REPORT OF

THE FIFTY-FOURTH MEETING OF

THE EUROPEAN AIR NAVIGATION PLANNING GROUP

(Paris, 3 to 6 December 2012)

PREPARED BY THE EUROPEAN AND NORTH ATLANTIC OFFICE OF ICAO 2012

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0. INTRODUCTION

Place and duration

0.1 The Fifty-Fourth Meeting of the European Air Navigation Planning Group (EANPG) took place in the premises of the European and North Atlantic (EUR/NAT) Office of ICAO from 3 to 6 December 2012.

Attendance

0.2 The Meeting was attended by 76 representatives of 34 member and non-member States and by observers from 6 international organisations. A list of participants is at **Appendix A**.

Officers and Secretariat

0.3 Mr Phil Roberts, the Chairman of the EANPG, presided over the meeting throughout its duration. Mr Luis Fonseca de Almeida, ICAO Regional Director, Europe and North Atlantic, was Secretary of the meeting and was assisted by Mr George Firican, Deputy Director, Mrs Carole Stewart-Green, Mr Christopher Keohan, Mr Sven Halle, Mr Victor Kourenkov, Mr Elkhan Nahmadov, Mr Nicolas Rallo, Mr Rodolphe Salomon, from the ICAO EUR/NAT Office, Mr Mohamed Smaoui from the MID Office and Mr Holger Matthiesen from Air Navigation Bureau, Montreal. Additional assistance was provided by Ms Leyla Suleymanova, Ms Isabelle Hofstetter and Mrs Nikki Goldschmid from the European and North Atlantic Office.

Conclusions, Decisions and Statements

0.4 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.

  Note: in order to qualify as such, a Decision or a Conclusion shall be able to respond clearly to the "4W" criterion (What, Why, Who and When)

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

Agenda and Documentation

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

Agenda Item 1: Review of significant international aviation developments

Agenda Item 2: Previous EANPG follow up

Agenda Item 3: Aviation safety

Agenda Item 4: Planning and implementation issues

a) Amendment to ICAO documents, ICAO provisions;
b) Air Traffic Management;
c) Aeronautical Information Management;
d) Communication, Navigation and Surveillance;
e) Performance Based Navigation;
f) Meteorology;
g) The FPL in 2012;
h) Performance framework.

Agenda Item 5: Monitoring

Agenda Item 6: Deficiencies

Agenda Item 7: Any Other Business

0.6 The list of documentation reviewed by the Meeting is at **Appendix B**.

1. REVIEW OF SIGNIFICANT INTERNATIONAL AVIATION DEVELOPMENTS

ICAO Update

1.1 The EANPG was informed about recent significant international aviation developments and took note of the amendments to ICAO Annex 9 and the proposed amendments to ICAO Annexes and PANS Documents (Annexes 1, 2, 4, 6, 8, 10, 11, 13, 14, 15, 16, 19, PANS-ATM, PANS-OPS) that had been adopted since the EANPG/53 meeting. State Letters had been issued on proposals to amend the EUR Regional Supplementary Procedures (EUR SUPPs) (Doc 7030) concerning the emergency descent procedures in the EUR SUPPs, concerning procedures on the use of the term "TORA", concerning updates to flight planning requirements related to FPL2012 and concerning procedures on the establishment of the lowest usable flight level above the transition altitude. The EANPG noted that a number of ICAO State Letters, ICAO manuals and circulars on a wide range of subjects had also been published since the last meeting.

1.2 The EANPG was also presented with a list of relevant ICAO publications (documents and circulars) which had been issued or updated since EANPG/53.

1.3 The EANPG noted that the 16th meeting of the Air Traffic Management Group – Eastern Part of the ICAO EUR Region (ATMGE/16) was planned to be held in Chisinau, Republic of Moldova from 10 to 14 December 2012 and the 8th meeting of the EANPG PBN Task Force (PBN TF/8) was expected to take place at the EUR/NAT Office in Paris from 22 to 24 January 2013. The VOLKAM 13 (Volcanic ash exercise in Kamchatka in 2013) and the EUR-EAST VOLCEX SG/2 meeting were scheduled to take place in the EUR/NAT Office in Paris from 19 to 20 February 2013. It was also noted that the Second meeting of the European Regional Aviation Safety Group (RASG-EUR/02) was planned to take place in the EUR/NAT Office in Paris from 26 to 27 February 2013 (EUR/NAT letter ref: EUR/NAT 12-0792.TEC of 19 November 2012 refers). An ICAO regional Workshop on the Language Proficiency Requirements Implementation (LPRI) – "Language Proficiency as a Base for Safe Communication in a Cross-cultural Environment" was planned to be held in Baku, Azerbaijan, from 1 to 3 May 2013 (EUR/NAT letter ref: EUR/NAT 12-0681.TEC of 27 September 2012 refers).

Outcome of the Twelfth Air Navigation Conference

1.4 The EANPG was informed briefly about the outcome of 12th Air Navigation Conference (AN-Conf/12) which took place in ICAO Headquarters in Montreal, from 19 to 30 November 2012, the Performance-based Navigation (PBN) Symposium which took place in ICAO Headquarters in Montréal from 16 to 19 October 2012 and the ICAO Air Services Negotiation Conference (ICAN/2012) which was scheduled to take place in Jeddah, Saudi Arabia, from 8 to 12 December 2012 (State letter 2012/41 refers). The EANPG also noted that the 6th Worldwide Air Transport Conference was planned to take place at ICAO Headquarters in Montreal from 18 to 22 March 2013 (State letter 2012/46 refers). An ICAO Language Proficiency Requirements (LPRs) Technical Seminar would be held in Montréal from 25 to 27 March 2013 (State letter 2012/60 dated 19 October 2012 refers).

1.5 The EANPG noted that the 12th Air Navigation Conference (AN-Conf/12) agreed on a draft Fourth Edition of the Global Air Navigation Plan (GANP) that should guide planning and implementation activities over the next two decades. The Conference was attended by more than 1,000 delegates from 120 Contracting States and 30 International Organisations seeking to achieve consensus on the next steps required to implement an interoperable, seamless and global air traffic management system for international civil aviation. The proposed new edition of the GANP included timelines for future improvements that could be implemented by States in accordance with their needs. The Conference unanimously endorsed the Aviation System Block Upgrades (ASBUs) framework introduced by ICAO to set goals in terms of operational improvements on a consensus-driven basis. The ASBUs would allow for development at regional and sub-regional level to also align with wider interregional goals of optimising capacity and improving

flight path efficiencies. It was expected that the draft Fourth Edition of the GANP would be approved at the ICAO Assembly in September 2013. The EANPG acknowledged that significant work would be required to follow-up the outcome of the AN-Conf/12 implying a revision of the current working structure and work programme including appropriate allocation of resources.

2. PREVIOUS EANPG FOLLOW UP

Review of the actions of the ANC on the Report of EANPG/53

2.1 The EANPG was informed on the actions taken by the Air Navigation Commission (ANC) on the report of the fifty-third meeting of EANPG after its review. It was informed that the ANC took actions on those EANPG conclusions that would require approval by the ANC. The ANC determined that no specific items of the EANPG/53 Report required action by the Council.

2.2 The ANC referred the EANPG/53 Report to its Working Group for Strategic Review and Planning (WG/SRP) on 1 March 2012 following which the Commission itself reviewed the report on 13 March 2012. The Commission noted the EANPG/53 Report and took specific action on certain conclusions. The following are highlights of the review by the Commission.

2.3 *Updating provisions related to intersection departures and the phraseology for advising take-off run available (TORA):* The ANC noted and supported the intention of the EUR Region to initiate a proposal for amendment to the European (EUR) supplementary procedures (SUPPs), which would require the term TORA to be used in radiotelephony in conjunction with ATC clearances pertaining to intersection take-offs. The ANC also supported proposed action for the secretariat to develop globally acceptable phraseology in this context. The secretariat informed the ANC that a proposal to amend the European Regional Supplementary Procedures (Doc 7030), had been initiated. Feedback from the EUR Region, on the use of the term TORA in radiotelephony after an appropriate period of operational use, would be made available, in support of ICAO HQ's initiatives for use of the term on a global basis.

2.4 *Implementation of the Free Route Airspace concept:* The ANC noted the intention of the EUR/NAT Office to issue a State letter raising the awareness of States implementing Free Route Airspace concepts, on the institutional aspects, especially when portions of airspace over the High Seas are included, and reminding States on the application of the procedure to obtain regional air navigation agreement for all airspace changes and air traffic services (ATS) routes (regional and non-regional) over the High Seas. The ANC indicated its support for implementation of free route airspace inviting the Secretariat to share such information with all regions.

2.5 *Certification of AIM Services:* The ANC supported the EANPG initiative pertaining to incorporation of a new requirement within Annex 15 — Aeronautical Information Services for the certification of AIM services. Such certification was seen as an effective first step in requiring ANSPs to comply with aeronautical data quality requirements, which would be the subject of such AIM certificates.

2.6 *Inclusion of appropriate provisions related to electronic terrain and obstacle data (eTOD) in Annex 14 — Aerodromes:* The ANC noted the low level of implementation of the Annex 15 eTOD provisions in the EUR Region. The ANC supported the inclusion of appropriate provisions related to eTOD in Annex 14 as minimum requirements for aerodrome certifications.

2.7 *Harmful interference on 135.985 MHz and 135.975 MHz:* The ANC noted the intention of the ICAO Regional Director to recommend to the European Aviation Safety Agency (EASA) that the airworthiness recommendation bulletin, containing procedures for rectifying the issue within the identified communications avionics, be elevated to that of an airworthiness directive. The ANC queried the need for a PIRG to initiate such a recommendation, it being more an aircraft airworthiness issue as opposed to one

directly related to air navigation matters. The ANC nevertheless would support any action that would achieve the right end result.

2.8 *EUR performance-based navigation (PBN) performance frameworks:* The ANC noted the EANPG Conclusion inviting European States to assess and report performance on the basis of the EUR PBN performance framework.

2.9 *Airborne collision avoidance system (ACAS) II – common airspace usage and operating procedures:* The ANC took due note of the situation which had arisen, as a result of rule-making at the level of the European Union, having the effect of requiring aircraft equipage of ACAS II collision avoidance logic 7.1, for flights within the airspace of the Member States of the European Union, in advance of dates specified in Annex 10. The direct outcome of the European rule-making would be the filing of harmonized differences, by the States concerned, indicating national ACAS equipage requirements exceeding those of Annex 10 — Aeronautical Telecommunications. The ANC invited the Secretariat to remind States, subject to European Regulation, of the importance of global promulgation of appropriate aeronautical information as regards the European ACAS II Ver.7.1 mandatory carriage requirements.

2.10 *States' obligations in the dissemination of special air-reports:* The ANC noted the intention of the ICAO European and North Atlantic Office, Paris (EUR/NAT) Office to solicit States' increased vigilance in ensuring processes, procedures and lines of co-ordination are followed so as to ensure effective promulgation of special air-reports.

2.11 *Need for improvement of GAMET, AIRMET, SIGMET and AIREP provisions in Annex 3 – Meteorological Service for International Air Navigation:* The ANC supported the EANPG initiative aimed at eliminating reported inconsistencies, in content and format, of GAMET, AIRMET, SIGMET and AIREP provisions of Annex 3 — Meteorological Service for International Air Navigation. The ANC consequently agreed to invite the Secretary General to include the task in the work programme of the Secretariat.

2.12 *Clarification on automated routine MET observations by aircraft:* The ANC supported the initiative of the EANPG aimed at amending Annex 3 so as to stipulate a preferred data link technology (e.g.: ADS-C) as well as specification of parameters in the areas of transmission performance. The ANC agreed to invite the Secretary General to include the task in the work programme of the Secretariat.

2.13 *Use of one language in the same environment. Implementation of the ICAO Language Proficiency Requirements:* The ANC discussed two EANPG conclusions related to language. The ANC did not support the intention to invite States to consider the use of English only by ATC and flight crew. The ANC noted that several States had already instituted use of another national language, in conjunction with English, and that acceptable levels of safety are being maintained. The ANC agreed that the Secretariat should be invited to reformulate the message to States so as to invite the use of standard phraseology in all States (i.e. not only States with English as a national language). With regard to up-grading the status of language re-testing periods from that of a recommended practise to a standard, the ANC discussed the implications which would materialize as a consequence. Such implications were deemed to be significant and as a consequence the ANC agreed that the Secretariat should fully consider the implications associated with such up-grading to Standard and the Secretariat was invited to take action in line with such considerations. The Secretariat acknowledged the concerns, echoed by the ANC, regarding the ease of use of the ICAO FSIX website and suggested that remedial matters were in hand. In addition the ANC requested the Secretariat to provide information on the outcome of the two meetings held in the Russian Federation and Austria on the subject matter. The ANC, however, invited the Secretariat to assess the global situation with in respect to LPR implementation, in tangible data, and report back to ANC in conjunction with appropriate recommendations. The ANC did not support the provision of LPR guidance material free of charge to all LPR focal points.

2.14 The ANC noted that EANPG had urged States to use the ICAO Fuel Saving Estimation Tool (IFSET) or an advanced tool/measurement capability that was available to estimate environment benefits accrued from operational improvements.

2.15 The ANC noted with satisfaction that the reduced vertical separation minimum (RVSM) operations in the EUR Region met the safety objectives for the year 2010.

Status of EANPG/53 Conclusions and Decisions

2.16 The Secretariat presented the EANPG with a report on the implementation of EANPG/53 Conclusions and Decisions and the activities performed by the ICAO EUR/NAT Office and a summary of pending task. The EANPG noted the good progress on the implementation of the Conclusions (35 Conclusions out of 39 completed) and of Decisions (3 Decisions out of 4 completed) and noted that updated information on the on-going actions would be provided by several working papers during the meeting.

Global Operational Data Link Document

2.17 The EANPG was provided with the report of the Global Operational Data Link Document (GOLD) ad-hoc working group on the development of Edition 2.0 of the GOLD. It was recalled that this work was initiated in follow up to Conclusion 50/08 of the EANPG Programme Coordinating Group (COG). The main objective of Edition 2.0 was to achieve the global harmonisation of the ATN and FANS 1/A data link operational guidance material through incorporation of the Eurocontrol LINK 2000+ guidance material into the GOLD. The aforementioned Conclusion also invited States to use Edition 1.0 of the GOLD as an EUR Guidance Material, where applicable.

2.18 The EANPG noted that since COG/50, the GOLD ad-hoc working group activities included the following:

a) Soliciting proposals for amendments to the GOLD among participating Regions and airspace users;

b) Coordinating proposed amendments across the Regions;

c) Providing interpretation and further clarification to GOLD guidelines, as necessary;

d) Facilitating implementation of standardized data link operations, post-implementation monitoring, and corrective actions; and

e) Incorporation of the Link2000+ operational guidance material.

2.19 The next meeting of the GOLD ad-hoc working group was scheduled to be held in Phoenix, Arizona, the United States, from 28 January to 4 February 2013 (EUR/NAT 12-0726.TEC (NAE/DAC) from 29 October 2012 refers). This meeting was expected to finalise Edition 2.0 of the GOLD and provide it to the EANPG and other PIRGs for review and approval.

2.20 The current draft, GOLD v1.4, was made available to the EANPG. Comments were invited to be provided through the GOLD ad-hoc group members or directly to the Secretariat in order to ensure a smooth approval of Edition 2.0 by the next meeting of the EANPG in 2013.

3. AVIATION SAFETY

Cold Temperature Corrections to Minimum Altitudes

3.1 The EANPG discussed a potential flight safety issue which had initially been raised during the 54th meeting of the EANPG COG. The EANPG was advised that when temperatures were lower than

defined for the International Standard Atmosphere, aircraft would be at a lower height than indicated on their altimeters. This physical phenomenon was taken into account when defining the minimum vectoring altitude in accordance with Volume II of the Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS, Doc 8168), which included a requirement that "Minimum vectoring altitudes shall be corrected for cold temperature." (PANS-OPS, Vol II, Part 2, Chapter 6, paragraph 6.2.3 refers). The EANPG was advised that the cold temperature corrections applied by States to minimum altitudes assigned by Air Traffic Control (including Minimum Vectoring Altitudes (MVA)) were not consistent, nor, in some cases, could it be verified they were applied at all. It was also highlighted that it might not be clear who (the aircrew or ATC) was applying, or not applying, a cold temperature correction.

3.2 The EANPG was advised that, as an outcome of the initial EANPG COG discussion, information had been requested from States concerning any procedures in place regarding the application of cold temperature corrections. Information was received that a number of States had responded to the requirements defined in, inter alia, the PANS-OPS and the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444) by implementing procedures for applying cold temperature corrections. The EANPG reviewed this information and the information originally provided to the EANPG COG, as detailed at **Appendix C** and noted that the procedures were not consistent with each other, although they individually may assure the safety of flight operations. The EANPG further noted the opinion of IFALPA that cold temperature corrections should be consistently applied on a global basis and that flight crews should be advised when such corrections were being applied by ATC and that ATC should be advised when the flight crew was applying such corrections.. The material submitted by IFALPA, is provided at **Appendix D**. The EANPG was further advised that IATA had agreed a policy for consistent application of cold weather corrections by flight crews and that other States in the ICAO EUR Region had ATM procedures in place in relation to this issue.

3.3 The EANPG agreed the variety of approaches and possible lack of interoperability between flight crew and ATC was a potential flight safety issue and that efforts should be made to develop consistent and interoperable procedures. The EANPG was advised that the EUROCONTROL Agency had offered to add this subject to the work programme of their ATM Procedures Development Sub-Group (APDSG), if requested. It was noted that IATA and IFALPA participated in the APDSG. The EANPG agreed to accept the offer of the EUROCONTROL Agency to address this subject in their working arrangements, further noting that any further information provided to the ICAO EUR/NAT Secretariat from States would be provided to the APDSG. Therefore, the following was agreed:

EANPG Conclusion 54/1 – Cold temperature correction guidance material

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

a) discuss the applicable ICAO global provisions, the information provided at **Appendix C** and **Appendix D** to this Report and other information that may be available related to air traffic management and flight crew applications of cold temperature corrections to minimum altitudes;

b) develop recommendations concerning best practices or a single procedure which should be used;

c) provide an update to the 56th meeting of the EANPG Coordinating Group (COG); and

d) based on the input of the COG, finalize recommendations or provide a further update to EANPG/55.

4. PLANNING AND IMPLEMENTATION ISSUES

4.1 AMENDMENTS TO ICAO DOCUMENTS/PROVISIONS

Visual Departure – PfA to the EUR SUPPs (Doc 7030)

4.1.1 The EANPG reviewed a proposed amendment to the European Regional Supplementary Procedures (EUR SUPPs, Doc 7030) provisions for visual departures. The purpose of the amendment was to clarify the responsibilities of Air Traffic Controllers (ATCO) and of flight crews when the procedure was applied. During the discussion of the proposal, it was highlighted that the procedure pertained to a situation where an aircraft operating under Instrument Flight Rules (IFR) would be permitted to manoeuvre visually for all or part of the departure phase of the flight, rather than fully following an instrument departure procedure to join the enroute portion of the cleared route.

4.1.2 The EANPG was advised that the proposal, in accordance with the result of extensive stakeholder consultation carried out by the EUROCONTROL Agency, reflected a stipulation that the flight crew could request a visual departure at any stage of the departure, whilst an ATCO would only be permitted to initiate a visual departure prior to take off. These stipulations ensured that the flight crew would either request a visual departure when they believed it was safe and operationally suitable to carry out the procedure or would have adequate time to make this assessment in order to determine whether or not to accept a suggested visual departure initiated by the ATCO.

4.1.3 The proposal also sought to clarify when the responsibility for separation between other aircraft in the vicinity and the departing flight would lie with the ATCO depending upon the airspace in which the flight would operate until it re-joined the cleared route. This aspect of the proposal prompted considerable discussion, in which it was clear there were various interpretations of the existing provisions and in particular whether or not ATC would, at all times, provide separation from all other aircraft when a flight was executing a visual departure.

4.1.4 The EANPG noted that airspace classification was the critical element in determining this and accordingly agreed that a note should be included highlighting the responsibility of the ATCO to ensure the flight crew was aware of the possibility of entering airspace where different levels of separation or information services might apply. It was further noted that local implementations would further detail how such information should be conveyed to the flight crew or whether the specific airspace configurations would allow the application of the procedure. In this regard, the EANPG noted that the existing provision required that a "separate aeronautical study by the appropriate air traffic services (ATS) authority" be completed before consideration could be given to using the procedure at night. It was agreed this language should be amended to refer to a "safety assessment" in line with current ICAO usage. Taking account of all of the foregoing, the proposal, provided at **Appendix E**, was endorsed by the EANPG. Accordingly, the EANPG agreed to the following:

EANPG Conclusion 54/2 – Visual departure – Proposed amendment to the EUR SUPPs

> That the ICAO Regional Director, Europe and North Atlantic, process the proposal for amendment to the European Regional Supplementary Procedures (EUR SUPPs, Doc 7030) on the subject of visual departure, as contained in at **Appendix E**.

Use of downlinked airborne parameters indicating the intentions of the aircraft – PfA to the EUR SUPPs (Doc 7030)

4.1.5 The EANPG reviewed a proposed amendment to the European Regional Supplementary Procedures (EUR SUPPs, Doc 7030) regarding provisions for the operational use of downlinked airborne parameters indicating the intention of the aircraft. The purpose of the amendment was to provide clear and

concise directions for air traffic services and flight crew on the use of Selected Level and specified the phraseology that should be used when querying a discrepancy between the information provided by the Selected Level and the cleared level acknowledged by the pilot.

4.1.6 During the discussion of the proposal, some States expressed a need for reference to a supporting legal framework in the amended text to provide guidance in how this procedure would have to be implemented. The EANPG proposed that the accompanying State Letter, rather than the EUR SUPPs provisions, would mention the legal framework that pertained to this proposal for amendment. It was noted that the EUROCONTROL Agency had produced guidance material which discussed, inter alia, legal and regulatory considerations for implementation. The Secretariat confirmed that reference to supporting guidance material, including material produced by non-ICAO entities, was appropriate for explanatory notes.

4.1.7 Taking account of the foregoing, the proposal, provided at **Appendix F**, was endorsed by the EANPG. Accordingly, the EANPG agreed to the following:

EANPG Conclusion54/3 – Common provisions for the operational use of DAP "Selected Altitude" – Proposed amendment to the EUR SUPPs

That the ICAO Regional Director, Europe and North Atlantic, process the proposal for amendment to the European Regional Supplementary Procedures (EUR SUPPs, Doc 7030) on the subject of common provisions for the operational use of DAP "Selected Altitude", as contained in at **Appendix F**.

Free Route Airspace

4.1.8 The EANPG was presented with an overview of the evolution of the Free Route Airspace (FRA) activities in ECAC area and detailed guidance regarding the steps that should be considered for implementing the FRA concept in a given airspace. The EANPG noted that the EUROCONTROL Network Management Board approved in June 2012 the European Route Network Improvement Plan (ERNIP). This document included the Free Route Airspace Concept, the harmonized means for the publication of Free Route Airspace and the Free Route Airspace Check List of Actions. The EANPG was informed that the Free Route Airspace Concept implementation represented a major objective with respect to the evolution of the European airspace and that the strategic objective (as agreed by the Network Management Board of the Network Manager) was to support the implementation of FRA in 25 ACCs within the ECAC area by 2014.

4.1.9 The EANPG was also informed about the results/conclusions from the Free Route Airspace workshops which focussed on the processes, procedures and practical solutions available to facilitate future implementation (including cross border aspects) of FRA operations. Further information on the FRA implementation plans of Air Navigation Service Providers within the next 3-5 years and their effect on airspace connectivity was also presented to the EANPG.

4.1.10 The EANPG noted the guidance material (ERNIP, FRA checklist of implementation actions) that had been made available by EUROCONTROL and acknowledged the need for commitment and close monitoring of development and implementation of FRA initiatives and the requirements to ensure a harmonized design and implementation of free route airspace concepts in other parts of ICAO EUR Region.

4.2 AIR TRAFFIC MANAGEMENT

Outcome of the Route Development Group - East Meetings

4.2.1 The EANPG noted the main outcome of the work performed by the Route Development Group – Eastern Part of the ICAO EUR Region (RDGE) in order to fulfill the increasing demand for

enhanced regional coordination, more seamless ATS route planning and faster implementation in the ICAO EUR Region.

4.2.2 The EANPG acknowledged the increased number of participants (66 from 21 States and 2 international organisations at RDGE/16 and 71 participants from 24 States and 3 international organisations at RDGE/17) together with the growing interest in the RDGE activities from States in neighboring ICAO Regions (e.g. China, Democratic People's Republic of Korea, Japan, Mongolia, United States of America).

4.2.3 The EANPG noted the results from the States reports, which indicated a general increase (between a small decrease of minus 4% and a maximum increase of 18.9%, with an average of around 8% increase for the first half of the year 2012 and between a decrease of minus 6% and a maximum increase of 10.7%, with an average of around 2.6% increase for the second half of 2012) in traffic figures when compared with the 2011 traffic figures for the same time period. A number of ATS-route related activities had been implemented since RDGE/15, in order to improve the Air Traffic System and thus resulting in direct benefits to aircraft operators with more efficient routes and optimized use of the routes for the airspace users.

4.2.4 The EANPG took note of the outcome of the Route Development Sub-Group - Baltic Sea Area activities, which reviewed a total of 90 existing proposals and where 14 new routes were agreed for incorporation into the Baltic ATS Route Catalogue.

4.2.5 The EANPG also took note of the outcome of the Route Development Sub-Group - Black Sea and South Caucasus Area which reviewed a total of 98 existing proposals and where 7 new routes were agreed for incorporation into the Black Sea and South Caucasus ATS Route Catalogue.

4.2.6 The EANPG noted the outcome of the Route Development Sub-Group – Middle Asia Area activities, which reviewed and agreed a total of 76 existing proposals for incorporation into the Middle Asia ATS Route Catalogue.

4.2.7 The EANPG also appreciated the outcome of the Route Development Sub-Group – Far East Area activities, which reviewed a total of 52 existing proposals and where 14 new routes were agreed for incorporation into the Far East ATS Route Catalogue.

4.2.8 The EANPG also noted that convening RDGE meetings in locations which were more accessible for participants from the States of the Eastern part of the ICAO EUR Region had facilitated their participation and contributed to the success of the RDGE. The increased need for regional (e.g. RNDSG) and inter-regional (e.g. ICAO MID and ASIA/PAC Offices or CPWG) cooperation/ coordination was also identified as a crucial requirement, in order to facilitate the participation of key States in the interface areas and to allow further progress with some stalled ATS Route development proposals, for the improvement of the ATS route structure within the whole ICAO EUR Region.

All-Weather Operations

4.2.9 The EANPG took note of the outcome of the eighteenth meeting of the All-Weather Operations Group of the European Air Navigation Planning Group (AWOG/18) which was held in the ICAO EUR/NAT Office, Paris, from 4 to 5 September 2012.

4.2.10 The EANPG noted the significant ICAO and international aviation developments from ICAO, EASA and EUROCONTROL on the aspects of Low Visibility Procedures (LVP) provisions, the activities regarding the update of ILS critical and sensitive areas guidance material. The EANPG also noted the AWOG work programme and the change in the Project Team structure (PT/AWO).

4.2.11 The EANPG also noted the EASA rulemaking activities regarding All Weather Operations, which included activities related to regulations on Air Operations (current tasks until 2013), regulations related to PBN (part of the draft rulemaking program 2013-2016) and regulations related to Low Visibility Operations LVO (part of the draft rulemaking program 2013-2016).

4.2.12 The EANPG noted that during the AWOG discussions on the status of the revised version of the ICAO Doc 9365 (All-Weather Operations Manual), AWOG members were concerned that the ATC and aerodrome operational aspects had not been reviewed within the manual update process. It was also noted that the ICAO Secretariat decided to delegate the further development and maintenance of the ICAO Doc 9365 to a special All Weather Operations Harmonisation Aviation Rulemaking Committee (AWOH ARC), led by the FAA and composed of members of the FAA, the European Aviation Safety Agency (EASA), other civil aviation authorities and aviation organizations, the U.S. aviation community, including members of the public and/or other aviation entities representative of various viewpoints. The EANPG took note of the AWOG concerns regarding the All Weather Operations Manual and agreed on the following:

EANPG Conclusion 54/4 – ICAO Doc 9365 development/maintenance

That the ICAO Regional Director, Europe and North Atlantic take the necessary action to ensure that the work of EANPG All Weather Operations Group (AWOG) is taken into account when developing/maintaining the *All Weather Operations Manual* (Doc 9365) by ensuring the participation of the EANPG AWOG Project Team/All Weather Operations (PT/AWO) Rapporteur within the All Weather Operations Harmonisation Aviation Rulemaking Committee (AWOH-ARC) activities.

4.2.13 The EANPG was informed about the results from the PT/LVP activities and endorsed the amended EUR Doc 013 (European Guidance Material on All Weather Operations at Aerodromes, 4th edition, September 2012) together with revised work programme for the now renamed PT-AWO. Therefore the EANPG agreed to the following:

EANPG Conclusion 54/5 – Revised ICAO EUR Doc 013

That the ICAO Regional Director, Europe and North Atlantic take necessary measures to publish the European Guidance Material on All Weather Operations at Aerodromes (EUR Doc 013) 4th Edition, September 2012 on the ICAO EUR/NAT website, as provided in **Appendix G** to this Report.

4.2.14 The EANPG also noted that the PT/ROAD was unable to update the Companion Document to EUR Doc 017 (Transition key issues for the introduction and application of non-visual aids to all-weather operations in the European Region of ICAO due to the organizational changes in EUROCONTROL and the existing workload related to the SESAR activities. During the discussion on a possible way forward, it was indicated that this work could be done jointly by the ICAO Secretariat and EUROCONTROL within a dedicated workshop and that an updated version can be expected for AWOG/19 in 2013. Therefore the EANPG agreed to the following:

EANPG Conclusion 54/ 6 – Workshop to update EUR Doc 017 TKI and discuss updates to EUR Doc 017

That the All Weather Operations Group convene a workshop in March 2013 to:

a) update the Identified Transition Key Issues for the Introduction and Application of Non-Visual Aids to All-Weather Operations in the European Region of ICAO (EUR Doc 017 TKI); and

b) discuss possible future updates to the Transition methodology for the Introduction and Application of Non-Visual Aids to All-Weather Operations in the European Region of ICAO (EUR Doc 017).

4.3 AERONAUTICAL INFORMATION MANAGEMENT

Use of AIS AGORA as supplementary means for the notification of publication of aeronautical information

4.3.1 The EANPG noted that, as a follow-up action to the EANPG Conclusion 53/7, EUROCONTROL, in close coordination with the Secretariat, carried out an analysis in consultation with the COG/AIM TF on the possible use of AIS AGORA as supplementary means for the notification of publication of aeronautical information. The EANPG was apprised of the results of the analysis and the proposal for a harmonised approach in the EUR Region for notifying the users about the publication of aeronautical information in contingency/force-majeure situations. Accordingly, the EANPG agreed to the following:

EANPG Conclusion 54/7 – Notification of publication of aeronautical information in contingency/force-majeure situations

That, with a view to improve the availability and timeliness of aeronautical information related to contingency situations, which contains extensive text and/or graphics for immediate notification to users, the ICAO Regional Director Europe and North Atlantic, urge States to take the following measures:

a) issue a NOTAM for the implementation of contingency measures in cases of anticipated or actual disruption, or partial disruption of air traffic services and related supporting services and providing reference to the AIP Supplement(s) published for the same purpose containing the detailed operational information (including graphs/maps);

b) in addition to the postal distribution, make the AIP Supplement(s) available electronically on the national CAA/ANS/AIS website and/or EAD PAMS for a timely availability of the information;

c) inform the users, through the contingency NOTAM, of the availability of the related AIP Supplement(s) on the national CAA/ANS/AIS website and/or EAD PAMS; and

d) ensure that the above procedure is included in the National ATS Contingency Plan.

2013 AIM/SWIM Seminar

4.3.2 The EANPG recalled that based on a survey carried out in the EUR Region, the EANPG/53 noted that some States had requested assistance from ICAO, especially for the:

- development of appropriate AIM SARPs and guidance material to assist States in the transition from AIS to AIM; and

- organisation of special training courses, Seminars, Workshops and awareness campaigns related to AIM.

4.3.3 The EANPG noted that the MID AIM Seminar, which was planned to be held in Cairo, 11-13 June 2012, was postponed to 2013.

4.3.4 As a follow up action to the EANPG Conclusion 53/9, the EANPG noted the progress achieved for the organisation of a joint ICAO EUR/MID Seminar to be held in Istanbul, Turkey, 14-17 May 2013, jointly with EUROCONTROL and IFAIMA and concurrently with the IFAIMA Global AIM 2013. The EANPG expressed its gratitude to Turkey for the hosting of such an important event in Istanbul.

4.3.5 The EANPG noted that the Seminar will focus on the AIM support to seamless ATM in a SWIM environment and that an Exhibition to present/showcase the latest AIM and ATM products and developments from the industry will be organised concurrently with the Seminar.

Outcome of the AIS-AIM SG/6 meeting

4.3.6 The EANPG was apprised of the latest developments in the AIM field at the global level through the review of the outcome of the AIS-AIM SG/6 meeting held in Buenos Aires, Argentina from 21 to 25 May 2012. It was highlighted that the AIS-AIM SG/7 meeting will be held in ICAO HQs in Montreal, 14-18 January 2013.

Transition from AIS to AIM in the ECAC Area

4.3.7 An update on the status of implementation of the required AIS/MAP facilities and services in the ECAC Area was provided by EUROCONTROL with a special focus on the identified deficiencies and eTOD implementation.

4.3.8 The EANPG recalled that in June 2012 Greece published its AIP in the new format. It was also noted with appreciation that there were no significant breaches of AIRAC adherence in the ECAC Area during 2012.

4.3.9 The EANPG noted that Ukraine had fully implemented the WGS-84 requirements and accordingly the associated deficiency (EUR-AIS-01-10) was deleted. The EANPG noted also that The Former Yugoslav Republic of Macedonia had complied with Annex 15 provisions related to the implementation of Quality Management System (QMS) and accordingly the associated deficiency (EUR-AIS-02-15) was deleted.

4.3.10 The EANPG reviewed the status of implementation of eTOD for Area 1 and 4 in the ECAC Area.

4.3.11 In this respect, it was highlighted that only 9 out of 41 States have provided Area 1 terrain datasets. The main factor hindering the provision of this dataset appeared to be the absence of a clear specification for the format in which the terrain dataset is to be provided.

4.3.12 With regard to the provision of the electronic obstacle datasets, the EANPG noted that 11 States declared that they had Area 1 Obstacle datasets available; however only 5 States indicated this in their National AIP (GEN 3.1.6). The main factor hindering the provision of this dataset in electronic format is the absence of a complete set of attributes (meta-data), as required by Annex 15. In this respect, it was highlighted that from a user's perspective, it was better to have something rather than nothing and that in the interim (until availability of a complete set of attributes) the EANPG agreed that the obstacle datasets for Area 1 (the minimum being the data published in ENR 5.4) could be provided with clear indication on missing/unknown values and with a statement about associated liabilities.

4.3.13 In connection with the above, it was highlighted that 10 States (Albania, Bosnia and Herzegovina, Bulgaria, Georgia, Iceland, Norway, Serbia, Montenegro, the FYROM and Ukraine) do not publish the information related to air navigation obstacles in the Section ENR 5.4 of the AIP, in accordance with Annex 15 provisions. Accordingly, the EANPG agreed to the following:

EANPG Conclusion54/8 – Publication of Air Navigation Obstacles in National AIP

That, the ICAO Regional Director Europe and North Atlantic, given the potential impact of the absence of information regarding en-route air navigation obstacles on the safety of flights, urge those States that have not yet done so to update their AIP Section ENR 5.4 with the required aeronautical information on the obstacles affecting air navigation in Area 1.

4.3.14 In order to foster the use of electronic terrain and obstacle data sets by the air navigation users, the EANPG agreed that States should publish necessary information related to the electronic terrain and obstacle data sets for Area 1 and Area 4, which are currently available. Therefore, the EANPG agreed to the following:

EANPG Conclusion54/9 - Availability of electronic terrain and obstacle data sets for Area 1 and Area 4

That, the ICAO Regional Director Europe and North Atlantic urge States to publish through an AIC or in the appropriate Sections of the AIP (GEN 3.1.6, ENR 5.4, AD 2.10, etc) a comprehensive statement of the electronic terrain and obstacle data sets for Area 1 and Area 4, which are currently available and/or planned, including details on delivery formats, delivery medium information and data quality aspects.

Update on EUROCONTROL AIM developments and related activities

4.3.15 The meeting was apprised of the EUROCONTROL developments in the AIM/SWIM field occurring in 2012, such as aeronautical data quality implementation (ADQ and ADQ-2), EAD developments in support of AIM and SWIM Concept of Operations.

NOTAM proliferation

4.3.16 The EANPG was apprised of the contributing factors to the perceived NOTAM proliferation and agreed on the short-term actions to mitigate the associated risks on a regional basis. It was highlighted in this respect, that the number of international NOTAM distributed globally, had increased from 300,000 in year 2000, to over 800,000 in 2011. It was recognized that this increase put greater pressure on the end user and NOTAM providers during the NOTAM filtering stage generating a growing risk to miss vital information that could have a flight safety impact.

4.3.17 It was highlighted that currently more than 20,000 NOTAMs on average were in force at any moment, world-wide. Many of these were given to flight crews for pre-flight briefing as Pre-flight Information Bulletin (PIB) (an average of 10-50 pages for an inter-European flight). It was recognized that, due to the high number of NOTAM contained in the PIBs, there was a risk that flight crew overlook important information.

4.3.18 The EANPG noted that excessive publication of NOTAMs could be traced to the lack of awareness of the NOTAM Originators of the criteria that justify a NOTAM publication, as well as to the “insurance” thinking of the International NOTAM Office (NOF) Specialists. The permanent NOTAMs which would stay in force for very long periods without being incorporated in the AIP through regular AIP amendments, had been also identified as one of the contributing factors to NOTAM proliferation.

4.3.19 The EANPG recognized that the capabilities of the digital NOTAM under development on a global basis, would drastically improve the usability of the pre-flight and in-flight briefing, enabling

graphical representation and enhanced filtering of the information. However, the introduction of the digital NOTAM would not by itself solve the issue of excessive published information.

4.3.20 The EANPG was apprised of the results of the initial analysis carried out by France and United Kingdom related to national NOTAM provision, to identify possible causes for proliferation and refinements in local working practices. The EANPG noted that both France and United Kingdom confirmed the importance of reinforced ICAO AIS provisions and have identified focus areas to support originators and AIS providers in improving the NOTAM content and adhering to the current rules, including:

- eliminate bad practice such as unnecessary or irrelevant NOTAM and poor or confusing terminology;
- improve NOTAM content: including the accurate description of temporary obstacles, temporary declared distances, unforeseen or urgent event;
- create guidance material for NOTAM originators, in order to mitigate excessive demand for publication outside regulatory procedures and abuse of the precautionary principle and failure to take responsibility that cannot be solved by NOTAM; and
- create an education programme for key NOTAM originators.

4.3.21 The EANPG was apprised of the AN-Conf/12 outcome related to the subject of NOTAM. In this respect, the EANPG noted that the Conference acknowledged that NOTAM proliferation had become an issue of increasing concern. The Conference also noted the current efforts to mitigate the issues presented by NOTAM proliferation including the development of digital NOTAM. Nevertheless, the Conference concluded that the current NOTAM paradigm was based on a dated concept and that the need for increasing information integration mandated that the NOTAM system be reviewed with the aim of developing improved and modern options for the delivery of the functionalities of the current NOTAM system.

4.3.22 The EANPG underlined the importance of the reinforcement of current rules related to what shall be and what shall not be published by NOTAM and the availability of guidance material to be used for the training of NOTAM originators and oversight of the NOTAM publication process. In this respect, the EANPG noted that in addition to Annex 15 and Doc 8126 (ICAO AIS Manual), the EUROCONTROL OPADD Document (Operating Procedures for AIS Dynamic Data) available at: http://www.eurocontrol.int/documents/opadd-operating-procedures-ais-dynamic-data provides additional guidance. It was further noted that some of the guidance contained in OPADD would be included in Doc 8126 through the upcoming Amendment (expected during the first half of 2013). Accordingly, the EANPG agreed to the following:

EANPG Conclusion54/10 – NOTAM Proliferation

That the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG, in order to mitigate the safety risks associated with NOTAM proliferation:

a) urge States to:

i) strictly apply the current Annex 15 provisions related to the origination of NOTAM and to the information which shall not be notified by NOTAM;

ii) review their NOTAM publication procedures, as appropriate, and ensure adequate oversight of the NOTAM publication process is conducted;

iii) raise awareness amongst the NOTAM originators on the NOTAM proliferation problem and on relevant guidance material, with a view to eliminate bad practices such as publication of unnecessary or irrelevant NOTAM; and

b) invite EUROCONTROL in coordination with the COG/AIM TF to present a progress report on the subject to COG/57.

4.3.23 The EANPG recognised that changes affecting distribution of NOTAM would have an impact on systems and as such technical and cost implications would have to be carefully analysed. In this respect, the EANPG noted that the subject was being discussed/addressed within the framework of the EUROCONTROL AIM/SWIM Team and a draft proposal for amendment of Annex 15 had been developed and was being reviewed/fine-tuned, before formal submission to ICAO.

Proposal for amendment to ICAO Abbreviations and Codes – Doc 8400

4.3.24 The EANPG noted the analysis carried out by the EUROCONTROL AI Operations Subgroup related to the use of abbreviations in NOTAM, which identified that ICAO Doc 8400 contained many abbreviations that would never, or should never be used in NOTAM due to the danger of misinterpretation. A complete review of the abbreviations contained in Doc 8400 had been performed to:

a) identify the abbreviations suitable and necessary for NOTAM operations;

b) identify abbreviations rarely or never used, to be proposed to be removed from Doc 8400;

c) concentrate Doc 8400 to abbreviations with operational significance;

d) avoid duplication of similar abbreviations with different meaning;

e) avoid abbreviations of terms that are already short (e.g. radius, public); and

f) avoid abbreviations that could lead to misinterpretations (e.g. “MAN” can mean “man” or “manual”).

4.3.25 Reference was made to ICAO State Letter AN 2/2.3-12/53 and the proposed inclusion in Annex 15 of information on airspace management, details of civil/military airspace allocation and management coordination, structure of manageable airspace (allocation and changes to allocation), and therefore the EANPG agreed that the following abbreviations were considered operationally significant for NOTAM operations and suitable for inclusion in Doc 8400:

a) CBA - Cross Border Area;

b) CDR – Conditional Route; and

c) TSA – Temporary Segregated Area.

4.3.26 Based on the above, the EANPG commended the work done by the EUROCONTROL AI Operations Subgroup and agreed that the next amendment of Doc 8400 should take into consideration the proposals contained in **Appendix H** to this report. Accordingly, the EANPG agreed to the following:

EANPG Conclusion54/11 – Proposal for amendment to the ICAO Abbreviations and Codes – Doc 8400

That, the ICAO Regional Director, Europe and North Atlantic, in order to improve the operational usage of Doc 8400 abbreviations in NOTAM creation and processing and reduce the use of abbreviations in the NOTAM free text (Item E), undertake necessary action to amend Doc 8400, based on the list provided in **Appendix H** to this report.

Review of the outcome of the COG AIM TF/23 meeting

4.3.27 The EANPG was provided with an update on the status of implementation of the required AIS/MAP facilities and services in the Eastern part of the EUR Region based on the outcome of the COG/AIM TF/23 meeting.

4.3.28 The EANPG recalled that the Interstate Aviation Committee (IAC) was requested to consider the inclusion of the WGS-84 implementation and aeronautical data quality requirements in the list of minimum requirements for the certification of aerodromes.

4.3.29 The EANPG recalled previous discussions that compliance with the WGS-84 provisions could be done through the implementation of local geodetic reference system such as PZ-90.02 (equivalent system), providing that accuracy of field work for geographical positions comply with Annex 11 and Annex 14 provisions.

4.3.30 In light of the wide-scale partnership agreement signed between ICAO and the IAC in April 2012, and based on the proposal made by the COG AIM TF, the EANPG agreed that it's necessary to follow-up the subject with the IAC and agreed to the following:

EANPG Conclusion 54/12 - WGS-84 implementation in the Eastern Part of the ICAO EUR Region

That, the ICAO Regional Director, Europe and North Atlantic, with a view to expedite the completion of implementation of WGS-84 (or an equivalent system) as the geodetic reference system for international air navigation, in the Eastern Part of the ICAO EUR Region, invite the Interstate Aviation Committee (IAC), to consider the inclusion of the implementation of ICAO provisions related to common geodetic reference system for international air navigation and aeronautical data quality requirements, in the list of minimum requirements for the certification of aerodromes.

4.3.31 The EANPG was apprised of the difficulties the States of the Eastern Part of the European Region are facing during the transition from AIS to AIM. The EANPG agreed that direct contact between the Secretariat of the COG/AIM TF and the Coordination Council "Eurasia" would support and expedite the transition from AIS to AIM in the States of the Eastern part of the EUR region. Accordingly, the EANPG agreed to the following:

EANPG Conclusion54/13 - Coordination between the COG/AIM TF and the Coordination Council "Eurasia"

That, the ICAO Regional Director, Europe and North Atlantic, on behalf of the EANPG, invite the Coordination Council "Eurasia" to establish contact and coordinate with the COG/AIM TF in order to support and expedite the transition from AIS to AIM in the member States of the Coordination Council "Eurasia".

4.3.32 The EANPG noted that the COG/AIM TF/23 meeting reviewed and updated all the FASID AIM Tables with special focus and detailed discussions on FASID Table AIM-2 "Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)" and FASID Table AIM-4 "Aeronautical Data Quality".

4.3.33 Based on the monitoring carried out using the EUROCONTROL AMMON tool, the EANPG shared the concern with the COG/AIM TF/23 meeting that the data quality monitoring of the critical and essential aeronautical data published in the AIPs of the States from the Eastern part of the ICAO EUR region showed a large number of non-compliances with the ICAO Annexes 4 and 15 provisions related to

aeronautical data quality requirements, both, in the textual part of the AIPs and on aeronautical charts. In this respect, the EANPG noted that the COG/AIM TF/23 meeting discussed in detail the difficulties States were facing during the transition to AIM, in particular, data quality monitoring procedures for the aeronautical data obtained during the flight procedure design process. Accordingly, the EANPG agreed that an appropriate mechanism should be established by States to achieve the ICAO aeronautical data quality requirements in terms of accuracy, integrity, resolution and data completeness to meet ATM needs, including instrument flight procedure operational requirements. Based on the above, the EANPG agreed to the following:

EANPG Conclusion54/14 - Aeronautical Data Quality Requirements for the Flight Procedure Design and Aeronautical Chart Production Processes

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

a) urge States concerned to:

i. review their procedures related to the use and exchange of aeronautical data during the processes of flight procedure design and aeronautical chart production; and

ii. ensure that adequate oversight of these processes is conducted to improve the level of compliance with ICAO Doc 9906 Volume 1, Doc 8168 Volume 2 and Annex 4 provisions related to aeronautical data quality requirements

b) invite the COG/AIM TF to provide a progress report on the subject to COG/57.

4.3.34 The EANPG noted that the COG/AIM TF/23 meeting discussed the possibility of inclusion of the instrument flight procedure design process, as defined in ICAO Doc 9906, Volume 1, into the phases for the transition from AIS to AIM at State level. In this respect, the EANPG agreed with the EUROCONTROL AIM/SWIM Team/3 that the subject was global in dimension and should be further discussed in other forums (e.g. AIS-AIMSG, IFPP).

Revised AIM Parts of the EUR ANP

4.3.35 The meeting was apprised of the progress achieved for review and fine-tuning of the revised AIM Parts of the EUR ANP, and the initiation of the process of populating the FASID AIM Tables by data provided by States.

