-ATM, Doc 4444 refer) for pilots and air traffic controllers, to identify the difficulties that have been encountered in the timely implementation of these requirements and to identify what assistance would be required to meet the language proficiency requirements and mitigate risks during a transition period from the applicability date of 5 March 2008 to 5 March 2011.

2. Presentations and discussions

2.1 The workshop was conducted by the following COG ATM Training Task Force members: Mr Adrian Enright from Eurocontrol, Mr Sergey Melnichenko from the Russian Federation and Mr Viktor Mikhailov from Kazakhstan. ICAO EUR/NAT Regional Director, Mr Karsten Theil assisted by Mrs Leyla Suleymanova and Mr Victor Kourenkov participated in all discussions over the workshop throughout its duration.

2.2 The implementation status reports and presentations on the experience and challanges of the implementation were also made by the representatives from Azerbaijan, Belarus, Germany, Kazakhstan, Kyrgyzstan, Latvia, Russian Federation, Ukraine and Uzbekistan.

2.3 The workshop presentations covered the following main issues:

- implementation of the ICAO language proficiency requirements;
- ICAO EUR/NAT language proficiency requirements implementation Action Plan;
- language proficiency test development;
- English language proficiency tests to meet the ICAO requirements;
- training and assessment programmes;
- maintaining the language proficiency level;
- implementation challenges.

2.4 It was noted by the workshop that most of the States from the Eastern part of the ICAO European Region were not in a position to fully comply with the language proficiency requirements and posted their language proficiency implementation plans, as required, on the ICAO website in accordance with the ICAO Assembly Resolution's A36-11 Associated Practices and ICAO guidance material.

2.5 Additionally the following main difficulties in implementing the ICAO requirements which the States were still facing had been mentioned:

- lack of legal and regulatory requirements;
- absence of documented policy and guidance material,
- absence of, or inadequate regulatory oversight;
- inadequate training standards – documentation and implementation;
- lack of recruitment and selection criteria;
- lack of language maintenance policy/requirements;
- insufficient supervisor and manning on the part of regulatory/oversight management;
- poor analysis of "where we are today?" and lack of corrective action system;
- lack of existing resources and wish to change the situation;
- training programmes were not correctly focused;
- training institutions do not understand the ICAO rating scale;
- lack of available expertise in test design; and
- lack of suitable training for examiners and raters.

2.6 The following main determinations were made during the presentations and discussions at the workshop:

a) importance to continue increasing the level of awareness by States, at both regulatory and service providers levels, regarding the imminent need to address the language proficiency in aviation;

b) need to address all aspects of language proficiency requirements at the regional, sub-regional and national levels, as well as the means and methods associated with the language proficiency implementation;

c) language training should be undertaken with a priority to get as many people as possible up to level 4;

d) language schools need to appreciate that level 4, although a high level of proficiency, must be relevant to aeronautical communication – factual not idiomatic, job related;

e) training programmes should be endorsed or certified by national authorities;

2.7 Concluding the discussions on testing the workshop participants agreed on the following:

- "unreliable and invalid tests compromise aviation safety" (*from Mrs Magdalena Večeřovà's presentation)*;
- "the consequences of inadequate language tests made available to license pilots, controllers and other aviation personnel are almost too frightening to contemplate" (*Prof. Charles Alderson, Survey of Aviation English Tests*)

- testing programmes are in place but more guidance is required;
- all testing programmes should comply with ICAO “Language Testing Criteria” and should be validated by the authority; and
- testing is not a “one-off” event.

2.8 All participants agreed that States be encouraged in the full implementation of the ICAO language proficiency requirements to ensure that pilots and air traffic controllers acquire and maintain the minimum level of language proficiency consistent with safety. In order to achieve this it is important

For the States to:

- obtain commitment from the highest level of management/authority;
- develop and put into force relevant national legislation/regulation to support language proficiency requirement;
- organise regular refresher courses to maintain language proficiency;
- review testing procedures to ensure compliance with ICAO “Language Testing Criteria”; and

For ICAO to:

- support States, collectively or individually, in their efforts to implement language proficiency requirements; and
- support international workshops for raters and examiners.

3. Conclusion

3.1 The workshop was highly interactive. The participants expressed support to the ICAO language proficiency requirements in order to improve the aviation safety worldwide. However, further assistance from ICAO in States' implementation of these provisions was strongly requested in order to avoid ambiguities, misunderstandings and hazards for the aviation safety. The continuous need for broad dissemination of knowledge in the areas of testing service, rater's training and testing, assessment methodologies, available tests and their accreditation/certification was requested.

3.2 The workshop proved to be very successful and extremely useful by providing a forum for States in undertaking important coordination work. ICAO was requested to find the possibility of convening similar workshop(s) in the future in order to share the experience gained by States, provide practical guidance on the subject and thus resources over-planning or under-provision be avoided and efficient and effective investments be made.

Appendix Q – ICAO Language Proficiency Requirements
(Recommended Action Plan 2008 - 2011)

(Paragraph5.4.3 refers)

IMPLEMENTING AND MAINTAINING THE ICAO LANGUAGE PROFICIENCY REQUIREMENTS

(RECOMMENDED ACTION PLAN 2008 - 2011)

Note: State – national legal and/or regulatory authority responsible for adoption and implementation of ICAO Standards (Annex 1).

ANSP (Air Navigation Service Provider) – organization or entity responsible for the provision of air traffic services (Annex 11).

AO (Airline Operator) – airline or company responsible for flight operations (Annex 6).

N	ACTIVITY - IMPLEMENTATION	RESPONSIBLE BODY/*DATE*	REMARKS
	For States that have failed to meet the Language Proficiency Requirements by 5 March 2008		
1.	Notify ICAO and all other Contracting States of any differences to language proficiency requirements.	States. *As soon as possible if not already done.*	Publish in national AIP and on the ICAO FSIX website (http://www.icao.int/fsix)/.
2.	Develop and publish a national language proficiency implementation plan.	States. *As soon as possible if not already done.*	See Attachment B to State letter AN 12/44.6-07/68: Guidelines for the development of a language proficiency implementation plan, and Note 2 below.
3.	The plan should be updated at least once a year.	States.	
4.	Select test(s) to meet ICAO language proficiency requirements. • Obtain certification and/or accreditation of selected test(s) from national supervisory authority (regulator/CAA) • Select and train personnel to administer and conduct the test and rate candidate performance • Familiarize pilots and controllers with the format of the test(s) and procedures for administration of the test.	States, ANSPs, AOs. *As soon as possible.*	ICAO Doc 9835. See Notes 1and 3a and 3b below.
5.	Conduct English language training for pilots and controllers appropriate to	ANSPs, AOs. *Before 05 March 2011.*	Applies equally to other languages used in

N	ACTIVITY - IMPLEMENTATION	RESPONSIBLE BODY/*DATE*	REMARKS
	reach ICAO level 4 (operational) proficiency.		aeronautical communication.
6.	Implement a schedule of regular testing of pilots and controllers.	States, ANSPs, AOs, test providers. *As soon as possible if not already done*	ICAO recommendations: at least every 3 years for a level 4 proficiency and at least every 6 years for a level 5 proficiency.
7.	Conduct qualification testing of pilots and controllers.	States, ANSPs, AOs. *To be completed before 05 March 2011.*	
8.	Ensure annual refresher training for raters and interlocutors.	States	To maintain testing standards.
9.	Develop and implement a schedule of language refresher training to maintain language proficiency	States, ANSPs, AOs. *As soon as possible if not already done.* .	Ensure that current level 4 is not eroded.
10.	Implement procedures to deal with pilots and controllers who fail to meet level 4 of the ICAO language proficiency requirements	States, ANSPs, AOs. *As soon as possible if not already done.* .	Address social issues (e.g. suspension/loss of license)
11.	Implement language awareness programmes to ensure that native and expert speakers of English communicate in a manner that is easily understandable to non-native speakers of English proficient at ICAO level 4.	States, ANSPs, AOs. *As soon as possible if not already done.*	Applies equally to other languages used in aeronautical communication.
	For States that are in compliance with the Language Proficiency Requirements		
12.	Implement a programme for regular testing of pilots and controllers.	States, ANSPs, AOs. *As soon as possible if not already done.*	ICAO recommendations: at least every 3 years for level 4 proficiency and at least every 6 years for level 5 proficiency.
13.	Ensure annual refresher training for raters and interlocutors.	States	To maintain testing standards
14.	Develop and implement a schedule of language refresher training to maintain language proficiency	States, ANSPs, AOs. *As soon as possible if not already done*.	Ensure that current level 4 is not eroded.
15.	Implement procedures to deal with pilots and controllers who fail to meet level 4 of the ICAO language proficiency requirements	States, ANSPs, AOs. *As soon as possible if not already done*. .	Address social issues (e.g. suspension/loss of license).

N	ACTIVITY - IMPLEMENTATION	RESPONSIBLE BODY/*DATE*	REMARKS
16.	Implement language awareness programmes to ensure that native and expert speakers of English communicate in a manner that is easily understandable to non-native speakers of English proficient at ICAO level 4.	States, ANSPs, AOs. *As soon as possible if not already done.*	Applies equally to other languages used in aeronautical communication.

