Brunei Department of Civil Aviation

Brunei Darussalam

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Brunei Aviation Requirements

BAR 6 Part DEF Definitions – Acceptable Means of Compliance and Guidance Material

NOTES

The content of this document is arranged as follows: The acceptable means of compliance (AMC appear first, followed by the related and guidance material (GM) paragraph(s).
In case of certification specifications (CS), a CS paragraph is followed by the related GM paragraph.
All elements (i.e. AMC, CS, and GM) are colour-coded and can be identified according to the illustration below.

Acceptable Means of Compliance

Certification Specifications

Guidance Materials

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Control of this Document

DC.1 Introduction

DC.1.1 Pursuant to Civil Aviation Act and the Civil Aviation Regulations and their subsequent amendments, the following requirements are hereby established for compliance by all persons concerned, the Director of Civil Aviation is empowered to adopt and amend Brunei Aviation Requirements. In accordance herewith, the following requirement is hereby established for compliance by all persons concerned. This requirement shall be known as BAR 6 Part DEF Definitions – Acceptable Means of Compliance and Guidance Material and any reference to this title shall mean referring to the requirements to be met for civil aviation in Brunei Darussalam.

DC.2 Authority for this Requirement

DC.2.1 This BAR 6 Part DEF Definitions – Acceptable Means of Compliance and Guidance Material is issued on the authority of the Director of Civil Aviation.

DC.3 Applicability

DC.3.1 This BAR 6 Part DEF Definitions – Acceptable Means of Compliance and Guidance Material is applicable to the aviation industry of Brunei Darussalam.

DC.4 Scope

DC.4.1 BAR 6 Operation of Aircraft contains the operation of aircraft requirements of Brunei Darussalam, and shows compliance with ICAO Annex 6. The requirements in BAR 6 are separated into the following parts with cross references between parts where applicable.

Part Air Operations Cover Requirement
Part ARO Authority Requirements for Air Operations
Part ORO Organisation Requirements for Air Operations
Part DEF Definitions AMC and GM
Part CAT Commercial Air Transport
Part SPA Specific Approvals
Part SPO Special Operations
Part NCC Non Commercial with Complex Motor-Powered Aircraft
Part NCO Non Commercial other than Complex Motor-Powered Aircraft

DC.5 Definitions

DC.5.1 Terms not defined shall have the meaning given to them in the relevant legal instruments or international legal instruments in which they appear, especially as they appear in the Convention and its Annexes.

Amendment

Amendment Number	Date of Issue	Remarks
V01	1st February 2017	Initial Issue
V02	1st February 2018	First Amendment
V03	1st May 2018	Second Amendment
V04	1st May 2019	Third Amendment
V05	1st December 2019	Fourth Amendment
V06	1st December 2022	Fifth Amendment
V07	1st November 2025	Sixth Amendment to keep version as the rest of BAR 6.

Part DEF Definitions for terms used in Parts ARO, ORO, CAT, SPA, NCC, SPO and NCO

GM 1 Annex I Definitions

DEFINITIONS FOR TERMS USED IN ACCEPTABLE MEANS OF COMPLIANCE AND GUIDANCE MATERIAL

For the purpose of Acceptable Means of Compliance and Guidance Material the following definitions should apply:

(a) 'abnormal flight behaviour' means, in the context of an aircraft tracking system, an event affecting a flight:
  (1) which is outside of the parameters defined by the operator for normal operation or which indicates an obvious deviation from normal operation; and
  (2) for which the operator has determined that it poses a risk for the safe continuation of the flight or for third parties.

(a) 'Accuracy' means, in the context of PBN operations, the degree of conformance between the estimated, measured or desired position and/or the velocity of a platform at a given time, and its true position or velocity. Navigation performance accuracy is usually presented as a statistical measure of system error and is specified as predictable, repeatable and relative.

(b) 'Aircraft-based augmentation system (ABAS)' means a system that augments and/or integrates the information obtained from the other GNSS elements with information available on board the aircraft. The most common form of ABAS is receiver autonomous integrity monitoring (RAIM).