4.3.36 Based on the outcome of the EUROCONTROL AIM/SWIM Team/3 meeting, the meeting endorsed the proposed minor amendments and agreed to the following:

EANPG Conclusion 54/15 – Endorsement of the Basic ANP AIM Part, FASID AIM Part and FASID AIM Tables

That:

a) the revised EUR Basic ANP AIM Part, FASID AIM Part and FASID AIM Tables, at **Appendices I, J and K** are endorsed; and

b) the ICAO Regional Director, Europe and North Atlantic, urge States to provide necessary information to populate the AIM FASID Tables to enable the processing of a proposal for amendment to the EUR ANP, Volume 2.

4.4 COMMUNICATION, NAVIGATION AND SURVEILLANCE

Outcome of the Sixteenth Meeting of the Aeronautical Fixed Services Group of the EANPG

EUR AMHS COM Center Training Guidelines (EUR Doc 026)

4.4.1 The EANPG was provided with the EUR ATS Message Handling System (AMHS) COM Centre Training Guidelines developed by the AFSG. The main purpose of the guidance material was to assist in developing and maintaining the training provisions and processes for COM centres' staff involved in AMHS operations. Therefore the EANPG agreed to the following:

EANPG Conclusion 54/16 – EUR AMHS COM Center Training Guidelines (EUR Doc 026) approval

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the ICAO EUR AMHS COM Center Training Guidelines, Version 1.0, as detailed in **Appendix L** to this Report.

IP Infrastructure Test Guidelines for EUR AMHS (EUR Doc 027)

4.4.2 The EANPG was provided with a provisional edition of the IP Infrastructure Test Guidelines developed by the AFSG. The main purpose of the document was to define a minimum set of IP Tests suitable for the acceptance testing of any IP network infrastructure to be used by aeronautical applications. Therefore the EANPG agreed to the following:

EANPG Conclusion 54/17 - Approval of the provisional edition of the EUR AMHS IP Infrastructure Test Guidelines (EUR Doc 027)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the provisional edition of the EUR AMHS IP Infrastructure Test Guidelines (EUR Doc 027), Version 1.0, as detailed in **Appendix M** to this Report.

ICAO EUR AMHS Manual (EUR Doc 020) Update

4.4.3 The EANPG was provided with the updated EUR AMHS Manual (EUR Doc 020) and, consequently, agreed to the following:

EANPG Conclusion 54/18 - Update of EUR AMHS Manual (EUR Doc 020)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the EUR AMHS Manual (EUR Doc 020) Version 7.0, as detailed in **Appendix N** to this Report.

ICAO EUR ATS Messaging Management Manual (EUR Doc 021) Update

4.4.4 The EANPG was provided with the updated EUR ATS Messaging Management Manual (EUR Doc 021) and, consequently, agreed to the following:

EANPG Conclusion 54/19 - Update of EUR ATS Messaging Management Manual (EUR Doc 021)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the EUR ATS Messaging Management Manual (EUR Doc 021) Version 8.0, as detailed in **Appendix O**.

ICAO EUR AFS Security Guidelines (EUR Doc 022R) update

4.4.5 The EANPG was presented with the updated EUR AFS Security Guidelines (EUR Doc 022R). The update was developed in order to provide general guidance on establishing criticality for the assets of the AFS that need to be protected (nodes, information, expert staff). Therefore the EANPG agreed to the following:

EANPG Conclusion 54/20 - EUR AFS Security Guidelines (EUR Doc 022R)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish version 4.0 of the EUR AFS Security Guidelines (EUR DOC 022R).

Note: Due to its sensitive content, EUR Doc 022R is a restricted access document. Accordingly, the updated version reviewed and endorsed by EANPG/54 is not included in this report. EUR Doc 022R is available upon request, at the discretion of the ICAO Regional Director, Europe and North Atlantic.

EUR NSAP Address Registry (EUR Doc 028)

4.4.6 The EANPG was presented with the updated EUR Network Service Access Points (NSAP) Address Registry (EUR Doc 028), and, consequently, agreed to the following:

EANPG Conclusion 54/21 - EUR NSAP Address Registry (EUR Doc 028)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the EUR NSAP Address Registry (EUR Doc 028), Version 2.0, as detailed in **Appendix P** to this Report.

Updates from the SSR Code Secretariat

4.4.7 The EANPG received an update from the SSR Code Secretariat, which provides technical assistance in the management and oversight of the use of Secondary Surveillance Radar (SSR) codes in the ICAO EUR Region in accordance with the European Air Navigation Plan (EUR ANP, Doc 7754) and the European Secondary Surveillance Radar (SSR) Code Management Plan (EUR Doc 023). This service was provided on behalf of the EANPG by the EUROCONTROL Agency. The EANPG was advised that the Terms of Reference for the SSR Code Planning Group (SCPG) and the Transponder Code Function Group (TCFG) had been formally endorsed by EUROCONTROL's Network Management Board during its November 2012 meeting (EANPG Decision 53/3 and COG Conclusion 53/3 also refer). This had completed all necessary formalities for ensuring the ongoing coherent management of SSR code usage in the ICAO EUR Region.

4.4.8 The EANPG was advised that the COG, at its 53rd meeting, had identified two States as being non-compliant with the SSR code provisions detailed in the EUR ANP and EUR Doc 023. The EUR/NAT Secretariat had initiated the necessary coordination between the States concerned and the SSR Code Secretariat. A solution had been implemented as 18 October 2012 by one of the States concerned while, for the other, multi-State coordination was still on-going to finalize an appropriate solution which, it

was expected, would be implemented by the end of January 2013. The EANPG concurred with the recommendation of the SSR Code Secretariat that it was appropriate to monitor the effectiveness of the implemented solution by the first State and the progress in implementing a solution for the second State. Accordingly, it was agreed that an update would be provided to the 56th meeting of the COG, which would recommend further actions, if required.

Outcome of the Sixteenth Meeting of the Frequency Management Group of the EANPG

EUR interference reporting

4.4.9 The EANPG was provided with a proposal for establishing a regional interference reporting and analysis process would also assist States in addressing GNSS and other harmful interference cases.

4.4.10 The EANPG noted that the ICAO Handbook on Radio Frequency Spectrum Requirements for Civil Aviation (Doc 9718) provided a detailed overview of the global interference management and control processes and regulations, and the role that ICAO plays in assisting States in resolving the interference cases. While acknowledging that the responsibility for control and clearance of interference will normally rested with the national authority, it was noted that the ICAO ANP mechanisms would also assist States.

4.4.11 The EANPG noted that the proposed EUR harmful interference reporting process would consist of a web-based list and interference reporting forms and agreed that the proposed mechanism would be implemented as soon as possible on a trial basis for one year and would be reviewed by the next FMG.

4.4.12 Consequently, the EANPG agreed to the following:

EANPG Conclusion 54/22 - EUR harmful interference reporting mechanism

That:

a) the ICAO Regional Director, Europe and North Atlantic, encourage States to report, on a one year trial basis, cases of harmful radiofrequency interference, using the reporting form as provided in **Appendix Q**;

b) the EANPG Frequency Management Group:

i) establish a list of reported harmful interference cases and develop a follow-up process to resolve the reported issues; and

ii) report back to EANPG/55.

Outcome of ITU WRC-12

4.4.13 The EANPG was provided with a summary of the outcomes of International Telecommunication Union (ITU) World Radiocommunication Conference (WRC)-12. It was noted that the conference results in general conformed to the ICAO Position. A number of aviation related items were put on the agenda for WRC-15 in 2015, including the following:

a) Wireless avionics intra-communications (WAIC) systems were identified by the aerospace industry as a means to increase cost-efficiency and environmental friendliness while maintaining required levels of safety, through the reduction of aircraft weight through the use of wireless technology and by the introduction of sensors/ transducers on parts of the airframe hitherto not easily accessible, potentially making more efficient airframe designs possible;

b) Additional spectrum requirements to support UAS (command and non-payload) operations in a safe manner in non segregated airspace;

c) Spectrum requirements for new allocations for the mobile service, including broadband wireless access (BWA) and the international mobile telecommunications (IMT). It was expected that the proponents of many of the WRC-15 agenda items would consider and propose potential sharing or use of aeronautical spectrum in one or more bands.

4.4.14 The EANPG was informed that an ICAO State Letter – 'Draft ICAO Position on items of interest to aviation on the agenda of the International Telecommunication Union (ITU) World Radiocommunication Conference (2015) (WRC-15) (2012/62)', was circulated on 28/11/2012.

Amendments to the EUR Frequency Management Manual (EUR Doc 011)

4.4.15 The EANPG was provided with the updated EUR Frequency Management Manual (EUR Doc 011) and, consequently, agreed to the following:

EANPG Conclusion 54/23 - Approval of the amended EUR Frequency Management Manual (EUR Doc 011)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the amended ICAO EUR Frequency Management Manual, as provided in **Appendix R** to this Report.

Non-operational MLS

4.4.16 The EANPG was informed that there were a number of assignments in Supplement Table Com 3 of the ICAO EUR Air Navigation Plan(Doc 9754) for Micro-wave Landing systems (MLS), MLS/DME or MLS/ILS/DME that were not operational. The EANPG agreed in principle that non-operational assignments should be deleted and encouraged the EUR States to take such actions as appropriate. Consequently, the EANPG agreed to the following:

EANPG Conclusion 54/24 - Non-operational MLS, MLS/DME and MLS/ILS/DME.

That the ICAO Regional Director, Europe and North Atlantic:

a) request States to confirm their requirements for MLS, MLS/DME and MLS/ILS/DME frequency management assignments; and

b) delete assignments from the ICAO EUR COM Tables in the EUR Frequency Management Manual (EUR Doc 011) for which such confirmations are not received as of 28 February 2013.

SAFIRE

4.4.17 The EANPG was provided with the details of the process agreed to migrate the update process of COM 3 and COM 4 Tables of the EUR ANP onto the web-based SAFIRE tool. This action would address EANPG Conclusion 49/17.

4.5 PERFORMANCE BASED NAVIGATION IMPLEMENTATION

PBN implementation in the EUR Region

4.5.1 The EANPG was provided with the outcome of the ICAO EUR PBN task force work. It was noted that as part of its work programme, the EUR PBN TF developed the EUR RNP APCH implementation guidance material to assist States with the RNP APCH operations implementation. The guidance material described generic steps that implementers should undertake to introduce such operations, together with the applicable standards and relevant documentation. The aforementioned guidance material also addressed aircraft operators, by including an overview of the available standards that could be used to obtain airworthiness certification and operational approval.

4.5.2 The EANPG was informed that the guidance material was developed in close cooperation with IATA, EASA and Eurocontrol and took into account the EUR regional specificities as well as the need for global harmonisation and interoperability.

4.5.3 The EANPG noted that the EANPG COG had assigned the responsibility for the maintenance of the EUR RNP APCH guidance material to the PBN TF (COG Decision 54/1 refers) and therefore agreed to the following:

EANPG Conclusion 54/25 - EUR RNP APCH implementation guidance material (EUR Doc 025)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the EUR RNP APCH implementation guidance material (EUR Doc 025), as provided in **Appendix S** to this Report.

Regional workshops and Go Teams

4.5.4 The EANPG was informed that an ICAO/Eurocontrol PBN implementation workshop was held on 9-12 July 2012 in Tbilisi, Georgia 40 participants from 10 States attended the workshop and obtained theoretical knowledge and practical experience on planning and implementing PBN. In parallel, a regional Go-Team project was undertaken involving States in the Southern Caucasus area. The objective of the Go-Team led by ICAO and composed of experts from Eurocontrol and industry, was to assess the status of PBN planning and implementation in Armenia, Azerbaijan and Georgia.

4.5.5 As an outcome of this exercise, individual reports were sent to the States involved containing recommendations to foster the implementation of PBN.

4.5.6 A global Go-Team project was undertaken on 5-7 September 2012 in the Russian Federation. The report of the project was being coordinated between the Russian Federation and ICAO.

4.5.7 The EANPG was informed that in the course of the aforementioned activities and also through the EUR PBN TF discussions, it was identified that States, in particular in the Eastern part of the EUR, still required assistance in PBN implementation. Therefore, the need for additional training workshops to provide guidance on PBN/CDO/CCO implementation and assist in the development and implementation of the PBN plans was supported. It was noted that a supporting project was planned to be undertaken in Kazakhstan in the second quarter of 2013 and would focus on the neighbouring EUR States.

4.5.8 In view of the above, the EANPG agreed to the following:

EANPG Conclusion 54/26 - PBN/CDO/CCO implementation assistance for States in the Eastern part of ICAO EUR Region

That the ICAO Regional Director, Europe and North Atlantic, in order to provide States in the Eastern part of ICAO Region with a better understanding of the PBN/CDO/CCO planning and implementation related issues and facilitate implementation, undertake necessary actions to organise in 2013 a workshop (as a Special Implementation Project).

4.5.9 The EANPG was presented with a proposal to optimise the existing PBN related working arrangements within ICAO and Eurocontrol. The EANPG was informed that this subject was already discussed during the 4th Eurocontrol Agency Advisory Body (AAB) meeting and the AAB invited the Principal Director PD-ATM of Eurocontrol to identify potential solutions to improve collaboration between ICAO and Eurocontrol, in order to take advantages of the knowledge and experience from both entities and optimise the use of resources.

4.5.10 The proposal suggested to group together the efforts of the ICAO EUR PBN TF and Eurocontrol RNAV Approach Implementation Support Group (RAISG). The EANPG noted that there were 2 more groups within Eurocontrol (NSG and LATO) that potentially could be considered for optimisation. However, it was agreed that at this stage it would not be appropriate to immediately merge NSG with the EUR PBN TF.

4.5.11 The EANPG supported in principle the proposal and noted that some administrative issues would need to be further discussed and agreed through the drafting of the Terms of Reference. To this effect, the following points have been raised:

a) The new resulting working arrangement would have a chair and a co-chair, one selected from the ECAC States and one coming from the non-ECAC States;

b) The Chairman of the EUR PBN-TF offered to continue his work, unless other candidates would be nominated from the task force;

c) Relevant arrangements relating to the Secretariat functions would need to be clarified, including the storing and uploading of meeting documents to avoid unnecessary duplication, reporting, etc;

d) The meetings would be held alternatively in the ICAO EUR/NAT Office and Eurocontrol premises;

e) The support for development provided by Eurocontrol would be available for the entire ICAO EUR Region, as needed;

f) The new working arrangement would not retain the names currently used by the ICAO EUR/NAT and Eurocontrol groups dealing with PBN. It was foreseen that the PIPT (PBN Implementation Project Team) abbreviation could be potentially accepted

4.5.12 The EANPG agreed that the timeframe for transition, foreseen to start in the first semester of 2013, would allow the EANPG COG and AAB Eurocontrol to validate the finalisation of the transitional agreements and the relevant Terms of Reference. Transition arrangements were intended to be concluded in the second half of 2013.

4.5.13 For organisational purposes, the following currently planned meeting dates for the existing structures would not be changed:

- ICAO EUR PBN-TF 23rd-24th January, 2013
- Eurocontrol RAISG 8th-9th April 2013

4.5.14 These meetings would also serve to gather additional comments or concerns from the participants, so that these could be adequately addressed in the transition phase, allowing a clean and commonly understood transition. Therefore the EANPG agreed to the following:

EANPG Conclusion 54/27 - EUR Performance Based Navigation Implementation Project Team (PIPT)

That, while aknowledging the good work done in the ICAO EUR Region for the implementation of Performance Based Navigation (PBN), the ICAO Regional Director, Europe and North Atlantic, initiate coordination between ICAO EUR/NATand Eurocontrol to:

a) undertake the transition activities to the new working arrangement (set-up of the EUR PBN Implementation Project Team) during the first semester of 2013;

b) develop a draft Terms of Reference for the PBN Implementation Project Team (PIPT), not later than by the end of May 2013; and

c) merge the activities of the two current working arrangements within ICAO and Eurocontrol by the end of 2013, with a view to optimase the use of resources.

EANPG Decision 54/1 - EUR Performance Based Navigation Implementation

That, the EANPG Coordination Group (COG) be mandated to approve the Terms of Reference of the new working arrangement at its 56th meeting (July 2013).

4.6 METEOROLOGY

Outcome of the Twenty-Second Meeting of the Meteorology Group of the EANPG and activities of the Meteorological/Air Traffic Management Task Force of the EANPG-COG (MET/ATM TF)

4.6.1 The EANPG noted that the twenty-second meeting of the Meteorology Group (METG/22) of the European Air Navigation Planning Group (EANPG) was held at the European and North Atlantic Office of ICAO, Paris, from 4 to 7 September 2012. The METG/22 meeting was attended by 94 experts from 37 States in the EUR Region, Iceland and Morocco and 4 international organizations (European Organization for the Safety of Air Navigation (EUROCONTROL), European Aviation Safety Agency (EASA), International Air Transport Association (IATA), and World Meteorological Organization (WMO)). The fifty-fourth meeting of the EANPG Programme Coordination Group (COG/54) held in Paris from 16 to 19 October 2012 reviewed and adapted, where necessary, 8 draft Conclusions (one being added by COG/54) for EANPG/54 consideration.

Quality Management System

4.6.2 In accordance to COG Decision 45/08, the METG/22 developed a set of key performance indicators (KPIs) to provide States a set of basic KPIs to fulfill the monitoring process of Quality Management System (QMS) (Annex 3 standard as of 15 November 2012).

4.6.3 The baseline set of KPIs in the Region were expected to be issued by regulators, national supervisory authorities, and service providers to ensure aeronautical meteorological forecasts were skillful, comply with ICAO provisions and that resources were effectively directed at improving the process.

4.6.4 As determined by the COG/54, these indicators would be referred to as MET Quality of Service Indicators to avoid confusion with other applications of KPIs.

4.6.5 Given the above, the EANPG agreed to the following:

EANPG Conclusion54/28 – Regional (EUR) MET Quality of Service Indicators

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the set of regional (EUR) MET Quality of Service Indicators on the ICAO EUR/NAT website, as provided in **Appendix T** to this Report, and invite States to utilize them.

Note, if guidance on implementing the MET Quality of Service indicators was needed, a State could consult other States or MET Service providers (e.g. UK MET office) for assistance.

Transit times for MET information

4.6.6 Related to the above MET Quality of Service Indicators, the EANPG noted that the Annex 3 requirements on transit times of meteorological information of 10 minutes (distance >= 500 nm) and 5 minutes (distance < 500 nm) were considered obsolete given today's communications capabilities and infrastructure.

4.6.7 These transit times should be reviewed noting implications of transposing Annex 3 standards to European Union (EU) regulations. Consequently, the EANPG agreed to the following:

EANPG Conclusion54/29 – Review required transit times for meteorological information in Annex 3

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action for required transit times for meteorological information in Annex 3 – *Meteorological Service for International Air Navigation* to be reviewed taking into consideration current and future communications infrastructure in all ICAO Regions.

World Area Forecast System

4.6.8 No draft Conclusions were formulated for EANPG consideration noting World Area Forecast System (WAFS) developments were documented in the METG/22 report.

International Airways Volcano Watch (IAVW)

Radioactive cloud

4.6.9 The EANPG noted that the global database of ACC AFTN 8-letter addresses for notification by Volcanic Ash Advisory Centre (VAAC) London concerning the release of radioactive material into the atmosphere was updated with information from Bosnia Herzegovina, France, and the Russian Federation. These addresses were still needed for Armenia, Belarus, Germany and Turkmenistan to complete the EUR entries in this global database.

Volcanic ash exercises

4.6.10 The EANPG was informed that the first volcanic ash exercise in 2012 (VOLCEX12/01) simulated an eruption of a volcano named Furnas in the Azores from 26-27 April 2012 which impacted a large area that included the southwest Mediterranean, Maghreb, Adriatic, Baltic and the Russian Federation.

4.6.11 This exercise tested the dissemination of special air-reports on volcanic ash useful for VAACs in generating volcanic ash advisory and graphic (since the ACC was not involved in the test, the Annex 3 communications flow was not utilized – but will be tested in VOLCEX13/01). The EANPG noted that other lessons learned were provided in **Appendix U** to this Report.

4.6.12 The second volcanic ash exercise in 2012 (VOLCEX12/02) simulated an eruption of Katla in Iceland on 28 March 2012 which used weather of the day. Strong northwesterly winds of up to 150 knots transported the volcanic ash cloud across most of UK-Irish functional airspace block in just 18 hours.

4.6.13 The main lesson learned was that the initial phases of the Volcanic Ash Contingency Plan EUR and NAT Regions (EUR Doc 019, NAT Doc 006, Part II) and in particular, the response and reactive phases, could be simplified with one set of instructions which would be most useful for the FIR where the volcanic eruption occurs. The meeting noted that other lessons learned were provided in Appendix U.

4.6.14 The EANPG noted that the planning meeting for the first volcanic ash exercise in 2013 (VOLCEX13/01) (Toulouse, 20 November 2012) discussed details of VOLCEX13/01. A simulated volcanic eruption of Katla in Iceland would occur from 23 to 24 April 2013. One main objective of the exercise would be to test communications of special air-reports on volcanic ash in accordance to Annex 3. Details of the exercise would be provided in the Exercise Directive which was being developed. The EUR/NAT VOLCEX/SG agreed that one simulated eruption in Iceland would occur each year with one in southwest Europe and one in southeast Europe every two years. One exercise each year would take place for one day while the other would take place for two-days, the later would allow the activation of the European Aviation Crisis Coordination Cell (EACCC).

4.6.15 Recognizing the good work that has been performed by the EUR/NAT VOLCEX/SG, IFALPA noted that the VOLCEX/SG and planning meetings could be conducted more efficiently and suggested the terms of reference for the EUR/NAT VOLCEX/SG be reviewed in time for the COG/56 meeting. For example, some of the work being conducted could be considered through correspondence and the number of participants should be limited. Guidance concerning volcanic ash exercises developed by the IVATF as well as Attachment C to Annex 11 could also be considered when reviewing the two VOLCEX/SGs terms of reference. Noting the expertise on exercising the regional volcanic ash contingency plan, IFALPA suggested that experts from this group be involved in some capacity in the review of the regional volcanic ash contingency plan.

4.6.16 The EANPG was informed on first meeting of volcanic ash exercise steering group for the (far) eastern part of the EUR Region (EUR (EAST) VOLCEX/SG/1) that was held in Petropavlovsk-Kamchatsky, Russian Federation from 21 to 23 Aug 2012 (COG Decision 48/01 refers) which involved the Russian Federation, Japan, United States, IATA, Eurocontrol and ICAO.

4.6.17 The first volcanic ash exercise in the Far East would simulate a volcanic eruption of Karymsky in Kamchatka, Russian Federation from 2100 UTC on 15 January 2013 to 0600 UTC on 16 January 2013. The simulated volcanic ash cloud would move east, southeast and impact the northern Pacific (NOPAC) routes. The objectives of the exercise include: demonstrate *a)* information flow Volcano Observatory - Volcano Observatory Notice for Aviation (VONA)-> Volcanic Ash Advisory Centre (VAAC) (issue advisory and graphic)-> Meteorological Watch Office and NOTAM Office (for issuance of SIGMET/NOTAM) *b)* coordination procedures between ATM Centres *c)* coordination procedures between ACCs *d)* coordination procedures between Providers and Users and *e)* based on exercise conclusions, consider adapting Air Traffic Management Volcanic Ash Contingency Plan (ATM VACP) template developed by the IVATF for use in the region.

4.6.18 In addition, contingency coordination between Petropavlovsk-Kamchatsky and Fukuoka ATMC for reroutes would be considered between the Russian Federation and Japan.

4.6.19 It was noted that the terms of reference of the EUR (EAST) VOLCEX/SG should consider use of the Air Traffic Management Volcanic Ash Contingency Plan (ATM VACP) template since volcanic ash concentration charts were not available east of longitude E90. Furthermore, the terms of reference should include testing the impact from volcanic ash on the NOPAC routes as this is the most likely scenario given

the nominal westerly winds would transport the ash east over the NOPAC routes. These points may be considered at a future COG meeting.

Volcanic Ash Advisory Centres

4.6.20 The EANPG noted that new volcanic ash observation systems that had been deployed or would be deployed (2013-2014) would assist Volcanic Ash Advisory Centres (VAACs) in generating volcanic ash products as well as users and operators in implementing their safety risk assessments. There were concerns raised by quality of observations and information overload noted by IFALPA if this information were made available to users and operators. As a result, the COG/54 agreed that this information should first be made available to the VAACs while the COG TF reviewing the regional volcanic ash contingency plan would consider whether or not this information should be available to users and operators and how it should be made available.

4.6.21 The method of exchange of some information (lidar, ceilometers) has not yet been standardized and should consider developments from the World Meteorological Organization (e.g. volcanic aerosol networking), the European Union (e.g. project called WEZARD that addresses the collection, treatment and communication of meteorological data related to volcanic ash) and ICAO noting VAACs preferred a format that was easily ingested into numerical models. Given the above, the EANPG agreed to the following:

EANPG Conclusion54/30 – Availability of volcanic ash observations from new observation systems for VAACs

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to urge States in the EUR Region to have meteorological service providers send any available volcanic ash observations from new observation systems during a volcano event to the Volcanic Ash Advisory Centres (VAACs) in a timely manner.

Note: Coordination between the State and VAAC(s) on the method of exchange of information not defined by WMO and/or ICAO should be considered in light of developments by WMO, ICAO and the WEZARD Project.

4.6.22 With reference to the Volcanic Ash Contingency Plan EUR and NAT Regions (EUR Doc 019, NAT Doc 006, Part II), the EANPG noted that many airlines in the EUR Region were using volcanic ash concentration charts in formulating their safety risk assessments. In addition, the concepts of visible and discernible ash had not yet been defined in the global forums noting a definition for discernible ash would address the common environmental conditions in the EUR and NAT Regions (instrument meteorological conditions (IMC) and/or night). As a result, the COG task force reviewing the regional volcanic ash contingency plan agreed to use the outcomes from the International Airways Volcano Watch Operations Group (IAVWOPSG) when considering changes to the plan. IATA raised a question concerning the continued use of ash concentration charts and in response the Chairman indicated that until a viable alternative was available, then there was no plan to discontinue their use. IATA also stated that they support the IVATF stance in adopting visible ash as a safer and more achievable method of determining ash concentration. IATA has advised its member airlines that it does not support the use of Ash Concentration charts when assessing safety and when completing a Safety Risk Assessment. This is due to wide variations in the capability for observing ash and the resulting uncertainties in volcanic ash observations and forecasting.

EUR SIGMET and AIRMET Guide

4.6.23 The EANPG considered several proposed changes provided by the EUR SIGMET and AIRMET Guide ad-hoc group of the METG as well as by States included clarity for SIGMET on volcanic

ash, AIRMET distribution requirements and updates to World Meteorological Organization abbreviated header lines. The EANPG concurred with these proposed changes and agreed to the following:

EANPG Conclusion54/31 - Revision to EUR SIGMET and AIRMET Guide (EUR Doc 014)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to publish the revised EUR SIGMET and AIRMET Guide (EUR Doc 014) as presented at **Appendix V** to this Report, which provides clarity for SIGMET on volcanic ash, AIRMET requirements and distribution and updates to WMO abbreviated header lines provided by States.

4.6.24 It was noted that this above-mentioned ad-hoc group consisting of UK, Denmark, Latvia, Slovenia, IATA and ICAO would review, and update where necessary, the EUR SIGMET and AIRMET Guide (EUR Doc 014) considering results of the fourth meeting of the Meteorological Warnings Study Group (METWSG/4) and in particular to Action 4/3, which was expected to develop generic guidance on the issuance of SIGMET for each ICAO Region to consider for use in the regional SIGMET guides to remove inconsistencies as well as investigate the possibility of splitting Annex 3, Table A6-1 into its component parts relating to SIGMET, AIRMET and special air-reports; provide guidance on the use of FIR sub areas for AIRMET; and harmonize with Amendment 76 to Annex 3 (applicable November 2013).

AIRMET Exchange

4.6.25 The EANPG noted that AIRMET was subject to a regional air navigation agreement and that where such requirements exist, AIRMET should be distributed globally and therefore the global documents – *Manual of Aeronautical Meteorological Practice* (ICAO Doc 8896) and the Basic Operational Requirements and Planning Criteria (BORPC) (ICAO Doc 7754, Part I) should be aligned to reflect the above as it did not currently describe the dissemination of AIRMET to regional OPMET Data Banks for further distribution to aeronautical fixed service satellite distribution systems (global distribution). Consequently, the EANPG agreed to the following:

EANPG Conclusion 54/32 - Alignment of exchange requirements for AIRMET included in Doc 8896 and BORPC with Annex 3

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to align the provision of Doc 8896 and Basic Operational Requirements and Planning Criteria (BORPC) with Annex 3 – *Meteorological Services* for *International Air Navigation* provsisons, when describing exchange requirements for AIRMET.

4.6.26 It was also noted that regional documentation such as the EUR Air Navigation Plan (EUR Doc 7754, Part VI) and the EUR SIGMET and AIRMET Guide (EUR Doc 014) should also clarify that AIRMET, where required by a regional air navigation agreement, was distributed globally. The proposed text to provide this clarity was captured in their respective proposed updates in different draft Conclusions.

GAMET Exchange

4.6.27 As noted above, AIRMET, where required, was distributed globally. GAMET was used to support AIRMET, but there was no requirement in Annex 3 to distribute globally. There was a question by Data Management Group (DMG) of the METG as to whether GAMET should be distributed globally. Currently the requirement was to distribute amongst meteorological offices responsible for the issuance of flight documentation for low-level flights in the flight information regions concerned (Annex 3, Appendix 5, 4.4). In order to know if the current provisions satisfied the users, the following unanswered questions needed to be answered first:

"For those States that provide GAMET in tabular and/or chart form, 1) who do they send GAMET to and 2) how do they send this information (noting that AFTN was not capable of exchanging the chart form as opposed to AMHS)?"

4.6.28 Given the above, the EANPG agreed to the following:

EANPG Conclusion 54/33 – Construct an inventory on the regional exchange of GAMET and graphical products to support low-level flights

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary actions to construct an inventory on the regional exchange of GAMET and graphical products to support low-level flights by METG/23 in order to determine if the users' needs are met.

OPMET Exchange

State of the runway

4.6.29 The EANPG noted that the fifth meeting of the EUR DMG of METG identified that many (17) States in the EUR Region did not comply to the current standards (Annex 3, Appendix 3, Table A3-2) with reference to state of the runway in the supplementary of METAR and SPECI. About half of the reporting stations used runway state group was in the old format during the monitoring period from December 2011 to February 2012. Consequently, the EANPG agreed to the following:

EANPG Conclusion54/34 - Compliance of state of the runway reporting as supplementary information in METAR and SPECI

That:

a) the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to urge States to strictly apply Annex 3, Appendix 3, Table A3-2 in respect of information on the state of the runway included as supplementary information in METAR and SPECI, noting noncompliance reported in **Appendix W** to this Report; and

b) the Data Management Group of METG to present a progress report on the subject to METG/23.

PT/LLF of METG

4.6.30 The EANPG was informed that noting the development of a list of websites in support to low-level flight, providing draft guidance material to the Data Management Group (DMG) of METG on GAMET exchange and providing possible future changes to FASID Table MET 1B to reflect MET services supporting low-level flight, the METG/22 meeting disbanded the PT/LLF with honours.

Regional Air Navigation Plan – MET part

4.6.31 The EANPG noted that the TAF ad-hoc group of METG developed a proposed change to the MET Part of the EUR Basic Air Navigation Plan (EUR Doc 7754) to accommodate a request from IATA that 9-hour TAF be replaced with 24-hour TAF in the EUR Region in order to optimize flight paths during the flight planning stage. This would give operators more choices in selecting alternate aerodromes and ultimately save time and fuel as well as reduce carbon emissions. As there were currently more than 200 aerodromes in EUR issuing 9-hour TAF, a change to issuing 24-hour TAF entailed resource challenges in creating and monitoring the TAF.

4.6.32 To reach a balance between operator needs and resource constraints, the TAF ad-hoc of METG proposed to implement 24-hour TAF in three phases. The first set of aerodromes would be provided by IATA to the METG/23 meeting and consider aerodromes not closed for more than 8 hours. The subsequent phases would be presented at the following METG meetings for consideration.

4.6.33 To accommodate the States in implementation of 24-hour TAF, the ad-hoc group proposed the following changes to the regional air navigation plan:

- Provide clarity on the availability of METAR, whether derived manually or automatically, in support to TAF for aerodromes open continuously and for those that close for several hours
- Provide clarity on the availability of TAF for aerodromes that close for several hours
- Allow for a new time series of TAF commencement (03, 09, 15, 21 UTC) for long TAF to accommodate State resources in the production and dissemination of TAF
- Provide clarity on TAF bulletin production and notification of bulletin changes
- Aligning the TAF issuance time to Amendment 76 to Annex 3 (issue TAF no longer than one-hour before the start period of validity time)

4.6.34 It was noted that in addition to these changes, a proposal to amend FASID Tables MET was mainly based on State input as well as removing Chart MET 1 (chart showing the AFTN routing areas identified by the letters in Columns 3 and 6 of Table MET 1A) since it was already produced in ICAO Doc 7910 and published on the ICAO EUR/NAT website. The EANPG concurred with these proposed changes and agreed to the following:

EANPG Conclusion54/35 - Proposal for amendment to Part VI (MET)

That the ICAO Regional Director, Europe and North Atlantic, undertake the necessary action to process a proposal for amendment to Part VI (MET) of the EUR Air Navigation Plan (EUR Doc 7754) as indicated in **Appendix X** to this Report for the Basic ANP and **Appendix Y** to this Report for the FASID.

MET/ATM

4.6.35 Developments related to MET requirements in support to ATM were well documented by the Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT) at the referenced website. In context of reactivating the EUR MET/ATM TF, the MARIE-PT Secretariat indicated that restarting regional MET/ATM TF would most likely be considered after the proposed MET Divisional Meeting in 2014. A status of MET/ATM developments would be provided to each autumn COG meeting.

4.7 THE FPL IN 2012

Implementation of Amendment 1 to the PANS-ATM (FPL2012)

4.7.1 The EANPG received a briefing on the transition to the new ICAO flight planning provisions which became effective on 15 November 2012. As explained by the Chairman of the ICAO/EUROCONTROL FPL2012 Task Force, the majority of States had successfully completed their transition as of the deadline, 10 had completed the transition on 16 November and 1 State had completed its transition on 20 November. 13 States would receive a translation service supported by EUROCONTROL's Integrated Initial Flight Plan Processing Service (IFPS) until they could complete their own transition arrangements throughout 2012 and 2013.

4.7.2 The EANPG was advised that the transition had gone relatively smoothly with any difficulties or errors being addressed without undue negative impacts on the network. The EANPG was advised of the following on-going issues:

a) intended use of STS descriptors HAZMAT, MARSA, ALTRV and FFR was not, currently, subject to regionally agreed procedures and might not be understood in the same way be all stakeholders;

b) confusion between "certification" and "approval" as it pertained to completing Item 10 of the flight plan;

c) cases where the flight plan indications appeared not to be accurately reflecting the actual capability of the flights concerned;

d) confusion regarding how exemptions for military flights should be indicated;

e) lack of global provisions to support the required level of specificity for certain approach procedure approvals, some of which were aerodrome or even runway specific;

f) seemingly redundant or duplicate indicators and descriptors, such as for ADS-B capabilities; and

g) inclusion of entire content of certain Fields in certain messages, which unnecessary increased message lengths and complexity.

4.7.3 The EANPG was advised that these and other subjects would be addressed by the ICAO/EUROCONTROL FPL2012 Task Force as part of its planned post-implementation activities and would be coordinated with ICAO for further action as appropriate. The EANPG expressed its appreciation to the EUROCONTROL Agency which had, since 2009, coordinated and monitored the progress of an implementation plan on behalf of the entire ICAO EUR Region (EANPG Conclusion 50/40 refers). Furthermore, the EUROCONTROL Agency had also supported training and testing arrangements which were available to stakeholders globally in addition to 7 operational test sessions which were also open to all. In relation to the foregoing, the EANPG noted that stakeholders from all of the ICAO Regions had participated in these arrangements. Finally, the EANPG expressed its appreciation to the many stakeholders throughout the ICAO EUR Region who had, through their significant efforts, ensured the safe transition to the new ICAO flight plan provisions.

4.8 PERFORMANCE FRAMEWORK

Implementation of the Regional Performance Framework

4.8.1 Based on the endorsement from EANPG/53, in which the EUR Regional Performance Framework document on the implementation of the performance framework in the performance areas (Safety, Capacity, Efficiency and Environment, Cost Effectiveness and Participation by ATM community) within the EUR region was agreed, the EANPG was presented with the main results of the COG PERF TF work.

4.8.2 The EANPG noted that the COG PERF TF agreed to give priority to the preparation of the guidance material in order to support States in identifying data that should be collected and provided for the implementation of the regional performance framework. In this context, due consideration was given to the need to avoid duplication of efforts and additional burden on States and the use, to the maximum extent possible, of the existing arrangements/solutions (e.g. results from the work developed within the EU Performance Scheme and Eurocontrol.

4.8.3 The guidance material was prepared based on an iterative process aimed at defining general principles for monitoring and reporting activities and the identified steps described the whole process, from the production of the raw data to the preparation of the Regional Performance Review Report (RPRR) for

EANPG. These steps were also aimed at identifying if and where data were already available (e.g. European Union (EU) Performance Scheme, Eurocontrol processes) and who was the owner of the activity.

4.8.4 Nevertheless, it was noted that due to missing inputs from several States in the Eastern part of the ICAO EUR Region, the Guidance Material was currently mainly reflecting the situation within the EU and Eurocontrol States. The EANPG agreed that without additional input from the States concerned allowing the completion/refinement of the guidance material, the proposed performance framework would not be applicable to the whole extent of the ICAO EUR Region. The EANPG noted the urgent need to address this issue through the organisation of a regional performance framework workshop, addressed to the States in the Eastern part of the EUR Region (especially Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan). Therefore the EANPG agreed to the following:

EANPG Conclusion 54/36 – Regional Performance Framework Workshop for States in the Eastern part of the ICAO EUR Region

That the ICAO Regional Director, Europe and North Atlantic, in order to provide States with a better understanding of the Regional Performance Framework and to expedite implementation in the Eastern part of the ICAO EUR Region, undertake necessary actions to organise, in the first quarter of 2013, a workshop in support of the Regional Performance Framework, as a Special Implementation Project (SIP).

4.8.5 The EANPG also noted that the outcome of the 12th Air Navigation Conference (AN-Conf/12) and in particular the revised GANP would necessitate adjustments to performance frameworks at the regional level. The new GANP outlined an air navigation planning and implementation framework which prescribed reporting, monitoring, analysis and review activities being conducted on a cyclical, annual basis. This relied on two distinct but complementary activity threads:

a) Monitoring of implementation status: the Air Navigation Report Form (ANRF) would be the basis for the monitoring relating to Aviation System Block Upgrade (ASBU) implementation at the regional and national levels. This would include (qualitative) assessment of expected performance benefits in five priority Key performance Areas (KPAs): Access & Equity, Capacity, Efficiency, Environment and Safety.

b) Monitoring of overall performance outcome through an established measurement strategy for homogeneous ATM areas and major traffic flows/routing areas. While PIRGs would progressively identify a set of regional performance metrics in priority KPAs, States in the meantime recognized that data collection, processing, storage and reporting activities supporting the identified regional performance metrics were fundamental to the success of performance-based approaches.

4.8.6 The reporting and monitoring results from both activity threads would be analysed by ICAO and aviation partner stakeholders and then utilized in developing the annual Global Air Navigation Report. The Report results should provide an opportunity for the world civil aviation community to compare progress across different ICAO regions in the establishment of air navigation infrastructure, performance-based procedures and overall performance outcome. In this respect, it would be possible that the material developed by the Task Force would need to be reviewed considering the official results of the AN-Conf/12.

Consistent with a related recommendation of ANConf/12, calling for the establishment of common global air navigation service performance metrics, the Meeting fully supported the intention of the Secretariat to promote the incorporation of progress achieved in the European Region in this regard into the processes to be established aimed at defining such global metrics.

4.8.7 The EANPG acknowledged the work of the COG PERF TF and noted the guidance material presented at **Appendix Z** to this Report. The proposed approach that the updated material, including the results from the 12th Air Navigation Conference and the outcome of the dedicated workshop in the Eastern part of the Region, would be prepared by the Task Force in the first semester of 2013 to be presented to COG/56 meeting was supported by the EANPG. Therefore the EANPG agreed to the following:

EANPG Decision54/2 – Regional Performance Framework Document, Guidance Material and Regional Performance Review Report (RPRR)

That the 56th meeting of the EANPG Programme Coordinating Group (COG/56) be mandated to review and, if appropriate, endorse the regional performance framework document, guidance material and a regional performance review report template for use by States in the ICAO EUR Region to provide performance reports to the EANPG.

4.8.8 During the discussion the representative from France stressed the importance of the avoidance of inconsistencies between the regional and the global performance framework and supported the alignment of the COG PERF TF to the global activities. The COG PERF TF Chairman referred to the AN-Conf/12 draft report which already indicated an added value from the regional developments in the performance monitoring and measurement of the air navigation systems and that the COG PERF TF would take due account of the official outcome of the AN-Conf/12 in their future work. This approach was also supported by Germany. The representative from the European Commission indicated that the EC would not only continue to evolve this work further within the ECAC States but also would seek to further cooperate with ICAO for a regional-wide performance framework. The representative from the Czech Republic raised the question on the availability of global Safety Performance Indicators which were an important part of the States Safety Programs and which were not published so far. The ICAO secretariat indicated that an update on these indicators could be expected at the next RASG-EUR meeting in February 2013.

5. MONITORING

RVSM Safety Monitoring Report 2011

5.1 Eurocontrol presented to the EANPG the main results of the European Regional Monitoring Agency (EUR RMA) 2011 Safety Monitoring Report for the European RVSM Airspace, covering the 2011 reporting period. The EANPG noted that the technical risk of en-route mid air collision in RVSM airspace was estimated at 0.09 x 10-9 fatal accidents per flight hour, which satisfied the Target Level of Safety (2.5 x 10 9 fatal accidents per flight hour) and Safety Objective 1.

5.2 The EANPG noted that the overall risk of en-route mid air collision in RVSM airspace was estimated at 0.59 x 10-9 fatal accidents per flight hour, which satisfied the Target Level of Safety (5 x 10-9 fatal accidents per flight hour) and Safety Objective 2. It was however highlighted that the low number of Altitude Deviation Reports and Large Height Deviation Reports received from States by the EUR RMA did not support a high confidence in the above mentioned result. The EANPG noted with concern that there had been practically no progress by States on this matter since EANPG/53, during which the significant reduction in the number and quality of altitude deviation and other operational reports received by the EUR RMA had been highlighted.

5.3 With respect to the RVSM Safety Objective 3 (requiring that the continuous operation of EUR RVSM would not adversely affect the overall risk of en-route mid-air collision), the EANPG noted that the reports submitted to the EUR RMA, while small in number, indicated no evidence to suggest that the number of ATM induced accidents or serious risk bearing incidents was increasing. Both, the technical and overall risk of mid air collision estimates remained significantly below the associated target levels.

5.4 With respect to the RVSM Safety Objective 4, the EANPG was informed that all the direct safety issues outstanding when the 2011 RVSM Safety Monitoring Report was released had either been resolved or addressed as ongoing issues in the current Reports, which satisfied this Safety Objective. The EANPG was provided with information on the completed global RVSM approval survey, as well as with updates on State aircraft related issues (including the preparation of new specific guidance material), the implementation of monitoring targets, and the investigations and follow up actions carried out for non-compliant aircraft with respect to ASE. In particular, updates were provided regarding the coordination performed by the EUR RMA with the European Aviation Safety Agency (EASA) for non-compliant aircraft for which the type certificate was issued by EASA.

5.5 Therefore, the EANPG agreed to the following:

EANPG Statement 54/1 - Reduced Vertical Separation Minimum

The EANPG, noting the report provided by the European Regional Monitoring Agency, is satisfied that Reduced Vertical Separation Minimum (RVSM) operations in the ICAO European Region met the four safety objectives for the year 2011.

5.6 With respect to the revision of the safety objectives, the EANPG was informed that a request to review the RVSM safety objectives had been submitted to the ICAO Separation and Airspace Safety Panel.

Regional Monitoring Agency "EURASIA" – RVSM Safety Monitoring Report 2012

5.7 The RMA Eurasia presented to the EANPG the main results of the activities of the RMA Eurasia in the period from the start of RVSM implementation in the RVSM airspace of the Eastern part of ICAO European region (hereinafter referred to as Eurasia RVSM airspace). Eurasia RVSM airspace (on 17 of November 2011) to November 2012. The EANPG noted that the technical risk of en-route mid air collision in RVSM airspace was estimated at 0.06 x 10-9 fatal accidents per flight hour, which satisfied the Target Level of Safety and Safety Objective 1, and that the overall risk of en-route mid air collision in RVSM airspace was estimated at 1.16 x 10-9 fatal accidents per flight hour, which satisfied the Target Level of Safety and Safety Objective 2.

5.8 The EANPG noted that the analysis performed by the Eurasia RMA on the incidents and reported altitude deviations suggested that the use of RVSM did not adversely affect the risk of en-route mid air collision, which satisfied Safety Objective 3.

5.9 The RMA Eurasia presented information to the EANPG regarding the method of estimation and calculation of altitude deviations and the results of its use. As this was so far the only request from the EANPG to the RMA Eurasia, the EANPG agreed that all safety related recommendations and decisions of EANPG had been resolved, which satisfied Safety Objective 4.

5.10 The EANPG, on the basis of the available evidence, agreed that the set of safety objectives for the Eurasia RVSM airspace were achieved.

(new 5.11) The EANPG reminded , on the basis of the outcome from COG/53, that Russian Federation will provide updates regarding Height Monitoring in the EURASIA RVSM airspace at the next COG/56 Meeting (July 2013).

State support to EUR RMA

5.11 Eurocontrol presented to the EANPG a report on the current level of State support to EUR RMA operations. Recalling that the function of the EUR RMA was to support individual accredited States to comply with their responsibilities regarding RVSM operations as defined in ICAO Annex 6, the EANPG

noted that the ability of the EUR RMA to perform this function efficiently was hindered by poor support in some areas from some States.

5.12 In particular, the EANPG agreed that the EUR RMA required a greater level of support to maintain an accurate database of RVSM approvals with regular updates from defined points of contact and adequate mechanisms to respond to the EUR RMA to clarify the identity and approval status of aircraft unknown to the EUR RMA. The EANPG also agreed that States should take immediate actions to address the State-specific requests from the EUR RMA, and in particular confirm their point of contact and clarify the situation regarding State defined aircraft and methods for reporting altitude deviation and other operational incident reports. Therefore, the following was agreed

EANPG Conclusion 54/37 – State support to RMAs

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

a) provide information to the ICAO Secretariat, by EANPG COG/56, on the procedures in place to ensure that reports are effectively submitted to the Regional Monitoring Agencies (RMAs), as required;

b) confirm their points of contact for reporting related to Reduced Vertical Separation Minima (RVSM) approvals, altitude deviations or large height deviations, and

c) take immediate action to address the State-specific requested actions detailed in **Appendix AA** to this Report.

6. DEFICIENCIES

Review of the list of the air navigation deficiencies

6.1 The EANPG was informed of the developments related to the air navigation deficiencies in the EUR Region that took place after the EANPG/53 meeting, and agreed with the proposed new entries and amendments to the Air Navigation Deficiencies List. In particular, the EANPG agreed to remove the EUR-AIS-01-09 deficiency as Azerbaijan informed ICAO that WGS-84 implementation plan had been completed and aeronautical information on international airports and ATS route charts for Baku FIR was published in WGS-84. The EANPG also agreed to add a new deficiency (EUR-MET-05-01) for non-compliance by Albania with the requirement to issue SIGMET in accordance with ICAO Annex 3, and a new deficiency (EUR-MET-05-02) for non-compliance by Tunisia with the requirement to include World Area Forecast System (WAFS) forecasts in briefing and flight documentation as per ICAO Annex 3, Chapter 9.