***Note** 1: ICAO Doc 9835 First Edition – Manual on Implementation of ICAO Language Proficiency Requirements provides guideline material and valuable information on preparing training and testing programmes.*

***Note 2**: The national language proficiency implementation plan (referring to ICAO Resolution A36-11 – Proficiency in the English Language used for radiotelephony communication) should include the following:*
a)a timeline for adoption of the language proficiency requirements into national regulations;
b)a timeline for establishment of language training and assessment capabilities;
c) a description of a risk-based prioritization system;
d) a procedure for endorsing licences to indicate the holders' language proficiency level;
e) designation of a national focal point on language proficiency requirements implementation.

Attachment B to State letter AN 12/44.6-07/68: Guidelines for the development of a language proficiency implementation plan with some recommendations and instructions on how to work out a plan can be found on the ICAO Flight Safety Information Exchange (FSIX) Website at http://www.icao.int/fsix/.

***Note 3a**: Recommended qualifications for raters and interlocutors (ref.: www.paris.icao.int)*

***Administrator** – a person familiar with the preparation and conduct of tests/examinations e.g. logistics, security, candidate briefing .*

***Rater** – a person with a level of proficiency in the English language sufficient to evaluate performance up to level 5 in compliance with the holistic descriptors and the ICAO Language Proficiency Rating Scale;*
For details see the EANPG48 Report Appendix J – Recommended qualifications for raters of tests to meet the ICAO language proficiency requirements.

***Interlocutor** - a person with a level of proficiency in the English language sufficient to conduct the selected oral test (tests);*
For details see the EANPG48 Report Appendix K – Recommended qualifications for interlocutors of tests to meet the ICAO language proficiency
requirements.

***Note 3b**: Recommended practices to select (or develop) a language proficiency test to meet the ICAO requirements (ref.: www.paris.icao.int)*

Appendix R – Proposal for Amendment to Annex 15 related to eTOD

(Paragraph 5.6.25 refers)

10.1 Function

Amend paragraph 10.1 as follows:
Sets of electronic terrain and obstacle data used in combination with aeronautical data, as appropriate, ~~shall~~ are required to satisfy user requirements necessary to support the following air navigation applications:

Rationale
Paragraph 10.1 of ICAO Annex 15 introduces a list of applications that TOD would support, as a Standard, i.e. by the use of the word "*shall*". The TOD WG and Focus Group concluded that this was in conflict with the later requirements of Chapter 10 and that the use of the data provided was the responsibility of data users, not the State. In consequence, it is proposed that the paragraph be amended from being a Standard to being of information only.

10.2 Coverage and terrain and obstacle data numerical requirements

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Amend paragraph 10.2.1 as follows:
10.2.1 To satisfy requirements necessary to accommodate air navigation systems or functions specified in 10.1, sets of electronic terrain and obstacle data shall be collected and recorded in dataset~~base~~s in accordance with the following coverage areas:

Rationale
The need to amend the use of the term "database" to "dataset" was identified at the first meeting of the TOD WG. It was concluded that the use of the word "database" was misleading as this is often interpreted as having the specific meaning of a relational database. With this interpretation in mind, it could be said that the term "database" is in conflict with the open approach taken by the ISO 19100 series of standards which are mandated by ICAO Annex 15 for the provision of TOD. Furthermore, ICAO Annex 15, when referring to the ISO 19100 series, refers to datasets in 10.5.2, compounding the inconsistency. It should be noted that Amendment 54 to ICAO Annex 4 introduced a definition for "*dataset*".

Amend paragraph 10.2.3 as follows:
Recommendation *- The State should determine those aerodromes/heliports at which the provision of Area 3 data is considered to be beneficial, e.g. where it is supported by the availability of Aerodrome Mapping Data. At ~~IFR~~these aerodromes/heliports, Area 3 shall cover the area that extends from the edge(s) of the runway(s) to 90 m from the runway centre line(s) and for all other parts of aerodrome/heliport movement area(s), 50 m from the edge(s) of the defined area(s).*

Rationale
No validation was found for the provision of Area 3 data other than to support synthetic vision operations at some future, but as yet unspecified, date. However, the growing availability of Class 3 and, latterly, Class 2 electronic flight bags and the introduction of on-board airport mapping display equipment were noted. In considering the provision of Area 3 data, no business case could be determined for the provision of such data by a State. Instead, it was concluded that the provision of

such data should be at the discretion of the aerodrome operator and presumably would be based on a business case.

It was assumed that some States may wish to provide Area 3 data and it is, therefore, submitted that the Area 3 requirements be amended from a Standard to a Recommendation. However, given that some States' national regulation means that they must implement Recommendations, the caveat for operational and/or business validation should be included in the text.

Alterations to paragraph 10.2.4 are proposed. It should be noted that two options are provided for ICAO's consideration. Both have identical intent, the difference being the manner in which the links between ICAO Annexes 4 and 15 are reflected.

Option 1

Amend paragraph 10.2.4 as follows:

Area 4 shall be restricted to those runways where precision approach Category II or III operations have been established and where detailed terrain and obstacle information is required by operators to enable them to assess, by use of radio altimeters, the effect of terrain and obstacles on decision height determination. The ~~width of the~~ area shall be as defined by ICAO Annex 4 for the Precision Approach Terrain Chart (PATC) ~~be 60 m on either side of the extended runway centre line while the length shall be 900 m from the runway threshold measured along the extended runway centre line.~~

Option 2

Amend paragraphs 10.2.4 as follows:

10.2.4 Area 4 shall be restricted to those runways where precision approach Category II or III operations have been established and where detailed terrain and obstacle information is required by operators to enable them to assess, by use of radio altimeters, the effect of terrain and obstacles on decision height determination. The width of the area shall be 60 m on either side of the extended runway centre line while the length shall be 900 m from the runway threshold measured along the extended runway centre line.

New paragraph 10.2.5 as follows:

Recommendation — *Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant to users of the Area 4 datasets, Area 4 should be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.*

Renumber paragraph 10.2.5 to 10.2.6.

Rationale

Chapter 10 requires the provision of only terrain data for Area 4. It states that this data is used for height determination during CAT II/III operations. Today, this information is provided through the Precision Approach Terrain Chart (PATC). As this chart contains more than just terrain information, the TOD WG concluded that terrain data alone is insufficient to provide an electronic dataset which may replace the PATC.

Consequently, the TOD WG has agreed that an obstacle dataset should also be provided for Area 4. The dataset shall contain all the features which may impact height determination and which are not contained within the terrain dataset. The numerical requirements proposed for Area 4 obstacles are based upon those extant for terrain.

Further discussion within the TOD WG has centred on the physical size of Area 4 and has been stimulated, again, by the requirements for the PATC. For the PATC, it is recommended that the area of coverage should be extended along the extended centreline of the runway in areas where the terrain "*is mountainous or otherwise significant to users of the chart*". It is the belief of the TOD WG that the scope of the electronic dataset should also be extended in such situations.

The TOD WG could not agree if ICAO Annex 15 should define the geographical extent of Area 4 or if ICAO Annex 15 should refer to the PATC requirements in ICAO Annex 4. The TOD WG concluded that both options should be submitted to ICAO for consideration and final resolution.

10.3 – Terrain database – content and structure

Amend title 10.3 as follows:
10.3 Terrain dataset~~base~~ — content and structure

Amend paragraph 10.3.1 as follows:
10.3.1 A terrain data~~base~~set shall contain digital sets of data representing terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum. A terrain grid shall be angular or linear and shall be of regular or irregular shape.

Rationale
The need to amend the use of the term “database” to “dataset” was identified at the first meeting of the TOD WG. It was concluded that the use of the word “database” was misleading as this is often interpreted as having the specific meaning of a relational database. With this interpretation in mind, it could be said that the term “database” is in conflict with the open approach taken by the ISO 19100 series of standards which are mandated by ICAO Annex 15 for the provision of TOD. Furthermore, ICAO Annex 15, when referring to the ISO 19100 series, refers to datasets in 10.5.2, compounding the inconsistency. It should be noted that Amendment 54 to ICAO Annex 4 introduced a definition for “*dataset*”.

Amend paragraph 10.3.3 as follows:
10.3.3 Terrain data shall be collected according to the areas specified in 10.2, terrain data collection surfaces and criteria specified in Appendix 8, Figure~~s~~ A8-1, A8-3 and A8-4, and in accordance with the terrain data numerical requirements provided in Table A8-1 of Appendix 8. In terrain data~~base~~sets, only one feature type, i.e. terrain, shall be recorded. Feature attributes describing terrain shall be those listed in Appendix 8, Table A8-3. The terrain feature attributes listed in Table A8-3 represent the minimum set of terrain attributes, and those annotated as mandatory shall be recorded in the terrain data~~base~~set.

Rationale
The need to amend the use of the term “database” to “dataset” was identified at the first meeting of the TOD WG. It was concluded that the use of the word “database” was misleading as this is often interpreted as having the specific meaning of a relational database. With this interpretation in mind, it could be said that the term “database” is in conflict with the open approach taken by the ISO 19100 series of standards which are mandated by ICAO Annex 15 for the provision of TOD. Furthermore, ICAO Annex 15, when referring to the ISO 19100 series, refers to datasets in 10.5.2, compounding the inconsistency. It should be noted that Amendment 54 to ICAO Annex 4 introduced a definition for “*dataset*”.
In addition, it was believed that ICAO had meant to refer to Figures A8-3 and A8-4 when specifying the surfaces and criteria for terrain data.

