IFATCA

INTERNATIONAL FEDERATION OF AIR TRAFFIC CONTROLLERS' ASSOCIATIONS

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TPM

TECHNICAL AND PROFESSIONAL MANUAL

The permanent record of the Federation's technical & professional policies

Version 66.0 – October 2023

MANUAL

IFATCA is the recognised international organisation representing air traffic controller associations. It is a non-political, not-for-profit, professional body that has been representing air traffic controllers for more than 50 years, and has more than 50,000 members in over 120 countries.

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PART I
INTRODUCTION

1. INTRODUCTION

1.1. General

1.1.1. Policy statements are published in the following pages of the Technical and Professional Manual.

1.1.2. Requests for information or guidance upon a technical or professional matter which has not been the subject of a working paper should be directed to the Chair TOC or PLC who, in conjunction with, if necessary, the Executive Vice-President Technical or Professional will gather such information on the subject as is available in a reasonable timescale and provide an answer to the query.

1.2. Technical and Professional Manual

1.2.1. The permanent record of the Federation's policies and activity is contained in two volumes – the IFATCA Administrative Manual and the IFATCA Technical and Professional Manual. The Deputy President shall be responsible for ensuring the provisions of these Manuals are kept up to date by the regular issue of amendments which shall be distributed by the Office. The Executive Board will be responsible for the appointment of (a) suitable person(s) to ensure the content and format is edited and maintained in an accurate and proper manner. These publications shall be maintained in the IFATCA Office.

1.2.2. The Technical and Professional Secretary shall maintain, amend, and disseminate the Technical & Professional Manual in coordination with the Editor of the IFATCA Administrative Manual, EVPT, EVPP and Chair PLC and TOC.

1.2.3. The Technical and Professional Manual shall only be available in Adobe Acrobat (.PDF) format on the web site.

1.2.4. In addition to the Technical and Professional Manual being distributed to the EB, members of TOC and PLC and the representatives, it shall be made available to other interested parties on request.

PART II
ABBREVIATIONS AND DEFINITIONS

Abbreviations

1090 ES	1090 MHz Extended Squitter
3D, 4D	3 or 4 Dimension
2EP	Two Eyes Principle
4EP	Four Eyes Principle
5LNC	Five Letter Naming Codes
AA	Approved Agency
AAC	a) Airline Administrative Control b) Aeronautical Administrative Communication
AAS	Automation and ATM Systems
ABI	Advanced Boundary Information Message
ASN.1 ACARS	Abstract Syntax Notation One - ACARS
AC	Advisory Circular
ACARE	Advisory Council for Aeronautics Research in Europe
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
ACE	ATM and CNS System Engineering (an EEC Centre of Expertise)
ACF	ACARS Convergence Function
ACG	ATM/CNS Consultancy Group
ACI	Airports Council International
ACID	Aircraft Identification
ACK	Acknowledgement
AD	Application Description
ADDI	Automated Digital Data Interchange
ADEP	Airport of Departure
ADES	Airport of Destination
ADI	Aggregate Demand Indicators
ADLP	Airborne Data Link Processor
ADNS	ARINC Data Network Service
ADOP	ICAO Aerodrome Design and Operations Panel
ADPCM	Adaptive Differential Pulse Code Modulation
ADS	Automatic Dependent Surveillance
ADS-B	Automatic Dependent Surveillance Broadcast
ADS-C	Automatic Dependence Surveillance Contract
ADSF	Automatic Dependent Surveillance Function
ADSU	Automatic Dependent Surveillance Unit or ADS Unit
AECMA	Association Européenne des Constructeurs de Matériel Aérospatial (European Association of Aerospace Industries)
AEEC	Airlines Electronic Engineering Committee
AELTS	ICAO's Aviation English Language Test Service
AENA	Aeropuertos Españoles y Navegación Aérea (Spanish Airports and Air Navigation)
AES	Aircraft Earth Station
AFC	ATC Frequency Change service
AFE	Africa East
AFIS	Automated Flight Inspection System
AFL	Actual Flight Level

AFM	Africa and Middle East
AFP	Air Traffic Control Flight Plan Proposal
AFS	Aeronautical Fixed Service
AFTN	Aeronautical Fixed Telecommunication Network
AGAS	Action Group for ATM Safety
AGL	Above Ground Level
AIDC	ATC Interfacility Data Communications
AIDS	Acquired Immune Deficiency Syndrome
AIP	Aeronautical Information Publication
AIRMET	Airmen's Meteorological Information
AIS	Aeronautical Information Service(s)
AKN	Acknowledgement
AL	Alerting Service
AMA	Americas
AMC	Airspace Management Cell
AMJ	Advisory Material-Joint
AMS	Apron Management Services
AMSS	Aeronautical Mobile Satellite Service
AMWG	Airspace Management Working Group
ANACNA	Associazione Nazionale Assistenti e Controllori della Navigazione Aerea
ANC	ICAO Air Navigation Commission
AN-Conf/11	Eleventh Air Navigation Conference
ANM	ATFM Notification Message
ANP	Actual Navigation Performance
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
ANT	Air Navigation Team
AO	Aircraft Operator
AOC	a) Aeronautical Operational Control b) Aircraft Operational Control c) Aircraft Operations Centre d) Airline Operational Communications System e) Airline Operations Centre
AOPG	Aerodrome Operations Group
AOT	Aerodrome Operations Team
APANPIRG	ASIA/PAC Air Navigation Planning and Implementation Regional Group
APC	a) Aeronautical Passenger Communications b) Aeronautical Public Correspondence
APDSG	ATM Procedures Development Sub-Group
APIWP	Approach Intercept Waypoint
APL	Abbreviated Flight Plan
APM	Associate Professional Membership
APP	Approach Control
APRs	Automatic Position Reports
APT	Airport Throughput (an EEC Research Area)
APW	Area Proximity Warning
ARCW	ADS Route Conformance Warning
ARINC	Aeronautical Radio Incorporation
ARO	ATS Reporting Office
ARR	Arrival message
ARTAS	a) Air Traffic Management Surveillance Tracker and Server System b) ATC Radar Tracker and Server

ARTCC	Air Route Traffic Control Centre
AS	Airborne Surveillance
ASA	Aircraft Surveillance Applications
ASAS	Airborne Separation Assistance System
ASAS TN	Airborne Separation Assistance System Thematic Network
ASBU	Airspace Block Upgrades
ASD	Air Situation Display
ASDE-X	Airport Surface Detection Equipment Model X
ASECNA	Agency for the Security of Aerial Navigation in Africa and Madagascar
ASM	Airspace Management
A-SMGCS	Advanced Surface Movement Guidance and Control System
ASMT	Air Traffic Control Safety Monitoring Tool
ASN.1	Abstract Syntax Notation One
ASP	Asia and Pacific
ASPA-S&M	Enhanced Sequencing and Merging Operations
ASTERIX	All Purpose STructured Eurocontrol suRveillance Information EXchange
ATA	Air Transport Association
ATAR	Automatic Air Reporting
ATC	Air Traffic Control, Air Traffic Control Domain
ATCC	Air Traffic Control Centre
ATCComm	Air Traffic Control Communications Systems (Hardware & Software)
ATCEUC	Air Traffic Controllers European Unions Coordination
ATCO	Air Traffic Control Officer
ATCS	Air Traffic Control Services
ATD	Along-Track Distance
ATFM	Air Traffic Flow Management
ATIS	a) Air Traffic Information Service b) Airport Terminal Information Service c) Automated Terminal Information Service
ATLAS	Australian Transition to Satellite Technology
ATM	Air Traffic Management
ATMOPSP	ICAO ATM Operations Panel
ATMRPP	ICAO Air Traffic Management Requirements and Performance Panel
ATN	Aeronautical Telecommunications Network
ATO	Actual Time Over
ATRK	Along-Track Error
ATS	Air Traffic Service(s)
ATSA-AIRB	Enhanced traffic situational awareness during flight operations
ATSA-S&A	Enhanced visual acquisition for see & avoid
ATSA-SURF	Enhanced traffic situational awareness on the airport surface
ATSA-SVA	Enhanced successive visual approaches
ATSAW	Airborne Traffic Situation Awareness
ATSC	Air Traffic Services Communication
ATS-PM	ICAO Doc 9426 – Air Traffic Services Planning Manual
ATSU	Air Traffic Service Unit
AUP	Airspace Use Plan
AUSEP	Australian RNAV Standard
AVPAC	Aviation VHF Packet Communications
BDS	Comm-B Data Store
BER	Basic Encoding Rules
BRL	Bearing Range Line
B-RNAV	Basic Area Navigation

C/A	Course Acquisition Code
C/I	Carrier-to-Interference Ratio
C/N	Carrier-to-Noise Ratio
CAA	a) Civil Aviation Administration b) Civil Aviation Authority
CAASD	Centre for Advanced Aviation System Development (The MITRE Corporation)
CADF	Centralised Airspace Data Processing Function
CANSO	Civil Air Navigation Services Organisation
CAR	Caribbean
CASA	Civil Aviation Safety Authority (Australia)
CASCADE	Co-Operative ATS through Surveillance & Communication Applications Deployed in ECAC
CAT	Data Category
CATMAC	Co-operative Air Traffic Management Concept
CBA	a) Cost/Benefit Analysis b) Cross-Border Area
CBI	Computer Based Instruction
CC	Connection Confirm
CCIR	International Radio Consultative Committee
CCITT	International Telegraph and Telephone Consultative Committee
CCO	Continuous Climb Operations
CDA	Continuous Descent Approaches
CDI	Course Deviation Indicator
CDM	Collaborative Decision Making
CDO	Continuous Descent Operations
CDR	Conditional Route
CDSNs	Conflict Detection Safety Nets
CDTI	Cockpit Display of Traffic Information
CDTs	Conflict Detection Tools
CEATS	Central European Air Traffic Services
CEO	Chief Executive Officer
CFMU	Central Flow Management Unit (EUROCONTROL, replaced by NMOC)
CHI	Computer Human Interface
CIB	Controller Intervention Buffer
CIC	a) Controller Intervention Capability b) Controller in Charge
CIDIN	Common ICAO Data Interchange Network
CIMIC	Civil/Military Interface Standing Committee
CIP	Convergence and Implementation Plan
CIS	a) Critical Incident Stress b) Co-operative Independent Surveillance
CISM	Critical Incident Stress Management
CLAM	Cleared Level Adherence Monitoring
CLNP	Connectionless Network Protocol
CM	Context Management
CMC	Civil/Military Cooperation
CMG	Controller Management Group
CMU	a) Communications Management Unit b) Context Management Unit
CNS	Communication Navigation and Surveillance
CNS/ATM	Communication, Navigation, Surveillance/Air Traffic Management
CoE	Centre of Expertise

COM	Communications
COM/MET/OPS	Communications/Meteorology/Operations
Connection	Transport Layer Relationship between peer end-systems.
CONUS	Continental United States
COTS	Commercial Off-The-Shelf
CP	ICAO Communications Panel
CPDLC	Controller Pilot Data Link Communications
CR	Connection Request
CRAM	Conditional Route Availability Message
CRC	Cyclic Redundancy Check
CRDA	Converging Runway Display Aid
CRDS	CEATS Research and Development Simulation Centre
CRM	a) C Reference Model b) Collision Risk Modelling c) Crew Resource Management
CROPS	Converging Runway Operations
CRT	Cathode Ray Tube
CSE	Course Setting Error
CTA	a) Control Area b) Calculated Time of Arrival
CTMO	Centralised Traffic Management Organisation
CTs	Controller Tools
CW	Carrier Wave
CWI	Continuous Wave Interference
D, R, P Areas	Danger, Restricted and Prohibited Areas
DA/H	Decision Altitude (Height)
DAI	Development and Integration (an EEC Centre of Expertise)
DARPS	Dynamic Air Route Planning System
D-ATIS	Digital Automatic Terminal Information Service
dBm	The dBm is the unit of absolute power related to 1 milliwatt
DCE	Data Circuit-Terminating Equipment
DCIA	Dependent Converging Instrument Approach
DCL	Departure Clearance Delivery
DCPC	Direct Controller Pilot Communication
DDM	Difference Depth of Modulation (ILS)
DFDAU	Digital Flight Data Acquisition Unit
Dg	Degree
DGCA	Director-General Civil Aviation
DGNSS	Differential GNSS
DGPS	Differential Global Positioning System
DIAS	Differential GNSS Instrument Approach System
DL	a) Data Link b) Downlink
DLAC	Data Link Applications Coding
DLORT	FAA Data Link Operational Requirements Team
DME	Distance Measuring Equipment
DO	Document
DOP	Dilution of Precision
DOTS	Dynamic Ocean Tracking System
DP	Deputy President
DPF	Data Processing Function
DPSK	Differential Phase Shift Keying

DR	Disconnect Request
DRMS	Distance Route Mean Square
DT	Data
DTF	Data Test Facility
E. I.	Employee Involvement
EAG EUROCONTROL	European ATFM Group
EANPG ICAO	European Air Navigation Planning Group
EAP	Employee Assistant Programme
EASA	European Aviation Safety Agency
EASIE	Enhanced ATM and Mode S Implementation in Europe
EATCHIP	European Air Traffic Control Harmonisation and Integration Programme
EATM	EUROCONTROL Programme for Performance Enhancement in European Air Traffic Management
EC	European Commission
ECA	European Cockpit Association
ECAC	European Civil Aviation Conference
ECCG	Experimental Centre Consultation Group
EEC	a) European Economic Community b) EUROCONTROL Experimental Centre
EET	Estimated Elapsed Time
EFAS	Extended Final Approach Segment
EFIS	Electronic Flight Information System
EFR	Electronic Flight Rules
EGOA	Enhanced General Aviation Operations
EHS	Electromagnetic Hyper Sensitivity
EMC	Electromagnetic Compatibility
EMF	Electro Magnetic Fields
EMI	Electromagnetic Interference
ENAV	Italian company for Air Navigation Services
ENRI	Electronic Navigation Research Institute
ER	Error
ERN	Earth Referenced Navigation
ERP	Effective Radiated Power
ESA	European Space Agency
ESARR	EUROCONTROL Safety Regulatory Requirements
ESOPS	Employee Share Option Schemes
EST	Estimate message
ETA	Estimated Time of Arrival
ETB	Estimated Time at Boundary
ETD	Estimated Time of Departure
ETN	Estimated Time of Entry
ETO	Estimated Time Over
ETODA	Estimated Time Over Deviation Alert
EU	European Union
EUC	Europe Central
EUR	Europe
EURATN	European ATN
EURET	European Transport
EUROCAE	European Organisation for Civil Aviation Equipment
EUROCONTROL	European Organisation for the Safety of Air Navigation
EUW	Europe West
EVP	Executive Vice President

EVP AFM	Executive Vice President Africa and Middle East
EVP AMA	Executive Vice President Americas
EVP ASP	Executive Vice President Asia and Pacific
EVP EUR	Executive Vice President Europe
EVPF	Executive Vice President Finance
EVPP	Executive Vice President Professional
EVPT	Executive Vice President Technical
FAA	Federal Aviation Administration
FAB	Functional Airspace Blocks
FAF	Final Approach Fix
FANS	ICAO Future Air Navigation Systems
FAR	Federal Aviation Regulation
FAS	Final Approach Segment
FAST	Future ATM Systems Team
FDI	Fault Detection and Isolation
FDP	Flight Data Processing
FDPS	Flight Data Processing System
FDR	Flight Data Record
FEC	Forward Error Correction
FF-ICE	Flight and Flow - Information for a Collaborative Environment
FGCC	Federal Geodetic Control Committee
FIFO	First In - First Out
FIIG	Federation of International Institutions of a semi-official or private nature (Geneva)
FIR	Flight Information Region
FIS	Flight Information Services
FIS-B	Flight Information Services Broadcast
FL	Flight Level, unit of altitude (expressed in 100's of feet)
FLID	Flight Identification
FLAS	Flight Level Allocation Scheme
FLTOPSP	ICAO Flight Operations Panel
FM	Frequency Modulation
FMC	Flight Management Computer
FMD	Flow Management Division (CFMU)
FMEA	Failure Mode Effects Analysis
FMP	Flow Management Position
FMS	Flight Management System
FMU	Flow Management Unit
FOM	Figure of Merit
FPA	Flight Path Angle
FPD	Flight Plan Data
FPL	Flight-Plan
FPPS	Flight Plan Processing System
FRA	Free Route Airspace
FRAC	Free Route Airspace Concept
FRAP	Free Route Airspace Project
FRMS	Fatigue Risk Management Systems
FRN	Field Reference Number
FS	Functional Statement
FSMP	Frequency Spectrum Management Panel
FSPEC	Field Specification
FTE	Flight Technical Error

FTI	FUA Temporary Instruction
FTS	Fast-time Simulation
FUA	Flexible Use of Airspace
FX	Field Extension Indicator
GA	General Aviation
GADS	Generic Aircraft Display Systems
GAIT	Ground-based Augmentation and Integrity Technique
GAT	General Air Traffic
GDLP	Ground Data Link Processor
GDOP	Geometric Dilution of Position
GEO	Geostationary
GES	Ground Earth Station
GIC	GNSS Integrity Channel
GICB	Ground-initiated Comm-B
GIRU	Ground Interrogator Receiver Unit
GLONASS	Global Navigation Satellite System (Russian Federation)
GM	Guidance Material
GNSS	Global Navigation Satellite System(s)
GNSS PSG	GNSS Programme Steering Group
EUROCONTROL	
GOS	Grade of Service
GOSIP	Government Open Systems Interconnection Profile
GPIWP	Glide Path Intercept Waypoint
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
GRAS	Ground-based Regional Augmentation System
GREPECAS	Caribbean/South American Planning and Implementation Regional Group
GS	Ground Speed
GWS	Graphic Weather Service
HALE	High Altitude Long Endurance
HARN	High Accuracy Reference Network
HAT	Height Above Touchdown
HCI	Human Computer Interface
HDLC	High-Level Data Link Control
HDOP	Horizontal Dilution of Precision
HELI	Helicopter Operations
HEO	Highly Elliptical Orbit
HF	High Frequency
HFS	Human Factors Specialist
HIV	Human Immune-deficiency Virus
HMI	Human Machine Interface
HPF	Horizontal Position Fix Error
HRM	Human Resource Management
HRT EUROCONTROL	Human Resources Team
HRT TFG	Human Resources Team Training Focus Group
EUROCONTROL	
HRT/HFSG	Human Resources Team Human Factors Work Group
EUROCONTROL	
HSI	Horizontal Situation Indicator
HUPER	Human Performance
IA5	International Alphabet #5
IAF	Initial Approach Fix

IAG	International Aviation Group
IAIN	International Association of Institutes of Navigation
IANS	Institute of Air Navigation Services
IAP	Instrument Approach Procedure
IAS	Indicated Airspeed
IAS TF A /B	Implementation of Airspace Strategy Task Force A & B
IATA	International Air Transport Association
ICAEA	International Civil Aviation English Association
ICAO	International Civil Aviation Organisation
ICB	Industry Consultation Body (European Commission)
ICCAIA	International Coordinating Council of Aerospace Industries Associations
ICD	Interface Control Document
ICD GPS-200B- PR	NAVSTAR GPS Space Segment/Navigation User Interface Control
ICISF	International Critical Incident Stress Foundation
ID	a) Identifier b) Identification
IFALPA	International Federation of Airline Pilots' Associations
IFATCA	International Federation of Air Traffic Controllers' Associations
IFATSEA	International Federation of Air Traffic Safety Electronics Associations
IFER	In-Flight Emergency Response
IFPP	ICAO Instrument Flight Procedures Panel
IFPS	Integrated Initial Flight Plan Processing System
IFR	Instrumental Flight Rules
IFRB	International Frequency Registration Board
IHB	Information Handbook
ILO	International Labour Organisation
ILS	Instrument Landing System
IM	Information Material
IMAWP	Initial Missed Approach Waypoint
IMC	Instrument Meteorological Conditions
IN	Information Need
INMARSAT	International Maritime Satellite Organisation
INO	Innovative Research (an EEC Research Area)
INS	a) Inertial Navigation System b) Insert
IOACG	Informal Indian Ocean Air Traffic Services Coordinating Group
IOC	Initial Operational Capability
IOD	GPS Issue of Data
ION	Institute of Navigation
IP	Internetwork Protocol
IRS	Inertial Reference System
ISDN	Integrated Services Digital Network
ISO	International Standards Organisation
ISPACG	Informal South Pacific ATS Co-Ordination Group
ITF	International Transport Workers' Federation
ITU	International Telecommunication Union
ITWS	Integrated Terminal Weather Service
IWP	Interim Working Party
JC	Just Culture
JCAB	Japan Civil Aviation Bureau
JPB	Joint Programme Board
KPI	Key Performance Indicator

kt	Knot: NM/hour, unit of speed
LADGNSS	Local Area Differential GNSS
LAN	Local Area Network
LAT/LONG	Latitude / Longitude
LEN	Length Indicator
LEO	Low Earth Orbit
LOEU	Liaison Officer European Union
LO ECTL	Liaison Officer EUROCONTROL
LOIG	Liaison Officer to International Organisations in Geneva
LOSA	Line Operations Safety Audit
LPC	Linear Predictive Coding
LPO	Lone Person Operation
LPRI	ICAO Language Proficiency Requirements Implementation
LRU	Line Replaceable Unit
LSB	Least Significant Bit
LVA	Large Vertical Aperture
LVO	Low Visibility Operations
MA	Member Association
MADAP	Maastricht Automated Data Processing and Display System
MAEVA	Master ATM European Validation Plan
MALE	Medium Altitude Long Endurance
MAP	Missed Approach Point
MAPt	Missed Approach Point
MASPS	Minimum Aviation System Performance Standards
MB	Message, Comm B
MBI	Message Block Identifier
MBS	Model Based Simulations
MCDU	Multifunction Control Display Unit
MET	Meteorological
METP	ICAO Meteorology Panel
MFF	Mediterranean Free Flight Programme
MID	Middle East
MIFR	Master International Frequency Registration
MLS	Microwave Landing System
MLAT	Multilateration
MMI	Man-Machine Interface
MNC	Multi -National Corporations
MNPS	Minimum Navigation Performance Specification
MNT	Mach Number Technique
MOC	Mean of Compliance
MODE S	Mode Select Transponder
Mode S PSG	Mode S Programme Steering Group
MONA	Monitoring Aids
MOPS	Minimum Operating Performance Standards
MRT	Multi-Radar Tracking
MRT-VU	Multi-Radar Tracking using Variable Update
MRVA	Minimum Radar Vector Altitude
MSAW	Minimum Safe Altitude Warning
MSB	Most Significant Bit
MSSP	Mobile Satellite Service Provider
MSE	Mean Square Error
MSK	Minimum Shift Keying

MSP	a) Mode S Specific Protocol b) Multi Sector Planning
MSSR	Monopulse Secondary Surveillance Radar
MTBA	Mean Time Between Alarm
MTBF	Mean Time Between Failures
MTBO	Mean Time Between Outage
MTBW	Mean Time Between Warning
MTCA	Medium Term Conflict Alert
MTCD	Medium Term Conflict Detection
MTD	Moving Target Detection
MTN	MEGA Transport Network
MTSAT	Multi-Functional Transport Satellite
MTTR	Mean Time to Restore
MU	Management Unit
MWARA	Major World Air Route Area
NA	Not Applicable
NACK	Negative Acknowledgement
NAD	North American Datum
NADIN	National Airspace Data Interchange Network
NASA	National Space Agency
NAT	North Atlantic
NAT ADSG	North Atlantic Automatic Dependent Surveillance Development Group
NAT ATS	North Atlantic Air Traffic Services
NATO	North Atlantic Treaty Organisation
NATSPG ICAO	North Atlantic Systems Planning Group
NAVAID	Navigational Aid
NAVD	North American Vertical Datum
NCA	North and Central America
NCD	Network Capacity and Demand Management (an EEC Research Area)
NDA	Next ATC Data Authority as authorised by the current ATC Data Authority
NGRS	National Geodetic Reference System
NGS	National Geodetic Survey
NIST	National Institute of Standards and Technology
NM	Nautical Mile, unit of distance (1852 metres)
NMOC	Network Manager Operations Centre (EUROCONTROL, previously CFMU)
NOPAC	North Pacific
NOSS	Normal Operations Safety Survey
NOTAM	Notice to Airmen
NPDU	Network Protocol Data Unit
NSC	Network Service Centre
NSDU	Network Service Data Unit
NSP	ICAO Navigation Systems Panel
NUAC	Nordic Upper Air Centre
NUP II	North European Update Programme Phase II
O.R.	Operational Requirement
OAS	Oceanic Automation System
OAT	Operational Air Traffic
OCA	Oceanic Control Area
OCM	Oceanic Clearance Message
OCVM	Operational Concept Validation Methodology
OCVSD	Operational Concept Validation Strategy Document
ODAPS	Oceanic Display and Planning System

ODF	Oceanic Development Facility (FAA Technical Centre)
ODIAC	Operational development of Integrated Surveillance & Air/Ground Data Communications
ODL	Oceanic Data Link
OJT	On-The-Job-Training
OLDI	On-line Data Interchange
Op	Operational
OP SUP	Operational Supervisor
OPD	Optimized Profile Descents
OPMT	Operations Planning Management Team
OPS	a) Operations b) Operational Services (an EEC Centre of Expertise)
ORI	Orientation
OSED	Operational Services and Environment Description
OSI	a) Open System Interface b) Open Systems Interconnection
OSST	FAA Oceanic Separation Standards Team
OTC	Overseas Telecommunications Company
PAC	Pacific
PACOTS	Pacific Organized Track System
PANS-ABC	Procedures for Air Navigation Services – Abbreviations and Codes (ICAO Doc 8400)
PANS-AERO	Procedures for Air Navigation Services – Aerodromes (ICAO Doc 9981)
PANS-ATM	Procedures for Air Navigation Services – Air Traffic Management (ICAO Doc 4444)
PANS-RAC	Procedures for Air Navigation Services – RAC (now PANS-ATM)
PANS-OPS	Procedures for Air Navigation Services – Aircraft Operations (ICAO Doc 8168)
PANS-TRG	Procedures for Air Navigation Services – Training (ICAO Doc 9868)
PBN	Performance Based Navigation
PC	Provisional Council
PCA	Prior Co-ordination Airspace
PCFL	Pre-cleared Flight Level
PCM	Pulse Code Modulation
P-Code	Precision Code
PCX	President and Chief Executive Officer
PDC	Pre-Departure Clearance
PDOP	Position Dilution of Precision
PEDI	Planning, Education, Demonstration, and Implementation
PER	Packed Encoding Rules
PET	Pacific Engineering Trials
PF	Position Fix Error
PFE	Path Following Error
PFL	Planned Flight Level
PHARE	Programme for Harmonised ATM Research in EUROCONTROL
PI	Performance Indicators
PIAC	Peak Instantaneous Aircraft Count
PM	Policy Material
POWG	Permanent Office Working Group
PPL	Private Pilot Licence
PPM	Provisional Policy Material
PPS	Precise Positioning Service

PRB	Performance Review Board
PRC	Performance Review Commission
PRN	Pseudorandom Number
PRU	Performance Review Units (EUROCONTROL)
PSR	Primary Surveillance Radar
PSTN	Public Switched Telecommunications Network
PTLP	ICAO Personnel Training and Licensing Panel
PWP	Pilot Working Position
QFE	Atmospheric Pressure at Aerodrome Elevations or at Runway Threshold
QMS	Quality management systems
QNH	Altimeter Sub-scale Setting to obtain Elevation when of the Ground
QOS	Quality-Of-Service
R&D	Research and Development
R/T	a) Radio Transmission b) Radio Telephony
RA	Resolution Advisory
RAD	Material relating to the provision of radar services
RAN	Regional Air Navigation (Meeting)
RCA	Reduced Co-ordination Airspace
RCF	Radio Communication Failure
RCMS	Route Conformance Monitoring System
RDA	Route Deviation Alert
RDARA	Regional and Domestic Air Route Area.
RDE-FG	Radar Data Exchange – Focus Group
RDF	Radar Data Function
RDP	Radar Data Processing
RDPC	Radar Data Processing Chain
RDPS	Radar Data Processing System
RDT&D	Research, Development, Trials and Demonstrations
RE	Reserved Expansion Indicator
RECAT	Recategorization (of aircraft for wake turbulence)
REM	Rapid Eye Movement
REP	Field Repetition Indicator
RF	Radius to Fix (method of turn)
RFG	Requirements Focus Group
RFI	Radio Frequency Interference
RFP	Request for Proposal
RGS	Remote Ground Station
RHCP	Right-Hand-Circular Polarised
RLAT	Reduced Lateral Separation Minima
RLONG	Reduced Longitudinal Separation Minima
RMM	Remote Maintenance Monitoring
RNAV	Area Navigation
RNAV Route	Area Navigation Route
RNP	Required Navigation Performance
RNP GM	Guidance Material for Required Navigation Performance
RPA	Remotely Piloted Aircraft
RPAS	Remotely Piloted Aircraft System
RPASP	ICAO Remotely Piloted Aircraft Systems Panel
RPL	Repetitive Flight-Plan
RPV	Remotely Piloted Vehicle
RRC	Range Rate Correction

RSP	Required Surveillance Performance
RSS	Root-sum-square
RTA	Required Time of Arrival
RTCA	Radio Technical Commission for Aeronautics
RTCM	Radio Technical Commission for Maritime
RTF	Radiotelephony
RTS	Real-time Simulation
RVSM	Reduced Vertical Separation Minima
RWEWP	Runway End Waypoint
RWIWP	Runway Intercept Waypoint
RWY	Runway
RWSL	Runway Status Lights
s	second, unit of time
SA	a) Selective Availability b) Situational Awareness
SAC	System Area Code
SAE	Society of Automotive Engineers
SAGE	The Safety Awareness Group at the EEC
SAM	a) Safety Assessment Methodology b) South America
SAR	Search and Rescue
SARPs	Standards and Recommended Practices (ICAO)
SAS	Safety, Analysis, and Scientific (an EEC Centre of Expertise)
SASP	ICAO Separation and Airspace Safety Panel
SATCOM	Satellite Communication(s)
SBC	Sub-Band Coding
SBU	Separate Business Units
SC	a) Special Committee b) Standing Committee
SCIA	Simultaneous Converging Instrument Approaches
SDM	Sum Depth of Modulation (ILS)
SDPS	Surveillance Data Processing System
SEE	Society, Environment, Economics (an EEC Research Area)
SELCAL	Selective Call
SEP	Policy on Separation Standards
SES	Single European Sky
SESAR	Single European Sky ATM Research
SFM	Simulation Facility Management (an EEC Centre of Expertise)
SG	Study Group
SIC	System Identification Code
SID	Standard Instrument Departure
SIGMET	Significant Meteorological Information
SIMOPS	Simulation Operations
SIRO	Simultaneous Intersecting Runway Operations
SITA	Société Internationale de Télécommunications Aéronautiques
SITF	Study and Implementation Task Force
SLM	Standard Length Message
SLOP	Standard Lateral Offset Procedures
SM	Scale Marker
SMC	System Management and Communication
SMF	Separation Monitoring Function
SMGCS	Surface Movement Guidance and Control System

SMP	ICAO Safety Management Panel
SMR	Surface Movement Radar
SMS	a) Safety Management System b) Surface Movement System
SOIT	FAA Satellite Operations Implementation Team
SP	a) Special Purpose Indicator b) ICAO Surveillance Panel
SPF	Strategic Performance Framework
SPI	Special Position Identification
SPO	Single Person Operations
SPR	Safety and Performance Requirement
SPS	Standard Positioning Service
SPT	Strip Printer
SRA	Strategic Research Agenda
SRC EUROCONTROL	Safety Regulation Commission
SRDP	Safety Research and Development Plan
SRE	Slant Range Error
SSC	Significant Safety Concern (ICAO USOAP CMA)
SSP	Sector Safety and Productivity (an EEC Research Area)
SSR	Secondary Surveillance Radar
SSRP	Strategic Safety Research Plan
SSWG	System Support Working Group
STAR	a) Standard Instrument Arrival (Route) b) Standard Arrival Route
STC	Supplementary Type Certification
STCA	Short Term Conflict Alert
SUR-T	Surveillance Team (EATM)
SVC	System View Cell
S-VFR	Special-VFR
SWIM	System-Wide Information Management
TA mode	Traffic Advisory mode
TACAN	Tactical Air Navigation
TAG	Tactical Action Group
TAS	True Airspeed
TAWS	Terrain Awareness and Warning System
TBA	To be Announced
TCAS	a) Traffic Collision Avoidance System b) Traffic Alert and Collision Avoidance System
TCH	Threshold Crossing Height
TCP	Transport Control Protocol
TCP/IP	Transmission Control Protocol/Internetwork Protocol
TCWP	Threshold Crossing Waypoint
TDLS	Tower Data Link System
TDM	Track Definition Message
TDWR	Terminal Doppler Weather Radar
TEM	Threat and Error Management
TIBA	Traffic Information Broadcast (by aircraft)
TIS	Traffic Information Service
TIS-B	Traffic Information Service Broadcast
TL	Transition Level
TLS	Target Level of Safety

TMA	a) Terminal Control Area b) Terminal Manoeuvring Area
TNAV	Time Navigation
TOBT	Target Off Block Time
TP	Turn Point
TP4	Transport Protocol Class 4
TPC	Technical Policy Coordinator
TPDU	Transport Protocol Data Unit
TPM	IFATCA Technical and Professional Manual
TPSec	IFATCA Technical and Professional Secretary
TQM	Total Quality Management
TRA	Temporary Reserved Area
TRM	Team Resource Management
TRS	Transmission message
TSA	Temporary Segregated Area
TSAP-ID	Transport Service Access Point Identifier
TSE	Total System Error Generic
TSO	Technical Standard Order
TWDL	Two-Way Data Link Communication
TWIP	Terminal Weather Information for Pilots
TWP	Technical Work Programme of the Organisation in the Air Navigation Field
TWPC	Two-Way Pilot Controller
TWR	Aerodrome Control Tower
UA	Unmanned Aircraft
UAC	Upper Area Control Centre
UAP	a) Upper Airspace Project b) User Application Profile
UAS	Unmanned Aircraft Systems
UASAG	ICAO Unmanned Aerial Systems Advisory Group
UAT	Universal Access Transmitter
UAV	a) Uniform Annual Values b) Unmanned Aerial Vehicle
UCAR	Unmanned Combat Armed Rotorcraft
UCAV	Unmanned Combat Aerial Vehicle
UDPP	User Driven Prioritization Process
UDRE	User Differential Range Error
UN	United Nations
UNDP	United Nations Development Programme
URA	User Range Accuracy
UTC	Co-ordinated Universal Time
UUP	Updated Airspace Use Plan
VDEV	Vertical Deviation
VDL	VHF Data Link
VDOP	Vertical Dilution of Precision
VDR	a) VHF Data Radio b) Validation Data Repository
VDT	Video Display Terminal
VDU	Visual Display Unit
VFR	Visual Flight Rules
VGH	Validation Guideline Handbook
VHF	Very High Frequency
VMC	Visual Meteorological Conditions

VNAV	Vertical Navigation
VOR	VHF Omnidirectional Radio Range
VP	Vertical Profile
VPAE	Vertical Profile Angle Error
VPF	Vertical Position Fix Error
VPIP	Vertical Profile Intercept Point
VSM	Vertical Separation Minimum
VSWR	Voltage Standing Wave Ratio
W/E	Warning/Error Condition
W/P, WP	Waypoint
WA	Wind Angle
WADGNSS	Wide Area Differential GNSS
WAN	Wide Area Network
WCM	World Class Manufacturers
WG	Working Group
WGS	World Geodetic Survey
WGS-84	World Geodetic System 84
WHO	World Health Organisation
WIP	Working Group for Runway Incursion Prevention
WP	Working Paper
WS	Wind Speed
XTK	Cross-Track Distance

Definitions

Abstract Syntax Notation One - (ASN.1) ACARS – A standard definition approach that is consistent with the ISO orientation of the ATN and specific ATN Manual Guidelines:

a) Aircraft Communications Addressing and Reporting System
b) Aircraft Communications and Reporting System
c) Aeronautical Radio Incorporation (ARINC) Communications Addressing and Reporting System

Accuracy – The degree of conformance between the estimated or measured position and / or velocity and / or time of/at a platform and its true position and/or velocity and the true time. Radio navigation system accuracy is usually presented as a statistical measure of system error and is specified as:

a) Predictable: The accuracy of a position with respect to the geographic or geodetic coordinates of the earth.
b) Repeatable: The accuracy with which a user can return to a position whose coordinates have been measured at a previous time with the same navigation system.
c) Relative: The accuracy with which a user can determine one position relative to another position regardless of any error in their true positions. In the context of the final approach phase of operation, accuracy may be more generally defined as the ability of the total system to maintain the aircraft position within a total system error (TSE) with a 95 percent probability and to stay within a specified aircraft containment surface which defines the obstacle clearance, terrain avoidance, or aircraft separation criteria for the intended operation. The total system error is based on the 95% probability combination of aircraft and non-aircraft sensor errors, display errors and flight technical errors at each point along the specified procedure. For approach, the outer tunnel shall be used as the obstacle clearance surface.