6.2 The EANPG was informed that the Russian Federation had decided on a postponement of significant changes affecting a large number of terminal procedures at Irkutsk Airport (UIII) that had been published by AIRAC AIP Amendments, effective 15 November and 13 December, 2012. The above mentioned AIRAC changes for Irkutsk had been permanently cancelled by NOTAM on 29 November 2012. Due to the late postponement of these changes, Jeppesen and other commercial data providers had not been able to revert the already changed Irkutsk terminal procedures loaded in the airborne navigation databases, back to their pre-postponement status before 10 January 2013 (AIRAC cycle 13/01). Accordingly, the EANPG agreed to add a new deficiency (EUR-AIS-03-04) for non-compliance by the Russian Federation with the AIRAC procedures.

6.3 Regarding air navigation deficiencies related to the non-reporting to the EUR RMA, the EANPG agreed to defer the review of this aspect until EANPG/55, by which date the States would be invited to provide information to the ICAO Secretariat on the procedures in place to ensure that reports would be effectively submitted to the Regional Monitoring Agencies (RMAs) as required (ref. EANPG Conclusion

54/__eanpg54fl07/1 – State support to RMA). The EANPG was further informed that, with the full launch of the Continuous Monitoring Approach (CMA) of the ICAO Universal Safety Oversight Audit Programme (USOAP) as of 1 January 2013, non-compliance with a State's obligation to report to the RMA as required may lead to the issuance by ICAO of a mandatory information request (MIR) to the States concerned and the addition of new USOAP findings to non-compliant States or States failing to provide the evidence requested through the MIR. The Meeting noted the statement made by IFALPA with regard to the lack of inclusion of those states who were failing to report altitude deviations within the deficiency list.

6.4 With respect to the air navigation deficiency related to non-adherence by Italy and Spain with AIRAC procedures, Italy and Spain informed the EANPG that work was still in progress and that an update would be provided at COG/56.

6.5 The ICAO Secretariat informed the EANPG that the air navigation deficiencies had migrated to the ICAO ISTARS restricted website and invited the relevant State officials to register to this website.

Updated List of Deficiencies

6.6 The approved updated version of the List of Air Navigation Deficiencies is presented at **Appendix AB** to this report.

7. ANY OTHER BUSINESS

Meetings schedules

7.1 Based on an intervention from the representatives from Turkey and the Czech Republic, the EANPG discussed the possible need to change the working arrangements. When considering the full scope of this activity it became obvious, that the official outcome of the AN-Conf/12, the results of the ALLPIRG and the ICAO Full Senior Management meetings planned to take place in March 2013 must be incorporated into this development. The EANPG agreed therefore to address this issue at the next COG/56 meeting, so that a proposal for a revised work structure/working arrangements, including the necessary coordination process between the EANPG and the RASG-EUR, could be presented at EANPG/55 in 2013.

Consideration of National Public Holidays for the EUR/NAT Calendar of Events

7.2 The EANPG reviewed a paper that encouraged the EANPG to exercise consideration of National public holidays, to the greatest extent possible, in the planning of the EUR/NAT annual calendar of events, in order to enable the attendance of official representatives from the Member States.

7.3 During the discussion, many states expressed that they were also requested to bring their expertise to the Provisional Council of EUROCONTROL, and to the Single Sky Committee of the European Commission, and that the dates for the aforementioned meeting were often in conflict with the dates for the EANPG or the EANPG COG meetings, and that this should be avoided to the greatest extent possible.

7.4 As a result of this discussion the following was agreed:

EANPG Conclusion54/38 – Planning of future meetings

That, the ICAO Regional Director, Europe and North Atlantic, when planning for the annual schedule of events, in order to enhance the participation of representatives of member States in the area of accreditation of the European and North Atlantic (EUR/NAT) of ICAO in ICAO's organized meetings:

a) take into account, to the greatest extent possible, public holidays observed in the Member States; and

b) ensure the regular coordination of ICAO's activities with other international organisations' schedule of meetings.

Farewells

7.5 The EANPG was informed that Bernd Randecker from Germany would retire in a few months; in addition, Terry Treanor from Ireland and Emmanuel Siebert from France had taken on new responsibilities in their respective organizations. The EANPG expressed its appreciation for the active role they had played in the work of the Group and wished them success in their new activities.

Next Meeting

7.6 The EANPG agreed to convene its next meeting in Paris, France, from 25 to 28 November 2013.

7.7 The EANPG noted the following dates for EANPG-COG Meetings

- EANPG-COG/56, Berlin, Germany from 01 to 05 July 2013
- EANPG-COG/57, Paris, France, 14 to 18 October 2013
- EANPG-COG/58, Paris, France, 29 November 2013

Appendix A – List of Participants

(paragraph 0.2 refers)

CHAIRMAN
Phil ROBERTS

ALGERIA
Basma BOUKEHIL
Mylede KABI

ARMENIA
Artur GASPARYAN

BELARUS
Leanid CHURO
Mikhail NASAN
Tatiana PANACHEVNAYA

BELGIUM
Roland MOINEAU

CROATIA
Mark BONACIC
Dino SLAVICA

CYPRUS
Nicolas MYTIDES
Anna PAPASAVVA

CZECH REPUBLIC
Ladislav MIKA (EANPG Vice-Chairman)

FRANCE
Luc LAPENE
Olivier ROUCHETTE
Annick SARRADE
Murielle SUFFRIN
Scott STROUD

GEORGIA
Igor GORDIENKO
Levan KARANADZE
Merab ASLAMADZE

GERMANY
Nancy SICKERT
Bernd RANDECKER
Frauke HEDLEFS
Torsten JACOB

HUNGARY
István MUDRA

IRELAND
Terry TREANOR
David USHER

ISRAEL
Moti SHMUELY

ITALY
Alessandro GHILARI
Maj Mauro FEGATELLI

LITHUANIA
Kazimieras JAKAS
Algimantas RAŠČIUS

MOROCCO
Mohamed SABBARI

NETHERLANDS
Robin VALKENBURCHT

NORDIC STATES
Anne-Marie RAGNARSSON
Mika SAALASTI

POLAND
Wieslaw BACZEWSKI

PORTUGAL
Carlos ALVES

ROMANIA
Liviu BUNESCU

RUSSIAN FEDERATION
Dmitriy SAVITSKIY
Yury TOKAREV
Mikhail PARNEV
Vasily TOPCHIEV
Sergey POGREBNOV
Elena GRACHEVA
Evgeny. SHCHERBAKOV
Alexander POLYAKOV
Leonid MISHCHENKO

SLOVAKIA
Tomáš BERÁNEK
Ivan HASIČEK

SPAIN
Ricardo ALONSO GONZALEZ

SWITZERLAND
Nadine FELLAY

TUNISIA
Garsallah SALAH
Beldi ABDERRAOUF

TURKEY
Ayhan ÖZTEKİN

UKRAINE
Andrii FEDIAKOV
Sergii PEREVEZENTSEV

UNITED KINGDOM
Phil ROBERTS
Andy EDMUNDS

UNITED STATES
Kevin HAGGERTY
Steve CREAMER
Darryel ADAMS
Dave KNORH

ACI
Philippe ALIOTTI
Olivier SCIARA

EUROCONTROL
Istvan BOZSA
Paul BOSMAN
Kim BREIVIK
Nic COJOCARIU
Andy LEWIS

EUROPEAN COMMISSION
Marinus de JONG

IAC
Oleg ERMOLOV

IATA
Peter CURRAN
Giancarlo BUONO
Robert TOD

IFALPA
Heinz FRÜHWIRTH

ICAO
Luis FONSECA DE ALMEIDA (EANPG Secretary)
George FIRICAN (COG Secretary)
Sven HALLE
Victor KOURENKOV
Christopher KEOHAN
Holger MATTHIESEN
Elkhan NAHMADOV
Nicolas RALLO
Rodolphe SALOMON
Mohamed SMAOUI
Carole STEWART-GREEN
Leyla SULEYMANOVA
Nikki GOLDSCHMID
Isabelle HOFSTETTER

Appendix B – Meeting documentation

(paragraph 0.6 refers)

WP / IP	Ag It	Title	Presented by
WP01		Draft Agenda	
WP02	3	Cold Temperature Corrections to Minimum Altitudes	Secretariat
WP03	4	2013 AIS/AIM Seminar	Secretariat
WP04	4	Review of the outcome of the COG/AIM TF/23 meeting	Secretariat
WP05	1	Review of the actions of the Air Navigation Commission on the Report of the Fifty-Third Meeting of the European Air Navigation Planning Group (EANPG/53)	Secretariat
WP06+ App	4	**FMG Report** AppA –FMG work programme AppB – Harmful Interference report form AppC Revision_2– EUR Frequency Management Manual 2012 AppD – COM3 COM4 Migration process	Secretariat
WP07	4	**EUR Performance Based Navigation Task Force Report**	Secretariat
WP08	4	**AFSG Report** AppA – AMHS COM Centre Training Guidance v1.0 AppB – IP infrastructure Test Guidelines for EUR AMHS v12.0 AppC – EUR AMHS Manual v7.0 AppD – ATS Messaging Management Manual v8.0 AppE – EUR AFS Secrity Guidelines v4.0 AppF – EUR NSAP Adress registry v2.0 AppG – AFSG work programme	Secretariat
WP09	4	**METG/22 Outcome** AppA – Regional (EUR) MET Quality of Service Indicators AppB - Lessons and Recommendations from VOLCEX12/02 and VOLCEX12/01 AppC - Sketch of Volcanic Ash Exercise in Kamchatka in 2013 (VOLKAM13) AppD - Terms of Reference of EUR (EAST) VOLCEX/SG AppE - revision to EUR SIGMET and AIRMET Guide (EUR Doc 014) AppF - Use of 'runway state' group in METARs AppG - EUR ANP, Vol. I, BASIC ANP, Part VI – Meteorology (MET) AppH - EUR ANP, Vol. II, FASID ANP, Part VI – Meteorology (MET)	Secretariat
WP10	**6**	**Review of the list of Air Navigation Deficiencies** AppA – revised list of Air Navigation Deficiences as of 19nov12	Secretariat
WP11	4	**Revised AIM parts of the EUR ANP** AppA – EUR Basic ANP Part VII-AIM AppB - EUR FASID Part VII-AIM AppC – consolidated FASID AIM Table	Secretariat
WP12	**4**	Implementation of the Regional Peformance Framework	Secretariat
WP13	4	Outcome of the Seventeenth Meeting of the All-Weather Operations Group of the EANPG (AWOG/18)	Secretariat
WP14	2	Status of EANPG53 Conclusions and Decisions	Secretariat
WP15	4	visual departure – PfA to the EUR SUPPs (Doc 7030)	EUROCONTROL
WP16	**4**	Use of downlinked airborne parameters indicating the intentions of the aircraft – PfA to the EUR SUPPs (Doc 7030)	EUROCONTROL
WP17	**4**	Proposal for Amendment to ICAO Abbreviation and Codes – Doc 8400	EUROCONTROL

WP / IP	Ag It	Title	Presented by
		AppA	
WP18	**4**	NOTAM proliferation	EUROCONTROL
WP19	**4**	Transition from AIS to AIM in the ECAC Area AppA	EUROCONTROL
WP20	**4**	Use of AIS AGORA as a supplementary means for the notification of publication of aeronautical information	EUROCONTROL
WP21	**4**	Free route airspace	EUROCONTROL
WP22	**4**	RVSM Safety Monitoring Report 2011	EUROCONTROL
WP23	**4**	State support to EUR RMA	EUROCONTROL
WP24	**7**	Consideration of National Public Holidays for the EUR/NAT Calendar of Events	Israel
WP25	**4**	RMA "EURASIA" RVSM Safety Monitoring Report 2012 (E+R)	RMA EURASIA
IP01		Tentative Meeting Schedule	Secretariat
IP02		Meeting documentation	Secretariat
IP03	**4**	Outcome of the AIS-AIMSG/6 meeting	Secretariat
IP04	**4**	Update on AIM developments and related activities	Eurocontrol
IP05	2	Global Operational Data Link Document	Secretariat
IP06	**4**	Outcome of the Route Development Group – East Meetings	Secretariat
IP07	1	ICAO Update	Secretariat
IP08	**4**	SSR Code Secretariat Report	EUROCONTROL
PPT01	**4**	FPL 2012	EUROCONTROL
FL01	**3**	In support of WP02 - update on IFALPA's Policy on Low Temperature Correction	IFALPA
FL02	**4**	In support of WP15 – Objection to visual departure PfA	IFALPA
FL03	**4**	In support of WP07- EUR Performance Based Navigation TF Report	EUR PBN-TF Chairman
FL04	**4**	In support of WP23 – EUR RMA	Secretariat
FL05	**4**	In support of WP22 – RVSM Monitoring	Secretariat
FL06	**4**	In support of WP22 – EANPG Statement	Secretariat
FL07	**4**	In support of WP23 – revised of FL04 and FL05	Secretariat
FL08	**4**	In support of WP15 – Visual departure	Secretariat
FL09	**4**	In support of WP18 – NOTAM proliferation	Secretariat

Appendix C -
Information from States concerning cold temperature corrections
(*paragraph 3.2 refers*)

Editorial note - this Appendix consists of 6 parts.

Part 1 - submitted by the United Kingdom

Cold Temperature Corrections to Minimum Sector Altitudes (MSAs) and ATC Minimum Vectoring Altitudes (MVA) or Surveillance Minimum Altitudes (SMA)

(Presented by the United Kingdom)

SUMMARY

This paper outlines the theoretical affect of cold temperatures on altimeters and the potential for aircraft to have less than the required terrain/obstacle clearance. It highlights the UK's attempt to develop a consistent ATM policy with regards to temperature correction and it requests information from other States on their policies to address this issue.

8. Introduction

8.1 Altimeters are calibrated using the International Standard Atmosphere (ISA) temperature of 15°C and therefore when operating in temperatures below ISA, the greater the differential between the calibrated temperature and the actual air temperature, the greater the altimeter will over read. Therefore there is a risk that when an aircraft is operating at or near Minimum Sector Altitudes (MSAs), ATC Minimum Vectoring Altitudes (MVA) or Surveillance Minimum Altitudes (SMA), the required clearance from terrain/obstacles may not be assured. The converse is true in that an altimeter will under read in higher than ISA temperature conditions but this is not considered to be a safety hazard.

8.2 The issue is that there is little agreement on the level of risk that potentially exists with the result that some States have published cold weather temperature corrections for MSAs/MVAs/SMAs and others have not. Within the UK there is very little evidence of actual hazards resulting from non correction of altimeters although this may not be the case in States that experience more extreme cold temperatures.

9. Discussion

9.1 ICAO PANS-OPS provides guidance to how to calculate the correction required, based on:

a) A simple correction of 4% increase on nominal altitude for every 10°C below ISA, as measured at the altimeter setting source (usually the aerodrome). This is safe for temperatures above -15°C.

b) More accurate correction determination tables based on equations that assume a linear variation of temperature with height using the ISA off-standard temperature lapse rate of -1.98°/1,000ft.

However the simple method is not usable for temperatures below -15°C, which is common in some States, and the correction tables assume a standard lapse rate which is not guaranteed to exist at all times e.g. if there is an undetected temperature inversion aloft. However using a standard lapse rate is a safe procedure. Determination of the actual temperature at the altimeter would be required to validate any correction but as yet this information is not available to ATC.

9.2 As well as the actual terrain risk there is an additional risk of confusion between aircrew and ATC as to who is applying a temperature correction at a particular point in time. ICAO PANS-OPS is clear on a pilot's responsibilities for temperature correction in order to maintain obstacle clearance, for example from published altitudes within Instrument Approach Procedures (IAP). ICAO PANS-ATM also states that for aircraft under radar control when being radar vectored, ATC is responsible for temperature correcting allocated levels. In the absence of a common understanding of when a correction is to be applied there is a risk that when being radar vectored, aircrew are expecting allocated levels to be terrain safe when this may not be the case.

9.3 Allocation of a corrected MSA/MVA/SMA level when it is not required may affect existing CDA profiles because the aircraft will be physically higher than it should be. This may then result in slightly increased pilot and ATC workload and slightly reduced environmental gains.

9.4 Temperature correction may also be required when managing IFR flights at or just above the base of CTA/TMA airspace where the base is defined as an altitude, so that separation from aircraft operating outside controlled airspace may be maintained.

9.5 Temperature correction may also be required to ensure safe overflight of segregated airspace e.g. Danger Areas, Prohibited Areas, TSAs etc.

10. UK Industry Consultation

10.1 The UK is aware of the potential risk and has undertaken an Industry consultation to inform the policy for altimeter temperature correction. Proposed options are outlined below:

a) **Apply a single correction once the temperature reduces below a particular nationally set temperature.** This is simplistic and in order to be safe it would need to be based on the worst scenario at the most limiting location. If the application point were set at 0°C, this may mitigate the risk in relation to low MSAs/MVAs/SMAs but when applied to higher altitudes the error is likely to be intolerable. Applying this correction nationally may restrict the volume of available airspace when the actual temperatures are better than the worst scenario.

b) **Apply a progressively increasing correction as the temperature reduces in one degree steps.** This method would be proportional to environmental conditions but may impractical from an ATC perspective. There would need to be a table of temperature and altitude data specific to his location which would need to be accessed and applied each time the temperature changed. This solution might result in excessive workload and may be unworkable in the majority of locations.

c) **Change the design criteria for MSA/MVA/SMA to use a temperature other than ISA**.

Currently all ATC MVAs/SMAs are designed using ISA conditions. It might be possible to use a unique temperature for each aerodrome based on historic temperature data or use a temperature other than ISA. This would require a re-calculation of all MVAs/SMAs for surveillance operations and the procedural approach charts for non-surveillance operations. This might not be a practical option for States that rarely experience cold temperatures.

d) **Introduce a local procedure that will apply appropriate corrections to MSAs/MVAs/SMAs with increasingly cold temperatures and higher MSAs/MVAs/SMAs.** As the 'height' of the highest MSA/MVA/SMA MSA directly influences the degree of error, aerodromes with particularly high MSAs/MVAs/SMAs would need to apply corrections at higher (warmer) temperatures than those aerodromes with lower MSAs/MVAs/SMAs. Action taken is therefore proportionate to the degree of potential error. Use of an expanded PANS-OPS correction table would be required.

There are 2 safety assessment approaches with this option:

1. **Total risk-based approach**. Regulatory authorities alert ATS providers to the risk and the safety assessment balances the degree of altitude error that is likely against the negative impacts of making unnecessary corrections. This method can result in differing approaches to risk assessments and every aerodrome might reach different conclusions for the same conditions.
2. **Balance of prescription versus risk-based approach.** The Regulatory authority prescribes a degree of error that must always be corrected, and thereafter allow ATS providers to apply risk assessment and local procedures to lower levels of error. This ensures that the greatest risk must be corrected, whilst allowing aerodromes to assess lower errors for risk against other impacts. This solution might be appropriate in areas where there is little chance of temperature and altitude variation within the lateral boundary of that particular MSA/MVA/SMA sector.

11. Temperature correction policy in other States

11.1 Within the European region there appears to be no consensus amongst States on whether the theoretical risk needs to be mitigated, or if a correction is required, how to determine it and when to apply it. Other regions of the world apply corrections to varying degrees and using different techniques to that of Europe. From an ATM harmonisation perspective, the lack of consensus on this subject is undesirable and may in extreme conditions, be the cause of an aircraft incident.

11.2 Information is sought from Members on their national policies for cold weather altimeter correction. Ideally this should include how it is determined that a correction is required, the value or range used for any correction and the procedures used to apply any correction, both by Aircrew and ATS providers.

Part 2 of Appendix C - Extract from the German AIP (ENR 1.8-27 17 Feb 2005)

Minimum Radar Vectoring Altitudes (MRVA)

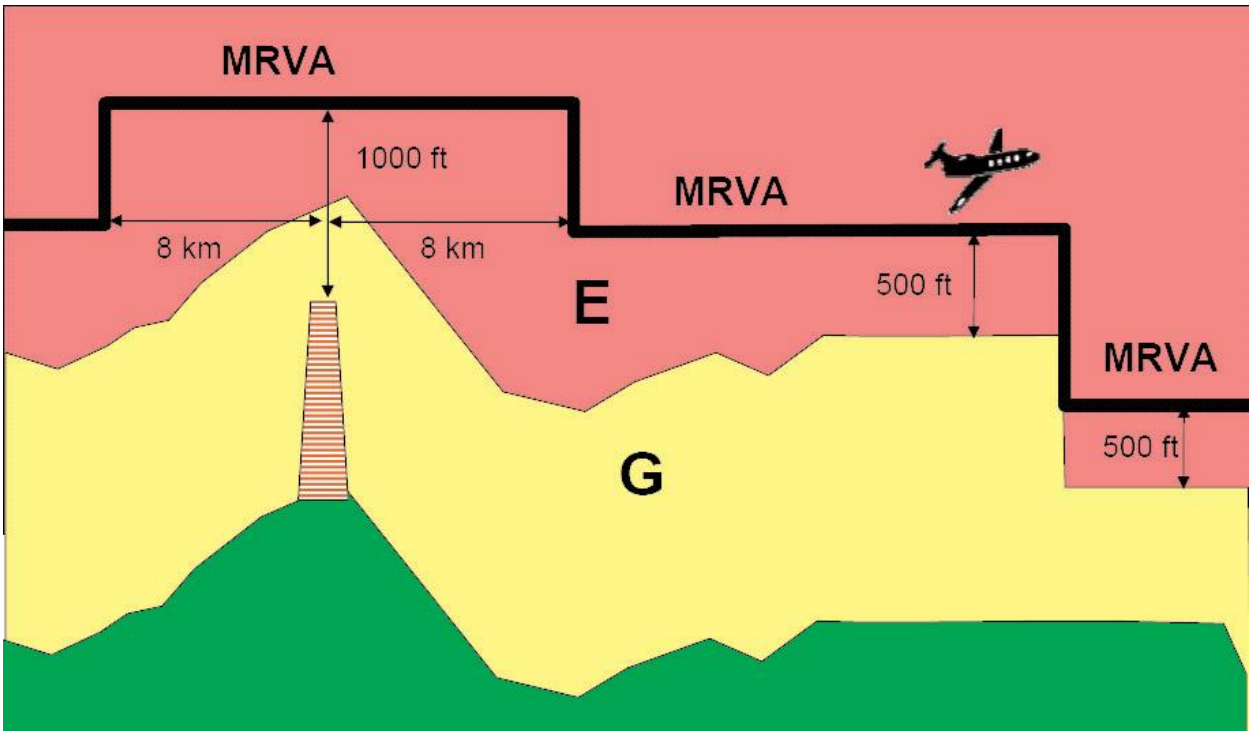
In case of radar guidance of aircraft outside the published IFR procedures, the Minimum Radar Vectoring Altitude (MRVA) is applied as the lowest usable altitude.

1. MRVA Definition

The MRVA guarantees:

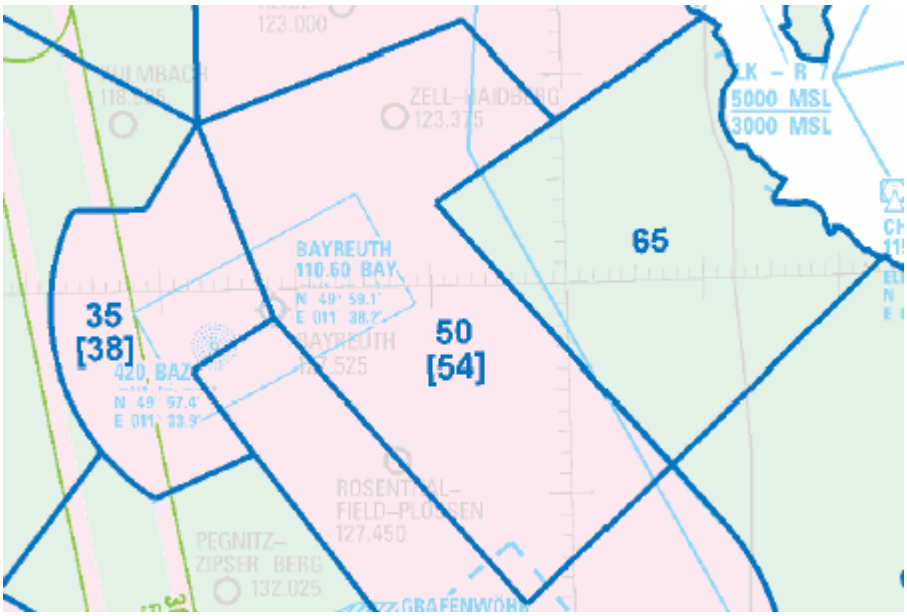
– a clearance of 1000 ft above the highest obstacle within a radius of 8 km, as well as

– an airspace buffer of 500 ft above the lower limit of the controlled airspace.



In addition to these two criteria, the dimensions of the individual MRVA sectors are of decisive significance. The sectorization is based on the airspace structure already established (e.g. Airspace Class E or control zones) and the local obstacle situation and, in addition, takes operational needs into consideration. The latter, in individual cases, always requires a decision between either maintaining MRVA altitudes as low as possible (normally with a fine structured sectorization) or plain structures, easier to determine, that might, however, frequently lead to slightly higher MRVA values.

MRVA Sectorization



2. Raising of the MRVA in the case of low temperatures

The flight altitudes indicated by barometric altimeters in aircraft do not always correspond to the real flight altitudes. In the case of deviations in temperature from the Standard Temperature (ISA), considerable differences can, to some extent, arise. Temperatures below the Standard Temperature lead to lower flight altitudes which, depending on the respective temperature, may, in part, deviate considerably from the altitude indicated. As a result, altitude corrections are necessary here in order to guarantee that obstacle clearances for the minimum safe altitudes, which are calculated for standard atmosphere, are maintained.

In accordance with requirements by ICAO (Doc. 8168, PANS-OPS and Doc. 4444, PANS-ATM), such corrections relating to the minimum safe altitudes published must, as a rule, be made by the pilot/operator. The only exception to this exists during radar vectoring by ATC. In this case, the air traffic controller is responsible for ensuring the required obstacle clearance, taking into account the real flight altitudes which, from case to case, are clearly lower due to cold temperatures.

ICAO requires here corrected MRVA values to be applied in accordance with the minimum temperatures determined at the respective aerodromes. The scope of the altimeter corrections required on the basis of cold temperatures also depends, in addition to the temperature, on the current flight altitudes relating to the elevation of the „Altimeter Setting Source“ (Airport) and may be taken i.a. from „ICAO Doc. 8168 (PANS-OPS) Vol. I“. Based on an evaluation of the temperature data at all IFR airports over a period of many years, all relevant MRVA areas relating to the existing obstacle/terrain conditions have been examined. In this context, wherever necessary, MRVA values have been raised in order to guarantee the required obstacle clearance of 1000 ft during radar vectoring, even in the case of low temperatures.

As a rule, the MRVA values have been raised to the order of 100 to 300 ft. In some cases, however, they have had to be raised considerably higher. In order to guarantee that ATC is able to work safely and practicably with both MRVA values, which differ from each other, it is intended to use these raised MRVA values each year, generally from November to March.

The concrete periods of application will be coupled with the corresponding AIRAC dates and will be depicted in good time each year on the „MRVA Chart Germany," published by the DFS.

The raised MRVA altitudes itself will, if necessary, be shown as values in square brackets below the normal altitude, as shown on this chart.

3. Differentiating between MSA and IFR procedure minimum altitudes

MRVA altitudes, established according to the criteria mentioned above, differ in many cases from the minimum sector altitude (MSA) values published for the same area and also from the minimum altitudes of IFR procedures established there (e.g. ATS routes). The reason for this are the different determining criteria as compared to MRVA. Thus, the MSA published on the arrival and departure charts guarantees the same minimum obstacle clearance as the MRVA, but with a radius of 25 NM centred at a defined navigation facility and the aerodrome reference point (ARP), resp. Another basic difference to the MRVA is the non-consideration of the controlled airspace in the case of the MSA.

The published minimum altitudes for IFR procedures take the lower limit of the controlled airspace into account, as in the case of the MRVA (plus 500 ft buffer), but the obstacle clearances in this case refer to defined procedure protection airspaces in accordance with ICAO Doc. 8168 (see also ENR 1-5).

Part 3 of Appendix C -Input from Lithuania

Currently, Lithuanian CAA did not specify any adjustments to MSAs and MVAs temperature correction. As a consequence temperature correction is not applied to MSAs published (it is under the flight crew responsibility).

However, MSAs within Lithuanian airspace are established according to ICAO PANS OPS (Doc 8168), MVAs are not specified. But when providing radar vectoring, minimum altitude assigned by ATCO is always above appropriate MSAs.

Implementation of MVA is under consideration.

Part 4 of Appendix C -Input from the Nordic States

All the Nordic States do use procedures for Cold Temperature Corrections, but we see room for improvements and that a harmonised way could be wisely.

Norway:

BSL G 8-1 § 8. Norwegian special regulations regarding PANS-ATM Chapter 8 ATS surveillance

(1) para 8.6.5.2 is substituted with: When vectoring an IFR-flight and when an IFR flight has been given a direct routing taking it away from an ATS route, the controller shall issue clearances ensuring that prescribed obstacle clearance is maintained until the aircraft arrives at a point where the pilot resumes responsibility for terrain clearance. When necessary the minimum altitudes shall be corrected for temperature deviation.

- It is the responsibility of the ATSP to ensure that minimum altitudes corrected for temperature deviation is available to the ATCO.

The procedure and tables are available in Avinor Manuals.

Sweden:

Use the same PANS-ATM Chapter 8 as Norway and how they are used is according to ICAO PANS-OPS (Doc 8168). The national regulation 2012:106 §4 regulates that this should be used and how. Sweden does not inform the pilot that correction has been done but sees it as a responsibility for the ATCO, but there is a discussion to change this to make it mandatory to inform the pilot to avoid misunderstandings.

The procedure should be available in ANSP's Manuals. All the aerodromes in Sweden makes their own temperature correction charts according to this procedure.

Denmark:

Denmark has special procedures for correction of the TL in situations with very low temperatures but only for ATS-units in Greenland, which is out of the ICAO EUR Region.

Finland:

Temperature correction procedures for the ATC (when vectoring aircrafts) in Finland are according to ICAO PANS-OPS (Doc 8168).

ATC SMAC altitudes are published to all airports, where radar service is given – these altitudes are corrected according to following tables:

(+APV Baro VNAV procedures are published with minimum allowable temperatures).

How it is determined that a correction is required

Temperature corrections in radar vectoring is applied when the amount of correction exceeds 20% of the required MSA/MVA

The value or range used for any correction

The values (ft) added by the controller

Aerodrome temperature ˚C	Height above the measuring point of the pressure in feet.													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

OBS 1. The corrections are rounded upwards into next even 10ft.

Calculation examples

Airport elev. 333 ft MSL

1. MVA/MSA into final is 2300ft, temperature -12˚C

Aerodrome temperature ˚C	Height above the measuring point of the pressure in feet.													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Airport elevation is subtracted from the MVA/MSA (2300 – 333 = 1967 ft); From the chart: choose the closest higher height value; choose the closest lower temperature value; add the found value (280 ft) to the MVA/MSA = 2300ft + 280 ft => 2600ft

”FASTAIR 345 IDENTIFIED (RADAR CONTACT), FLY HEADING 270, DESCENT TO 2600 FT TEMPERATURE CORRECTED BY ATC, …”

All the aerodromes in Finland makes their own temperature correction charts according to this procedure.

Part 5 of Appendix C -Input from Russian Federation

Extract from Orders #136 (Russian Ministry of Defense), # 42 (Russian Ministry of Transport), # 51 (Russian Aerospace Agency) "On Approval of the Federal Aviation Regulations for the Russian Federation Airspace"

Para. 15. In the terminal area within a radius of 50 km from the aerodrome reference point (ARP), except for the aerodrome traffic circuit, the minimum safe altitude is calculated to provide the true altitude of 300 m (obstacle/terrain clearance) above the highest obstacle.

If the difference between the obstacle heights in the area is less than 100 m, a common minimum safe altitude value is applied. If the difference is greater, the area is divided into sectors (not more than 4 sectors) and the minimum safe altitude is calculated for each sector. Sector boundaries (multiple of 5°) are established with reference to magnetic meridian not less than 10 km away from the obstacles.

The heights of the highest obstacles shall be calculated based on runway threshold with lesser elevation and rounded up to the next full 10 m.

Attachment N 1 to Federal Aviation Regulations (para. 13, 22, 69, 75) - UNIVERSAL TECHNIQUE FOR ALTITUDE (FLIGHT LEVEL) CALCULATION

2. Calculation of the safe altitude (N_s) (or transition altitude – $N_{s(transit.)}$) for a terminal area within a radius of 50 km from the aerodrome reference point (in TMA):

$NS_{(transit.)terminal} = N_{true} + N_{terr.} + N_{obst.} - Nt,$

Where:

N_{true} = a specified value of true altitude over the highest obstacle (obstacle clearance) in the terminal area within a radius of not more than 50 km from the aerodrome reference point (300 m);

$N_{terr.}$ – the highest terrain elevation value above the lowest runway threshold in the terminal area within a radius of not more than 50 km from the aerodrome reference point;

$N_{obst.}$ – the maximum obstacle (natural and artificial) height above the highest terrain elevation in the terminal area within a radius of not more than 50 km rounded up to the next full 10 m;

N_t – value of temperature altimeter correction calculated using a navigation slide rule or the formula in para 1 of this Chapter. When the safe altitude is determined for a terminal area, N_t is calculated using lowest aerodrome temperature recorded during a multiannual observation period (e.g. -40˚C for Moscow, -64˚C for Yakutsk).

According to the technique, the calculation is carried out using the lowest temperature value. If the actual temperature drops below the recorded minimum, the aerodrome operational personnel shall re-calculate the value of $N_{s\ (transit)terminal}$.

$$N_t = \frac{t_0 - 15}{300} \times N_{corrected}$$

The safe altitude for a TMA is established based on the maximum value of safe altitudes specified for the aerodromes within this TMA.

The transition altitude in a terminal area shall not be lower than the safe altitude established for the flights in the terminal area within a radius of 50 km from the aerodrome reference point; the transition altitude in TMA shall not be lower than the safe altitude established for the flights in TMA.

Example:

$Ns_{(transit.)terminal}$ =300+100+200+90 = 690

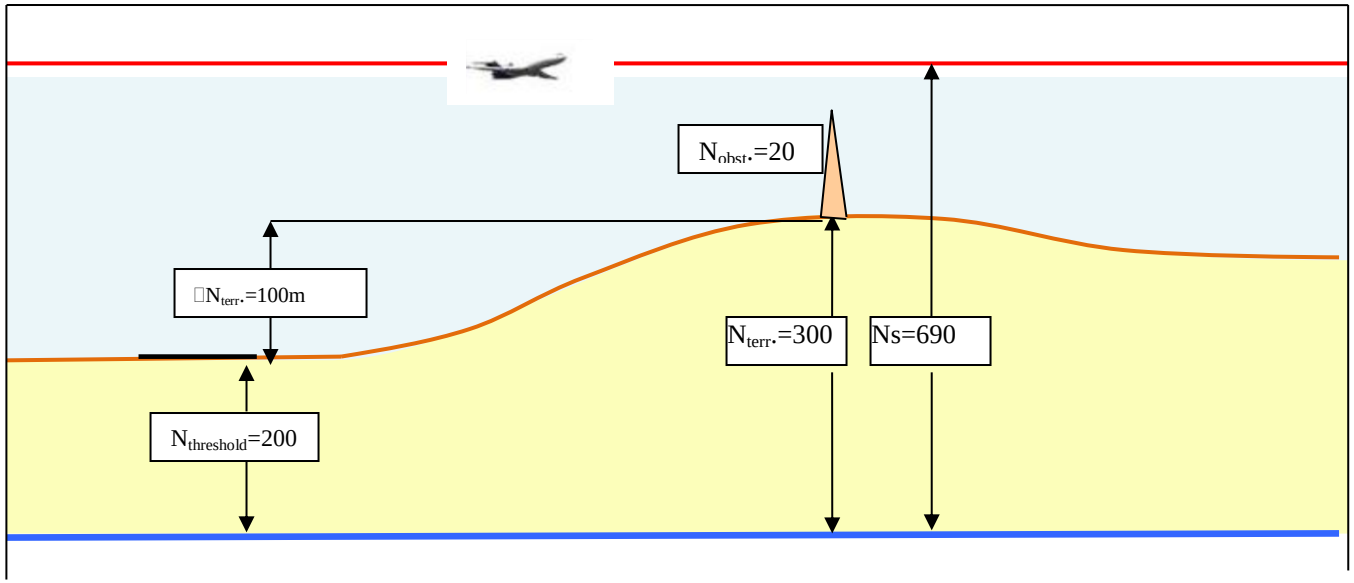
N_{true} = 300

$N_{terr.}$ =100

$N_{obs}t.$ = 200

N_t =

$$N_t = \frac{-30-15}{300} 600 = 105$$



Part 6 of Appendix C -Input from United Kingdom

Content of a planned United Kingdom Information Notice "Cold Temperature Corrections to Minimum Sector Altitudes (MSAs) and ATC Surveillance Minimum Altitude (ATCSMA) Chart Altitudes"

1. Introduction

1.1 International Civil Aviation Organization (ICAO) Doc 4444 PANS-ATM currently states that 'when necessary, the relevant minimum vectoring altitude shall include a correction for low temperature effect and it is the responsibility of the ATS authority to provide the controller with minimum altitudes corrected for temperature effect'. UK ATC procedures published in CAP 493 (Manual of Air Traffic Services Part 1) do not currently specify procedures for applying such temperature corrections.

1.2 In July 2012 the UK CAA concluded an external consultation with industry on the subject of cold temperature corrections to Minimum Sector Altitudes (MSAs) and ATC Surveillance Minimum Altitude (ATCSMA) Chart altitudes. The full Comment Response Document (CRD) can be found on the CAA website.

1.3 The key themes from the consultation were:

- There was agreement that if a new procedure was to be introduced then ATC should be responsible for calculating any changes to the MSAs.
- There was overwhelming agreement that it was necessary to develop a pan-European procedure ensuring commonality across EU Member States.
- There was agreement that there should be an 'education package' developed for both ATC and aircrew on the subject and its potential hazard, even though the likelihood of the combination of factors coming together occurs very infrequently.

1.4 Taking into account all the comments and discussions available, there was considered to be a greater safety benefit from having a common European approach rather than the UK adding to the multiple variations of approach already existing. The CAA has therefore decided not to mandate new ATC procedures at this time, but to work with ICAO, the European Aviation Safety Agency (EASA), Eurocontrol and other industry partners to develop a standardised European solution. The UK Aeronautical Information Package (AIP) will be amended to reflect the current UK position.

2. Compliance/Action to be taken

2.1 In UK Flight Information Regions (FIRs), ATC presently do not apply a temperature correction when allocating altitudes. Pilots are reminded that they should NOT adjust altitudes issued by ATC during either surveillance or procedural approaches. However if a pilot considers that the altitude given in any way causes concern, or might endanger the aircraft, then a higher vectoring altitude should be requested from ATC.

2.2 Operators and pilots are reminded that they still have an existing ICAO PANS-OPS and EU-OPS responsibility to apply temperature corrections to 'all published minimum altitudes' including altitudes/heights for the initial and intermediate segment, descent altitude/height in the final approach phase and subsequent missed approach altitudes/heights.

3. Queries

3.1 Any queries or further guidance required as a result of this communication should be addressed to:

Aerodrome and Air Traffic Standards Division
Safety Regulation Group
Civil Aviation Authority
2W, Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
E-mail: ATSenquiries@caa.co.uk

4. Cancellation

4.1 This Information Notice shall remain in force until 31 October 2013.

Appendix D -
Information from IFALPA concerning cold temperature corrections
(*paragraph 3.2 refers*)

Reference: ATS/PANS-OPS **Appendix 5**

INTRODUCTORY PAPER
68th IFALPA CONFERENCE
DUBLIN, IRELAND, 12-15 APRIL 2013

1. ITEM NO.	**SUBJECT**	**STATUS**
D	**ALTIMETER CORRECTIONS**	

2. SOURCE AND DATE SUBMITTED

The Chairman of the ATS Committee, on behalf of the Committee,

3. PRESENT ICAO POLICY

3.1 ***4.1 RESPONSIBILITY***

4.1.1 Pilot's responsibility

ICAO PANS-OPS VOLUME 1, PART III, SECTION 1 5TH EDITION (INC AMD 4)

ICAO states that the pilot-in-command is responsible for the safety of the operation and the safety of the aeroplane and of all persons on board during flight time (Annex 6, 4.5.1). This includes responsibility for obstacle clearance, except when an IFR flight is being vectored by radar.

Note: When an IFR flight is being vectored by radar, air traffic control (ATC) may assign minimum radar vectoring altitudes which are below the minimum sector altitude. Minimum vectoring altitudes provide obstacle clearance at all times until the aircraft reaches the point where the pilot will resume own navigation. The pilot-in-command should closely monitor the aircraft's position with reference to pilot-interpreted navigation aids to minimize the amount of radar navigation assistance required and to alleviate the consequences resulting from a radar failure. The pilot-in-command should also continuously monitor communications with ATC while being radar vectored, and should immediately climb the aircraft to the minimum sector altitude if ATC does not issue further instructions within a suitable interval, or if a communications failure occurs.

4.1.2 Operator's responsibility

The operator is responsible for establishing minimum flight altitudes, which may not be less than those established by States that are flown over (Annex 6, 4.2.6). The operator is responsible for specifying a method for determining these minimum altitudes (Annex 6, 4.2.6). Annex 6 recommends that the method should be approved by the State of the Operator and also recommends the factors to be taken into account.

4.1.3 State's responsibility

Annex 15, Appendix 1 (Contents of Aeronautical Information Publication), indicates that States should publish in Section GEN 3.3.5, "The criteria used to determine minimum flight altitudes". If nothing is published, it should be assumed that no corrections have been applied by the State.

Note.— The determination of lowest usable flight levels by air traffic control units within controlled airspace does not relieve the pilot-in-command of the responsibility for ensuring that adequate terrain clearance exists, except when an IFR flight is being vectored by radar.

4.1.4 Air traffic control (ATC)

If an aircraft is cleared by ATC to an altitude which the pilot-in-command finds unacceptable due to low temperature, then the pilot-in-command should request a higher altitude. If such a request is not received, ATC will consider that the clearance has been accepted and will be complied with. See Annex 2 and the PANS-ATM (Doc 4444), Chapter 6

4.1.5 Flights outside controlled airspace

4.1.5.1 For IFR flights outside controlled airspace, including flights operating below the lower limit of controlled airspace, the determination of the lowest usable flight level is the responsibility of the pilot-in-command. Current or forecast QNH and temperature values should be taken into account.

4.1.5.2 It is possible that altimeter corrections below controlled airspace may accumulate to the point where the aircraft's position may impinge on a flight level or assigned altitude in controlled airspace. The pilot-in-command must then obtain clearance from the appropriate control agency.

4.2 PRESSURE CORRECTION

4.2.1 Flight levels

When flying at levels with the altimeter set to 1 013.2 hPa, the minimum safe altitude must be corrected for deviations in pressure when the pressure is lower than the standard atmosphere (1 013 hPa). An appropriate correction is 10 m (30 ft) per hPa below 1 013 hPa. Alternatively, the correction can be obtained from standard correction graphs or tables supplied by the oerator.

4.2.2 QNH/QFE

When using the QNH or QFE altimeter setting (giving altitude or height above QFE datum respectively), a pressure correction is not required.

4.3 TEMPERATURE CORRECTION

4.3.1 Requirement for temperature correction

The calculated minimum safe altitudes/heights must be adjusted when the ambient temperature on the surface is much lower than that predicted by the standard atmosphere. In such conditions, an approximate correction is 4 per cent height increase for every 10°C below standard temperature as measured at the altimeter setting source. This is safe for all altimeter setting source altitudes for temperatures above –15°C.

3.2 **PRESENT IFALPA POLICY PANS-OPS-I-Pt.III-1-3** **POL-STAT 1996**

Reaffirmed by ATS Committee, Jun 2011

When altitude corrections are applied by the pilot to charted or published procedural altitudes, pilots should advise air traffic control of the corrected altitudes that will be flown.

The information that the correction has been applied should be available from automated or graphical systems. In regions where extremely cold temperatures do not occur, it would be sufficient to ensure that the minimum vector altitudes are corrected to the minimum annual temperature.

4.3 TEMPERATURE CORRECTION **POL-STAT 2006**

A new paragraph should be added after 4.3.6 to read:

"4.3.7 Pilots operating aircraft in regions where ground level air temperatures drop to 0°C or below should carry in the cockpit means to quickly apply temperature corrections to minimum altitudes. While automatic temperature compensation is the preferred method for making these corrections, other means such as graphical, tabular or mechanical are acceptable. Whichever means are employed, pilots should be trained in their use."

4. PROPOSED IFALPA POLICY PANS-OPS VOL I, PART III, SECTION 1

Delete existing (unnumbered) Policy and insert new policy requiring amendments of ICAO text as follows **(**new text ***bold italics***, deleted text ~~struck through~~):

Note: ***4.1.1.x, 4.1.4. y*** *and* ***4.1.4. z*** *are new paragraphs in ICAO text incorporating an updated version of the hitherto unnumbered IFALPA POL-STAT 1996; these paragraphs are suggested as additions to existing ICAO text. The changes to ICAO Section 4.3 are mainly rearranging the text in a more logical order.*

4.1

4.1.1.x (new) ~~When~~ **Pilots shall apply** altitude corrections **specified in 4.2 to 4.5 below**~~ are applied by the pilot~~ to ***minimum safe altitudes/heights and*** charted or published procedural altitudes, ~~pilots should~~ **and** advise air traffic control of the corrected altitudes that will be flown. **POL-STAT 1**

4.1.4. y (new) Controllers shall apply corrections according 4.3 to minimum radar vectoring altitudes and advise pilots of the correction applied. The information that the correction has been applied ***by the Air Traffic Services*** should ***also*** be available from automated ~~or graphical~~ systems ***(e.g. ATIS)***. **POL-STAT 2**

4.1.4. z (new) In regions where extremely cold temperatures do not occur, it would be sufficient to ensure that the minimum vector altitudes are ***determined*** corrected ***for*** ~~to~~ the minimum annual temperature. **POL-STAT 3**

4.3.1 Requirement for temperature correction

The calculated minimum safe altitudes/heights must be adjusted when the ambient temperature on the surface is ~~much~~ lower than that predicted by the standard atmosphere. ***For practical operational use, it is appropriate to apply a temperature correction only when the value of the correction exceeds 20 per cent of the associated minimum obstacle clearance (MOC).*** **POL-STAT 4**

4.3.1.1 Practical Computations

In such conditions an approximate correction is 4 per cent height increase for every 10°C below standard temperature as measured at the altimeter setting source. This is safe for all altimeter setting source altitudes for temperatures above –15°C.; **POL-STAT 5**

Re-number ICAO 4.3.2 to 4.3.1.2 and 4.3.3 to 4.3.5 accordingly. **AR-1**

Re-number existing IFALPA Pol-Stat 2006 requiring a new paragraph 4.3.7 to 4.3.2. **AR-2**

5. COMMENTS BY THE PROPOSERS

5.1 The ATS Committee has identified that there are situations where the pilot is unaware whether temperature corrections have been or are being applied. This is a hazard as Altimeter corrections for low temperature are necessary to compensate for a loss of safety margins. The ICAO provisions which exist in Annexes and PANS-documents vary in implementation and the European Air Navigation Planning Group through the COG is now looking at measures for harmonisation. The existing policy in PANS-OPS does not adequately cover the information exchange required between ATS and pilots.

The ATS Committee did not find consensus on a proposal to reduce the percentage in (new) 4.3.1 (moved from current ICAO 4.3.6). Although it was felt that applying temperature corrections only when the correction exceeds 20% of the required obstacle clearance might result in an excessive erosion of the obstacle clearance, a deviation from the current practice might entail considerable changes. Any further action on this subject should be determined by the ADO Committee.

The existing POL-STAT 2006 (suggesting a new paragraph 4.3.7; proposed to be renumbered) contains a proposal that might be more appropriately re-phrased as an operator requirement (which should be added to 4.1.2 instead of section 4.3; again this should be determined by the ADO Committee.