10.4 – Obstacle database – content and structure

Amend title 10.4 as follows
10.4 Obstacle dataset~~base~~ — content and structure

Amend paragraph 10.4.1 as follows
~~One o~~Obstacle datasets~~database~~ shall contain ~~a~~ digital sets of obstacle data and shall include all obstacles that penetrate the collection surfaces defined in Appendix 8. Individual users of this data should determine those features included within this dataset which have ~~having~~ vertical significance in relation to adjacent and surrounding features that are considered hazardous to air navigation. Obstacle data shall comprise the digital representation of the vertical and horizontal extent of man-made objects. Obstacles shall not be included in terrain datasets~~databases~~ Obstacle data elements are features that shall be represented in the datasets~~database~~ by points, lines or polygons.

Rationale
The need to amend the use of the term “database” to “dataset” was identified at the first meeting of the TOD WG. It was concluded that the use of the word “database” was misleading as this is often interpreted as having the specific meaning of a relational database. With this interpretation in mind, it could be said that the term “database” is in conflict with the open approach taken by the ISO 19100 series of standards which are mandated by ICAO Annex 15 for the provision of TOD. Furthermore, ICAO Annex 15, when referring to the ISO 19100 series, refers to datasets in 10.5.2, compounding the inconsistency. It should be noted that Amendment 54 to ICAO Annex 4 introduced a definition for “*dataset*”.

Furthermore, paragraph 10.4.1 of ICAO Annex 15 placed the responsibility on States to make available “*One obstacle database shall contain a digital set of obstacle data and shall include those features having vertical significance in relation to adjacent and surrounding features that are considered hazardous to air navigation*”. The TOD WG concluded that, as the provider of the data, the State was not the correct body to determine the impact of vertical features. Furthermore, the impact of a feature was considered to vary depending on the flight operations being performed.

In consequence, it is proposed that this paragraph be amended to place a responsibility on the State to provide an obstacle dataset against clearly defined criteria and for the users of the data to determine the impact, if any, of the obstacles published.

Amend paragraph 10.4.2 as follows:
Obstacles, which in accordance with the definition, can be fixed (permanent or temporary) or mobile shall be identified within the areas defined in 10.2, on the basis of the obstacle data collection surfaces and criteria specified in Appendix 8, Figures A8-2 to A8-4, and collected in accordance with obstacle data numerical requirements provided in Table A8-2 of Appendix 8. In an obstacle dataset~~database~~, all defined obstacle feature types shall be recorded and each of them shall be described according to the list of mandatory attributes provided in Table A8-4 of Appendix 8.

Rationale
The need to amend the use of the term “database” to “dataset” was identified at the first meeting of the TOD WG. It was concluded that the use of the word “database” was misleading as this is often interpreted as having the specific meaning of a relational database. With this interpretation in mind, it could be said that the term “database” is in conflict with the open approach taken by the ISO 19100 series of standards which are mandated by ICAO Annex 15 for the provision of TOD. Furthermore, ICAO Annex 15, when referring to the ISO 19100 series, refers to datasets in 10.5.2, compounding the inconsistency. It should be noted that Amendment 54 to ICAO Annex 4 introduced a definition for “*dataset*”.
In addition, it was believed that ICAO had meant to refer to Figure A8-3 and A8-4 when specifying the surfaces and criteria for obstacle data. As the TOD WG has determined that the provision of obstacle data for Area 4 is necessary, a reference has also been made to Figure A8-4.

Amend note to 10.4.2 as follows:
Note.— Specific attributes associated with mobile (feature operations) and temporary types of obstacles are annotated in Appendix 8, Table A8-4, as optional attributes. If these types of obstacles are to be recorded in the dataset~~database~~, appropriate attributes describing such obstacles are also required.

Rationale
The need to amend the use of the term "database" to "dataset" was identified at the first meeting of the TOD WG. It was concluded that the use of the word "database" was misleading as this is often interpreted as having the specific meaning of a relational database. With this interpretation in mind, it could be said that the term "database" is in conflict with the open approach taken by the ISO 19100 series of standards which are mandated by ICAO Annex 15 for the provision of TOD. Furthermore, ICAO Annex 15, when referring to the ISO 19100 series, refers to datasets in 10.5.2, compounding the inconsistency. It should be noted that Amendment 54 to ICAO Annex 4 introduced a definition for "*dataset*".

10.6 – Availability

Amend paragraph 10.6.1.1 as follows;
10.6.1.1 States shall ensure that as of 20 November 2008, electronic terrain and obstacle data are made available in accordance with Area 1 and 4 specifications ~~and terrain data in accordance with Area 4 specifications~~.

Amend paragraph 10.6.1.3 as follows:
10.6.1.3 **Recommendation.—** States should ensure that electronic terrain and obstacle data are made available in accordance with Area 1, Area 2, ~~and~~ Area 3 and Area 4 specifications ~~and terrain data in accordance with Area 4 specifications~~.

Rationale
These paragraphs have been amended to reflect the provision of obstacle data for Area 4 for which, previously, only terrain data was required.

Appendix 1

Add new note to paragraph AD 2.10 2) as follows:

Note 3:- Where a State has determined that Area 3 data shall not be made available for the aerodrome, a statement shall be recorded that the data is not available.

Add new note to paragraph AD 3.10 2) as follows:

Note 3:- Where a State has determined that Area 3 data shall not be made available for the heliport, a statement shall be recorded that the data is not available.

Rationale
No validation was found for the provision of Area 3 data other than to support synthetic vision operations at some future, but as yet unspecified, date. However, the growing availability of Class 3 and, latterly, Class 2 electronic flight bags and the introduction of on-board airport mapping display equipment were noted. In considering the provision of Area 3 data, no business case could be determined for the provision of such data by a State. Instead, it was concluded that the provision of such data should be at the discretion of the aerodrome operator and presumably would be based on a business case.

It was assumed that some States may wish to provide Area 3 data and it is, therefore, submitted that the Area 3 requirements be amended from a Standard to a Recommendation. However, given that some States' national regulation means that they must implement Recommendations, the caveat for operational and/or business validation should be included in the text.

Appendix 8

Amend title Figure 8-4 as follows

Figure A8-4. Terrain and obstacle data collection surface — Area 4

Amend note to Figure A8-4 as follows

~~Only t~~Terrain and obstacle data shall be collected and recorded in Area 4 in accordance with the numerical requirements specified in Table A8-1 and Table A8-2, respectively.

Add note 2 to Figure A8-4 as follows

Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant to users of the Area 4 datasets, Area 4 should be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.

Rationale

Chapter 10 requires the provision of only terrain data for Area 4. It states that this data is used for height determination during CAT II/III operations. Today, this information is provided through the Precision Approach Terrain Chart (PATC). As this chart contains more than just terrain information, the TOD WG concluded that terrain data alone is insufficient to provide an electronic dataset which may replace the PATC.

Consequently, the TOD WG has agreed that an obstacle dataset should also be provided for Area 4. The dataset shall contain all the features which may impact height determination and which are not contained within the terrain dataset. The numerical requirements proposed for Area 4 obstacles are based upon those extant for terrain.

Amend Table A8-1 as follows:

	Area 1	Area 2	Area 3	Area 4
Post spacing	3 arc seconds (approx. 90 m)	1 arc second (approx. 30 m)	0.6 arc seconds (approx. 20 m)	0.3 arc seconds (approx. 9 m)
Vertical accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01 m	0.1 m
Horizontal accuracy	50 m	5 m	0.5 m	2.5 m
Confidence level ~~(1δ)~~	90%	90%	90%	90%
Data classification	routine	essential	essential	essential
Integrity level	1×10^{-3}	1×10^{-5}	1×10^{-5}	1×10^{-5}

Maintenance period	as required	as required	as required	as required

Rationale

The TOD WG has identified an inconsistency between the term 1σ and 90%.

Amend Table A8-2 as follows:

	Area 1	Area 2	Area 3	Area 4
Vertical accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01 m	0.1 m
Horizontal accuracy	50 m	5 m	0.5 m	2.5 m
Confidence level ~~(1δ)~~	90%	90%	90%	90%
Data classification	routine	essential	essential	essential
Integrity level	1×10^{-3}	1×10^{-5}	1×10^{-5}	1×10^{-5}
Maintenance period	as required	as required	as required	as required

Rationale

Chapter 10 requires the provision of only terrain data for Area 4. It states that this data is used for height determination during CAT II/III operations. Today, this information is provided through the Precision Approach Terrain Chart (PATC). As this chart contains more than just terrain information, the TOD WG concluded that terrain data alone is insufficient to provide an electronic dataset which may replace the PATC.

Consequently, the TOD WG has agreed that an obstacle dataset should also be provided for Area 4. The dataset shall contain all the features which may impact height determination and which are not contained within the terrain dataset. The numerical requirements proposed for Area 4 obstacles included in Table 8-2 above are based upon those extant for terrain.

The TOD WG has identified an inconsistency between the term 1σ and 90%.