Active Waypoint – A waypoint to or from which navigational guidance is being provided. For parallel offset, the active waypoint may or may not be at the same geographical position as the parent waypoint. When not in the parallel offset mode (operating on the parent route), the active and parent waypoints are at the same geographical position.

Advisory – An annunciation that is generated when crew awareness is required, and subsequent crew action may be required; the associated colour is unique but not red.

Airborne Data Link Processor (ADLP) – An aircraft resident processor that is specific to a particular air-ground data link (e.g. Mode S) which provides channel management, and segments and/or reassembles messages for transfer. It is connected on one side to aircraft elements common to all data link systems, and on the other side to the air/ground link itself.

Aircraft Address – A unique combination of 24-bits available for assignment to an aircraft for the purpose of air-ground communications, navigation, and surveillance.

Aircraft ID – The callsign of the flight as filed in the ICAO flight plan e.g. AZA611 (Mode S).

Alert – An alert is an annunciation of an operating parameter of a navigation system being out of tolerance. Alerts include warnings, cautions, advisories, and integrity alarms.

Along-Track Distance (ATD) – The distance along the desired track from the waypoint to the perpendicular line from the desired track to the aircraft.

Along-Track Error (ATRK) – A fix error along the flight track resulting from the total error contributions.

Alpha numeric call sign – where the suffix consists of:

- number(s) followed by one or more letters; or
- number(s) followed by a combination of letters and numbers.

Altimetry-Aiding – The process of using altitude data to simulate a GNSS satellite directly over the receiver antenna (i.e., it reduces, by one, the number of satellites required for a given function). Barometric altimetry (calibrated pressure) is most likely to be used in civil aircraft because few, if any, have high range radio (radar) altimeters installed.

Ambient Workplace Recording (AWR) – Any type of recording, audio and/or visual, instituted in an air traffic control operations area that records the conversation of controllers and/or the environment within an air traffic control operations room on a continuous basis.

> *Note: Audio and visual recordings and AWR, together with associated computer data and transcripts of air traffic control communications are intended to provide a record of such communications for use in the monitoring of air traffic control operations, and the investigation of incidents and accidents.*

Applications – Specific use of systems that address particular user requirements. For the case of GNSS, applications are defined in terms of specific operational scenarios such as the support of en-route navigation or low- visibility aircraft taxiing.

Approach Intercept Waypoint (APIWP) – A variable waypoint used, if needed, to link an LNAV/VNAV flight plan path with an ILS or DGNSS Instrument Approach's Final Approach Segment. (Typically used to provide such linkage inside the Final Approach Fix, e.g., on a 3-mile final from the Runway Intercept Waypoint).

Area Navigation (RNAV) – Application of the navigation process providing the capability to establish and maintain a flight path on any arbitrary chosen course that remains within the coverage area of navigation sources being used. RNAV utilising capabilities in the horizontal plane only is called 2D RNAV, while RNAV which also incorporates vertical guidance is called 3D RNAV.

Area Navigation Route (RNAV Route) – An en-route segment, arrival or departure route (including RNAV SIDs and STARs). It may also include en-route segments established with gaps in station coverage for use by RNAV-equipped aircraft capable of automatic dead reckoning.

> a. The en route phase is normally construed as operations either on RNAV routes designated as high-low altitude routes, or direct point-to-point operations between designated waypoints.
> b. The terminal phase is considered as the transition from the departure runway to the first en route waypoint or the transition from the en route phase of the last en route waypoint until the initial approach fix/waypoint. A nominal value for the extent of the terminal phase would be that airspace extending approximately 50 miles from the departure or arrival airport.
> c. The approach phase is that portion of the flight starting at the initial approach fix/waypoint and terminating at the missed approach point. Normally, the final approach fix/waypoint is located within 10 miles from the runway threshold. The missed approach area is included in the approach phase in order to define accuracy requirements.

Area Proximity Warning (APW) – An alert provided to a controller of the imminent incursion of a flight into "special-use" airspace.

> *Note: The response to such a warning will be dictated by the nature of the airspace in question and its specific requirements.*

ATC Control Authority – Person responsible for separation of aircraft (controller).

ATC Data Authority – ATC ground system peer used by the ATC Control Authority.

ATC Ground System Peer – Peer end-system with ATCComm for a given connection.

Audio and visual recordings – *See Ambient Workplace Recording (AWR).*

Automatic Dependent Surveillance (ADS) – When an electromechanical device, after activation, requires no human involvement to supply dependent surveillance data.

Automatic Dependent Surveillance Broadcast (ADS-B) – Uses Mode S long squitter formats to broadcast aircraft position. The position is "heard" by a Ground Interrogator Receiver Unit (GIRU) on the ground and forwarded on to ATC.

Availability –

a) The availability of a navigation system is the ability of the system to provide the required guidance at the initiation of the intended operation.
b) Availability risk is the probability that the required guidance will not be present at the initiation of the intended operation.
c) Availability is an indication of the ability of the system to provide useable service within the specified coverage area.
d) Signal availability is the percentage of time that navigational signals transmitted from external sources are available for use.
e) Availability is a function of both the physical characteristics of the environment and the technical capabilities of the transmitter facilities.

Avoidance Procedure – In relation to LAHSO/CROPS, an Avoidance Procedure is a designed procedure to prevent aircraft collision but does not necessarily use an air traffic control (ATC) separation standard.

Note: The Avoidance Procedure shall demonstrate the required safety established by safety analysis and then be formally approved for use.

Barometric Altitude – Geopotential altitude in the earth's atmosphere above mean standard sea level pressure datum surface, measured by a pressure (barometric) altimeter.

Broadcast – The protocol within the Mode S system that permits uplink messages to be sent to all aircraft in cover, and downlink messages to be made available to all interrogators that have aircraft wishing to send the message under surveillance.

Caution – An annunciation that is generated when immediate crew aware subsequent crew action will be required; the associated colour is amber/yellow.

C-Band – Approximately 5 000 MHz.

Centre of Navigation – The mathematical point referenced to the associated with the DGNSS navigation solution. This point would typically of the GNSS antenna but could also be an offset or translated point (e.g., might be translated vertically to the level of the wheels of a large aircraft).

Comm-A – A 112-bit interrogation containing the 56-bit MA message field. This field is used by the uplink SLM and broadcast protocols.

Comm-B – A 112-bit reply containing the 56-bit MB message field. This field is used by the downlink SLM, ground-initiated, and broadcast protocols.

Comm-C – A 112-bit interrogation containing the 80-bit MC message field. This field is used by the extended length message (ELM) uplink protocol.

Comm-D – A 112-bit reply containing the 80-bit MD message field. This field is used by the extended length message (ELM) downlink protocol.

Communication Failure – A breakdown or unintentional downgrade in the designated means of air-ground communication required for ATS.

Conflict Detection Tools (CDTs) – Computer based controller tools that identify conflicts and then provide system generated conflict advice to controllers. They can provide conformance monitoring to ensure that aircraft comply with instructions issued to resolve a detected conflict.

Connection – Transport Layer Relationship between peer end-systems.

Connection Management – Term used to describe the management of ATCComm connections.

Context Management – An independent service that meets ATSC addressing requirements. It provides the mechanism for aircraft and ATC ground system peers to indicate availability to other ATN users and to convey the addresses to be employed. ATCComm interfaces with aircraft CM equipment to provide ATC ground system peers the addresses needed to establish communication with ATCComm.

Continuity [of a system] (COF) –

a) The continuity of a system is the ability of the total system (compromising all elements necessary to maintain aircraft position within the defined airspace) to perform its function without non- scheduled interruptions during the intended operation
b) The continuity risk is the probability that the system will be unintentionally interrupted and not provides guidance information for the intended operation.
c) More specifically, continuity is the probability that the system will be available for the duration of a phase of operation, presuming that the system was available at the beginning of that phase of operation.

Continuous Climb Operations (CCO) – Aircraft operating techniques facilitated by appropriate airspace and procedure design which meet all ATM requirements, allowing the execution of an optimized climb profile.

Continuous Descent Operations (CDO) – Aircraft operating techniques facilitated by appropriate airspace and procedure design which meet all ATM requirements, allowing the execution of an optimized descent profile.

CONTRAN – Brand name for a device to prevent aircraft from blocking each other during transmissions.

Controller Intervention Buffer – The time required for the Air Traffic Controller to intervene ensuring that a collision would be averted in the event that a separation standard being applied breaks down. This will include an allowance:

- to recognize the oversight;
- to formulate a solution;
- to convey instructions to the pilot;
- for the pilot to react and cause the aircraft to achieve the required change of trajectory.

Controller Tools – Functions of an ATM system that enhance a controller's ability to meet the objectives of ATS. They provide information that assists controllers in the planning and execution of their duties, rather than dictating a course of action.

Converging Runway Operations (CROPS) – The use of converging, but not necessarily intersecting, runways for take-off and/or landing.

Coordinate Conversion – The act of changing the coordinate values from one system to another, e.g., from geodetic coordinates (latitude and longitude) to Universal Transverse Mercator grid coordinates.

Course Setting Error (CSE) – The difference between the desired course setting and the course that is actually set.

Coverage – The coverage provided by a radio navigation system is that surface area or space volume in which the signals are adequate to permit the user to determine position to a specified level of accuracy. Coverage is influenced by system geometry, signal power levels, receiver sensitivity, atmospheric noise conditions and other factors which affect signal availability.

Crisis – State of inability to provide air navigation service at required level, affecting system and/or personnel, following an unusual or unforeseen situation.

Cross-Track Distance (XTK) – The perpendicular distance that the airplane is to the left or right of the desired track.

Decision Altitude/Height (DA/H) – A specified altitude or height (A/H) in the precision approach at which a missed approach shall be initiated if the required visual reference to continue the approach has not been established.

Note 1: Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.
Note 2: The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.

Dependent runway operation – In relation to LAHSO/CROPS, a dependent runway operation is when a clearance or instruction to a landing or departing aircraft is conditional on an action of another aircraft or vehicle.

Dependent Surveillance – When surveillance data is supplied by object of the surveillance.

Desired Course - Magnetic – A predetermined desired course direction to be followed (measured in degrees from local magnetic north).

Desired Course - Station – A predetermined desired course direction to be followed (measured in degrees from station north).

Desired Course - True – A predetermined desired course direction to be followed (measured in degrees from true north).

Differential GNSS (DGNSS) – Differential GNSS is an augmentation, the purpose of which is to determine position errors at one or more known locations and subsequently transmit derived information to other GNSS receivers in order to enhance the accuracy, integrity of the position estimate.

DIAS Integrity Alarm – Signal indicating an out-of-tolerance condition that might compromise the approach's containment surface.

Direct Visual Observation – Observation through direct eyesight, not supported by means other than optical aids (glasses/lenses) that correct vision.

Distance Route Mean Square (DRMS) – The root-mean-square value of the distance from the true location point of the position fixes in a collection of measurements. The confidence level depends on the elongation of the error ellipse. As the error ellipse collapses to a line segment, the 2 DRMS confidence level approaches 95 percent (95.4%); as the error ellipse becomes circular, the confidence level approaches 98 percent (98.2%). In navigation system analysis, a 95% confidence level is assumed, thus all error budgets are conservative with respect to the actual obtainable accuracy.

Downlink – A term referring to the transmission of data from an aircraft to the ground. Mode S ground-to-air signals are transmitted on the 1,090 MHz reply frequency channel.

Earth Referenced Navigation (ERN) – Navigation that is dependent on an external navigation source but is not dependent on a single fixed site. ERN may use either time or phase differences from hyperbolic radio navigation systems or satellite sources with earth models (datums) to determine position (normally latitude and longitude) on the surface of the earth. Omega, Loran- C, DME-DME and GNSS are different forms of ERN.

E-learning – The delivery of training over an electronic network (technology facilitated learning) or as stand-alone distance learning with the aid of a computer terminal.

En Route – A phase of navigation covering operations between departure and termination phases. En route phase of navigation has two subcategories:

a) en route domestic / continental
b) en route oceanic.

Estimated Time Over Deviation Alert (ETODA) – Alert provided to a controller to notify a controller that a new estimate is outside specified parameters when compared to a previous estimate.

Extended Final Approach Segment (EFAS) – A segment collinear with the Final Approach Segment, starting at and extending beyond the Glide Path Intercept Waypoint, in the direction opposite from the landing runway.

Extra duty – Any operational or non-operational duty or a combination of both performed outside of the scheduled hours of work which will result in an increased total duty time for the controller. Non-operational duties are other duties for which the controller is not required to exercise the privileges of the controller license which, from time to time, are assigned to a controller (theoretical controller training, investigation, etc.).

Familiarization flights – Also known as "duty flights" or "route experience flights", are granted by national air carriers on government or ANSP request.

FANS/II – Special Committee for the Monitoring and Co-ordination of Development and Transition Planning for the Future Air Navigation Systems.

Fatigue – A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental and/or physical activity), affecting the subjective state that can impair an air traffic controller's alertness and ability to perform safety related duties.

Figure of Merit (FOM) – A system generated indication of the quality of the actual navigation performance of the aircraft. This is expressed as an indication of the aircraft position-fixing accuracy. [ICAO FANS Concept, ADSP]. Indicates aircraft position determination accuracy and navigation capability or whether accuracy is better than:

FOM 0: >30NM
FOM 1: <30NM
FOM 2: <15NM
FOM 3: <8NM
FOM 4: <4NM
FOM 5: <1NM
FOM 6: <0.24NM
FOM 7: <0.05NM.

Final Approach Fix (FAF) – A point in space used to indicate the position at which an aircraft on a standard approach should be stabilised with appropriate guidance being supplied for the Final Approach Segment (Source: FAA).

Final Approach Segment (FAS) – The straight-line segment which prescribes the three-dimensional geometric path in space that an aircraft is supposed to fly on final approach. This segment is defined by two points in space, the Glide Path Intercept Waypoint (GPIWP) and the Threshold Crossing Waypoint (TCWP).

Flight Path Angle (FPA) – The angle that the vertical flight path of the aircraft makes with the local horizontal.

Flight Technical Error (FTE) – The accuracy with which the aircraft is controlled as measured by the indicated aircraft position with respect to the indicated command or desired position. It does not include blunder errors.

Four Eyes Principle (4EP) – Situation where an executive controller is assisted by another appropriately qualified controller monitoring the same area of responsibility as the executive controller.

Frame – The basic unit of data transfer at link level. A frame can include from one to four Comm-A or Comm-B segments, or from two to sixteen Comm-C segments, or from one to sixteen Comm-D segments.

it is a measure of overall positional and temporal accuracy. (See also PDOP, HDOP and VDOP).

Geocentric – Relative to the earth as a centre, measured from the centre of the earth.

Geodesy – The sciences related to the determination of the size and shape of the earth (geoid) by such direct measurements as triangulation, levelling and gravimetric observations, which determines the external gravitational field of the earth and, to a limited degree, the internal structure.

Geometric Altitude – Height above the local earth surface.

Geometric Dilution of Position (GDOP) – The ratio of position error of a multilateration system. More precisely, it is the ratio of the standard deviation of the position error to the standard deviation of the measurement errors, assuming all measurement errors are statistically independent and have a zero mean and the same standard distribution. GDOP is the measure of the "goodness" of the geometry of the multilateration sources as seen by the observer; a low GDOP is desirable, a high GDOP undesirable. Applied to Loran-C, GDOP is a measure of horizontal accuracy, while with satellite navigation systems

Geostationary – An equatorial satellite orbit that results in a constant fixed position of the satellite over a particular earth surface reference point. (GPS and GLONASS satellites are not geostationary.) Some proposed integrity and augmentation schemes use geostationary satellites.

Glide Path Intercept Waypoint (GPIWP) – Generally located coincident with the point at which the glide slope intercept altitude meets the ILS glide slope. If no ILS glide slope exists; the point is co-located with the Final Approach Fix.

Global Positioning System (GPS) – A space-based positioning, velocity and time system composed of space, control, and user segments.

a) The space segment is composed of 21 satellites (plus three operational spares) in six orbital planes.
b) The control segment consists of five monitor stations, three ground antennas and a master control station.
c) The user segment consists of antennas and receiver-processors that provide positioning, velocity, and precise timing to the user.

GNSS Augmentation – Technique of providing the system with input information, extra to that derived from the main constellation(s) in use, which provides additional range/pseudo-range inputs or corrections to, or enhancements of, existing pseudo-range inputs. This enables the system to provide a performance which is enhanced relative to that possible with the basic satellite information only.

GNSS Integrity Channel (GIC) – A system that broadcasts civil GNSS integrity information to users in a designated area, based upon measurements made by a ground-based monitor or network of monitors.

GNSS Planned Non availability – The proportion of time that the signals-in-space service of the GNSS is not useable taking into consideration scheduled outages only.

GNSS Random Non availability – The proportion of time and space over the area of interest when the services of the GNSS are not useable to support the required navigation performance.

Note 1: When referred to a selected point, rather than a defined area, GNSS random non availability is the portion of time that the services of the GNSS are not supporting the required navigation performance at this selected point.
Note 2: GNSS random non-availability excludes planned non-availability.

GNSS Time – The overall time reference for and transmitted by the GNSS. GNSS time is precisely related to UTC but does not follow leap seconds.

Graphic Weather Service (GWS) – Provides an en route strategic weather service by way of scalable graphics.

Ground Data Link Processor (GDLP) – A ground-resident processor that is specific to a particular air-ground data link (e.g. Mode S) which provides channel management, and segments and/or reassembles messages for transfer. It is connected on one side (by means of its DCE) to ground elements common to all data link systems, and on the other side to the air/ground link itself.

Ground-initiated Comm-B (GICB) – The ground-initiated Comm-B protocol allows the interrogator to extract Comm-B replies from the transponder containing data from a defined source in the MB field.

Ground Speed (GS) – The speed of an aircraft measured by the distance the airplane travels over the ground, measured in nautical miles per hour (knots).

Height Above – Specifically, the height above the Runway Intercept Waypoint.

Horizontal Dilution of Precision (HDOP) – The ratio of user-referenced horizontal position error to measurement error of a multilateration system.

Human Factors – The human aspects of the working environment.

Hybrid – A navigation system relying on a combination of navigation sources.

Independent runway operation – In relation to LAHSO/CROPS, an independent runway operation is when a clearance or instruction to a landing or departing aircraft is not conditional on an action of another aircraft or vehicle.

Independent Surveillance – Surveillance that does not depend on any action by object of the surveillance.

Initial Missed Approach Segment – A segment extending from the Runway Intercept Waypoint to the Initial Missed Approach Waypoint. This segment is primarily used for lateral guidance during an initial missed approach until other missed approach criteria become effective.

Initial Missed Approach Waypoint (IMAWP) – A 3-dimensional, high-precision waypoint located in the near vicinity of the runway used to establish the Initial Missed Approach Segment.

Initial Operational Capability (IOC) – The equipment and facilities, operational procedures, and training, on the ground and in the aircraft, required to achieve the first benefits in routine flight operations (i.e., a few aircraft operating in selected environments).

Instrument Approach Waypoints – Position fixes that may be used in defining RNAV approach procedures are the:

a) Initial Approach Waypoint (IAWP)
b) Intermediate Waypoint (INWP)
c) Final Approach Waypoint (FAWP)
d) Missed Approach Waypoint (MAWP)
e) Runway Waypoint (RWY WP)
f) Holding Waypoint.

Integrity –

a) The integrity of a system is that quality which relates to the trust which can be placed in the correctness of the information supplied by the total system.
b) Integrity risk is the probability of an undetected (latent) failure of the specified accuracy.
c) Integrity includes the ability of the system to provide timely warnings to the user when the system should not be used for the intended operation.

Integrity Monitoring – GNSS integrity monitoring is a GNSS subsystem which enables the timely detection and indication of malfunctions in GNSS operations to ensure the user is aware of whether or not the system is operating within its specified performance limits.

Intrinsic Safety – Safety aspects inherent to the design of the system.

Land And Hold Short Operations (LAHSO) – An operation that has an Air Traffic Control (ATC) requirement for a landing aircraft to stop short of the full length of the runway.

L-Band – Approximately 1,500 MHz.

Linear Accident Model – An accident model, where the relation between cause and outcome is (simplistically) defined linear. This method is best used in systems with a low complexity.

Lone Person Operation (LPO) – Operations where an ATCO is providing a service with no other person available on the unit, ATCO or otherwise.

Manoeuvre Anticipation – A means, achieved either by equipment mechanisation or procedurally, by which path changes are initiated in either 2D or 3D navigation.

Mask Angle – A fixed elevation angle referenced to the user's horizon below which satellites are ignored by the receiver software. Mask angles are used primarily in the analysis of GNSS performance and are employed in some receiver designs. The mask angle is driven by the receiver antenna characteristics, the strength of the transmitted signal at low elevations, receiver sensitivity and acceptable low elevation errors.

Maximum Allowable Warning Rate – The maximum allowable warning rate of a system is the upper bound of total warning rate (all sources of warnings that the system can generate) with the system in normal operation.

Message – Basic unit of information exchanged between ATCComm and the ATC ground system peer.

Message Element – A component of a message used to define the context of the information exchanged.

Message Header – Control information used to maintain synchronisation between ATCComm and the ATC ground system peer.

Message Identification Number – A unique number assigned to each message. This number is used to differentiate messages and is conveyed in the message header.

Message Reference Number – Used to uniquely associate a response with a previously received message.

Minimum Useable Elevation Angle – The minimum satellite elevation, above the user's local horizon, that the satellite can be reliably used in the calculation of a navigation solution. The minimum useable elevation angle varies depending on the environment, the antenna design and placement, aircraft altitude and attitude.

Missed Approach – An instrument-based procedure that a pilot has to follow after initiating a go-around at or above the Decision Height or Minimum Descent Height.

Mixed Mode Operations – ATM Operations that require different procedures due to variances in airspace users' characteristics and/or ATM design within the same area of controller responsibility.

Mode S Specific Protocol (MSP) – A Mode S specific protocol that provides a restricted datagram service within the Mode S subnetwork.

Mode Select Transponder (MODE S) – Transponder that is capable of modes "A" & "C" (SSR & Data Link).

Multi Sector Planning (MSP) – Situation where two or more executive controllers working different sectors are assisted by another appropriately qualified controller.

Multisensor Navigation – Where aircraft position is determined using data derived from two or more independent sensors (e.g., Loran-C, VOR, Omega) each of which is useable (i.e., meets required navigation performance including accuracy, availability, and integrity) for airborne navigation.

Navigation – The means by which an aircraft is given guidance to travel from one known position to another known position. The process involves referencing the actual aircraft position to a desired course.

Navigation Guidance – The calculation of steering commands to maintain the desired track from the present aircraft position to a new position.

Navigation Information – The calculation and display of aircraft present position, velocity vector and related data, such as track angle, ground speed and drift angle.

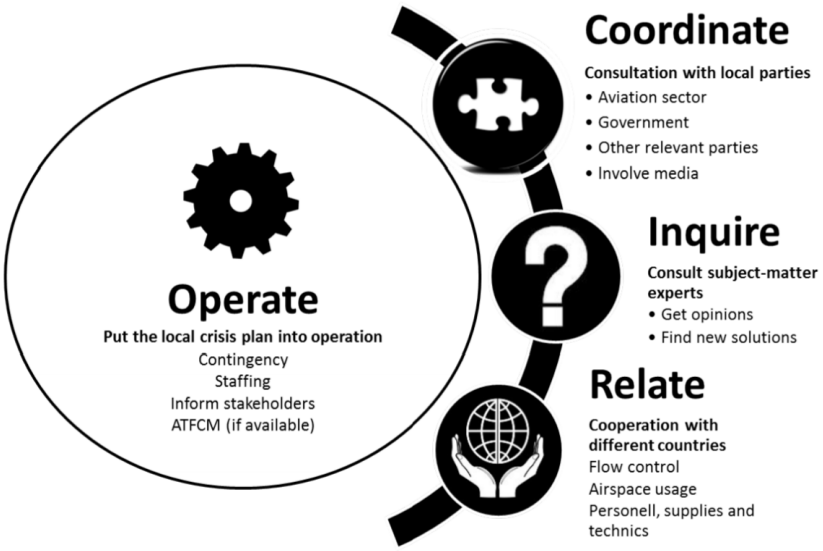
Non-Precision Approach – A standard instrument approach procedure in which no glideslope / glidepath is provided.

Occupancy Counts – The number of flights occupying a sector simultaneously during a specified period of time.

Oceanic Clearance Message (OCM) – This service provides automated assistance for requesting and delivering an oceanic clearance.

OCIR Model – A practical method for ATC crisis management. It describes four steps in incident stabilization and control. As the primary reaction to any disruption is directed inwards in the organization to regain control, the OCIR model suggests a broader focus by communicating, consulting and cooperating with external parties in all phases of crisis response.

OCIR model (Model for ATM Crisis Response)[3]



Operational Duty – The period which a controller is actually exercising the privileges of the controller's licence at an operational position.

Packet – The basic unit of data transfer among communications devices within the network layer, (e.g. an ISO-8208 packet or a Mode S packet).

Parent Waypoint – A waypoint used for route definition and/or progress reporting. The geographical position of a parent waypoint is not altered when RNAV equipment is operated in a parallel offset mode.

Path Following Error (PFE) – That portion of the guidance signal error which could cause aircraft displacement from the desired course or glide path. These perturbations fall within the loop guidance

bandwidth of an aircraft. The path following error is composed of the path following noise and the mean course error, in the case of azimuth functions, or the mean glide path error, in the case of elevation functions. The PFE is measured by filtering the output flight navigation error record with a second order low pass filter with a comer frequency of 0.5 radians per second lateral guidance and 1.5 radians per second for vertical guidance and a slope of 12 dB/octave for both cases.

Phase of Operation – A phase of operation is a period of navigation with a constant required navigation performance. Traditionally, the term "phase of flight" has related to periods of navigation with different procedures/criteria such as en route (continental, oceanic), terminal, approach, and landing. As the RNP concept is introduced, "phase of operation" will relate more to a particular RNP. For example, in the future, the continental en route phase of flight may be divided into more than one phase of operation, since several RNPs may be included as an aircraft transits a continental area.

Position Determination Error – The accuracy with which a navigation sensor can calculate and provide an output of actual location in an operational environment.

Position Dilution of Precision (PDOP) – The ratio of user-referenced three-dimensional position error to measurement error of a multilateration system. PDOP is the root-sum-square of HDOP and VDOP.

Position Fix – A derived location of an entity in a common coordinate system.

Position Fixing Error – The accuracy with which a navigation sensor in combination with a navigation computer can calculate and provide an output of actual location in relation to desired location in an operational environment.

Precision Approach – A standard instrument approach procedure in which a glideslope / glidepath is provided.

Predictable Accuracy – The accuracy of a position with respect to the geographic or geodetic coordinates of the Earth.

Propagation Delay – The time delay of a signal created as the signal travels between antennas through a propagation medium.

Pseudolite – A pseudolite (pseudo-satellite) is a ground-based GNSS augmentation which provides, at GNSS satellite signal-in-space frequencies, an additional navigation ranging signal. The augmentation may include additionally differential GNSS corrections. (Adapted from the FANS GNSS Technical Subgroup).

Pseudo-range (PR, PRC) – The distance from the user to a satellite plus an unknown user clock offset distance. With four satellite signals it is possible to compute position and offset distance. If the user clock offset is known, three satellite signals would suffice to compute a position.

Radar monitoring – A continual process of observation carried out via a radar display, to facilitate the application of regulation and control.

Radionavigation – The determination of position, or the obtaining of information relating to position, for the purposes of navigation by means of the propagation properties of radio waves.

Receiver Autonomous Integrity Monitoring (RAIM) – A technique whereby a civil GNSS receiver/processor determines the integrity of the GNSS navigation signals without reference to sensors or non-DoD integrity systems other than the receiver itself. This determination is achieved by a consistency check among redundant pseudo-range measurements.

Reference VOR/DME Facility – The VOR/DME (VORTAC) (TACAN) facility with its designated latitude/longitude position used for the identification and establishment of an RNAV route or flight procedure.

Rejected Landing – A “Rejected”, or “Baulked Landing” is a manoeuvre where the pilot, after having passed the minimum of an IFR approach, aborts the landing, and initiates a go-around, or is asked by ATC to go around.

Relative Accuracy – The accuracy with which a user can determine one position relative to another position, regardless of any error in their true positions.

Reliability – The probability of performing a specified function without failure under given conditions for a specified period of time.

Repeatable Accuracy – The accuracy with which a user can return to a position whose coordinates has been measured at a previous time with the same navigation system.

Required Navigation Performance (RNP) – A parameter describing lateral deviations from assigned or selected track as well as along track position fixing accuracy on the basis of an appropriate containment level (1, 4, 12.6, or 20NM).

Route Conformance Monitoring System (RCMS) – Function of an automated ATS system that monitors the position of an aircraft to detect when it deviates from its route. An RCMS is considered to be a controller tool.