INTRODUCTORY PAPER
68th IFALPA CONFERENCE
DUBLIN, IRELAND, 12-15 APRIL 2013

1. ITEM NO.	SUBJECT	STATUS
D	**VECTORING (LOW TEMPERATURES CORRECTION)**	
2.	**SOURCE AND DATE SUBMITTED**	
	The Chairman of the ATS Committee, on behalf of the Committee,	
3.	**PRESENT ICAO POLICY**	
3.1	**8.6.5.2** ***ICAO PANS-ATM states that*** *When vectoring an IFR flight and when giving an IFR flight a direct routing which takes the aircraft off an ATS route, the controller shall issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot will resume own navigation. When necessary, the relevant minimum vectoring altitude shall include a correction for low temperature effect.* *Note 1.— When an IFR flight is being vectored, the pilot may be unable to determine the aircraft's exact position in respect to obstacles in this area and consequently the altitude which provides the required obstacle clearance. Detailed obstacle clearance criteria are contained in PANS-OPS (Doc 8168), Volumes I and II. See also 8.6.8.2.* *Note 2.— It is the responsibility of the ATS authority to provide the controller with minimum altitudes corrected for temperature effect.*	***ICAO PANS-ATM 15TH EDITION (INC AMD 4)***
3.2	**PRESENT IFALPA POLICY**	
	The Federation believes that ICAO para 8.6.5.2 should be replaced with the following (new text shown in bold, Italics): 8.6.5.2 When vectoring an IFR flight and when giving an IFR flight a direct routing which takes the aircraft off an ATS route, the controller shall issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot will resume own navigation **and is established on an ATS route**. When necessary, the minimum radar vectoring altitude shall include a correction for low temperature effect.	**POL STAT 2007 [REAFFIRMED 2011]**

4. PROPOSED IFALPA POLICY

4.1 Amend 8.6.5.2 to read (deleted text ~~struck through~~ new text in ***bold italics***)

8.6.5.2 When vectoring an IFR flight and when giving an IFR flight a direct routing which takes the aircraft off an ATS route, the controller shall issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot will resume own navigation ***on an established ATS route***. When necessary, the relevant minimum vectoring altitude shall include a correction for low temperature effect. **POL-STAT 1**

Note 1.— When an IFR flight is being vectored, the pilot may be unable to determine the aircraft's exact position in respect to obstacles in this area and consequently the altitude which provides the required obstacle clearance. Detailed obstacle clearance criteria are contained in PANS-OPS (Doc 8168), Volumes I and II. See also 8.6.8.2.

8.6.5.3 The controller shall advise an IFR flight that a temperature correction has been applied. This information should also be available via ATIS. **POL-STAT 2**

8.6.5.4 ~~Note 2.— It is the responsibility of t~~ ***T***he ATS authority ***shall*** ~~to~~ provide the controller with minimum altitudes corrected for temperature effect. **POL-STAT 3**

COMMENTS BY THE PROPOSERS

5.1 The ATS Committee has identified that there are situations where the pilot is unaware whether temperature corrections have been or are being applied. This is a hazard as Altimeter corrections for low temperature are necessary to compensate for a loss of safety margins. The ICAO provisions which exist in Annexes and PANS-documents vary in implementation and the European Air Navigation Planning Group through the COG is now looking at measures for harmonisation. The policy in ICAO PANS-ATM does not adequately cover the information exchange required between ATS and pilots.

Appendix E -
Visual Departure – Proposal for Amendment to the European Regional Supplementary Procedures
(paragraph 4.1.4 refers)

6.5.4 Visual departures

6.5.4.1 A visual departure is a departure by an IFR flight when either part or all of an instrument departure procedure (e.g. standard instrument departure (SID)) is not completed and the departure is executed in visual reference to terrain.

6.5.4.2 An IFR flight may be cleared to execute a visual departure

a) ~~upon~~ when requested by ~~of~~ the pilot; or
b) prior to take-off, when initiated by the controller and accepted by the pilot by a read-back of the ATC clearance.

6.5.4.3 To execute a visual departure, the aircraft take-off performance characteristics shall allow them to make an early turn after take-off. When implemented, visual departure shall be applied under the following conditions:

a) the meteorological conditions in the direction of take-off and the following climb-out shall not impair the procedure up to an altitude to be established and published by the appropriate authority, e.g. minimum flight altitude (MFA) or minimum sector altitude (MSA);

b) the procedure shall be applied during the daytime. The procedure may be considered for application at night following a separate ~~aeronautical study~~ safety assessment by the appropriate air traffic services (ATS) authority;

c) the pilot shall be responsible for maintaining obstacle clearance until the specified altitude. Further clearance (route, heading, point) shall be specified by ATC; and

d) separation shall be provided between an aircraft cleared to execute a visual departure and other ~~departing and arriving~~ aircraft, in accordance with the airspace classification.

Note. — If the aircraft is in or may enter airspace class D during the application of the visual departure, attention is drawn to the requirement to provide timely VFR traffic information deemed relevant for the aircraft executing the visual departure. Flight crews should be made aware when the application of the visual departure may lead the departing aircraft to enter airspace classes E, F or G.

~~6.5.4.4 Prior to take-off, the pilot shall agree to execute a visual departure by providing a read-back of the ATC clearance.~~

6.5.4.~~5~~4 Any additional local restrictions shall be agreed on in consultation between the appropriate ATS authority and operators.

Appendix F -
Use of downlinked airborne parameters indicating the intentions of the aircraft – Proposal for Amendment to the *European Regional Supplementary Procedures*
(paragraph 4.1.7 refers)

5.2.3 Use of DAPs related to Aircraft Intention

5.2.3.1 Use of "Selected Level"

Note 1.– Subject to the surveillance system capabilities, the "Selected Altitude" DAP can be displayed to controllers on situation displays, as either a flight level or an altitude.

Note 2.– For ATC and radiotelephony phraseology purposes, the generic phase "Selected Level" is used to encompass data presented as either an altitude or a flight level.

5.2.3.1.1 When available, the "Selected Level" can be used, as prescribed by the appropriate ATS authority, to verify that flight crew's selections for vertical manoeuvres are consistent with the clearance issued by ATC. The "Selected Level" shall not be used on its own for the purpose of separation nor shall the availability of such information on a situation display be used as a substitute for the read-back and hear-back of level clearances.

Note 1. – The value of the "Selected Level" may differ from the read back cleared level for various operational reasons, such as:

a) when following SID/STARs with ATC level restrictions, pilots may select the final cleared level and utilise the aircraft flight management system to achieve the vertical constraints;
b) b) on final approach, where at a given moments pilots pre-select the missed approach point (MAPt) altitude;
c) c) when the aircraft is being flown manually;

Note 2. – See 10.3 for radiotelephony (RTF) phraseology to query the discrepancy observed on the situation display.

Note 3. –Guidance on implementation is provided in Operational Use of Downlink Airborne Parameters - High Level Considerations, *which is available from the EUROCONTROL website.*

10.3 SURVEILLANCE

Circumstances	*Phraseologies*
Controller queries a discrepancy between the displayed "Selected Level" and the cleared level. *Note: The controller will not state on radiotelephony the value of the "Selected Level" observed on the situation display*	**CHECK SELECTED LEVEL. CLEARED LEVEL IS** (*level*) **CHECK SELECTED LEVEL. CONFIRM CLIMBING (***or* **DESCENDING) TO (***or* **MAINTAINING)** (*level*) ***CLIMBING (***or* **DESCENDING) TO (***or* **MAINTAINING) (***level***) (***appropriate information on selected level)* * Denotes pilot transmission

Appendix G -
European Guidance Material on All Weather Operations at Aerodromes
(EUR Doc 013) - 4th Edition, September 2012
(paragraph 4.2.13 refers)

Due to its size, the document is provided as a separate document

Appendix H -
Proposal for amendment to the ICAO Abbreviations and Codes – Doc 8400
(paragraph 4.3.26 refers)

AMENDMENT PROPOSAL TO ICAO DOCUMENT 8400

A	B	C	D
Abbrev	**Explanation/Meaning**	Abbreviations proposed to be used in NOTAM (**Y**es/**N**o)	Doc 8400 status (Proposed **New** abbr./ Abbr. proposed to **Keep**/ Abbr. Proposed to be **Updated**/ Abbr. proposed to be **Removed**)
A	Amber	N	Keep
A/A	Air-to-air	Y	Keep
A/G	Air-to-Ground	Y	Keep
AAA	(or AAB, AAC....etc, in sequence) Amended meteorological message (message type designator)	N	Keep
AAD	Assigned altitude deviation	N	Keep
AAIM	Aircraft Autonomous Integrity Monitoring	Y	Keep
AAL	Above Aerodrome Level	Y	Keep
AAR	Air to Air Refuelling	Y	New
ABI	Advance boundary information	N	Keep
ABM	Abeam	Y	Keep
ABN	Aerodrome Beacon	Y	Keep
ABT	About	N	Keep
ABV	Above	Y	Keep
AC	Altocumulus	N	Keep
ACARS	*(to be pronounced "AY-CARS")* Aircraft Communication Addressing And Reporting System	Y	Keep
ACAS	Airborne Collision Avoidance System	Y	Keep
ACC	Area Control Centre OR Area Control	Y	Keep
ACCID	Notification of an Aircraft Accident	Y	Keep
ACFT	Aircraft	Y	Keep
ACK	Acknowledge	Y	Keep
ACL	Altimeter Check Location	Y	Keep
ACN	Aircraft Classification Number	Y	Keep
ACP	Acceptance *(message type designator)*	N	Keep
ACPT	Accept OR Accepted	N	Keep
ACT	Active OR Activated OR Activity	Y	Keep
AD	Aerodrome	Y	Keep
ADA	Advisory Area	N	Keep
ADC	Aerodrome chart	Y	Keep
ADDN	Addition OR Additional	Y	Keep
ADF	Automatic Direction-Finding Equipment	Y	Keep
ADIZ	*(to be pronounced "AY-DIZ")* Air Defence Identification Code	Y	Keep
ADJ	Adjacent	Y	Keep
ADO	Aerodrome office *(specify service)*	N	Keep
ADR	Advisory Route	N	Keep
ADS	The address *(when this abbreviation is used to request a repetition, the question mark (IMI) precedes the abbreviation, e.g. IMI ADS)* *(to be used in AFS as a procedure signal)*	N	Keep

ADS-B	Automatic Dependent Surveillance - Broadcast	Y	Keep
ADS-C	Automatic Dependent Surveillance - Contract	Y	Keep
ADSU	Automatic Dependent Surveillance Unit	Y	Keep
ADVS	Advisory Service	N	Keep
ADZ	Advise	N	Keep
AES	Aircraft Earth Station	N	Keep
AFIL	Flight Plan Filed in the Air	N	Keep
AFIS	Aerodrome Flight Information Service	Y	Keep
AFM	Yes OR Affirm OR Affirmative OR That is Correct	N	Keep
AFS	Aeronautical Fixed Service	N	Keep
AFT	After… *(time or place)*	N	Keep
AFTN	Aeronautical Fixed Telecommunication Network	Y	Keep
AGA	Aerodromes, Air Routes and Ground Aids	N	Keep
AGL	Above Ground Level	Y	Keep
AGN	Again	N	Keep
AIC	Aeronautical Information Circular	Y	Keep
AIDC	Air traffic services interfacility data communications	N	Keep
AIM	Aeronautical Information Management	N	New
AIP	Aeronautical Information Publication	Y	Keep
AIRAC	Aeronautical Information Regulation and Control	Y	Keep
AIREP	Air-Report	N	Keep
AIRMET	Information concerning en-route weather phenomena which may affect the safety of low-level aircraft operations	N	Keep
AIS	Aeronautical Information Services	Y	Keep
ALA	Alighting Area	N	Keep
ALERFA	Alert Phase	Y	Keep
ALR	Alerting (message type designator)	N	Keep
ALRS	Alerting Service	N	Keep
ALS	Approach Lighting System	Y	Keep
ALT	Altitude	Y	Keep
ALTN	Alternate (Aerodrome)	Y	Keep
ALTN	Alternate OR Alternating (Light alternates in colour)	Y	Keep
AMA	Area Minimum Altitude	N	Keep
AMC	Airspace Management Cell	Y	New
AMD	Amend OR Amended *(used to indicate amended meteorological message; message type designator)*	N	Keep
AMDT	Amendment *(AIP Amendment)*	Y	Keep
AMS	Aeronautical Mobile Service	N	Keep
AMSL	Above Mean Sea Level	Y	Keep
AMSS	Aeronautical Mobile Satellite Service	N	Keep
ANC	Aeronautical Chart - 1:500.000 *(followed by name/title)*	Y	Keep
ANCS	Aeronautical Navigation Chart - Small Scale *(followed by name/title and scale)*	Y	Keep
ANS	Answer	N	Keep
AO	Aircraft Operator	Y	New
AOC	Aerodrome Obstacle Chart *(followed by name/title)*	Y	Keep
AP	Airport	Y	Keep
APAPI	*(to be pronounced "AY-PAPI")* Abbreviated Precision Approach Path Indicator	Y	Keep
APCH	Approach	Y	Keep
APDC	Aircraft Parking/Docking Chart *(followed by name/title)*	Y	Keep
APN	Apron	Y	Keep
APP	Approach Control Office OR Approach Control OR Approach Control Service	Y	Keep
APR	April	Y	Keep
APRX	Approximate OR Approximately	Y	Keep
APSG	After Passing	N	Keep

APU	Auxiliary Power Unit	Y	New
APV	Approve OR Approved OR Approval	Y	Keep
APVG	Approach Procedure with Vertical guidance	Y	New
ARC	Area chart	N	Keep
ARNG	Arrange	N	Keep
ARO	Air Traffic Services Reporting Office	Y	Keep
ARP	Aerodrome Reference Point	Y	Keep
ARP	Air-Report *(message type designator)*	N	Keep
ARQ	Automatic Error Correction	N	Keep
ARR	Arrival *(message type designator)*	N	Keep
ARR	Arrive OR Arrival	Y	Keep
ARS	Special Air-Report *(message type designator)*	N	Keep
ARST	Arresting *(specify (part of) Aircraft Arresting Equipment)*	N	Keep
AS	Altostratus	N	Keep
ASAP	As soon as possible	N	New
ASC	Ascend to OR Ascending to	N	Keep
ASDA	Accelerate-Stop Distance Available	Y	Keep
ASE	Altimetry System Error	N	Keep
ASHTAM	Special series NOTAM notifying, by means of a specific format, change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations	Y	Keep
ASM	Airspace Management	Y	New
ASPH	Asphalt	Y	Keep
AT	At *(followed by time at which weather change is forecast to occur)*	N	Keep
ATA	Actual Time of Arrival	N	Keep
ATC	Air Traffic Control *(in general)*	Y	Keep
ATCSMAC	Air Traffic Control surveillance minimum altitude chart *(followed by name/title)*	N	Keep
ATD	Actual Time of Departure	N	Keep
ATFM	Air Traffic Flow Management	Y	Keep
ATIS	Automatic Terminal Information Service	Y	Keep
ATM	Air Traffic Management	N	Keep
ATN	Aeronautical Telecommunication Network	N	Keep
ATP	At … *(time or place)*	N	Keep
ATS	Air Traffic Services	N	Keep
ATTN	Attention	Y	Keep
AT-VASIS	*(to be pronounced "AY-TEE-VASIS")* Abbreviated T Visual Approach Slope Indicator System	Y	Keep
ATZ	Aerodrome Traffic Zone	Y	Keep
AUG	August	Y	Keep
AUTH	Authorized OR Authorization	Y	Keep
AUTO	Automatic	Y	New
AUW	All Up Weight	N	Keep
AUX	Auxiliary	Y	Keep
AVASIS	Abbreviated Visual Approach Slope Indicator System	Y	New
AVBL	Available OR Availability	Y	Keep
AVG	Average	Y	Keep
AVGAS	Aviation Gasoline	Y	Keep
AWOS	Automated Weather Observation System	Y	New
AWTA	Advise at what time able	N	Keep
AWY	Airway	Y	Keep
AZM	Azimuth	Y	Keep
B	Blue	Y	Keep
B-RNAV	RNAV Basic area navigation	Y	New
BA	Braking Action	Y	Keep

BARO-VNAV	*(to be pronounced "BAA-RO-VEE-NAV")* Barometric vertical navigation	N	Keep
BASE	Cloud Base	N	Keep
BCFG	Fog Patches	N	Keep
BCN	Beacon *(Aeronautical ground light)*	Y	Keep
BCST	Broadcast	N	Keep
BDRY	Boundary	Y	Keep
BECMG	Becoming	Y	Keep
BFR	Before	N	Keep
BKN	Broken	N	Keep
BL	Blowing *(followed by DU = Dust, SA = Sand or SN = Snow)*	N	Keep
BLDG	Building	N	Keep
BLO	Below Clouds	N	Keep
BLW	Below…	Y	Keep
BOMB	Bombing	N	Keep
BR	Mist	N	Keep
BRF	Short *(Used to indicate the type of approach desired or required)*	N	Keep
BRG	Bearing	Y	Keep
BRKG	Braking	Y	Keep
BS	Commercial Broadcasting Station	N	Keep
BTL	Between Layers	N	Keep
BTN	Between	Y	Keep
BUFR	Binary universal form for the representation of meteorological data	N	Keep
C	Centre *(preceded by runway designation number to identify a parallel RWY)*	Y	Keep
C	Degrees Celsius *(Centigrade)*	Y	Keep
CA	Course to an altitude	N	Keep
CAA	Civil Aviation Authority or Civil Aviation Administration	Y	New
CAT	Category	Y	Keep
CAT	Clear Air Turbulence	N	Keep
CAVOK	*(To be pronounced "KAV-OH-KAY")* Visibility, cloud and present weather better than prescribed values or conditions	N	Keep
CB	*(To be pronounced "CEE BEE")* Cumulonimbus	N	Keep
CBA	Cross Border Area	Y	New
CC	Cirrocumulus	N	Keep
CCA	*(Or CCB, CCC … etc, in sequence)* Corrected meteorological message *(message type designator)*	N	Keep
CD	Candela	N	Keep
CDN	Co-ordination *(message type designator)*	N	Keep
CDO	Continuous descent operations	Y	New
CDR	Conditional Route	Y	New
CF	Change frequency to …	N	Keep
CF	Course to a fix	N	Keep
CFM	Confirm OR I confirm *(to be used in AFS as a procedure signal)*	N	Keep
CGL	Circling Guidance Light(s)	N	Keep
CH	Channel	Y	Keep
CH#	This is a channel continuity check of transmission to permit comparison of your record of channel-sequence numbers of messages received on the channel *(to be used in AFS as a procedure signal)*	N	Keep
CHEM	Chemical	Y	Keep
CHG	Modification *(message type designator)*	N	Keep
CHG	Change, Changed or Changes	Y	New
CI	Cirrus	N	Keep
CIDIN	Common ICAO Data Interchange Network	Y	Keep
CIT	Near OR over large towns	N	Remove
CIV	Civil	Y	Keep

CK	Check	N	Keep
CL	Centre-Line	Y	Keep
CLA	Clear Type of Ice Formation	N	Remove
CLBR	Calibration	N	Keep
CLD	Cloud	N	Keep
CLG	Calling	N	Keep
CLIMB-OUT	Climb-out area	N	Keep
CLR	Clear(s) OR Cleared to … OR Clearance	N	Keep
CLRD	Runway(s) cleared *(used in METAR/SPECI)*	N	Keep
CLSD	Close OR Closed OR Closing	Y	Keep
CM	Centimetre	Y	Keep
CMB	Climb to OR Climbing to	N	Keep
CMPL	Completion OR Completed OR Complete	N	Keep
CNL	Cancel OR Cancelled	Y	Keep
CNL	Flight Plan Cancellation *(message type designator)*	N	Keep
CNS	Communications, Navigation and Surveillance	N	Keep
COM	Communications	Y	Keep
CONC	Concrete	Y	Keep
COND	Condition	Y	Keep
CONS	Continuous	N	Keep
CONST	Construction OR Constructed	N	Keep
CONT	Continue(s) OR Continued	Y	Keep
COOR	Coordinate OR Coordination	Y	Keep
COORD	Coordinates	Y	Keep
COP	Change-Over Point	N	Keep
COR	Correct OR Correction OR Corrected *(Used to indicate corrected meteorological message; message type designator)*	N	Keep
COT	At the Coast	N	Keep
COV	Cover OR Covered OR Covering	N	Keep
CPDLC	Controller-Pilot Data Link Communications	Y	Keep
CPL	Current Flight Plan *(message type designator)*	N	Keep
CRC	Cyclic redundancy check	N	Keep
CRM	Collision risk model	N	Keep
CRP	Compulsory Reporting Point	Y	New
CRZ	Cruise	N	Keep
CS	Call sign	Y	Keep
CS	Cirrostratus	N	Keep
CTA	Control Area	N	Keep
CTAM	Climb to and Maintain	N	Keep
CTC	Contact	N	Keep
CTL	Control	N	Keep
CTN	Caution	Y	Keep
CTR	Control Zone	Y	Keep
CU	Cumulus	N	Keep
CUF	Cumuliform	N	Keep
CUST	Customs	Y	Keep
CVR	Cockpit Voice Recorder	N	Keep
CW	Continuous Wave	N	Keep
CWY	Clearway	Y	Keep
D	Downward *(tendency in RVR during previous 10 minutes)*	N	Keep
D....	Danger Area *(followed by Identification)*	Y	Keep
DA	Decision Altitude	Y	Keep
D-ATIS	*(to be pronounced "DEE-ATIS")* Data Link Automatic Terminal Information Service	Y	Keep

DCD	Double Channel Duplex	N	Keep
DCKG	Docking	Y	Keep
DCP	Datum Crossing Point	N	Keep
DCPC	Direct Controller-Pilot Communication	N	Keep
DCS	Double Channel Simplex	N	Keep
DCT	Direct *(In relation to flight path clearances and type of approach)*	Y	Keep
DE	From *(used to precede the call sign of the calling station) (to be used in AFS as a procedure signal)*	N	Keep
DEC	December	Y	Keep
DEG	Degrees	Y	Keep
DEP	Depart OR Departure	Y	Keep
DEP	Departure *(message type designator)*	N	Keep
DEPO	Deposition	N	Keep
DER	Departure End of the Runway	N	Keep
DES	Descend to OR Descending to	N	Keep
DEST	Destination	Y	Keep
DETRESFA	Distress Phase	Y	Keep
DEV	Deviation OR Deviating	Y	Keep
DF	Direction Finding	Y	Keep
DFDR	Digital Flight Data Recorder	N	Keep
DFTI	Distance from Touchdown Indicator	N	Keep
DH	Decision Height	Y	Keep
DIF	Diffuse	N	Keep
DIST	Distance	Y	Keep
DIV	Divert OR Diverting	N	Keep
DLA	Delay *(message type designator)*	N	Keep
DLA	Delay OR Delayed	Y	Keep
DLIC	Data Link Initiation Capability	N	Keep
DLY	Daily	N	Keep
DME	Distance Measuring Equipment	Y	Keep
DNG	Danger OR Dangerous	Y	Keep
DOF	Date of flight	N	New
DOM	Domestic	Y	Keep
DP	Dew Point Temperature	N	Keep
DPT	Depth	N	Keep
DR	Dead Reckoning	N	Keep
DR...	Low Drifting *(followed by DU = Dust, SA = Sand or SN = Snow)*	N	Keep
DRG	During	N	Keep
DS	Duststorm	N	Keep
DSB	Double Sideband	N	Keep
DTAM	Descend To And Maintain	N	Keep
DTG	Date-Time Group	N	Keep
DTHR	Displaced Runway Threshold	N	Keep
DTRT	Deteriorate OR Deteriorating	N	Keep
DTW	Dual Tandem Wheels	N	Keep
DU	Dust	N	Keep
DUC	Dense Upper Cloud	N	Keep
DUPE#	This is a duplicate message *(to be used in AFS as a procedure signal)*	N	Keep
DUR	Duration	N	Keep
D-VOLMET	Data Link VOLMET	Y	Keep
DVOR	Doppler VOR	Y	Keep
DVORTAC	DVOR and TACAN combination	Y	New
DW	Dual Wheels	N	Keep
DZ	Drizzle	N	Keep

E	East OR Eastern Longitude	Y	Keep
EAT	Expected Approach Time	N	Keep
EB	Eastbound	N	Keep
EDA	Elevation Differential Area	N	Keep
EEE	Error *(to be used in AFS as a procedure signal)*	N	Keep
EET	Estimated Elapsed Time	N	Keep
EFC	Expected Further Clearance	N	Keep
EFIS	Electronic Flight Instrument System *(to be pronounced "EE-FIS")*	N	Keep
EGNOS	European Geostationary Navigation Overlay Service *(to be pronounced "EGG-NOS")*	Y	Keep
EHF	Extremely High Frequency (30000 to 300000 MHz)	Y	Keep
ELBA	Emergency Location Beacon - Aircraft	Y	Keep
ELEV	Elevation	Y	Keep
ELR	Extra Long Range	N	Keep
ELT	Emergency Locator Transmitter	Y	Keep
EM	Emission	N	Keep
EMBD	Embedded in a Layer *(To indicate cumulonimbus embedded in layers of other clouds)*	N	Keep
EMERG	Emergency	Y	Keep
END	Stop-end *(related to RVR)*	N	Keep
ENE	East North East	Y	Keep
ENG	Engine	Y	Keep
ENR	En-Route	Y	Keep
ENRC	Enroute Chart *(followed by name/title)*	Y	Keep
EOBT	Estimated Off-Block Time	Y	Keep
EQPT	Equipment	Y	Keep
ER	Here . . . . OR Herewith	N	Remove
ESE	East South East	Y	Keep
EST	Estimate OR Estimated OR Estimation *(message type designator)*	Y	Keep
ETA	Estimated Time of Arrival OR Estimating Arrival	Y	Keep
ETD	Estimated Time of Departure OR Estimating Departure	Y	Keep
ETO	Estimated Time Over Significant Point	Y	Keep
ETOPS	Extended-range Twin-engine Operations	Y	New
EUR RODEX	European Regional OPMET Data Exchange	N	Keep
EV	Every	N	Keep
EVS	Enhanced Vision System	N	Keep
EXC	Except	Y	Keep
EXER	Exercises OR Exercising OR To Exercise	Y	Keep
EXP	Expect OR Expected OR Expecting	N	Keep
EXTD	Extend OR Extending OR Extension OR Extended	Y	Updated
F	Fixed	N	Keep
FA	Course from a fix to an altitude	N	Keep
FAC	Facilities	Y	Keep
FAF	Final Approach Fix	Y	Keep
FAL	Facilitation of International Air Transport	Y	Keep
FAP	Final Approach Point	Y	Keep
FAS	Final Approach Segment	Y	Keep
FATO	Final Approach and Take-off Area	Y	Keep
FAX	Facsimile Transmission	Y	Keep
FBL	Light *(Used to indicate the intensity of weather phenomena, interference or static reports, eg FBL RA = Light rain)*	N	Keep
FC	Funnel Cloud *(tornado or water spout)*	N	Keep
FCST	Forecast	Y	Keep
FCT	Friction Coefficient	N	Keep
FDPS	Flight Data Processing System	N	Keep
FEB	February	Y	Keep
FEW	Few	N	Keep

FG	Fog	N	Keep
FIC	Flight Information Centre	Y	Keep
FIR	Flight Information Region	Y	Keep
FIS	Flight Information Service	Y	Keep
FISA	Automated Flight Information Service	N	Keep
FIZ	Flight Information Zone	Y	New
FL	Flight Level	Y	Keep
FLD	Field	N	Keep
FLG	Flashing	Y	Keep
FLR	Flares	N	Keep
FLT	Flight	Y	Keep
FLTCK	Flight Check	Y	Keep
FLUC	Fluctuating OR Fluctuation OR Fluctuated	N	Keep
FLW	Follow(s) OR Following	Y	Keep
FLY	Fly OR Flying	N	Keep
FM	From	Y	Keep
FM	From *(followed by time weather change is forecast to begin)*	N	Keep
FM	Course from a fix to manual termination *(used in navigation database coding)*	N	Keep
FMC	Flight Management Computer	Y	Keep
FMP	Flow Management Position	Y	New
FMS	Flight Management System	Y	Keep
FMU	Flow Management Unit	Y	Keep
FNA	Final Approach	N	Keep
FPAP	Flight Path Alignment Point	N	Keep
FPL	Filed Flight Plan *(message type designator)* OR Flight Plan	Y	Updated
FPM	Feet Per Minute	N	Keep
FPR	Flight Plan Route	N	Keep
FR	Fuel Remaining	N	Keep
FREQ	Frequency	Y	Keep
FRI	Friday	Y	Keep
FRNG	Firing	Y	Keep
FRONT	Front *(Relating to Weather)*	N	Keep
FROST	Frost *(used in AD warnings)*	N	Keep
FRQ	Frequent	N	Keep
FSL	Full Stop Landing	N	Keep
FSS	Flight Service Station	Y	Keep
FST	First	N	Keep
FT	Feet *(Dimensional Unit)*	Y	Keep
FTE	Flight technical error	N	Keep
FTP	Fictitious Threshold Point	N	Keep
FTT	Flight technical tolerance	N	Keep
FU	Smoke	N	Keep
FZ	Freezing	N	Keep
FZDZ	Freezing Drizzle	N	Keep
FZFG	Freezing Fog	N	Keep
FZRA	Freezing Rain	N	Keep
G	Green	Y	Keep
G...	Variations from the mean wind speed *(gusts) (followed by figures in METAR/SPECI and TAF)*	N	Keep
G/A	Ground-to-Air	Y	Keep
G/A/G	Ground-to-Air and Air-to-Ground	Y	Keep
GA	Go ahead, resume sending *(to be used in AFS as a procedure signal)*	N	Keep
GA	General Aviation	Y	New
GAGAN	GPS & Geostationary Earth Orbit Augmented Navigation	N	Keep
GAIN	Airspeed or headwind gain	N	Keep

GAMET	Area forecast for low-level flights	N	Keep
GARP	GBAS Azimuth Reference Point	N	Keep
GBAS	Ground Based Augmentation System	Y	Keep
GC	Ground Control	Y	New
GCA	Ground Controlled Approach System OR Ground Controlled Approach	Y	Keep
GCI	Ground Controlled Interception	Y	New
GEN	General	Y	Keep
GEO	Geographic OR True	Y	Keep
GES	Ground Earth Station	Y	Keep
GLD	Glider	N	Keep
GLONASS	Global Orbiting Navigation Satellite System *(to be pronounced "GLO-NAS")*	Y	Keep
GLS	GBAS landing system	N	Keep
GMC...	Ground Movement Chart (followed by name/title)	Y	Keep
GND	Ground	Y	Keep
GNDCK	Ground Check	Y	Keep
GNSS	Global Navigation Satellite System	Y	Keep
GOV	Government	Y	New
GP	Glide Path	Y	Keep
GPA	Glide path angle	N	Keep
GPIP	Glide Path Intercept Point	N	Keep
GPU	Ground Power Unit	Y	New
GPS	Global Positioning System	Y	Keep
GPWS	Ground Proximity Warning System	Y	Keep
GR	Hail	N	Keep
GRAS	Ground Based Regional Augmentation System	N	Keep
GRASS	Grass Landing Area	Y	Keep
GRIB	Processed meteorological data in the form of grid point values expressed in binary form *(meteorological code)*	N	Keep
GRVL	Gravel	Y	Keep
GS	Ground Speed	Y	Keep
GS	Small hail and/or snow pellets	N	Keep
GUND	Geoid Undulation	N	Keep
H	High pressure area OR the centre of high pressure	N	Keep
H24	Continuous Day and Night Service	Y	Keep
HA	Holding/racetrack to an altitude	N	Keep
HAPI	Helicopter Approach Path Indicator	Y	Keep
HBN	Hazard Beacon	N	Keep
HDF	High Frequency Direction-Finding Station	Y	Keep
HDG	Heading	Y	Keep
HEL	Helicopter	Y	Keep
HF	High Frequency [3000 to 30000 kHz]	Y	Keep
HF	Holding/racetrack to a fix	N	Keep
HGT	Height OR Height Above	Y	Keep
HJ	Sunrise to sunset	Y	Keep
HLDG	Holding	Y	Keep
HLS	Helicopter Landing Site	Y	New
HLZ	Helicopter Landing Zone	Y	New
HM	Holding/racetrack to a manual termination	N	Keep
HN	Sunset to Sunrise	Y	Keep
HO	Service available to meet operational requirements	Y	Keep
HOL	Holiday	Y	Keep
HOSP	Hospital Aircraft	Y	Keep
HP	Heliport	Y	New
HPA	Hectopascal	Y	Keep
HR	Hour	Y	Keep

HS	Service Available During Hours of Scheduled Operations	Y	Keep
HUD	Head-up display	N	Keep
HUM	Humanitarian	Y	New
HURCN	Hurricane	N	Keep
HVDF	High and Very High Frequency Direction Finding Stations *(At the Same Location)*	Y	Keep
HVY	Heavy	Y	Keep
HVY	Heavy *(used to indicate the intensity of weather phenomena, eg. HVY RA = Heavy rain)*	N	Keep
HX	No Specific Working Hours	Y	Keep
HYR	Higher	N	Keep
HZ	Haze	N	Keep
HZ	Hertz *(Cycle Per Second)*	Y	Keep
IAC	Instrument Approach Chart *(followed by name/title)*	Y	Keep
IAF	Initial Approach Fix	Y	Keep
IAO	In and Out of Clouds	N	Keep
IAP	Instrument Approach Procedure	Y	Keep
IAR	Intersection of Air Routes	N	Keep
IAS	Indicated Air Speed	Y	Keep
IBN	Identification Beacon	N	Keep
IC	Ice Crystals *(very small ice crystals in suspension, also known as diamond dust)*	N	Keep
ICAO	International Civil Aviation Organization	Y	New
ICE	Icing	N	Keep
ID	Identifier OR Identify	Y	Keep
IDENT	Identification	Y	Keep
IF	Intermediate Approach Fix	Y	Keep
IFF	Identification Friend/Foe	Y	Keep
IFR	Instrument Flight Rules	Y	Keep
IGA	International General Aviation	N	Keep
ILS	Instrument Landing System	Y	Keep
IM	Inner marker	Y	Keep
IMC	Instrument Meteorological Conditions	Y	Keep
IMG	Immigration	N	Keep
IMI	Interrogation sign *(to be used in AFS as a procedure signal)*	N	Keep
IMPR	Improve OR Improving	N	Keep
IMT	Immediate OR Immediately	N	Keep
INA	Initial Approach	N	Keep
INBD	Inbound	Y	Keep
INC	In Cloud	N	Keep
INCERFA	Uncertainty Phase	Y	Keep
INCORP	Incorporated	Y	New
INFO	Information	Y	Keep
INOP	Inoperative	Y	Keep
INP	If Not Possible	N	Keep
INPR	In Progress	N	Keep
INS	Inertial Navigation System	Y	Keep
INSTL	Install OR Installed OR Installation	Y	Keep
INSTR	Instrument	Y	Keep
INT	Intersection	Y	Keep
INTL	International	Y	Keep
INTRG	Interrogator	N	Keep
INTRP	Interrupt OR Interruption OR Interrupted	N	Keep
INTSF	Intensify OR Intensifying	N	Keep
INTST	Intensity	N	Keep
IR	Ice on Runway	N	Keep
IRS	Inertial reference system	N	Keep

ISA	International Standard Atmosphere	N	Keep
ISB	Independent Sideband	N	Keep
ISOL	Isolated	N	Keep
JAN	January	Y	Keep
JTST	Jet Stream	N	Keep
JUL	July	Y	Keep
JUN	June	Y	Keep
KG	Kilograms	Y	Keep
KHZ	Kilohertz	Y	Keep
KIAS	Knots indicated airspeed	Y	Keep
KM	Kilometres	Y	Keep
KMH	Kilometres per Hour	Y	Keep
KPA	Kilopascal	Y	Keep
KT	Knots	Y	Keep
KW	Kilowatts	Y	Keep
L	Left *(preceded by runway designation number to identify a parallel runway)*	Y	Keep
L	Locator *(See LM, LO)*	Y	Keep
L	Low pressure area or the centre of low pressure *(MET)*	N	Keep
L	Litre	Y	New
LAM	Logical Acknowledgement *(message type designator)*	N	Keep
LAN	Inland	N	Keep
LAT	Latitude	Y	Keep
LCA	Local OR Locally OR Location OR Located	Y	Keep
LDA	Landing Distance Available	Y	Keep
LDAH	Landing Distance Available, Helicopter	Y	Keep
LDG	Landing	Y	Keep
LDI	Landing Direction Indicator	Y	Keep
LEN	Length	Y	Keep
LF	Low Frequency *(30 to 300 kHz)*	Y	Keep
LGT	Light OR Lighting	Y	Keep
LGTD	Lighted	Y	Keep
LIH	Light Intensity High	Y	Keep
LIL	Light Intensity Low	Y	Keep
LIM	Light Intensity Medium	Y	Keep
LINE	Line *(used in SIGMET)*	N	Keep
LM	Locator, Middle	Y	Keep
LMT	Local Mean Time	N	Keep
LNAV	Lateral Navigation *(to be pronounced "EL-NAV")*	N	Keep
LNG	Long *(Used to indicate the type of approach desired or required)*	N	Keep
LO	Locator, Outer	Y	Keep
LOC	Localizer	Y	Keep
LONG	Longitude	Y	Keep
LORAN	LORAN *(Long Range Air Navigation System)*	Y	Keep
LOSS	Airspeed or headwind loss	N	Keep
LPV	Localizer Performance with Vertical Guidance	N	Keep
LR	The last message received by me was ... *(to be used in AFS as a procedure signal)*	N	Keep
LRG	Long Range	N	Keep
LS	The last message sent by me was ... OR Last message was *(to be used in AFS as a procedure signal)*	N	Keep
LTA	Lower Control area	Y	New
LTD	Limited	Y	Keep
LTP	Landing THR point	N	Keep
LTT	Landline teletypewriter	N	Remove
LV	Light and Variable *(Relating to Wind)*	N	Keep
LVE	Leave OR Leaving	N	Keep

LVL	Level	Y	Keep
LVP	Low Visibility Procedures	Y	Keep
LYR	Layer OR Layered	N	Keep
M	Mach Number *(Followed by figures)*	Y	Keep
M	Metres *(Preceded by figures)*	Y	Keep
M	Minimum value of RWY visual range *(followed by figures in METAR/SPECI)*	N	Keep
MAA	Maximum Authorised Altitude	N	Keep
MAG	Magnetic	Y	Keep
MAHF	Missed Approach Holding Fix	N	Keep
MAINT	Maintenance	Y	Keep
MAP	Aeronautical maps and charts	Y	Keep
MAPT	Missed Approach Point	Y	Keep
MAR	At sea	N	Keep
MAR	March	Y	Keep
MAS	Manual A1 Simplex	N	Remove
MATF	Missed Approach Turning Fix	N	Keep
MATZ	Military Aerodrome Traffic Zone	Y	New
MAX	Maximum	Y	Keep
MAY	May	Y	Keep
MBST	Microburst	N	Keep
MCA	Minimum Crossing Altitude	N	Keep
MCTR	Military Control Zone	Y	New
MCW	Modulated Continuous Wave	N	Keep
MDA	Minimum Descent Altitude	Y	Keep
MDF	Medium frequency Direction Finding Station	N	Keep
MDH	Minimum Descent Height	Y	Keep
MEA	Minimum En-route Altitude	Y	Keep
MEDEVAC	Medical Evacuation Flight	Y	New
MEHT	Minimum Eye Height over Threshold *(For VASIS and PAPI)*	Y	Keep
MET	Meteorological OR Meteorology	Y	Keep
METAR	Aerodrome routine meteorological report *(In aeronautical meteorological code)*	Y	Keep
MET REPORT	Local routine meteorological report *(in abbreviated plain language)*	N	Keep
MF	Medium Frequency *(300 to 3000 kHz)*	Y	Keep
MHA	Minimum Holding Altitude	Y	New
MHDF	Medium and High Frequency Direction Finding Stations *(At the same location)*	N	Keep
MHVDF	Medium, High and Very High Frequency Direction Finding Stations *(At the same location)*	N	Keep
MHZ	Megahertz	Y	Keep
MID	Mid-point (related to RVR)	N	Keep
MIFG	Shallow fog	N	Keep
MIL	Military	Y	Keep
MIN	Minutes	Y	Keep
MIS	Missing *(transmission identification) (to be used in AFS as a procedure signal)*	N	Keep
MKR	Marker radio beacon	Y	Keep
MLS	Microwave Landing System	Y	Keep
MM	Middle Marker	Y	Keep
MNM	Minimum	Y	Keep
MNPS	Minimum Navigation Performance Specifications	Y	Keep
MNT	Monitor OR Monitoring OR Monitored	N	Keep
MNTN	Maintain	N	Keep
MOA	Military Operating Area	Y	Keep
MOC	Minimum Obstacle Clearance (required)	N	Keep
MOCA	Minimum Obstacle Clearance Altitude	Y	Keep
MOD	Moderate *(Used to indicate the intensity of weather phenomena, interference or static reports, eg MOD RA = Moderate rain)*	N	Keep

MON	Above Mountains	N	Keep
MON	Monday	Y	Keep
MOPS	Minimum Operational Performance Standards	N	Keep
MOV	Move OR Moving OR Movement	Y	Keep
MPS	Metres Per Second	Y	Keep
MRA	Minimum Reception Altitude	N	Keep
MRG	Medium Range	N	Keep
MRP	ATS/MET Reporting Point	N	Keep
MS	Minus	N	Keep
MSA	Minimum Sector Altitude	Y	Keep
MSAS	Multifunctional Transport Satellite (MTSAT) Satellite-based Augmentation System *(to be pronounced "EM-SAS")*	N	Keep
MSAW	Minimum Safety Altitude Warning	N	Keep
MSG	Message	Y	Keep
MSL	Mean Sea Level	Y	Keep
MSR#	Message ...*(ID) has been misrouted (to be used in AFS as a procedure signal)*	N	Keep
MSSR	Monopulse Secondary Surveillance Radar	Y	Keep
MT	Mountain	N	Keep
MTOM	Maximum (certified) Take-Off Mass	Y	New
MTU	Metric Units	N	Keep
MTW	Mountain Waves	N	Keep
MVDF	Medium and Very High Frequency Direction Finding Stations *(At the same location)*	N	Keep
MWO	Meteorological Watch Office	Y	Keep
MX	Mixed type of ice formation (white and clear)	N	Keep
N	No distinct tendency *(in RVR during previous 10 minutes)*	N	Keep
N	North OR Northern latitude	Y	Keep
NADP	Noise abatement departure procedure	N	Keep
NASC	National AIS System Centre	N	Keep
NAT	North Atlantic	Y	Keep
NAV	Navigation	Y	Keep
NAVAID	Navigation Aid	Y	New
NB	Northbound	N	Keep
NBFR	Not Before	N	Keep
NC	No Change	N	Keep
NCD	No Cloud Detected (*used in automated METAR/SPECI)*	N	Keep
NDB	Non-Directional Radio Beacon	Y	Keep
NDV	No Directional Variations Available *(used in automated METAR/SPECI)*	N	Keep
NE	North East	Y	Keep
NEB	North Eastbound	N	Keep
NEG	No OR Negative OR Permission not granted OR That is not correct	N	Keep
NGT	Night	Y	Keep
NIL	None OR I Have nothing to send to you	Y	Keep
NM	Nautical Miles	Y	Keep
NML	Normal	Y	Keep
NN	No name, unnamed	N	Keep
NNE	North-North-East	Y	Keep
NNW	North-North-West	Y	Keep
NO	No (negative) *(to be used in AFS as a procedure signal)*	N	Keep
NOF	International NOTAM Office	Y	Keep
NONSTD	Non-standard	Y	New
NOSIG	No Significant Change (Used in trend -type landing forecasts)	N	Keep
NOTAM	A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations	Y	Keep

NOTAMC	Cancelling NOTAM	Y	New
NOTAMN	New NOTAM	Y	New
NOTAMR	Replacing NOTAM	Y	New
NOV	November	Y	Keep
NOZ	Normal Operating Zone	N	Keep
NPA	Non-precision approach	N	Keep
NR	Number	Y	Keep
NRH	No Reply Heard	N	Keep
NS	Nimbostratus	N	Keep
NSC	Nil Significant Cloud	N	Keep
NSE	Navigation system error	N	Keep
NSW	Nil Significant Weather	N	Keep
NTL	National	Y	Keep
NTZ	No Transgression Zone	N	Keep
NW	North-West	Y	Keep
NWB	North-Westbound	N	Keep
NXT	Next	N	Keep
O/R	On Request	N	Keep
OAC	Oceanic Area Control Centre	Y	Keep
OAS	Obstacle Assessment Surface	N	Keep
OBS	Observe OR Observed OR Observation	Y	Keep
OBSC	Obscure OR Obscured OR Obscuring	N	Keep
OBST	Obstacle	Y	Keep
OCA	Obstacle Clearance Altitude	Y	Keep
OCA	Oceanic Control Area	Y	Keep
OCC	Occulting (light)	N	Keep
OCH	Obstacle Clearance Height	Y	Keep
OCNL	Occasional OR Occasionally	Y	Keep
OCS	Obstacle Clearance Surface	N	Keep
OCT	October	Y	Keep
OFZ	Obstacle Free Zone	N	Keep
OGN	Originate *(to be used in AFS as a procedure signal)*	N	Keep
OHD	Overhead	N	Keep
OIS	Obstacle identification surface	N	Keep
OK	We agree OR It is correct *(to be used in AFS as a procedure signal)*	Y	Keep
OLDI	On-Line Data Interchange	N	Keep
OM	Outer Marker	Y	Keep
OPA	Opaque, white type of ice formation	N	Keep
OPC	The control indicated is operational control	N	Keep
OPMET	Operational Meteorological (information)	N	Keep
OPN	Open OR Opening OR Opened	N	Keep
OPR	Operator OR Operate OR Operative OR Operating OR Operational	Y	Keep
OPS	Operations	Y	Keep
ORD	Order	N	Keep
OSV	Ocean Station Vessel	N	Keep
OTP	On Top	N	Keep
OTS	Organised Track System	Y	Keep
OUBD	Outbound	N	Keep
OVC	Overcast	N	Keep
P	Prohibited area *(Followed by identification)*	Y	Keep
P	Maximum value of wind speed or Runway visual range *(followed by figures in METAR/SPECI and TAF)*	N	Keep
P-RNAV	Precision area navigation	Y	New
PA	Precision Approach	Y	Keep
PALS	Precision Approach Lighting System *(Specify category)*	Y	Keep

PANS	Procedures for Air Navigation Services	N	Keep
PAPI	Precision Approach Path Indicator	Y	Keep
PAR	Precision Approach Radar	Y	Keep
PARL	Parallel	N	Keep
PATC	Precision Approach Terrain Chart *(followed by name/title)*	Y	Keep
PAX	Passenger(s)	Y	Keep
PBN	Performance-based navigation	N	Keep
PCD	Proceed OR Proceeding	N	Keep
PCL	Pilot-Controlled Lighting	N	Keep
PCN	Pavement Classification Number	Y	Keep
PCT	Percent	Y	New
PDC	Pre-Departure Clearance	N	Keep
PDG	Procedure Design Gradient	N	Keep
PER	Performance	N	Keep
PERM	Permanent	Y	Keep
PIB	Pre-flight Information Bulletin	Y	Keep
PJE	Parachute Jumping Exercise	Y	Keep
PL	Ice Pellets	N	Keep
PLA	Practice Low Approach	N	Keep
PLASI	Pulse Light Approach Slope Indicator	Y	New
PLN	Flight Plan	N	Remove
PLVL	Present Level	N	Keep
PN	Prior Notice required	N	Keep
PNR	Point of No Return	N	Keep
PO	Dust/sand whirls *(dust devils)*	N	Keep
POB	Persons On Board	Y	Keep
POSS	Possible	N	Keep
PPI	Plan Position Indicator	N	Keep
PPR	Prior Permission Required	Y	Keep
PPSN	Present Position	N	Keep
PRFG	Aerodrome partially covered by fog	N	Keep
PRI	Primary	N	Keep
PRKG	Parking	Y	Keep
PROB	Probability	Y	Keep
PROC	Procedure	Y	Keep
PROP	Propeller	Y	New
PROV	Provisional	N	Keep
PRP	Point-in-space reference point	N	Keep
PS	Plus	N	Keep
PSG	Passing	N	Keep
PSN	Position	Y	Keep
PSP	Pierced Steel Plank	N	Keep
PSR	Primary Surveillance Radar	Y	Keep
PSYS	Pressure system(s)	N	Keep
PTN	Procedure Turn	N	Keep
PTS	Polar Track Structure	Y	Keep
PWR	Power	Y	Keep
QD	Do you intend to ask me for a series of bearings? OR I intend to ask you for a series of bearings (to be used in radiotelegraphy as a Q Code)	N	Keep
QDM	Magnetic Heading (zero wind)	Y	Keep
QDR	Magnetic Bearing	Y	Keep
QFE	Atmospheric pressure at aerodrome elevation (OR at runway threshold)	Y	Keep
QFU	Magnetic orientation of runway	N	Keep
QGE	What is my distance to your station?	N	Keep