Amend Table A8-3 as follows:

Table A8-3. Terrain attributes

Terrain attribute	Mandatory/Optional
…	
Vertical confidence level	Mandatory
Surface type	~~Mandatory~~Optional
Recorded surface	Mandatory
…	

Rationale

The list of terrain attributes in ICAO Annex 15 includes "*Surface Type*" which has proven to be a major concern for States as this information is not typically available within existing datasets and, furthermore, is costly to determine. Nonetheless, the longer-term value of having this data was understood.

As a result, the TOD WG concluded that this attribute should be a Recommendation.

Amend Table A8-4 as follows:

Table A8-4. Obstacle attributes

Obstacle attribute	Mandatory/Optional
…	
Elevation	Mandatory
Height	Optional
Vertical accuracy	Mandatory
…	

Rationale

The list of obstacle attributes in ICAO Annex 15 did not include “Height” which was concluded as being a deficiency. As a result, it is proposed that this attribute is added.

Appendix S – WAFS and SADIS Developments

(Paragraph 5.7.5 refers)

WAFS DEVELOPMENT SINCE METG/17

1. RECENT DEVELOPMENTS

1.1 Adoption of Standards and Recommended Practices of Amendment 74 to ICAO Annex 3

Amendment 74 to ICAO Annex 3 – *Meteorological Service for International Air Navigation*, was adopted on 07 November 2007. Accordingly, a small number of changes pertinent to the WAFS have been implemented by the WAFC Provider States. Of note, the WAFCs are:

i) no longer required to issue amendments to WAFS SIGWX forecasts; and

ii) no longer required to depict surface fronts, well-defined convergence zones (ITCZ) and non-CB cloud amount and type on WAFS SIGWX forecasts.

Suggested action: *Note this information only.*

Concerning tropical cyclones (TC), Amendment 74 to Annex 3 added the identification of an unnamed TC (by using the term 'NIL') in the name block of the TC advisory message template, issued by a designated TC Advisory Centre (TCAC). The new provisions were designed to cater for those developing systems which were expected to reach tropical storm intensity (with a maximum wind of 63 km/h (34 kt) or more) during the period covered by the advisory, but had not yet been given a name. However, using the term 'NIL' in the WAFS SIGWX forecasts could lead to ambiguity amongst users which may be misled to consider that the TC identified with 'NIL' was expected to dissipate by the validity time. The WAFSOPSG/4 meeting (February 2008) agreed that the abbreviation 'TC' with no name/qualification should be used for *an unnamed TC which is forecast to reach tropical storm intensity by the SIGWX forecast validity time* (WAFSOPSG Decision 4/7 refers). Once the TC has been given a name by the TCAC concerned, the WAFCs will use that name on subsequent WAFS SIGWX forecasts.

Suggested action: *Note this information only.*

1.2 Earlier issuance time of WAFS SIGWX

On 06 February 2008, in accordance with WAFSOPSG Conclusion 3/14, the WAFC Provider States advanced the lead time of issuance of WAFS SIGWX forecasts in the BUFR code form to 17 hours for high-levels (SWH) and 16 hours for medium-levels (SWM). For WAFS SWH and SWM forecasts in portable network graphics (PNG) chart format, a lead time of issuance of 16 hours applies.

Users are to note that when the WAFCs are operating in ***backup mode***, SWH BUFR will continue to be issued with a lead time of 17 hours. However, SWM BUFR, and all PNG charts (SWH and SWM) will be issued with a lead time of 15 hours.

Accordingly, new issuance times for the T+24 WAFS SIGWX forecasts are:

i) 0100 UTC, 0700 UTC, 1300 UTC and 1900 UTC for routine and back-up mode SWH BUFR;

ii) 0200 UTC, 0800 UTC, 1400 UTC and 2000 UTC for routine SWM BUFR, SWH PNG and SWM PNG; and

iii) 0300 UTC, 0900 UTC, 1500 UTC and 2100 UTC for back-up mode SWM BUFR, SWH PNG and SWM PNG.

Suggested action: *Users may require a workstation software update to accommodate the new SIGWX issue times. Users are urged to contact their workstation provider where necessary.*

1.3 Provision of PNG formatted SIGWX charts

To minimise the impacts for end users of the cessation of T4 formatted SIGWX charts, and BUFR migration issues, the WAFS Provider States have provisioned PNG formatted SIGWX charts on the WAFS broadcasts since mid-late 2005. PNG formatted SIGWX charts are expected to be available at least until 2010, as a backup to BUFR encoded SIGWX forecasts.

On the SADIS 1G and 2G satellite broadcasts, these products are available as bulletinised PNGs (i.e. enclosed by a WMO telecommunications wrapper). The 'envelope' is necessary to enable these charts to be transmitted via satellite. For a product recipient to be able to display these charts, the 'envelope' needs to be removed by a client workstation system.

On SADIS FTP, these products are available as unbulletinised PNGs (i.e. with their WMO telecommunications wrapper removed). This enables SADIS FTP users to display the products via commercial off-the-shelf (COTS) applications, including internet web browsers. High-level and medium-level SIGWX forecasts in PNG format are available for standard ICAO regions.

Suggested action: *All approved SADIS workstation vendors have software that can visualise the PNG formatted SIGWX charts. Users who cannot view these products are encouraged to contact their workstation/software vendor with a view to obtaining a software upgrade which includes PNG viewing capabilities.*

1.4 BUFR encoded WAFS SIGWX forecasts and BUFR guideline documentation.

Since July 2005, the WAFS Provider States have produced BUFR encoded SIGWX forecasts for dissemination over the WAFS broadcasts (SADIS and ISCS). Global high-level (SWH) and regional medium-level (SWM) SIGWX forecasts in BUFR format are available for approved users. A SADIS workstation and/or software visualisation suite is required to visualise the BUFR encoded products. It is recommended that SADIS users unable to visualise the BUFR data contact their workstation/software vendor with a view to obtaining a software upgrade. *Consideration needs to be given to the financing and implementation of subsequent software upgrades that may be required should the BUFR standards change in future.*

To assist users and workstation vendors intending to utilise BUFR encoded WAFS SIGWX forecasts, the WAFC Provider States has compiled a BUFR guideline document, that is reviewed on a regular basis and updated as required. The document, titled "*Representing WAFS significant weather (SIGWX) data in BUFR*" is available as a link from the WAFSOPSG website via URL: www.icao.int/anb/wafsopsg/. The most recent copy, version 4.1, was published in December 2007.

Suggested action: *All approved SADIS workstation vendors have software that can visualise the BUFR encoded SIGWX data. Users who cannot decode and view this data are encouraged to contact their workstation/software vendor with a view to obtaining a software upgrade which includes BUFR decoding and viewing capabilities.*

1.5 SADIS FTP Service developments and documentation

The SADIS FTP service has been in operation since mid-2005. It offers approved SADIS users with an alternative, high-quality internet based solution for receiving WAFS and OPMET data. The SADIS FTP service is an ICAO-approved distribution system and an integral part of the SADIS service, complementing, and providing backup for, the SADIS 1G and 2G satellite services. To assist users intending to access this service, the SADIS Provider State has produced a SADIS FTP user guide. The document, titled "*SADIS FTP Service*" is available as a link from the SADISOPSG website via URL: www.icao.int/anb/sadisopsg. The document is reviewed on a regular basis and updated as required to take account of any modifications to the service. The most recent copy, version 4.1, was published in December 2007.

Suggested action: *Approved SADIS users who have internet capabilities, but do not have an active SADIS FTP account, are invited to contact the SADIS Provider State seeking access to the service. Details can be found in the SADIS FTP Service document (outlined above) or through their State Met Authority.*

Since October 2006, new GRIB 1 encoded WAFS forecast data for icing, turbulence and cumulonimbus clouds have been made available on the SADIS FTP service. These products are available to users of the SADIS FTP service broadcast on a *trial and evaluation* basis only at the present time. Further development of these products is continuing. In order to foster the future implementation and correct use of these gridded WAFS forecasts, users who have the ability to decode and visualise the trial and evaluation products are kindly requested to forward comments and suggestions to the WAFC Provider States – details provided in the SADIS FTP Service document outlined above.

Suggested action: *Note this information and forward any feedback to the WAFCs as appropriate.*

1.6 Enhancements to the provision of SADIS Administrative Messages

In November 2007, the SADIS Provider (UK Met Office) initiated a complementary service for provision of SADIS Administrative Messages (NOUK10 EGRR) via email. Dissemination of admin messages via email is *in addition to*, and *not instead of*, the standard ICAO AFS dissemination method (SADIS broadcasts) and the Met Office SADIS webpage. Any approved SADIS user who feels that their organisation would benefit from email notification of the administrative messages (in addition to the standard dissemination methods described above), are invited to contact the SADIS Manager at their convenience via email: greg.brock@metoffice.gov.uk or aviation@metoffice.gov.uk. Please mark your enquiry "For attention of the SADIS Manager".

Users are kindly requested to note that the email address (or addresses) to which they would like messages to be sent must be fully functioning and preferably generic - i.e. avoid the use of personal email accounts such as myname@provider.com. An ideal approach is for the user to define an email address associated with a technical expert or technical area within their organisation, such as opsadmin@mycompany.org. This will ensure that messages can be dealt with by the appropriate authority during their hours of operation. A maximum of two email addresses will be permissible per user site.