Route Deviation Alert (RDA) – An alert provided to a controller to notify that an aircraft’s position is displaced outside the tolerances defined within RCMS.

Note: Certain processing may be suspended.

Route Segment – Two subsequently related waypoints (or ATD fixes) define an RNAV route segment.

Runway End Waypoint (RWEWP) – A 3-dimensional, high-precision waypoint at the landing rollout end of the runway. The RWEWP, if needed, will be used to define rollout courses, runway remaining, etc.

Runway Intercept Waypoint (RWIWP) – A 3-dimensional, high precision waypoint located at the present GPIP, or at a standard "down runway" distance (e.g., 1000 ft point).

Runway Segment – The segment between the Runway Intercept Waypoint and the Runway End Waypoint.

Safety I Approach to Safety – The number of things that go wrong (accidents / incidents) is as low as possible. This approach is achieved by first finding and then eliminating or weakening the causes of adverse outcomes, resulting in norms and guidelines.

Safety II Approach to Safety – A method of ensuring safety in a system, where the aim is to ensure resilience. Understanding that the system is too complex to foresee and mitigate all that might go wrong, the system needs to be engineered in such a way, that the variable factor (human operators) can intervene. Safety is the ability to succeed under varying conditions. Safety II requires an understanding of everyday performance.

Safety Net – Airborne and / or ground based function, the sole purpose of which is to alert the pilot or controller of the imminence of collision of aircraft, aircraft and terrain / obstacles, as well as penetration of dangerous airspace.

Satellite Health – The ability of the satellite's navigation signal for unaugmented (stand-alone) GNSS navigation.

Secondary Sensor – Any input from other aircraft systems that may be used to derive navigation information.

Sector Capacity – The maximum number of flights that may enter a sector per hour averaged over a sustained period of time, to ensure a safe, orderly and efficient traffic flow.

Segment – A portion of a message that can be accommodated within a single MA/MB field in the case of an SLM or a single MC/MD field in the case of an ELM.

Segregation – The application of procedures and design with the purpose of setting apart an exclusive subset of users of the ATM system, based on a defined operational characteristic.

Selective Availability (SA) – A set of techniques for denying the full accuracy and selecting the level of positioning, velocity, and time accuracy of GPS available to users of the Standard Positioning Service (L1 frequency) signal.

Separation – The action within defined airspace of keeping aircraft at such displacements from defined hazards that the risk of collision is limited to an acceptable safe level.

Separation Assurance – The design and application of airspace and procedures that actively maintain the appropriate separation minima between aircraft.

Service Coverage – The coverage provided by a radio navigation system in that area or space volume in which the signals are adequate to permit the navigator to determine position to a specific level of accuracy. Coverage is influenced by system geometry, signal power levels, receiver sensitivity, atmospheric noise conditions and other factors which affect signal availability.

Short Term Conflict Alert (STCA) – An automated system that predicts reduction of aircraft spacing to below specified parameters. An STCA function can be used as either a controller tool (STCA-T) or a safety net (STCA-N) depending upon system parameters.

Signal-Derived Position Error – That part of the horizontal position error at the user location attributable to signal-in-space errors from the GNSS control segment, space segment and propagation effects; does not include receiver-induced errors.

Signal-Derived Range Accuracy – Measured pseudorange error on a particular satellite as observed by a ground monitor station. SRA includes the sign of the error.

Simultaneous Intersecting Runway Operations (SIRO) – The simultaneous use of intersecting runways for take-off and/or landing.

Situational Awareness – An integrated understanding of factors that contribute to the operation of aircraft / vehicles under normal and abnormal conditions. Factors affecting situational awareness include spatial awareness, awareness of environment, vehicle performance awareness, aircraft/vehicle systems awareness, and operator / crew / controller awareness.

Slant Range – The actual straight-line distance between an aircraft in flight and a ground location (radar, DME). This distance is greater than the geographical surface range because of the altitude.

Slant Range Error (SRE) – Slant range error is the difference between the distance of an aircraft (Point A) to a DME station on the surface (Point B) and the distance from the station (Point B) to a point directly beneath the aircraft on the surface (Point C). The error magnitude is a function of aircraft altitude above the station and the distance to the station.

Sole Means of Navigation – A means of navigating the aircraft where position determination is provided by a system which satisfies the required navigation performance (RNP) for a particular phase of operation.

Spacing – The application of a displacement equal to or greater than a specific separation minimum between an aircraft and a hazard.

Stand-Alone GNSS System – An airborne GNSS configuration which may use altimeter aiding and augmented GNSS signals without reliance on any other navigation system or sensor.

Standard Length Message (SLM) – An exchange of digital data using selectively addressed Comm-A interrogations and/or Comm-B replies.

Standard Positioning Service (SPS) – The standard specified level of positioning, velocity and timing accuracy that is available, without qualifications or restrictions, to any user on a continuous world-wide basis.

Station North – The assigned north reference for a particular station.

Station-Referenced Navigation – Position determination that is referenced to a stationary fix.

Strategic nap – Short period of sleep taken at specific times during a night shift. Recommended duration of a strategic nap varies from maximum 20 minutes for a nap early in the night to maximum 50 minutes late in the night (after 4AM).

Subnetwork – An actual implementation of a data network which employs a homogeneous protocol and addressing plan, and is under the control of a single authority.

Supplemental Air Navigation System – An approved navigation system that can be used in controlled airspace of the National Airspace System in conjunction with a sole means navigation system.

Surveillance – The acquisition and monitoring of objects' positions and/or other relevant data for the purpose of Air Traffic Management, such as identity, movement, and intent.

Systemic Accident Model – An accident model, where multiple relations and correlations are considered and mapped. This model is imperative to understand complex models with multiple factors.

Tactical Safety – Safety aspects related to the application of procedures and to the adoption of defences, where the design of the system is inadequate to achieve a given safety level.

Terminal Area – A general term used to describe airspace in which approach control service or airport traffic control service is provided.

Terminal Weather Information for Pilots (TWIP) – Provides a cockpit display to pilots of convective weather information in specific terminal areas.

Third Party Risk – The probability that individuals on the ground are affected by aircraft accidents.

Threshold Crossing Height (TCH) – The height of the straight-line extension of the glide path above the runway at the threshold.

Threshold Crossing Waypoint (TCWP) – A three-dimensional, high-precision waypoint typically located 50 to 55 feet above the runway threshold. This height may vary depending upon the specific airport configuration.

Time Navigation (TNAV) – A function of RNAV equipment that provides the capability to arrive/depart at a waypoint at a specified time. When added to a 3D system, TNAV is called 4D.

Time to Alert – The maximum allowable time interval between system performance going outside of operational performance limits and the appropriate integrity monitoring subsystem providing an alert.

TO-FROM Equipment – RNAV equipment in which the desired path over the ground is defined as a specific (input quantity) course emanating either to or from a particular waypoint. In this equipment, the aircraft may fly either TO or FROM any single designated waypoint.

TO-TO Equipment – RNAV equipment in which a path is computed that connects two waypoints. In this equipment, two waypoints shall always be available, and the aircraft is usually flying between the two waypoints and TO the active waypoint.

Total System Error (TSE) –

Generic: The root-sum-square of the navigation source error, airborne component error, display error, and flight technical error.
Specific: The root-sum-square of the position fixing error, display error, course selection error, and flight technical error.

Traffic Information Service (TIS) – Provides a cockpit display of traffic information of all targets within 7NM of the aircraft requesting the information. TIS processes Mode S surveillance data from the ground and display the data on a TCAS I-like display.

True Airspeed (TAS) – The actual speed of an aircraft relative to the air through which it is flying corrected for temperature and air density.

Turn Point (TP) – A waypoint which identifies a track change from one desired track to another along a given route.

Two Eyes Principle (2EP) – Operations where an ATC unit provides service with one ATCO per sector, but with at least one more equally qualified ATCO on duty and available to assist or provide breaks.

Unmanned aircraft system traffic management (UTM) – A specific aspect of air traffic management which manages UAS operations safely, economically, and efficiently through the provision of facilities and a seamless set of services in collaboration with all parties and involving airborne and ground-based functions.

Unmanned aircraft system traffic management (UTM) system – A system that provides UTM through the collaborative integration of humans, information, technology, facilities, and services, supported by air, ground or space-based communications, navigation and surveillance.

Uplink – A term referring to the transmission of data from the ground to an aircraft. Mode S ground-to-air signals are transmitted on the 1,030 MHz interrogation frequency channel.

User Range Accuracy (URA) – The one-sigma estimate of user range errors in the navigation data for each individual satellite. It includes all errors for which the space or control segment is responsible. It does not include any errors introduced at the user set.

Vertical Deviation (VDEV) – The deviation of the aircraft above or below the vertical profile as displayed on an indicator such that deflection is up when the aircraft is below the vertical profile.

Vertical Dilution of Precision (VDOP) – The ratio of user-referenced vertical position error to measurement error of a multilateration system (see GDOP for a more detailed description).

Vertical Navigation (VNAV) – A function of RNAV equipment which calculates displays and provides guidance to a vertical profile or path.

Vertical Profile (VP) – A line or curve, or series of connected lines and/or curves in the vertical plane, defining an ascending or descending flight path either emanating from or terminating at a specified waypoint and altitude, or connecting two or more specified waypoints and altitudes. In this sense, a curve may be defined by performance of the airplane relative to the air mass.

Vertical Profile Angle Error (VPAE) – The difference in degrees that the current aircraft flight path angle makes with the vertical profile.

Vertical Profile Intercept Point (VPIP) – The point at which the current aircraft flight path angle intercepts the vertical profile.

Warning – An annunciation that is generated when immediate recognition and corrective or compensatory action is required; the associated colour is red.

Waypoint (WP) – A predetermined geographical position used to define routes and / or progress reporting fixes that is defined by latitude and longitude and/or relative to a VORTAC or VOR/DME reference facility by magnetic radial bearing and range in nautical miles.

Waypoint Displacement Area – The rectangular area formed around the plotted position of the waypoint. The rectangle is oriented along the desired track with the waypoint at its centre. Its dimensions are two times the appropriate plus-or-minus along- track and cross-track displacement error values.

Wind Angle (WA) – The direction from which the wind is blowing measured in degrees from true or magnetic north.

Wind Speed (WS) – The speed with which the wind is blowing measured in knots.

PART III
TECHNICAL POLICY
OF
IFATCA

Classification of Technical Policy Statements

IFATCA technical policy statements are detailed in the following pages, grouped according to subject matter under the following headings:

AAS	Automation and ATM Systems
ADME	Airfield Operation
ATS	Provision of Air Traffic Services
COM	Communications
SEP	Separation Standards

AAS – AUTOMATION AND ATM SYSTEMS

AAS 1.1 AIRBORNE COLLISION AVOIDANCE SYSTEMS (ACAS)

IFATCA Policy is:

IFATCA fully supports and encourages the development and operation of airborne anti- collision systems. The primary means of collision avoidance for flights for which a separation service is set-up shall be the air traffic control system. This system shall achieve the required safety levels totally independently from any airborne anti-collision devices, such as ACAS. ACAS devices should not be a consideration in the provision of adequate air traffic services.

IFATCA is opposed to down linking of any advisories generated by ACAS.

If down linking of ACAS Resolution Advisories becomes mandated, then IFATCA can only accept this provided that the following criteria are met:

- **Clear and unambiguous controller legal responsibilities;**
- **Downlink without delay;**
- **ATC system to be able to receive, process and display the down link to the appropriate control positions;**
- **Compatibility with all ground-based safety nets;**
- **Nuisance and false alerts shall be kept to an absolute minimum.**
- **ACAS should only be considered as a 'safety net'.**

Once an aircraft departs from its ATC clearance or instruction in compliance with an RA, or a pilot reports an RA, the controller ceases to be responsible for providing separation between that aircraft and any other aircraft affected as a direct consequence of the manoeuvre induced by the RA. The controller shall resume responsibility for separation and establish standard separation between all affected aircraft when:

a) **the controller acknowledges a report from the flight crew that the aircraft has resumed the current clearance; or**

b) **the controller acknowledges a report from the flight crew that the aircraft is resuming the current clearance and issues an alternative clearance which is acknowledged by the flight crew.**

See: WP 94 - Buenos Aires 2003, WP 84 - Kaohsiung 2006, WP 95 – Arusha 2008, Resolution B11 - WP 95 – Gran Canaria 2014, WP 88 – Sofia 2015

See also: WP 78 - Estoril 1984, WP 79 - Christchurch 1993 and WP 88 - Jerusalem 1995

AAS 1.2 AUTOMATIC DEPENDENT SURVEILLANCE (ADS)

IFATCA policy is:

Before an ADS service is introduced into operational service, the necessary system components to provide a control service and to support the control task shall be in place. Only pertinent and useful flight data should be supplied to the ATCOs, which supports and enhances the building of human mental models and controller situation awareness.

ATCOs shall be provided with assistance tools for managing airspace where multiple separation standards apply.

The ADS system shall provide a warning to pilot and controller whenever navigation accuracy or integrity is degraded below that required to operate in the airspace, and that this will affect separation standards. Procedures shall be in place to restore any loss of separation in a timely manner.

Displays of ADS information that are presented to the controller should be designed so that they meet the need of the control task and enhance the usability of the system.

ADS system design shall seek to optimise the interface at the controller workstation. Control of traffic using position data derived from ADS and surveillance can only be used where the control system supports both types of surveillance.

Whenever a controller interface derives data from a combination of surveillance systems, the source and derivation of position data in use shall be clearly and continuously evident to the controller.

Global standards and procedures shall address requirements of what independent verification of position data is required before dependent position data is used for separation.

To ensure integrity of system surveillance data (not just ATC surveillance) it is essential that the automatic transmission of erroneous dependent position data can be disabled or marked as inaccurate during all stages of flight.

See: WP 95 - Istanbul 2007, Resolution B1 - WP 58 – Virtual 2022

See also: WP 102 - Hong Kong 2004, WP 87 - Jerusalem 1995, WP 100 - Jerusalem 1995, WP 101 - Jerusalem 1995, WP 102 - Jerusalem 1995, WP 103 - Jerusalem 1995, WP 104 - Jerusalem 1995, WP 105 - Jerusalem 1995, WP 106 - Jerusalem 1995, WP 94 - Santiago 1999, WP 87 - Tunis 1996, WP91 - Tunis 1996

AAS 1.3 MODE S DEVELOPMENT

Mode S has been established by ICAO as the standard for SSR surveillance due to those performance and functional limitations of the present system which are becoming increasingly significant. Whilst the initial implementation emphasis is on surveillance, Mode S also establishes the potential of SSR as an air/ground datalink.

IFATCA policy is:

The use of "Conspicuity Codes" of a Mode S identified aircraft within the Mode S area shall ensure that the safe operations of all other non-mode S units in that airspace e.g. military operations are not compromised.

The controller HMI shall clearly distinguish correlated aircraft and aircraft only transmitting aircraft ID.

ATC systems shall validate the Flight ID transmitted by an aircraft's Mode S transponder and indicate to the controller any discrepancy with the ICAO aircraft identification in the flight plan.

Any broadcast of incorrect ATM data should be corrected or if unable then: Switched off, or Marked as invalid.

ATC surveillance systems shall be able to process all data, regardless of the volume or type, necessary to provide ATC Services safely.

See: WP 85 - Cancun 2002, Resolution B1, B2 - WP 83 - Punta Cana 2010, Resolution B4 - WP 90 – Kathmandu 2012, Resolution B3 - WP 91 – Bali 2013, Resolution B2 - WP 58 – Virtual 2022

See also: WP 91 - Geneva 2001

AAS 1.4 REQUIRED NAVIGATION PERFORMANCE (RNP) and AREA NAVIGATION (RNAV)

Area Navigation (RNAV) is defined as a method of navigation which permits aircraft operation on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self contained aids, or a combination of these. Many countries offer or are planning to offer RNAV routes as part of the ATS structure; some exploit the capabilities of Precision RNAV equipment to offer random RNAV routing. PBN is being pushed by ANSPs as the future of airspace redesign but poor implementation has resulted in varied results. Free Route Airspace (FRA) is one aspect of this topic.

The driver for this is allowing airlines to plan for the most efficient route thereby reducing fuel uplift. This can be implemented in three ways:

Direct route segments – existing infrastructure maintained but option to file point-to- point

Organized Track Systems – flight plan requests are made and defined routes are created based upon demand

Free Route Airspace – no routes, simply file point-to-point

Consequently, a conflict detection tool may be beneficial which monitors separations to assist the Controller in maintaining safety.

IFATCA policy is:

When necessary, controllers should be presented with information, by any suitable means, concerning navigational capability of aircraft under their control.

In airspace where dynamic and flexible ATS routes are permitted:

- **The ATS system should be capable of processing associated flight plans;**
- **Trajectory prediction and conflict detection tools should be available on situation displays.**

Where the introduction of PBN procedures entail closely spaced parallel tracks, suitable procedures should be established for the case of loss of navigational performance, taking into account such factors as ground equipment capability and controller training.

Adequate training shall be provided for controllers managing PBN operations; such items as RTF phraseology, co-ordination procedures and conflict identification need to be considered.

Controllers' expertise should be used in the deliberations taking place to provide appropriate specifications for the use of PBN.

PBN route structures shall be designed to ensure that ATC workload is not increased when compared to previous conventional route structures and, where possible, it is reduced in spite of increased traffic.

RNAV and RNP standards should be harmonized throughout the world and included in the PBN Manual. Harmonisation will result in common standards, decreasing the diverse types of RNAV and RNP procedures that are currently encountered by air crews operating around the world.

The development, validation and implementation of PBN procedures should involve all affected parties, in particular, local operational controllers and representatives of airspace users.

Organizational processes and support should exist for operational staff to initiate airspace and procedure changes.

The introduction of PBN procedures shall be accompanied by training for controllers and pilots that is commensurate with the complexity of the procedure.

See: WP 88 - Christchurch 1993, WP 98 - Hong Kong 2004, WP 91 – Arusha 2008, Resolution B1, B2, B3 - WP 158 - Las Vegas 2016, Resolution B4, B5 – WP 161 - Las Vegas 2016, Resolution B3 - WP 58 – Virtual 2022

AAS 1.5 AIR-GROUND DATALINK

The use of air ground Datalink systems has a significant part to play in the evolution of air Traffic Management (ATM), particularly in terms of communication and surveillance. This policy concentrates on the communication aspect. Large quantities of information are made available by the use of Datalink services therefore there are human factors considerations which shall be taken into account. This policy does not cover these issues.

IFATCA policy is:

Voice communications shall be retained as a communications channel in all circumstances. Where Datalink communications are in use, that access to the aircraft is subject to a system of priorities. The Controller who has jurisdiction for that flight shall have the highest unassailable priority subject to emergency messages.

The necessary ground networks should be in place, with satisfactory resilience to system failure and secure to resist unlawful interruption, prior to the introduction of Datalink communications. The ground systems should satisfy the appropriate performance criteria for safety critical reasons.

Interface devices required for the use of Datalink communication shall be designed such as to not add to controller workload.

Voice communications should be the preferred communications medium to be used in the event of an emergency. This shall not preclude the use of Datalink communications if deemed appropriate by those involved.

Future developments of Datalink services in the provision of ATM services shall support the cognitive needs, and be compatible with, the capabilities of the human.

Information regarding the equipage/non-equipage of Datalink shall be notified to controllers at the operational position in the appropriate manner.

ATC personnel should not be required to distinguish between different levels of Datalink equipage in the same airspace.

IFATCA supports Datalink concepts that improve frequency management provided that they demonstrate an identical or better level of safety and efficiency compared to voice communication.

See: WP 93 - Ottawa 1994, WP 92 - Tunis 1996, Resolution BC5 – WP 86 - Punta Cana 2010, Resolution B4 - WP 58 – Virtual 2022

See also: WP 103 - Christchurch 1993, WP 82 - Jerusalem 1995

AAS 1.6 DATALINK APPLICATIONS – THE USE OF LOGICAL ACKNOWLEDGEMENT (LACK)

There are situations present within the ATN CPDLC SARPs in which the use of LACKs is necessary to have the system perform in an operationally acceptable way. However, the deployment of such systems as FANS 1/A does not utilise this facility.

ICAO Doc 9694-AN/955, Manual of Air Traffic Services Data Link Applications: Page IV-3-4, para. 3.29, the logical acknowledgement provides confirmation from a receiving system to the message originator that the message has been successfully received and is acceptable for display to the responsible person, if this is required. The logical acknowledgement in no way replaces any required operational response.

IFATCA Policy is:

On receipt of a CPDLC message, an automated acknowledgement should be transmitted by the receiver (an operational response from the ATCO is still required).

A timer function should be utilised in an effort to prevent obsolete CPDLC instructions/clearances being actioned by the flight crew.

See: WP 87 - Geneva 2001, Resolution B5 - WP 58 – Virtual 2022

AAS 1.7 DISPLAY OF GNSS STATUS TO ATC

When any failure to the GNSS occurs, it is to be expected that some aircraft will fail to meet the RNP and require special action to be taken, while others will be able to continue to meet the RNP. It is important that controllers and pilots are made aware of any degradation in a timely manner.

IFATCA policy is:

A monitoring and interpretation service should be established to monitor the status of all elements of the GNSS and interpret this information in a manner that provides relevant information to pilots and ATC. The information disseminated from the monitoring service or displayed at controller positions shall be expressed in operational terms.

ATC procedures shall be established for the use of GNSS and shall cover the failure or degradation of the system. When ATC is informed of a change in the status of the GNSS by the monitoring service or by display equipment, specific procedures associated with that change shall be implemented. Should it not be possible to achieve the RNP in airspace, an alternative RNP shall be activated.

See: WP 86 - Tunis 1996, Resolution B6 - WP 58 – Virtual 2022

See also: WP 93 - Santiago 1999

AAS 1.8 4D TRAJECTORY CONCEPTS/MANAGEMENT

IFATCA Policy is:

Implementation of 4D trajectory management requires appropriately designed airspace.

See: Resolution B8, B9 - WP 91 – Toronto 2017, Resolution B7 - WP 58 – Virtual 2022

See also: WP 86 - Arusha 2008

AAS 1.9 REMOVAL OF GROUND BASED AIDS

The implementation of GNSS is precipitating the removal of certain ground based navigation aids. IFATCA is concerned that as these GNSS systems are subject to natural temporary degradation and unserviceabilities that there should not be a reliance on a sole means navigation system.

IFATCA policy is:

Unless failsafe procedures are in place, the removal of terrestrial navigation aids is neither feasible nor safe. The persisting vulnerabilities in navigational systems require the maintenance of a terrestrial navigation infrastructure.

See: WP 98 - Santiago 1999, Resolution B8 - WP 58 – Virtual 2022

AAS 1.10 OPERATIONAL USE OF UNMANNED AIRCRAFT (UA)

ATC should not have to apply different rules or work with different criteria in order to handle UA. From the air traffic controller's perspective, the provision of ATS to an UA shall be transparent. This includes all stages of the flight from pre-notification to landing. There should be no difference in RTF, landline communications or transponder data procedures nor should the controller have to apply different rules or different criteria.

IFATCA Policy is:

IFATCA is opposed to the operations of any autonomous aircraft in nonsegregated airspace.

All UAS operations shall be in full compliance with ICAO and/or national and/or local regulations.

For the purposes of air traffic control, the same division of responsibilities and liabilities shall apply to manned and unmanned aircraft.

ATCOs shall not be held liable for incidents or accidents resulting from the operations of UAS that are not in compliance with ICAO and/or national and/or local regulations.

Standardized procedures, training and guidance material shall be provided before integrating UAS into the Civil Aviation System.

IFATCA recommends the development of risk-based procedures for UAS operations regardless of whether the operation is authorized or not.

Contingency procedures and controller training shall be provided for the management of infringements into controlled airspace by Unmanned Aircraft.

IFATCA urges the development and implementation of technology to prevent infringements into controlled airspace by Unmanned Aircraft. IFATCA encourages education and awareness campaigns on the use of UAS for the general public.

See: WP 90 - Melbourne 2005, WP 91 - Dubrovnik 2009, WP 160 – Sofia 2015, Resolution B3, B4, and B5 - WP 88 - Toronto 2017, Resolution BC2 – WP 94 – Montego Bay 2023

AAS 1.11 "FLY-BY" AND "FLY-OVER" WAYPOINTS

The concept of "fly-by" and "flyover" waypoints is integral to RNAV and as such has been in existence for quite some time. As Performance Based Navigation is being increasingly used to reduce the distances between routes to a minimum, air traffic controllers have been surprised to see that aircraft do not follow consistent paths when turning from one track to another. This issue has been documented by Eurocontrol, ICAO and others. Such surprises should be prevented by changes in route structure and controller training.

More recent innovations such as the fixed radius transition for the en-route environment should allow for predictable flight paths and ensure separation where close spacing between routes or between a route and terrain or a danger area is desired.

IFATCA Policy is:

When designing routes which are closely spaced with fly by transitions, maintaining separation throughout the procedure and safety should be guaranteed.

Where predictability in the turn is required, PBN fixed radius path mechanisms should be implemented.

See: Resolution B10, B11 - WP 92 - Amman 2011, Resolution B9 - WP 58 – Virtual 2022

AAS 1.12 AIRCRAFT FLIGHT MANAGEMENT SYSTEMS

Aircraft Flight Management Systems are in place on almost all transport aircraft in use today. These systems have been developed in order to assist the operation of the aircraft and to improve safety. ATM considerations have generally been a by-product of FMS, rather than a primary aim, however such considerations are increasing in importance as the ATM system is changed to improve efficiency and reduce the impact of aviation on the environment.

IFATCA Policy is:

The flight management system shall accept ATC requirements as compulsory requirements.

FMS performance shall be harmonized with ATM system design.

See: Resolution B12, B13 - WP 93 - Amman 2011

AAS 1.13 DETERMINING OPERATIONS READINESS OF NEW ATM SYSTEMS

Modern ATM systems are more and more complex. Safety critical tasks such as Radar Data Processing or Flight Data Processing rely on complex software packages while the increasing volume of air traffic makes the ATM system more and more dependent on such software. As a consequence, a software failure may lead to a catastrophic situation. Therefore, new ATM systems shall be carefully designed, tested and validated before being considered ready for implementation.

IFATCA Policy is:

Operational controllers shall be involved in the design, development and implementation of new ATM systems. Their role shall include:

- **Establishing user requirements.**
- **Defining operational training requirements prior to implementation.**
- **Participating in the risk assessment process.**
- **Validating the system.**
- **Providing feedback in the further development of the system.**

The design, development and implementation team of a new ATM system/equipment/tool shall include, as a minimum:

- **System developers - typically software and hardware engineers;**
- **Project managers;**
- **End-users – i.e. the operational controllers, supervisors and ATSEPs (Air Traffic Safety Electronics Personnel);**
- **Legal experts;**
- **Human factors specialists;**
- **Safety specialists.**

See: Resolution B12 - WP 87 - Kathmandu 2012, Resolution C4, C5 – WP 159 – Sofia 2015

AAS 1.14 SPACE-BASED AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST

Aireon LLC proposes to use satellites to relay Automatic Dependent Surveillance - Broadcast (ADSB) data from suitably equipped aircraft to Air Traffic Service Units (ATSUs) and provide surveillance coverage in what the consortium calls 'near real-time' across 100% of the world's airspace.

This provision of new surveillance data raises questions as to how the data will be used to provide separation and other ATS functions, as well as the usefulness of the data in improving safety and efficiency of flights in those portions of oceanic and remote continental airspace where there is currently no surveillance information available to controllers.

Also of importance is the extent to which the proposed system will meet existing or developing ICAO standards for communication, navigation and surveillance as ICAO moves from system based to performance based standards.

IFATCA Policy is:

IFATCA supports the development of new surveillance technology that is designed to meet required surveillance performance standards, which allow for the application of technology - independent separation minima.

See: Resolution B4 - WP 87 – Gran Canaria 2014

AAS 1.15 CONCEPT OF GNSS-BASED ALTITUDE

The use of pressure-based altimeters to determine aircraft altitude has been universal across the globe for most of aviation history. This policy examines alternatives provided by Global Navigation Satellite System (GNSS) technologies.

IFATCA Policy is:

IFATCA encourages development of technologies that improve the accuracy of vertical navigation.

See: Resolution B3 - WP 87 – Sofia 2015

AAS 1.16 FUTURE WEATHER DISTRIBUTION

Aviation Weather Information is and has been critical for the advances in flight safety. However, there is room for improvement, not the least due to technological advances.

IFATCA Policy is:

IFATCA encourages the development and use of aircraft-derived meteorological data to improve aviation weather products.

IFATCA encourages the development and distribution of graphical and easily human interpretable aviation weather products.

IFATCA encourages the evolution of the aviation weather reporting and distribution system to allow direct access to aviation weather products for airspace users.

IFATCA encourages collaboration in gathering aircraft-derived meteorological data to form a globally comprehensive picture.

See: Resolution B13, B14, B15 – WP100 – Sofia 2015, Resolution B6 – WP89 – Toronto 2017

AAS 1.17 SPACE WEATHER

Space weather can affect satellite-based navigation and communication systems and present a health risk to aircrew and passengers. In addition, the difficulty of forecasting the occurrence and severity of space weather events accurately and the dissemination of that information present additional challenges that need to be addressed in order to prevent the disruption to aviation.

The implementation of the Performance Based Navigation (PBN) concept is a key enabler for the increased capacity, improved efficiency and the reduction in environmental impact. This is required to facilitate the continued and sustainable growth of aviation. In PBN, aircraft are less dependent on traditional ground-based navigation systems and more reliant upon airborne technologies based on Global Navigation Satellite Systems (GNSS).

Space Weather refers to the processes that originate in the sun and other stars which affect the environmental conditions near the earth.

These weather aspects include Solar Winds that are emitted continuously from the Sun, Solar flares which travel at the speed of light and Coronal Mass Ejections which can take a few days to reach the earth.

If we consider the impact these can have on earth, HF blackouts are possible, solar radiation storms can induce increased radiation exposure to aviation especially near the poles and other events can influence conventional magnetic navigation on earth. GNSS can also be adversely affected.

The intensity of these events is cyclical, with an 11-year cycle and can impact significantly on communications over HF.

Overall, the effect on ATM can be significant due to impact on navigation performance, communications and equipment malfunctions.

In order for cope with these scenarios, Flight Crew and ANSPs require accurate and timely information on space weather to mitigate its impact on aviation through observations and forecasts.

IFATCA Policy is:

IFATCA believes that severe space weather poses a risk to aviation. The appropriate mitigation of that risk requires:

- **Detailed understanding of the actual impact severe space weather has on aviation.**
- **Contingency procedures for the cases where space weather negatively affects communication, navigation and/or surveillance systems.**
- **The development of accurate models and techniques to analyse and forecast space weather events.**
- **The determination of the type of space weather information that is relevant for the aviation community and how it shall be disseminated.**

See: WP 166 – Las Vegas 2016

AAS 1.18 MULTIPLE DELAY ABSORPTION PROGRAMMES

As air traffic counts around the world increase, the demand on airports is growing exponentially. In order to facilitate safe and orderly operations at aerodromes, ANSPs are applying spacing methods deeper and deeper into the en route environment. The application of these methods is increasing the burden on en route controllers. In areas with a high density of different ANSPs there is concern over the increasing potential demand and complexity on the controller of running many unique delay absorption programmes.

IFATCA Policy is:

The implementation of multiple delay absorption programmes shall be balanced against core controller tasks.

See: Resolution B7 – WP90 – Toronto 2017

AAS 1.19 OPERATIONAL USE OF DOWN-LINK AIRCRAFT PARAMETERS (DAPS)

Many parameters are available from Mode S, ADS-B UAT (Universal Access Transceiver) and ADS-B ES (Extended Squitter) i.e. (Mach number, indicated airspeed, vertical speed, heading etc.) There are no provisions about how or if there a need to check them for validity. Mode C for example is supposed to be checked when the aircraft is identified for the first time but there is nothing in ICAO documents about other data.

IFATCA Policy is:

When using downlinked Altitude (PSA):

- **It shall not be used to provide separation;**
- **The display of a PSA should not be used as a substitute for a readback;**
- **An alert should be presented to the controller for aircraft with a mismatch between PSA and the Cleared Flight Level (CFL);**
- **Nuisance alerts should be kept to a minimum;**
- **An alert timeout period should be applied to allow for a new level to be selected in the cockpit.**

See: Resolution B4 – WP92 – Conchal 2019

AAS 1.20 ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN ATC

Demand will exceed capacity in more parts of the global ATM system in the near future. To relieve congestion and improve efficiency, modernisation will be needed, and AI and ML could provide solutions to the current challenges. There are many sources and publications available on Artificial Intelligence (AI) and Machine Learning (ML). AI and the use of AI is changing and evolving rapidly in many industries including ATM.

IFATCA Policy is:

Artificial Intelligence and/or Machine Learning based systems should only be implemented as decision support systems and shall not replace the decision of the ATCO.

Where an ATCO is responsible for decision making, and in the event that system tools fail or are not available, the ATCO should always have the capacity to safely manage their area of responsibility.