QJH	Shall I run my test tape/ a test sentence?	N	Keep
QNH	Altimeter sub-scale setting to obtain elevation when on the ground	Y	Keep
QSP	Will you relay to …free of charge	N	Keep
QTA	Shall I cancel telegram number…? Cancel telegram number…	N	Keep
QTE	True bearing	Y	Keep
QTF	Will you give me the position of my station according to the bearings taken by the D/F stations which you control?	N	Keep
QUAD	Quadrant	N	Keep
QUJ	Will you indicate the TRUE track to reach you? Or the TRUE track to reach me is … degrees at… hours	N	Keep
R	Received *(acknowledgement of receipt) (to be used in AFS as a procedure signal)*	N	Keep
R	Red	Y	Keep
R	Right *(preceded by runway designation number to identify a parallel runway)*	Y	Keep
R...	Restricted Area *(followed by identification)*	Y	Keep
R...	Runway Visual Range *(followed by figures in METAR/SPECI)*	N	Keep
R	Rate of turn	N	Keep
R-nnn	Radial from Navaid (followed by three figures)	Y	New
RA	Rain	N	Keep
RA	Resolution Advisory	N	Keep
RAC	Rules of the Air and Air Traffic Services	N	Keep
RAG	Ragged	N	Keep
RAG	Runway Arresting Gear	Y	Keep
RAI	Runway Alignment Indicator	N	Keep
RAIM	Receiver Autonomous Integrity Monitoring	Y	Keep
RASC	Regional AIS System Centre	N	Keep
RASS	Remote Altimeter Setting Source	N	Keep
RB	Rescue boat	N	Keep
RCA	Reach Cruising Altitude	N	Keep
RCC	Rescue Co-ordination Centre	Y	Keep
RCF	Radiocommunication Failure *(message type designator)*	N	Keep
RCH	Reach OR Reaching	N	Keep
RCL	Runway Centre Line	Y	Keep
RCLL	Runway Centre Line Light(s)	Y	Keep
RCLR	Recleared	N	Keep
RCP	Required communication performance	N	Keep
RDH	Reference Datum Height	N	Keep
RDL	Radial	Y	Keep
RDO	Radio	N	Keep
RE	Recent *(Used to qualify weather phenomena, eg RERA = recent rain)*	N	Keep
REC	Receive OR Receiver	N	Keep
REDL	Runway Edge Light(s)	Y	Keep
REF	Reference to … OR Refer to …	Y	Keep
REG	Registration	Y	Keep
RENL	Runway End Light(s)	Y	Keep
REP	Report OR Reporting OR Reporting Point	Y	Keep
REQ	Request OR Requested	Y	Keep
RERTE	Re-route	N	Keep
RESA	Runway End Safety Area	Y	Keep
RF	Constant radius arc to a fix	N	Keep
RFFS	Rescue and Fire Fighting Services	Y	New
RG	Range *(lights)*	N	Keep
RHC	Right-hand Circuit	N	Keep
RIF	Reclearance In Flight	N	Keep
RIME	Rime *(used in aerodrome warnings)*	N	Keep
RITE	Right *(Direction of Turn)*	N	Remove
RL	Report Leaving	N	Keep

RLA	Relay to	N	Keep
RLCE	Request Level Change En-route	N	Keep
RLLS	Runway Lead-in Lighting System	Y	Keep
RLNA	Requested Level Not Available	N	Keep
RMK	Remark	Y	Keep
RNAV	Area Navigation *(to be pronounced "AR-NAV")*	Y	Keep
RNG	Radio Range	N	Keep
RNP	Required Navigation Performance	Y	Keep
ROBEX	Regional OPMET Bulletin Exchange *(Scheme)*	N	Keep
ROC	Rate Of Climb	N	Keep
ROD	Rate Of Descent	N	Keep
ROFOR	Route Forecast (In meteorological code)	N	Keep
RON	Receiving Only	N	Keep
RPA	Remotely Piloted Aircraft	N	New
RPDS	Reference path data selector	N	Keep
RPI	Radar Position Indicator	N	Keep
RPL	Repetitive flight plan	Y	Keep
RPLC	Replace OR Replaced	N	Keep
RPS	Radar Position Symbol	N	Keep
RPT	Repeat OR I repeat *(to be used in AFS as a procedure signal)*	N	Keep
RQ	Request *(to be used in AFS as a procedure signal)*	N	Keep
RQMNTS	Requirements	N	Keep
RQP	Request flight plan *(message type designator)*	N	Keep
RQS	Request supplementary flight plan *(message type designator)*	N	Keep
RR	Report Reaching	N	Keep
RRA	*(Or RRB, RRC . . . . etc, in sequence)* Delayed meteorological message *(message type designator)*	N	Keep
RSC	Rescue Sub-Centre	N	Keep
RSCD	Runway Surface Condition	N	Keep
RSP	Responder beacon	N	Keep
RSR	En-Route Surveillance Radar	Y	Keep
RSS	Root sum square	N	Keep
RTD	Delayed *(used to indicate delayed meteorological message; message type designator)*	N	Keep
RTE	Route	Y	Keep
RTF	Radiotelephone	N	Keep
RTG	Radiotelegraph	N	Keep
RTHL	Runway threshold light(s)	Y	Keep
RTN	Return OR Returned OR Returning	N	Keep
RTODAH	Rejected Take-off Distance Available, Helicopter	N	Keep
RTS	Return To Service	N	Keep
RTT	Radioteletypewriter	N	Keep
RTZL	Runway Touchdown Zone Light(s)	Y	Keep
RUT	Standard regional route transmitting frequencies	N	Keep
RV	Rescue Vessel	N	Keep
RVA	Radar Vectoring Area	Y	New
RVR	Runway Visual Range	Y	Keep
RVSM	Reduced Vertical Separation Minimum *(300 m (1000 ft))* between FL 290 and FL 410	Y	Keep
RWY	Runway	Y	Keep
S	South OR Southern Latitude	Y	Keep
S	State of the sea *(followed by figures in METAR/SPECI)*	N	Keep
SA	Sand	N	Keep
SALS	Simple Approach Lighting System	Y	Keep
SAN	Sanitary	N	Keep
SAP	As soon as possible	N	Remove
SAR	Search and Rescue	Y	Keep

SARPS	Standards and Recommended Practices [ICAO]	N	Keep
SAT	Saturday	Y	Keep
SATCOM	Satellite Communication	Y	Keep
SB	Southbound	N	Keep
SBAS	Satellite Based Augmentation System *(to be pronounced "ESS-BAS")*	Y	Keep
SC	Stratocumulus	N	Keep
SCT	Scattered	N	Keep
SD	Standard deviation	N	Keep
SDBY	Stand by	N	Keep
SDF	Step Down Fix	N	Keep
SE	South-East	Y	Keep
SEA	Sea *(used in connection with sea-surface temperature and state of the sea)*	N	Keep
SEB	South-Eastbound	N	Keep
SEC	Seconds	Y	Keep
SECN	Section	N	Keep
SECT	Sector	Y	Keep
SELCAL	Selective calling system	Y	Keep
SEP	September	Y	Keep
SER	Service OR Servicing OR Served	Y	Keep
SEV	Severe *(Used eg to qualify icing and turbulence reports)*	N	Keep
SFC	Surface	Y	Keep
SG	Snow Grains	N	Keep
SGL	Signal	N	Keep
SH	Shower *(followed by RA = Rain, SN = Snow, PL = Ice pellets, GR = Hail, GS = Small hail and/or snow pellets or combinations thereof, eg SHRASN = showers of rain and snow)*	N	Keep
SHF	Super High Frequency *(3000 to 30000 MHz)*	Y	Keep
SI	International system of units	Y	Keep
SID	Standard Instrument Departure	Y	Keep
SIF	Selective Identification Feature	N	Keep
SIG	Significant	Y	Keep
SIGMET	Information concerning en-route weather phenomena which may affect the safety of aircraft operations	Y	Keep
SIMUL	Simultaneous OR Simultaneously	N	Keep
SIWL	Single Isolated Wheel Load	N	Keep
SKED	Schedule OR Scheduled	N	Keep
SLP	Speed Limiting Point	N	Keep
SLW	Slow	N	Keep
SMC	Surface Movement Control	N	Keep
SMR	Surface Movement Radar	N	Keep
SN	Snow	N	Keep
SNOCLO	Aerodrome closed due to snow *(used in METAR/SPECI)*	N	Keep
SNOWTAM	A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format	Y	Keep
SOC	Start of Climb	N	Keep
SPECI	Aerodrome special meteorological report *(in meteorological code)*	N	Keep
SPECIAL	Local special meteorological report *(In abbreviated plain language)*	N	Keep
SPI	Special position indicator	N	Keep
SPL	Supplementary flight plan *(message type designator)*	N	Keep
SPOC	SAR Point Of Contact	N	Keep
SPOT	Spot wind	N	Keep
SQ	Squall	N	Keep
SQL	Squall line	N	Keep
SR	Sunrise	Y	Keep
SRA	Surveillance Radar Approach	Y	Keep

SRE	Surveillance Radar Element of precision approach radar system	Y	Keep
SRG	Short range	N	Keep
SRR	Search and Rescue Region	N	Keep
SRY	Secondary	N	Keep
SS	Sandstorm	N	Keep
SS	Sunset	Y	Keep
SSB	Single Sideband	N	Keep
SSE	South-South-East	Y	Keep
SSR	Secondary Surveillance Radar	Y	Keep
SST	Supersonic transport	N	Keep
SSW	South-South-West	Y	Keep
ST	Stratus	N	Keep
STA	Straight-in approach	N	Keep
STAR	Standard instrument arrival	Y	Keep
STD	Standard	Y	Keep
STF	Stratiform	N	Keep
STN	Station	Y	Keep
STNR	Stationary	N	Keep
STOL	Short Take-Off and Landing	Y	Keep
STS	Status	Y	Keep
STWL	Stopway light(s)	Y	Keep
SUBJ	Subject to	Y	Keep
SUN	Sunday	Y	Keep
SUP	Supplement *(AIP Supplement)*	Y	Keep
SUPPS	Regional supplementary procedures	N	Keep
SVC	Service (message type only)	N	Updated
SVCBL	Serviceable	N	Keep
SW	South-West	Y	Keep
SWB	South-Westbound	N	Keep
SWY	Stopway	Y	Keep
T	Temperature	N	Keep
T	Ton	Y	New
T	True *(preceded by a bearing to indicate reference to True North)*	N	Keep
TA	Transition Altitude	Y	Keep
TA	Traffic advisory	N	Keep
TA/H	Turn at an altitude/height	N	Keep
TAA	Terminal Arrival Altitude	N	Keep
TACAN	UHF Tactical Air Navigation Aid	Y	Keep
TAF	Aerodrome forecast	N	Keep
TAIL	Tail wind	N	Keep
TAR	Terminal Area Surveillance Radar	Y	Keep
TAS	True Airspeed	Y	Keep
TAX	Taxiing OR Taxi	N	Keep
TC	Tropical Cyclone	N	Keep
TCAC	Tropical Cyclone Advisory Centre	N	Keep
TCASRA	Traffic alert and collision avoidance system resolution advisory *(to be pronounced "TEE-CAS-AR-AY")*	N	Keep
TCH	Threshold Crossing Height	N	Keep
TCU	Towering Cumulus	N	Keep
TDO	Tornado	N	Keep
TDZ	Touchdown Zone	Y	Keep
TECR	Technical Reason	N	Keep
TEL	Telephone	Y	Keep
TEMPO	Temporary OR Temporarily	Y	Keep

TF	Track to fix	N	Keep
TFC	Traffic	Y	Keep
TGL	Touch-and-Go Landing	Y	Keep
TGS	Taxiing Guidance System	N	Keep
THR	Threshold	Y	Keep
THRU	Through	N	Keep
THU	Thursday	Y	Keep
TIBA	Traffic Information Broadcast by Aircraft	N	Keep
TIL	Until	N	Keep
TIP	Until past. . . . (place)	N	Keep
TKOF	Take-off	Y	Keep
TL	Till *(followed by time by which weather change is forecast to end)*	N	Keep
TL	Transition Level	Y	New
TLOF	Touchdown and Lift-off Area	Y	Keep
TMA	Terminal Control Area	Y	Keep
TN...	Minimum temperature *(followed by figures in TAF)*	N	Keep
TNA	Turn Altitude	N	Keep
TNH	Turn Height	N	Keep
TO	To. . . . (place)	N	Keep
TOC	Top Of Climb	N	Keep
TODA	Take-off Distance Available	Y	Keep
TODAH	Take-off Distance Available, Helicopter	Y	Keep
TOP	Cloud Top	N	Keep
TORA	Take-off Run Available	Y	Keep
TOX	Toxic	N	Keep
TP	Turning Point	N	Keep
TR	Track	Y	Keep
TRA	Temporary Reserved Airspace	N	Keep
TRANS	Transmits OR Transmitter	Y	Keep
TREND	Trend forecast	N	Keep
TRL	Transition Level	Y	Remove
TRNG	Training	Y	New
TROP	Tropopause	N	Keep
TS	Thunderstorm *(followed by RA = Rain, SN = Snow, PL = Ice pellets, GR = Hail, GS = Small hail and/or snow pellets or combinations thereof, eg TSRASN = thunderstorm with rain and snow)*	N	Keep
TS	Thunderstorm *(in aerodrome reports and forecasts TS used alone means thunder heard but no precipitation at the aerodrome)*	N	Keep
TSA	Temporary Segregated Area	Y	New
TSUNAMI	Tsunami *(used in AD warnings)*	N	Keep
TT	Teletypewriter	N	Keep
TUE	Tuesday	Y	Keep
TURB	Turbulence	Y	Keep
T-VASIS	T Visual Approach Slope Indicator System *(to be pronounced "TEE-VASIS")*	Y	Keep
TVOR	Terminal VOR	Y	Keep
TWR	Aerodrome control tower OR aerodrome control	Y	Keep
TWY	Taxiway	Y	Keep
TWYL	Taxiway-Link	N	Keep
TX...	Maximum temperature *(followed by figures in TAF)*	N	Keep
TXT	Text *(to be used in AFS as a procedure signal)*	N	Keep
TYP	Type of Aircraft	Y	Keep
TYPH	Typhoon	N	Keep
U	Upward *(tendency in RVR during previous 10 minutes)*	N	Keep
U/S	Unservicable	Y	Keep
UA	Unmanned aircraft	Y	Remove

UAB	Until Advised By	N	Keep
UAC	Upper Area Control Centre	Y	Keep
UAR	Upper Air Route	N	Keep
UDF	Ultra High Frequency Direction Finding Station	Y	Keep
UFN	Until Further Notice	Y	Keep
UHDT	Unable Higher Due Traffic	N	Keep
UHF	Ultra High Frequency [300 to 3000 MHz]	Y	Keep
UIC	Upper Information Centre	N	Keep
UIR	Upper Flight Information Region	Y	Keep
ULM	Ultra light motorized aircraft	Y	New
ULR	Ultra Long Range	N	Keep
UNA	Unable	N	Keep
UNAP	Unable to Approve	N	Keep
UNL	Unlimited	Y	Keep
UNREL	Unreliable	Y	Keep
UP	Unidentified precipitation *(used in automated METAR/SPECI)*	N	Keep
UTA	Upper Control Area	Y	Keep
UTC	Coordinated Universal Time	Y	Keep
V	Variations from the mean wind direction *(preceded and followed by figures in METAR/SPECI, e.g. 350V070)*	N	Keep
VA	Heading to an altitude	N	Keep
VA	Volcanic Ash	Y	Keep
VAAC	Volcanic Ash Advisory Centre	Y	Keep
VAC	Visual Approach Chart	Y	Keep
VAL	In Valleys	N	Keep
VAN	Runway Control Van	N	Keep
VAR	Magnetic Variation	Y	Keep
VAR	Visual-aural radio range	N	Keep
VASIS	Visual Approach Slope Indicator System	Y	Keep
VC	Vicinity of aerodrome *(followed by FG = Fog, FC = Funnel cloud, SH = Showers, PO = Dust/sand whirls, BLDU = Blowing dust, BLSA = Blowing sand or BLSN = Blowing snow, eg VC FG = Vicinity fog)*	N	Keep
VCY	Vicinity	N	Keep
VDF	Very High Frequency Direction Finding Station	Y	Keep
VER	Vertical	Y	Keep
VFR	Visual Flight Rules	Y	Keep
VHF	Very High Frequency [30 to 300 MHz]	Y	Keep
VI	Heading to an intercept	N	Keep
VIP	Very Important Person	Y	Keep
VIS	Visibility	Y	Keep
VLF	Very Low Frequency [3 to 30 KHz]	Y	Keep
VLR	Very Long Range	N	Keep
VM	Heading to a manual termination	N	Keep
VMC	Visual Meteorological Conditions	Y	Keep
VNAV	Vertical Navigation *(to be pronounced "VEE-NAV")*	N	Keep
VOL	Volume (followed by I, II...)	Y	New
VOLMET	Meteorological information for aircraft in flight	Y	Keep
VOR	Very High Frequency Omnidirectional Radio Range	Y	Keep
VORTAC	VOR and TACAN combination	Y	Keep
VOT	VOR airborne equipment test facility	Y	Keep
VPA	Vertical Path Angle	N	Keep
VPT	Visual manoeuvre with prescribed track	N	Keep
VRB	Variable	N	Keep
VSA	By visual reference to the ground	N	Keep
VSP	Vertical speed	N	Keep
VTF	Vector to final	N	Keep

VTOL	Vertical Take-Off and Landing	Y	Keep
VV...	Vertical Visibility *(followed by figures in METAR/SPECI and TAF)*	N	Keep
W	West or Western longitude	Y	Keep
W	White	Y	Keep
W...	Sea-surface temperature *(followed by figures in METAR/SPECI)*	N	Keep
WAAS	Wide Area Augmentation System	Y	Keep
WAC	World Aeronautical Chart — ICAO 1:1 000 000 *(followed by name/title)*	Y	Keep
WAFC	World Area Forecast Centre	Y	Keep
WB	Westbound	N	Keep
WBAR	Wing bar lights	Y	Keep
WDI	Wind Direction Indicator	Y	Keep
WDSPR	Widespread	N	Keep
WED	Wednesday	Y	Keep
WEF	With Effect From OR Effective From	Y	Keep
WGS-84	World Geodetic System - 1984	Y	Keep
WI	Within	N	Keep
WID	Width	N	Keep
WIE	With Immediate Effect OR Effective Immediately	Y	Keep
WILCO	Will comply	N	Keep
WIND	Wind	N	Keep
WIP	Work In Progress	Y	Keep
WKN	Weaken OR Weakening	N	Keep
WNW	West North West	Y	Keep
WO	Without	N	Keep
WPT	Way-point	Y	Keep
WRNG	Warning	Y	Keep
WS	Windshear	N	Keep
WSPD	Windspeed	N	Keep
WSW	West-South-West	Y	Keep
WT	Weight	N	Keep
WTSPT	Waterspout	N	Keep
WWW	Worldwide Web	Y	Keep
WX	Weather	Y	Keep
WXR	Weather radar	Y	New
X	Cross	Y	Keep
XBAR	Crossbar *(of approach lighting system)*	Y	Keep
XNG	Crossing	N	Keep
XS	Atmospherics	N	Keep
Y	Yellow	Y	Keep
YCZ	Yellow caution zone *(runway lighting)*	N	Keep
YES	Yes (affirmative) *(to be used in AFS as a procedure signal)*	N	Keep
YR	Your	N	Keep
Z	Co-ordinated Universal Time *(in meteorological messages)*	N	Keep

Appendix I -
Proposal for Amendment - Revised EUR Basic ANP AIM Part
(*paragraph 4.3.36 refers*)

EUR ANP, VOLUME I, BASIC ANP

PART VII - AERONAUTICAL INFORMATION MANAGEMENT (AIM)

1. INTRODUCTION

Regional AIS/AIM Planning

1.1 This part of the European Region Basic Air Navigation Plan contains basic planning principles, operational requirements, planning criteria and implementation guidelines related to Aeronautical Information Services and Charts (AIS/MAP) considered being the minimum necessary for effective planning of AIS and MAP facilities and services in the EUR Region. It contains also the developing transition path to achieve EUR Region Aeronautical Information Management (AIM) based on the *ATM Operational Concept (Doc 9854)* and the *Global Air Navigation Plan (Doc 9750)*.

1.2 The dynamic material constituted by the AIS/AIM facilities and services required for international air navigation is contained in the EUR ANP Volume 2 - Facilities and Services Implementation Document (FASID). The FASID includes appropriate additional guidance, particularly with regard to implementation, to complement the material contained in the Basic ANP.

1.3 During the transition to and pending full implementation of AIM, it is expected that the existing requirements will be gradually replaced/complemented by new AIM related requirements. Subsequently, it is expected that the ANP will be subject to regular review and amendment, to reflect progression in the transition towards full implementation of AIM.

Standards, Recommended Practices and Procedures

1.4 The Standards, Recommended Practices and Procedures and related guidance material applicable to the provision of AIS and ultimately AIM are contained in the following ICAO documentation:

a) Annex 4 – Aeronautical Charts;
b) Annex 15 – Aeronautical Information Services;
c) Doc 7030 – Regional Supplementary Procedures, EUR Region;
d) Doc 7383 – Aeronautical Information Services Provided by States;
e) Doc 7910 – Location Indicators;
f) Doc 8126 – Aeronautical Information Services Manual;
g) Doc 8168 – Aircraft Operations Volume 2 – Construction of Visual and Instrument Flight Procedures;
h) Doc 8400 – ICAO Abbreviations and Codes (PANS-ABC);
i) Doc 8697 – Aeronautical Charts Manual;
j) Doc 9377 – Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services;
k) Doc 9674 – World Geodetic System (1984) Manual;

l) Doc 9855 – Guidelines on the Use of the Public Internet for Aeronautical Applications; and
m) Doc 9881– Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information.
n) Doc 9906 (Volume I) – Flight Procedure Design Quality Assurance System.

2. GENERAL PROCEDURES/REQUIREMENTS

EUR Region Responsibilities

2.1 The ICAO Regional Office will, through the EANPG:
i) process endorsed proposals for amendment to ICAO AIS/AIM related documents;
ii) support the COG AIM Task Force, which is responsible for the monitoring of AIS/AIM activities in the Eastern Part of the EUR Region; and
iii) co-ordinate with the EUROCONTROL – Aeronautical Information Management and System Wide Information Management (AIM/SWIM) Team, AIM developments for the ECAC area of the EUR Region.

State Responsibilities

2.2 Each Contracting State is responsible for the aeronautical information/data published by its aeronautical information service or by another State or a non-governmental agency on its behalf.

2.3 Aeronautical information published for and on behalf of a State should clearly indicate that it is published under the authority of that State.

2.4 An example of multi-State cooperation is the European AIS Database (EAD) Service, which has been established by EUROCONTROL Member States in order to provide a reference, centralised facility for access to the high quality aeronautical information published by the Participating States. Details concerning the operation of EAD are contained in **Doc 7030** and the **EUR ANP Volume 2 – FASID**.

2.5 Each Contracting State should take all necessary measures to ensure that the aeronautical information/data it provides relating to its own territory, as well as areas in which the State is responsible for providing air traffic services outside its territory, is adequate, of required quality and timely. This should include arrangements for the timely provision of required information/data to the aeronautical information service by each of the State services associated with aircraft operations.

2.6 International NOTAM Offices (NOF) and their areas of responsibility should be established so as to ensure maximum efficiency in the provision of AIS and in the dissemination of aeronautical information.

2.7 The designated International NOTAM Offices for the EUR Region are listed in the **EUR ANP Volume 2 - FASID Table AIM-1**.

2.8 Coordination/liaison on a permanent basis should be established between AIS/AIM and other technical services responsible for planning and operating air navigation facilities and services.

2.9 Technical services responsible for origination of the raw aeronautical information should be acquainted with the requirements for promulgation and advance notification of changes that are operationally significant as established in Annexes 11 and 14 and other relevant ICAO documentation. They

should take due account of the time needed by AIS/AIM for the preparation, production and issue of the relevant material.

2.10 Appropriate AIS/AIM personnel should be included in the air navigation planning processes. This should ensure the timely preparation of appropriate AIS documentation and that the effective dates for changes to the air navigation system and procedures are satisfied.

2.11 Whilst Annex 4 and Annex 15 detail the SARPs for the provision of charts and AIS respectively, the following State responsibilities are highlighted:

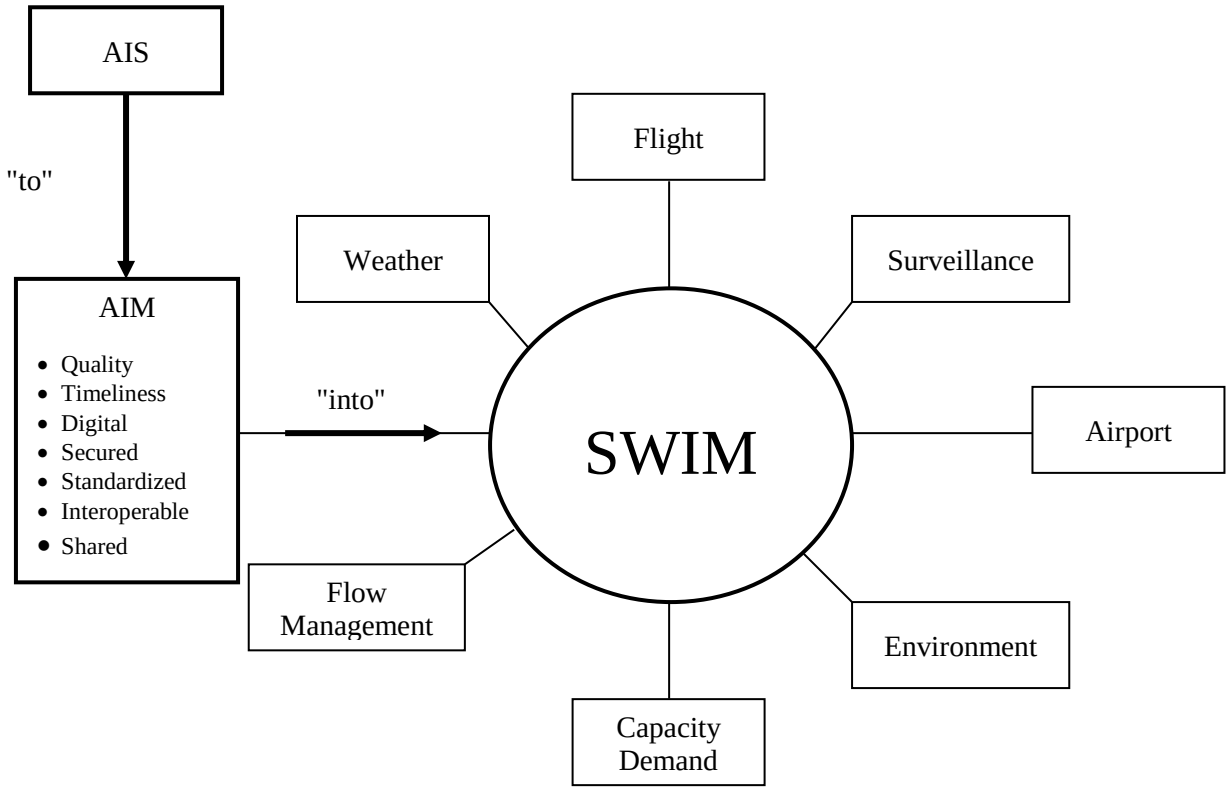
a) Each Contracting State should:
   i) Arrange for the implementation of a quality management system for aeronautical information and chart services. The quality management system should include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data is traceable throughout the aeronautical information data chain from origin to distribution to the next intended user. As part of the quality management system, arrangements should be made for the signature of letters of agreement with data originators to manage the aeronautical information data chain.
   ii) Ensure Human Factors are considered.
   iii) Ensure adherence to the AIRAC System.
   iv) Ensure that the aeronautical information/data to be exchanged with States is published as an Integrated Aeronautical Information Package (i.e. Aeronautical Information Publication (AIP), including amendment service, AIP Supplements, NOTAM, pre-flight information bulletins (PIB), Aeronautical Information Circulars (AIC), checklists and list of valid NOTAM) in accordance with the requirements of Annex 15.
   v) Arrange for the provision of an electronic AIP (eAIP) in accordance with the requirements of Annex 15.
   vi) Comply with WGS 84 requirements.
   vii) Introduce automation enabling digital data exchange with the objective of improving the speed, accuracy, efficiency and cost-effectiveness of aeronautical information services.
   viii) Ensure that pre-flight information is provided at all aerodromes/heliports normally used for international air operation, in accordance with the requirements of Annex 15, using Automated pre-flight information systems for the supply of aeronautical information/data for self-briefing, flight planning and flight information service.
   ix) Arrange for the provision of post-flight information.
   x) Arrange for the provision of required electronic Terrain and Obstacle Data (eTOD), in accordance with the requirements of Annex 15.
   xi) Arrange for the production and publication of necessary aeronautical charts in accordance with Annex 4 provisions and regional agreements.

3. AERONAUTICAL INFORMATION MANAGEMENT

3.1. The Global Air Traffic Management Operational Concept presented in ICAO Doc 9854 depends upon a system wide information management (SWIM). The management, utilization and transmission of data and information are vital to the proper functioning of the ATM system and are at the core of air navigation services.

3.2. As part of SWIM, AIM is required to support evolving requirements for, inter alia, collaborative decision making (CDM), performance-based navigation (PBN), ATM system interoperability, network-centred information exchange, and to take advantage of improved aircraft capabilities.

3.3. The scope of information management includes all types of information and in particular aeronautical information. The relationship diagram below shows a number of the core elements of SWIM:



Aeronautical Information Management (AIM) is considered to be the dynamic, integrated management of aeronautical information services ~~safely, economically and efficiently~~ through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

TRANSITION TO AIM

3.4. The transition to AIM requires that all aeronautical information, including that currently held in AIP be stored as individual digital standardized data sets to be accessed by user applications. The distribution of these data sets will both enhance the quality of output and ultimately provide a platform for new applications. This will constitute the future integrated aeronautical information package that will contain the minimum regulatory requirement to ensure the flow of information necessary for the safety, regularity and efficiency of international air navigation. (GPI-18 refers).

Guiding Principles for the Transition to AIM

3.5. The transition from AIS to AIM will have to:

a) support or facilitate the generation and distribution of aeronautical information which serves to improve the safe and cost-effective accessibility of air traffic services in the world;

b) provide a foundation for measuring performance and outcomes linked to the distribution of quality assured aeronautical information and a better understanding of the determinants of ATM, safety and effectiveness not related to the distribution of the information;

c) assist States in making informed choices about their aeronautical information services and the future of AIM;

d) build upon developments in States, international organizations and industry and acknowledge that the transition to AIM is a natural evolution rather than a revolution;

e) provide over-arching and mature Standards that apply to a wide range of aeronautical information products, services and technologies;

f) be guided by the *Global Air Navigation Plan* (Doc 9750) and ensure that all development is aimed at achieving the ATM system envisaged in the *Global Air Traffic Management Operational Concept* (Doc 9854); and

g) ensure, to the greatest extent possible, that solutions are internationally harmonized and integrated and do not unnecessarily impose multiple equipment carriage requirements for aircraft or multiple systems on the ground.

The Roadmap to AIM

Source Document: ICAO Road Map for the Transition from AIS to AIM

3.6. The purpose of the roadmap is to develop the AIM concept and associated performance requirements by providing a basis upon which to manage and facilitate, on a worldwide basis, the transition from AIS to AIM. The roadmap is based on what is known today and has been developed with sufficient flexibility to facilitate the new concepts that will emerge from future research.

3.7. Three phases of action are envisaged for States and ICAO to complete the transition to AIM:

Phase 1 — Consolidation

3.8. During Phase 1, steps will be taken to establish a solid base by enhancing the quality of the existing products and improving the status of implementation of current Annex 4 and Annex 15 provisions. This is a pre-requisite before Phase 2 can be achieved.

Phase 2 — Going digital

3.9. Phase 2 of the transition to AIM will mainly focus on the establishment of data-driven processes for the production of the current products in all States. States that have not yet done so will be encouraged "to go digital" by using computer technology or digital communications and through introducing structured digital data from databases into their production processes. The emphasis will, therefore, not be on the introduction of new products or services but will be on the introduction of highly structured databases and tools such as geographic information systems.

Phase 3 — Information management

3.10. Phase 3 will introduce steps to enable future AIM functions in States to address the new requirements that will be needed to implement the Global Air Traffic Management Operational Concept in a net centric information environment. The digital databases introduced in Phase 2 will be used for the transfer of information in the form of digital data. This will require the adoption of a Standard for an aeronautical data exchange model to ensure interoperability between all systems not only for the exchange of full aeronautical data sets, but also for short-term notification of changes.

National Plans for the transition to AIM

3.11. States should be planning for the transition from AIS to AIM. The national plans for the transition from AIS to AIM should be based on the ICAO Roadmap for the transition from AIS to AIM, identifying clearly the associated performance goals and achievable milestones with a view to satisfy the requirements arising from the Global ATM Operational Concept, in particular the management of a seamless information flow ensuring interoperability between the different CNS/ATM systems.

AIM Implementation

3.12. The following provisions/regulatory requirements complement those contained in ICAO Annex 4 and Annex 15 with a view to expedite AIS/AIM implementation in the European (EUR) Region in a harmonized manner. They represent the basis for a number of provisions contained in the FASID tables.

Integrated Aeronautical Information Database (IAID)

(FASID Table AIM-2)

3.13. FASID Table AIM-2 sets out the requirements for the Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID).

3.14. States should designate and implement an authoritative Integrated Aeronautical Information Database (IAID). The designation of authoritative databases should be clearly stated in States' AIPs.

Electronic Terrain and Obstacle Data and Aerodrome Mapping Data Bases (AMDB)
(FASID Table AIM-3)

3.15. FASID Table AIM-3 sets out the requirements for the provision of Terrain and Obstacles Datasets and Aerodrome Mapping Data Bases (AMDB).

3.16. States should take the necessary measures for the provision of required electronic Terrain and Obstacle Data (eTOD), in accordance with Annex 15 provisions.

3.17. States should manage the eTOD implementation as a national programme supported by the necessary resources and detailed planning including priorities and timelines for implementation.

3.18. The implementation of eTOD should involve different Administrations within and outside of the Civil Aviation Authority i.e.: AIS, Aerodromes, Military, National Geographic and Topographic Administrations/Agencies, procedure design services, etc.

3.19. States, while maintaining the responsibility for data quality and availability, should consider to which extent the provision of electronic terrain and obstacle data could be delegated to other approved data providers.

3.20. States should establish formal arrangements to address cross-border issues, to ensure harmonization and more efficient implementation of eTOD.

3.21. States should take the necessary measures to ensure that the obstacle dataset is maintained up-to-date.

3.22. States should endeavour to integrate the acquisition of eTOD and AMDB data to realize efficiency gains and to take into account the complementary nature of AMDB and eTOD datasets.

Aeronautical Data Quality
(FASID Table AIM-4)

3.23. FASID Table AIM-4 sets out the requirements for aeronautical data quality.

3.24. States should take the necessary measures to ensure that aeronautical information/data it provides meet the regulatory Aeronautical Data quality requirements.

3.25. The Quality Management System in AIS/AIM should define procedures to meet the safety and security management objectives.

3.26. Recognizing the need to maintain or enhance existing safety levels of operations, States should ensure that any changes to the existing systems or the introduction of new systems used for processing aeronautical data/information are preceded by a safety assessment including hazard identification, risk assessment and mitigation.

3.27. States should ensure that the Critical, Essential and Routine aeronautical data/information, as specified in Annexes 4 and 15, is transferred by the data originators to the AIS/AIM service provider through direct electronic connection, in accordance with the agreed data exchange format.

Aeronautical Charts
(FASID Table AIM-6 and Table AIM-7)

3.28. The detailed aeronautical chart requirements are set out in FASID Table AIM-6. The production responsibility for sheets of the Aeronautical Charts — ICAO 1: 500 000 is set out in FASID Table AIM-7.

Note 1: The Aeronautical Chart — ICAO 1: 500 000 is endorsed as an alternative to the World Aeronautical Chart — ICAO 1:1 000 000 on a Regional basis.

Note 2: In addition to the Aeronautical Charts — ICAO 1: 500 000, States may decide to produce the World World Aeronautical Chart — ICAO 1:1 000 000 and/or aeronautical navigation charts — ICAO small scales based on identified operational requirements.

AIS/AIM Certification
(FASID Table AIM-9)

~~3.27.~~3.29. FASID Table AIM-9 sets out the requirements for AIS/AIM Certification.

~~3.28.~~3.30. States should take necessary measures to ensure that AIS/AIM Services are provided by Certified AIS/AIM Service Provider(s).

~~3.29.~~3.31. The Certification of AIS/AIM Service Provider(s) should be based on the compliance with all regulatory and ICAO requirements related to the provision of AIS/AIM services.

Appendix J -
Proposal for Amendment - Revised EUR FASID AIM Part
(*paragraph 4.3.36 refers*)

EUR ANP, VOLUME II, FASID

PART VII - AERONAUTICAL INFORMATION MANAGEMENT (AIM)

RECORD OF AMENDMENTS

Note: A consolidated text of this section, containing the following approved amendments to the EUR ANP, will be officially disseminated on an annual basis. This document is produced solely as reference material to assist States in the preparation of proposals for amendment to the EUR ANP.

AMENDMENTS

P. f. Amdt. Serial No.	Originator	Date of Approval letter	Date Entered
F04/39-AIS (EAD Provision)	EANPG	14/092005	08/03/2007

P. f. Amdt. Serial No.	Originator	Date of Approval letter	Date Entered

EUR ANP, VOLUME II, FASID

PART VII - AERONAUTICAL INFORMATION MANAGEMENT (AIM)

1. INTRODUCTION

1.1. The material in this part complements that contained in Part VII — AIM of the EUR Basic ANP and should be taken into consideration in the overall planning processes for the EUR region.

1.2. This part contains the details of the facilities and services to be provided to fulfil the basic requirements of the plan 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. It provides a structured framework for States to plan and to monitor their progress and supports regional and national plans to implement the transition to AIM. This element of the FASID, in conjunction with the EUR Basic 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.

1.3. To satisfy new requirements arising from the Global Air Traffic Management Operational Concept, aeronautical information services must transition to a broader concept of aeronautical information management, with a different method of information provision and management given its data-centric nature as opposed to the product-centric nature of AIS. AIM is the dynamic, integrated management of aeronautical information services ~~– safely, economically and efficiently –~~ through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

2. ORGANISATION AND PROVISION OF AIS/AIM FACILITIES AND SERVICES

2.1. AIM requires all aeronautical information to be stored as data sets that can be accessed by user applications. The establishment and maintenance of an Integrated Aeronautical Information Database where data sets are integrated and used to produce current and future AIS/AIM products and services is a fundamental step in the transition to AIM. The following AIM FASID tables contain planning criteria and provisions requiring implementation and compliance by States:

- Responsibility for the provision of AIS/AIM Services
- Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)
- Terrain and Obstacle data sets and Airport Mapping Databases (AMDB)
- Aeronautical Data Quality
- World Geodetic System – 1984 (WGS84)
- Aeronautical Charts
- Production Responsibility for sheets of the ~~World~~ Aeronautical Chart – ICAO *1: 500 000* ~~ICAO 1:1 000 000~~
- Pre-Flight Information Services
- AIS/AIM Certification

2.2. FASID Table AIM-1 sets out the responsibilities for the provision of AIS/AIM services in the EUR Region. It takes into account the current situation and new developments specific to the EUR Region where States delegate certain AIS/AIM services to other States (e.g. with the establishment of Functional Airspace Blocs (FAB)). The responsibilities for the provision of aeronautical data, products and services in such cases need to be clearly assigned.

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2.3. FASID Table AIM-2 sets out the requirements for the Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID). It reflects the transition from the current product centric AIS to data centric AIM. For the future digital environment it is important that the authoritative databases are clearly designated and such designation must be published for the users. This is achieved with the concept of the Integrated Aeronautical Information Database (IAID), a single access point for one or more authoritative databases (AIS, Terrain, Obstacles, AMDB, etc) for which the State is responsible.

Note.- EAD has been designated as authoritative source by some States, while other States provide and exchange their aeronautical data through the EAD but have not designated the EAD as the authoritative source for aeronautical data.

The principles concerning the operations of the EAD are contained in **Attachment A** to Part VII - AIM of the EUR FASID.

2.4. FASID Table AIM-3 sets out the requirements for the provision of Terrain and Obstacles datasets and Aerodrome Mapping Data Bases (AMDB).

The eTOD implementation Checklist at **Attachment B** to Part VII - AIM of the EUR FASID is developed to assist States in the process of eTOD implementation.

2.5. FASID Table AIM-4 sets out the requirements for aeronautical data quality.

Attachment C to Part VII - AIM of the EUR FASID describes the safety and security objectives to be included in the Quality Management System of AIS/AIM.

Attachment D to Part VII - AIM of the EUR FASID lists the data originators and the type of aeronautical data/information required to be exchanged by direct electronic connection.

2.6. FASID Table AIM-5 sets out the requirements for the implementation of the World Geodetic System – 1984 (WGS-84).The requirement to use a common geodetic system remains essential to facilitate the exchange of data between different systems. The expression of all coordinates in the AIP and charts using WGS-84 is an important first step for the transition to AIM.

2.7. FASID Table AIM-6 sets out the requirements for the production of aeronautical charts. The provision of digital mapping data bases e.g. AMDB, allows for the provision and use of electronic aeronautical charts. Annex 4 SARPs include the requirement for an Electronic Aerodrome Terrain and Obstacle Chart.

~~c)~~2.8. FASID Table AIM-7 sets out the responsibilities for the production of the sheets of the ~~World~~ Aeronautical Chart — ICAO 1: 500 000 ~~1 000 000 (WAC)~~. The assignment of the ~~WAC~~ sheets is determined by regional agreement, based on the delineation of areas specified in Appendix 5 to Annex 4 and taking into consideration the cross-border issues.

Note.- The ~~World~~ Aeronautical Chart — ICAO 1: 500 000 ~~1 000 000~~ provides information to satisfy the requirements of visual air navigation.

~~2.8.~~2.9. FASID Table AIM-8 sets out the requirements for the provision of pre-flight information services.

~~2.9.~~2.10. FASID Table AIM-9 sets out the requirements for AIS/AIM Certification.

Attachment A

THE EUROPEAN AIS DATABASE (EAD) OPERATING PRINCIPLES[1]

1. OBJECTIVES

1.1. The aim of the European AIS Database (EAD) is to improve and harmonise the procedures and delivery of quality assured aeronautical information from the EUR Region. The objective is the delivery of high-quality aeronautical information to the aviation community and the national air traffic services providers.

2. THE OPERATIONAL CONCEPT

2.1. The operational concept for the EAD is based on establishing a central repository for aeronautical information. It relies on authorised data providers supplying aeronautical data as well as on authorised data users utilizing the central repository with clearly assigned roles and responsibilities.

a) **Data providers:** Providers consisting of State civil and military AIS and the NM (Network Management), supply the agreed aeronautical information. The EAD performs coherence checking of the information and ensures consistency. At all times, data providers maintain control of the information for which they are responsible.

Note.- The NM provides the data to fulfil its responsibilities as defined in EUR ANP - Vol I, Part V.III on ATFM and European Regional Supplementary Procedures (SUPPS) (Doc 7030), Section 17.0-ATFM.

b) **Data users:** The EAD provides data users with world-wide processed messages (NOTAM, SNOWTAM, ASHTAM, etc.), PIB, static data, AIP and charts.

3. THE SERVICES OFFERED BY THE EAD

3.1. The EAD allows clients three levels of interaction:

2.1.1. Data provision:

a) maintain aeronautical information, data and elements of the Integrated Package – Static Data Operations (SDO);

b) create validated NOTAM SNOWTAM, ASHTAM and BIRDTAM – International NOTAM Operations (INO);

c) generate AIP documents based on the EUROCONTROL eAIP specification – AIP Production Tool;

d) generate charts – CHART Tool; and

e) maintain a library of AIPs, AIP supplements, AIP amendments, AICs and charts that can be browsed and consulted by users.

[1] Detailed procedures and information applicable to the European AIS Database (EAD) is contained in the EUROCONTROL "EAD OPERATIONAL USER HANDBOOK".

2.1.2. Data use:

a) query static data – SDO Reporting and SDO Graphical Reporting;

b) retrieve validated NOTAM, SNOWTAM, ASHTAM and BIRDTAM;

c) retrieve ATFM messages;

d) create Pre-flight Information Bulletins (PIBs) – Briefing Facility; and

e) access a library of AIPs, AIP supplements, AIP amendments, AICs and charts that can be browsed and consulted.

2.1.3. Public use of data:

a) retrieve Pre-flight Information Bulletins (PIBs);

b) access a library of AIPs, AIP supplements, AIP amendments, AICs and charts that can be browsed and consulted by users;

c) query and retrieve static data via predefined queries; and

d) access via public internet: "http://www.ead.eurocontrol.int/".

2.1.4. A 24-hour technical and operational helpdesk is provided to support data providers and data users.

4. GENERAL IMPLEMENTATION

4.1. The EAD became operational on 6 June 2003 and the migration status of clients to the EAD can be found on the website: "http://www.ead.eurocontrol.int/status.html".

Attachment B

ELECTRONIC TERRAIN AND OBSTACLE DATA (eTOD)

IMPLEMENTATION CHECKLIST

INTRODUCTION

The purpose of this eTOD checklist is to assist States in the process of implementation of eTOD. To ensure a safe and efficient implementation of eTOD, the Civil Aviation Authorities should:

– determine the State stakeholders affected, inter-alia:

  - Ministry responsible for Transportation/Civil Aviation;
  - Ministry responsible for land planning and environment;
  - Civil Aviation Authority;
  - Aeronautical Information Service Providers (AISP);
  - Air Navigation Service Providers (ANSP);
  - Aerodrome Service Providers;
  - Airlines, Helicopter operators and General Aviation;
  - Military;
  - Military survey Organization/Agency;
  - National Geodetic, Cadastral or State Survey Organisations;
  - Commercial survey companies or associations;
  - Local Authorities or those responsible for aerodrome safeguarding/construction approval in the vicinity of aerodromes;
  - GSM antenna operators;
  - Administrations for radio and television broadcasts;
  - Power Transmission companies.

– ensure that a Focal Point has been nominated to coordinate all eTOD issues at both the national and international level;

– consider arranging eTOD awareness campaigns and training;

– check the availability of State's policy for the safeguarding of aerodromes from obstacle penetration, consider how effective the policy is and determine if available data can be demonstrated to be in compliance with eTOD requirements. In the absence of a declared or established policy, consider establishing one;

– check the availability of a National obstacle notification and permission process;

– check if National regulation for the provision of eTOD has been developed. In the absence of a National Regulation, consider establishing one, taking into consideration the following:

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- the data providers responsible for the provision and processing of data and associated liability issues;
- State's policy with regard to implementing the ICAO Annex 15 SARPs related to eTOD and eventually the notification of differences, if any;
- State's policy with regard to data maintenance;
- consider how and by whom the eTOD will be made available;
- State's policy for the oversight/inspection of all involved parties/administrations in the process of provision of eTOD;
- State's policy for cost-recovery related to the provision of eTOD. Identify how the costs, both initial and ongoing, are to be recovered for each Area and in case charges are to be levied on the use of data, identify the appropriate means/mechanisms by which the revenue can be collected; and

– ensure that necessary resources for the implementation and ongoing maintenance of eTOD have been secured;

– ensure that an Action Plan/Roadmap with clear timelines and assigned responsibilities for the provision of eTOD has been developed;

– ensure that the possible sources of terrain and obstacle data have been identified;

– as part of the planning of eTOD data acquisition activities, consider the integration of an Aerodrome Mapping Data Base survey;

– ensure that the survey requirements for each of the four Areas, including resurvey intervals have been determined;

– ensure that the responsibilities that may be placed upon surveyors to ensure that they use the correct standards, have been identified;

– ensure that an eTOD validation and verification process is established;

– ensure that a mechanism is established to ensure that the quality of eTOD is maintained from the survey up to the end user;

– ensure that cross-border issues have been addressed and consider the establishment of agreements with neighboring States to exchange and harmonize common data, as necessary;

– ensure that the means/media by which each dataset shall be made available have been determined; and

– ensure that means of carrying out oversight/inspections for monitoring progress have been established.