Suggested action: *Users are invited to contact the SADIS Manager, as detailed above, if, in addition to the standard dissemination methods, they would like to receive SADIS Admin Messages via email.*

2. FUTURE DEVELOPMENTS

2.1 Migration from GRIB 1 to GRIB 2 WAFS upper-air forecasts

The WAFSOPSG/4 meeting (February 2008) endorsed a detailed implementation plan for migration from GRIB1 to GRIB2 code-form WAFS upper-air forecasts, based on IATA requirements. The WAFC Provider States are expected to develop and test WAFS forecasts in the GRIB2 code-form, encompassing higher-resolution data (temporal and spatial), as well as gridded icing, turbulence and cumulonimbus (CB) cloud forecasts, by the end of 2009. Subject to further endorsement at WAFSOPSG/5, WAFS workstation vendors, flight planning companies and users will be afforded at least 3 years of parallel GRIB1-GRIB2 broadcasting to facilitate migration of end-user systems to accept the new format, before the GRIB1 code-form forecasts are withdrawn.

The higher-resolution element of the GRIB2 code-form data will encapsulate 3-hourly time-step intervals T+6 to T+36 (presently 6-hourly) and a 1.25 degree latitude and longitude regular (*unthinned*) grid (presently 1.25 degree *thinned*). Due to the considerable increase in data volume by moving to higher temporal and spatial resolutions, the GRIB 2 WAFS data will be compressed on the SADIS (and ISCS) broadcasts.

Suggested action: *The sub-group is advised to monitor development of the GRIB2 code form WAFS upper-air forecasts, encompassing higher-resolution data and icing, turbulence and CB forecasts, through the WAFSOPSG.*

2.2 Improved WAFS forecasts for icing, turbulence and cumulonimbus clouds in the GRIB 2 code form

As expressed in 2.5 above, trial and evaluation versions of gridded icing, turbulence and cumulonimbus (CB) cloud forecasts in GRIB1 code-form have been available for download on SADIS FTP since October 2006. These products will eventually form part of the remit for GRIB2 WAFS upper-air forecasts as outlined in 3.1 above. The WAFSOPSG/4 meeting endorsed the further development of these automated SIGWX products, including the creation of high 'at a glance' products, algorithm alignment and systematic comparison of the WAFC London and WAFC Washington output, verification assessment, and generation of guidance for the (future) use of these products.

To facilitate the implementation of these new gridded WAFS forecasts, and in particular their visualisation, a workshop involving the WAFC Provider States, WAFS user States and users is tentatively planned for September 2009. A training package will be made available to users but the exact format of this training is still to be agreed by the WAFSOPSG.

Suggested action: *The sub-group is advised to monitor development of the automated icing, turbulence and CB forecasts through the WAFSOPSG, and monitor the development of a training package.*

2.3 Establishment of a web-based distribution of WAFS forecasts

The WAFSOPSG/4 meeting endorsed a proposal of the WAFC Provider States to develop a web-based interface (one from each WAFC) for the provision of a minimum set of WAFS charts – based on the automated gridded SIGWX forecasts for icing, turbulence and CB cloud and derived from the GRIB 2 code-form data, for intended use in flight documentation. The WAFC Provider States intend to make this new service available by the end of 2009. The service will be designed to be easily accessible, user friendly, and allow users the freedom to visualise a selection of products within the T+6 to T+36 time frames at 3-

hourly intervals. The service will be targeted primarily at the least developed countries which may not be in a position to convert the GRIB and/or BUFR coded SIGWX forecasts into chart form.

Suggested action: *The sub-group is advised to monitor development of the web-based distribution of WAFS forecasts through the WAFSOPSG.*

2.4 Use of concatenated WAFS forecasts for long-haul flights

An ad-hoc group of the WAFSOPSG has been studying the feasibility of joining together (i.e. 'concatenating') wind/temperate and SIGWX charts containing up to 3 validity periods – to cater for the needs of long-haul flight operations. Whilst initial findings and feedback from a small number of users has been generally positive, the group noted some concerns regarding missing point data where two wind/temperature charts were joined, and observed discontinuities when SIGWX charts of differing validity were joined. With such discontinuities, users may not be able to get a clear understanding of the meteorological situation from the concatenated SIGWX chart.

A follow-up study is to be conducted by the ad-hoc group to determine the applicability of the use of concatenated visualisation as far as the new gridded forecasts for icing, turbulence and CB clouds are concerned. The findings are expected to be published at the WAFSOPSG/5 meeting. ICAO, in co-ordination with WMO, is also expected to develop Annex 3 enabling clauses for the provision of concatenated route-specific wind/temperature forecast – generated preferably from interpolating data from consecutive forecast times – for review by the WAFSOPSG/6 meeting.

Suggested action: *The sub-group is advised to monitor the progress of developing concatenated WAFS forecasts through the WAFSOPSG.*

2.5 Further development of WAFC Performance Indicators

The WAFC Provider States have been invited by the WAFSOPSG/4 meeting to assess the possibility of further developing the WAFC Performance Indicators – that are publicly available via URLs: http://www.metoffice.gov.uk/icao/index.html and http://www.emc.ncep.noaa.gov/gmb/icao/ncep_scores.html

The recommendations for improvements include wind and temperature performance indicators for a) the WMO defined verification area covering Australia and New Zealand; b) all standard levels; and c) in digital and chart format. The assessment of these proposals will be presented to the WAFSOPSG/5 meeting.

Suggested action: *The sub-group is advised to monitor the further development of the WAFC performance indicators through the WAFSOPSG.*

2.6 Corrections to WAFS SIGWX forecasts

As expressed in paragraph 2.1 above, Amendment 74 to ICAO Annex 3 eliminated the requirement for the WAFCs to issue *amendments* to the meteorological content of WAFS SIGWX forecasts. The WAFSOPSG/3 meeting however, called on the WAFC Provider States to undertake a study to assess the implications on WAFS users of a proposal to introduce WMO standards for issuance of *corrections* to SIGWX forecasts (BUFR and PNG chart form). The study, presented at WAFSOPSG/4, determined that substantial changes would be necessary at both provider and receiver (end-user) locations, with associated cost implications, if the proposals were adopted for implementation.

Given these remarks and the infrequent occurrence when SIGWX corrections would be required, the group concurred that a practical and minimal procedure to handle errors within SIGWX should be introduced. This procedure, to be implemented by WAFSOPSG/5, will be for the WAFCs to issue an administrative message/bulletin drawing attention to the error identified. The BUFR data and PNG charts themselves, which contain erroneous data, will not be re-issued due to the downstream implications detailed in the WAFSOPSG/4 report. User notification of the administrative message header(s) to be used for will be made through the WAFSOPSG Change Notice Board, at URL:

http://www.icao.int/anb/wafsopsg/WAFS%20change%20notice%20board.pdf

Suggested action: *Users are advised to monitor the WAFSOPSG website for details of the implementation of corrections to SIGWX forecasts by WAFC London and WAFC Washington. A minor software update may be required to accommodate reception and handling of the administrative message(s).*

2.7 Cessation of SADIS 1G satellite broadcast system

The SADIS first generation satellite broadcast system (SADIS 1G) has been in operation since the mid-1990's. Since the implementation of the SADIS second generation satellite broadcast system (SADIS 2G) in 2004, all existing SADIS 1G users have been advised to consider upgrading their SADIS VSAT receiving equipment to accept SADIS 2G, and all prospective new satellite broadcast users have been advise to procure a SADIS 2G receiving system. The SADISOPSG/13 meeting (27-29 May 2008) endorsed the cessation of the SADIS 1G service at the end of 2008, in view of the implementation of SADIS 2G. Any SADIS 1G users who have not migrated to SADIS 2G by that time are to consider utilisation of the SADIS FTP service as an interim measure until they have procured their SADIS 2G VSAT receiving system.

Suggested action: *Users of the legacy SADIS 1G service are strongly advised to consider procurement of a SADIS 2G receiver system upgrade, ahead of the planned cessation of SADIS 1G on 5 January 2009 . Any SADIS 1G users who have not migrated to SADIS 2G by that time are to consider utilisation of the SADIS FTP service as an interim measure until they have procured their SADIS 2G VSAT receiving system.*

2.8 Enhancements to the SADIS FTP service

The SADIS Provider (UK Met Office) has tabled a number of enhancements to the SADIS FTP service to improve service resilience and security. The SADISOPSG/13 endorsed a revised implementation plan for SADIS FTP enhancements, which will include dual server capability, and development of a SADIS FTP Secure service.

Enhanced capability of the SADIS FTP service to include dual server resilience is expected to be available by June 2009. In addition, the SADIS FTP Secure service will be developed with a view to becoming operational towards the end of 2010. Initially, the SADIS FTP Secure service will be provided in parallel with the existing service. However, SADIS FTP Secure will eventually become the sole service after an overlapping period (yet to be determined). This will mean SADIS FTP end-users may require a workstation update to accommodate the enhanced security features of SADIS FTP Secure. Further details of the impact of these changes will be presented through the SADISOPSG.