The introduction of AI systems shall be tested and validated with the assurance of appropriate standard levels of operations in terms of safety, security, robustness, and reliability.

In case of disruption and in addition to backup and continuity systems, appropriate procedures and training shall be put in place to assist ATCOs in emergency situations.

With special attention to airspace capacity, traffic complexity and available backup systems, a safety risk assessment shall be carried out to determine the possibility for ATCOs to intervene in case of disruption.

IFATCA and MAs shall undertake actions to raise awareness at an international and national level about the impact of automation in ATM and hasten for appropriate legal changes in ATCO's responsibility.

ATCO's responsibility shall be proportionally decreased in accordance with the level of automation and their ability to intervene and control automated systems.

See: Resolution B63 – WP 68 – Virtual 2022, Resolution BC1 – WP 92 – Montego Bay 2023

AAS 1.21 UNMANNED AIRCRAFT SYSTEM (UAS) TRAFFIC MANAGEMENT (UTM)

The relationship between UTM and ATM warrants attention, especially with regard to the issues created by the simultaneous management of both unmanned and manned traffic. The absence of a complete and comprehensive international regulatory system does not permit for the time being a detailed evaluation of the UTM concept; this policy aims to provide a general framework to accommodate UTM inside the existing environment.

IFATCA Policy is:

The roles of ATM and UTM related to traffic management shall be clearly identified.

The UTM-ATM boundary shall allow an unambiguous identification of responsibilities and functions of the two systems.

The interface between the ATM and UTM shall guarantee the exchange of the necessary information for the safe management of the traffic.

Comprehensive regulatory framework and procedures for the ATM-UTM interaction shall be established before implementation.

See: Resolution C75 – WP 83 – Virtual 2022

AAS 1.22 RPAS ASSUMPTIONS

IFATCA Policy is:

The RPAS Operator or the Remote Pilot shall notify ATS only that the RPAS has entered the Lost C2 Link state or that the nominal state has been re-established after a C2 Link Lost.

ATCOs shall have timely access to the details of the applicable RPAS lost C2 Link procedure.

ATS units shall be notified by the RPAS operator and/or by the remote pilot in command of any variation in the applicable Lost C2 Link procedures.

In controlled airspace, the remote pilot cannot manoeuvre the RPA in accordance with a Remain Well Clear notification without an ATC clearance.

The RPA shall always be able to perform CA without any external inputs.

See: Resolutions BC5, BC6, BC7, BC8, BC9 – WP 163 – Montego Bay 2023

ADME – AIRFIELD OPERATION

ADME 2.1 CONVERGING RUNWAY OPERATIONS (CROPS)

There are various types of simultaneous operations on converging/intersection runways in operation at airports all over the world. All are related to achieving maximum use of runways. It is expected that, as pressure on airport capacity grows, more and more of those procedures will be introduced. At this stage, it appears that little coherent work is being done by ICAO to harmonise converging runway operations, and it is therefore paramount for IFATCA to have concise Policy on such procedures.

IFATCA Policy is:

Simultaneous Operations of Intersecting/Converging Runways should only take place under the following conditions:

- **The ATC facilities involved have the appropriate equipment, staffing levels, and training;**
- **The appropriate risk analysis has been carried out involving pilots and controllers, which shall include simulation and real-time trials utilising data from the local airport and operators intending to operate with these procedures;**
- **Independent runway operations or Avoidance Procedures have been established;**
- **The procedures detail acceptable meteorological conditions, especially relating to wind conditions, cloud base, visibility and windshear, as well as runway conditions. If the procedure requires the participating aircraft to remain in VMC, the minimum ceiling required for CROPS shall be above the minimum radar vectoring altitude;**
- **Aircraft experiencing operational difficulties are excluded from CROPS procedures; and**
- **The responsibilities for separation are clearly defined between the aerodrome- and approach control unit**

See: WP 85 - Istanbul 2007

ADME 2.2 LAND AND HOLD SHORT OPERATIONS (LAHSO)

IFATCA Policy is:

IFATCA opposes LAHSO unless the following concerns have been satisfactorily addressed:

- **The lack of exact requirements for what are acceptable airport and runway configurations;**
- **The "hold short point" is not always easily identifiable to the pilots.**
- **An aircraft going around after touch-down, during the rollout, or even after "floating" along the runway without the pilot managing to get it down for whatever reason could result in passing "through" rather than above the intersection.**
- **Increase in controller workload as a result of controllers having to pass LAHSO-specific information to the pilot;**
- **Controllers continually having to adjust between LAHSO and non-LAHSO operations, based on pilots' and airline ability to participate in LAHSO operations; and**
- **Operational difficulties associated with LAHSO capable aircraft renouncing the status at a late stage.**

See: WP 86 - Istanbul 2007

ADME 2.3 VISUAL OBSERVATION & NEW AERODROME CONTROL TOWER CONCEPTS

IFATCA policy is:

Visual observation in ATM is defined as: Observation through direct eyesight of objects situated within the line of sight of the observer possibly enhanced by binoculars.

An Aerodrome Control Tower is a unit established to provide air traffic control service to aerodrome traffic. The tower cab shall be constructed as to provide aerodrome controllers the capability to maintain a continuous watch on all flight operations on and in the vicinity of the aerodrome as well as vehicles and personnel on the manoeuvring area. Watch shall be maintained by visual observation, augmented by radar or other approved surveillance systems when available.

Before any Aerodrome Control Service Concept can be endorsed by IFATCA, the following requirements shall be met:

- **The controller shall be provided with at least the same level of surveillance as currently provided by visual observation;**
- **The introduction of Aerodrome Control Service Concepts shall be subject to a full safety analysis and relevant safety levels shall be met;**
- **Contingency procedures shall be in place;**
- **Controllers shall be involved in the development of Aerodrome Control Service Concepts.**

See: WP 87 - Istanbul 2007, Resolution B10 – WP85 – Kathmandu 2012

ADME 2.4 SURFACE MOVEMENT GUIDANCE & CONTROL SYSTEMS

At their simplest these may consist of ground markings and stop & go lights. More sophisticated systems will incorporate taxiway centre line lighting and stopbars which can delineate the cleared route of aircraft. Where a need exists, surface movement radar or some other form of aircraft position sensing may be installed. Whatever the sophistication of the system, the essential requirement is that some means exist of ensuring the safety of aircraft while moving on the manoeuvring area.

IFATCA policy is:

If deemed necessary, the appropriate ATC authority should implement an A-SMGCS which includes procedures for avoidance of collision between aircraft, and between aircraft and vehicles on the ground.

Surface movement surveillance systems should be installed at all airfields where low visibility operations take place and its operation should be mandatory while these operations are in progress.

Surface movement surveillance systems should be used as a monitoring device and should not be used for the provision of a control service unless procedures are available.

The boundary between apron and manoeuvring areas should be clearly defined. Longitudinal separation standards to achieve the objectives of preventing collisions between aircraft and aircraft and vehicles on the ground, during push back and taxi, shall not be specified.

See: WP 59 - Nairobi 1987, WP 93 - Hong Kong 2004, Resolution B10 - WP 59 – Virtual 2022

ADME 2.5 PROVISION OF ATS AT AERODROMES

IFATCA policy is:

Air Traffic Control service shall be provided at aerodromes that:

- **have published IFR approach, departure or holding procedures, and where control is required for the safety of air traffic.**
- **for VFR operations, where required to ensure that appropriate safety levels are met.**

At aerodromes at which air traffic control is provided, the appropriate airspace classification should be provided.

Where the above factors do not apply, Aerodrome Flight Information Service (AFIS) may be provided, but shall never be used as a substitute for Air Traffic Control Service. Where AFIS is in operation the limitations of the service shall be added to the station RTF callsign.

See: WP 88 - Istanbul 2007, Resolution B11 - WP 59 – Virtual 2022

See also: WP 39 - Athens 1985, WP 61 - San Jose 1986

ADME 2.6 RESPONSIBILITY AND FUNCTIONS OF AERODROME CONTROLLERS WITH REGARD TO SURFACE MOVEMENT

The task of apron control is not solely the responsibility of ATC; therefore, all staff involved in the provision of this service should be trained to the appropriate standard. It is important that the siting of control towers, the markings of taxiways, the use of visual aids and the introduction of future technology should have a minimal impact on operations. Developments in new Advanced Surface Movement Guidance Control Systems and their introduction should be an integral part of low visibility operations.

IFATCA policy is:

In aerodrome control towers, CCTV shall not be used to replace visual observation. The use of CCTV shall only be accepted to supplement visual observation where:

- **It has been proven by a safety analysis that at least the same level of safety can be guaranteed;**
- **Contingency procedures are in place**

The layout of runways and taxiways and the provision of visual aids should be such, as to enable simple and easily understood instructions to be issued and complied with.

Where a separate apron management service is established, personnel engaged in issuing specific ground clearances, instructions and clearance delivery should be trained and licensed to exercise these functions.

Safeguards should be imposed to prohibit the development of any structure that would impede the direct visual observation from the tower.

Where apron management services are established and not provided by an aerodrome ATS Unit, aerodrome controllers shall not be held liable for accidents or incidents that occur whilst aircraft are under the jurisdiction of the Unit providing such a service.

See: WP 163 - Cancun 2002, Resolution B14 - WP 97 - Amman 2011, Resolution B11 – WP85 – Kathmandu 2012, Resolution B12 - WP 59 – Virtual 2022

See also: WP 129 - Tunis 1996, WP 87 - Santiago 1999, WP 159 - Dubrovnik 2009

ADME 2.7 THE INTERFACE BETWEEN ATC AND AFIS

AFIS units are tasked with the provision of FIS and Alerting service within their jurisdictional airspace, without being considered an ATC unit; aerodromes identified as "AFIS aerodromes" maintain the status of "non-controlled" aerodromes. The interface between AFIS and ATC, attention is drawn to the coordination in that phase of flight when an aircraft - or more than one - is transiting from an AFIS to ATC and vice versa. This is particularly relevant when the aerodrome is surrounded by controlled airspace where instrument procedures' profiles extend through both volumes of airspace. To enable flights to operate safely between AFIS and ATC and vice versa.

IFATCA policy is:

At aerodromes where Aerodrome Flight Information Service is provided and are directly adjacent to controlled airspace appropriate LOAs shall be adopted defining the interface between AFIS units and the relevant ATC unit(s) in order to provide detailed operating and coordination procedures.

See: WP 84 - Taipei 1997, Resolution B13 - WP 59 – Virtual 2022

ADME 2.8 ADVANCED APPROACH PROCEDURES

IFATCA policy is:

Controller tools should be provided for integrating traffic on different approaches to the same or dependent runways.

See: WP 85 - Geneva 2001, Resolution B7, B8, B9, B10, B11, B12, B13, B14, B15, B16, B17, B22 – WP 163 – Las Vegas 2016

See also: ADME 2.10

ADME 2.9 REQUIRED NAVIGATION PERFORMANCE (RNP) FOR APPROACH AND LANDING

The concept of Required Navigation Performance (RNP) is to determine the accuracy of the aircraft navigation system and has been developed for use in en-route navigation. The fundamental feature is that it only defines a standard of equipment performance therefore it is of no interest to controller how the navigation is achieved but only that the aircraft is equipped to the standard required in a particular piece of airspace. IFATCA recognises that the extension of the RNP concept to the approach and landing phases of flight appears to offer advantages to ATC.

ICAO is introducing the Performance Based Navigation concept to provide a means of achieving harmonisation of RNAV and RNP applications. The ICAO PBN Manual (Doc 9613) sets out issues associated with the identification of the advantages and limitations of choosing one or the other as the navigation requirement for an airspace concept.

IFATCA policy is:

RNP based operational procedures should be developed in parallel with new approach aids, such as GNSS.

See: WP 99 - Ottawa 1994, WP 116 - Tunis 1996, WP 91 - Arusha 2008

ADME 2.10 NEW TECHNOLOGY APPROACH & LANDING AIDS

ICAO has developed a transition plan allowing the introduction of new technology approach and landing aids (currently MLS and GNSS). IFATCA is concerned that the more complex environment created by the use of a number of new approach aids will create operational problems for controllers. These problems can be reduced by using the principles associated with RNP in the design of operational procedures, so avoiding the need for the controller to know which aircraft is using which precision approach aid and reducing RTF.

During the last few years there has been a significant increase in the number of approach types in use. This is due in the main to the introduction of new technologies, such as Global Navigation Satellite System (GNSS) and Area Navigation (RNAV). States have introduced approach types with differing terminology and differing criteria. There is a pressing need to rationalise the multitude of approach types and to introduce consistent terminology and criteria. There are plans within ICAO to try and achieve this through the Performance Based Navigation (PBN) concept. IFATCA should support such a move. In the meantime, there are several recommendations that should be accepted to assist controllers in dealing with the various approach types.

IFATCA Policy is:

Working procedures and/or systems should provide the approach capability of the flight to relevant controllers.

The variety of approach types, and the associated complexity to the controller, should be reduced. The type of approach sub-category should be transparent to the controller in order to maintain an acceptable workload.

Even if they are being provided with all the necessary information on an aircraft navigational capabilities (FPL, displayed info) air traffic controllers should not be responsible to check aircraft or air crew navigational capabilities prior to issuing an approach clearance as it is the responsibility of operators and crews to comply with the PBN requirements for the given airspace.

See: WP 84 - Istanbul 2007, Resolution B9, B18, B19, B20, B21 – WP 163 – Las Vegas 2016, Resolution B3 - WP 90 - Conchal 2019, Resolution B14 - WP 59 – Virtual 2022

See also: ADME 2.8

ADME 2.11 THE APPLICATION OF COCKPIT DISPLAY OF TRAFFIC INFORMATION (CDTI) IN ADVANCED SURFACE MOVEMENT GUIDANCE SYSTEM (A-SMGCS) OPERATIONS

Many of the applications being investigated and developed, as part of the evolution of the CDTI in A-SMGCS context and the evolving use of airborne equipment and their derived data within the ground system, could have the potential for providing benefits in terms of safety, capacity and efficiency during LVO. However that development will need to address the many human factors and technical concerns that have been identified. IFATCA has identified several issues.

IFATCA policy is:

IFATCA supports development and implementation of CDTI in A-SMGCS applications to enhance safety and improve the efficiency of airport ground operations, provided that there is no adverse impact on controller or pilot workload.

Where any CDTI assurance function will be implemented, a clear and unambiguous statement of the responsibilities between pilots and controllers is required.

International standards should be established for certification and approval of complementary CDTI systems.

IFATCA considers the following to be the minimum attributes of CDTI used in A-SMGCS:

- **Positive unambiguous identification of all relevant aircraft/vehicles should be provided to the standards required for ATC systems;**
- **Sufficient information as to ground reference points, guidance and/or routings of relevant aircraft/vehicles should be provided to increase pilot's situational awareness and understanding of ATC instructions;**
- **All aircraft/vehicle should be displayed.**

See: WP 86 - Geneva 2001

See also: WP 87 - Santiago 1999

ADME 2.12 RED STOP BAR CROSSING PROCEDURES

Guidelines for aerodrome planning without taxiways crossing runways shall be the future aim to eliminate one of the main contributors to runway incursion. In particular when existing aerodromes are expanded strict guidelines to avoid construction of critical areas should become applicable.

Environment protection procedures at aerodromes shall be reassessed, in order to consider the impact on runway operations and risk for runway incursion.

Wherever complex aerodrome layout, runway-crossing taxiways or known areas of danger (hot spots) exist adequate tools (e. g. SMR, A-SMGCS, stop bars, etc.) should be provided to increase controller, pilot and driver awareness.

IFATCA should support IFALPA policy and never instruct an aircraft to cross a red stop bar. The stop bar should be switched off rather than be crossed at red.

IFATCA Policy is:

Stop bars shall be switched on to indicate that all traffic shall stop. Stop bars shall be switched off to indicate that traffic may proceed, when so authorized by the aerodrome control tower.

Contingency procedures should be available for stop bar malfunction.

The ICAO provisions for stop bar related procedures should be made consistent and unambiguous in all relevant ICAO documents.

The stop bar HMI design, location, implementation and automation should prevent an unacceptable increase of workload, distraction and head down operations.

The operation of stop bars 24 hours a day is supported by IFATCA provided that the design and implementation of stop bars support operations at any traffic volumes.

See: WP 87 Kaohsiung - 2006, WP 88 - Dubrovnik 2009, Resolution BC1, BC2 - WP 82 - Punta Cana 2010

ADME 2.13 AUTONOMOUS RUNWAY INCURSION WARNING SYSTEM (ARIWS)

Autonomous runway incursion warning system (ARIWS) is a system which provides autonomous detection of a potential incursion or of the occupancy of an active runway and a direct warning to a flight crew or a vehicle operator.

ARIWS uses available surveillance data but operates independently from ATC systems or controller input to monitor the actual situation on a runway and to autonomously generate visual alerts in accordance with the motion and velocity of the detected traffic in the form of airfield lighting displayed directly to flight crew and vehicle operators.

These systems act as a visual verification of an occupied runway. They create an additional layer of runway safety that aids to increase situational awareness for pilots and vehicle drivers that the runway is not safe.

IFATCA Policy is:

IFATCA fully supports and encourages the future development of Autonomous Runway Incursion Warning Systems provided the following criteria are met:

- **The system will be used as a safety net.**
- **False warnings are kept to an absolute minimum.**
- **When an ARIWS warning conflicts with an ATC clearance, common phraseology shall be used.**
- **Comprehensive training is provided to all pilots, vehicle drivers and controllers.**

If ARIWS activations are displayed to the controller, the information shall be efficiently incorporated at the appropriate control positions. Legal responsibilities shall be clearly and unambiguously defined.

See: Agenda B.5.3 - WP 89 - Amman 2011, Resolution B6 – WP 88 – Accra 2018

ADME 2.14 REMOTE AND VIRTUAL TOWER

Technology has created the possibility to provide aerodrome control service from a location other than the aerodrome itself. This new concept is being developed both in SESAR and NEXTGEN and is also studied in other countries such as Australia.

IFATCA Policy is:

ATCOs shall not be required to provide Digital Air Traffic Services (DATS) to more than one aerodrome simultaneously.

When implementing DATS, standards, procedures, guidance and clear requirements shall be developed.

Requirements at a minimum should include, but are not limited to:

- **Surveillance equipment capable of providing the desired service level**
- **A robust contingency plan in case of system failure**

DATS shall provide an equivalent or greater level of safety, compared to the previous configuration.

When replacing a conventional tower, DATS should be capable of providing an equivalent or greater level of service as the aerodrome control tower.

Standardized training requirements shall be developed for all ATCOs that work directly or indirectly with DATS.

A specific endorsement is required to operate at an aerodrome where DATS are provided.

For reasons of safety and human factors issues the minimum frame rate in a digital air traffic services unit shall be 25 FPS.

See: Resolution B8, B9, B10 - WP 92 – Gran Canaria 2014, Resolution B5 - WP 89 – Sofia 2015, WP 158 – Toronto 2017, Resolution B1 – WP 90 – Montego Bay 2023, Resolution BC11 – WP 97 – Montego Bay 2023

ADME 2.15 CONDITIONAL CLEARANCES TO RESCUE AND FIREFIGHTING VEHICLES

In an emergency situation, controllers are always required to use professional judgement and experience to determine the best course of action. Sometimes this causes conflict with rules and regulations that might, in those circumstances, be unfit for purpose. All controllers know that special circumstances call for special measures; indeed, ICAO Doc 4444 and many local manuals make a provision for controllers to do exactly that in emergency situations.

When an aircraft makes an emergency landing or a precautionary landing with associated risks, the aerodrome's fire brigade is usually on standby at a tactical position near the runway in use. Releasing the runway to the emergency vehicles vis à vis the landing traffic is a time and safety critical operation.

ICAO does not explicitly describe procedures for issuing conditional clearances to vehicles but it has been suggested that those might help in facilitating the expeditious handling of emergencies by aerodrome tower controllers.

IFATCA Policy is:

The implementation of procedures using conditional phrases to instruct and / or clear Rescue and Fire Fighting vehicles is only acceptable if:

- **A local safety and risk assessment is conducted.**
- **The aerodrome concerned has a dedicated Rescue and Firefighting unit that is**
- **appropriately trained and familiar with the aerodrome.**
- **Controllers shall be made aware of the potential hazards of using conditional phrases.**

See: Resolution B1 - WP 86 - Toronto 2017

ADME 2.16 USE OF AERODROME CONTROL FREQUENCY FOR COMMUNICATIONS OF VEHICLE DRIVERS

A runway incident involving a vehicle operating on the runway highlighted a safety concern that vehicle drivers remain on ground control frequency instead of the aerodrome control frequency. Some studies were made, and this policy highlights the importance of the "one runway – one frequency – one language" principle, and other related matters.

IFATCA Policy is:

IFATCA supports the concept of "One Runway, One Frequency, One Language".

Vehicle drivers operating within the aerodrome controller's area of responsibility shall establish and maintain direct communications with the aerodrome controller via the aerodrome control frequency. All communications on the aerodrome control frequency shall be conducted in the same language, preferably English.

See: Resolution C72 – WP 81 – Virtual 2022

ATS –PROVISION OF AIR TRAFFIC SERVICES

ATS 3.1 REPLACEMENT FLIGHT PLANS

Where owing to ATFM restrictions upon the initial flight plan route, the initial plan is cancelled and a new plan filed there is a need to ensure that the replacement flight plan can be identified as such. Procedures to achieve this have been in use in the European Region for several years but have caused difficulties to states in other regions.

IFATCA Policy is:

ICAO should review, as soon as possible, world-wide procedures and systems for amending or replacing flight plans or flight plan information, to ensure that such system and procedures exist, and that amended or replacement flight plans, or portions thereof, are easily identifiable to ATCOs.

See: WP 34 - Frankfurt 1989, Resolution B33 - WP 61 – Virtual 2022

See also: WP 90 - Frankfurt 1989

ATS 3.2 CLEARANCES

One of the fundamental operational principles that have been incorporated in the draft ICAO Manual of ATS Data Link Applications, 1st Ed. (1999), 3.36 from the beginning is that any ATS data link system shall only allow one ATSU (ATS Unit) to be capable of communicating with a given aircraft at any one time. This requirement was felt to be necessary to ensure that there would be no confusion by the aircrew that a clearance or instruction delivered by the data link system actually came from the proper controller (or controller team). It is therefore essential that when downstream clearances delivered via datalink are in use i.e. including the current controlling authority that sufficient safeguards are in place.

IFATCA policy is:

Where downstream clearance capability is provided via Data Link, sufficient safeguards shall be implemented in accordance with the ICAO Doc 9694 Manual of Air Traffic Services Data Link Applications, First Edition 1999.

A route clearance issued to an aircraft should be to destination.

If an ATC unit changes a route then that ATC unit should ensure that the new route rejoins the current flight plan route.

See: WP 115 - Taipei 1997, WP 81 - Toulouse 1998, WP 90 - Dubrovnik 2009, Resolution B7, B8 - WP 85 - Punta Cana 2010, Resolution B34 - WP 61 – Virtual 2022

See also: ICAO Document 9694 Chapter 3, 3.3-3.5, Chapter 8

ATS 3.3 HARMONISATION OF THE AIRSPACE CLASSIFICATION

Pilots experience difficulties to be constantly aware of the type of airspaces crossed while preparing for an approach and looking outside in compliance with the “see and avoid” rule.

One of the critical safety issues regarding class E airspace is the speed of modern aircraft and the ability of the human eye to detect aircraft in a clear futureless sky.

IFATCA policy is:

MAs shall urge ANSPs to co-ordinate and harmonise with all neighbouring states their national airspace classification, in accordance with ICAO Annex 11 Appendix 4, to permit safe and efficient operating conditions to all airspace users and air traffic controllers. Airspace classification should be appropriate for the traffic operating in the airspace, to avoid over and under classification. As traffic situations change, the classification may have to change accordingly. Local operational controllers should be involved in the airspace classification process.

See: WP 310 – Las Vegas 2016, Resolution B16 - WP 60 – Virtual 2022

ATS 3.4 STANDARDISATION OF REGIONAL TRANSITION ALTITUDES

Problems can arise if Transition Altitudes vary between adjacent FIR’s.

IFATCA policy is:

Standardisation of Transition Altitudes on a region wide basis shall be implemented where applicable.

See: WP 35 - Nairobi 1987, Resolution B17 - WP 60 – Virtual 2022

ATS 3.5 PROVISION OF OPERATIONAL AERONAUTICAL INFORMATION

An air navigation services system requires rapid access to correct current and conclusive data from a common source. In the air traffic control environment such data is often needed immediately in response to urgency or emergency situations. There is too much data to be efficiently memorised and therefore it is commonly available to controllers at their working positions in the form of documents, manuals etc. However, the more documents supplied the greater the problem of keeping them up to date and the more difficult finding the relevant information becomes.

There is a clear need to present such information in the instantaneously accessible form which modern display and computer technology makes possible. An upgraded AFTN system could be used to make a computerised data base available to all airspace users and providers of air navigation services.

IFATCA policy is:

ANSPs and States should establish a common aeronautical information database containing:

- **NOTAMs;**
- **Aeronautical information Publication Data;**
- **Meteorological data;**
- **Operational and technical status data which could be used by air navigation services systems for the efficient handling of aeronautical information and operational flight information.**

See: WP 16 - Amsterdam 1982, Resolution B35 - WP 61 – Virtual 2022

ATS 3.6 AIR TRAFFIC FLOW MANAGEMENT - ADHERENCE

The process of Flow Management involves continual monitoring and regulation of the flow of air traffic. The timely implementation of flow management measures and the communication of restrictions to the appropriate controllers are of prime importance, as is the adherence to restrictions by aircraft operators.

IFATCA policy is:

IFATCA recognises the potentially dangerous situations that can arise when slot times are not adhered to.

When a departure slot time is used, the time should be passed to the ATC unit at the departure airfield.

The aircraft operator should be ready for departure to meet the assigned ATFM departure slot.

Civil Aviation Administrations should pursue with the utmost vigour those operators who consistently fail to comply with ATFM measures.

See: WP 59 - Port of Spain 1991, Resolution B36 - WP 61 – Virtual 2022

ATS 3.7 ATC WITHIN ICAO ASSIGNED INTERNATIONAL AIRSPACE- THE IMPACT OF TECHNOLOGY

IFATCA fears that any re-organisation of ICAO assigned international airspace would be based upon the availability of new technology in different member states, with responsibility for airspace being assigned to the state whose advanced technology enabled it to maximise the efficiency and capacity of the airspace. This would not be in the best interests of controllers whose problems shall be of prime concern to IFATCA. The policy of IFATCA is based solely on the development/implementation of technology and implies no political process or decision with respect to national FIRs/UIRs.

IFATCA policy is:

The current ICAO assignment of international airspace within ICAO shall not be modified and/or changed based solely on the development and/or implementation of technology by one or more States, unless agreed to by all MAs concerned.

See: WP 33 - Port of Spain 1991, Resolution B19 - WP 60 – Virtual 2022

ATS 3.8 RADAR MONITORING

Radar monitoring is one of the functions in the provision of an air traffic control service. For the purposes of this policy, it has been considered in two areas, namely: arrival / departure phase and the en-route phase. The need to establish parameters for radar monitoring has arisen from the increasing use of self navigation.

IFATCA Policy is:

Route spacing standards should not be reduced below those that would otherwise be required purely because of the use of radar monitoring.

Radar monitoring should not be used as the means of providing separation with obstacles (terrain clearance) where aircraft are on their own navigation and below the Minimum Radar Vector Altitude (MRVA). Any escape procedure shall provide adequate terrain clearance from the point the aircraft is below the MRVA to the lowest defined altitude at which any such procedure can be initiated. States are required to assure this.

Any introduction of Performance Based Navigation (PBN) routes that are closely spaced should be subjected to safety analysis. Such a safety analysis may result in hazards being identified that require automated monitoring assistance for the controller to adequately mitigate the hazard.

Any introduction of closely spaced routes should ensure that controllers can, upon identification or notification of a deviation, carry out the necessary action so that the required separation minimum is not likely to be infringed.

See: WP 92 - Istanbul 2007, WP 91 - Arusha 2008, Resolution B20 - WP 60 – Virtual 2022

See also: WP 101 - Ottawa 1994, WP 102 - Ottawa 1994

ATS 3.9 GLOBAL COMPATIBLE FLIGHT LEVEL SYSTEMS

There currently exist three systems for flight level determination which are not compatible with one another. In the interface areas safety is compromised.

IFATCA policy is:

A global solution shall be developed using one system of flight level determination.

The interface in the transition areas between different systems shall be properly managed with the introduction of procedures which will prevent the selection of the incorrect flight level.

The introduction of compatible procedures in the interface areas shall be coincident with the introduction of RVSM.

Simple and clear phraseology shall be introduced where metric flight levels are used.

See: WP 96 - Tunis 1996, Resolution B37 - WP 61 – Virtual 2022

ATS 3.10 UNITS OF MEASUREMENT IN CIVIL AVIATION

IFATCA takes the view that SI (Système International d'Unités) is not necessarily providing a single solution for Civil Aviation, and that, in order to obtain a common global standard which is necessary for safety reasons, then specific non SI elements should be retained for the measurement of Vertical Distance, Speed and Distance.

IFATCA Policy is:

For the measurement of vertical distance, speed and distance the following units of measurements should be used:

1.	**for vertical distance:**	**FEET; (Vertical distance is altitude, elevation and height)**
2.	**for vertical speed:**	**FEET PER MINUTE;**
3.	**for horizontal speed:**	**KNOTS;**
4.	**for long distances*:**	**NAUTICAL MILES.**

*** long distance used in navigation generally in excess of 4000 metres.**

Any change in use of current units of measurement should only be implemented after appropriate training of controllers.

See: WP 100 - Marrakech 2000

ATS 3.11 AVIATION RADIO FREQUENCY SPECTRUM PROTECTION

Spectrum Protection refers to the management of the radio-frequency spectrum in order to protect particular interests. The spectrum includes not only communications and datalink applications, but also navigation and other uses. Aviation is just one of the many users of the spectrum. The useable spectrum expands with technological advances however there are often competing demands for particular frequency bands. States decide on spectrum use at World Radio-communication Conferences (WRC) organised by the International Telecommunications Union (ITU).

IFATCA Policy is:

The radio-frequency spectrum shall be managed in a manner that at all times ensures the safety of current aviation activity and allows for future safety-of-flight applications.

Existing spectrum allocations for exclusive aviation use shall not allow other uses until it is thoroughly proven that aviation safety will not be compromised by the shared use of the spectrum allocation.

Prior to aviation use of shared spectrum allocations, it shall be thoroughly proven that safety-critical aviation requirements are not compromised.

Adequate protection against harmful interference to aviation spectrum use shall be ensured.

IFATCA encourages the development of technology which utilizes the frequency spectrum more efficiently.

See: WP 95 - Cancun 2002, Resolution B1 - WP 88 - Conchal 2019

ATS 3.12 MIXED MODE OPERATIONS

The ATM system will continue to evolve through the use of technology. To permit certain categories of non-equipped flights to operate in mandatory equipage airspace, exemptions are given.

The controller is often used as the mitigation to permit these flights to operate, however there is a limit to the number of pieces of information, which can be displayed, either on the data display or the radar to indicate these exemptions, and also the cognitive function of the controller to react to numerous triggers.

Despite the use of individual safety case applications, there is an identified need to conduct a safety analysis on mixed mode operations, in all its variances.

IFATCA policy is:

Efforts should be undertaken to reduce existing Mixed Mode Operations by creating intrinsically safe solutions.

Introductions of new Mixed Mode Operations should be avoided by creating intrinsically safe solutions.

When safety of a Mixed Mode Operation cannot be completely managed at an intrinsic level, assessment shall take place to ensure that the change in the ATM system does not increase controller workload to an unacceptable level.

See: WP 96 - Buenos Aires 2003, WP 93 - Dubrovnik 2009 Resolution B21 - WP 60 – Virtual 2022

ATS 3.13 VIRTUAL CENTERS AND FUNCTIONAL AIRSPACE BLOCKS

The worldwide patchwork of FIRs and associated ANSPs is a cause of operational and organisational inefficiencies. In Europe, where the problem is most pronounced due to the large number of states and flights, functional airspace blocks (FABs) were envisaged as a solution; however, implementation has been slower than expected. Virtual centres provide a method of virtual, rather than physical, consolidation by isolating and geographically decoupling the data and control elements of ATM, which may provide an alternative path to achieve the aims of FABs. There remain a number of technical as well as professional and legal challenges to the virtual centre concept but its development continues. Along with space-based ADS-B, virtual centres are an example of the increasing reliance that ANSPs are placing on third parties for communication, navigation and surveillance data.

IFATCA policy is:

ATM data shall be of sufficient quality, reliability and integrity for its intended use.

Organisations that provide ATM services beyond state borders shall clearly define the operational and legal implications of providing these services, and train controllers in the implications.

The efficient creation and management of an FAB does not necessarily require the physical concentration of all ANS functions within a single centre.