Attachment C

SAFETY AND SECURITY MANAGEMENT OBJECTIVES

The quality management system of the AIS/AIM services provider should define procedures to meet the following safety and security management objectives

1. Safety management objectives:
    a. to minimise the contribution to the risk of an aircraft accident arising from data errors as far as reasonably practicable,
    b. to promote awareness of safety around the organisation by sharing lessons arising from safety activities and by involving all staff to propose solutions to identified safety issues and improvements to assist the effectiveness and efficiency of the processes,
    c. to ensure that a function is identified within the organisation being responsible for development and maintenance of the safety management objectives,
    d. to ensure that records are kept and monitoring is carried out to provide safety assurance of their activities,
    e. to ensure improvements are recommended, where needed, to provide assurance of the safety of activities.

    The achievement of the safety management objectives shall be afforded the highest priority over commercial, operational, environmental or social pressures.

2. Security management objectives:
    a. to ensure the security of aeronautical data/information received, produced or otherwise employed so that it is protected from interference and access to it is restricted only to those authorised,
    b. to ensure that the security management measures of an organisation meet appropriate regulatory requirements for critical infrastructure and business continuity, and international standards for security management.

Attachment D

DIGITAL EXCHANGE WITH DATA ORIGINATORS

1) The following aeronautical data/information provided by the data originators should be transferred to the AIS/AIM services provider by direct electronic connection in accordance with the agreed data exchange format:

    a) aeronautical information publications (AIP), including amendments;
    b) supplements to the AIP;
    c) the NOTAM and pre-flight information bulletins;
    d) checklists and lists of valid NOTAMs;
    e) electronic obstacle data, or elements thereof, where made available;
    f) electronic terrain data, or elements thereof, where made available;
    g) aerodrome mapping data, where made available.

2) The aeronautical data/information provided by the following data originators should be transferred to the AIS/AIM services provider by direct electronic connection in accordance with the agreed data exchange format.

    a) air navigation service providers;
    b) operators of those aerodromes and heliports, for which instrument flight rules (IFR) or Special-visual flight rules (VFR) procedures have been published in national AIP;
    c) public or private entities providing:
        i. services for the origination and provision of survey data;
        ii. procedure design services;
        iii. electronic terrain data;
        iv. electronic obstacle data.

Appendix K -
Proposal for Amendment - Revised FASID AIM Tables
(*paragraph 4.3.36 refers*)

Due to its size and its format (xls), this document is provided separately

Appendix L -
EUR AMHS COM Center Training Guidelines (EUR Doc 026)
(*paragraph 4.4.1 refers*)

Due to its size, the document is provided as a separate document

Appendix M -
Provisional edition of the EUR AMHS IP Infrastructure Test Guidelines (EUR Doc 027) - version 1.0
(*paragraph 4.4.2 refers*)

Due to its size, the document is provided as a separate document

Appendix N -
Update of EUR AMHS Manual (EUR Doc 020) – version 7.0
(*paragraph 4.4.3 refers*)

Due to its size, the document is provided as a separate document

Appendix O -
Update of EUR ATS Messaging Management Manual (EUR Doc 021) -
version 8.0
(*paragraph 4.4.4 refers*)

Due to its size, the document is provided as a separate document

Appendix P -
EUR NSAP Address Registry (EUR Doc 028) – version 2.0
(*paragraph 4.4.6 refers*)

Due to its size, the document is provided as a separate document

Appendix Q -
EUR harmful interference reporting report form
(*paragraph 4.4.12 refers*)

Note 1: Only those cases of interference that have continuous and persistent impact on the cross-border operations of aeronautical systems and may affect safety of aviation should be reported. States should attempt resolving the interferences cases on the bilateral basis prior to submitting reports to ICAO.

Note 2: Information collected through these reports will be made publically available on the ICAO EUR/NAT website with the aim to facilitate the soonest resolution of safety issues. Individual follow-up actions might be taken with the States depending on the scope of the interference issue and following the ICAO Frequency Management Group (FMG) review and agreement.

1. **S**tate or Organization submitting report
…….
2. Frequency of channel interfered with
……..
3. Station or route/area interfered with
…….
…….
4. Position and time/date (altitude if aircraft is involved) at which interference was observed, if available:

Date Time (GMT) Altitude Position

5. Call sign/name/notified frequency/location of the interference source, if known,
…….
…..……..
6. Class of emission of the interference source, if known…….

7. Language used by interference source, if known
…….
8. Has your Administration already applied, regarding this case of interference, any part of the ITU procedures?

…….

9. Bearing (in degrees true) of the interference source (with indication of location of D/F station), if available…….

Appendix R -
EUR Frequency Management Manual (EUR Doc 011)
(*paragraph 4.4.15 refers*)

Due to its size, the document is provided as a separate document

Appendix S -
EUR RNP APCH implementation guidance material (EUR Doc 025)
(*paragraph 4.5.3 refers*)

Due to its size, the document is provided as a separate document

Appendix T -
Regional (EUR) MET Quality of Service Indicators
(*paragraph 4.6.5 refers*)

Table of Recommended Minimum Quality of Service Indicators (QSI)
for National Aviation MET Services

Parameter	Performance Indicator
12 month averaged TAF QSIs, could include: (a) Skill score (e.g. SQI, Nordic TAF scheme, HKSI) (b) Frequency of occurrence (c) Bias (d) Miss frequency	To be agreed between service provider and regulator. It is recommended that the TAF is verified for at last the first 9 hours of its validity and only the original TAF is used and not amended ones.
TAF format/coding compliance	Target values to be agreed between service provider and regulator e.g. 95% of TAFs (10% sampled randomly each day) coded in compliance with Annex 3 SARPs
12 month average of TAFs being disseminated by the MET service's message switch	Target values to be agreed between service provider and regulator e.g. 95% of TAFs to be disseminated from message switch within a time agreed by the regulator and user *TAF dissemination completed 30 minutes in advance of start period of validity time in accordance to the EUR RANP* *TAF transit time conducted in accordance to Annex 3, Appendix 10, 1.1.*
METAR (and TREND) format/coding compliance	Target values to be agreed between service provider and regulator e.g. 95% of METARs (and TRENDs) (1% sampled randomly each day) coded in compliance with Annex 3 SARPs
12 month average of METARs (and TRENDs) being disseminated by the MET Service's message switch	Target values to be agreed between service provider and regulator e.g. 95% of METARs (and TRENDs) to be disseminated from message switch within a time agreed by the regulator and user *METAR transit time conducted in accordance to Annex 3, Appendix 10, 1.1.*

SIGMET format/coding compliance	98% of SIGMETs coded in compliance with Annex 3 SARPs
Availability of web services for disseminating Annex 3 services.	99% up time per month for web services disseminating Annex 3 services, including planned maintenance.
Aviation Service Contingency Plan	Contingency plan SUCCESSFULLY tested once a year

Note: It should be noted that average statistics should be published for both individual airports and groups of airports (e.g. in an FIR).

Note: Various groups of States (MET Alliance and other States, Commonwealth of Independent States) currently use different schemes

Note: if QMS implemented by MET service provider, implementation should be achievable

Appendix U -
Lessons and Recommendations from VOLCEX12/02 and VOLCEX12/01
(*paragraph 4.6.11 refers*)

Lessons and Recommendations from VOLCEX12/02

-Lesson 1: Clarity provided for alert and reactive phases for originating FIR as provided in the Attachment to this **Appendix U**. Specifically, the alerting and reactive phases were described in a list of tertiary actions conducted in the first 90 minutes following an imminent eruption or an eruption pertinent to the originating FIR. As other FIRs would not likely be impacted within 90 minutes of an eruption, the proactive phase applies to them. The debrief meeting concurred that this list actions provided clarity in what steps are taken in the first 90 minutes of a volcanic event.

- *Recommendation 1: Consider clarity provided for alert and reactive phases for the originating FIR as provided in the Attachment to this **Appendix U***
    - *Present to EANPG COG for consideration when the regional volcanic ash contingency plan for the EUR/NAT Regions is reviewed*
    - *Consider how this information could be reviewed at the global level*

-Lesson 2: Lack of exercise NOTAM from UK Civil Aviation Authority and Irish Aviation Authority Safety Regulation Division for UK-Irish functional airspace block. The debrief meeting agreed that NOTAM was an essential element to the exercises.

- *Recommendation 2: Regulatory authorities of participating States are encouraged to participate in the exercises*

-Lesson 3: This limited and focused type of exercise was beneficial noting the small size and probability of an Icelandic eruption in the not too distant future as well as importance of exercising the first several hours of a volcanic event.

- *Recommendation 3: Inform VOLCEX/SG to consider running this limited and focused type of exercise regularly*

-Lesson 4: Teleconference was not practiced because Eurocontrol was not able to participate noting the advance time provided was not sufficient enough to plan for by Eurocontrol given the significant resources required. Nevertheless, the importance of teleconferences was noted for coordination amongst stakeholders.

Recommendation 4: Eurocontrol teleconferences should be included in the exercises

Attachment to Appendix U of the EANPG/54 Report -
Originating FIR (BIRD) response actions to volcanic eruption

BIRD response actions to volcanic eruption.

ALERTING/REACTIVE PHASE (Outbreak phase) Eruption imminent or in progress.

First action.

- IMO informs BIRD OACC, VAAC London and NMI Tromso.
- BIRD OACC promulgates NOTAM declaring 120 NM radius danger area around the volcano.
- IMO promulgates a warning SIGMET including plume speed and direction.
- If appropriate BIRD OACC promulgates NOTAM declaring 120 NM radius danger area centred 60 NM downwind from the volcano.
- VAAC London promulgates warning VAA/VAG without an area.

Second action.

- IMO promulgates interim SIGMET including +3hrs forecasted contaminated area.
- BIRD OACC cancells 120 NM radius danger area and promulgates danger area based on interim SIGMET contaminated area.

Third action.

- VAAC London promulgates VAA/VAG, CSV/concentration charts including contaminated areas.
- IMO promulgates SIGMET based on VAA/VAG contaminated area.
- BIRD OACC promulgates NOTAM including danger area based on medium and high VA concentrations.

This procedure covers both ALERT and REACTIVE PHASEs as described in EUR/NAT VACP Dec 2010. The procedure is based on experience from numerous exercises and four recent volcanic eruptions.

PROACTIVE PHASE (Eruption ongoing phase) commences when first VAA/VAG, CSV/concentration charts arrive after completion of ALERTING/REACTIVE PHASE (Outbreak phase) responses.

Lessons and Recommendations from VOLCEX12/01

-Lesson 1: Some Volcanic Ash Advisory (VAA) messages were split (due to 1800 max characters via AFTN) which could add risk in reconstructing messages in MET systems. In resolving this issue, user needs could be considered such as less detail of VAA over oceanic areas.

-Lesson 2: A milestone on one hand in that VAAC Toulouse received 34 special air-reports on volcanic ash that were processed by VAAC Toulouse to improve advisory production. However, dissemination using current provisions in Annex 3 (pilot-ACC-MWO-VAAC) was limited. In addition, there are no provisions in Annex 3 that allow for special air-reports for no ash (Annex 3, Table A4-1) in order to update the presence or absence of forecasted volcanic ash.

- *Recommendation 1&2: Special air-reports on volcanic ash*
    - *Test dissemination via provisions in Annex 3 (pilot-ACC-MWO-VAAC) and consider future global developments*
    - *Inform IAVWOPSG of the fact that Annex 3 provisions do not accommodate special air-reports of no ash (through direct membership of VAAC Toulouse)*

-Lesson 3: Volcanic ash graphic (VAG), which was based on modelling as well as observations (e.g. special air-reports on volcanic ash), was identified by some participants and VAAC Toulouse to be useful for display on EVITA

- *Recommendation 3: EVITA*
    - *Discuss displaying VAG and other products such as special air-reports on EVITA*
    - *Basic further developments to receive priority*

-Lesson 4: The regional volcanic ash contingency plan for the EUR and NAT Regions (EUR Doc 019 and NAT Doc 006, Part II) does not use VA product times consistently (validity periods versus time-steps or fixed time). Furthermore, differences in techniques (snap shot vs. time averaging) by VAACs were noted as well as possible harmonization through VAAC best practices events.

-Lesson 5: Inconsistent use of EUR Doc 019 and NAT Doc 006, Part II for the production of NOTAM (medium and high inclusive vs medium separate from high).

- *Recommendation 3&4&5: Regional volcanic ash contingency plan for the EUR and NAT Regions*
    - *Assure that when the regional volcanic ash contingency plan for the EUR and NAT Regions is reviewed, that differences in techniques (snap shot vs time averaging) by VAACs are explained if harmonization has not yet occurred via VAAC best practices events*
    - *Assure that when the regional volcanic ash contingency plan for the EUR and NAT Regions is reviewed; consider improving the guidance in the plan related to NOTAM and SIGMET*

-Lesson 6: Exercise Directive clarity and timeliness needed noting that there were many new participants resulting in a more dynamic document in the weeks leading up to the exercise. In addition, clarity on testing

specific exercise features (e.g. special air-reports, rerouting capabilities through AOCCC) should have been included in Exercise Directive.

- *Recommendation 6: VOLCEX Steering Group*
    - *To consider Eurocontrol to be at least a co-leader for future exercises*
    - *To consider clarity and timeliness of Exercise Directive*
    - *To provide final exercise directive according to OPINS*
    - *To provide clarity on specific exercise features (e.g. dissemination of special air-reports, user protected password) in Exercise Directive*

-Lesson 7: Operators expressed a need to know State practices with reference to accepting and approving safety risk assessments (SRAs) and that a database (which was being developed by the European Aviation Safety Agency (EASA)) as well as harmonization was necessary to improve efficiency of operations in the EUR and NAT Regions during a volcanic ash event. Furthermore, it was unclear how operators manage outside the EUR and NAT Regions given the fact that volcanic ash concentration charts are not available outside the EUR and NAT Regions and SRAs would thus be different. The converse situation was unclear as well.

- *Recommendation 7: EACCC to invite EASA to pursue the work on harmonization of the SRA deployment and monitoring including mutual recognition*

Appendix V -
EUR SIGMET and AIRMET Guide (EUR Doc 014)
(*paragraph 4.6.23 refers*)

Due to its size, the document is provided as a separate document

Appendix W -
Supplementary information in METAR and SPECI
(*paragraph 4.6.29 refers*)

DATA MANAGEMENT GROUP (DMG)

Fifth MEETING

(Bucharest, 13. – 15. March 2012)

Use of 'runway state' group in METARs

(Presented by Denmark)

All METARs received by EKCH between December and February, were scanned for the presence of the runway state group. The database contains more than 200.000 reports.

It was found that 207 reporting stations have used the runway state group in the new format, and that 153 reporting stations have used the runway state group in the old format. Also it is worth mentioning that a few reporting stations have issued METARs sometimes with the new format and sometimes with the old format.

This is an example from LFLS:
LFLS 030730Z 35011KT 8000 -SN BKN013 M08/M10 Q1021 09490295 NOSIG=
LFLS 030800Z 36014KT 340V040 8000 -SN BKN018 M08/M11 Q1021 R09/490295 NOSIG=

They will of course be mentioned in both lists.

The listings are generated by scanning all METARs using the following regular expressions:

For the new format: "[\r]R[0-9]{2}[RL]?/[0-9/]{5,6}[=\r]"

For the old format: "[\r][0-9]{8}[=\r]"

It can of course not be excluded that garbage data within a METAR report have been detected as a valid runway state group.

List of reporting stations using the **new** format:

Country	Reporting Stations
EB	EBAW EBBR EBCI EBLG EBOS
ED	EDAH EDDB EDDC EDDE EDDF EDDG EDDH EDDK EDDL EDDM EDDN EDDP EDDR EDDS EDDT EDDW EDLN
EE	EEKE EETN
EF	EFKK EFPO EFTU EFVA
EG	EGAA EGAC EGAE EGBE EGBJ EGCC EGCN EGGP EGGW EGKB EGKK EGLL EGMD EGMH EGNT EGNX EGPA EGPB EGPC EGPD EGPE EGPF EGPH EGPN EGPO EGSHEGSS
EH	EHAM EHBK EHGG EHRD
EI	EIDW EIKN
EP	EPBY EPGD EPKK EPLL EPPO EPRZ EPSC EPWA EPWR
ES	ESGG ESGJ ESKN ESMS ESNN ESNU ESOW ESSA ESSP ESSV
ET	ETGG ETHB ETHE ETHF ETHL ETHN ETHR ETND ETNG ETNH ETNJ ETNS ETNT ETNW ETSA ETSB
EV	EVRA
EY	ETGG ETHB ETHE ETHF ETHL ETHN ETHR ETND ETNG ETNH ETNJ ETNS ETNT ETNW ETSA ETSB
GE	GEML
LB	LBBG LBGO LBPD LBSF
LD	LDOS LDPL LDSP LDZA LDZD
LE	LEMD LEVT
LF	LFBO LFLC LFLL LFLS
LH	LHBP
LI	LICC LIEA LIMC LIMF LIMP LIMZ LIPB LIPE LIPK LIPO LIPQ LIPY LIRA LIRF LIRQ
LJ	LJCE LJLJ LJMB
LK	LKMT LKPR LKTB
LO	LOWG LOWI LOWK LOWL LOWS LOWW
LR	LRIA LRSV LRTC
LS	LSGG LSGS LSMS LSZB LSZC LSZG LSZH LSZR LSZS
LT	LTAC LTAF LTAI LTAJ LTAP LTAW LTAY LTBA LTBH LTBR LTBU LTCC LTCE LTCF LTCI LTCK LTCO LTCS LTDA LTFC
LU	LUKK
LW	LWOH LWSK
LY	LYBE LYBT LYKV LYNI LYPG LYUZ LYVR
U	UMBB UMGG UMII UMKK UMMG UMMM UMMS UMOO URMN UTFA UTFF UTFN UTNN UTNU UTSA UTSB UTSK UTSS UTST UTTT

List of reporting stations using the **old obsolete** format:

Country	Reporting Stations
BI	BIAR BIEG BIHN BIIS BIKF BIRK BIVM
BK	BKPR
ED	EDAC
EF	EFET EFHK EFIV EFJO EFKE EFKK EFKS EFKT EFMA EFOU EFSI EFVR
EK	EKAH EKBI EKCH EKEB EKKA EKOD EKRK EKRN EKSB EKSN EKSP EKVJ EKYT
EL	ELLX
ES	ESSB
LF	LFBD LFBI LFBL LFBP LFBT LFKB LFLC LFLL LFLS LFLX LFOB LFPN LFPO LFQQ LFRB LFRK LFRQ LFSB
LG	LGTS
LI	LIMC LIME LIMF LIMZ LIPO LIPR LIPX LIPY LIRF
LR	LRAR LRBC LRBM LRBS LRCK LRCL LRCV LRIA LROD LROP LRSB LRSM LRSV LRTC LRTM LRTR
LT	LTAJ LTAR LTAT LTCC LTCS LTFJ
LU	LUBM
LZ	LZIB
U	UACK UAII UASK UASP UEEE UELL UERP UERR UEST UHBB UHHH UHMA UHMM UHSH UHSS UHWW UIAA UIBB UIII UIUU ULAA ULKK ULLI ULMM ULOO ULPB ULWW UNBB UNEE UNNT UNOO UNWW UOHH UOOO URML URSS USCC USCM USMM USMU USNN USPP USSS USTR UTSB UUBI UUBP UUDD UUEE UUMO UUWW UUYH UUYS UUYW UUYY UWGG UWKE UWKS UWLW UWOO UWOR UWPP UWSS UWUU UWWW

Appendix X -
Proposal for amendment to Part VI (MET) of the EUR Air Navigation Plan (EUR Doc 7754) for the Basic ANP
(*paragraph 4.6.34 refers*)

WORKING COPY OF

EUR ANP, VOLUME I, BASIC ANP
PART VI - MET

METEOROLOGY (MET)

RECORD OF AMENDMENTS

Note: A consolidated text of this section, containing the following approved amendments to the EUR ANP, will be officially disseminated on an annual basis. This document is produced solely as reference material to assist States in the preparation of proposals for amendment to the EUR ANP.

AMENDMENTS

P. f. Amdt. Serial No.	Originator	Date Approved	Date Entered
05/10-MET	Sec Gen	12/08/05	18/05/06
07/07-MET	Sec Gen	14/07/08	27/02/09
08-03-MET	Sec Gen	22/08/08	27/02/09
09/13-MET	Sec Gen	13/01/10	22/03/10
09/16-MET	Sec Gen	13/01/10	22/03/10
10/06-MET	EANPG	01/04/10	28/04/10
10/07-MET	EANPG	23/03/10	28/04/10
10/38-MET	Sec Gen & EANPG	26/01/11	01/02/11
11/19-MET	Sec Gen	23/09/11	26/09/11
12/04-MET	Sec Gen & EANPG	21/03/12	26/03/12

P. f. Amdt. Serial No.	Originator	Date Approved	Date Entered

PART VI - METEOROLOGY (MET)

INTRODUCTION

1. This part of the EUR Basic Air Navigation Plan contains elements of the existing planning system and introduces the basic planning principles, operational requirements and planning criteria related to Meteorological Service for International Air Navigation (MET) as developed for the EUR Region.

2. As a complement to the Statement of Basic Operational Requirements and Planning Criteria (BORPC) set out in Part I, Part VI constitutes the stable regional provisions considered to be the minimum necessary for effective planning of MET facilities and services. A detailed description/list of the facilities and/or services to be provided by States in order to fulfil the requirements of the Basic ANP is contained in the EUR Facilities and Services Implementation Document (FASID). During the transition and pending full implementation of the future CNS/ATM systems, it is expected that the existing requirements will gradually be supplemented and/or replaced by the new CNS/ATM related requirements. Further, it is expected that some elements of the CNS/ATM systems will be subject to amendment, as necessary, on the basis of experience gained in their implementation.

3. The Standards, Recommended Practices and Procedures to be applied are contained in the following ICAO documents:

a) Annex 3 — Meteorological Service for International Air Navigation, and
b) *European (EUR) Regional Supplementary Procedures (Doc 7030), Part 4 – Meteorology.*

4. European Air Navigation Planning Group (EANPG) conclusions and ICAO operations groups conclusions shown in brackets below a heading indicate the origin of all paragraphs following that heading. EANPG conclusions and ICAO operations groups conclusions shown in brackets below a paragraph indicate the origin of that particular paragraph.

METEOROLOGICAL SERVICE REQUIRED AT AERODROMES AND REQUIREMENTS FOR METEOROLOGICAL WATCH OFFICES

(FASID Tables MET 1A and MET 1B)
[EANPG conclusion 46/26, 49/14]

5. The service to be provided at the international aerodromes listed in the Appendix to Part III of the Basic ANP is set out in FASID Table MET 1A.

6. The service to be provided for flight information regions (FIR), upper flight information regions (UIR) and search and rescue regions (SRRs) is set out in FASID Table MET 1B.

7. Meteorological service should be provided on a 24-hour basis, except as otherwise agreed between the meteorological authorities, the air traffic service authorities and the operators concerned.

Note. Details of the service provided should be indicated in Aeronautical Information Publications, in accordance with the provisions in Annex 15.

METEOROLOGICAL OBSERVATIONS AND REPORTS

[EANPG conclusion 51/32]

(FASID Table MET 1C)

8. Half-hourly routine observations should be made at all RS (international scheduled air transport, regular use) and AS (international scheduled air transport, alternate use) aerodromes, as required in respect of operational needs, and reports issued as METAR and local reports together with local special reports. Half-hourly METAR should also be issued for any additional aerodromes, which are included in the EUR VHF VOLMET broadcast system.

Note: - Provisions for the EUR VHF VOLMET broadcast system are detailed in FASID Part VII - ATS.

9. At aerodromes with limited hours of operation, the issuance of METAR, whether derived manually or automatically, should commence at least ~~two~~ three hours prior to the aerodrome resuming operations, or as agreed between the meteorological authority and the operators concerned, to meet pre-flight and in-flight planning requirements for flights due to arrive at the aerodrome as soon as it is opened for use. METAR, whether derived manually or automatically, should be available throughout the period of airport closure where TAF is valid continuously.

10. When required, information on the state of the runway should be included as supplementary information in all METAR and SPECI.

11. States under whose jurisdiction off-shore structure or other points of significance in support of off-shore helicopter operations are located should, in consultation with the appropriate operators, establish or arrange for the establishment of aeronautical meteorological observing stations at suitable locations. Information of the state of the sea and sea surface temperature should be included in all METAR and SPECI from those stations. The offshore structures providing information on the state of the sea and/or sea surface temperature in METAR and SPECI are listed in FASID Table MET 1C.

FORECASTS

12. Routine TAF should be issued as required in respect of operational needs for designated aerodromes as specified in FASID Table MET 1A.

13. The period of validity of the routine TAF should be either 9 hours or 24 or 30 hours. The period of validity is specified in FASID Table MET 1A.
[EANPG Conclusion 49/43b]

14. The periods of validity for 9-hour TAF (noting there is an implementation plan from 2013 to 2015 for changing 9-hour TAF requirement to 24-hour TAF requirement) should commence at 00, 03, 06, 09, 12, 15, 18 and 21 UTC and for 24 and 30-hour TAF at 00, 06, 12 and 18 UTC or 03, 09, 15, and 21 UTC. One bulletin should only contain the same type and commencement of validity period. The 24- and 30-hour TAF periods of validity should be determined based on the types of operations (e.g., regional or inter-regional (long-haul) flights) ~~and taking into account the hours of operation of the aerodrome~~, as agreed between the meteorological authorities and the operators concerned.
[EANPG Conclusion 49/43b]

xx. At aerodromes with limited hours of operation, the beginning of validity period of a TAF should commence at least one hour prior to the aerodrome resuming operations, or more as agreed between the meteorological authority and the operators concerned, to meet pre-flight and in-flight planning requirements for flights that arrive at the aerodromes as soon as it is opened for use. TAF should not be cancelled before the aerodrome closes.

15. The scheduled international exchange of TAF should be completed 30 minutes before commencement of the period of validity~~.~~, and in any case, no longer than one hour before commencement of the period of validity.
[EANPG Conclusion 49/43b]

16. The forecast maximum and minimum temperature together with their respective dates and times of occurrence should be included in the 24 and 30-hour TAF for certain aerodromes as agreed between the meteorological authority and the operators concerned.

17. Trend forecasts should be issued for designated aerodromes specified in FASID Table MET-1A.

18. When the area forecast for low-level flights is issued as a GAMET, the following regional procedures should be followed:

a) the term "widespread" should be used to indicate a spatial coverage of more than 75 per cent of the area concerned;
b) "mountain obscuration – MT OBSC" should be used to indicate widespread mountain obscuration. Depiction should also include additional information on cloud type causing obscuration together with, where feasible, height of cloud base and top above mean sea level (AMSL).

c) section II of the GAMET area forecast should include the following information in addition to the provisions in Annex 3:

1) short description of general weather situation in addition to the description of pressure centres and fronts;

2) information about mean surface wind also for values less than 15m/s (30kt);

3) upper wind and temperature in mountainous areas for altitude 15000ft, or higher if necessary;

Note.— Upper wind and temperature information should have a horizontal resolution no more than 500 km;

4) information about widespread surface visibility of 5000 m or more together with the weather phenomena (if any) causing a reduction of visibility and inserted between the upper wind and cloud information; and

5) state of the sea and sea surface temperature;

Note.— States under whose jurisdiction off-shore structure or other points of significance in support of off-shore helicopter operations are located should, in consultation with the appropriate operators, establish or arrange for the information on the state of the sea and sea surface temperature to be included in all low-level area forecasts.

6) an outlook concerning expected hazardous weather phenomena during the following validity period;

d) the visibility and cloud base information in section II may be complemented in the form of visibility/cloud base categories (paragraphs 18 and 19 refer).

[EANPG conclusion 51/32]

19. Where combined cloud/visibility information is provided, this information should be in the form of visibility/cloud base categories and should be supplied for well-defined sub-areas and/or route segments. The boundaries of sub-areas and/or route segments for which forecasts for low-level flights are provided in condensed form should be published in the AIP. For each sub-area and/or route segment, the reference height to which the cloud-base information refers, should be specified.

20. Where visibility/cloud-base categories are used in low-level forecasts these should be as follows:

- O visibility equal to or more than 8 km and cloud-base equal to or higher than 600 m (2 000 ft);
- D visibility equal to or more than 5 km but less than 8 km with cloud-base 300 m (1000 ft) or higher, or cloud-base equal to 300 m (1000 ft) or higher but less than 600 m (2 000 ft) with visibility equal to or more than 8 km;
- M visibility equal to or more than 1.5 km but less than 5 km with cloud-base equal to or higher than 150 m (500 ft), or cloud-base equal to or higher than 150 m (500 ft) but less than 300 m (1000 ft) with visibility equal to or more than 5 km;
- X visibility less than 1.5 km and/or cloud-base less than 150 m (500 ft).

The visibility/cloud-base category indicated in the forecast for a sub-area should refer to the prevailing conditions in the sub-area concerned. Cloud information should refer to clouds with a coverage of BKN or OVC.

21. Area forecasts for low-level flights exchanged between meteorological offices in support of the issuance of AIRMET information should be prepared as GAMET or low-level SIGWX chart.

22. Low-level forecasts should be amended where and when required. The amended forecast should also be supplied on automatic briefing facilities where these are available. In the case that the AIRMET/low-level forecast concept is not fully implemented, the criteria for amendments should as a minimum include the weather phenomena hazardous for low-level flights, which constitute the criteria for the issue of AIRMET.

23. When low-level forecast is issued as a SIGWX chart or as a wind and temperature (W+T) chart, it should, as appropriate, include the information as described in paragraph 19. The graphical part of a SIGWX chart should depict the weather situation at the beginning of validity period. Significant changes of initial weather parameters should be depicted together with time intervals determining duration of expected changes.

SIGMET AND AIRMET INFORMATION
(FASID Tables MET 1B, MET 3B and MET 3C)
[EANPG conclusion 49/14]

24. Volcanic ash advisory centres (VAACs) London, Tokyo and Toulouse have been designated to prepare advisory information. FASID Table MET 3B set out the areas of responsibility of the VAACs and, the MWOs and ACCs/FICs to which the advisory information should be sent.
[IAVWOPSG Conclusion 3/2]

25. In order for the VAACs to initiate the monitoring of volcanic ash from satellite data and the forecast of volcanic ash trajectories, MWOs should notify the relevant VAAC immediately on receipt of

information that a volcanic eruption has occurred or volcanic ash has been observed in the FIR for which they are responsible. In particular, any special air-reports of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud, received by MWOs should be transmitted without delay to the VAAC concerned.
[IAVWOPSG Conclusion 1/1]

26. Selected State volcano observatories have been designated for direct notification of significant pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash in the atmosphere to their corresponding ACC/FIC, MWO and VAAC. FASID Table MET 3C sets out the selected State volcano observatories and the VAACs, MWOs and ACCs to which the notification should be sent by the observatories.
[IAVWOPSG Conclusion 2/2]

27. AIRMET information should be issued by a MWO if agreed on between users and the meteorological authority concerned. FASID Table MET 1B sets out the responsible MWOs and the areas for which AIRMET information should be provided.
[EANPG conclusion 46/26].

INFORMATION FOR OPERATORS AND FLIGHT CREW MEMBERS
[EANPG conclusion 51/32]

28. As far as possible, English should be among the languages used in meteorological briefing and consultation.

29. Meteorological information for pre-flight planning by operators of helicopters flying to offshore structures should include data covering the layers from sea level to FL 100. Particular mention should be made of the expected surface visibility, the amount, type (where available), base and tops of cloud below FL 100, sea state and sea surface temperature, mean sea level pressure and the occurrence or expected occurrence of turbulence and icing.

30. The low-level forecast prepared in support of AIRMET information should be part of pre-flight documentation for low-level flights. The documentation prepared should include GAMET or low-level SIGWX forecasts and appropriate wind and temperature (W+T) forecasts for the entire route.

31. Where feasible and cost-effective, automated MET/AIS systems should be used for the combined provision of MET and AIS information for pre-flight planning, flight documentation, briefing and consultation.

Note.— Further guidance is provided in the ICAO EUR Handbook "Harmonized Access to AIS and MET Services related to pre-flight planning" (ICAO EUR Doc 010)

EXCHANGE OF OPERATIONAL METEOROLOGICAL INFORMATION
(FASID Tables MET 2A)
[EANPG conclusion 46/26, 49/14]

32. The international OPMET data banks at Brussels, Toulouse and Vienna have been designated to serve States in the EUR Region.

33. The operational meteorological information as specified in FASID Table MET 2A (SADIS User Guide Annex 1) should be disseminated through the European Regional OPMET Data Exchange (EUR

RODEX) system, which should ensure distribution to the EUR States, to the international EUR OPMET data banks and to the uplink stations of the international satellite communication system (ISCS) and the satellite distribution system for information relating to air navigation (SADIS). Any changes in the bulletins and their content (new bulletin WMO headers or cessation, changes in the composition of the bulletins, changes in the periods of validity related to location indicators) should be notified by METNO. The designated Regional OPMET Centres (ROC) in London, Toulouse and Vienna should ensure the availability in the EUR Region of all required OPMET data issued outside the EUR Region.

Note:- Further guidance concerning the EUR OPMET exchange procedures, ~~and~~ EUR OPMET data banks, and notification of the changes by METNO is provided in the ICAO "EUR OPMET Data Management Handbook" (ICAO EUR Doc 018)

WORLD AREA FORECAST SYSTEM (WAFS)
(FASID Table MET 5)

34. FASID Table MET 5 sets out the EUR Region requirements for WAFS forecasts to be provided by WAFC London.
[WAFSOPSG Conclusion 1/2]

35. For back-up purposes, each WAFC should have the capability to produce WAFS forecasts for all the required areas of coverage.
[WAFSOPSG Conclusion5/2]

36. WAFS forecasts should be made available by WAFC London using the satellite distribution system for information relating to air navigation (SADIS) or using the SADIS FTP service.
[WAFSOPSG Conclusion 6/2]

Editorial Note. – Insert "or using the SADIS FTP service" in the corresponding CNS procedure contained in Part IV of the ANP.

37. Each State should make the necessary arrangements to receive and make full use of operational WAFS forecasts made availalbe by WAFC London. The lists of the authorized users of the SADIS services in the EUR Region and location of the operational VSATs and Internet-based services are available from the following website:

www/icao.int/anb/sadisopsg (click: "Status of implementation") for SADIS

[WAFSOPSG Conclusion 6/2]

COMMUNICATIONS REQUIREMENTS – SATELLITE DISTRIBUTION
[EANPG conclusion 46/26]

38. The satellite distribution system for information relating to air navigation (SADIS) is implemented and operated as a component of the AFS. The SADIS should provide an international point-to-multipoint service on a 24-hour basis. The SADIS should be operated so as to enable States and end-users as appropriate to obtain required WAFS products. In addition, it should provide a collection and dissemination service for OPMET information in alphanumeric form where required within the area of coverage of the system. The system should be capable of expansion to carry additional aeronautical meteorological products when required.

39. The following link design parameters are required:

a) *Frequency:* C-band.

b) *Capacity:* The service should provide adequate capacity to transport global GRIB-coded grid point forecast data, global BUFR-coded SIGWX forecasts, as required, and alphanumeric OPMET data to all users in a timely manner.

c) *Bit error rate*: Better than 1 in 10^7.

d) *Redundancy:* Provisions are required for protection against extended outages.

e) *Error correction:* Forward error correction.

f) *Availability:* 99.95 per cent, exclusive of solar transit outages.

40. Day-to-day operations of SADIS are controlled and managed by WAFC London. The multi-regional SADIS Operations Group (SADISOPSG) is established to manage and further develop SADIS.

Note: Terms of reference of the SADISOPSG, as well as, detailed information about the group's activities is available on: http://www.icao.int/anb/sadisopsg .

41. The United Kingdom is designated to implement and operate the SADIS service in accordance with the provisions given in paragraphs 37 to 39.

Appendix Y -
Proposal for amendment to Part VI (MET) of the EUR Air Navigation Plan (EUR Doc 7754)
for the FASID
(*paragraph 4.6.34 refers*)

Due to its size, the document is provided as a separate document

Appendix Z -
Regional Performance Framework Document,
Guidance Material and Regional Performance Review Report (RPRR)
(*paragraph 4.8.7 refers*)

International Civil Aviation Organization

COG PERF TF
15/11/12

Draft Guidance Material

IMPLEMENTATION OF THE REGIONAL PERFORMANCE FRAMEWORK

DRAFT GUIDANCE MATERIAL REGARDING THE SETTING UP OF DATA PROVISION
WORKING DRAFT

SUMMARY

This paper presents a working draft of the guidance material regarding the setting up of data reporting for the implementation of the EUR Region Performance Framework as agreed at EANPG/53. This draft guidance material will be updated/finalised by the COG PERF TF based on outcome of the dedicated workshop in the Eastern part of the ICAO EUR Region as well as the results from ICAO ANConf/12.

1. INTRODUCTION

1.1. The COG PERF TF presented a draft of its deliverable to EANPG/53 (Nov/Dec 2011). In its conclusions[2], the EANPG '*endorsed the proposal and agreed that the ICAO Regional Director, Europe and North Atlantic, launch the EUR Region Performance Framework reporting mechanisms in 2012 on a transitional basis, so that an initial Regional Performance Review Report (RPRR) can be presented at the EANPG/54*'; with the proviso that '*information already collected on a national and/or FAB level and assessed through other mechanisms (e.g. European Commission or Eurocontrol) would be used within the performance framework of the whole Region in order to avoid any duplication of effort*'.

1.2. The Terms of Reference of the Task Force were modified to allow it to continue working on practical implementation details during 2012.

[2] EANPG Conclusion 53/35

1.3. As part of the revised Terms of Reference, the COG PERF TF is *inter alia* invited to

a) Initialize the regional performance framework reporting mechanisms in 2012 on a transitional basis in order to fine-tune the regional mechanisms and processes.

b) Further clarify the data to be provided by States for the implementation of the regional performance framework, giving due consideration to the data that is already collected in other reporting regimes (such as the EU Performance Scheme).

1.4. This paper presents a working draft of the guidance material regarding the setting up of data reporting for the implementation of the EUR Region Performance Framework.

1.5. The aim of the guidance material is to help States in identifying data to be collected, managed and provided for the functioning of the ICAO EUR Region performance framework as well as identifying if and where those data are already available in the Region through processes already in place in Region.

2. RELATIONSHIP BETWEEN SINGLE EUROPEAN SKY AND ICAO EUR REGION PERFORMANCE FRAMEWORKS

2.1. The EUR Region performance framework applies to a much larger geographical scope than the SES Performance Scheme. While it is recognised that in the future more States will be participating in the SES, it has to be noted that for the first reference period (RP1: 2012-2014), the SES Performance Scheme area is fixed to include only the initial group of 29 participating States. Interesting to note is that some of the Performance Scheme indicators are based on data flows covering a geographical scope wider than the 29 SES States.

2.2. The Task Force, based on the EANPG/53 Conclusions, decided to base its indicator proposals as much as possible on on-going processes and activities in the Region, therefore giving due consideration to the SES performance scheme as well as other regional initiatives. In this context it was recognised that the performance scheme was built on more than a decade worth of performance monitoring and review expertise with the participation of the majority of ICAO EUR Region States. Therefore it was considered appropriate to start with a very simple framework initially. This would improve the chances that the non-SES States could successfully engage in the process. Therefore, only a subset of the indicators, mechanisms and processes in the performance scheme was included. It is also clearly stated that the ICAO EUR framework at this stage does not require any target setting.

2.3. This way, the use of the EUR Region performance framework could be viewed by non-SES States as a low-effort first step towards adoption of a performance oriented approach, based on the knowledge and experience gained through regional processes in place and in particular the SES performance scheme.

2.4. The commonalities and differences between the SES performance scheme and the EUR Region initiative are illustrated in Figure 1.

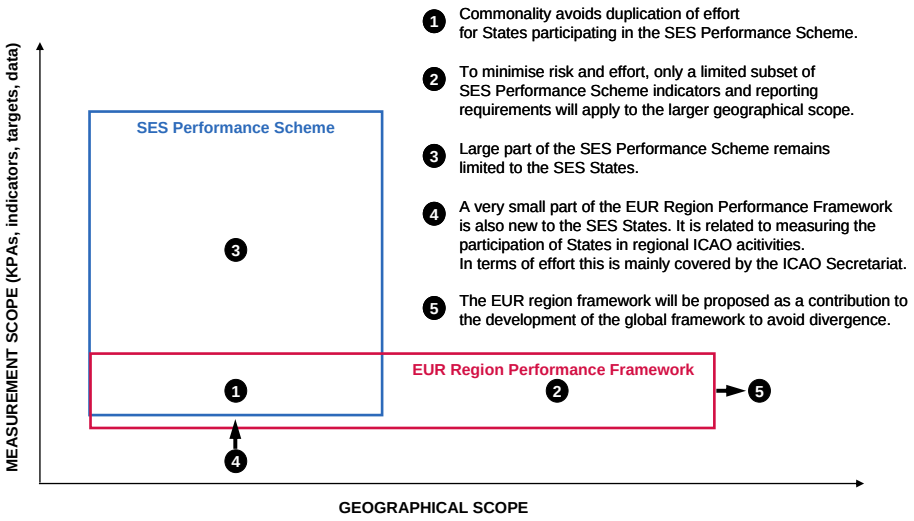

Figure 1 Relationship between SES and EUR Region performance framework

3. DEFINITION OF THE GEOGRAPHICAL SCOPE FOR THE EUR REGION PERFORMANCE FRAMEWORK

3.1. Figure 2 below illustrates the geographical scope of the EUR Region performance framework in the context of different geographical aggregations and groupings of States existing in the ICAO EUR Region.

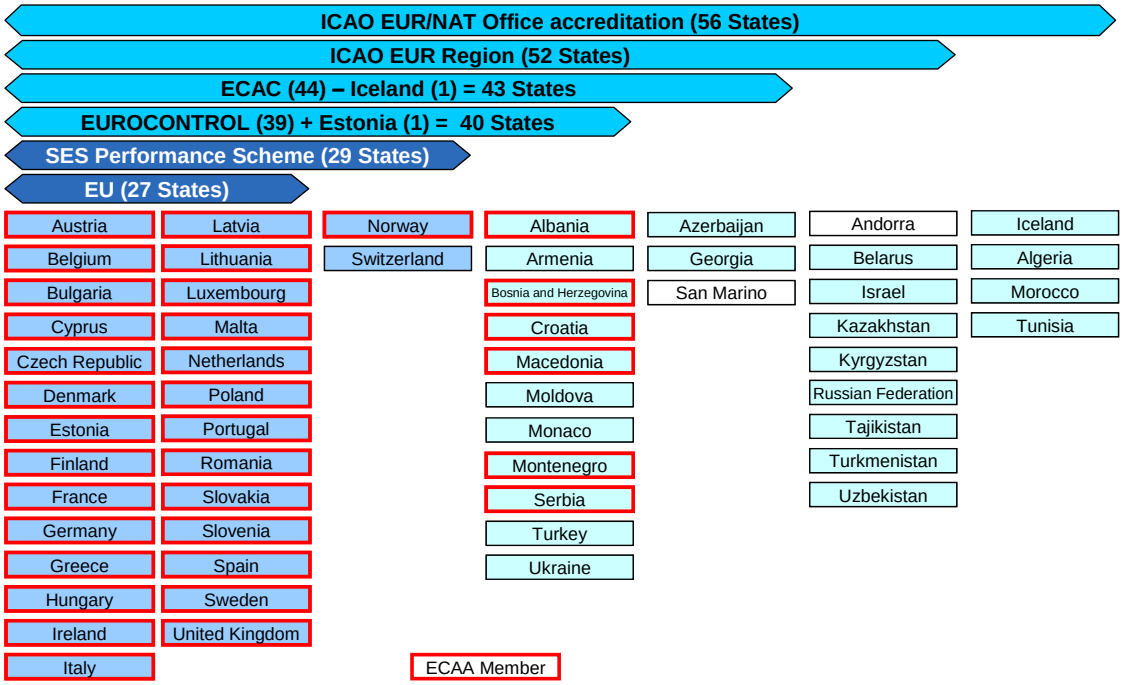

Figure 2 Geographical scope differences in Europe (anno 2012)

3.2. In principle, the EUR Region performance framework applies to the ICAO EUR Region which comprises 52 States.

3.3. The ICAO Paris office is accredited to four additional States (Iceland, Algeria, Morocco and Tunisia), but these are currently not part of the EUR Region. Their participation will be optional, on a voluntary basis.

3.4. In this context, it has to be noted that working paper AN-Conf/12-WP/24 for the 12th Air Navigation Conference proposes to realign Regions, ANPs and Regional SUPPs. For the EUR Region, this implies the following:

a) Transfer from the AFI ANP to the EUR ANP of the current requirements for air navigation services and facilities in the following FIRs: FIR Alger (DAAA – Algeria); FIR Casablanca (GMMM – Morocco); FIR Tunis (DTCC – Tunisia); and FIR Canarias (GCCC – Spain).

b) Transfer from the AFI Section to the EUR Section of Doc 7030 of the regional supplementary procedures for FIR Canarias (GCCC – Spain).

c) In consequence, Algeria, Morocco and Tunisia will become members of the EANPG. The SUPPs for the three FIRs are currently part of the EUR SUPPs and the EUR/NAT Office of ICAO in Paris is accredited to Algeria, Morocco, Tunisia and Spain.

d) List the requirements for air navigation services facilities in FIR Bodo Oceanic (ENBO – Norway) in the NAT ANP only and delete it from the EUR ANP since FIR Bodo Oceanic is currently listed in both the EUR and the NAT ANP.

e) The SUPPs for FIR Bodo Oceanic are currently part of the NAT SUPPs. Norway is currently member of NAT SPG, and the EUR/NAT Office of ICAO is accredited to Norway.

3.5. Two very small EUR Region States (San Marino and Andorra) will be exempted from supplying data for the EUR Region performance framework. The same applies to the European States which are not a member of ICAO (Liechtenstein and Holy See/Vatican City).

3.6. That results in a geographical scope of 50 States plus 4 optional ones (53 plus 1 optional in case of realignment).

3.7. That geographical scope is 21 (+4) States (23+1 in case of realignment) wider than the set of 29 States currently participating in the SES performance scheme.

3.8. The working arrangements for the EUR Region data collection and processing will have to consider the need to identify groupings of States already covered by on-going processes.

3.9. Within the group of 21 (+4) (respectively 23+1) non-SES States, different levels of integration in the SES performance scheme will exist, and this needs also to be reflected in the data collection and processing mechanisms.