Suggested action: *New and existing SADIS FTP users are invited to note the discussions of SADISOPSG in relation to SADIS FTP enhancements, with a view to determining the impact (if any) on their workstation arrangements.*

Appendix T – VA Advisory and VA SIGMET formats

(Paragraph 5.7.8 refers)

Proposal for standardising the format of the test VA advisory and VA SIGMET

1. Proposed Format for test VAA

```
FVXXii CCCC YYGGgg
VA ADVISORY
DTG:            YYYYMMDD/HHmmZ
VAAC:           VAAC_Name
VOLCANO:        Volcano_NAME_N°
PSN:            Lat Lon
AREA:           State_Region
SUMMIT ELEV:    highM
ADVISORY NR:    YYYY/Nr
INFO SOURCE:    free_text1
AVIATION COLOUR CODE:  UNKNOWN or NIL
ERUPTION DETAILS: UNKNOWN or free_text2
EST VA DTG:  nn/nnnnZ
OBS|EST VA CLD:  VA NOT IDENTIFIABLE FROM SATELLITE DATA Winds|text
FCST VA CLD +6 HR:  NO VA EXP|text
FCST VA CLD +12 HR: NO VA EXP|text
FCST VA CLD +18 HR: NO VA EXP|text
RMK:  free_text3
TEST TEST TEST    TEST TEST TEST   TEST TEST TEST      TEST TEST TEST
NXT  ADVISORY:    YYYYMMDD/HHmmZ|NO    LATER    THAN  YYYYMMDD/HHmmZ|NO  FURTHER
ADVISORIES=
```

Where

Text1| Text2 means **Text1 OR Text2**
Example: OBS|EST means OBS(for observed) OR EST(for estimated)

ii = 01 to 39

YYGGgg = Date time Group of the MWO heading (ex: 270616 meaning the 27th day of the month at 06h 16mn UTC)

CCCC = LFPW (the VAA being produced by VAAC Toulouse)

YYYY = year (ex: 2007 meaning the year 2007)

MM = Month (ex: 09 meaning September)

DD = Day (ex: 27 meaning the 27th day of the month)

HHmm = Hour of redaction (ex: 0616 meaning 06h 16mn UTC)

VAAC_Name= Name of the VAAC (TOULOUSE)

Volcano_Name_N°= Name and N° of the Volcano
UNKNOWN or the real name and N° (ex: ES SAFA 0300-05)

Lat Lon= Latitude & longitude of the Volcano
UNKNOWN or the latitude and longitude of the volcano (ex: N3318 E03718)

State_Region = State or region Name (ex: SYRIA)

highM = Summit elevation (ex: 979M)

YYYY/Nr = VAA Numero Nr for this very Volcano for the year YYYY (ex: 2008/06)

Free_text1 = free text (up to 32 alphanumeric characters)

Free_text2 = free text (up to 64 alphanumeric characters)

nn/nnnnZ = day/hour of the observation or estimation of the current location of the VA CLOUD (ex: 27/0600Z meaning the 27th day of the month at 06h 00mn UTC)

Winds = WINDS + average forecasted winds at selected layers

text = lat/lon points delineating boundaries of VA cloud at selected layers

Free_text3 = free text up to 256 alphanumeric characters but finishing by "TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST"

NB : the free text zones should be used to indicate that the VAA is a test VAA and other information relative to the test.

Examples:

A) When no meteorological content is required

```
FVXX01 LFPW 240602
VA ADVISORY
DTG:20080624/0600
VAAC: TOULOUSE
VOLCANO: UNKNOWN
PSN: UNKNOWN
AREA: ICAO MID REGION
SUMMIT ELEV: UNKNOWN
ADVISORY NR: 2008/10
INFO SOURCE: TEST VOLCMID
AVIATION COLOUR CODE:  UNKNOWN
ERUPTION DETAILS: TEST VOLCMID
OBS VA DTG:  24/0600Z
OBS VA CLD: VA NOT IDENTIFIABLE FROM SATELLITE DATA
FCST VA CLD +6 HR:  24/1200Z NO VA EXP
FCST VA CLD +12 HR: 24/1800Z NO VA EXP
FCST VA CLD +18 HR: 25/0000Z  NO VA EXP
RMK : THIS TEST IS DESIGNATED TO TEST VA DISSEMINATION IN THE
 MID REGION. ALL ACC/FIC WITHIN THE MID REGION HAVE TO SEND AN
 ACK TO THE TOULOUSE OPMET DATA BANK LFPWYZYX AND ALL MWO
WITHIN THE MID REGION HAVE TO SEND A VA SIGMET AS SHOWN
IN THE TEST PROTOCOL VOLCMID DESCRIBED IN THE MID ICAO WEBSITE.
TEST TEST TEST    TEST TEST TEST   TEST TEST TEST   TEST TEST TEST
NEXT ADVISORY: NO FURTHER ADVISORIES=
```

B) When a meteorological content is required

```
FVXX01 LFPW 250950
VA ADVISORY
DTG:    20080625/0945
VAAC:   TOULOUSE
VOLCANO:  JEBEL ZUBAIR 0201-02
PSN:  N1503 E04211
AREA:       RED-SEA
SUMMIT ELEV:  191M
ADVISORY NR:  2008/01
INFO SOURCE:  TEST VOLCMID
AVIATION COLOUR CODE:  UNKNOWN
ERUPTION DETAILS: EXERCISE VOLCMID
OBS VA DTG:  25/0900Z
OBS VA CLD:  SFC/FL150 N1530 E04210 - N1455 E02745 - N2000 E03330 - N1530 E04210
FL150/300 N1725 E04135 - N2755 E05510 - N2245 E06140 - N1725 E04135
FCST VA CLD +6 HR:   25/1500Z SFC/FL150 N1710 E03335 - N2305 E02250 - N1900
E01735 - N1710 E03335 FL150/300 N2220 E04455 - N3030 E05705 - N2740 E06520 -
N2220 E04455
FCST VA CLD +12 HR: 25/2100Z SFC/FL150 N1950 E02810 - N2755 E01825 - N2450
E01035 - N1950 E02810 FL150/300 N2505 E05235 - N3500 E06605 - N2855 E07310 -
N2505 E05235
FCST VA CLD +18 HR: 26/0300Z SFC/FL150 N2515 E01910 - N3435 E00920 - N2855
E00630 - N2515 E01910 FL150/300 N4310 E05915 - N3720 E06725 - N3200 E05215 -
N4310 E05915
RMK : THIS TEST IS DESIGNATED TO TEST VA DISSEMINATION IN THE
 MIDREGION. ALL ACC/FIC WITHIN THE MID REGION HAVE TO SEND AN
 ACK TO THE TOULOUSE OPMET DATA BANK LFPWYZYX AND ALL MWO
 WITHIN THE EUR REGION HAVE TO SEND A VA SIGMET AS SHOWN IN
THE TEST PROTOCOL VOLCMID  DESCRIBED IN THE MID ICAO WEBSITE.
TEST TEST TEST  TEST TEST TEST  TEST TEST TEST  TEST TEST TEST
NEXT ADVISORY:  NO FURTHER ADVISORIES=
```

2. Proposed Format for test VA SIGMET

```
WVAAii CCCC YYGGgg
CCCC_FIC SIGMET nnn VALID J1J1H1H1M1M1/J2J2H2H2M2M2  CCCC_MWO-
CCCC_FIR  FIR_Name  {FIR/UIR|FIR|CTA} TEST TEST TEST TEST
{met|ack}
TEST VA SIGMET PLEASE DISREGARD
TEST TEST TEST  TEST TEST TEST  TEST TEST TEST  TEST TEST TEST=
```

where:

```
CODE     in blue:   key word (example: SIGMET)
CODE     in green:   variable (example: CCCC_FIC= 'LFFF', 'EBBU' …)
{A|B}   A OR B
```

AA	zone code (see WMO publication N°386)
ii	example: 31 (see WMO publication N°386)
CCCC	location indicator of the centre producing the bulletin
YYGGgg	Date time Group of the MWO heading (ex: 270616 meaning the 27th day of the month at 06h 16mn UTC)

CCCC_FIC	ICAO location indicator of the ATS unit serving the FIR or CTA
nnn	Sequence number
J1J1H1H1M1M1/J2J2H2H2M2M2	Day-time groups indicating the period of validity in UTC
CCCC_MWO	Location indicator of MWO originating the message
CCCC_FIR	Location indicator and name of the FIR/CTA
FIR_Name	Location indicator and name of the FIR/CTA
met or ack	See hereafter

a) If a met content is required

met should be replaced by the met content by the MWO

b) If no met content is required

ack should be replaced by:

"ACK RECEP TEST VAA FROM VAAC VAAC_Name
VOLCANO Volcano_Name_N° AREA State_Region
INFO SOURCE free_text1
DTG YYYYMMDD/HHmmZ RECEIVED AT day_hour"

VAAC_Name:	Name of the VAAC as described in the received VAA
Volcano_Name_N°:	Name & N° of the Volcano as described in the received VAA
YYYYMMDD/HHmmZ:	Year, month, day and hour of the VAA redaction, as described in the received VAA
day_hour:	Day and hour of reception of the VAA by the MWO

Examples:

A) If an **ACK** and no met content is required :

WVEG31 HECA 080200
HECC SIGMET **1** VALID 080400/081000 HECA-
HECC CAIRO FIR TEST TEST TEST
ACK RECEP TEST VAA FROM VAAC TOULOUSE
VOLCANO UNKNOWN AREA ICAO MID REGION
INFO SOURCE TEST VOLCMID
DTG 20071127/0615Z RECEIVED AT 20071127-0621Z
TEST VA SIGMET PLEASE DISREGARD
TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST TEST=