Consideration shall be given to the personal and social implications for controllers associated with the relocation and/or consolidation of ATS units.

Consolidation of ATS units, whether virtual or physical, shall be considered equal to the implementation of a new ATM system.

See: WP 105 - Buenos Aires 2003, WP 84 – Toronto 2017, Resolution B22 - WP 60 – Virtual 2022

ATS 3.14 SYSTEM DEFENCES DURING PLANNED SYSTEM DEGRADATION

Planned System Degradation could be any potential reduction in the availability, reliability or integrity of any part of the ATM system, known in advance to the user of the system.

IFATCA policy is:

Risk assessment and appropriate mitigation should be carried out for every planned system degradation.

Arrangements should be made for sufficient staffing during planned system degradation.

See: WP 100 - Hong Kong 2004

ATS 3.15 (ADVANCED) STRATEGIC LATERAL OFFSET PROCEDURES

Strategic Lateral Offset Procedures (SLOP) are mitigating the risk of vertical collision and wake turbulence encounters between aircraft with high precision navigation capabilities. Provisions of SLOP are published in ICAO Doc 4444 (PANS-ATM) as special procedures for oceanic and remote continental airspace. Strategic Lateral Offset Procedures are pilot initiated and more or less transparent to controllers. After the mid-air collision in Brazil (GOL Transportes Aéreos, September 2006), some stakeholders in air transport industry highlighted the issue that SLOP have not been implemented by Air Traffic Services (ATS) authorities as widely as possible. ICAO has since started to investigate and develop SLOP to extend its applicability to other than oceanic and remote airspaces.

IFATCA policy is:

Where SLOP is implemented:

- **It shall be in accordance with ICAO provisions**
- **ATM systems shall accommodate the concept**
- **Controllers shall be trained in the procedure and its implications**

See: WP 90 - Arusha 2008, WP 92 - Dubrovnik 2009, Resolutions B6 and B7 – WP 93 – Conchal 2019

ATS 3.16 THE USE OF SAFETY NETS IN ATM

The use of safety nets within the ATM system has been established for many years. The scope of safety nets has extended to be not only airborne based but ground based as well. There is a move to extend their application into other areas such as an ATM tool, often with a view to a reduction of separation. Also, the concept of separation protection as opposed to collision avoidance has been introduced. This implies that the controller is alerted when the separation minima are about to be infringed and action will be taken to maintain the minima. In this case, the use of the safety net is being compromised by its use as conflict detection tool.

IFATCA policy is:

When implementing ground-based safety nets, common phraseology and procedures shall be used in their operation.

See: Resolution B2 – WP 86 – Accra 2018, Resolution B23 - WP 60 – Virtual 2022

ATS 3.17 CONFLICT DETECTION TOOLS

Conflict Detection Tools (CDTs) are computer based Controller Tools that identify conflicts and then provide system generated conflict advice to controllers. CDTs can either provide conflict detection continually or provide one-off probes (modelling to assess the potential conflicts on an intended action such as a reroute, level change or speed adjustment). CDTs can also provide conformance monitoring to ensure that aircraft conform to instructions issued to solve a detected conflict.

IFATCA policy is:

Responsibility and legal implications should be fully addressed before implementation of CDTs.

During degraded modes, clearly defined operational procedures shall exist. Nuisance and false alerts shall be kept to an absolute minimum.

See: WP 90 - Hong Kong 2004, Resolution B25 - WP 60 – Virtual 2022

ATS 3.18 SHORT TERM CONFLICT ALERT

STCA is a ground-based system that relies on surveillance data processing to predict proximity between two or more targets. The programme utilises radar information on both the vertical and horizontal planes and predicts the future position of those targets, for a time in the future, determined by a variable system parameter known as the look ahead time (generally +/- 1 min). The system then generates warnings to a controller if this prediction will result in less than a set distance (vertically or horizontally) occurring between the targets. There are no internationally accepted parameters for STCA, however in general terms STCA can operate in two different "modes": as a separation assurance function or as collision prevention function.

IFATCA policy is:

STCA, as a safety net, shall be provided to each ATM-system with ATS Surveillance.

STCA parameters shall be adjustable and nuisance filters for each individual ATC unit with ATS surveillance, are developed, and tested for the area involved and adjusted to the procedures, airspace layout, separation standards, surveillance source, traffic mix, etc.

An STCA function shall not be considered when developing a safety case, unless it can be demonstrated that the functionality is used in a separation assurance mode of operation.

See: WP 98 - Toulouse 1998, WP 87 - Melbourne 2005

See also: Resolutions B6 and B7 - WP 90 – Sofia 2015, Resolution B2 – WP 91 – Montego Bay 2023

ATS 3.19 MINIMUM SAFE ALTITUDE WARNING SYSTEMS

There continues to be an unacceptable high level of Controlled Flight into Terrain (CFIT) accidents. Although there are enhancements in the cockpit to prevent such incidents: Ground Proximity Warnings (GPWS), IFATCA believes that devices such as Minimum Safe Altitude Warning (MSAW) activated on the controllers' screens should be employed as an additional layer of safety.

IFATCA policy is:

MSAW shall be fully implemented with appropriate operational requirements, procedures, and training in order to significantly reduce the number of CFIT.

See: WP 88 - Santiago 1999, Resolution B38 - WP 61 – Virtual 2022

ATS 3.20 ENVIRONMENTAL ISSUES IN ATM

There are several environmental issues in ATM. Aircraft noise and aircraft emissions are the issues that have the greatest impact on efficiency and safety.

The normal order of priority in air traffic control is: safety, efficiency and "finally" environmental issues. More often this order is changed in favour of the environment, although the highest priority is still given to safety. The aviation industry continues to grow and the focus on environmental issues has increased worldwide as well. Despite this, safety is still the overriding consideration in all aviation activities. While safety management is improving, the level of safety is more often balanced against efficiency and environment. This could result in a decrease of the level of safety while the target level of safety is still met.

IFATCA policy is:

In the operation, maintenance and development of the ATM system when balancing the requirements of safety, efficiency and the environment, the level of safety shall always be maintained or improved.

In case environmentally driven procedures are introduced in the ATM System, these shall be introduced taking into consideration the increased complexity for the controller. This complexity shall be managed at the appropriate, strategic, level. A trade-off between environment and capacity shall be considered as part of this management of complexity, as safety is paramount.

Individual environmental aspects shall be considered by an ATM environmental management system and documented in an ATM environment case as part of an overall performance case.

Provisions for an ATM environment management system should comprise at least the following requirements:

- **Ensure that the level of safety shall be maintained or improved when environmentally-driven procedures are introduced;**
- **Ensure that all individual environmental factors are identified and considered while establishing procedures;**
- **The actual values (noise levels, fuel consumption and the amount of emissions) of the various individual environmental contributors of new or existing procedures should be established in detail for transparency reasons;**
- **The interrelation of the various individual environmental factors should be identified and addressed.**

Provisions for an environment case should comprise at least the following requirements:

- **An environment case is a documented body of evidence that provides argument that a certain procedure is optimized for all individual environmental factors as prioritized by the appropriate authorities;**
- **An environment case should provide a detailed overview to the appropriate authorities for the determination of priorities of the individual environmental factors on a strategic level..**

See: Resolutions B1, B2, B3 - WP 87 - Amman 2011

See also: WP 91 - Cancun 2002, WP 93 - Arusha 2008, WP 84 – Dubrovnik 2009, WP 105 - Dubrovnik 2009

ATS 3.21 SURVEILLANCE: IN-TRAIL PROCEDURES ITP

IFATCA provisional policy is:

When using ADS-B ITP, proper mitigation shall be in place to account for misidentification by the pilot due to incorrect input of FlightId.

See: WP 85 - Dubrovnik 2009

ATS 3.22 MISSED APPROACH PROCEDURES FOR VISUAL APPROACHES

The procedure that an aircraft should follow during a go-around following a visual approach is often not clear to the ATC or the pilot as several options for a missed approach procedure exists. These include the missed approach procedure for the instrument approach procedure that was abbreviated, direction by ATC using the radio, etc. IFATCA policy is aimed at removing any possible misunderstanding amongst ATC and pilot.

IFATCA policy is:

Each aerodrome at which visual approaches are undertaken shall have go-around procedures documented in the AIP.

Any visual approach procedure for IFR flights that is shown on a visual approach chart in the AIP shall contain a go-around procedure.

The inclusion of go-around procedures in the AIP should not preclude a controller from issuing alternative instructions to be used in the event of a go-around.

See: Resolution B4, B5, B6 - WP 84 - Punta Cana 2010

ATS 3.23 INSTRUMENT DEPARTURES AND ARRIVALS

Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs) are published procedures which include route information and may include tracking, level, speed and other requirements and restrictions. SIDs and STARs are becoming increasingly complex and differences in design and phraseologies are creating misunderstandings between pilots and controllers as to the intent of the controllers' instructions. A significant concern is misunderstandings whether level restrictions shall be complied with or have been cancelled.

IFATCA policy is:

SID and STAR design and use should be globally harmonized.

Phraseology and corresponding message sets shall be developed to easily indicate whether published vertical profile is to be followed or not.

Airspace, procedures and charting should be designed and implemented based on the latest ICAO provisions regarding SIDs and STARs. The result shall be that ATC clearances are unambiguous and their intended effects are achieved. Controller workload shall not increase beyond an acceptable level.

See: Resolution B9 - WP 88 - Punta Cana 2010, Resolution B9 - WP 91 - Amman 2011, Resolution B3 – WP 87 – Accra 2018

ATS 3.24 EN-ROUTE RESTRICTIONS

Discrepancy exists between restrictions on SIDs and STARs and restrictions in the en-route environment. It is essential to ensure compatibility and consistency between the TMA environment and en-route procedures.

IFATCA policy is:

Published level restrictions remain valid unless explicitly cancelled by ATC.

See: Resolution B6 - WP 91 - Amman 2011

ATS 3.25 CONTINUOUS DESCENT OPERATIONS (CDO) AND CONTINOUS CLIMB OPERATIONS (CCO)

Recent experience has proven the potential of new arrival procedures known as Continuous Descent Arrivals (CDAs). CDAs enable aircraft to make a more continuous descent from cruise to runway, saving fuel, reducing emissions, and reducing frequency congestion. ANSPs want to expand the use of CDAs. To regulate this activity, ICAO has produced Doc 9931, "Continuous Descent Operations Manual".

Recent experience has proven the potential of new departure procedures known as Continuous Climb Operations (CCO). CCOs enable aircraft to climb in the most economical fashion, saving on emissions and costs but also providing a potential improvement in safety.

- **CDA design and implementation should include as a minimum the 90% rule, the use of extensive simulation and the need for automated wind data and advanced sequencing tools.**
- **Procedures' terminology should refer to either Continuous Descent Arrivals (CDAs) or Optimized Profile Descents (OPDs).**

IFATCA supports the development and implementation of Continuous Descent Operations and Continuous Climb Operations provided that:

- **Controllers are involved in the design.**
- **Airspace is suited to the design.**
- **The design meets the desired ATM capacity.**
- **Tactical interventions are always possible.**
- **Flight predictability is increased for both pilots and controllers.**
- **Controller workload is not increased beyond an acceptable level.**
- **It increases the overall performance of the ATM system without reducing safety.**

See: Agenda B.5.9 -WP 95 - Amman 2011, Resolution B9 - WP 85 – Kathmandu 2012, Resolution B39 - WP 61 – Virtual 2022

ATS 3.26 AIR TRAFFIC FLOW MANAGEMENT - IMPLEMENTATION

IFATCA policy is:

IFATCA encourages the implementation of ATFM processes provided that:

- **The process achieves an optimum overall performance.**
- **Air Traffic Controllers and Flow Management Controllers are involved in the design of their local procedures and the determination of capacity values and / or occupancy values.**
- **The communication between and the compatibility of regional systems is established.**
- **The tactical capacity is managed on an operational level.**
- **The process, including restrictions, is transparent to all users.**
- **Procedures are in place to allow controllers to report occasions where they felt overloaded or sector capacity values were exceeded. Feedback should be given to the reporting controller.**

See: Agenda B.5.10 -WP 96 - Amman 2011, Resolution B28 - WP 60 – Virtual 2022

ATS 3.27 SID AND STAR NAMING

The use of SIDs and STARS has grown tremendously in the past decade. Unfortunately, there has been a noticeable lack of standardization and the result pilots face is a confusing mix of local practices. One of these is how the procedures are named.

IFATCA policy is:

SID and STAR designators shall be identical between the ATM system and the FMS.

See: Resolution B1 - WP 83 – Kathmandu 2012

ATS 3.28 CONTROLLED TIME OF ARRIVAL CONCEPT

The RTA function enables an aircraft to pass a waypoint at a predefined time. The CTA concept uses this capability in sequencing arriving traffic to the Terminal Area (TMA) by assigning such fix times to aircraft. CTA and RTA are considered by the industry to be the first step towards full 4 Dimension (4D) Trajectory Based Operations (TBO).

IFATCA policy is:

IFATCA supports the Controlled Time of Arrival concept provided;

- **Arrival Manager (AMAN) is available to define reliable CTA times.**
- **RTA equipage level of aircraft is sufficient to support CTA operations.**
- **Procedures and controller tools are available to integrate RTA equipped and non-equipped aircraft in the same traffic stream.**
- **Tactical ATC interventions are always possible.**
- **Accurate wind and temperature data is available.**
- **Means to communicate the CTA contract with aircraft are available (preferably data link).**

See: Resolution B2 - WP 84 – Kathmandu 2012

ATS 3.29 MERGING AND SEQUENCING CONCEPTS

Due to environmental, economical and operational reasons the need for more accurate merging and sequencing tools has arisen.

IFATCA policy is:

IFATCA encourages the development of sequencing and merging tools provided that:

- **They provide controllers with reliable and effective information.**
- **Local airspace structure, complexity and traffic density are taken into account.**
- **They are integrated with other systems and adjacent units if required.**

See: Resolution B3 - WP 88 – Kathmandu 2012, Resolution B29 - WP 60 – Virtual 2022

ATS 3.30 TRANSPONDER MANDATORY ZONES

Transponder Mandatory Zones (TMZ), defined areas in which the carriage of an operational transponder is required, have been implemented in several states to improve safety.

IFATCA policy is:

All aircraft operating as IFR flights shall be equipped with a pressure-altitude reporting transponder.

See: Resolution B5 - WP 90 – Kathmandu 2012

ATS 3.31 DYNAMIC SLOT TRADING PROCESS

User Driven Prioritization Process (UDPP) is a new concept designed to allow airspace users to have input into the allocation of delay in capacity constrained situations. UDPP will take advantage of other new concepts such as Collaborative Decision Making (CDM) and System- Wide Information Management (SWIM).

IFATCA policy is:

Dynamic slot trading processes shall not interfere with ATCOs authority to make tactical decisions to ensure safe operations.

See: Resolution B1 - WP 86 – Bali 2013

ATS 3.32 RECATEGORIZATION OF AIRCRAFT FOR WAKE TURBULENCE

In recent years, there have been a number of initiatives to review and update the wake turbulence categories defined by ICAO and the corresponding state variations.

IFATCA Policy is:

Any aircraft wake turbulence recategorisation shall:

- **Conduct appropriate safety assessments, including a thorough understanding of the human factor element.**
- **Design clear procedures for the application of the new wake turbulence categories.**
- **Provide adequate tools to support the controller when applying those procedures.**
- **Incorporate contingency procedures for cases where support tools are unavailable and/or the new wake turbulence categories cannot be applied.**
- **Ensure that the new system does not have a negative effect on the efficiency of the overall ATM system.**

When the prescribed separation is applied, ATCOs shall not be held responsible for wake vortex encounters and related accidents/incidents.

See: Resolution B10 – WP 92 – Toronto 2017, Resolution B7, B8 – WP 89 – Accra 2018

See also: Resolution B2 - WP 90 – Bali 2013

ATS 3.33 RELAY OF FLIGHT INFORMATION FROM AIR TRAFFIC SERVICE TO AIRCRAFT

ICAO SARPS state that Air Traffic Services are required to provide flight information. Despite it not being the most accurate and efficient method, it is often the Air Traffic Controller that assumes responsibility for broadcasting this information. Although several new techniques are being developed, suitable tools and techniques are not always available to the controller.

The workload implied to meet all the ICAO requirements about the passing of information, which can include a lot more than just SIGMET and AIRMET information may be considerable. It can be difficult to determine if pilots have received up to date flight information.

IFATCA policy is:

IFATCA encourages the development of technologies to automate the provision of Flight Information Service.

When flight information is provided through automatic data transmission systems, clear procedures shall be established and the allocation of tasks and responsibilities shall be clearly determined.

See: Resolution B4, B5 - WP 92 – Bali 2013

ATS 3.34 TERRAIN AND OBSTACLE CLEARANCE RESPONSIBILITIES

During the work on SID and STAR phraseology changes and cancellation of level restrictions, fundamental issues arose regarding ICAO standards and procedures for terrain and obstacle clearance.

ICAO provisions presently have problems:

- Currently most responsibility lies with pilots.
- Implied responsibility.
- Duty of care under surveillance when an aircraft leaves surveillance airspace.
- Charting has shortcomings.
- Questionable language regarding visual approaches.

"The objectives of the air traffic control service as prescribed in Annex 11 do not include prevention of collision with terrain. The procedures prescribed in this document do not relieve pilots of their responsibility to ensure that any clearances issued by air traffic control units are safe in this respect. When an IFR flight is vectored or is given a direct routing which takes the aircraft off an ATS route, the procedures in Chapter 8, 8.6.5.2 apply"

The note under 8.6.5.2 appears in several places in ICAO documents. It does not specify how a pilot should undertake this task.

Terrain clearance while vectoring is obviously an ATC responsibility. What can be unclear is who is responsible in direct routing (off ATS route) situations.

IFATCA policy is:

Responsibility for terrain and obstruction clearance shall be clearly defined and shall always lie either with the crew or ATC. There shall never be a situation where doubt exists about who is responsible for this task.

ICAO documentation should provide clear and unambiguous language with regard to responsibility for terrain avoidance, including amendment to the Objectives of air traffic services to include the prevention of collisions between aircraft and terrain.

ATCOs should be provided with ATS surveillance tools and/or procedures to efficiently separate aircraft from terrain and obstacles.

See: Resolution B1, B2 - WP 85 - Gran Canaria 2014, Resolution B9 - WP 92 – Sofia 2015, Resolution B30 - WP 60 – Virtual 2022

ATS 3.35 TERRAIN AND OBSTACLE CHARTING

Work on SID and STAR phraseology changes and cancellation of level restrictions identified fundamental issues regarding ICAO procedures for terrain and obstacle clearance, primarily whether a restriction is ATC or terrain based.

IFATCA policy is:

All published altitude restrictions should indicate whether they apply for reasons of terrain avoidance.

ICAO documentation should provide clear and unambiguous language with regard to responsibility for terrain avoidance, including amendment to the Objectives of air traffic services to include the prevention of collisions between aircraft and terrain.

ATCOs should be provided with ATS surveillance tools and/or procedures to efficiently separate aircraft from terrain and obstacles.

See: Resolution B2 - WP 85 - Gran Canaria 2014, Resolution B3 - WP 86 - Gran Canaria 2014, Resolution B9 - WP 92 – Sofia 2015

ATS 3.36 EMERGENCY DESCENT PROCEDURES

Existing ICAO recommended practices concerning emergency descent procedures provide guidance to pilots and ATS units in the event of an emergency descent. However, these provisions are outdated. Updates are needed to handle modern scenarios.

Proposal was to switch TCAS to TA mode as the descending aircraft may not be able to respond correctly to any generated RA and therefore the other aircraft involved will be given a more aggressive evasive manoeuvre. There is no consensus across the pilot community on this proposal. Airbus claims that if an aircraft is descending at 10000’ per min or greater, the TCAS automatically goes to standby.

IFATCA policy is:

IFATCA supports the modernization of emergency descent procedures.

See: Resolution B5 - WP 88 - Gran Canaria 2014

ATS 3.37 SERVICE PRIORITY

Future demand of increasing capacity will need the introduction of new prioritisation aspects. An example of Service Priority is the "Best-equipped, Best-Served" concept which is emerging as a new tool for the benefits of airspace users.

IFATCA policy is:

Service priority can be accounted to airspace users provided that:

- **Prioritisation is given in a strategic way,**
- **Tactical intervention is always possible,**
- **Sector complexity does not exceed an acceptable level.**

See: Resolution B7 - WP89 – Gran Canaria 2014

ATS 3.38 FLIGHT PLANNING ACCURACY AND IMPACTS ON THE ATM SYSTEM

Inaccuracies during initial flight planning or insufficient communication regarding changes to existing flight plans can lead to undesirable effects on the ATM system.

IFATCA policy is:

Electronic filing and automated conformance checking of flight plans are preferred.

Air traffic controllers shall be able to issue any clearance to an aircraft based on the capabilities in its flight plan. Automation should be in place to detect if, according to flight plan information, an aircraft is unable to execute any procedure in use.

Flight plan submission and correction by controllers, while responsible for separation of aircraft should be minimized.

See: Resolution B1, B2 - WP83 - Sofia 2015, Resolution B2 - WP 90 - Conchal 2019

ATS 3.39 CRISIS MANAGEMENT

Crisis management is an important present-day issue, with many global and regional initiatives to help the aviation industry cope with major disruptions. To effectively manage a crisis situation, an up-to-date crisis and contingency plan is an important first step.

IFATCA policy is:

Air traffic controllers should be involved in the development of contingency and crisis management plans. This includes regional and sub-regional contingency plans. IFATCA supports the OCIR model for the development of such procedures. Contingency plans should be regularly updated.

See: Resolution B12 – WP93 - Sofia 2015

ATS 3.40 MOVING TO A NEW FACILITY

The reasons to move to a new facility often include, but are not limited to, aging or outdated facilities. Moving to a new facility is a very demanding and lengthy process. It not only affects ATM as a system, but it also significantly affects those who operate within it. A proper preparation and continuous assessment and reflection benefit the final result. Controller involvement in all stages of the process contributes to a broadly carried and accepted final concept.

Moving to a new facility may be a benefit to the users of the ATS as in most cases the new facility will provide a new or upgraded system and possibly new procedures. ICAO Doc 9426 highlights the need of involving experts and interested parties in establishing a new facility without clarifying how to conclude this participation.

IFATCA policy is:

Operational controllers shall be involved in the design, development and deployment when moving ATS facilities.

Their role shall include at a minimum:

a) Defining facility requirements and user needs.
b) Participating in the risk and safety assessment processes
c) Defining operational training requirements prior to the transition.
d) Validating the new facility.
e) Providing feedback in the further development of the facility.

See: WP85 – Toronto 2017, Resolution B32 - WP 60 – Virtual 2022

ATS 3.41 STATE AIRCRAFT AND DUE REGARD OPERATIONS

ICAO rules are applicable only for civil aircraft. State aircraft – identified by ICAO as military, customs and police services – are not required to comply with these rules but States shall, when issuing rules for their State aircraft, have 'due regard' for the safety of navigation of civil aircraft.

IFATCA policy is:

Controllers shall be trained in handling State aircraft operations including:

- **State aircraft not conforming to civil aviation rules and regulations**
- **The implications of sovereign and international airspace on State aircraft operations.**

See: Resolution B9 – WP 92 – Accra 2018

ATS 3.42 HELICOPTER OPERATIONS

The integration of fixed wing aircraft and helicopters on an airfield can present considerable difficulties to airfield ATC.

IFATCA Policy is:

Procedures should be developed in order to integrate fixed and rotary-winged operations at airfields. In developing these procedures cognisance should be taken of the unique operating characteristics of the helicopter. To accommodate such operations local procedures should be developed to permit:

a) the development of discrete helicopter departure and arrival routes;
b) shorter instrument or radar approach patterns;
c) approaches to subsidiary runways followed by a suitable visual manoeuvre for landing on a separate heli-runway or helipad;
d) reduced horizontal separation on radar approaches between helicopters following fixed-wing aircraft, subject to proper authorisation and wake turbulence;
e) landing and take-off at intersections of runways, subject to wake vortex considerations.

IFATCA encourages the development of separate helicopter facilities on existing airfields where considered beneficial and the integration of rotary-wing and fixed-wing operations at such airfields.

See: WP 53 - Athens 1985, WP 84 - Cancun 2002, Resolution B49 - WP 63 – Virtual 2022

See also: WP 29 - Cairo 1981

ATS 3.43 HELICOPTERS: DISCRETE IDENTIFICATION IN FLIGHT PLANS

There is no provision on the present flight plan form to differentiate a helicopter from a fixed wing aircraft, unless the type designator gives the information in order to prevent uncertainty.

IFATCA Policy is:

Procedures should be developed for Flight Plan data to provide a clear differentiation between fixed-wing and helicopter flights.

See: WP 79 - Estoril 1984, Resolution B51 - WP 63 – Virtual 2022

ATS 3.44 HELICOPTER RTF PHRASEOLOGY

It is often normal practice on airfields for helicopters to take off and land from parts of the apron area. However, these areas, not being part of the manoeuvring area, are not under the control of ATC and there may be traffic affecting the take-off or landing.

It is essential that controllers know whether they are dealing with helicopters or fixed wing aircraft, to ensure that no confusion can arise.

IFATCA Policy is:

The phraseology 'Cleared for take-off/landing' is not appropriate for use with helicopters operating directly to or from the apron area, as it is currently defined by ICAO. Alternative phraseology should be developed which reflects the limit of ATC responsibility when dealing with such operations.

Helicopter pilots should use the RTF callsign prefix 'HELICOPTER' on first contact with an ATSU, except when it is obvious from the callsign that the aircraft is a helicopter.

See: WP 29 - Cairo 1981, WP 49 - Split 1983, WP 94 - Kaohsiung 2006, Resolution B50 - WP 63 – Virtual 2022

ATS 3.45 ADS-B: SINGLE EMERGENCY CODE MANAGEMENT

IFATCA considers the issue of single emergency code management with ADS-B to be of concern particularly if introduced to replace radar as a sole means of surveillance in high density airspace.

IFATCA policy is:

If ADS-B is to replace radar then it shall have the same or better functionality as SSR, and this specifically includes discrete emergency codes and a SPI function.

IFATCA considers the issue of single emergency code management with ADS-B to be a concern, especially if ADS-B is used to replace radar as the sole means of surveillance in high density airspace. Continued awareness of ADS-B operations without separate emergency codes and isolated SPI function is necessary.

See: WP 89 - Arusha 2008, Resolution B60 - WP 65 – Virtual 2022

ATS 3.46 SECTORLESS ATM

As the industry is pushing to implement flight-centric ATM, there is a need to evaluate the benefits and potential concerns related to these systems. New challenges related to their implementation will require the adoption of a set of guidelines to accompany and critically follow the upcoming developments. It is possible that several ANSPs may wish to establish such operations in their own airspace in the near future.

IFATCA Policy is:

IFATCA is opposed to the concept of flight-centric ATM until critical safety issues and human factors issues are fully understood and resolved.

See: Resolution B64 – WP 69 – Virtual 2022

COM – COMMUNICATIONS

COM 4.1 ALPHA - NUMERIC CALLSIGNS

The concept of call sign confusion and particularly the use of alphanumeric call signs are investigated by IFATCA.

To reduce the possibility of call sign confusion:

- **Call signs that correspond to the last two designators of both ICAO and/or IATA airport designators of either the point of origin or destination of the flight, shall not be used.**
- **In alphanumeric call signs, aircraft operator designators shall not be chosen that will create confusion with phonetic letters.**
- **The use of tools that reduce possible call sign similarity shall be encouraged.**

See: Resolution B7 - WP 92 - Kathmandu 2012, Resolution B40 - WP 62 – Virtual 2022

See also: WP 98 - Amman 2011

COM 4.2 8.33 kHz SPACING

The introduction of 8.33 kHz can have a major impact on the ATC system. There is the possibility of non-equipped aircraft entering 8.33 kHz, with the increased possibility of frequency blocking, and the additional workload placed on controllers both around and below the 8.33 kHz airspace. The identification and control of non-equipped aircraft relies on the flight planning arrangements working reliably and these systems need to be in place and properly tested before 8.33 kHz spacing is introduced.

All these factors may potentially have an adverse impact on the safety of the ATC system.

IFATCA policy is:

The implementation of 8.33 kHz channel spacing should not take place until the speech quality has been tested in a realistic operational environment to ensure that flight safety will not be jeopardised.

To limit controller workload, the procedures and equipment to identify non-equipped aircraft and to deal with the mixed operational environment shall be in place before 8.33 kHz spacing is introduced.

Prior to the introduction of 8.33 kHz the following conditions shall be met:

- **Appropriate "filtering / gate keeping" procedures shall be in place when appropriate.**
- **Detection of 8.33 KHz equipage and the display of non-equipped status to the controller shall be in place.**
- **Education programmes for pilots and controllers shall be completed. This is particularly important in states surrounding 8.33 kHz airspace which perform the "filtering / gate keeping" procedures.**
- **Procedures which consider a controller as the principle means of mitigation are unacceptable.**
- **Last minute diversions and sub-versions of non-equipped aircraft directly affect the capacity of the sectors involved therefore such re-routings shall be kept to the absolute minima in order that the safe operations of the sectors involved are not degraded.**
- **121.5 MHz shall not be considered as a contingency frequency for non-equipped aircraft nor can it be used to re-route or divert aircraft that are not equipped.**
- **A 25 kHz independent contingency frequency shall be available to re-route non- equipped aircraft.**
- **Non-equipped medical flights shall only be accommodated in the case of an in-flight emergency.**
- **The introduction and use of 8.33 kHz spacing shall be proven to meet at least the pre-existing target levels of safety.**

See: WP 87 - Taipei 1997, WP 99 - Santiago 1999, Resolution B42 - WP 62 – Virtual 2022

COM 4.3 COMMUNICATIONS FAILURE

Some radios have a sleep mode that causes communication failures without being noticed. This results in serious security and cost issues for the military.

Radio communication failure is a rare occurrence, but it can result in undesirable situations. Present ICAO provisions are not always adequate or practical.

There shall be one unified global set of procedures for communication failure.

See:	Resolution B7 - WP 87 – Bali 2013, Resolution B43 - WP 62 – Virtual 2022

COM 4.4 RTF FREQUENCY USAGE

Other means of communication such as Controller to Pilot Datalink Communications (CPDLC) may present challenges if used in airspace with many time-critical clearances and communications. The current systems are too limited to deal with environments in which the majority of clearances are time-critical, mainly because of response times. It is therefore very likely that RTF communications will be the sole or major means of communications in many areas in the world.

IFATCA policy is:

If a controller is providing ATS for two or more areas, the relevant channels shall be located on the Controller Working Position being used.

If more than one RTF channel is being used, then suitable 'retransmit' facilities shall be provided to enable all users to receive all transmissions. The ability to enable or disable 'retransmit' facilities should be provided.

Future systems should include technology that warns the controller in the event of a crossed transmission.

Independent backup equipment should be provided.

Communications with aircraft should only be undertaken within the Designated Operational Coverage (DOC) for the frequency being used.

Voice switch systems shall include facilities to:

- **mute individual frequencies (due to open microphone, etc.) which will also cancel the retransmit for that frequency;**
- **present equipment failure alarms and provide the ability to isolate equipment which has failed;**
- **select secondary equipment (i.e. receivers, transmitters and paths) at the Controller Working Position;**
- **indicate the frequency on which the last incoming call was made.**

IFATCA recognises the need for, and supports the reduction of voice communication workload of controllers. However simply omitting items without alternative methods of accomplishing essential checks compromises safety.

See: WP 17 - Brussels 1979, WP 88 - Melbourne 2005, Resolution BC4 - WP 86 - Punta Cana 2010, Resolution B44 - WP 62 – Virtual 2022

COM 4.5 FREQUENCY BLOCKING

The blocking of frequencies by inadvertent transmissions is a very real operational problem. A flight deck based technical solution has now been developed but implementation is very limited.

IFATCA policy is:

Any device designed to prevent inadvertent transmissions from blocking RTF frequencies, should be installed in all stations capable of transmitting on aeronautical frequencies.

See: WP 58 - Estoril 1984 and WP 92 - Kaohsiung 2006

COM 4.6 DIRECT CONTROLLER - PILOT COMMUNICATIONS

As data link becomes an important means of delivering ATS, there are crucial questions that shall be answered before this technology is used for safety-critical communications. This need is especially true where a data link communications system is the primary, or even integral, element in allowing the reduction of separation minima.

IFATCA policy is:

In any ATS system where data link is considered safety-critical, data link shall be accompanied by direct two-way controller-pilot voice communications. This direct voice functionality shall be rapid, continuous, and static free.

Direct voice communications requires that no third human party is involved in the set-up and / or delivery of these communications. Any set-up procedures by either pilot or controller shall be minimal and nearly instantaneous.

For datalink communications to be considered direct controller-pilot communications, they shall support communications equivalent to the VHF in terms of transaction times and HMI.