4. GENERAL PRINCIPLES FOR MONITORING AND REPORTING OF PERFORMANCE

4.1. The monitoring and reporting process can be broken down into the following generic steps:

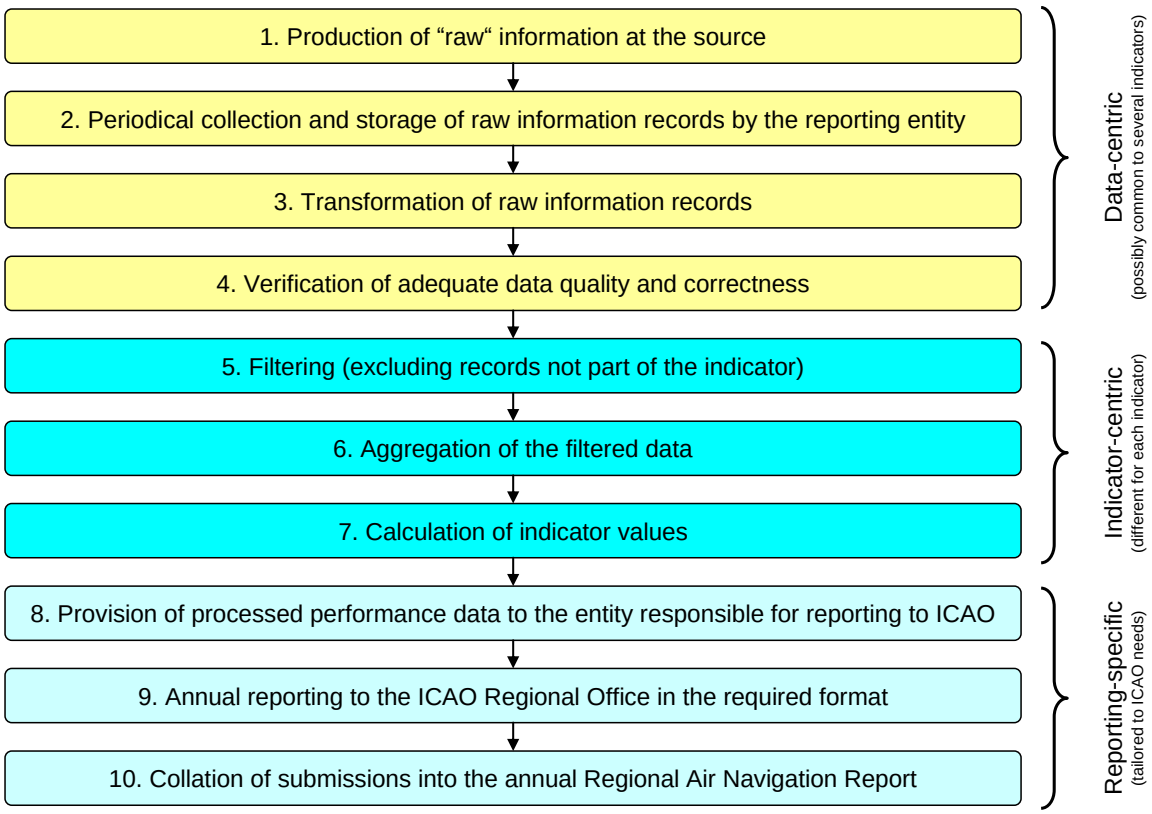

Figure 3 Generic Data Flow Process Steps

Data-centric steps:

1. Production of "raw" information at the source, with at least the data coverage as required by the performance framework(s) for which the data will be used.

2. Periodical collection and storage of raw information records by the reporting entity (the State or a body designated by the State), with at least the data coverage required by the performance framework(s) for which the data will be used.

3. Transformation of raw information records into a form suitable for statistical processing (includes classification/categorisation and initial error correction).

4. Verification of adequate data quality and correctness following agreed procedures.

Indicator-centric steps:

5. Filtering (excluding those records that by definition will not be used for indicator calculation).

6. Aggregation of the filtered data (production of intermediate statistics – in most cases simple counts and sums – at the required reporting levels).

7. Calculation of indicator values at the required aggregation level(s) (application of the indicator definition formulas).

Reporting-specific steps:

8. Provision of processed performance data (i.e. numerical results / indicator values) to the entity responsible for preparing the submission to ICAO.

9. Annual reporting to ICAO (preparation of submissions in the format required by ICAO, and transmission to the ICAO Regional Office).

10. Collation of submissions into the Regional Performance Review Report (RPRR), part of the annual Regional Air Navigation Report, for presentation at the EANPG.

4.2. For the execution of the above process, the responsible entity may be different depending on the step. In the context of the EU Performance Scheme for the SES States, steps 2 through 7 are generally delegated to another body: the Performance Review Body (PRB) and in some specific cases EASA. Step 10 will be in any case the responsibility of the ICAO secretariat (Regional Office).

4.3. Essentially, the establishment of the EUR Region Performance Framework implies that all participating States are expected to report the same indicators and apply the same generic data flow process steps. However, there may be differences between States with regard to the practical execution of the individual steps. In the sections below this guidance material highlights where such differences may exist.

5. SAFETY

Introduction

5.1. The following indicators were selected for the EUR region performance framework:

1) Effectiveness of Safety Management (measured by a methodology based on ATM safety framework maturity survey)

2) Level of State Just Culture (just culture survey)

3) Adoption of a harmonized methodology for classification of occurrences in terms of risk severity

5.2. These are the safety indicators already used by SES RP1. Note that these are leading indicators (measuring precursors to improved safety) and not lagging indicators (which are directly related to safety outcome).

5.3. Effectiveness of Safety Management (EoSM) for States is highly correlated with the ICAO LEI (Lack of Effective Implementation) indicator. However EoSM for ANSPs has no correspondence in existing ICAO safety indicators.

5.4. The TF was tasked by EANPG 53 to provide guidance material to States with clarifications and additional details on indicators and technical elements of the framework. In this context, it has to be noted that details regarding the production of the above Safety performance indicators are already available and were published on 16.12.2011 by EASA as Acceptable Means of Compliance (AMC) and Guidance Material (GM). All relevant documentation can be downloaded from this address: http://easa.europa.eu/agency-measures/acceptable-means-of-compliance-and-guidance-material.php#SKPI:

Doc	Prefix	Title
01		ED Decision 2011/017/R
02	Annex	Final AMC and GM for SKPIs
03	AMC 2 Appendix 1	EoSM Questionnaire - State level
04	AMC 2 Appendix 2	EoSM Weightings - State level
05	AMC 3 Appendix 1	EoSM Questionnaire - ANSP level
06	AMC 3 Appendix 2	EoSM Weightings - ANSP level
07	GM 4 Appendix 1	EoSM ANSP-verification
08	AMC 9 Appendix 1	JC Questionnaire - State level
09	AMC 10 Appendix 1	JC Questionnaire - ANSP level
10	GM 10 Appendix 1	Look-up table for ATM-specific occurrences
11	GM 12 Appendix 1	JC-State-justification
12	GM 13 Appendix 1	JC-ANSP-justification
13		Notice Of Proposed Amendment (NPA) No 2011-18
14		Explanatory Note to ED Decision 2011/017/R (with CRD)

5.5. When this documentation is updated, the new versions will automatically apply to the EUR region framework.

5.6. The original documentation is in English. For application in the EUR region context, a Russian translation will be made available by ICAO, at least for [Doc 03], [Doc 05], [Doc 08], [Doc 09], [Doc 11] and [Doc 12].

Effectiveness of Safety Management (EoSM)

Step	Description and Guidance
1. Raw data production	**What data is to be produced?** The raw information consists of the answers to the EoSM questionnaires at State/competent authority and service provision level, as specified in part II of the *Final AMC and GM for SKPIs* [Doc 02]. The questionnaires' sole intent is to monitor the performance (effectiveness) of Member States/competent authorities and ANSPs regarding ATM/ANS safety management.

	Member States/competent authorities and ANSPs are expected to provide honest answers to these questionnaires. The indications provided in the completed EoSM questionnaires should be used with the sole purpose of generating recommendations and associated plans for improvement of the safety management. These indications are not used to generate findings in the context of standardisation inspections/oversights. The State level questionnaire can be found in [Doc 03]. The ANSP level questionnaire can be found in [Doc 05]. When these questionnaires are updated, the new versions will automatically apply to the EUR region framework. The original questionnaires are in English. For application in the EUR region context, a Russian translation will be made available. The State level questionnaire contains 38 questions, the service provision questionnaire 26. For the State level questionnaire, questions are grouped by Management Objective (MO), which in turn are grouped by Element, which finally are grouped by Component. There are 20 MOs. A MO has been derived for each of the elements of the ICAO State Safety Programme (SSP) and Safety Management System (SMS) as described in ICAO Document 9859 'Safety Management Manual'. In the ANSP level questionnaire, questions are grouped in two different ways: ▪ By Study Area (SA). There are 11 Study Areas. ▪ By MO. There are 16 Management Objectives, which are grouped by Element and Component. In the questionnaire, the MOs are not mentioned. The mapping between SA questions and MOs is defined in [Doc02] Tables 1 and 2 on p.18. In both questionnaires, the response to each question indicates the level of implementation, characterising the level of performance of the respective organisation. The following five levels of implementation are defined: ▪ Level A which is defined as 'Initiating' — processes are usually ad hoc and chaotic; ▪ Level B which is defined as 'Planning/Initial Implementation' — activities, processes and services are managed; ▪ Level C which is defined as 'Implementing' — defined and standard processes are used for managing; ▪ Level D which is defined as 'Managing & Measuring' — objectives are used to manage processes and performance is measured; and ▪ Level E which is defined as 'Continuous Improvement' — continuous improvement of processes and process performance.

	In addition a free-text justification is requested for each selected answer. All questions are to be answered, even if they make reference to legislation which a State is not required to apply (eg EU safety legislative and regulatory framework for non-SES States). **Who needs to produce the data?** The State level questionnaire [Doc 03] is to be filled in by the State or competent authority. Within each organisation (State and ANSP), a focal point is responsible for coordinating the production of the questionnaire. For the SES States, the service provision level questionnaire [Doc 05] is to be filled in by those ANSPs (certified for ATS and/or CNS provision) who are required to do so for the performance scheme. For the non-SES States the questionnaire is to be filled-in in by at least the ANSP(s) providing en-route ATS services. **When are the data to be produced?** The questionnaires are to be filled in once each year, end of January. The answers need to reflect the situation of the preceding year.
2. Periodical collection	At the end of January, the filled-in questionnaires are submitted to the national coordinator. For the SES States, the national coordinator is appointed by the State in accordance with Article 6 of Commission Regulation (EC) No 736/2006. Non-SES States will also appoint a national coordinator and inform ICAO accordingly. After verification at national level, the national coordinators provide the filled-in questionnaires to: ▪ EASA (for SES States) ▪ EASA (for non-SES States which have a bilateral working arrangement (WA) with EASA that contains provisions on standardisation procedures and reference standards that have been updated to include ATM/ANS). This concerns 9 Eurocontrol States: Albania, Armenia, Bosnia and Herzegovina, Croatia, Moldova, Monaco, Montenegro, Serbia, and The former Yugoslav Republic of Macedonia. ▪ EUROCONTROL (for Turkey and Ukraine). ▪ Nobody (for other States), as further processing is done at State level For the States reporting to EASA, the replies can be made using a web interface put in place by EASA/PRB. All States concerned have already received the necessary access codes from EASA. For questions and comments, EASA has made available the following functional mail box: atmsafetyKPI@easa.europa.eu.

3. Transformation	The questionnaires are transformed into fact records as follows. Each question is a fact record. **Dimensions**: ▪ Questionnaire type (State or ANSP) ▪ Question identifier ▪ Study Area (SA) – for ANSP questions only ▪ Management Objective (MO) ▪ Element ▪ Component ▪ ANSP – for ANSP questions only ▪ State ▪ Year of applicability **Received data**: ▪ Level of implementation (A to E) ▪ Justification (free text) **Metrics**: ▪ Number of 'Level of implementation' fields filled in (value: 1 or 0) ▪ Number of 'Justification' fields filled in (value: 1 or 0) ▪ Scoring (0 to 4) – levels A to E are mapped to numerical values 0 to 4 ▪ SA weighting factor of the question (from 0 to 5 according to its relevance to the Study Area) – for ANSP questions only. As defined in [Doc06]. ▪ MO weighting factor of the question (from 0 to 1 according to its relevance to the Management Objective). As defined in [Doc03] and [Doc06]. ▪ ANSP weighting factor in the State – for ANSP questions only. See [Doc 02] GM3 p.21.
4. Verification	The filled-in questionnaires are subject to a verification process which may lead to the modification of the answers to the questions. This takes place before the indicators are calculated. **For SES States and non-SES States which have a bilateral working arrangement with EASA**: ▪ State level questionnaires: by means of EASA standardisation inspections as specified in [Doc 02] p.13. ▪ ANSP questionnaires: by the NSA/competent authority, taking place before the questionnaires and their results are submitted to EASA. The competent authority/NSA may allocate the detailed verification task to a qualified entity or other entity. See [Doc02] p.26. ▪ In accordance with Commission Regulation (EC) No 736/2006, if during the standardisation inspection a finding is raised by the Standardisation Team, corrective action by the NSA is required. In case that a finding proves that any of the questions in the EoSM questionnaire is scored higher than it should be, the score should be corrected and lowered to the appropriate level of implementation. A

	similar approach should be applied when the NSA/competent authorities raise findings to the ANSPs. ▪ The outcome of standardisation inspections/oversight is not supposed to be used for corrections of the scores towards higher level of implementation. **For other non-SES States which are EUROCONTROL members (Turkey and Ukraine)**: ▪ Verification by the State, with support from Eurocontrol. **For other States**: ▪ Verification by the State (self-assessment)
5. Filtering	All submitted questionnaires are used for the calculation of the indicators. Questions which have not been answered (NIL answer) are excluded from the calculation of the indicators.
6. Aggregation	The aggregation level is the lowest level at which the State and ANSP indicators are calculated. **Time dimension**: Calculation and publication by year. **Organisational and geographical dimension**: The State level EoSM indicator is calculated and published at State level. The service provision level EoSM indicator is calculated and published for each individual ANSP. **Functional dimensions**: The indicators are calculated and published at the following levels: ▪ For individual Study Areas (SA) – for ANSP questions only ▪ For individual Management Objectives (MO) ▪ As an overall effectiveness score for all MOs/SAs
7. Calculation of results	The EoSM indicators are calculated by the authority which received the final version of the questionnaires (after verification): ▪ EASA (for SES States and non-SES States which have a bilateral working arrangement with EASA) ▪ Eurocontrol (for Turkey and Ukraine) ▪ The national coordinator (for other States) The EoSM indicators are effectiveness scores, which are calculated from the 'level of implementation' answers provided to the individual questions (fact records), by translating each answer into a numerical value from 0 to 4, taking the weighted sum of the scores for all questions (using appropriate weighting factors), and expressing the result as a percentage of the maximum possible score. The numerical values and weighting factors are already present in the fact records as metrics, as a result of the data processing done in step 3 (transformation).

	For the State level EoSM indicators, the algorithm for numerical analysis and scoring is specified in [Doc 02] AMC2 p. 12. The weighting factors can be found in [Doc 04]. For each State, two sets of EoSM State level indicators are calculated: ▪ An effectiveness score for each Management Objective (MO), in which individual questions are weighted according to their relevance to the MO; ▪ Overall effectiveness score: the overall score for the State estimated by taking the average of the scores over all Management Objectives. For the ANSP level EoSM indicators, the algorithm for numerical analysis and scoring is specified in [Doc 02] AMC3 p. 19. The weighting factors can be found in [Doc 06]. If multiple ANSPs within a State respond to the questionnaire, their contribution is weighted to calculate average ANSP indicators for the State in accordance with [Doc 02] GM3 p.21. For each ANSP, three sets of EoSM ANSP level indicators are calculated: ▪ An effectiveness score for each Management Objective (MO), in which individual questions are weighted according to their relevance to the MO; ▪ An effectiveness score for each Study Area (SA), in which individual questions are weighted according to their relevance to the SA; ▪ Overall effectiveness score: the overall score for the State estimated by taking the weighted average of the scores over all Study Areas.
8. Provision of results	As far as further data flow is concerned, the authority conducting step 7 (calculation of results) only provides the indicator values at MO/SA level and above, not the answers to the individual questions with their justifications. At this point, two different data flows exist: ▪ Reporting within the context of SES performance scheme obligations; ▪ Data provision for the purpose of EUR Region reporting to ICAO. For SES States and non-SES States which are EUROCONTROL members, the indicator values are provided to the PRB, for publication on the SES performance monitoring dashboard. Other States are invited to do the same on a voluntary basis. This can serve as a source for populating the ICAO template (RPRR reporting table B, see section 10).
9. Reporting to ICAO	States report the data using RPRR reporting table B (see section 10) upon request via State letter sent by the ICAO secretariat (Regional Office).
10. Production of annual report	ICAO secretariat (Regional Office) to present the collected information to EANPG and RASG

Level of State Just Culture (JC)

Step	Description and Guidance
1. Raw data production	**What data is to be produced?** The raw information consists of the answers to the Just Culture (JC) questionnaires at State and service provision level, as specified in part IV of the *Final AMC and GM for SKPIs* [Doc 02]. The questionnaires' sole intent is to identify possible obstacles and impediments to the application of the just culture. The questionnaires identify several elements related to an effective just culture, each element in turn with a number of sub-elements. These sub-elements are binary, i.e. the answer can only be 'yes' or 'no'. The States and ANSPs may qualify the 'no' answers in their respective completed questionnaire (column 'Justification and remarks') by indicating the related obstacles. Positive replies to the questions give an indication of a just culture context while negative replies indicate potential deficits/obstacles in just culture implementation. However, it is not expected that all replies should be positive but the identification of negative elements would give indication of possible areas of improvement and could be considered as incentives for improving the just culture in a particular State/organisation. The State level questionnaire can be found in [Doc 08]. The ANSP level questionnaire can be found in [Doc 09]. When these questionnaires are updated, the new versions will automatically apply to the EUR region framework. The original questionnaires are in English. For application in the EUR region context, a Russian translation will be made available. The State level questionnaire contains 20 questions, the service provision questionnaire 24. These questions are grouped by Element. There are 3 Elements: ▪ Policy and its implementation; ▪ Legal/Judiciary; ▪ Occurrence reporting and investigation. Each question is to be answered by Yes or No. In addition a free-text field is available for justification and remarks. Guidance material for filling in this field is available in [Doc 11] for the State level questionnaire, and in [Doc 12] for the ANSP questionnaire. All questions are to be answered, even if they make reference to legislation

	which a State is not required to apply (eg EU safety legislative and regulatory framework for non-SES States). Optionally, States and ANSPs may add to each Element a list of possible areas of improvement (self-assessment). **Who needs to produce the data?** The State level questionnaire [Doc 08] is to be filled in by the State or competent authority. Within each organisation (State and ANSP), a focal point is responsible for coordinating the production of the questionnaire. For the SES States, the service provision level questionnaire [Doc 09] is to be filled in by those ANSPs (certified for ATS and/or CNS provision) who are required to do so for the performance scheme. For the non-SES States the questionnaire is to be filled-in in by at least the ANSP(s) providing en-route ATS services. **When are the data to be produced?** The questionnaires are to be filled in once each year, end of January. The answers need to reflect the situation at the end of the preceding year.
2. Periodical collection	Questionnaires should be dispatched once per year, together with those for the EoSM indicator. The same roles and responsibilities apply as for the EoSM indicator.
3. Transformation	The questionnaires are transformed into fact records as follows. **<u>Fact table 1</u>**: Each question is a fact record. **Dimensions**: ▪ Questionnaire type (State or ANSP) ▪ Question identifier (sub-element) ▪ Element ▪ ANSP – for ANSP questions only ▪ State ▪ Year of applicability **Received data**: ▪ Answer to the question (Yes or No) ▪ Justification and remarks (free text) **Metrics**: ▪ Number of questions answered (value: 1 or 0) ▪ Number of 'Justification and remarks' fields filled in (value: 1 or 0) ▪ Number of questions answered with Yes (value: 1 or 0) ▪ Number of questions answered with No (value: 1 or 0) **<u>Fact table 2</u>**: Each 'possible area of improvement' is a fact record.

	Dimensions: ▪ Questionnaire type (State or ANSP) ▪ Area of improvement identifier ▪ Element ▪ ANSP – for ANSP questions only ▪ State ▪ Year of applicability **Received data**: ▪ Area of improvement description (free text) **Metrics**: ▪ Number of identified possible areas of improvement represented by the fact record (value: 1)
4. Verification	The Just Culture questionnaires should follow the same verification process as the one used for the EoSM indicator.
5. Filtering	No filtering – all questionnaires are used.
6. Aggregation	The aggregation level is the lowest level at which the State and ANSP indicators are calculated. **Time dimension**: Calculation and publication by year. **Organisational and geographical dimension**: The State level JC indicator is calculated and published at State level. The service provision level JC indicator is calculated and published for each individual ANSP. **Functional dimensions**: The indicators are calculated and published at the following levels: ▪ For individual Elements ▪ As an overall JC score for all Elements
7. Calculation of results	Counting the number of 'yes' and 'no' answers as specified in [Doc 02]
8. Provision of results	The data flow should be the same as the one used for the EoSM indicator.
9. Reporting to ICAO	States report the data using RPRR reporting table B (see section 10) upon request via State letter sent by the ICAO secretariat (Regional Office).
10. Production of annual report	ICAO secretariat (Regional Office) to present the collected information to EANPG and RASG

Adoption of a harmonized occurrence severity classification methodology

Step	Description and Guidance
1. Raw data production	**What data is to be produced?** The raw information consists of individual safety occurrence reports and

<table>
<tr><td></td><td>supporting data (eg recorded data, system logs), related to separation minima infringements, runway incursions and ATM-specific technical occurrences.

Who needs to produce the data?

The collection of relevant information should make use of existing safety data reporting mechanisms with enhancements where needed. See [Doc 02] AMC8 p.52.

When are the data to be produced?

A report and associated data are produced each time a safety occurrence takes place.</td></tr>
<tr><td>2. Periodical collection</td><td>Safety occurrence reports and associated data are dispatched on an ongoing basis to State accident/incident investigation authorities.</td></tr>
<tr><td>3. Transformation</td><td>The transformation step is essentially an assessment of each individual occurrence, leading to the ESARR 2 severity classification of the occurrence[3].

The mapping between the ESARR 2 Severity Classification Scheme and the ICAO AIRPROX Severity Scheme is as follows[4]:
<table>
<tr><th>Severity Classification As per ESARR 2</th><th>ICAO AIRPROX Classification</th></tr>
<tr><td>Accident</td><td>Accident as per ICAO Annex 13</td></tr>
<tr><td>Serious Incident (A)</td><td>AIRPROX CAT A
ICAO Doc 4444 : AIRPROX - Risk Of Collision: “The risk classification of an aircraft proximity in which serious risk of collision has existed”.</td></tr>
<tr><td>Major Incident (B)</td><td>AIRPROX CAT B
ICAO Doc 4444 : AIRPROX - Safety Not Assured: “The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised”.</td></tr>
<tr><td>Significant Incident (C)</td><td>AIRPROX CAT C
ICAO Doc 4444 : AIRPROX- No risk Of Collision: “The risk classification of an aircraft proximity in which no risk of Collision has existed”.</td></tr>
<tr><td>Not determined (D)</td><td>AIRPROX CAT D
ICAO Doc 4444 : AIRPROX - Risk Not determined: “The risk Classification of an aircraft proximity in which insufficient information was available to determine the risk involved or inconclusive or conflicting evidence precluded such determination”.</td></tr>
<tr><td>No safety effect (E)</td><td>Occurrences which have no safety significance. No direct mapping existing in ICAO.</td></tr>
</table>
A slightly different severity classification applies to ATM-specific occurrences:
<table>
<tr><th>Severity Classification</th><th>Description</th></tr>
<tr><td>AA</td><td>Total inability to provide safe ATM services (equivalent to ‘Serious incident’)</td></tr>
<tr><td>A</td><td>Serious inability to provide safe ATM services (also equivalent</td></tr>
</table></td></tr>
</table>

[3] See http://www.skybrary.aero/bookshelf/books/278.pdf section A.2.
[4] See http://www.skybrary.aero/bookshelf/books/276.pdf

	to 'Serious incident')
B	Partial inability to provide safe ATM services (equivalent to 'Major incident')
C	Ability to provide safe but degraded ATM services (equivalent to 'Significant incident')
D	Not determined — insufficient information was available to determine the risk involved or inconclusive or conflicting evidence precluded such determination.
E	No effect on ATM services — occurrences which have no effect on the ability to provide safe and non-degraded ATM services (equivalent to 'No safety effect').

See [Doc 02] p.44 for additional details.

Different occurrence scenarios may be considered when evaluating severity as it is done in EUROCONTROL Risk Analysis Tool (RAT) (see [Doc 02] p.35):

RAT Scenario	**Description**
1. More than one aircraft	When two or more aircraft are involved in the occurrence and a standard separation is defined – usually for incidents with airborne aircraft, e.g. usually involving separation minima infringements.
2. Aircraft – aircraft tower	When the occurrence is an encounter between two aircraft under tower ATC. This includes situations where a) both aircraft are airborne; b) both aircraft are on the ground; c) one aircraft is airborne and one is on the ground.
3. Aircraft with ground movement	When the occurrence is an encounter between an aircraft and a vehicle (includes towed aircraft). In this situation, the aircraft could be on the ground or it could be airborne.
4. One aircraft	When only one aircraft is involved in the occurrence (e.g. airspace infringement, level bust without involvement of a second aircraft, loss of separation with ground and/or obstacles). This also applies for near-CFIT occurrences.
5. ATM-specific occurrence	To be applied in cases of technical occurrences influencing the capability to provide safe ATM/ANS services.

The following link may be made between the occurrences scenarios as in RAT and the occurrence types referred to in Commission Regulation (EU) No 691/2010 (the performance Regulation):

- Separation minima infringements: scenario 1;
- Runway incursions: scenarios 2 and 3;
- ATM-specific occurrences: scenario 5.

The investigating authority may or may not base its severity classification on the RAT methodology. The use of the RAT methodology is measured to promote it as a common classification approach in all States, in order to produce harmonised safety occurrence statistics. To apply the RAT methodology, States can choose between using the EUROCONTROL RAT[5] (an off-the-shelf solution), or implementing the RAT methodology in their

[5] See http://www.eurocontrol.int/safety/gallery/content/public/library/Safrep/Risk_Analysis_Tool.pdf

	own systems.
	
	In summary, application of the RAT methodology typically comprises the following process steps for a number of assessment criteria:
	▪ Collecting the basic data (facts and parameters) describing the occurrence, as needed by the criterion;
	▪ Noting the absence or availability of the required basic data for the criterion;
	▪ Using the basic data to classify the "severity" of the occurrence with regard to that particular criterion,
	  o Either by translating the "severity" for the criterion into points and adding the points of all criteria to determine the ESARR 2 severity classification;
	  o Or by using a look-up table which provides the ESARR 2 severity classification as a function of various combinations of input conditions;
	  o Or by classifying the occurrence as 'not determined' (ESARR 2 severity class D) if insufficient basic data is available.
	
	The approach differs, depending on the type of safety occurrence:
	▪ For separation minima infringements, see [Doc 02] AMC5 p. 26;
	▪ For runway incursions, see [Doc 02] AMC6 p. 38;
	▪ For ATM-specific occurrences, see [Doc 02] AMC7 p. 40 and the look-up table contained in [Doc10].
	
	As explained in [Doc 02] AMC4 p. 26 and following, the severity classification approach takes into account two scoring perspectives: "ATM Ground" and "ATM Airborne". When the scores from both perspectives are combined, this results in an "ATM Overall" classification of the occurrence. However the methodology also allows producing a severity classification based on "ATM ground" only. This can be produced by ANSPs.
	
	Each safety occurrence is treated as a separate fact record.
	
	Dimensions:
	▪ Occurrence ID
	▪ Year of occurrence
	▪ State in which occurrence took place
	▪ Occurrence type (sep. infringement; RWY incursion; ATM-specif.)
	▪ RAT scenario
	▪ Severity classification ATM Ground
	▪ Severity classification ATM Overall
	
	Received data:
	▪ Occurrence summary (free text)
	▪ Reference to full safety occurrence report
	▪ Reference to supporting data
	
	Metrics:
	▪ Number of safety occurrences investigated (value: 0 or 1)

	▪ RAT methodology used for ATM Ground classification (value: 0 or 1) ▪ RAT methodology used for ATM Overall classification (value: 0 or 1)
4. Verification	Verification refers to checking the correctness and consistency of input data, and checking that the RAT methodology (if used) is applied correctly. For SES States verification should take place as specified in [Doc 02] AMC8 p.52. For non-SES States, verification should take place in a manner decided by the State in which the occurrence took place.
5. Filtering	Only the occurrence types referred to in Commission Regulation (EU) No 691/2010 (the performance Regulation) are used: Separation minima infringements; Runway incursions; ATM-specific occurrences.
6. Aggregation	For the State level RAT indicator: ▪ Aggregation by State, year, occurrence type For the State level occurrence statistics: ▪ Aggregation by State, year, occurrence type, severity classification
7. Calculation of results	For the State level RAT indicator: ▪ The percentage of occurrences the severity of which has been evaluated by the use of the RAT methodology. See [Doc 02] AMC8 p.52. Two percentages are provided: for ATM Ground and for ATM Overall. For the State level occurrence statistics: ▪ Number of occurrences by State, year, occurrence type, severity classification
8. Provision of results	The authority conducting step 7 (calculation of results) provide the indicator values to the national coordinator responsible for reporting to ICAO.
9. Reporting to ICAO	States report the data using RPRR reporting table B (see section 10) upon request via State letter sent by the ICAO secretariat (Regional Office).
10. Production of annual report	ICAO secretariat (Regional Office) to present the collected information to EANPG and RASG

6. CAPACITY

Introduction

6.1. The following indicators were selected for the EUR region performance framework:

1) En-route ATFM delays: average ATFM delay per flight generated by the airspace volume (en-route)

2) Airport ATFM delays: average ATFM delay per arrival in the main airports (to be identified by States in advance and based on the regional relevance)

6.2. This is a subset of the capacity indicators used by SES RP1.

6.3. Details regarding the production of these indicators for the States under the SES Performance Scheme will be published by the PRB on its meta-data portal (test version: http://prudata.webfactional.com/wiki).

Principles

6.4. The ATFM delay indicator does not measure capacity directly, but the cumulative effect of demand/capacity imbalances. Different types of imbalance can occur:

1) Nominal capacity is too low for normal demand (systematically);

2) Nominal capacity, in combination with unusually high traffic demand;

3) Normal traffic demand, in combination with temporarily reduced capacity;

4) A combination of the above: unusually high traffic demand in the face of temporarily reduced capacity.

6.5. There are different approaches to dealing with such imbalances, but in Europe the most common solution is to smooth demand peaks by holding flights at the gate. This is called ATFM delay. However for the ATFM delay indicator, the purpose is not to measure performance at the delay receiving side (the aircraft operators), but at the delay generating side (the ANSPs "owning" the generated delay).

6.6. For this reason it is not possible to use delay data from airlines as the data flow: this data includes a delay cause (IATA delay codes, which include ATFM as one of the reasons), which is fine for performance analysis at the delay receiving side (the flights), but it does not contain sufficient information to identify the delay generator/owner.

6.7. For the western part of the EUR Region (the ATFM Area shown in Figure 4), the selected data flow involves the Network Manager. For the eastern part of the EUR Region, it is assumed that States have their own ATFM processes through which they collect ATFM delay data.

6.8. To explain the Network Manager data flow, it is necessary to summarise how ATFM in the western part of Europe works. Further details can be found in the ATFCM Users Manual which can be downloaded from the following address:

http://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/HANDBOOK/atfcm-users-manual-current.pdf

6.9. When a demand/capacity imbalance is anticipated in en route airspace or at airports located within the ATFM Area (see Figure 4), Air Traffic Control (ATC) units may request the local Flow Management Position (FMP) to instigate an Air Traffic Flow Management (ATFM) measure, or regulation, to limit certain traffic flows associated with a reference location (RL). The RL is based on a geographical entity. It is either an Aerodrome (AD), a Set of Aerodromes (AZ), an Airspace Volume (AS), or a Significant Point (SP).

6.10. Aircraft departing from an airport located within the ATFM Area or the ATFM Adjacent Area, and expected to penetrate the ATFM Area during a period of congestion may be subject

to delay at their departure airport, under the authority of the Network Manager, in order to regulate the flow of traffic into the constrained downstream airspace or airport, thus ensuring safety.

6.11. Aircraft departing from elsewhere and penetrating the ATFM Area are exempted from ATFM delays, although they are counted as traffic demand, thus affecting the allocation of ATFM slots to non-exempted flights.

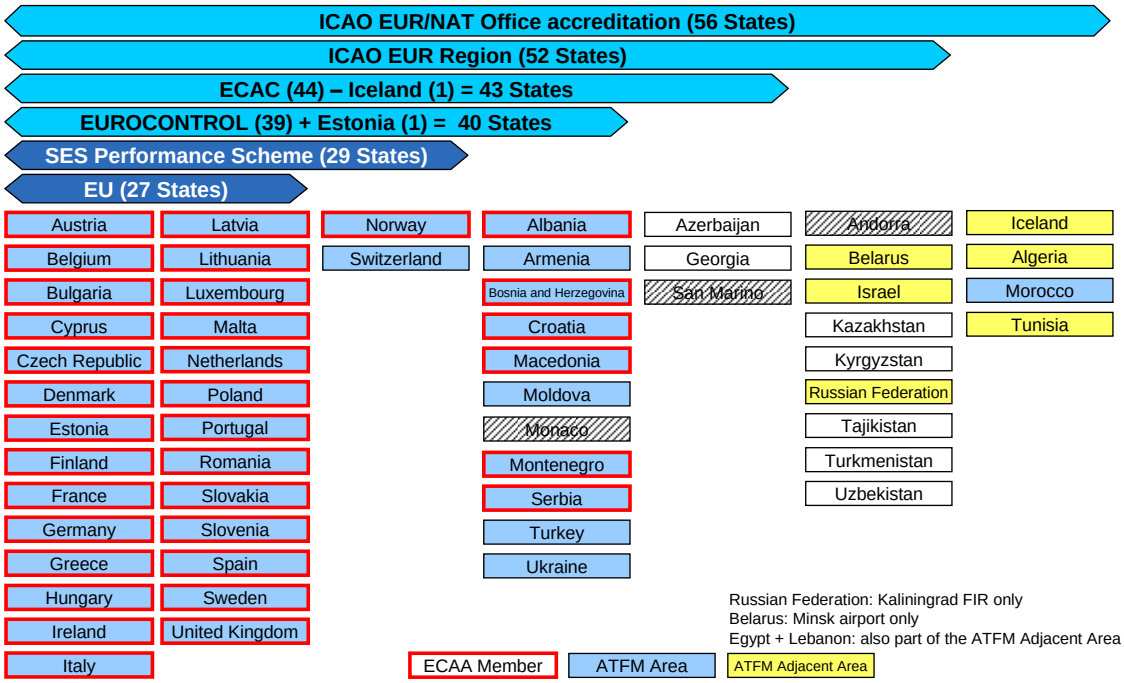

Figure 4 Definition of the ATFM Area and ATFM Adjacent Area

6.12. The resulting ATFM delay at individual flight level is calculated as the difference between the estimated take-off time calculated from the filed flight plan including updates, and the calculated take-off time allocated by the central unit of ATFM (the Network Manager).

6.13. The reason for the regulation is indicated by the responsible Flow Management Position (FMP). The following ATFM delay reasons are used when activating an ATFM regulation:

Table 1 ATFM Regulation Causes

Code	Description	Examples of usage
ATC & Aerodrome Capacity		
C	ATC Capacity	Demand exceeds the capacity; Planned staff shortage
G	Aerodrome Capacity	Lack of parking; taxiway closure; areas (runways, taxiways) closed for maintenance; demand exceeds the declared airport capacity; runway configuration (winds)
S	ATC Staffing	Unplanned staff shortage
ATC Other		
V	Environmental Issues	Noise
I	Industrial Action (ATC)	Controllers' strike

R	ATC Routeing	Phasing in of new procedures; ATFCM scenarios, Network Solutions
T	Equipment (ATC)	Radar failure; RTF failure
Weather		
W	Weather	Thunderstorm; low visibility; Strong cross winds, CBs
D	De-icing	De-Icing
All other causes		
A	Accident/incident	RWY23 closed due accident
E	Equipment (non-ATC)	Runway or taxiway lighting failure
M	Airspace management	Airspace availability; Military exercise
N	Industrial Action (non-ATC)	Firemen's strike
O	Other	To be used only if no other reason can fit
P	Special event	European football cup; Heads of Government meetings; Upgrade of ATM systems

6.14. The exhaustive list of all ATFM delay causes can be found in the Network Operations Handbook, ATFCM Users Manual, Annex 6. This Annex also reports the correlation between the regulation causes and the IATA delay codes.

6.15. The delay is attributed to a reference location in accordance with the Network Operations Handbook, ATFCM Users Manual, Chapter 7. Traditionally this is the most constraining reference location, but nowadays following bi-lateral agreement it is also possible to attribute part or all of the delay to an FMP other than the one where the regulation is applied. The latter mechanism is useful to assess, in a post operations phase, the amount of delay generated where one ATS unit has been obliged to accept or has accepted a significant increase in traffic directly generating delays due to a significant lack of capacity in an adjacent unit due to factors such as industrial action.

6.16. Further processing of the Network Manager data focuses on the production of delay statistics for the ANSPs to which the delay has been attributed. Their attributed delay can be aggregated functionally (eg grouping at the level of FMPs, ATC Units, ANSPs, States, etc.), over time, and over ATFM delay reasons.

En-route ATFM delays

Step	Description and Guidance
1. Raw data production	Production of traffic and delay data occurs during day-to-day operations. **Data for ATC units within the ATFM Area** ▪ Through their FMPs, ATC units implement ATFM regulations (with an associated regulation cause) to limit their traffic flow rate, whenever a demand/capacity imbalance is anticipated. ▪ The Network Manager creates an empty slot list for each reference location subject to a regulation. ▪ The Network Manager allocates ATFM slots (CTOTs) to individual flights, based on the empty slot list. ▪ For each flight, the Network Manager calculates an estimated take-off time (ETOT) and combines this with the CTOT to calculate the amount of ATFM delay.

	▪ The delay is attributed to one or more reference locations, with an associated delay reason coded in accordance with Table 1, inherited from the regulation. **Data for ATC units outside the ATFM Area** This case concerns 11 States not participating in the Network Manager's ATFCM process. It is assumed that these States have their own ATFCM capability to handle demand/capacity imbalances. If this includes delaying flights at the departure airport, the following should be recorded for each flight: ▪ Unique identifier for the flight (callsign and departure date/time) ▪ Reason for the delay, coded in accordance with Table 1 and para. 6.14. ▪ Reference Location causing the delay (destination airport or en-route; for en-route locations: the sector, FIR, ANSP or State causing the delay). ▪ The duration of the ATFM delay in minutes. The data shall be recorded in the ATFCM system associated with the location of the delay (note that the location of the delay may be within another State than the airport of departure at which the delay is taken). States without an ATFCM capability do not impose ATFM delays, hence do not collect delay data. They will report zero delays.
2. Periodical collection	**Data for ATC units within the ATFM Area** Traffic and delay data at individual flight level is loaded on a daily basis from the Network Manager's operational systems into two data warehouses: ▪ the Network Manager's Synthesis Data Store ▪ the Eurocontrol PRISME data warehouse. The Eurocontrol PRISME data warehouse contains two data marts: ▪ the PRU data mart ▪ a copy of the Synthesis Data Store **Data for ATC units outside the ATFM Area** Traffic and delay data at individual flight level is loaded from operational systems into the performance data warehouse of the ATFCM system at least on a monthly basis.
3. Transformation	In the data warehouses, traffic and delay data at individual flight level is prepared for geographical and functional aggregation in accordance with the aggregation hierarchies used in Step 6.
4. Verification	Data is accepted as produced by the ATFCM operational systems.
5. Filtering	For this indicator, only en-route data is used: ▪ Delay data: only en-route reference locations are used. For the data flow from the Network Manager only reference locations of the types Airspace Volume (AS), and Significant Point (SP) are used. ▪ Traffic data: only IFR flights entering the airspace
6. Aggregation	▪ Traffic data is computed at the appropriate geographical level (traffic entry counts for States. For the data flow from the Network Manager this is defined as the sum of ATC Unit Airspace volumes)

	▪ Delay data is aggregated by State (for the data flow from the Network Manager this is a functional aggregation, ie traffic flow => FMP => ACC => ANSP => State) and by delay cause (sum for all causes) ▪ Time-wise, all data is aggregated at annual level.
7. Calculation of results	The indicator is calculated by State / year / all delay causes: ▪ Total minutes of ATFM delay divided by total number of IFR flights
8. Provision of results	**Data for ATC units within the ATFM Area** Results are disseminated to various parties via the PRB on-line dashboard. **Data for ATC units outside the ATFM Area** The States concerned are free to choose the dissemination method.
9. Reporting to ICAO	**Data for ATC units within the ATFM Area** Within each State, the entity responsible for annual reporting to ICAO extracts the appropriate information from the on-line dashboard, and uses this to fill the ICAO template(s). **Data for ATC units outside the ATFM Area** Within each State, the entity responsible for annual reporting to ICAO extracts the appropriate information from the ATFCM data warehouse, and uses this to fill the ICAO template(s).
10. Production of annual report	ICAO secretariat (Regional Office) to present the collected information to EANPG

Airport ATFM delays

Step	**Description and Guidance**
1. Raw data production	This is the same process as described above for ATFM en-route delays.
2. Periodical collection	This is the same process as described above for ATFM en-route delays.
3. Transformation	This is the same process as described above for ATFM en-route delays. For airport ATFM delays in the Network Manager data flow, some special processing is required if the reference location is “Set of Aerodromes (AZ)”: the delay is attributed to a single airport, namely the airport at which the flight is landing.
4. Verification	Data is accepted as produced by the ATFCM operational systems.
5. Filtering	For this indicator, only airport related data is used: ▪ Delay data: only reference locations referring to airports are used. For the data flow from the Network Manager only reference locations of the types Aerodrome (AD), and Set of Aerodromes (AZ) are used. ▪ Selection of airports: only those destination airports are used which have been put on the list of airports subject to reporting this indicator. ▪ Traffic data: only IFR flights landing at the airport
6. Aggregation	▪ Traffic data is computed at airport level (landing IFR flights only) ▪ Delay data is aggregated at airport level (destination airport) and by delay cause (sum for all causes) ▪ Time-wise, all data is aggregated at annual level.
7. Calculation of results	The indicator is calculated by airport / year / all delay causes: ▪ Total minutes of ATFM delay divided by total number of landing IFR flights

8. Provision of results	This is the same process as described above for ATFM en-route delays.
9. Reporting to ICAO	This is the same process as described above for ATFM en-route delays.
10. Production of annual report	ICAO secretariat (Regional Office) to present the collected information to EANPG

7. EFFICIENCY AND ENVIRONMENT

Introduction

7.1. The following indicators were selected for the EUR region performance framework:

1) Average horizontal en route flight efficiency

2) CO2 emissions deriving from inefficiencies in flight efficiency

7.2. Indicator 1 is defined as in SES RP1. Indicator 2 is specific to the EUR region performance framework

7.3. Details regarding the production of indicator 1) will be published for the States under the EU Performance Scheme by the PRB on its meta-data portal (test version: http://prudata.webfactional.com/wiki).

Average horizontal en route flight efficiency

7.4. Within SES RP1, the average horizontal en route flight efficiency indicator is currently computed for a reference area comprising the same States as the ATFM Area (see Figure 4), but geographically somewhat different in the sense that it excludes oceanic airspace.

7.5. Note however that for RP1 the indicator is only computed for the reference area as a whole, and not at State level. In RP2 (starting 2015) there is a need to monitor this indicator at FAB level, and for this purpose PRB has defined a new algorithm which (1) can be applied at any geographical level and (2) is fully compatible with the algorithm presently used in RP1 (i.e. the new algorithm when applied to the reference area as a whole, yields the same results as the old algorithm).

7.6. Because this algorithm also satisfies the ICAO requirements (reporting at State level), it is proposed to use the new algorithm in the context of the EUR Region performance framework. This also considers the need to avoid duplication of work.

7.7. For the EUR Region performance framework the indicator is computed for the actual trajectory if available; else for the flight planned trajectory.

7.8. The principles of the algorithm are outlined below.

7.9. For the horizontal trajectory of each flight, different parts are considered (see Figure 5):

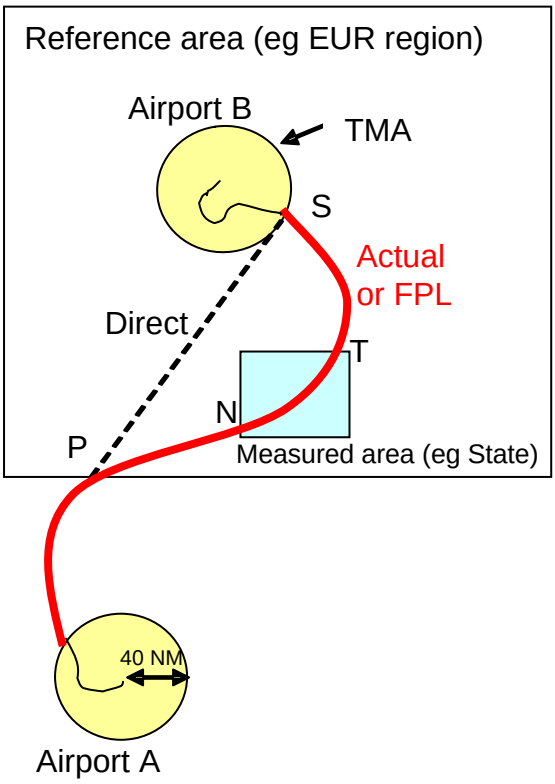

Figure 5 Significant points and trajectory segments

1) The whole flight (segment AB, from departure to destination airport);

2) The part of the flight which is en-route and within the reference area (segment PS);

3) The part of the flight for which the State level indicator is computed (segment NT).

7.10. For each segment NT, two quantities can be computed: the actual distance, and the contribution of NT to the direct distance PS. This contribution is called the "achieved distance". The formula for computing this is based on four great circle distances interconnecting the points P, N, T and S: achieved distance = [(PT-PN)+(SN-ST)]/2.

7.11. The achieved distance can be visualised by projecting points N and T on the great circle route between P and S along the lines n and t (lines of equal achieved distance) as shown in Figure 6: the achieved distance is the length of segment N'T' (shown in orange).

7.12. When a given flight traverses multiple States, the sum of all actual distance segments equals the actual distance from P to S. Likewise, the sum of all achieved distances equals the direct distance from P to S.

7.13. The extra distance for a segment NT of a given flight is the difference between the actual/flight planned distance and the achieved distance. The total extra distance observed within a measured area (eg a State) over a given time period is the sum of the actual/flight planned distances across all traversing flights, minus the sum of the achieved distances across all traversing flights.

7.14. For States reporting this indicator within the context of the EUR Region performance framework, the reference area to be used in the computations is defined as follows:

1) For States participating in the SES performance scheme: as defined in the performance scheme;

2) For other States: as chosen by the State, but at the minimum encompassing the State's FIRs and at the maximum the EUR Region. Prior to the start of reporting the indicator, States need to declare the reference area used in their computations.

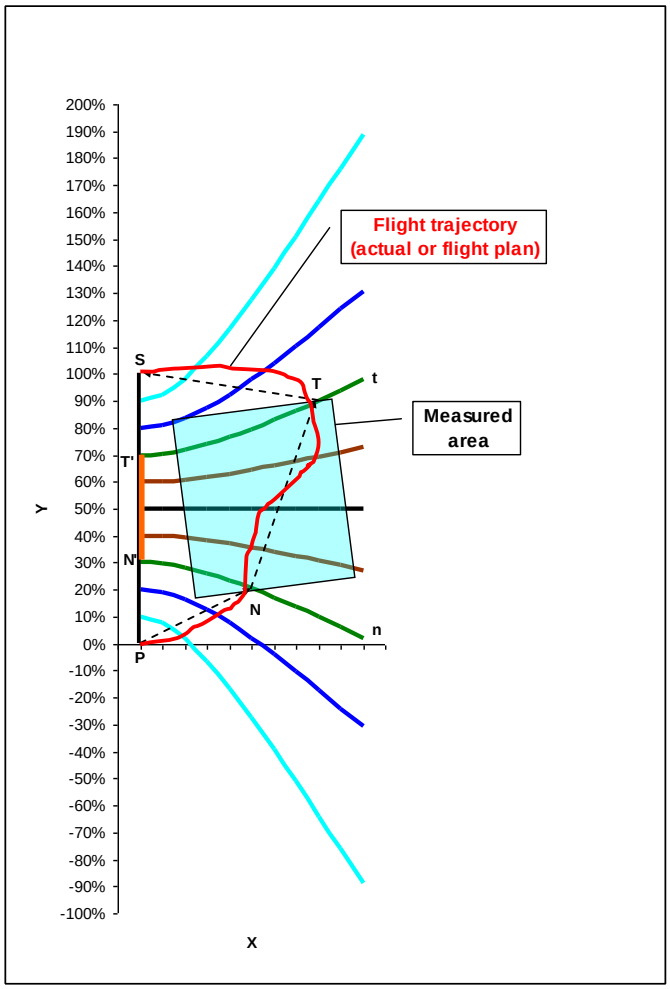

Figure 6 Lines of equal achieved distance

7.15. It is worth remarking that the indicator would result in zero extra distance if all flights would be following a direct great circle route from P to S. Note however that zero might not be the most desirable outcome when operational and economical parameters are considered. The user preferred trajectory rarely corresponds to the direct route. Computing the indicator for wind-optimum trajectories (assuming such data is available), for example, will generally produce a non-zero extra distance. Hence it is not advised to attempt a reduction of the horizontal en route flight efficiency indicator towards its theoretical limit (zero).