B) If a **MET** content is required

```
WVEG31 HECA 161008
HECC SIGMET  1 VALID 162000/170200 HECA-
HECC CAIRO FIR TEST TEST TEST
VA ERUPTION MT JEBEL ZUBAIR LOC N1503 E04211
VA CLD FCST SFC/FL250 APRX 60 BY 60 KM N OF N30 MOV S 50 KT INTSF
FCST 170200Z VA CLD FCST SFC/FL250 APRX 90 BY 90 KM N OF n26
TEST VA SIGMET PLEASE DISREGARD
TEST TEST TEST  TEST TEST TEST  TEST TEST TEST  TEST TEST TEST=
```

Appendix U – Requirements for meteorological observations and reports from offshore structures in the North Sea

(Paragraph 5.7.19 refers)

(Sample Table to be used for developing a new FASID Table MET 1C)

State	Off-shore station				Content of reports		
	Installation Name	**ICAO loc ind**	**Latitude**	**Longitude**	**Clouds**	**Sea Surface Temp**	**Sea State**
Netherlands	F3-FB-1	EHFD	N 54 51	E 04 42	N/A	√	√
	K13-A	EHJR	N 53 13	E 03 13	N/A	√	N/A
	Lichteiland Goeree	EHSC	N 51 56	E 03 40	N/A	√	√
	EuroPlatform	EHSA	N 52 00	E 03 17	Planned	√	√
	K14-FA-1C	EHKV	N 53 16	E 03 38	√	√	√
	F16-A	EHFZ	N 54 07	E 04 01	√	N/A	N/A
	L9FF-1	EHMG	N 53 37	E 04 58	√		
	AWG-1	EHMA	N 53 30	E 05 57	√		
	D15 FA-1	EHDV	N 54 19	E 02 56	√		
	Hoorn-A	EHQE	N 52 55	E 04 09	√		
	A12-CPP	EHAK	N 55 25	E 03 49	√		
	Planned Stations						
	P11-B	EHPB	N 52 22	E 03 21	√		
	J6-A	EHJA	N 53 49	E 02 57	√		

Appendix V – European Regional Monitoring Agency (EUR RMA) Terms of Reference

(Paragraph 6.1 refers)

The EUR RMA was established by the European Air Navigation Planning Group (EANPG) to support the EANPG with its planning functions in accordance with the requirements detailed in Annex 11 (13th Edition) and Doc 9574 (2nd Edition).

On request of the EANPG (EANPG Conclusions 43/36 and 45/29 refer), the EUROCONTROL Commission established the EUR RMA as part of the EURCONTROL Agency (CN Ad hoc 11/2003 refers).

Terms of Reference

The EUR RMA is established to support the European Air Navigation Planning Group (EANPG) in monitoring aircraft approval status and height keeping performance within European RVSM airspace. The RMA is responsible for initiating appropriate action to ensure compliance and submitting safety assessment reports as required to the EANPG.

Specifically, its principle functions are:

1. Establish and operate a database of RVSM approvals, for the European Region, issued by State aviation authorities.
2. Establish and maintain a mechanism for confirmation of approval status of aircraft operating in European RVSM airspace.
3. Ensure that the filing of RVSM flight plans for non-approved aircraft are reported to State aviation authorities.
4. Maintain a monitoring infrastructure to provide aircraft height keeping performance data.
5. Act as the custodian of all aircraft technical height keeping data collected as part of the European Region monitoring process and take follow-up action, as required, with operators, State aviation authorities and when appropriate manufacturers, of aberrant or non-compliant aircraft.
6. Ensure that operators within European RVSM airspace comply with global and regional minimum monitoring requirements.
7. Provide approved operators and State aviation authorities with height monitoring data on request.
8. Liaise with other Regional Monitoring Agencies in order to achieve an exchange of monitoring and RVSM approvals data between regions.
9. Establish and amend, as required, mechanisms for the collection and analysis of occurrence data, including operational errors, for use in the risk assessment process.
10. Investigate and analyse the causes of occurrences, including operational errors, in the European Region and take follow-up action with State aviation authorities as required.
11. Produce an annual safety report assessment of the operational and technical risk measured against the published Target Level of Safety.
12. Provide an annual report to the EANPG on deficiencies regarding reporting of altitude deviations and non compliance with flight planning requirements.

Appendix W – EUR Supplement[1] to the

Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies

(Paragraph 7.9 refers)

1. INTRODUCTION

1.1. Considerable attention is being given by ICAO to eradicate deficiencies in the air navigation field. In order to provide guidance to the PIRGs in dealing with the deficiencies, the Council of ICAO approved on 30 November 2001 the *Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies* (hereinafter referred to as "Uniform Methodology"). The Uniform Methodology was developed by ICAO for the efficient identification, assessment and clear reporting of air navigation deficiencies (a copy of the Uniform Methodology contained in the EANPG Handbook is available on the ICAO website: www.paris.icao.int).

1.2. The EUR Supplement is an attempt to provide more detailed procedures to be followed by the parties involves, to outline the corresponding responsibilities and to serve as a management tool for the EANPG and the ICAO Regional Office in applying the Uniform Methodology.

1.3. In 2001, the ICAO Council approved the following unified definition of a deficiency within the context of the Uniform Methodology, which replaced the previous term "shortcomings and deficiencies:"

> ***A deficiency is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices (SARPs), and which situation has a negative impact on safety, regularity and/or efficiency of international civil aviation.***

1.4. The EUR Air Navigation Plan (EUR ANP, Doc 7754) has been revised in the new ICAO format for regional plans, which is in two documents: the Basic Air Navigation Plan (Basic ANP) and the Facilities and Services Implementation Document (FASID). The first edition of the revised EUR ANP has been published in 2001 and an electronic copy, containing subsequent approved amendments to the ANP is available on the ICAO EUR/NAT website: www.paris.icao.int .

1.5. It should be noted that in certain areas, there may be deficiencies related to the organization, management and institutional aspects which affect the operation of civil aviation organizations. Such deficiencies could have a direct impact on the provision of air navigation facilities, services and procedures, would be dealt with mainly through the ICAO Universal Safety Oversight Audit Programme (USOAP).

1.6. The EANPG and its respective contributory bodies should accord high priority on deficiencies and intensify their efforts to assist States in formulating appropriate corrective action plans for the resolution of the identified deficiencies.

[1]The EUR Supplement is based on the ASIA/PAC Supplement adopted by the APANPIRG/15 meeting in September 2005. The Council when reviewing the APANPIRG/15 report recommended that the Supplement should be considered for use in the other ICAO Regions.

2 OBJECTIVE

2.1 The main purpose of the EANPG List of Deficiencies is to increase the awareness of all stakeholders concerned of any identified air navigation deficiencies in the Region. The List is aimed at assisting the EUR States having deficiencies define their implementation priorities and develop remedial action required. The status of the deficiencies is regularly reviewed by the EANPG meetings and, according to its terms of reference, the EANPG should make detailed assessment of the safety impact of the deficiencies and ensure that the States having deficiencies would undertake the necessary corrective action.

2.2 The main objective of this Supplement to the Uniform Methodology is to provide for a systematic approach to the management of deficiencies in the EUR Region by detailing the procedures to be followed by the Users, States and the EUR/NAT Regional Office in implementing the Uniform Methodology.

2.3 It is also the objective of this Supplement to provide clear definition of the responsibilities and obligations of the parties involved in the management of the deficiencies.

3 REGIONAL PROCEDURES

3.1 It has been recognized that the process of dealing with deficiencies involves a number of stages as follows:

- Identification
- Assessment, prioritization and verification against ICAO documents
- States' validation of deficiencies reported
- Development of action plans for rectification and elimination
- Monitoring of follow-up actions
- Rectification of deficiency and removal from list

3.2 The purpose of this section is to outline the procedures to be followed by the parties involved at each of the above stages to deal with the deficiencies. These procedures are presented in the form of a structured flow chart attached to this Supplement aimed at facilitating the actions required to eliminate the deficiencies.

Identification

3.3 Based on the definition of ***air navigation deficiency*** as a case of non-compliance with a regional provision or with a SARP, which has a negative impact on safety, regularity and/or efficiency, the identification process will allow for detecting such cases with an adequate level of certainty. Thus, the identification should be based on trustworthy information from authentic sources.

3.4 A basic principle is that any deficiency should be related to a State; the State responsible for the provision of the service or facility concerned is the "owner" of the deficiency and is responsible for its resolution.

3.5 The EANPG List of Deficiencies is aimed at assisting States in resolving identified problems. Therefore, the when formulating a deficiency for inclusion in the List, the "SMART concept" should be followed, i.e., the deficiency and the respective recommended corrective tasks should be: Specific, Measurable, Attainable, Realistic, and Time-bounded.

3.6 The identification of a deficiency should start with a report from an authentic source. The main reporting sources, as described in the Uniform Methodology, are as follows:

- Users – normally, through the user's organizations participating in the EANPG work, such as IATA, IFALPA, IBAC, IAOPA, etc.
- States – a Contracting States should report deficiencies identified through the internal monitoring processes;
- Regional Office – information collected from missions to States, meetings, accident/incident reports, etc.

3.7 Among others, the Users are best positioned to notify about existing problems with air navigation services or facilities that may qualify as deficiency. In Appendix M to Assembly Resolution A33-14, the Users of air navigation facilities and services are **urged to report any serious problems encountered due to lack of implementation or unsatisfactory operation of air navigation facilities or services required by the air navigation plans**.