See: WP 114 - Taipei 1997, WP 81 - Toulouse 1998, WP 102 - Santiago 1999, Resolution B45 - WP 62 – Virtual 2022

COM 4.7 CPDLC - DATALINK COMMUNICATIONS

Airlines growing use of VHF Data Link Mode 2 (VDL2) has offered a reliable sub network for CPDLC. Future Air Navigations System (FANS-1/A+) has removed the risk of "out-of-date" messages and Aeronautical Telecommunications Network (ATN) Protected Mode CPDLC has eliminated the risk of "misdelivered" messages. But among other deficiencies to comply with ICAO ATN Standards and Recommended Practices (SARPs), FANS protocol is still vulnerable to this risk, eventually posing a safety threat in continental high-density airspace when voice read-back is removed. Considering the lack of technical solutions to this FANS misdelivery risk, IFATCA opposes the use of CPDLC with FANS aircraft in continental airspace and requests ATN CPDLC only in high density airspace, and ultimately FANS replacement by ATN data link in oceanic airspace when ICAO ATN SARPs are upgraded.

IFATCA policy is:

IFATCA supports efforts to define global safety and performance requirements for data link services in order to:

- **achieve harmonization;**
- **support further implementation to improve safety and efficiency.**

See: Resolution B1 – WP 85 – Accra 2018, Resolution B46 - WP 62 – Virtual 2022

COM 4.8 RTF PHRASEOLOGY IN CIVIL/MILITARY INTEGRATION

In the interests of safety and knowledge that everyone can understand exactly what is being asked of them it is important for military aircrew and civil controllers to be sure of others' intentions. This is particularly true when the military pilot is operating as GAT.

IFATCA Policy is:

When military aircraft operate as General Air Traffic (GAT), standard ICAO phraseology should be the norm.

Where controllers are expected to handle military aircraft on a regular basis, they should be made aware of military phraseology differing from ICAO standards.

See: WP 90 - Cancun 2002, Resolution B47 - WP 62 – Virtual 2022

COM 4.9 COMMUNICATION BETWEEN ATS UNITS

Different ways of communication are possible between adjacent ATS Units. Different methods of voice communication, data exchange and coordination between neighbouring ATS units may create challenges in different regions as well as conflicts that may arise related to this subject.

IFATCA Policy is:

Ground-to-ground communication is as critical to safety and efficiency in aviation as air-to-ground communication. All efforts shall be made to facilitate the prompt and exact exchange of all necessary information for the safe execution of flights.

See: Resolution B6 - WP 91 - Gran Canaria 2014, Resolution B48 - WP 62 – Virtual 2022

COM 4.10 PRONUNCIATION OF WORDS FIVE LETTER NAMING CODES (5LNC)

Pronunciation of letters has been standardized but there is a lack of uniformity across the world regarding the pronunciation of waypoints.

Specifically, these relate to the confusion over the route designator and accurate identification of the correct 5LNC.

iCARD is responsible for the allocation of these names however there are problems. Certain ICAO rules do exist over duplication of code names covered in Annex 11, Appendix 2, and Section 3.3. There are also like sounding names that are not covered by any rules.

These regulations require that:

“Name code designator shall be easily recognizable.”

Eurocontrol has already drawn up some rules requiring the following to be satisfied within 500nm:

Rule 1: No two or more waypoint shall have 4 or more identical letters
Rule 2: The last 3 letters of two or more waypoint names shall not be Identical
Rule 3: Letters 1, 2, 3 shall not be the same
Rule 4: Letters 2, 3, 4 shall not be the same

However, there are many existing waypoint pairs that do not comply with this requirement and there has been no long-term study to assess the long term sustainability of the I-CARD system. The rapid increase in new routes, PBN procedures and traffic growth has contributed to the problem. Ideally, pronounceable words should be reserved for voice communicable routes.

IFATCA Policy is:

Pronounceable names should be reserved for waypoints that are used in voice communications.

See: Resolution B6 - WP 162 – Las Vegas 2016

COM 4.11 RADIO MANDATORY ZONES / TRANSPONDER MANDATORY ZONES

Traffic density is constantly increasing and due to specific airspace classification, controlled IFR traffic can be mixed up with uncontrolled VFR traffic. With the intention to improve safety, additional SSR transponder and radio equipment carriage requirements have been implemented. This policy covers the concept of a Transponder Mandatory Zone (TMZ) / Radio Mandatory Zone (RMZ) and the needs to be considered to implement a TMZ/RMZ.

IFATCA Policy is:

Implementation of a RMZ/TMZ should not be used as an alternative for adequate airspace classification or design.

When a RMZ/TMZ is implemented:

- **Clear procedures and appropriate training should be in place;**
- **Due care should be given to surveillance and communication system capabilities.**

See: Resolution B61 – WP 66 – Virtual 2022

COM 4.12 AUTOLAND COMMUNICATION BETWEEN PILOTS AND CONTROLLERS

Autoland is a procedure performed by pilots all over the world and its use is expected to become more common in the future. There are no international standards that require pilots to notify controllers when they are performing an Autoland. Research conducted by IFATCA about Autoland communication showed that both controllers and pilots have different expectations about what each will do during an Autoland.

IFATCA Policy is:

Local procedures should be developed for performing an Autoland or practice CAT II/III approaches when low visibility procedures are not in use.

If such procedures are not defined, and the pilot indicates the intention to perform an Autoland or a practice CAT II/III approach, ATC should notify the pilot if the ILS sensitive areas are not protected.

Standard phraseology should be developed for such a notification.

See: Resolution B62 – WP 67 – Virtual 2022

SEP – SEPARATION STANDARDS

SEP 5.1 USE OF 1000FT VERTICAL SEPARATION ABOVE FL290

When considering system changes it is necessary to assess their impact on the entire ATC operational environment, and to endorse that the introduction of such changes into one air traffic system does not adversely affect, not only that system, but also any interfacing systems where changes have not been introduced.

IFATCA policy is:

Only aircraft capable of meeting the Minimum Aircraft Systems Performance Specifications (MASPS) upon which reduced separation is dependent shall be permitted to operate in areas where reduced vertical separation is in effect.

State aircraft should only be accepted when appropriate procedures have been evaluated and validated, and controllers are trained in the operation of a mixed-traffic environment. If non MASPS (e.g. military) State aircraft are required to operate in RVSM airspace then, in order to preserve system safety, their number should be kept to the absolute minimum.

IFATCA is opposed to any exemptions for non-RVSM equipped aircraft adding complexity or unduly increasing controller workload, except in coordinated contingency emergency situations.

See: WP 50 - Acapulco 1990, WP 115 - Tunis 1996, WP 83 - Toulouse 1998, WP 102 - Geneva 2001, Resolution B52 - WP 64 – Virtual 2022

See also: WP 102 - Christchurch 1993

SEP 5.2 LATERAL AND LONGITUDINAL SEPARATION

The rules governing the application of lateral and longitudinal separation which are contained in PANS-ATM Part 5 are deficient in several respects and many ATC administrations have found it necessary to amplify or extend their provisions.

IFATCA policy is:

Publications promulgating separation standards are required to include guidance material on practical methods of application and the associated phraseology.

See: WP 89 - Melbourne 2005

See also: WP 51 - Athens 1985, WP 57 - San Jose 1986 and WP 95 - Estoril 1984

SEP 5.3 AIRBORNE SEPARATION ASSISTANCE SYSTEMS (ASAS) AND COCKPIT DISPLAY OF TRAFFIC INFORMATION (CDTI)

IFATCA policy is:

Where ASAS procedures are implemented, which involve a change of responsibility for separation, this shall be clearly stated and be made known to all airspace users.

ASAS procedures shall meet all appropriate safety levels.

MOPS (Minimum Operational Performance Specifications) for CDTIs shall be developed prior to any implementation of ASAS.

New ICAO phraseology shall be developed before ASAS applications are deployed. Identification issues shall be resolved prior to implementation of ASAS applications. Procedures shall be in place to ascertain that any action taken by a crew in the use of ASAS applications will not generate additional conflicts.

See: WP 93 Istanbul 2007, Resolution B54 - WP 64 – Virtual 2022

See also: WP 84 - Toulouse 1998, WP 89 - Tunis 1996, WP 93 - Buenos Aires 2003

SEP 5.4 CONTROLLER INTERVENTION BUFFER

A knowledge of the allowance made (if any) for controller intervention in the formulation of a particular separation standard logically provides the basis by which the applicability of that standard to any given airspace and ATC system may be assessed. New separation standards should specify comprehensively what performance assumptions have been made about the time required for the controller to recognise and intervene in the collision risk assessment.

IFATCA policy is:

A Controller Intervention Buffer should be included in the development and specification of any separation minima where controller intervention is used as a risk mitigator.

ATC systems should be developed with the capability to monitor relevant Controller Intervention Capability (CIC) parameters and warn controllers when they fall outside the values used in determining separation standards in use so that alternative standards can be applied.

See: WP 82 - Geneva 2001, WP 87 - Cancun 2002, Resolution B55 - WP 64 – Virtual 2022

See also: WP 84 - Buenos Aires 2003

SEP 5.5 DYNAMIC RECONFIGURATION OF U-SPACE AIRSPACE

IFATCA Policy is:

The dynamic reconfiguration of U-space airspace (DAR) is not configured as an Air Traffic Control Service task.

The dynamic reconfiguration of U-space airspace (DAR) should be considered as a tactical airspace management procedure similar to FUA Level 3, and so it belongs to the airspace management (ASM) domain.

The dynamic reconfiguration of U-space airspace (DAR) does not require ATCO-licenced personnel to be performed.

ATCO can perform DAR if this is allowed by the contract and the local operational procedures, and their employer holds both an Air Traffic Services and an Airspace Management provision certificates.

ATCO training should consider the implications of the dynamic reconfiguration of U-space airspace (DAR).

Airspace structure and relevant procedures should be designed to facilitate the dynamic reconfiguration of U-space airspace (DAR) applicability in accordance with recurrent manned operations.

See: Resolution BC3 – WP 156 – Montego Bay 2023

PART IV

PROFESSIONAL POLICY OF IFATCA

Classification of Professional Policy Statements

IFATCA professional policy statements are detailed in the following pages, grouped according to subject matter under the following headings:

INFO	Collection & Dissemination of Information on Professional Matters
LM	Legal Matters
MED	Medical Matters
TRNG	ATC Training
WC	Working Conditions

INFO – COLLECTION & DISSEMINATION OF INFORMATION ON PROFESSIONAL MATTERS

INFO 6.1 INFORMATION HANDBOOK (IHB)

INFO 6.1.1 INTRODUCTION

As early as 1966 SC4 (now PLC) "Human and Environmental Factors in ATC", at that time formed by members of the Irish Association, produced an extensive questionnaire to be processed and made available to interested organisations.

When, in 1969, responsibility for PLC went to the German Association, in co-operation with the Belgian and Dutch Guilds, collection of information was continued. The 1973 Reykjavik Conference resolved that the information should be published in form of an "Information Handbook".

The Belgian Guild undertook to compile this Handbook. A first edition was submitted to, and accepted by, the 1974 Tel Aviv Conference.

In 1997, the Executive Board created the function of Editor IHB, moving the responsibility of updating and editing the IHB from a member association to an appointed official.

At the Kaohsiung Conference in 2006 the first edition of the Electronic Information Handbook, together with the Electronic IHB Questionnaire was presented, after which the Questionnaire was made available on the web.

In 2008 the Information Handbook was made available on the web allowing every professional member to access the information.

IFATCA Policy is:

The Federation shall "collect and distribute information on professional problems and developments", as stated in Article I, paragraph 3 of the IFATCA Constitution.

See: WP 163 - Punta Cana 2010, Resolution C1 – WP 154 – Conchal 2019

INFO 6.1.2 PURPOSE OF THE IHB

IFATCA policy is:

The Information Handbook should contain current information on aspects relating to professional and legal matters in ATC in the countries represented in the Federation.

It should be drafted in such a way as to enable its users to identify those MAs that may have useful information on specific professional and legal matters, and should provide means to contact MAs to obtain the desired information.

The information provided should help to achieve a certain standard of conditions in all MAs.

Providing the information required by the IHB shall be part of the application procedure for membership of the Federation.

See: Resolution C9 - WP 163 - Punta Cana 2010, Resolution C2 – WP 154 – Conchal 2019

INFO 6.1.3 CONTENTS AND DISTRIBUTION

IFATCA policy is:

The Information Handbook shall present the information by Member Association and contain at least the following elements:

SECTION	SUB-ELEMENTS
GENERAL INFORMATION	Information on the Association Affiliation with Trade Unions Information on the Employer
WORKING CONDITIONS	Work and Rest Scheme Overtime Working Vacation Scheme
CAREER	Recruitment Training Remuneration Allowances Promotion Retirement
SOCIAL SECURITY	Licenses Sick Leave Pregnancy Leave Parental Leave
MEDICAL ASPECTS	
CONDITIONS OF EMPLOYMENT	
LEGAL ASPECTS	
TECHNICAL ASPECTS	

The Information Handbook shall only be made available to members of the Federation.

See: WP 166 - Toulouse 1998, Resolution C9 - WP 163 - Punta Cana 2010, Resolution C3 – WP 154 – Conchal 2019

INFO 6.1.4 METHOD OF UPDATING

IFATCA policy is:

The Information Handbook shall be updated by means of an electronic form, made available on the IFATCA website. New and amended entries shall be sent to office@ifatca.org.

An enquiry shall be done at least once every year. This enquiry shall be announced during the Annual Conference. Member Associations having new information regarding items listed in the IHB are requested to inform the Office by means of refilling the online form, or by e-mail stating modifications.

The Executive Vice-Presidents Region have the responsibility to ensure that up-to-date information from every MA within their region is available.

Update on the Information Handbook should be a standard agenda item at each Regional Meeting.

Amendments to the Information Handbook shall be published at least every year.

See: WP 18 – Rio de Janeiro 1988, WP 106 - Bournemouth 1992, WP 158 - Geneva 2001, Resolution C9 - WP 163 – Punta Cana 2010, Resolution C4 – WP 154 – Conchal 2019

LM – LEGAL MATTERS

LM 7.1 LEGAL LIABILITY OF THE CONTROLLER

LM 7.1.1 FOUNDATIONAL AND GENERAL POLICY ON THE LEGAL LIABILITY OF THE CONTROLLER

IFATCA is of the opinion that the criminal and civil prosecution of controllers following aviation accidents and incidents is not in the public interest. This is a matter of how and where laws are applied in a very technical area and is not just a matter of inappropriate laws. This problem, then, should not be addressed through an international convention proscribing criminal prosecution in these cases, but rather through an international understanding of the problems created in the technical field by such prosecutions and an understanding of the various matters of public policy involved.

IFATCA Policy is:

Adequate legislative protection shall be provided to the air traffic controller in order to reduce such strains as may be engendered from improper legal status.

IFATCA can never support any controller who is guilty of gross negligence and/or flagrant dereliction of duty. However, the Federation shall reserve the right to use any legal means available to it to protect any member who is accused of such tort.

IFATCA defines that it should be necessary to prove "mens rea" (guilty mind) beyond all reasonable doubt, before a crime can exist.

All other cases where "mens rea" cannot be proven shall fall under Civil law, as opposed to Criminal Law. It shall be heard by a competent Civil Court, and shall be subject to the following conditions:

a) **No controller shall be imprisoned pending a civil court hearing, nor after a civil court hearing if it is proven that a controller has committed a tort only;**

b) **No controller shall be subjected to disciplinary action under administrative law to have the administrative case heard prior to the Civil Court action. If there is likelihood of a Civil action, it would be fairer to transfer the controller to non- active duties without loss of any financial benefits in all cases, thereby avoiding prejudging the Civil Court's ruling;**

c) **Employing Agencies shall be responsible for the torts of their employees;**

d) **Military authorities and controllers shall be subject to the same legislation when either they are controlling general air traffic, or an accident occurs involving general air traffic and operational air traffic, the latter being under military control or flying without control;**

e) **IFATCA is not renouncing legal liability for air traffic controllers, but seeking only to keep it within reasonable bounds so that controllers may suffer less stress in carrying out their day-to-day duties.**

IFATCA shall continue the efforts towards a suitable Convention limiting the Legal Liability of air traffic controllers.

In the event of an accident or incident that can be shown to have been caused wholly or in part due to inadequate standards, regulations, staffing, equipment and training or any other professional tool given to the ATCO, the employer should demonstrate that they are not vicarious liable whether or not such acts or omissions were specifically authorized by the employer.

Member Associations shall bring to the attention of their national administration written details of any persistent deficiency in order to create a deficiency data base and to emphasize their vicarious liability.

During the legal proceedings following an investigation, all legal representatives should consider the controllers work environment and any other pertinent factors that contributed to the incident or accident as an overall evaluation of the event (holistic approach).

The controller's employer should indemnify the controller for all damages and legal costs for defence incurred if a controller is held liable as a result of carrying out duties prescribed by the employer.

Aerodrome controllers cannot be held liable for any accident or incident that occurs on that portion of the aerodrome or its vicinity under their control if there is no direct visual observation of the area and a surface movement surveillance system is not in use.

See: WP 79 - Brussels 1979, WP 172 - Santiago 1999, WP 165 - Kaohsiung 2006, WP 159 - Dubrovnik 2009, Resolution C16 – WP 77 – Virtual 2022

See also: WP 51 - Copenhagen 1978, WP 63 - Brussels 1979, WP 59 - Toronto 1980, WP 62 - Athens 1985, WP 64 - Athens 1985, WP 155 - Toulouse 1998 (2), Resolution C16 – WP 77 – Virtual 2022

LM 7.1.2 THIRD PARTY RISK

IFATCA policy is:

Procedures to reduce third party risk should clearly describe the responsibility of the ATCO providing ATS to the emergency aircraft.

ATCOs providing ATS to aircraft in an emergency situation should not be held liable for losses suffered by third parties caused by the emergency aircraft.

See: WP 164 - Hong Kong 2004, WP 159 Dubrovnik 2009, Resolution C17 – WP 77 – Virtual 2022

LM 7.1.3 TRANSFER OF CONTROL FUNCTIONS – LEGAL ASPECTS

IFATCA policy is:

States shall have in place regulations detailing procedures to be followed before Separation Assurance can be transferred to the cockpit.

The Initial and final points at which Separation Assurance are transferred from ATC to the pilot shall be accurately defined in all cases.

The responsibility for providing separation between the intercepting aircraft and all other aircraft shall be clearly defined. ATCOs should not be held liable for incidents or accidents resulting from an interception.

See: WP 166 - Santiago 1999, WP 89 - Kaohsiung 2006, Resolution C19 – WP 77 – Virtual 2022

LM 7.1.4 ROLES AND RESPONSIBILITIES OF THE CONTROLLER-IN-CHARGE (CIC) IN REGARD TO LIABILITY AND OPERATIONAL RESPONSIBILITY

The position of Controller-In-Charge (CIC) exists in many units in many different countries around the world. There are differences between the supervisor's roles and those of the Controller-In-Charge, and questions exist regarding responsibilities and legality of this position.

- It is well understood that a CIC has duties and responsibilities for the operational process.
- In many cases a CIC has a similar role and responsibilities as the substitute supervisor or even the supervisor itself. They all have a formal structure, and these positions have to be set.
- The CIC has direct relation to safety and responsibility for operational process, therefore a formal training course and/or minimum requirements for CIC are needed and recommended.

IFATCA policy is:

IFATCA strongly recommends that supervisors are present and on duty in any control unit to oversee ATC operations and to fulfil administrative tasks. However, if another person (e.g. Controller in Charge) is required to perform supervisory duties then the role and responsibilities of this person shall be clearly defined and relevant training, including refresher training, shall be provided.

See: WP 306 – Las Vegas 2016

LM 7.1.5 PROVISION OF ATS OVER FOREIGN TERRITORY

For several reasons ATC is sometimes responsible for airspace of two or more countries. For ATCOs working this airspace, it is essential to be aware of all regulations and in particular differences in procedures and legal liabilities between the neighbouring countries.

IFATCA policy is:

ATCOs working foreign airspace shall be informed about all regulatory framework, requirements, Manual of Operations, Letters of Agreement and procedures valid for such airspace. Procedures shall conform to the agreed terms in contracts between ANSPs.

ATCOs shall be informed about their legal liability when working airspace which includes that over a foreign territory.

See: Resolution C17 – WP 163 – Accra 2018

LM 7.2 ACCIDENT AND INCIDENT INVESTIGATION

LM 7.2.1 JUST CULTURE, TRUST AND MUTUAL RESPECT

Accidents and incidents in aviation have been used to enhance aviation safety. Safety information is a main source for the permanent enhancement of safety in aviation, but there are many risks to its inappropriate use. As a result, safety information is very sensitive and needs special protection.

The information is not to be put into the public domain or to be used against the personnel involved.

Voluntary reporting system are different than those that are mandatory, they shall contain safety concerns, issues or even hazards, connected with the suggestions as to how this can be avoided in the future. ICAO states that there should be a voluntary reporting system established and it shall be non-punitive.

IFATCA policy is:

IFATCA's definition of Just Culture is "a culture in which front line operators and others are not punished for actions, omissions or decisions taken by them which are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated".

Those Member Associations under national legal frameworks where mandatory and/or voluntary incident reporting systems are not yet compulsory, are encouraged to create one provided it is based on confidential reporting; the reported data shall be protected and never be used against the reporting person nor any other person mentioned in the report and it is compliant with ICAO Doc 9859 – Safety Management Manual, 4th Ed. (2018).

Just Culture shall be in the service of safety and by no ways a means of social control or disciplinary mechanism.

IFATCA shall encourage Member Associations to urge their aviation organisations to develop a Just Culture Policy as part of a mature safety culture. This policy, supported by the highest organisational level and visibly endorsed by workforce level, should include the following elements:

- **Just Culture principles ensuring fair treatment of staff at all levels (managers and employees)**
- **Recognition of staff at all levels for the role they play in delivering a safe service.**
- **Compromise to provide with the appropriate tools, training and procedures required to perform their job and guaranteeing that they would not be put in situations where safety is compromised because of organisational factors. Anyhow, systemic factors outside the scope of individuals in case of unwanted outcomes are to be considered.**
- **Means to constantly measure maturity and effectiveness of Just Culture within the organisation.**

Any incident reporting system shall be based on the following principles:

a) Cooperation: with all those having a legitimate and appropriate interest
b) Dissemination: distribution of safety-related data to all those with appropriate interest.
c) Confidentiality: for the whole procedure, guaranteed by law.
d) Protection: for those involved or mentioned in the report, the provision of which be within the remit of an independent body.
e) Trust and mutual respect.

Air Navigation Service Providers and their respective employee groups shall develop mechanisms that foster an environment of trust and mutual respect in order to improve the capability to compile, assess and disseminate safety-related information with each other, as well as with other national and international aviation organizations.

See: WP 159 - Istanbul 2007, WP 156 – Kathmandu 2012, Resolutions C10, C11, C12, C13, C14 and C15 – WP 157 – Accra 2018, Resolution C20 – WP 77 – Virtual 2022

See also: WP 167 – Hong Kong 2004, WP 168 - Hong Kong 2004 WP 167 - Geneva 2001

See also: LM 7.2.4 – Protection of Identity, and
LM 7.2.6 – Use of Recorded Data

LM 7.2.2 EXEMPTION FROM DUTY

IFATCA policy is:

In the event of an alleged occurrence, the ATCO(s) shall have the opportunity to be relieved from control duties. IFATCA recommends the ATCO(s) be relieved. The relief shall be without prejudice and non-disciplinary.

When the ATCO(s) are relieved from control duties, they shall have the opportunity to undergo basic debriefing (e.g. CISM).

If the ATCO(s) agree that they are not suffering from traumatic stress, impaired mental/emotional well-being, they may resume control duties. A controller thus exempted or removed shall not suffer loss of pay during any period in any way associated with the investigation of an incident / accident.

A controller thus exempted or removed shall not suffer loss of pay during any period in any way associated with the investigation of an incident/accident occurrence.

See: WP 159 - Istanbul 2007, Resolution C21 – WP 77 – Virtual 2022, Resolution C76 – WP 84 – Virtual 2022

See also: WP C.9. - Nairobi 1987, WP C.9. – Acapulco 1990

LM 7.2.3 RIGHT OF REPRESENTATION

IFATCA Policy is:

Controllers shall have the right to be accompanied by a representative of their choice at any hearing, inquiry or investigation into any Air Traffic Control incident or accident.

Controllers should make no written statements without the advice of a legal representative of their choice, even at pre-investigation board stages.

The circumstances prompting the investigation, and the perceived operational situation immediately prior to the alleged incident / accident, shall be made available to controllers and their representative(s) prior to any questions being put to them.

When an Investigation Board is convened, it shall be confidential and non-disciplinary in nature. The Board should be comprised of individuals who have operational experience in Air Traffic Control.

Controllers and their representative(s) have the right to make representations and direct questions to the officials in charge of the investigation.

MAs shall inform their members that any statement made in an accident or incident investigation could also be used by prosecutors in legal proceedings.

Controllers and their representative(s) have the right, prior to appearing before any investigative Board, to review all relevant video and audio recordings and computer readouts of Air Traffic Control operations where available. In addition, controllers and their representative(s) shall be provided with copies of transcripts of all relevant audio recordings prior to appearing before any Investigative Board.

See: WP 156 – Kathmandu 2012, WP 159 - Istanbul 2007, WPs. - Nairobi 1987, WP C.9. – Acapulco 1990, Resolution C22 – WP 77 – Virtual 2022

LM 7.2.4 PROTECTION OF IDENTITY

IFATCA Policy is:

Protection of the identity(ies) of ATM staff involved in incidents or accidents shall be guaranteed.

See: WP 159 - Istanbul 2007, WP 165 - Melbourne 2005

LM 7.2.5 REFERENCE CARD

IFATCA policy is:

Member Associations should provide their members with information containing the basic rights and the rules that will be applied in case of incident/ accident investigations. This should include guidance on the reporting process, Just Culture, the investigation process, and the specific parts of the legal system that applies in their State(s). Special consideration should be given to any areas where the State has filed difference(s) from provisions contained in Annex 13.

See: WP 159 - Istanbul 2007, WP C.9. - Acapulco 1990 and Resolution C15 – WP 161 – Conchal 2019

LM 7.2.6 USE OF RECORDED DATA

IFATCA Policy is:

Audio and visual recordings and AWR are confidential and shall not be released to the public.

Audio and visual recordings and AWR shall not be used to provide direct evidence, such as in disciplinary cases, or to determine controller competence.

Except for AWR, recorded data shall be used only in the following cases:

a) when investigating ATC related accidents and incidents;
b) for search and rescue purposes;
c) for training and review purposes provided all ATCOs affected agree.
d) for the purposes of adjusting and repairing ATC equipment.

Access to recorded data shall be limited to authorised personnel. Authorised personnel shall be mutually agreed by the controllers' representative and the appropriate authority. Recorded data used shall be identical to that presented at or originating from the relevant controller's position.

IFATCA is opposed to the use of visual AWR on the basis of invasion of privacy.

AWR shall only be used to aid in incident and accident investigations to improve aviation safety.

Prior to the installation of AWR, legislation shall be in place which prohibits the use of any recorded information against a controller in any criminal or civil litigation. The legislation should provide for substantial penalties for any breach.

The AWR system, including user management and access to the recordings, should be managed by an independent authority within the ANSP, chosen jointly by management and Member Association(s).

Before being published in an incident or accident report, non-relevant information shall be removed from AWR transcripts.

See: WP 83 – Toronto 2017, WP 159 - Istanbul 2007, WPs Nairobi 1987, WP7 - Acapulco 1990, WP 100 - Bournemouth 1992, WP 151 - Ottawa 1994, WP 154 - Taipei 1997, Resolution C23 – WP 77 – Virtual 2022, Resolution C63 – WP 80 – Virtual 2022

LM 7.2.7 USE OF ATS SURVEILLANCE DATA IN THE PROVISION OF NON-SURVEILLANCE SERVICES

ICAO has defined air traffic controller ratings that identify what service(s) the holder is authorised to perform. ICAO also defines some additional training required for surveillance ratings.

ICAO also provides guidance as to the role of surveillance data in relation to specific Air Traffic Services.

ICAO provides no guidance as to the liability of air traffic controllers and national laws will likely determine liability. Clarity can be provided, although not with absolute certainty, if the role of surveillance data in the controller's duties is clearly defined.

The lack of a clearly defined rule set can also raise safety concerns when there are differences in the expected level of service between pilot and controller. No universal regulation on controller liability means that local national laws will determine liability.

IFATCA Policy is:

Where ATS Surveillance Data is provided to assist in the provision of an Air Traffic Service, rules on the use, restrictions and limitations of the surveillance data shall be published, so that legal responsibilities are clear and unambiguous.

Controllers who are required to use surveillance data shall be provided with suitable training in ATS Surveillance Systems

See: WP 312 – Las Vegas 2016

LM 7.3 LEGAL ASSISTANCE

LM 7.3.1 LEGAL ASSISTANCE FROM IFATCA

IFATCA policy is:

When accidents or incidents involving air traffic controllers are brought before an investigation board or court of law, IFATCA shall endeavour to provide legal assistance, if so requested in a timely manner by the concerned MA or any Associated Professional member of IFATCA.

When seeking legal assistance from IFATCA, Member Associations shall establish contact with the Executive Board.

See: WP 155 - Toulouse 1998 (5), Resolution C24 – WP 77 – Virtual 2022

See also: WP 102 - Bournemouth 1992, WP 83 - Acapulco 1990

LM 7.3.2 EQUAL OPPORTUNITY LEGISLATION

IFATCA policy is:

Member Associations should bring to the notice of the Executive Board any evidence of anomalies caused by equal opportunity legislation which they would wish the Federation to study.

IFATCA accepts the ILO declaration concerning discrimination and equal opportunities. MAs should endeavour to ensure that the relevant authorities provide equal opportunities for all air traffic control staff.

See: WPs - Nairobi 1987, WP 166 - Geneva 2001, Resolution C24 – WP 77 – Virtual 2022

See also: WP 138 - Tunis 1996

LM 7.4 UNLAWFUL INTERFERENCE WITH INTERNATIONAL CIVIL AVIATION FACILITIES

IFATCA policy is:

ATC personnel are entitled to maximum security with respect to the safeguarding of personal life, operational environment and the safety of aircraft under their control.

IFATCA considers cyber-attacks to be a form of unlawful interference.

If, during unlawful interference with Civil Aviation, the appropriate authorities instruct the ATCOs to deviate from, or violate, the ICAO Standards and Recommended Practices (SARPs), they shall in no way be held legally responsible for carrying out such an order.

All orders which imply a deviation from the established air traffic rules shall be conveyed through the appropriate authorities, normally the immediate superior, and always through the authority responsible for the provision of Air Traffic Services. Such orders shall always be issued in written form, clearly identifying their origin and authority, and retained for investigative purposes.

ATCOs on duty shall be granted relief from their working position when the conditions stated in the paragraph above are not followed, or when they consider the content of the order wrong or criminal.

During unlawful interference against ATC facilities, or its threat, services may be withdrawn. Measures shall be included in national or international contingency procedures, designed in such a manner, to ensure there will be minimal disruption of service.

Member Associations shall also urge their governments to ratify the existing protocols, conventions and treaties on these matters, to make them available to whom it concerns and to refrain from any course of action contrary to those rules.

Member Associations should seek formal agreement on the conduct of an Air Traffic Controller during situations of unlawful interference and the adoption of contingency procedures during such situations.

IFATCA will undertake, through its Executive Board, to transmit the contents of this policy to the appropriate international organisations, namely the United Nations, ICAO and the ILO, and also regional organisations who may be concerned with these matters.

See: WP 125 - Christchurch 1993, Resolution B10 – WP 93 – Accra 2018, Resolution C26 – WP 77 – Virtual 2022

LM 7.5 UNSAFE AIRSPACE/AERODROME

An airspace/aerodrome is deemed unsafe whenever there is an unacceptable risk to the safety of aircraft.

IFATCA policy is:

IFATCA should issue a warning to airlines, air navigation service providers and all other relevant bodies concerning the aviation industry and users of the risk of operating in unsafe airspace when it is demonstrated that an airspace of defined dimensions poses a risk to the safety of air traffic.

See: WP 164 - Kaohsiung 2006, Resolution C27 – WP 77 – Virtual 2022

MED – MEDICAL MATTERS

MED 8.1 MEDICAL REQUIREMENTS

MED 8.1.1 GENERAL

IFATCA Policy is:

Local medical centres should be established for the examination of the ATC personnel. A National Medical Body should be established as the General Authority for determining questions of fitness of controllers whose fitness is questioned by the local centres.

Controllers should be afforded recourse to examination by independent medical specialists of their choice where permanent medical unfitness is indicated by earlier examination.

The cost of the examinations should be borne by the ANSP.

To avoid deterioration of the working conditions, all factors influencing those working conditions should be regularly and frequently inspected by the appropriate medical authorities.

Advice should be sought from competent medical authorities about any building or equipment programme. Such advice should be acted upon and applied also to existing ACC, APP and TWR units.

Competent medical authorities should be consulted as well as air traffic controllers themselves, to obtain their views on job organisation.