Step	Description and Guidance
1. Raw data production	Production of raw data at individual flight trajectory level occurs when airspace users file flight plans and ANSPs produce surveillance data. The data is stored in the operational systems of ANSPs and the Network Manager. Between these parties there is an exchange of data as appropriate to support operations.
2. Periodical collection	As part of post-operations processing, trajectory data at the level of individual flights is archived on a daily basis into data warehouses.

	Data which is available in the Network Manager's operational systems is loaded into two data warehouses: ▪ the Network Manager's Synthesis Data Store ▪ the Eurocontrol PRISME data warehouse. Data which is not present in the Network Manager's operational systems needs to be archived into data warehouses operated by the ANSPs of the States concerned.
3. Transformation	▪ Within these data warehouses, for each flight, the points P and S (once), and N and T (for each State) are determined. ▪ Following this, the actual and achieved distances can be computed for each flight at the level of each State.
4. Verification	Data profiling is used to check the completeness and plausibility of the trajectory data.
5. Filtering	For this indicator, only data from IFR flights is used.
6. Aggregation	Data is aggregated by State / year: ▪ Total actual IFR distance: the sum of the actual distances across all traversing IFR flights ▪ Total achieved IFR distance: the sum of the achieved distances across all traversing IFR flights.
7. Calculation of results	The indicator is calculated by State / year: ▪ Total extra IFR distance: total actual/flight planned IFR distance minus total achieved IFR distance ▪ Horizontal en-route flight efficiency: total extra IFR distance divided by total achieved IFR distance, expressed as a percentage.
8. Provision of results	**States participating in the SES performance scheme** Results are disseminated via the PRB on-line dashboard. **States not participating in the SES performance scheme** The States concerned are free to choose the dissemination method.
9. Reporting to ICAO	**States participating in the SES performance scheme** Within each State, the entity responsible for annual reporting to ICAO extracts the appropriate information from the on-line dashboard, and uses this to fill the ICAO template(s). **States not participating in the SES performance scheme** Within each State, the entity responsible for annual reporting to ICAO extracts the required information from the appropriate data warehouse, and uses this to fill the ICAO template(s).
10. Production of annual report	ICAO secretariat (Regional Office) to present the collected information to EANPG

CO_2 emissions deriving from inefficiencies in flight efficiency

7.16. This indicator provides an estimate of the total amount of CO2 emissions (in tonnes) associated with the extra distance flown, as computed in the above en-route horizontal flight efficiency indicator. The same caveat as above applies: the optimum indicator value is not equal to zero, hence the absolute value of the indicator should not be interpreted as representing the CO2 emissions caused by ANS.

7.17. This indicator should really only be used for trend analysis, ie to report how much the indicator has changed from one year to another.

Step	**Description and Guidance**
1. Raw data production	This is the same process as described above for average horizontal en-route flight efficiency.
2. Periodical collection	This is the same process as described above for average horizontal en-route flight efficiency.
3. Transformation	This is the same process as described above for average horizontal en-route flight efficiency.
4. Verification	This is the same process as described above for average horizontal en-route flight efficiency.
5. Filtering	This is the same process as described above for average horizontal en-route flight efficiency.
6. Aggregation	This is the same process as described above for average horizontal en-route flight efficiency.
7. Calculation of results	The indicator is calculated by State / year: ▪ Total extra IFR distance: total actual/flight planned IFR distance minus total achieved IFR distance ▪ CO2 emissions deriving from inefficiencies in flight efficiency: total extra IFR distance multiplied by a CO2 emission factor specific to the State This CO2 emission factor is expressed as the average CO2 emission per kilometre flown. It is computed for each State before the start of the reporting of the '*CO2 emissions deriving from inefficiencies in flight efficiency*' indicator. This calibration factor is to be based on an average fuel consumption per kilometre flown, computed from the State's average annual traffic composition in terms of aircraft types, vertical traffic distribution and distance flown. Every couple of years the CO2 emission factor would need to be recalibrated to take into account changes in traffic composition. This CO2 emission factor can be computed using the ICAO Fuel Savings Estimation Tool (IFSET).
8. Provision of results	This is the same process as described above for average horizontal en-route flight efficiency.
9. Reporting to ICAO	This is the same process as described above for average horizontal en-route flight efficiency.
10. Production of annual report	ICAO secretariat (Regional Office) to present the collected information to EANPG

8. COST EFFECTIVENESS

Introduction

8.1. The following indicators were selected for the EUR region performance framework:

1) IFR flights (en-route) per ATCO hour on duty

2) IFR flight hours per ATCO hour on duty

3) IFR movements (airport) per ATCO hour on duty

8.2. These indicators are based on data provision in accordance with the EUROCONTROL Specification for Economic Information Disclosure (SEID), edition 2.6 dated 31.12.2008. This document can be downloaded from the following address:

http://www.eurocontrol.int/sites/default/files/content/documents/single-sky/pru/publications/ace/spec-infodisc-v2-6.pdf

8.3. This EUROCONTROL Specification was originally mandated in 2001 by the EUROCONTROL Permanent Commission Decision No 88 and applies to all Air Navigation Service Providers (ANSPs) of EUROCONTROL Member States.

8.4. The application of SEID was strengthened for the SES countries in compliance with the European Commission Performance Regulation (Commission Regulation (EC) No 691/2010 of 29 July 2010).

8.5. SEID defines requirements for economic information to be provided by Air Navigation Service Providers (ANSPs) for performance review purposes in the EUROCONTROL context.

8.6. The EUROCONTROL Specification for Economic Data Disclosure is currently under revision process. The amended SEID shall be accepted by the Provisional Council of EUROCONTROL at the end of the year 2012. The EUROCONTROL Member States will report the 2011 data according to the amended version of SEID as from July 2013.

8.7. As far as the SEID is being amended and enforced, it will automatically apply to the EUR region framework.

8.8. For the EUR region performance framework only a subset of data described in SEID needs to be reported and this should be done in accordance with the definitions contained in this specification.

8.9. In this guidance material the following definitions for the cost-effectiveness area are used:

IFR flights (en-route)
IFR flights (en-route) refer to the total IFR flights controlled by the ANSP.

It relates to GAT flights only. “IFR flights controlled by the ANSP” will be different than the sum of IFR ACC movements as a flight might cross several ACCs under an ANSP’s jurisdiction. Flights are classified as overflights, domestic flights or arrival/departure international flights, depending upon the location of the airport of departure and on the location of the airport of arrival.

ATCO hour on duty
ATCO hour on duty is the sum of ATCO in OPS (i.e. ATCO on operational duty) hours on duty per year. This is the number of hours ATCOs in OPS spend on duty in OPS, including breaks and overtime in OPS. This figure could be available from a time recording system (using for example first clock-in and last clock-out times), it could be computed from the roster plan or it could be calculated by adding the average overtime worked in OPS to the contractual working hours and subtracting the average time an ATCO is not on duty in OPS.

ATCO hour on duty shall refer to ACCs, APPs or TWRs ATCOs, depending on the indicator to be computed, and shall not include ATCO hours on duty for ATCOs in OPS dedicated to provide ATC services to OAT or oceanic traffic.

ATCO
ATCO is the holder of a valid ATC licence which permits the individual to control traffic at a specific operational unit. Executive controllers, planning controllers, and supervisors are ATCOs. For the purpose of performance assessment, the total number of ATCOs that hold a valid licence can be broken down into two subcategories: ATCOs in OPS and ATCOs on other duties.

ATCO on duty
ATCO in OPS is an ATCO who is participating in an activity that is either directly related to the control of traffic or is a necessary requirement for an ATCO to be able to control traffic. Such activities include manning a position, refresher training and supervising on-the-job trainee controllers, but do not include participating in special projects, teaching at a training academy, or providing instruction in a simulator.

IFR flight-hours
IFR flight hours refer to the total IFR flight-hours controlled by the ANSP. It is obtained as the sum of the flight-hours controlled over the year by all the ATC operational units under an ANSP's control (ACCs, APPs and TWRs). For EUROCONTROL Member States for any given flight, the flight-hours controlled are derived from Network Manager information as the difference between the entry time and the exit time in the controlled airspace within the relevant operational unit (ACCs and APPs), based on the last flight plan received.

IFR airport movements
IFR airport movement is an actual aircraft take-off or landing at an airport. For terminal and airport traffic purposes, one arrival and one departure is counted as two movements (Definition ICAO Doc 9713). A touch-and-go is counted as one movement.

IFR airport movements controlled by the ANSP should include only movements where the ANSP provides terminal ANS.

IFR flights (en-route) per ATCO hour on duty (ACCs)

Step	Description and Guidance
1. Raw data production	**What data is to be produced?** The total number of IFR flights controlled by the ANSP. The raw operational data come from the flight plans of the aircraft operators

	(in the case of the EUROCONTROL Member States flight plans sent to the Network Manager). ATCO hours on duty which are the sum of ATCOs hours spent on operational duty, including breaks and overtime. **Who needs to produce the data?** The flight plans are produced by the airline operators. The figure of total IFR flights is available in each ANSP and in the Network Manager for EUROCONTROL Member States. Each ANSP should produce the ATCO hours on duty data. **When are the data to be produced?** **For EUROCONTROL States:** The Network Manager is collecting the IFR flight data on a daily basis. The data is then sent to PRISME data warehouse where the collection is based on daily operations. PRISME integrates data layers that span many subject areas, from flight data to frequencies, from environmental indicators to forecasts. Data are obtained from several sources such as the Network Manager, CRCO, major airlines flying in Europe, EAD, airframe manufacturers and ICAO ATCO hours on duty are recorded on a daily basis by each ANSP through time recording system or roster plan. **For other States:** IFR flight data is collected on the daily basis by each ANSP. ATCO hours on duty are recorded on a daily basis by each ANSP through time recording system or roster plan.
2. Periodical collection	**For EUROCONTROL States:** EUROCONTROL Member States (ANSPs) collect the IFR flights and ATCO hours on duty data once a year. The EUROCONTROL Member States'ANSPs receive the operational data on the monthly basis and the annual summary at the end of each year from EUROCONTROL. The annual figures are provided by the ANSPs to EUROCONTROL/PRU for each year by the 15th July of the following year. The data is reported in excel file (Part II). According to the SEID, the data is provided in the following items: ▪ Total IFR flights controlled by the ANSP in item D22, ▪ Sum of ATCO in OPS hours on duty (per year) in item D32, column ACCs.

	For other States: The States collect the IFR flights and ATCO hours on duty data once a year.
3. Transformation	Data is transformed into the following fact table: **Dimensions**: ▪ Year ▪ State **Metrics**: ▪ Number of IFR flights ▪ ATCO hours on duty
4. Verification	**For EUROCONTROL States:** ▪ PRC/PRB if the State agreed to delegate the processing and verification of the performance data for the purpose of the ICAO RPRR For a pragmatic verification purpose of the ATCO hours on duty for EUROCONTROL Member States the figure under item D32 of SEID should be consistent with the sum of figures reported at ACC level in Section E, item E28. Furthermore, it should be approximately equal to D31 multiplied by D44. **For other States:** ▪ State's designated entity
5. Filtering	Not applicable, as all filtering is done as part of Step 1
6. Aggregation	All data is aggregated by State / year as part of Step 1. For the ICAO RPRR calculation and publication of the indicators is at State level, even for those States which participate in FAB level aggregation under the SES performance scheme.
7. Calculation of results	The indicator is calculated by State / year: ▪ Total number of IFR flights divided by total number of ATCO hours on duty
8. Provision of results	**For EUROCONTROL States:** ▪ PRC/PRB if the State agreed to delegate the provision of processed performance data or ▪ EUROCONTROL Member State's designated entity **For other States:** ▪ State's designated entity
9. Reporting to ICAO	States report the data using RPRR reporting table B (see section 10) upon request via State letter sent by the ICAO secretariat (Regional Office).
10. Production of RPRR	ICAO secretariat (Regional Office) to present the collected information to EANPG

IFR flight-hours per ATCO hour on duty (ACCs)

Step	**Description and Guidance**
1. Raw data production	**What data is to be produced?**

	The total number of IFR flight-hours controlled by the ANSP. The raw operational data come from the flight plans of the aircraft operators (in the case of the EUROCONTROL Member States flight plans sent to the Network Manager). For any given flight, the flight-hours controlled are computed as the difference between the entry time and the exit time (as derived from the Flight Plan) in the controlled airspace within the relevant operational unit (ACCs and APPs). ATCO hours on duty which are the sum of ATCOs hours spend on operational duty, including breaks and overtime. **Who needs to produce the data?** The flight plans are produced by the aircraft operators. The figure of total IFR flight-hours is available in each ANSP and in the Network Manager for EUROCONTROL Member States. Each ANSP should produce the ATCO hours on duty data. **When are the data to be produced?** **For EUROCONTROL States:** the Network Manager is collecting the IFR flight-hours data on a daily basis. The data is then sent to PRISME data warehouse where the collection is based on daily operations. PRISME integrates data layers that span many subject areas, from flight data to frequencies, from environmental indicators to forecasts. Data are obtained from several sources such as the Network Manager, CRCO, major airlines flying in Europe, EAD, airframe manufacturers and ICAO. ATCO hours on duty are recorded on a daily basis by each ANSP through time recording system or roster plan. **For other States:** IFR flight-hours data is collected on the daily basis by each ANSP. ATCO hours on duty are recorded on a daily basis by each ANSP through time recording system or roster plan.

2. Periodical collection	**For EUROCONTROL States:** EUROCONTROL Member States (ANSPs) collect the IFR flight-hours and ATCO hours on duty data once a year. The EUROCONTROL Member States'ANSPs receive the operational data on the monthly basis and the annual summary at the end of each year from EUROCONTROL. The annual figures are provided by the ANSPs to EUROCONTROL/PRU for each year by the 15th July of the following year. The data is reported in excel file (Part II). According to the SEID, the data is provided in the following items: ▪ Total IFR flight-hours controlled by the ANSP in item D26, ▪ Sum of ATCO in OPS hours on duty (per year) in item D32, column ACCs. **For other States:** The States collect the IFR flights and ATCO hours on duty data once a year.
3. Transformation	Data is transformed into the following fact table: **Dimensions**: ▪ Year ▪ State **Metrics**: ▪ Number of IFR flight hours ▪ ATCO hours on duty
4. Verification	**For EUROCONTROL States:** ▪ PRC/PRB if the State agreed to delegate the processing and verification of the performance data for the purpose of the ICAO RPRR or ▪ EUROCONTROL Member State's designated entity For a pragmatic verification purpose of the ATCO hours on duty for EUROCONTROL Member States the figure under item D32 of SEID should be consistent with the sum of figures reported at ACC level in Section E, item E28. Furthermore, it should be approximately equal to D31 multiplied by D44. **For other States:** State's designated entity
5. Filtering	Not applicable, as all filtering is done as part of Step 1
6. Aggregation	All data is aggregated by State / year as part of Step 1. For the ICAO RPRR calculation and publication of the indicators is at State level, even for those States which participate in FAB level aggregation under the SES performance scheme.

7. Calculation of results	The indicator is calculated by State / year: ▪ Total number of IFR flight hours divided by total number of ATCO hours on duty
8. Provision of results	**For EUROCONTROL States:** ▪ PRC/PRB if the State agreed to delegate the provision of processed performance data or ▪ EUROCONTROL Member State's designated entity **For other States:** ▪ State's designated entity
9. Reporting to ICAO	States report the data using RPRR reporting table B (see section 10) upon request via State letter sent by the ICAO secretariat (Regional Office).
10. Production of RPRR	ICAO secretariat (Regional Office) to present the collected information to EANPG

IFR movements (airport) per ATCO hour on duty (APPs+TWRs)

Step	Description and Guidance
1. Raw data production	**What data is to be produced?** The total number of IFR airport movements controlled by the ANSP, which is the sum of an aircraft take-off or landing at an airport. For terminal and airport traffic purposes, one arrival and one departure is counted as two movements The raw operational data come from the flight plans of the airlines operators (in the case of the EUROCONTROL Member States flight plans sent to the Network Manager). ATCO hours on duty which are the sum of ATCOs hours spend on operational duty, including breaks and overtime. The data should only relate to the APPs and TWRs ATCOs. **Who needs to produce the data?** The flight plans are produced by the airline operators. The figure of IFR airport movements is available in each ANSP and in the Network Manager for EUROCONTROL Member States. Each ANSP should produce the ATCO hours on duty data. **When are the data to be produced?** **For EUROCONTROL States:** the Network Manager is collecting the IFR airport movements data on a daily basis. The data is then sent to PRISME data warehouse where the collection is based on daily operations. ATCO hours on duty are recorded on a daily basis by each ANSP through time recording system or roster plan.

	For other States: IFR flight-hours data is collected on the daily basis by each ANSP. ATCO hours on duty are recorded on a daily basis by each ANSP through time recording system or roster plan.
2. Periodical collection	**For EUROCONTROL States:** EUROCONTROL Member States (ANSPs) collect the IFR airport movements and ATCO hours on duty data once a year. The EUROCONTROL Member States'ANSPs receive the operational data on the monthly basis and the annual summary at the end of each year from EUROCONTROL. The annual figures are provided by the ANSPs to EUROCONTROL/PRU for each year by the 15th July of the following year. The data is reported in excel file (Part II). According to the SEID, the data is provided in the following items: ▪ IFR airport movements controlled by the ANSP in item D28, ▪ Sum of ATCO in OPS hours on duty (per year) in item D32, column APPs+TWRs. . **For other States:** The States collect the IFR flights and ATCO hours on duty data once a year.
3. Transformation	Data is transformed into the following fact table: **Dimensions**: ▪ Year ▪ State **Metrics**: ▪ Number of IFR airport movements ▪ ATCO hours on duty (APP+TWR)
4. Verification	**For EUROCONTROL States:** ▪ PRC/PRB if the State agreed to delegate the processing and verification of the performance data for the purpose of the ICAO RPRR or ▪ EUROCONTROL Member State's designated entity For a pragmatic verification purpose of the ATCO hours on duty for EUROCONTROL Member States the figure under item D32 of SEID should be consistent with the sum of figures reported at ACC level in Section E, item E28. Furthermore, it should be approximately equal to D31 multiplied by D44. **For other States:** State's designated entity

5. Filtering	Not applicable, as all filtering is done as part of Step 1
6. Aggregation	All data is aggregated by State / year as part of Step 1. For the ICAO RPRR calculation and publication of the indicators is at State level, even for those States which participate in FAB level aggregation under the SES performance scheme.
7. Calculation of results	The indicator is calculated by State / year: ▪ Total number of IFR airport movements divided by total number of ATCO hours on duty (APP+TWR)
8. Provision of results	**For EUROCONTROL States:** ▪ PRC/PRB if the State agreed to delegate the provision of processed performance data or ▪ EUROCONTROL Member State's designated entity **For other States:** ▪ State's designated entity
9. Reporting to ICAO	States report the data using RPRR reporting table B (see section 10) upon request via State letter sent by the ICAO secretariat (Regional Office).
10. Production of RPRR	ICAO secretariat (Regional Office) to present the collected information to EANPG

9. PARTICIPATION BY THE ATM COMMUNITY

Introduction

9.1. The following indicators were selected for the EUR region performance framework:

1) Level of participation of States and international organisations to planning and implementation meetings (e.g. EANPG and its contributory groups)

2) Level of responses to State Letters asking for information on planning and implementation aspects (e.g. Air Navigation Report Forms ARNF, State implementation plan)

3) Level of provision of performance results from States for the Regional Performance Review Report (RPRR)

9.2. These indicators are based on the collected data and response records which are managed by the ICAO secretariat (Regional Office). They do not require additional reporting by States or international organisations.

Participation monitoring database

9.3. The ICAO secretariat (Regional Office) will maintain a small **participation monitoring database**, which serves to hold all "raw data" necessary to compute and report the participation indicators. This database contains two interconnected fact tables:

1) **Regional planning event table**: contains one entry for each regional event (ICAO planning and implementation group meeting, State Letter invitation to meetings which require the participation from Member States/international organisations for its successful outcome etc.) for which participation is requested. Only events which qualify for being measured under the regional performance framework will be included.

2) **Participation request-response table**: contains one entry for each invitation sent out by the ICAO secretariat (one record per regional event and per invited State or international organisation). Note that States/organisations which are not invited to participate in a particular event (not all events apply to all States/organisations) will not appear in this table in relation to the event concerned. In such case they are not included in the computation of the participation indicators (i.e. they are not counted as non-participating).

9.4. The tables are updated by the ICAO secretariat at the following occasions:

1) Records are added in both tables each time a new event is created (usually when a State Letter has been sent out).

2) The Participation request-response table can be updated when the meeting has started or when the deadline for responses is passed.

3) The Participation request-response table is updated once more after a second deadline (the cut-off date), to take into account attendance at all days of the meeting and to consider late responses, with the aim of finalising the "level of participation" for all States/organisations in relation to the event.

9.5. The structure of these tables is specified below. The key field for the measurement of performance in this KPA is the "level of participation" field in the Participation request-response table.

Table 2 Regional planning event table

Field	Description
1. Event ID	Unique identifier (record sequence number)
2. Event purpose	Value selected from a category list drawn up by the ICAO secretariat. This categorisation allows the grouping of events which serve a common purpose.
3. Event type	One of 3 values: - Regional Planning and implementation meeting (e.g. EANPG, RDGE) - State letter asking for information (e.g. ANRF) - Request for provision of performance data
4. Event year	Calendar year associated with the event, for statistical (performance measurement) purposes. It is defined as the year of the date field "Event date 1".
5. Event series title	Name of the meeting (eg EANPG, RDGE) or subject of the State Letter
6. Event series sequence no.	Sequence number in case of recurring events or requests (optional)
7. Event location	Place of meeting, or N/A in case of other event type
8. Number of languages	Number of languages supported by the event (papers and/or interpreters)
9. List of languages	List of languages supported by the event (papers and/or interpreters)

10. Event date 1	Start date (in case of meeting) or requested deadline for response (in case of information request)
11. Event date 2	End date (in case of meeting) or cut-off date for late responses (in case of information request)
12. Date of invitation	Date that invitation/request was sent
13. Reference	Filing reference of the State Letter
14. Hyperlinks	Hypertext links to the electronic copy of the State Letter, attachments, distribution list, … (optional)
15. Transmission method	Mail, e-mail, web publication, …
16. Summary	Summary description
17. Remarks	
18. Last updated	Date/time stamp of last record modification

Table 3 Participation request-response table

Field	**Description**
1. Request-response ID	Unique identifier (record sequence number)
2. Event ID	Identifier of the related record in the Regional planning event table
3. State/organisation	Name of State or international organisation
4. Importance of participation	This field allows making a distinction between different groups of addressees within the same event. One of 3 values: - Required participation - Optional participation - No participation expected (State/organisation included in distribution list for information purposes only)
5. Level of participation	One of 5 values: - Pending (initial value) - No response/participation - Apologised - Partial response/participation - Full response/participation “Apologised” is used if the State/organisation informed the ICAO secretariat in advance (before “Event date 1”) that no response or participation can/will be provided. “Partial response/participation” is used if information is provided, but is of insufficient quality and/or quantity, or if the State/organisation was absent during a significant part of the meeting. A justification for this assessment can be provided by the ICAO secretariat in the field “Remarks”. “No response/participation” is used if there is no response/participation and also no apologies; or if the provided response reached the ICAO secretariat after “Event date 2”.
6. Method of participation	One of 5 values: - Pending (initial value) - None - By correspondence (letter, report or other written material) - By correspondence and meeting attendance - By meeting attendance “None” is used if the level of participation is “No response/participation”

6. Timeliness of participation	One of 4 values: - Pending (initial value) - On time - Late - Not applicable “On time” is used if there is response/participation by “Event date 1” at the latest. “Late” is used if there is response/participation after “Event date 1”, but at or before “Event date 2”. “Not applicable” is used if the level of participation is “No response/participation” or “Apologised”.
7. Date of response	Date that response was provided
8. Language of response	Language in which the response material is provided
9. Reference	Filing reference of the response material
10. Hyperlinks	Hypertext links to the electronic copy of the response material (optional)
11. Transmission method	Mail, e-mail, web publication, …
12. Summary	Summary description
13. Remarks	
14. Last updated	Date/time stamp of last record modification

9.6. As can be seen, the tables include a variety of information items, the purpose of which is to allow the ICAO secretariat to make additional types of analysis beyond the indicators defined in the regional performance framework. This should also help the ICAO secretariat to identify improvement measures in areas where relevant information on the implementation status of operational improvements is lacking from States.

Level of participation of States and international organisations to planning and implementation meetings

Step	**Description and Guidance**
1. Raw data production	The ICAO secretariat maintains the calendar of planning and implementation meetings, keeps the distribution lists up-to-date, sends out invitations, receives responses and maintains attendance/contact lists.
2. Periodical collection	Based on documentation available (see Step 1), the ICAO secretariat updates the participation monitoring database as described in para. 9.4, Table 2 and Table 3.
3. Transformation	The Regional planning event table and Participation request-response table are joined using the Event ID field in both tables. Each resulting request-response record (with associated Event data) is a fact record. These records are transformed into basic participation summary data cubes as follows. **Basic metric**: ▪ Participation count: the number of request-response records **Dimensions**:

	▪ Event purpose ▪ Event type ▪ Event year ▪ State/organisation ▪ Level of participation ▪ Importance of participation ▪ Method of participation ▪ Timeliness of participation
4. Verification	Double-check that data entry into the Regional planning event table and the Participation request-response table has been done without errors.
5. Filtering	The scope of this indicator is constrained using the following filter: **Dimension filter**: ▪ Event type: "Planning and implementation meeting" ▪ Importance of participation: "Required participation"
6. Aggregation	All aggregations retain the following dimensions: ▪ Level of participation: to show participation counts for each individual level of participation (not just for "full participation") ▪ Event year: to show annual trends The data is summarised in two different ways: ▪ Participation count for each Event purpose (summed over all States/organisations) ▪ Participation count for each State/organisation (summed over all Event purposes)
7. Calculation of results	Results are shown in two ways: ▪ Absolute participation: o Participation count for each Event purpose o Participation count for each State/organisation ▪ Relative participation (percentage of full participation): o Participation percentage for each Event purpose o Participation percentage for each State/organisation Relative participation is computed as the participation count per participation level divided by the total participation count summed over all participation levels.
8. Provision of results	Not applicable (results are produced by the ICAO secretariat)
9. Reporting to ICAO	Not applicable (results are produced by the ICAO secretariat)
10. Production of annual report	ICAO secretariat (regional office) to present the collected information to EANPG

Level of responses to State Letters asking for information on planning and implementation aspects

Step	**Description and Guidance**
1. Raw data production	The ICAO secretariat keeps the distribution lists up-to-date, sends out State letters, and receives responses.
2. Periodical collection	As above.
3. Transformation	As above.

4. Verification	As above.
5. Filtering	The scope of this indicator is constrained using the following filter: **Dimension filter**: ▪ Event type: "State letter asking for information" ▪ Importance of participation: "Required participation"
6. Aggregation	As above.
7. Calculation of results	As above.
8. Provision of results	As above.
9. Reporting to ICAO	As above.
10. Production of annual report	ICAO secretariat (regional office) to present the collected information to EANPG

Level of provision of performance results from States for the RPRR

Step	**Description and Guidance**
1. Raw data production	The ICAO secretariat keeps the distribution lists up-to-date, sends out State letters, and receives responses.
2. Periodical collection	As above.
3. Transformation	As above.
4. Verification	As above.
5. Filtering	The scope of this indicator is constrained using the following filter: **Dimension filter**: ▪ Event type: "Request for provision of performance data" ▪ Importance of participation: "Required participation"
6. Aggregation	As above.
7. Calculation of results	As above, except that there is no breakdown by purpose (single purpose).
8. Provision of results	As above.
9. Reporting to ICAO	As above.
10. Production of annual report	ICAO secretariat (regional office) to present the collected information to EANPG

10. TEMPLATES FOR THE REGIONAL PERFORMANCE REVIEW REPORT (RPRR)

10.1. The annual reporting in support of the Regional Performance Review Report (RPRR) is based on three templates:

1) RPRR reporting table A: State contextual information (data to be provided by States)

2) RPRR reporting table B: State performance report (data to be provided by States)

3) RPRR reporting table C: Participation report (data to be provided by the ICAO secretariat)

RPRR reporting table A: State contextual information

Item	Description	Units	Value
	General		
	Identification		
A1	Name of State		
A2	Year for which data is reported	Calendar year	
A3	Date of last update of this reporting table	Date	
	Submission to ICAO approved by		
A4	Name		
A5	Function		
A6	Date of approval	Date	
A7	Signature		
	Continental Area		
	Airspace		
A8	Number of FIRs	Number	
A9	Size of the area	km^2	
A10	Radar Surveillance Coverage at FL 290	km^2	
	Traffic		
A11	Total number of IFR flights controlled (=A12+A13+A14)	Flights/year	
A12	Number of domestic IFR flights controlled	Flights/year	
A13	Number of international IFR flights controlled	Flights/year	
A14	Number of IFR overflights controlled	Flights/year	
A15	Number of IFR flight-hours controlled	hrs/year	
A16	Number of IFR airport movements controlled (departures+arrivals)	Mov/year	
A17	Number of VFR airport movements controlled (departures+arrivals)	Mov/year	
A18	Average flight hours per IFR flight (=A15/A11)	hrs/flight	
A19	Average IFR traffic density (=A15/A9)	hrs/km^2	
	ATC facilities		
A20	Number of ACCs	Number	
A21	Number of co-located ACC/Approach Facilities	Number	
A22	Number of Approach Control Facilities	Number	
A23	Number of co-located Tower/Approach Facilities	Number	
A24	Number of stand-alone Towers	Number	
A25	Number of co-located ACC/Tower/Approach Facilities	Number	
	ATCOs in operations		
A26	Number of ATCOs in operations at ACCs	Number	
A27	Number of ATCOs in operations at co-located ACC/Approach Facilities	Number	
A28	Number of ATCOs in operations at Approach Control Facilities	Number	
A29	Number of ATCOs in operations	Number	

	at co-located Tower/Approach Facilities		
A30	Number of ATCOs in operations at stand-alone Towers	Number	
A31	Number of ATCOs in operations at co-located ACC/Tower/Approach Facilities	Number	
A32	Total number of ATCOs in operations (=A26+A27+A28+A29+A30+A31)	Number	
	Oceanic Area (for States having an Oceanic Area)		
	Airspace		
A33	Number of FIRs	Number	
A34	Size of the area	km^2	
A35	Radar Surveillance Coverage at FL 290	km^2	
	Traffic		
A36	Number of IFR flights controlled (=A37+A38+A39)	Flights/year	
A37	Number of domestic IFR flights controlled	Flights/year	
A38	Number of international IFR flights controlled	Flights/year	
A39	Number of IFR overflights controlled	Flights/year	
A40	Number of IFR flight-hours controlled	hrs/year	
A41	Number of IFR airport movements controlled (departures+arrivals)	Mov/year	
A42	Number of VFR airport movements controlled (departures+arrivals)	Mov/year	
A43	Average flight hours per IFR flight (A40/A36)	hrs/flight	
A44	Average IFR traffic density (A40/A34)	hrs/km^2	
	ATC facilities		
A45	Number of ACCs	Number	
A46	Number of co-located ACC/Approach Facilities	Number	
A47	Number of Approach Control Facilities	Number	
A48	Number of co-located Tower/Approach Facilities	Number	
A49	Number of stand-alone Towers	Number	
A50	Number of co-located ACC/Tower/Approach Facilities	Number	
	ATCOs in operations		
A51	Number of ATCOs in operations at ACCs	Number	
A52	Number of ATCOs in operations at co-located ACC/Approach Facilities	Number	
A53	Number of ATCOs in operations at Approach Control Facilities	Number	
A54	Number of ATCOs in operations at co-located Tower/Approach Facilities	Number	
A55	Number of ATCOs in operations at stand-alone Towers	Number	
A56	Number of ATCOs in operations at co-located ACC/Tower/Approach Facilities	Number	
A57	Total number of ATCOs in operations (=A51+A52+A53+A54+A55+A56)	Number	

RPRR reporting table B: State annual performance report

Item	Description	Units	Value
	General		
	Identification		
B1	Name of State		
B2	Year for which data is reported	Calendar year	
B3	Date of last update of this reporting table	Date	
	Submission to ICAO approved by		
B4	Name		
B5	Function		
B6	Date of approval	Date	
B7	Signature		
	Safety		
	Effectiveness of Safety Management (EoSM)		
B8	EoSM – overall score at State level	%	
B9	EoSM – overall score at ANSP level	%	
	Level of State Just Culture (JC) – State level		
B10	Number of questions answered	Number	
B11	Number of 'Justification and remarks' fields filled in	Number	
B12	Number of questions answered with Yes	Number	
B13	Number of questions answered with No	Number	
B14	Number of areas of improvement identified	Number	
	Level of State Just Culture (JC) – ANSP level		
B15	Number of questions answered	Number	
B16	Number of 'Justification and remarks' fields filled in	Number	
B17	Number of questions answered with Yes	Number	
B18	Number of questions answered with No	Number	
B19	Number of areas of improvement identified	Number	
	Adoption of a harmonized occurrence severity classification methodology		
	Separation minima infringements		
B20	Number of investigated separation minima infringements	Number	
B21	Number of separation minima infringements for which the severity classification ATM Ground has been determined using the RAT methodology	Number	
B22	Percentage of separation minima infringements for which the severity classification ATM Ground has been determined using the RAT methodology (=B21/B20)	%	
B23	Number of separation minima infringements for which the severity classification ATM Ground has been determined using the RAT methodology, and which have been classified as Serious Incident (severity A)	Number	
B24	Number of separation minima infringements for which the	Number	

	severity classification ATM Ground has been determined using the RAT methodology, and which have been classified as Major Incident (severity B)		
	Runway incursions		
B25	Number of investigated runway incursions	Number	
B26	Number of runway incursions for which the severity classification ATM Ground has been determined using the RAT methodology	Number	
B27	Percentage of runway incursions for which the severity classification ATM Ground has been determined using the RAT methodology (=B26/B25)	%	
B28	Number of runway incursions for which the severity classification ATM Ground has been determined using the RAT methodology, and which have been classified as Serious Incident (severity A)	Number	
B29	Number of runway incursions for which the severity classification ATM Ground has been determined using the RAT methodology, and which have been classified as Major Incident (severity B)	Number	
	ATM-specific technical occurrences		
B30	Number of investigated occurrences	Number	
B31	Number of occurrences for which the severity classification ATM Ground has been determined using the RAT methodology	Number	
B32	Percentage of occurrences for which the severity classification ATM Ground has been determined using the RAT methodology (=B31/B30)	%	
B33	Number of occurrences for which the severity classification ATM Ground has been determined using the RAT methodology, and which have been classified as Serious Incident (severity A or AA)	Number	
B34	Number of occurrences for which the severity classification ATM Ground has been determined using the RAT methodology, and which have been classified as Major Incident (severity B)	Number	
	Capacity		
	En-route ATFM delays (continental airspace)		
B35	Total en-route ATFM delay generated in the State (all causes) (=B37+B38+B39+B40)	Min/year	
B36	Average ATFM delay per flight (=B35/A11)	Min/flight	
B37	En-route ATFM delay generated in the State (ATC capacity causes, see Table 1)	Min/year	
B38	En-route ATFM delay generated in the State (ATC other causes, see Table 1)	Min/year	
B39	En-route ATFM delay generated in the State (Weather causes, see Table 1)	Min/year	
B40	En-route ATFM delay generated in the State (All other	Min/year	

	causes, see Table 1)		
	Airport ATFM delays		
	Airport #1	**ICAO code**	
B41-1	Total number of IFR arrivals at the airport	Arrivals/year	
B42-1	Total airport ATFM delay generated by the airport (all causes) (=B44+B45+B46+B47)	Min/year	
B43-1	Average ATFM delay per arrival (=B42/B41)	Min/arrival	
B44-1	Airport ATFM delay generated by the airport (ATC & aerodrome capacity causes, see Table 1)	Min/year	
B45-1	Airport ATFM delay generated by the airport (ATC other causes, see Table 1)	Min/year	
B46-1	Airport ATFM delay generated by the airport (Weather causes, see Table 1)	Min/year	
B47-1	Airport ATFM delay generated by the airport (All other causes, see Table 1)	Min/year	
	Airport #2	**ICAO code**	
	Repeat fields B41 – B47 for each airport included in the report		
	Flight Efficiency		
	Horizontal en-route flight efficiency		
B48	Name of selected reference area (provide list of FIRs in annex)		
B49	Data source for 'actual distance' (surveillance data or flight plan)	SUR or FPL	
B50	Total actual IFR distance	km/year	
B51	Total achieved IFR distance	km/year	
B52	Total extra IFR distance (=B50 – B51)	km/year	
B53	Horizontal en-route flight efficiency (=B52/B51)	%	
	Environment		
	CO_2 emissions deriving from inefficiencies in flight efficiency		
B54	Average en-route fuel consumption factor for the State (provide source and computation method in annex)	kg/km	
B55	Average en-route CO_2 emission factor for the State (=B54 * 3.15)	kg/km	
B56	Theoretical CO_2 emissions deriving from inefficiencies in horizontal en-route flight efficiency (=B50 * B55 / 1000)	Tonnes/year	
	Cost effectiveness		
	ATCO productivity		
B57	Number of ATCO hours on duty (ACCs+APP+TWRs)	hrs/year	
B58	Number of ATCO hours on duty (APP+TWRs)	hrs/year	
B59	IFR flights (en-route) per ATCO hour on duty (ACCs+APP+TWRs) (=A11/B57)	Flights/hr	
B60	IFR flight hours per ATCO hour on duty (ACCs+APP+TWRs) (=A15/B57)	hrs/hr	
B61	IFR movements (airport) per ATCO hour on duty (APP+TWRs) (=A16/B58)	Mov/hr	

RPRR reporting table C: Annual participation report

Participation in year: …	**Participation Count**					**Participation %**				
	Pending	No response/particip.	Apologised	Partial response/part.	Full response/partic.	Pending	No response/particip.	Apologised	Partial response/part.	Full response/partic.
Participation to planning and implementation meetings										
By purpose										
Purpose #1										
Purpose #2										
…										
By State / international organisation										
State/organisation #1										
State/organisation #2										
…										
Overall at EUR Region level										
Total count and average % over all meetings										
Response to State Letters asking for information on planning and implementation aspects										
By purpose										
Purpose #1										
Purpose #2										
…										
By State / international organisation										
State/organisation #1										
State/organisation #2										
…										
Overall at EUR Region level										
Total count and avg. % over all State letters										
Provision of performance results from States for the RPRR										
By State										
State #1										
State #2										
…										
Overall at EUR Region level										
Total count and average % over all States										

-END-

Appendix AA - State support to EUR RMA
(*paragraph 5.12 refers*)

State	Status	Action Required
Albania	Responded to PoC update response 06/12. No ADRs or LHD reports received. No military aircraft approvals.	Update ADR contact
Armenia	Responded to PoC update response 04/12. Updated RVSM approvals 09/12. No ADRs or LHD reports received. No military aircraft approvals.	Update ADR contact
Austria	Regular updates to approvals received. Irregular responses to queries to confirm approval status of unknown aircraft with unlisted mode S. No ADRs or LHD reports received. No military aircraft approvals.	Update ADR contact
Azerbaijan	Responded to PoC update response 04/12. Updated RVSM approvals 09/12. No ADRs or LHD reports received. No military aircraft approvals.	Update ADR contact
Belarus	Irregular receipt of approvals (in Russian so may indicate language problems). No response queries to confirm PoC, approval status of unlisted registrations or approval status of unknown aircraft with unlisted mode S. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data
Belgium	No response to request to confirm PoC data. Regular updates to approvals received from different PoC. Irregular responses to queries to confirm approval status of unknown aircraft with unlisted mode S. No ADRs or LHD reports received. 7 military RVSM approvals.	Update ADR contact. Confirm RVSM approval PoC
Bosnia Herz.	Irregular receipt of approvals (in Russian so may indicate language problems). No response queries to confirm PoC, approval status of unlisted registrations or approval status of unknown aircraft with unlisted mode S. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data
Bulgaria	No response to request to confirm PoC data. Regular updates to approvals received from different PoC. Irregular responses to queries to confirm approval status of unknown aircraft with unlisted mode S. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data
Croatia	No response to request to confirm PoC data. Irregular updates to approvals received from different PoC. Irregular responses to queries to confirm approval status of unknown aircraft with unlisted mode S. No ADRs or LHD reports received since 2010. No military aircraft approvals.	Provide all PoC data
Cyprus	No response to request to confirm PoC data. Irregular updates to approvals received from different PoC. Irregular responses to queries to confirm approval status of unknown aircraft with unlisted mode S. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data

Czech Rep.	Responded to PoC update request 04/12. Regular updates RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received since 2010. 4 military RVSM approvals.	Update ADR contact
Denmark	Responded to PoC update request 07/12. Regular updates RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received since 2010. 3 military RVSM approvals.	Update ADR contact
Estonia	Responded to PoC update request 05/12. Irregular updates of RVSM approvals and good response to identify unknown aircraft details. No ADRs or LHD reports received.	Update ADR contact
Finland	Responded to PoC update request 07/12. Regular updates RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received. No military aircraft approvals.	Update ADR contact
France	Responded to PoC update request 04/12. Regular updates RVSM approvals including military and good response to all RMA queries. Only 1 ADR received in 2011. 40 military RVSM approvals.	Confirm ADR contact
Georgia	Acknowledged contact request message from RMA but no response to request to confirm aircraft approval status and no responses to queries to confirm approval status of unknown aircraft with unlisted mode S. No ADRs or LHD reports received. No military aircraft approvals.	Provide ADR contact and confirm other PoC
Germany	Responded to PoC update request. Regular updates to RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received since 2010. 19 military RVSM approvals.	Update ADR contact
Greece	No response to request to confirm PoC data. Irregular updates to approvals. Good response to message to confirm approval status of unknown aircraft with unlisted mode S but no response to request to confirm approval status of aircraft filing W flight plans. No ADRs or LHD reports received. 3 military aircraft listed but no RVSM approval..	Provide ADR contact and confirm other PoC
Hungary	Responded to PoC update request. Irregular updates to RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received. 3 military RVSM approvals.	Update ADR contact
Ireland	Not accredited to EUR RMA for approval management (delegated to NAT CMA) but good response to direct and indirect requests for data. Only 2 ADRs received in 2011.	New ADR contact supplied 09/12. No action
Isle of Man	Responded to PoC update request 04/12. Regular updates RVSM approvals and good response to all RMA queries. Not responsible for submitting ADRs.	No action
Israel	Limited contact since being accredited to RMA at end of 2011. Good response from CAA and operators. No requirement yet identified regarding airspace evaluation. 3 military RVSM approvals.	No immediate action required.

Italy	No response to request to update PoC. Regular updates of RVSM approvals received. Response to queries from RMA improved greatly since summer 12 although some requests still not being answered. Regular ADRs received from some FIRs, mostly NIL returns from other regions. 7 military RVSM approvals. 28 military and state RVSM approvals.	Confirm PoC for RVSM approval information
Latvia	Responded to PoC update request. Irregular updates to RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received.	Update ADR contact
Lithuania	Responded to PoC update request. Irregular updates to RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received.	Update ADR contact
Luxembourg	No response to PoC update request. Irregular updates to RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received. 19 NATO RVSM approvals.	Update ADR contact
Macedonia	No response to request to update PoC. No regular updates of RVSM approvals. No response to queries from RMA. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data
Malta	No response to request to update PoC. Ir regular updates of RVSM approvals. Good response to queries from RMA. No ADRs or LHD reports received since 2010. No military aircraft approvals.	Update ADR contact
Moldova	No response to request to update PoC. No regular updates of RVSM approvals since 2010. No response to queries from RMA. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data
Monaco	No direct contact with authorities	
Montenegro	Responded to PoC update request. No regular updates of RVSM approvals. No response to queries from RMA. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data
Morocco	No response to PoC update request. Irregular updates to RVSM approvals and Irregular response to all RMA queries. No ADRs or LHD reports received. 7 military aircraft listed but only 1 RVSM approved.	Update ADR contact
Netherlands	No response to PoC update request. Regular updates to RVSM approvals and Irregular response to all RMA queries. No ADRs or LHD reports received. 4 military aircraft listed but only 1 RVSM approved.	Update ADR contact
Norway	Not accredited to EUR RMA for approval management (delegated to NAT CMA) but good response to direct and indirect requests for data. Regular ADRs.	No action
Poland	Responded to PoC update request. Irregular updates to RVSM approvals and good response to all RMA queries. No ADRs or LHD reports received. No military aircraft approvals.	Update ADR contact

Portugal	Not accredited to EUR RMA for approval management (delegated to NAT CMA) but good response to direct and indirect requests for data. No ADRs or LHD reports received since 2010.	Confirm ADR contact
Romania	No response to request to update PoC. Ir regular updates of RVSM approvals. Good response to queries from RMA. No ADRs or LHD reports received since 2010. No military aircraft approvals.	Provide ADR contact and confirm other PoC
Serbia	No response to PoC update request. Last update to RVSM approvals in September 2011 and no response to any RMA queries. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data
Slovakia	No response to request to update PoC. Ir regular updates of RVSM approvals. Good response to queries from RMA. No ADRs or LHD reports received since 2009. No military aircraft approvals.	Update ADR contact
Slovenia	No response to request to update PoC. Ir regular updates of RVSM approvals. Good response to queries from RMA. No ADRs or LHD reports received since 2009. 1 government state aircraft approved; no military aircraft approvals.	Update ADR contact
Spain	No response to request to update PoC. Ir regular updates of RVSM approvals, received from multiple contacts. Good response to queries from RMA. No ADRs or LHD reports received since 2009 but new ADR contact information supplied summer 2012. 20 military aircraft listed but only 5 RVSM approved.	Confirm PoC for RVSM approval information
Sweden	Responded to PoC update request. Regular updates to RVSM approvals and good response to all RMA queries. Regular ADRs and LHD reports received. 5 military RVSM approvals.	No action
Switzerland	Responded to PoC update request. Regular updates to RVSM approvals and good response to all RMA queries. Regular ADRs and LHD reports received. 3 military RVSM approvals.	No action
Tunisia	Responded to request to update PoC. Irregular updates of RVSM approvals. Irregular response to queries from RMA. Only NIL ADR returns	Confirm PoC for RVSM approval information
Turkey	No response to PoC update request. Irregular updates to RVSM approvals and irregular response to all RMA queries. Only 1 ADR received in 2010. 12 military RVSM approvals.	Update all PoC data
United Kingdom	Responded to PoC update request 04/12. Regular updates RVSM approvals and good response to all RMA queries. Regular ADRs and LHD reports received. 70 military aircraft listed but only 31 RVSM approved.	No action
Ukraine	No response to PoC update request. No regular updates to RVSM approvals and no response to any RMA queries. No ADRs or LHD reports received. No military aircraft approvals.	Provide all PoC data

Appendix AB – Air Navigation Deficiencies List
(*paragraph 6.6 refers*)

XLS document provided separately

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