Verification, Assessment and Prioritization against ICAO documents

3.8 An assessment is made by the Regional Office to determine whether the reported deficiency is a case of non-compliance with the EUR ANP or SARPs. If so, it is evaluated as to its effect on safety, efficiency and regularity, and under the Uniform Methodology, prioritized as follows:

U - Urgent requirements having a direct impact on safety and requiring immediate corrective actions

A - Top priority requirements necessary for air navigation safety

B - Intermediate requirements necessary for air navigation regularity and efficiency

3.9 *(To facilitate the prioritization process, the Regional Office is guided by the principal that a deficiency with respect to an ICAO Standard is accorded a "U" status, to a Recommended Practice an "A" and to PANS as "B".)*

Validation by States

3.10 The Regional Office, on determining that a reported deficiency exists and after assessment and prioritization, will inform the State involved of the full details of the report and results of the assessment. The State involved will be requested to acknowledge and validate the deficiency, and be informed that the deficiency will be recorded in the EANPG List of Deficiencies. States will be requested to develop an Action Plan with timelines based on the prioritization of the deficiency determined by the Regional Office.

3.11 In the event of serious cases of deficiencies, the Regional Office will notify the Air Navigation Commission as a matter of priority.

Development of action plans

3.12 States are required to develop action plans to rectify deficiencies in consultation with appropriate bodies with defined target dates based on the prioritization determined by the Regional Office. The following factors should be taken into account:

- deficiencies with "U" priority must be dealt with on a high priority basis;
- in developing the action plan, advice may be sought from the Regional Office;
- on completion, the action plan should be submitted to the Regional Office for review and recording;
- the contributing bodies to EANPG, according to their area of expertise, should review the action plans submitted by States and provide advice as necessary.

Monitoring of follow-up actions

3.13 States should keep the Regional Office informed on progress with action taken to rectify deficiencies. The Regional Office may request updates as necessary to keep EANPG and its contributory bodies informed. Periodic annual updates should be made to the Regional Office **not later than April** each year.

3.14 The Regional Office will maintain regular contact with States and before the holding of EANPG and Sub-Group meetings, updates will be requested. An agenda item on deficiencies will be included on the Agenda of EANPG Sub-Groups and afforded a high priority by the meetings.

3.15 Users who reported deficiencies will be kept informed of progress and contacted before EANPG and Sub-Group meetings to seek their views on the status of deficiencies and any changes in circumstances.

Rectification of Deficiency & Removal from List

3.16 States, on reporting that a deficiency recorded in the EANPG List of Deficiency has been rectified, will submit in writing an official report to the Regional Office providing full details of the action taken. On receipt of a report, the Regional Office will validate the action taken with the User who notified the deficiency. In the event that the User does not agree with the action taken, the deficiency will remain open until confirmation has been gained by all concerned. Once confirmation is made, EANPG will be informed, the status of the deficiency reviewed and removed from the List.

4 RESPONSIBILITIES

Regional Office

4.1 The Regional Office, as a primary party in the management of deficiencies, will keep under review and record the implementation by States of the requirements EUR Basic ANP and FASID. This information will also be used to identify possible non-compliance that should be further assessed against the definition of deficiency. Records will also be kept on the differences to SARPs filed by States and follow-up actions taken as appropriate.

4.2 As required by EANPG, the ICAO EUR/NAT Regional Office maintains a **List of Deficiencies** identified in the EUR region. The List of Deficiencies is compiled through collection of information as per the procedures described above and in accordance with the Uniform Methodology. Since December 2007, the Regional Office has introduced a deficiency database which facilitate the process of dealing with deficiencies and record the progress of the corrective action plans adopted by the States concerned. An up-to-date List of Deficiencies is available to the users with authorized access (EANPG user name and password) on the ICAO EUR/NAT website.

4.3 The Regional Office should, as per paragraph 6.2 of the Uniform Methodology, report serious cases of deficiencies to the Air Navigation Commission (through ICAO HQ) as a matter of priority, without waiting for the next EANPG meeting; the ANC will report such cases to the Council.

4.4 One of the primary functions of the Regional Office is to assist States to which it is accredited to comply with SARPs and implement the requirements of the EUR ANP. Where deficiencies exist, all possible assistance should be provided to States to assist them to take remedial actions to correct air navigation deficiencies. In this regard Regional Office will, to the extent practicable, establish regular correspondences with and perform regular visits/missions to States to assist in the implementation of action

plans for the rectification of deficiencies. These visits/missions would be results-oriented, and also used to identify other deficiencies.

4.5 Once deficiencies have been identified, evaluated and prioritized, the Regional Office will commence coordination with States in order to allow States to establish an action plan for resolving the deficiency

4.6 Sufficient notification will be provided to States regarding the deficiencies as a first step towards establishing the corresponding coordinated action plan. This will be achieved primarily through such mechanisms as correspondences, review by EANPG sub-groups, working groups, task forces and other regional and sub-regional meetings.

States

4.7 States, upon receipt of the list of deficiencies, will review, validate and comment on, and where actions have already been taken, and provide the necessary details on the list of identified deficiencies, assessed and prioritized by the Regional Office for further action.

4.8 States are required to review and maintain their respective list of deficiencies and identify those that have not been resolved, formulate and forward an action plan to ICAO for review and allocate sufficient resources as required for elimination.

4.9 States are required to respond promptly to the list of deficiencies identified so that the necessary details can be provided to EANPG and its sub-groups, working groups and task forces for review and consideration of the necessary actions to be taken by States to eliminate the deficiencies. The final list of deficiencies will be presented as core material to every EANPG meeting in accordance with the Terms of Reference of EANPG.

4.10 Monitoring and reporting of corrective actions and progress towards the elimination of deficiencies forms an important part of the management of deficiencies. In this regard, it is vital that a reliable monitoring system exists to ensure a true reflection of those deficiencies that have been resolved.

4.11 States' action plans should include the corrective measures to be taken by the State and a date by which it is anticipated that the identified deficiencies will be eliminated. The information provided through this formal coordination process will include:

- a description of the deficiency
- risk assessment
- possible solutions
- timelines
- responsible party including contact details of designated person/position
- financing source
- agreed action to be taken,
- report on actions already taken.

4.12 In accordance with the 11th Air Navigation Conference Recommendation 4/8, States are urged to identify areas of air navigation facilities and services where the establishment of multinational agreements or informal coordination groups may contribute to the resolution of deficiencies. This may be especially applicable to deficiencies, which are region-wide in nature and affecting a group of States thus lending themselves to general resolution at a regional or wider level.

Users

4.13 Appropriate international organizations, in their capacity as Users of air navigation facilities, should provide and update a list of deficiencies on a regular basis to the Regional Office for validation and action in accordance with Assembly Resolution A33-14 Appendix M. In addition to this, the Users should notify the Regional Office as soon as a new deficiency is identified.

4.14 International Organizations, as one of the user sources in highlighting deficiencies, should provide assistance in the independent verification of remedial actions taken by State(s). The 11th Air Navigation Conference Recommendation 4/8 encouraged Users of air navigation facilities and services to report to the Regional Office once they note that the remedial action on the deficiency they had reported has been taken.

EANPG

4.15 EANPG, as the coordinating body in the EUR Region for activities conducted within ICAO concerning the air navigation systems, meets at regular intervals. Its terms of reference includes *inter alia*, to identify specific problems in the air navigation field and propose in appropriate form, actions aimed at solving these problems. The List of Deficiencies in the air navigation field form part of the core material reviewed by EANPG meetings and recommendations for remedial actions are developed.

4.16 In order to ensure that a support mechanism is in place to deal with deficiencies, States must be fully committed to taking follow-up actions on the outcome of EANPG meetings. A person or position should be nominated to with sufficient decision-making authority to coordinate and oversee the States' action plan for the elimination of deficiencies.

5 OTHER MECHANISMS

5.1 The Regional Office, in coordination with States, will utilize other mechanisms for establishing measures for the resolution of deficiencies.

5.2 The various EANPG sub-groups, working groups, task forces and other regional and sub-regional meetings and special implementation projects (SIPs) will be utilized to discuss the implementation of ICAO SARPs and the requirements of the EUR ANP in order to eliminate deficiencies.

5.3 The International Financial Facility for Aviation Safety (IFFAS) has recently been established by the ICAO Council to assist States in financing aviation safety-related projects identified primarily through the ICAO Universal Safety Oversight Audit Programme (USOAP). The purpose of IFFAS is to provide financial assistance to States that need to apply corrective measures flowing from the USOAP audits but are unable to obtain the necessary funding through traditional means of financing. IFFAS will be operated in complete independence from ICAO's programme budget and is to be funded through voluntary contributions. The IFFAS mechanism will complement existing ICAO fund-raising mechanisms.

5.4 Other ICAO tools that may be used to address deficiencies include ICAO technical cooperation programmes, special implementation projects, seminars, workshops and training programmes.

5.5 Deficiencies identified during the USOAP audits will be dealt with under a separate programme in accordance with the Memorandum of Understanding between the Contracting State and ICAO. Until such time an appropriate mechanism is developed for the management of such deficiencies by the planning body, they shall not be included in this procedure.

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