Each member association should carry out medical studies on the cause of stress among air traffic controllers and investigate methods of prevention of such stress as well as diagnosing and treating its manifestations.

Air traffic controllers should be provided with adequate protection measures designed to prevent loss of licence on medical grounds.

The medical requirements for ATC licensing be stated by the appropriate authorities and should be based on the criteria laid down in Annex 1 to the ICAO Convention.

The medical system should be geared to selection, and be capable of detecting any medical deficiencies in controllers before their ab-initio training.

In the interest of safety, a system of initial and regular follow-up medical examinations specifically for controllers is essential.

The medical system should be detecting any deterioration in the controllers' health as early as possible and preventing such deterioration wherever possible.

The medical system should be providing for thorough and regular monitoring of the controllers' health throughout their careers.

The air traffic controllers should, at their request, be entitled to have their medical file forwarded to their own physician.

National administrations should consider the health of air traffic controllers by setting up a physical fitness programme open to all controllers on a voluntary basis.

No direct relationship should exist between a physical fitness programme and annual medical examination (if any).

Participation in a physical fitness programme shall have no effect whatsoever on the controller's annual leave or spare time and the costs involved shall be carried by the employer.

MAs who have information relating to the medical aspects of the ATC profession, which they consider to be of interest, should forward such information to the IFATCA Office.

IFATCA representation should participate at national and / or international aviation medical conferences or seminars whenever this is considered to be relevant to MAs, to be decided by the Executive Board.

See: WP 49 - Brussels 1979, WP 55 - Split 1983, WP 63 - Split 1983, WP 8 - Athens 1985, WP 13 - San José 1986, WP 25 - Nairobi 1987, Resolution C28 – WP 78 – Virtual 2022

MED 8.2 SPECIFIC MATTERS

MED 8.2.1 EFFECTS OF MEDICINE, DRUGS AND ALCOHOL

IFATCA policy is:

Member Associations should approach their respective administrations to establish guidelines about the effects of the use of medicines, drugs, alcohol and other substances available in their country.

Where possible, individual substances, including trade names, should be identified and listed in order to give controllers guidance concerning the use of such substances and their compatibility with ATC work.

Controllers should be allocated time off in excess of national standards in recognition of the critical nature of their health in relation to their work.

An inquiry on the secondary effects of medication with respect to aerial security and the alertness of the controller should be made by the appropriate authorities.

See: WP 58 - Lyon 1976, WPs - Copenhagen 1978, WP 175 - Geneva 2001

MED 8.2.2 OCULAR PROBLEMS

IFATCA policy is:

Air traffic controllers should undergo an annual ophthalmic examination which takes into account real working conditions. The equipment used by controllers and the entirety of the working place should be checked by oculists so that it is conform to the requirements necessary for the safety of air traffic and health of the controllers.

Member Associations shall approach their national administrations in order to establish a regular ophthalmic examination scheme including a written record of the finding in an appropriate form, and shall communicate to the IFATCA Office the results and any other relevant studies.

See: WP 85 - Copenhagen 1978, WP 87 - Amsterdam 1982, Resolution C29 – WP 78 – Virtual 2022

MED 8.2.3 CRITICAL INCIDENT STRESS MANAGEMENT

Stress prevention at the workplace has proved particularly effective in combating stress, by attacking its roots and causes, rather than merely treating its effects.

Critical incident stress management (CISM) is a wide range of programmes and intervention strategies which have been designed to mitigate the impact of stress in personnel and to assist them in managing and recovering from significant stress. (Adapted from Jeffrey Mitchell Ph.D.) [San José 86.C.6-8, amended Taipei 97.C.6].

IFATCA policy is:

The Federation recognises the importance of stress management for air traffic controllers and recommends that, at regular intervals, air traffic controllers be provided with up-to- date information on stress management techniques.

The Federation urges MAs to bring to their administration's attention the stress-inducing potential of their work environment in order that particular consideration is given to ensure that the work environment is suitable and as stress-free as possible.

The Federation endorses the use of professionally trained peers in the provision of critical incident stress management (CISM) to colleagues experiencing critical incident stress (CIS).

Comprehensive and confidential support services should be available at all times for air traffic controllers, support staff and their families.

Professional critical incident stress support services should be made available to air traffic controllers involved in ATC incidents / accidents and any other occurrences that have potential to create critical stress reactions influencing the ATCO's performance. It is the controllers' choice whether or not to take advantage of these support services.

See: WP 158 - Istanbul 2007 Resolution C31 – WP 78 – Virtual 2022

See also: WP 89 - Kaohsiung 2006, WP 160 - Taipei 1997 and WP 24 - San José 1986

MED 8.2.4 FATIGUE IN AIR TRAFFIC CONTROL

IFATCA Policy is:

MAs should draw the attention of their members to the causes of Fatigue in ATC so that they can identify those to which they are most exposed.

MAs should advise their members to seek professional psychological advice when they believe that they are subject to excessive stress-inducing agents.

Management has the prime role for providing fatigue management and prevention of fatigue-related catastrophes. Any situation where increased fatigue, decreased sleep, or performance loss can be demonstrated, is a situation where the margin for error is reduced, albeit by some unknown amount, and should be avoided in ATC.

The provision of a satisfactory working environment appropriate rostering, rest periods, facilities, use of overtime, relief controllers and education in human factors shall be agreed with the air traffic controllers involved. Attention shall be given to individual differences, age and gender.

In exercising the responsibilities of designing of duty rosters (*see WC 10.3.1 – Duty Rosters*), management shall be responsible for providing physical arrangements (relief controllers and adapted rest area) and sufficient break periods for controllers to try to maintain their daily eating habits regardless of which shift they are working. Such physical arrangements and sufficient break periods shall be provided to allow for strategic naps during night shifts.

Management shall approve the implementation of strategic naps as an effective way of improving alertness and anchoring the circadian rhythms of controllers during night shift.

Management shall in close coordination with the air traffic controllers involved, carefully consider staffing levels during night shifts. For those controllers who have very heavy traffic loads during the night shifts, additional relief should be considered as an appropriate countermeasure to sleepiness and fatigue in order to increase the safety margins, and to reduce subsequent daytime sleepiness.

Use of overtime shall generally be kept to a minimum, and a system for allocation of overtime which takes the limitations in human performance as a factor shall be established. The combination of overtime shortly before or just after night shifts shall be avoided.

Control rooms shall be tobacco smoke free areas due to the negative effects on dexterity caused by smoking.

MAs should advise their members and management about the causes of fatigue and countermeasures available.

MAs should encourage their management to include theory about the physiological principles related to sleep and circadian rhythms, both in controllers retraining and basic education. Such training should include knowledge of ways to take deliberate actions (countermeasures) to better meet controllers' operational requirements.

The regulator/legislator should:

- **develop comprehensive hours of duty regulations for air traffic controllers, incorporating fatigue management principles;**
- **require all air navigation service providers (ANSPs) to maintain auditable fatigue management systems and establish this as a key element of a target level of safety.**

ANSPs should be mindful of the effects of change fatigue, including increased levels of exhaustion and stress, when implementing multiple changes within a short time frame. Where appropriate, 'stable periods' should be used to mitigate these effects.

See: WP L004 - Rio de Janeiro 1988, WP 159 - Taipei 1997, WP 148 - Toulouse 1998, WP 162 – Dubrovnik 2009, Resolution C32 – WP 78 – Virtual 2022, Resolution C5 – WP 158 – Montego Bay 2023

MED 8.2.5 WORK AS ATCO WHEN PREGNANT

IFATCA policy is:

Pregnancy is a normal female human condition which shall not result in automatic suspension of an ATCO's licence.

When considering the design of the workplace and working conditions, employers should also take into account the requirement of pregnant ATCOs.

Pregnant ATCOs shall have the right to expect that the possible physiological problems associated with pregnancy will be accommodated by their employers in the form of available relief staff.

Pregnant ATCOs should have the right to transfer temporarily from shift work to daytime working if they so choose.

Pregnant ATCOs should have the right to transfer temporarily to non-operational positions if they so choose.

When recommended by a pregnant ATCO's own physician adequate leave with pay should be provided.

Adequate maternity leave, together with protection of the equal opportunity rights of pregnant ATCOs, should be provided.

A pregnant air traffic controller should not, if she so chooses, work in front of cathode ray tube (CRT) and/or Visual Display Unit (VDU) screens during her pregnancy.

See: WP 98 - Frankfurt 1989, WP 131 - Jerusalem 1995, Resolution C33 – WP 78 – Virtual 2022

MED 8.2.6 SUBSTANCE ABUSE IN AIR TRAFFIC CONTROL

IFATCA Policy is:

IFATCA views substance abuse with concern and cautions MAs against it.

A programme of education of substance abuse should be made available to air traffic controllers by their employer in consultation with the MA.

All appropriate safeguards and redress procedures should be established before the introduction of any mandatory drug-test scheme.

Mandatory drug tests, subject to the provisions above, are acceptable on initial recruitment of air traffic controllers to prevent any erosion of entry medical standards.

Mandatory drug tests, subject to the provisions above, of air traffic controllers in an ATC accident are acceptable in order to demonstrate positively their medical fitness at the time.

Any air traffic controller subjected to a drug test should receive a sealed identical sample in order to obtain an independent analysis paid by the employer.

A programme of rehabilitation from substance abuse should be made available to an air traffic controller where a problem is recognised. This programme should be set up and conducted in consultation with the MA in order to maintain the confidence and preserve the employment in ATC of the individual concerned.

See: WP 70 - Port of Spain 1991

MED 8.2.7 HIV AND AIDS IN AIR TRAFFIC CONTROL

IFATCA policy is:

ATCOs diagnosed HIV positive should be treated by their employer as fit for work unless declared unfit by the appropriate medical authority.

ATS personnel should be educated on HIV and AIDS. Counselling service on HIV should be made available to all ATS personnel.

See: WP 121 - Christchurch 1993

MED 8.2.8 ATCOS WITH DISABILITIES

Every day people are exposed to certain dangers or can suffer from various diseases, which could cause a loss of licence either temporarily or permanently. There are some disabilities, which are compatible with ATC work. Unfortunately, others are not.

IFATCA policy is:

An ATCO who is suffering from a disability, but still meets all medical and regulatory requirements defined by the competent authority or ICAO, shall retain full qualifications as an ATCO.

If an ATCO is suffering from any kind of disability or serious illness, a medical check should be performed in order to prove that medical requirements are met and that safety is not infringed.

ATCOs losing their license due to a permanent disability should where possible be offered an alternative position.

The employer should make reasonable changes for disabled ATCOs. These apply to the working arrangements or any physical aspects of the workplace. (E.g. access to buildings)

Chronic diseases should not be disqualifying, if the required treatment does not interfere with the safe exercise of license and rating privileges.

See: WP 159 - Kathmandu 2012, Resolution C34 – WP 78 – Virtual 2022

MED 8.2.9 VIGILANCE DURING OPS SHIFTS

There are times, especially during night shifts, where the traffic volume/demand is low. During periods with light stimulation, monotony can occur. Combine monotony with the fatigue that most will experience on a night shift and it can lead to less than optimum performance when needed. Due to ongoing research and sharing of fatigue mitigation efforts in the aviation community, there is a greater understanding of fatigue and how it affects ATCOs, as well as countermeasures that can be applied. However, not much emphasis has been placed on monotony and how this can also affect the overall safety of the operation for ATCOs during night shifts.

IFATCA policy is:

Member Associations should devote resources for research, development of collaborative solutions and training for ATCOs to combat monotony and complacency.

See: Resolution C16 – WP 160 – Accra 2018

TRNG – ATC TRAINING

TRNG 9.1 SELECTION

TRNG 9.1.1 AGE

IFATCA Policy is:

Applicants without previous aviation experience should be between 18 and 25 years.

See:	WP 49 - Brussels 1979

TRNG 9.1.2 SELECTION

IFATCA policy is:

Applicants shall be required to possess the academic qualifications required to enter a recognized post-secondary educational institution in their country.

Applicants shall pass the selection standards.

The ICAO medical requirements shall apply to all candidates for selection and other tests considered appropriate by national authorities should be employed. The final selection of prospective controllers should be made by licenced ATCOs together with professional assessors.

There should be no discrimination in the selection of air traffic controllers.

Member Associations should co-operate with those responsible for the selection of air traffic controllers in their country and obtain agreement on:

a) the composition of the selection board, including representation by the Member Association where appropriate;
b) a definite list of criteria which would be sought by the selection board;
c) the procedures of the selection process.

Aptitude tests specifically designed for air traffic controllers shall be included in the selection process for air traffic controllers.

The selection board shall include a psychologist trained in, or familiar with, all aspects of ATC and a controller trained in selection methods and procedures.

Member Associations, in consultation with their ANSPs, shall encourage the development of suitable static and dynamic aptitude tests for the selection of air traffic controllers.

Team Resource Management as a concept should be considered in the selection of ATCOs.

See: WP 49 - Brussels 1979, WP 38 - Toronto 1980, WP 25 - Amsterdam 1982, WP 171 - Geneva 2001, WP 164 - Istanbul 2007, Resolution C11 – WP 157 – Conchal 2019, Resolution C1 – WP 76 – Virtual 2022

TRNG 9.1.3 TEAM RESOURCE MANAGEMENT

IFATCA policy is:

For the purposes of defining the concept of TRM, IFATCA accepts the ICAO definition of TRM in ICAO Doc 9683, 1st Ed. (1998), *Human Factors Considerations in CNS/ATM Systems,* Appendix to Chapter 5 §14: "To make optimal use of all available resources – people, equipment, and information – to enhance the safety and efficiency of Air Traffic Services."

IFATCA recognizes the importance of TRM. TRM shall be universally implemented, continuously throughout the course of an ATCO's career.

See: Agenda C.6.2 - WP 156 - Amman 2011, Agenda C.6.4 - WP 156 - Sofia 2015, Resolution C2 – WP 76 – Virtual 2022

TRNG 9.2 CURRICULUM FOR TRAINING AND GENERAL CONSIDERATIONS

TRNG 9.2.1 GENERAL SCHEDULE FOR A 3 TO 5 YEAR TRAINING

IFATCA policy is:

A general schedule for 3 to 5 year training should consist of the following:

1. A programme of classroom instruction which should include:

a) sufficient knowledge of the duties of an air traffic controller as well as pertinent information concerning related aviation fields.

b) all relevant material and simulation exercises required for tower control and/or approach control and/or area control to licensing standards.

c) Providing administrative background for reporting procedures, management forms, etc.

2. Threat and Error Management

3. Team Resource Management

4. A programme of familiarisation flights; assignment for short periods of time, to commercial dispatch offices, aircraft maintenance shops, and aviation flying schools.

5. A programme of flight training including training exercises in multi-engine aircraft simulators.

6. Providing the employer the opportunity to assess the suitability and capability of the students for air traffic control duties.

7. A practical check-out in tower, approach or area control to licensing standards.

TRNG 9.2.2 GRADUATION

IFATCA policy is:

Students completing the complete training period would be expected to have graduated from the post secondary institution.

See: WP 164 - Istanbul 2007

See also: WP 49 - Brussels 1979 and WP 171 - Geneva 2001

TRNG 9.2.3 LINK BETWEEN ATC SCHOOL & OPERATIONAL UNITS

IFATCA policy is:

It should be brought to the attention of ANSPs that there is a requirement for close co-operation between ATC training schools and ATC units for which training is performed.

ATC on-the-job training instructors (ATC OJTIs) should assist in simulation training at the ATC School whenever possible.

ATC OJTIs working in ATC schools should be given the opportunity to update their knowledge regularly in operational units.

An exchange of information on the performance of students should be maintained between ATC School and ATC unit.

All controllers shall be trained in accordance with ICAO requirements.

All controllers shall be licensed and shall hold ATC ratings appropriate to the duties they are undertaking.

See: WP 164 - Istanbul 2007, Resolution C3 – WP 76 – Virtual 2022

TRNG 9.2.4 REASONS FOR FAILURE IN ATC TRAINING

IFATCA Policy is:

Training organisations should be encouraged to research the reasons for failure.

See: WP 164 - Istanbul 2007

TRNG 9.2.5 AUTOMATION CONTROLLER TRAINING

IFATCA Policy is:

Controllers required to operate in an automated air traffic control system should receive relevant instruction in automatic data processing for ATC.

Formal training should be established for all ATC personnel in the theoretical and practical procedures associated with the automated ATC system.

The above training should be carefully integrated with the implementation of each stage of the automated ATC system.

The implementation of automated systems shall include sufficient training, including the Human Factors aspects of automation, prior to using new equipment. The level of training is a major factor in determining the level of traffic that can be safely handled until all controllers have gained enough hands-on experience.

See: Resolution B12 – WP87 - Kathmandu 2012, WP 164 - Istanbul 2007 and WP 93 – Sofia 2015

See also: "Policy on Training, Introduction of new equipment and procedures" (Santiago 99.C.19)

TRNG 9.2.6 AIRBORNE COLLISION AVOIDANCE SYSTEM (ACAS) TRAINING

IFATCA policy is:

Comprehensive initial and refresher ACAS training should be provided and should consist of:

a) Definition of ACAS (TCAS);
b) Technical description and cockpit displays;
c) Pilot reactions to Traffic Advisories and Resolution Advisories;
d) Controller reactions and legal responsibilities;
e) Phraseologies;
f) Experience of simulated ACAS (TCAS) events in an aircraft simulator or on video.

See: WP 164 - Istanbul 2007 Resolution C4 – WP 76 – Virtual 2022

TRNG 9.2.7 BASIC DOCUMENTATION FOR USE BY TRAINING OFFICERS / INSTRUCTORS

IFATCA Policy is:

ATC OJTIs and course developers should use ICAO Annex 1, PANS-TRG, Doc 10056 and other guidance material as appropriate to assist them in developing their training and assessment programmes. Variations dictated by local conditions should be borne in mind.

See: WP 37 - Toronto 1980, Resolution C5 – WP 76 – Virtual 2022

TRNG 9.2.8 EMERGENCY TRAINING

IFATCA policy is:

Air Traffic Controllers shall be regularly trained in emergency and degraded system situations, in initial as well as refresher training. This training should at least include In Flight Emergency Response (IFER) and coordination training, handling of Unlawful Interference situations, Hypoxia awareness, and contingency procedures.

See: Agenda B.5.8/C.6.12 - WP 94 - Amman 2011, WP 93 – Sofia 2015, Resolution C6 – WP 76 – Virtual 2022

TRNG 9.2.9 E-LEARNING

IFATCA policy is:

E-learning should be supported as a learning tool provided that:

- **the quality and scope of the training shall not be diminished by introducing E- learning;**
- **E-learning serves the interest and the need of the ATCO or the student ATCO;**
- **the right method is chosen with regard to the learning goal;**
- **the organisation provides sufficient duty time to meet the learning goal;**
- **the operational expertise of an active controller is used from the start;**
- **human interaction is incorporated;**
- **the feedback loop is kept short;**
- **E-learning is considered as part of the blend of training methods that is used to deliver training.**

See: WP 162 – Arusha 2008, Resolution C62 – WP 80 – Virtual 2022

TRNG 9.3 ON-THE-JOB TRAINING

TRNG 9.3.1 ON-THE-JOB-TRAINING (OJT)

IFATCA policy is:

The selection of controllers ATC OJTIs should not only be made on the basis of experience but also on motivation and instructional aptitude.

A period of consolidation should follow a check-out. The previous experience of the student shall be taken into account.

Apart from being validated on the sector concerned, controllers should not be engaged in training student controllers unless they have at least two years' operational experience and have been validated on that sector for at least six months.

When conducting ATC OJT on adjacent positions, the following items shall be considered to reduce the likelihood and consequences of communication errors:

- **System quality and functionalities;**
- **Communication methods;**
- **Operational briefing and OJTI training;**
- **Trainees' schedule;**
- **Trainee level of experience; and**
- **Airspace complexity.**

No operational duty should be carried out after simulator duty during the same shift.

To ensure ATC OJTIs have sufficient time working on their own and are able to retain competence on each sector for which they hold validations, ATC OJTI time should be limited to no more than 50% of duty time. This can be organised on a daily, weekly, monthly or shift pattern basis, but shall limit the time gap between solo operations and take into account leave and other periods when the controller is not at work.

It shall be made clear that the ATC OJTI is responsible for maintaining the safety of air traffic on the position where OJT is provided.

In case of investigation following an incident/accident involving an ATC OJTI and a trainee the principles of Just Culture shall be applied.

See: WP 164 - Istanbul 2007, WP 157 – Sofia 2015, Resolution C8 – WP 76 – Virtual 2022, Resolution C2 – WP 157 – Montego Bay 2023

TRNG 9.4 EXAMINATIONS AND VALIDITY OF CONTROLLER LICENCE

TRNG 9.4.1 A SYSTEM COMBINING ASSESSMENTS WITH EXAMINATIONS

IFATCA policy is:

During school training regular progress tests should be given on all theoretical subjects. Results should be analysed and discussed with the students.

The students should be regularly assessed and debriefed throughout the period of simulation training. A written report should be made by the instructor on a regular basis and should reflect the level of achievement of the appropriate performance criteria. Both theoretical assessment(s) combined with multiple practical assessments should contribute to the total marks.

Examination on local procedures, local area, letters of agreements etc. should be made.

During OJT regular assessments by ATC OJTIs should be provided. Reports on student progress should be forwarded to training section. At all times the student should be kept informed and permitted to see the reports.

A student that has failed an examination should, provided some signs of success are demonstrated and it can be determined that the individual has controller potential, after a suitable period of further training, be permitted a re-examination.

The duration of training shall not be dictated by a strict pre-determined period of time, but rather by the achievement of performance standards at determined milestones, taking into account the progression demonstrated by the student.

See: WP 164 - Istanbul 2007, Resolution C9 – WP 76 – Virtual 2022

TRNG 9.4.2 USE OF UNQUALIFIED PERSONNEL

IFATCA policy is:

For the purpose of guaranteeing safety, controllers shall not be replaced by personnel who do not hold ATC licences in accordance with ICAO Annex 1, with the ratings, recency and competency appropriate to the duties that they are expected to undertake for the position and unit at which those duties are to be performed.

State Regulators shall recognize the advantages of implementing an ATCO licensing system to provide assurance to domestic and international stakeholders.

ANSPs shall recognise the advantages of an ATCO licensing system as an effective tool not only to harmonise ATCO standards, but to give an effective, transparent means of providing assurance that ATCO standards are being met and maintained.

The functions which are contained within ICAO Annex 1, as being ATC functions shall not be added to the work responsibilities for unlicensed personnel.

In the event of an incident, caused totally or in part by the use of unqualified personnel, responsibility shall lie with the person or authority responsible for allocating the unqualified staff to the task undertaken and any other person or authority who has materially supported or assisted to use unqualified personnel.

See: WP 164 - Istanbul 2007, Resolutions C12 and C13 – WP 159 – Conchal 2019, Resolution C10 – WP 76 – Virtual 2022

TRNG 9.4.3 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

IFATCA policy is:

ATFM staff not performing clerical or administrative functions, so called ATFM controllers, shall be qualified controllers with recent experience on control duties on entry to ATFM services.

The responsibility for aircraft in flight remains solely with ATC and any subsequent ATFM involvement shall be at the request of ATC only.

An ATFM controller shall hold an ATFM rating. Such a rating shall require the ATFM controller to demonstrate a comprehensive knowledge, skill and experience of all relevant ATC procedures and ATFM duties.

ATFM controllers should be obliged to familiarise themselves with major changes in ATC procedures and maintain their acquaintance with problem areas with relation to ATFM within their region.

See: WP 164 - Istanbul 2007, Resolution C11 – WP 76 – Virtual 2022

TRNG 9.4.4 COMPETENCE ASSESSMENT

IFATCA policy is:

The results of competence assessments shall be treated confidentially. Member Associations should, together with their management, draw up a "code of conduct" which to the greatest possible extent will guarantee the objectivity and confidentiality of competence assessments.

Before a competence assessment system is implemented, the following, as a minimum, shall be taken into account:

- **a suitable period of evaluation of the system should take place;**
- **adequate facilities to enable remedial training.**

IFATCA supports competence assessment for all personnel engaged in operational duties, for every endorsement or validation. Theoretical knowledge and practical competence shall be assessed at least once a year, for every rating that a controller holds. The standards to be achieved and the check list of items to be evaluated should be made available to all those concerned.

When assessments are conducted, controllers shall be able to view their results and to discuss them with the assessing officer. Additionally, controllers shall be able to record their comments, regarding the results and the manner in which the assessment was carried out.

All ATCOs selected to act as assessors should undergo appropriate training that will provide guidance on achieving a fair, objective, and valid assessment.

Additionally, a controller considered for the assessor role should have the following as a minimum:

- **4 years operational experience;**
- **1 year experience on the position where the assessment takes place;**
- **2 years OJTI experience;**
- **having a high standard of credibility and communication skills in the OJTI/coaching role; and**
- **currency on the position where the assessment takes place.**

Controllers having an assessor qualification shall be subject to the same competence assessments as other controllers.

The assessor's qualification should be the subject of periodic refresher training, at periods not exceeding 3 years, to ensure that skills are maintained and new techniques and procedures are incorporated.

IFATCA endorses the use of multiple observations to augment existing dedicated competency-based assessment

See: WP 164 - Istanbul 2007, Resolutions C1, C2, C3, C4, C5, C6, C7, C8 and C9 – WP 156 – Accra 2018

TRNG 9.4.5 AUTOMATIC DEPENDANT SURVEILLANCE (ADS) CONTROL RATING

IFATCA policy is:

Control of aircraft via ADS and Controllers/Pilot Data Link Communication (CPDLC) is sufficiently different to other forms of ATC rating to warrant comprehensive training and a separate rating.

The training syllabus should inter alia contain instruction in:

- **Aircraft Situational Displays and Degraded Operational Modes;**
- **the CPDLC equipment and protocols including failure modes and procedures;**
- **ADS separation standards and, where applicable, ADS/Radar/Flight Data, Processor Track separation standards;**
- **aircraft emergency protocols and procedures.**

See: WP 164 - Istanbul 2007

TRNG 9.4.6 TRAINING AND LICENSING FOR DEDICATED FLIGHT INFORMATION SERVICE

IFATCA policy is:

Where States have established or intend to establish dedicated FIS positions, persons working these positions shall be appropriately trained and licenced.

Guidance material at the global level should be made available by regulators on requirements, procedures, training and licensing for dedicated Flight Information Service.

See: Resolution C9, C10 - WP 156 – Conchal 2019

TRNG 9.5 TRAINING AFTER LICENSING

TRNG 9.5.1 REFRESHER COURSES

IFATCA policy is:

As a means of maintaining a world-wide air traffic control service of the highest standards, controllers should participate in a refresher course, which should not have a bearing on the test of the proficiency of the controller, (training and simulation designed to ensure a maintenance of knowledge and abilities with respect to all standards, procedures, equipment and technique currently in use) every year while actively engaged in control duties.

Team Resource Management as a concept should be considered in the continuation training of ATCOs.

As well as programmed refresher courses, adequate courses of instruction should be provided prior to the introduction into the ATC system of new or modified equipment and changes to standards or procedures which may require additional skills or changes in operating techniques.

Member Associations should put forward to their administration proposals for the organisation and conduct of refresher training courses.

See: WP 161 - Arusha 2008, Resolution C12 – WP 76 – Virtual 2022

TRNG 9.5.2 ENGLISH LANGUAGE TRAINING

IFATCA policy is:

Sufficient training shall be available for current ATCOs of all English language abilities so as to be able to meet the required ICAO level and subsequently to retain (or improve) that competency.

Staff who are unable to achieve and maintain the English language requirements shall have their positions protected and given opportunities to reach the required ICAO level.

See: WP 164 - Istanbul 2007, Resolution C13 – WP 76 – Virtual 2022

TRNG 9.5.2.1 WRITTEN ENGLISH LANGUAGE PROFICIENCY

IFATCA policy is:

Voice communication is fundamental for the transmission of non-routine messages. Where datalink is available as a means of communication:

A set of pre-formatted messages is necessary to minimise the need for ATCOs to compose free text messages;

ATCOs should revert to voice communication to transmit non-routine messages;

Whenever possible, Standard phraseology should be used in composing free-text messages.

See: WP 157 – Gran Canaria 2014

TRNG 9.5.3 SUPERVISORY AND MANAGEMENT COURSES

IFATCA policy is:

Prior to appointment to a supervisory or management position, controllers should be provided with suitable supervisory and management courses which meet the requirements of the new position.

Team Resource Management as a concept should be considered in the training of controllers prior to an appointment as supervisor or management position.

Controllers should be provided the opportunity to take courses which will prepare them for employment on other duties, including management positions.

See: WP 164 - Istanbul 2007, Resolution C14 – WP 76 – Virtual 2022

TRNG 9.5.4 FLIGHT EXPERIENCE FOR AIR TRAFFIC CONTROLLERS

IFATCA policy is:

The Federation shall recommend to all ANSPs:

a) **To provide for familiarization flights in the cockpits of aircraft for air traffic controllers, with combined facilities to visit adjacent and distant air traffic control units.**

b) **Licensed and trainee controllers should participate in familiarization flights annually.**

c)

i. To encourage air traffic controllers with flying experience to maintain their proficiency by offering special facilities, and

ii. To encourage air traffic controllers without flying experience to gain such experience by providing facilities for pilot-training to the level of the Private Pilot Licence, and

d) **To exploit the use of flight simulators for the familiarization of air traffic controllers with specific in-flight problems.**

See: WP 164 - Istanbul 2007, Resolution C15 – WP 76 – Virtual 2022

TRNG 9.6.1 RECOGNITION OF PRIOR LEARNING FOR MILITARY AIR TRAFFIC CONTROLLERS

IFATCA policy is:

Previous training, qualifications and experience attained by military air traffic controllers, should be assessed by the appropriate licensing authority and, if relevant, be credited towards the training required to meet at least ICAO Annex 1 requirements for attaining a civilian air traffic control licence.

If the military air traffic controller's previous training, qualifications and experience meet at least ICAO Annex 1 requirements, then the appropriate licensing authority should facilitate the conversion to a civilian air traffic controller licence.

See: Resolution C1 – WP 155 – Montego Bay 2023

WC – WORKING CONDITIONS

WC 10.1 INDUSTRIAL RELATIONS

WC 10.1.1 IFATCA's ROLE IN THE AREA OF PROFESSIONAL AND INDUSTRIAL ISSUES

IFATCA Policy is:

IFATCA has the right to develop policy on all matters associated with the provision of air traffic services.

The terms 'industrial' and 'professional' refer to the approach to and implementation of such policies rather than the matters themselves.

IFATCA recognises the existence of other organisations that have a role to play in representing the legitimate interests of air traffic controllers.

In countries where the Member Association does not hold negotiating rights it should be encouraged to communicate IFATCA policies to the Trade Union or negotiating body and so far as practicable, to co-ordinate their implementation.

At the international level IFATCA should seek a common or coordinated approach with any other bodies representing air traffic controllers.

IFATCA should continue to act as an intermediary when so invited by Member Associations involved in disputes, either at international or national level and the Executive Board should be allowed to continue to exercise its discretion as to the appropriate scale of IFATCA involvement in any particular case.

See: WP 50 - Toulouse 1998

WC 10.1.2 ORGANISATIONS

IFATCA policy is:

Controllers should have the right to establish and join organisations including unions of their own choosing and for those organisations to affiliate with international organisations.

Those organisations should be free from interference from employers or governments. Such organisations should participate in the determination of their conditions of employment, and the conception, planning, and implementation of premises, technical equipment and procedures concerning the ATC system.

See: WP 55 - Split 1983

WC 10.1.3 DISPUTES

IFATCA policy is:

The settlement of disputes should be through negotiation followed by mediation, consultation or arbitration whichever may be appropriate to national conditions.

For the purpose of guaranteeing safety, ATCOs shall not be replaced by personnel who do not hold ATC licences in accordance with ICAO Annex 1, with the ratings, recency and competency appropriate to the duties that they are expected to undertake for the position and unit at which those duties are to be performed.

The functions which are contained within ICAO Annex 1, as being ATC functions shall not be added to the work responsibilities for unlicensed personnel.

The use of TIBA to circumvent an industrial dispute constitutes a misuse of the procedure and should not be used.

See: WP 55 - Split 1983, WP 73 - Port of Spain 1991, WP 126 - Jerusalem 1995, Resolution C35 – WP 79 – Virtual 2022

See also: WP 163 - Kaohsiung 2006

WC 10.1.4 CIVIL MOBILISATION OR REQUISITION MEASURES

IFATCA policy is:

IFATCA strongly condemns the actions of governments in resorting to the use of civil mobilisation or requisition measures for the purpose of preventing or ending national disputes.

Only negotiation or arbitration procedures shall be used to prevent or end disputes.

See: WP 101 - Frankfurt 1989

WC 10.1.5 MINIMUM SERVICE

IFATCA policy is:

Minimum service is defined as actions confined to operations that are strictly necessary to avoid endangering the life, personal safety or health of the whole or part of the population.

Member Associations should establish a policy on minimum ATC service that their individual members should provide when engaged in an industrial dispute.

Member Associations should seek agreement with the appropriate authorities on the minimum ATC service ATCOs will provide when engaged in an industrial dispute.

The minimum ATC service agreed to should not be so great as to render any industrial action ineffective in practice because of its limited impact.

See: WP 37 - Acapulco 1990, WP 73 - Port of Spain 1991, Resolution C36 – WP 79 – Virtual 2022

See also: WP 92A - Taipei 1997

WC 10.1.6 SINGLE / LONE PERSON OPERATIONS (SPO)

ANSPs have considered implementing SPO and removing 4EP.

Factors inducing SPO: staff shortages, night shifts, introducing automation and technical tools to better predict conflicting traffic, etc.

When SPO is applied, there is no "Human Safety Net" and when working alone, it does increase fatigue.

IFATCA Policy is:

Single or Lone Person Operations (SPO/LPO) shall be avoided. The use of SPO/LPO should be strongly discouraged by MAs, both through ANSP and their regulator.

If providers choose to operate SPO/LPO, they shall bear the responsibility for the resulting risk(s) to the system.

If SPO/LPO occurs, appropriate measures shall be taken to ensure that the SPO/LPO situation changes to another manning scenario. Until such time, measures shall be taken to mitigate all impacts of SPO/LPO, such as, but not limited to: traffic regulation, work break provisions, and informing neighbouring ATC units. Procedures shall be in place to implement such measures in an efficient way, without increasing the workload of the ATCO.

See: WP 158 – Bali 2013, WP 154 – Gran Canaria 2014, Resolution C7 – WP 155 – Conchal 2019, Resolution C37 – WP 79 – Virtual 2022

WC 10.1.7 FOUR EYES PRINCIPLE (4EP)

IFATCA policy is:

Implementation of 4EP shall be encouraged by MAs, both through their ANSP(s) and their regulator(s).

An ATCO shall not be held liable for incidents or accidents resulting solely or in part from the non-implementation of the 4EP.

To ensure the highest level of safety, teamwork and communication, the 4EP has as its basic requirement two ATCOs working physically next to each other.

See: WP 158 – Bali 2013, Resolution C8 – WP 155 – Conchal 2019, Resolution C38 – WP 79 – Virtual 2022

WC 10.1.8 PERFORMANCE INDICATORS

IFATCA Policy is:

Performance Indicators as published and used by Air Navigation Service Providers shall not be linked in any way to the pay and/or working conditions of individual ATCOs.

Global metrics for the performance of the Air Traffic Management System shall be developed through ICAO processes as soon as possible.

Controller expertise shall be used in the establishment and settings of metrics that measure the performance of the Air Traffic Management System

Controller expertise shall be used in establishing and reviewing models used for determining performance of the Air Traffic Management System to ensure that the models accurately reflect how the ATM system functions.

Controller expertise shall be used in the interpretation of data used to assess the performance of the Air Traffic Management System to ensure that data is not misleading because it is incomplete or incorrectly applied.

The measurement of performance of the Air Traffic Management System shall reflect the impact of any external-to-ATM constraints, including external environmental constraints.

IFATCA urges MAs to be involved in the creation and application of an ATM Performance Measurement System.

See: WP 165 - Hong Kong 2004, Resolution C39 – WP 79 – Virtual 2022

See also: WP 151 - Toulouse 1998, WP 171 - Santiago 1999, WP 84 – Dubrovnik 2009 and WP 161 – Dubrovnik 2009

WC 10.2 SOCIAL AND LABOUR ASPECTS

WC 10.2.1 METHODS OF DETERMINING CONDITIONS OF OPERATION AND SERVICE

IFATCA policy is:

Member Associations should urge their national authorities to implement regulations and/or legislation to provide:

a. **a specifically defined personnel statute for air traffic controllers, taking into account the outstanding responsibilities, physio-/psychological demands and strains involved to match with comfortable regulations.**

b. **participation of active air traffic controllers through their professional associations when determining conditions of operation and/or employment.**

The Executive Board should in the interest of safety use any means, within the Constitution and Bye-Laws of the Federation, to assist the Member Associations in their contract negotiations.

The Executive Board should continue to liaise with the ILO on all matters of common interest to both organizations.

Whenever an IFATCA Member Association wishes to appeal to the ILO for the purpose of filing a complaint, such appeal should be notified to and co-ordinated with the IFATCA Executive Board.

See: WP 49 - Brussels 1979, WP 53 - Toronto 1980, WP 55 - Split 1983, WP 117 - Christchurch 1993, Resolution C40 – WP 79 – Virtual 2022

WC 10.2.2 MANAGEMENT OF ATS PROVIDERS

IFATCA Policy is:

ATC management staff directly concerned with executive air traffic control matters should have a thorough knowledge of air traffic control and be holders of an air traffic controller's licence and, to remain fully conversant with current air traffic control problems, their knowledge should be continually updated.

Where ATS providers are controlled by senior management who do not have experience as senior Air Traffic Controllers then the position of Chief Air Traffic Controller shall be created. The Chief Air Traffic Controller shall be an experienced senior air traffic controller and shall be answerable for, amongst other things, the safety of the air traffic control system. The Chief Air Traffic Controller shall report directly to the Chief Executive Officer of the ATS provider and to the head of the regulatory organisation.

See: WP 49 - Brussels 1979, WP 173 - Geneva 2001

WC 10.2.2.1 MONITORING PRIVATISATION / COMMERCIALISATION IN ATC

Privatisation of Air Traffic Control refers to the process by which the functions and/or assets of Air Traffic Control are transferred from a government department to either the private sector or to a Company or Corporation owned either partly or fully by the government, but operating independently of total government control. [Coopers & Lybrand]

IFATCA Policy is:

The safety and quality levels of the Air Traffic Services system shall not be compromised by privatisation/commercialisation.

IFATCA should monitor the effects of privatisation/commercialisation on ATCOs working conditions in co-operation with the ILO.

See: WP 111 - Christchurch 1993, Resolution C10 - WP 164 - Punta Cana 2010

See also: Resolution C21 – WP 137 – Ottawa 1994

WC 10.2.3 WORKING ENVIRONMENTS

IFATCA Policy is:

When modifying airport infrastructure affecting ATM, local ATCOs shall be involved throughout its design, development and implementation.

Existing knowledge of human factors should be incorporated in design for new operational rooms and new ATC working positions and in modernisation of existing facilities.

Rules of ergonomics should be respected in the design of workplaces and optimum microclimate conditions should be obtained or maintained.

Great attention should be paid to the lighting conditions of working positions. Indirect light, adjustable by zones, similar to daylight provoking neither reflections nor dazzling is very important. The luminosity should be adjustable at each working place and light sources be cleaned regularly and replaced if necessary.

The physical working environment regarding control room temperature, lighting, relative humidity, adapted rest areas and facilities for eating and drinking shall be designed so as to facilitate night shift demands.

See: WP 85 - Copenhagen 1978, WP 49 - Brussels 1979, WP 148 - Toulouse 1998, Resolution C6 – WP86 – Conchal 2019, Resolution C42 – WP 79 – Virtual 2022

See also: WP 159 - Taipei 1997

WC 10.2.4 ATC SYSTEMS

Research should be carried out in each country to determine the capacity of the ATC system and the workload to be carried by each air traffic controller.

Air traffic controllers should be provided with ATC equipment commensurate with their operational requirements so as to promote an optimum level of safety.

Within each country where civil air traffic normally predominates or where civil airspace is clearly defined a civilian ATC system is preferable.

See: WP 55 - Split 1983, Resolution C42 – WP 79 – Virtual 2022

See also: WP 49 - Brussels 1979, WP 117 - Christchurch 1993

WC 10.2.5 AUTOMATION / HUMAN FACTORS

IFATCA Policy is:

Automation shall improve and enhance the data exchange for controllers. Automated systems shall be fail-safe and provide accurate and incorruptible data. These systems shall be built with an integrity factor to review and crosscheck the information being received.

The human factors aspects of Automation shall be fully considered when developing automated systems.

Automation shall assist and support ATCOs in the execution of their duties.

The controller shall remain the key element of the ATC system.

Total workload should not be increased without proof that the combined automated/human systems can operate safely at the levels of workload predicted, and to be able to satisfactorily manage normal and abnormal occurrences. Automated tools or systems that support the control function shall enable the controller to retain complete control of the control task in such a way so as to enable the controller to support timely interventions when situations occur that are outside the normal compass of the system design, or when abnormal situations occur which require non-compliance or variation to normal procedures.

Automation should be designed to enhance controller job satisfaction.

The legal aspects of a controller's responsibilities shall be clearly identified when working with automated systems.

A Controller shall not be held liable for incidents that may occur due to the use of inaccurate data if he is unable to check the integrity of the information received.

A Controller shall not be held liable for incidents in which a loss of separation occurs due to a resolution advisory issued by an automated system.

Guidelines and procedures shall be established in order to prevent incidents occurring from the use of false or misleading information provided to the controller.

The number of items displayed on one label and the number of items/information displayed on the current screen should be set after a dedicated study. Safety tools should not be deactivated.

See: WP 74 - Port of Spain 1991, WP 128 - Christchurch 1993, WP 155 - Santiago 1999, WP 155 - Marrakech 2000, WP 174 - Geneva 2001, WP 159 - Dubrovnik 2009, Resolution C43 – WP 79 – Virtual 2022, Resolution C4 – WP 158 – Montego Bay 2023

See also: WP 143 - Ottawa 1994, WP 94A - Tunis 1996

WC 10.2.6 AIR TRAFFIC CONTROL AND PUBLIC RELATIONS

IFATCA Policy is:

IFATCA recognises that Public Relations play an important role in the promotion of ATC services. However, unsupervised public access to actual radar and radiotelephony data can lead to misuse and misinterpretation. Therefore, use of live radar and radiotelephony data for this purpose shall not be permitted.

See: WP 160 - Toulouse 1998

See also: WP 149 - Ottawa 1994

WC 10.2.7 WORKING WITH UNSERVICEABLE OR INADEQUATE EQUIPMENT

IFATCA Policy is:

ATC equipment provided should include back-up secondary equipment on hot standby for use if the primary equipment becomes degraded.

Controllers should be given initial and recurrent training in the degraded mode operations of their equipment.

ATS management shall ensure that ATS equipment is regularly maintained, by properly trained and qualified technical staff, to ensure its availability and reliability.

ATS management shall design adequate fault reporting procedures and publish required rectification times.

ATCOs should not use equipment that is known to be unserviceable, unreliable, or inaccurate for the provision of ATS.

When designing and introducing new ATM-equipment the vulnerability and possible abuse of this equipment should be considered, and precautionary measures should be taken.

See: WP 161 - Marrakech 2000, WP 161 - Arusha 2008, Resolution C44 – WP 79 – Virtual 2022

WC 10.2.8 REGULATORY APPROVAL OF ATM SYSTEMS EQUIPMENT

IFATCA Policy is:

MAs should encourage their State's Regulatory Authority to play a role in the development and certification / commissioning and oversight during the life cycle of air traffic control equipment.

Any information displayed at a controller working position shall be approved to be used operationally.

See: Resolution B5 – WP 92 – Conchal 2019

WC 10.2.9 CO-OPERATIVE SEPARATION

IFATCA Policy is:

From a human factor aspect IFATCA has strong concerns over the transfer of control responsibility to the cockpit for the following reasons:

- **If separation functions are transferred to the cockpit the situation awareness and skills base of the ATCO will be degraded to the point when intervention will not be possible.**
- **Aircrew workload will increase by fulfilling additional tasks, which are currently carried out by ATC. This might lead to overload situations in cockpit workload when other, higher priority, tasks have to be taken care of by the crew. Responsibility for the control function cannot simply be handed back to the controller.**

Delegation of separation shall be thoroughly described and defined in ATC and aircrew procedures.

Airspace within which co-operative separation is used shall be so designated. Before establishing a single airspace continuum over different States, all legal issues regarding liability and protection of staff should be addressed.

ATC and aircraft utilizing such delegated separation airspace shall be certified with minimum equipment.

Controllers and aircrew shall be provided with special training and certification to operate in delegated separation airspace.

The "delegation of separation" clearance shall be of a temporary nature, and shall be terminated either at a fix, a specified level, a specified time, or when standard ATC separation has been re-established, or when one of the aircraft has landed.

All aircraft and controller functions in co-operative separation shall be synchronized to the same time reference.

"Loss of separation" warning systems shall be incorporated in the application at ATC facilities and on aircraft.

Standard avoidance procedures shall be established for aircraft not being able to maintain responsibility for separation.

States shall have in place regulations detailing procedures to be followed before responsibility for separation can be transferred to the cockpit.

The Initial and final points at which responsibility for separation is transferred from ATC to the pilot shall be accurately defined in all cases.

The responsibility for providing separation between the intercepting aircraft and all other aircraft shall be clearly defined. ATCOs should not be held liable for incidents or accidents resulting from an interception.

See: WP 154 - Santiago 1999, WP 166 - Santiago 1999, WP 158 - Hong Kong 2004, WP 89 - Kaohsiung 2006, WP 159 - Dubrovnik 2009, Resolution C45 – WP 79 – Virtual 2022

WC 10.2.10SHORT TERM CONFLICT ALERT (STCA): HUMAN FACTORS / LEGAL ASPECTS

IFATCA Policy is:

The Short Term Conflict Alert (STCA) system should only alert the controllers at the specific radar sector concerned, and not at positions where controllers are not involved in the alert.

The methods and procedures for the use of STCA should be clearly defined before the introduction of the equipment.

Unless STCA provides a definitive course of action for the controller to follow, it cannot be accepted that the fitting of an STCA device will necessarily increase the controller's legal liability should an incident occur.

See: WP 168 - Santiago 1999

WC 10.2.11ATM SAFETY MONITORING TOOL

IFATCA considers ASMT to denote a generic ATM Safety Monitoring Tool that extracts ATM system data to detect infringements to parameters predefined within the system itself.

The evolution of ASMT and the legal requirement to implement it in an increasing number of states presents a challenge for many ATCO communities.

IFATCA Policy is:

ASMT shall be part of a Safety Management System and shall not be used by Management as a punitive tool for disciplinary action.

Except for Aerodrome Control, the introduction of ASMT shall be preceded by the introduction of STCA.

Implementation of ASMT shall be preceded by a clear statement in which its goals are defined.

ATCOs shall be involved in the definition of the ASMT role.

The criteria used to set up the ASMT parameters shall be carefully planned and monitored. Sufficient consideration shall be given to restrict false or nuisance reports.

The system should not be used as a performance monitor for individual controllers. Analysis of any derived data should be undertaken by appropriately experienced and trained ATM safety experts.

Data obtained from the system should not be used as a capacity measurement or monitoring indicator.

IFATCA has strong concerns about the negative implications of the implementation of an ASMT to the ATM system, especially in regard to the respecting JC principles. However, if an ASMT will be implemented the following principles shall apply:

ASMT shall be part of a Safety Management System and shall not be used by management to take punitive action but solely for the prevention of future incidents and accidents. An ASMT shall only be enabled once appropriate safety nets relevant to the task such as STCA have been incorporated. The criteria used to define ASMT parameters shall be carefully planned and monitored with due consideration to minimising nuisance alerts.

ATCOs shall be involved in the definition, implementation and future changes of the ASMT role.

Any incidents identified by an ASMT shall be subject to a thorough holistic investigation of the scenario by appropriately qualified personnel, taking due account of confidentiality provisions, and any subsequent action regarding the person(s) involved shall take full account of Just Culture principles.

The system shall not be used as a performance monitor for individual controllers, for capacity measurement or as a monitoring indicator. Analysis of any derived data shall be undertaken by appropriate safety experts.

If an occurrence is only identified by the ASMT it shall not be seen by management prior to investigation as wilful non-reporting by the ATCO.

See: WP 156 - Marrakech 2000, WP 158 - Cancun 2002, WP 158 - Buenos Aires 2003, WP 159 - Hong Kong 2004, WP 307 – Las Vegas 2016, Resolution C47 – WP 79 – Virtual 2022

WC 10.3 HOURS OF WORK

WC 10.3.1 DUTY ROSTERS

IFATCA Policy is:

The duty roster should be based on at least 2 consecutive days off in every 7 days. Duty rosters should be agreed with the air traffic controllers involved.

SPO shall be avoided.

An optimal roster should be promulgated, based on the maximum allowed number of working hours per week and per shift, a minimum number of break periods of an agreed minimum length, both during a shift and between shifts and on an optimal night/day switch number per week or per month as appropriate. This roster shall require definition of personnel strength based on the number of sectors and traffic density. It shall allow for attribution of a minimum number of days paid leave, sick leave, extraordinary leave and unpaid leave. It shall be such that a minimum number of weekends per month and of public holidays per year can be taken as they occur and not later. Conditions for overtime and night work (e.g. rest facilities) shall be defined and the regulations governing the various kinds of leave be clearly stated.

Duty rosters including night shifts should be of a rapidly rotating shift system in a morning, evening, night cycle. Consecutive night shifts are not recommended.

Shift systems should not include night shifts that commence on the same day that a morning shift ends.

Change-over times between night shift and the following morning shift should not take place before 6 am local time, to ensure that sleep duration for the morning shift is adequate before commencement of their duty time.

Shift systems should include preferably single night duties only but where consecutive nights are required they should be restricted to the minimum.

In respect of the nature of night shift duties Member Associations should pursue additional time off for night shifts worked as compensation.

After a night shift, an off-duty period of a minimum of 30 hours is recommended.

The number of consecutive early starts (shifts starting in the period between 0600 and 0659) should be limited to a maximum of two in a period of 144 hours (6 days).

See: WP49 - Brussels 1979, WP159 - Taipei 1997, WPL003 - Rio de Janeiro 1988, WP155 - Santiago 1999, WP148 - Toulouse 1998, WP 165 - Istanbul 2007, Resolution C48 – WP 79 – Virtual 2022

WC 10.3.2 WORK AND REST SCHEME

IFATCA Policy is:

Rosters should be constructed following a simple pattern, with shifts of the same or very similar lengths and adequate breaks between shifts and shift cycles.

The average time of operational duty and breaks should not exceed 32 hours per week.

Each shift should not exceed 7 hours 30 minutes including breaks.

A minimum rest period of 11 consecutive hours per day should be provided.

The continuous operational duty for a controller should be 2 hours maximum and should be reduced to 90 minutes for controllers working with visual terminals and/or radar displays; after which a minimum 30 minutes break, away from the working environment should be given to controllers.

At least one break of a minimum of 1 hour duration, on both day and afternoon shift, shall be given to controllers for the purpose of eating at regular times and to prevent gastrointestinal dysfunctions.

Extra rest hours shall be provided when requested by a pregnant controller.

By night the total operational duty time should not exceed 5 hours.

Controllers shall not be held liable in the case of an accident or incident if the controller has previously registered a formal complaint of exaggerated working hours or lack of fatigue management and these have been determined to be a major contributing factor to the incident or accident.

See: WP155 - Santiago 1999, WP125 - Jerusalem 1995, WP 165 - Istanbul 2007, WP 158 – Sofia 2015, Resolution C60 – WP 80 – Virtual 2022, Resolution C6 – WP 159 – Montego Bay 2023

WC 10.3.3 VACATION SCHEME

IFATCA Policy is:

The annual leave for a controller should be not less than 30 working days (this is the equivalent of 6 weeks), excluding public holidays, of which 3 weeks shall be consecutive.

See: WP 49 - Brussels 1979, Resolution C49 – WP 79 – Virtual 2022

WC 10.3.4 RECENCY AND COMPETENCY

Controllers involved in other important tasks such as training (classroom and/or on-the-job), supervising, management and developing new systems need a minimum amount of working hours in the ops room to keep them current.

IFATCA Policy is:

Each Member Association should agree with the appropriate Regulatory Authority a minimum of operational working hours, per rating, for their controllers who are involved in other ATC-related duties.

The minimum operational working hours shall be appropriate for the workload of each position.

The minimum working hours may be increased at the introduction of new procedures or ATC systems and/or at the instigation of an individual controller.

See: WP 148 - Ottawa 1994, WP 165 - Istanbul 2007, Resolution C50 – WP 79 – Virtual 2022

WC 10.3.5 EXTRA DUTY

IFATCA Policy is:

Extra duty should be voluntary and used only in exceptional situations.

In the interest of aviation safety and the well being of the controller population, extra duty control should be considered as an undesirable method of staffing Air Traffic Control positions and should be avoided.

IFATCA recommends that each Member Association inform its members of the ill effects of sustained extra duty on their health and on the performance of their duties as controllers.

Member Associations should, through consultation with their respective employer, attempt to acquire adequate staffing which considers established documentation on the adverse effects of extended hours of work.

The allocation of overtime should be carried out with limitations in human performance in mind. The combination of overtime and night shifts clearly increase the risk of fatigue among controllers, because resting periods are reduced, and the possibility for sleep-loss recovery may be reduced accordingly.

Member Associations should attempt to have duty time regulated by the appropriate body. Where legislation is not achievable, hours of work and extra duty should be stipulated in their respective collective agreements.

See: WP 127 - Jerusalem 1995, WP 165 - Istanbul 2007, Resolution C61 – WP 80 – Virtual 2022

WC 10.3.6 STAFFING

IFATCA Policy is:

IFATCA strongly recommends that MAs establish a specific task force to work with the employer to identify and achieve the required staffing targets for each individual facility. These minimum staffing levels must take into consideration the following:

1. **Human Performance and Fatigue Excessive (no planned overtime shall be used).**
2. **Minimum staffing number considers only current credentialed ATCOs- Uncredentialed trainees or disqualified ATCOs shall not be taken into account.**
3. **Staff for normal operations including proper staff relief and provision for unforeseen circumstances and/or events.**
4. **Forecast ATCOs retirement.**

See: WP 166 – Arusha 2008, Resolution C9 – WP 160 – Montego Bay 2023

WC 10.3.7 AGEING ATCOS

IFATCA Policy is:

ANSPs should offer career development plans as medium to long term alternatives to the operational job.

Training courses for ATCOs regarding the issue of ageing should be made available.

ATCOs with an age of 50 years and older shall be entitled to abstain from nightshifts on their request.

Ageing ATCOs should be entitled to specific break plans, in particular additional short breaks, to assist in their performance with short term memory.

Ageing ATCOs should be entitled to reduce the number of their ratings and / or endorsements to a reasonable minimum. Such a reduction shall have no detrimental impact on the individual ATCO.

See: Resolution C4, C5, C6, C7, C8 - WP 161 - Punta Cana 2010

WC 10.4 REMUNERATION

WC 10.4.1 GENERAL PROVISIONS

IFATCA Policy is:

Remuneration for the profession of air traffic controller shall be commensurate with the requirements and responsibilities of the profession, not limited by the practices of other organisations.

Equal remuneration shall be granted for equal work with regards to duties and responsibilities.

See: WP 49 - Brussels 1979, Resolution C51 – WP 79 – Virtual 2022

WC 10.4.2 REMUNERATION PRINCIPLE

IFATCA Policy is:

Remuneration for air traffic controllers should recognize the uniqueness of the Air Traffic Control profession and the associated responsibilities.

Remuneration of air traffic controllers should reflect their "employment status" in accordance with ILO Publication ISCO-08, in which air traffic controllers have been put in a category that includes Aircraft pilots, ships' officers and other related "associate professionals".

(See: https://www.ilo.org/public/english/bureau/stat/isco/docs/publication08.pdf)

Remuneration should be commensurate with acquired levels of skill and experience. The remuneration of controllers should therefore reflect their skills and also have relation to the acquired amount / type of ratings.

When a controller is assigned additional tasks, such as instruction or system- development, this should also be reflected by a higher remuneration level.

See: WP 139 - Ottawa 1994, WP 49 - Brussels 1979, Resolution C52 – WP 79 – Virtual 2022

WC 10.5 RETIREMENT AND PENSION

WC 10.5.1 RETIREMENT

IFATCA Policy is:

IFATCA recommends that for active air traffic controllers the age of retirement should be closer to 50 than 55.

In view of the peculiarity and uniqueness of the profession of Air Traffic Control, and in the interest of air safety, air traffic controllers should be awarded retirement at an earlier age than that of the national retirement age.

The retirement age for air traffic controllers should be determined by negotiations at the national level, taking into consideration the physical and psychological demands and the occupational stress the profession involves.

Air Traffic Controller retirement legislation shall be accompanied by an adequate superannuation scheme which enables the controller to receive pension benefits as if service had continued to national retirement age.

ANSPs shall not increase retirement ages in an attempt to address ATCO staff shortage issues.

A course in order to prepare ATCOs should be made available by their employer in order to facilitate the transition between an active controlling career, and becoming a retired professional.

See: WP49 - Brussels 1979, WP138 - Ottawa 1994, WP155 - Santiago 1999, WP163 - Dubrovnik 2009, Resolution C53 – WP 79 – Virtual 2022

See also: WP8 – Athens 1985

WC 10.5.2 EARLY RETIREMENT

IFATCA Policy is:

There should be a possibility to cease from active control before Controller retirement age. Air traffic controllers leaving active control, but staying in employ within the ATC environment should keep their controller retirement privilege.

See: WP 138 - Ottawa 1994

See also: WP 49 - Brussels 1979, WP8 – Athens 1985

WC 10.5.3 EXTENDED DUTY

IFATCA Policy is:

Individual air traffic controllers who wish to remain in active duty, once they have met the conditions to retire, should be allowed to do so provided they meet all medical and proficiency requirements.

See: WP 138 - Ottawa 1994

See also: WP 49 - Brussels 1979

WC 10.6 EMPLOYMENT SECURITY

WC 10.6.1 LOSS OF LICENCE

Throughout their careers, air traffic controllers are exposed to the constant risk of losing their licence and/or qualifications on grounds of medical or technical incapacity.

To avoid the risk of loss of licence and/or qualifications, air traffic controllers should be provided with adequate measures at the employer's expense such as the availability of appropriate medical services, physical fitness programme, training facilities and refresher training to assist the Air Traffic Controller in maintaining the required health and skill standards.

Since the number of suitable and meaningful posts for re-employing the Air Traffic Controller within the civil service is rather limited in view of their specialized backgrounds, training and experience, employers should provide loss-of-licence compensation schemes and second career programmes for air traffic controllers.

Where ATC is run by a private company, such establishment is even more important since re-employment possibilities are thus even more difficult to obtain.

IFATCA Policy is:

In the event of loss on medical grounds of a licence which includes medical standards, such measures should also include provision for income protection such as adequate disability insurance and retirement or early retirement pension.

Opportunities for re-training and re-deployment, with compensation for loss of income, should also be available to Air Traffic Controllers who lose their licence.

The following list of minimum items should be taken into consideration when MAs are negotiating a Loss of Licence insurance. "Insurance" is a generic term which encompasses all forms of ATC loss of licence compensation programmes.

a) **Protection against Loss of Licence Insurance shall be held by all ATCOs.**
b) **No extra medical examination shall be required as ATCOs undergo regular medical checks according to ICAO regulations.**
c) **The insurer shall not be able to impose special conditions or exclusions for any individual members.**
d) **Exclusion for already existing medical problems shall not be allowed.**
e) **The meaning of bodily injury and illness shall be clearly defined.**
f) **The premium shall be paid by the employer.**
g) **Any payment under the policy shall be in addition to any other benefits payable (i.e. pension, sick leave).**
h) **The sum payable for permanent loss of licence shall be at least equal to the amount of five years of ATCO's income.**
i) **The sum shall be paid even if the ATCO continues to work with the same employer in a position outside ATS.**
j) **Should the controller be re-instated with the same employer at a salary less than that of a controller, some provision shall exist for this loss of income.**

k) **Claims procedure shall be set out clearly in the policy.**

l) **Cancellation of Loss of Licence benefit shall be payable upon provision of due written proof of loss.**

m) **The policy shall have no exclusions other than self-injury and war.**

See: WP 8 - Athens 1985, WP 37 - Frankfurt 1989, Resolution C54 – WP 79 – Virtual 2022

See also: WP 49 - Brussels 1979, WP 55 - Split 1983

WC 10.7 MISCELLANEOUS

WC 10.7.1 REGULATORY FRAMEWORK IN ATM

IFATCA Policy is:

Regulation of ATM shall remain the responsibility of the State or of those supranational public entities mandated by the member States.

Regulatory / oversight functions shall always be separated from Air Navigation Service Providers.

Regulatory / oversight functions shall always include ATCOs expertise in the development of the regulatory ATM framework.

See: WP 157 - Hong Kong 2004, Resolution C55 – WP 79 – Virtual 2022

WC 10.7.2 NORMAL OPERATIONS SAFETY SURVEY

IFATCA Policy is:

Monitoring Safety in Normal Operations shall be seen as an integral element of a Safety Management System.

A safety tool such as NOSS, shall meet the following conditions:

- **Joint management/controller sponsorship;**
- **Voluntary participation;**
- **Trained observers;**
- **Set targets of safety enhancements;**
- **De-identified, confidential, and non-disciplinary data collection; and**
- **Adequate feedback of the results to the controllers.**

See: WP 161 - Melbourne 2005, Resolution C58 – WP 80 – Virtual 2022, Resolution C56 – WP 79 – Virtual 2022

WC 10.7.3 SAFETY MANAGEMENT SYSTEMS

IFATCA Policy is:

Air Navigation Service Providers (ANSPs) should be encouraged from the outset to utilise the available and current operational expertise already existing within their organisations when developing SMS.

Human Factor issues shall be accounted for in each phase of the definition, development, and deployment of new and existing ATM systems and into operational training. Controllers and human factors experts shall be involved from the beginning of any new project.

See: WP 89 Istanbul 2007, Resolution C3 - WP 158 - Punta Cana 2010, Resolution C57 – WP 79 – Virtual 2022

See also: WP 157 - Geneva 2001

WC 10.7.4 INTRINSIC AND TACTICAL SAFETY

IFATCA Policy is:

IFATCA recommends that all parties involved in airport and airspace design address intrinsic safety with the highest priority.

See: WP 169 - Arusha 2008

WC 10.7.5 RESILIENCE AND LINEAR vs. SYSTEMIC APPROACH TO SAFETY

In the Systemic model it is assumed that accidents result from unexpected combinations (resonance) of normal performance variability. Failure and success stem from the same source. We change the goal from "avoiding that anything goes wrong" to "ensuring that everything goes right" (TEM, NOSS, LOSA, etc.)

From linear towards systemic:

- It takes teamwork (humans, organizations, technology and society) to succeed as well as it takes teamwork to fail. Air traffic control is not about heroes and anti- heroes
- Safety reporting becomes less relevant to enhance safety
- More emphasis on understanding processes and predicting what goes right

It is time to give systemic safety a more prominent role in ATM, without forgetting where we came from.

IFATCA Provisional Policy is:

IFATCA shall adapt to a systemic conception of safety and this shall be embedded in a provisional policy. This means not using new iterations of the linear approach. However, it is recognized that there will be a need for the use of existing linear approach to safety.

See: WP 165 – Bali 2013

WC 10.7.6 COGNITIVE PROCESSES IN ATC

For more than 35 years, IFATCA has been drawing attention to the human in the ATM system. With the ATCO not being a line worker, but the highly skilled centre of the system, this apprehension is fully justified. It is still common that the human factor is overlooked, and specialists are called in too late when implementing new systems and when introducing challenging working methods. With the ATC world being on the eve of new technological breakthroughs, it is more important than ever to realize that controllers have to be able to mentally keep up with this and deliver at least the same quality in safety and efficiency.

IFATCA Policy is:

Capabilities and limitations of cognitive processes shall be considered when addressing Human Performance and Human Factors.

See: WP 303 - Las Vegas 2016

WC 10.7.7 SEPARATION BETWEEN UNITS WITHOUT PROCEDURAL AGREEMENT

In some areas separation between aircraft seems to be achieved merely by those aircraft being under the control of different authorities, with no agreed procedure between the authorities as to who is providing the separation and how.

Having a situation where aircraft are considered to be separated by merely being on one side or the other of a border is not acceptable. Separation standards should be in place and applied.

States and ANSPs should endeavour to overcome/sidestep political issues in order to ensure that primary objectives (i.e. safe separation of aircraft) are met.

IFATCA policy is:

MAs experiencing deficiencies in separation procedures in border areas due to issues between neighbouring States shall call upon the appropriate authorities to enable safe ATS provision in such areas.

See: WP309 - Las Vegas 2016

WC 10.7.8 USE OF MULTIPLE ATCO RATINGS

IFATCA policy is:

ATCOs shall not provide both surveillance approach service and aerodrome control service simultaneously.

ATCOs required to provide a surveillance approach service and a surveillance area service simultaneously should be strongly discouraged by MAs.

When ATCOs are required to exercise more than one rating during their operational shift, the procedure shall undergo a safety risk assessment with consideration of:

- **The human performance of the ATCO, specifically the risk of mode-switching errors;**
- **Fatigue risk management;**
- **The ability to maintain sufficient controller competency.**

See: Resolution C6, C7, C8 – WP 159 – Montego Bay 2023

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