(ba) 'Airport moving map display (AMMD)' means a software application that displays an airport map on a display device and uses data from a navigation source to depict the aircraft current position on this map while the aircraft is on the ground.

(c) 'Area navigation (RNAV)' means 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.

(d) 'Availability' means, in the context of PBN operations, an indication of the ability of the system to provide usable service within the specified coverage area and is defined as the portion of time during which the system is to be used for navigation during which reliable navigation information is presented to the crew, autopilot or other system managing the flight of the aircraft.

(e) 'Committal point' means the point in the approach at which the pilot flying decides that, in the event of an engine failure being recognised, the safest option is to continue to the elevated final approach and take-off area (elevated FATO).

(f) 'Continuity of function' means, in the context of PBN operations, the capability of the total system, comprising all elements necessary to maintain aircraft position within the defined airspace, to perform its function without non-scheduled interruptions during the intended operation.

(fa) 'Controlled portable electronic device (C-PED)' means a PED subject to administrative control by the operator that uses it. This includes, inter alia, tracking the allocation of the devices to specific aircraft or persons and ensuring that no unauthorised changes are made to the hardware, software, or databases. C-PEDs can be assigned to the category of non-intentional transmitters or T-PEDs.

(fb) 'EFB installed resources' means certified EFB hardware components external to the EFB host platform itself, such as input/output components (installed remote displays, keyboards, pointing devices, switches, etc.) or a docking station.

(fc) 'EFB mounting device' means an aircraft certified part that secures a portable or installed EFB, or EFB system components.

(fd) 'EFB system supplier' means the company responsible for developing, or for having developed, the EFB system or part of it.

(g) 'Emergency locator transmitter (ELT)' is a generic term describing equipment that broadcasts distinctive signals on designated frequencies for the purpose of search and rescue (SAR). The ELT may be activated by various conditions (e.g. manual activation, automatic detection of a distress situation, automatic detection of a crash impact, automatic detection of aircraft immersion into water, etc.). The ELT signals usually include signals that are intended to be detected by the international COSPAS-SARSAT programme, and homing signals that are intended to guide SAR teams to the ELT.

(h) 'Exposure time' means the actual period during which the performance of the helicopter with the critical engine inoperative in still air does not guarantee a safe forced landing or the safe continuation of the flight.

(i) 'Fail-operational flight control system' means a flight control system with which, in the event of a failure below alert height, the approach, flare and landing can be completed automatically. In the event of a failure, the automatic landing system will operate as a fail-passive system.

(j) 'Fail-operational hybrid landing system' means a system that consists of a primary fail-passive automatic landing system and a secondary independent guidance system enabling the pilot to complete a landing manually after failure of the primary system.

(k) 'Fail-passive flight control system': a flight control system is fail-passive if, in the event of a failure, there is no significant out-of-trim condition or deviation of flight path or attitude but the landing is not completed automatically. For a fail-passive automatic flight control system the pilot assumes control of the aeroplane after a failure.

(l) 'Flight control system' in the context of low visibility operations means a system that includes an automatic landing system and/or a hybrid landing system.

(m) 'HEMS dispatch centre' means a place where, if established, the coordination or control of the helicopter emergency medical service (HEMS) flight takes place. It may be located in a HEMS operating base.

(n) 'Hybrid head-up display landing system (hybrid HUDLS)' means a system that consists of a primary fail-passive automatic landing system and a secondary independent HUD/HUDLS enabling the pilot to complete a landing manually after failure of the primary system.

(na) 'Installed EFB' means an EFB host platform installed in an aircraft, capable of hosting type A and/or type B EFB applications. It may also host certified applications. It is an aircraft part, and, is therefore, covered by the aircraft airworthiness approval.

(o) 'Integrity' means, in the context of PBN operations, the ability of a system to provide timely warnings to users when the system should not be used for navigation.

(p) 'Landing distance available (LDAH)' means the length of the final approach and take-off area plus any additional area declared available by the State of the aerodrome and suitable for helicopters to complete the landing manoeuvre from a defined height.

(q) 'Landing distance required (LDRH)', in the case of helicopters, means the horizontal distance required to land and come to a full stop from a point 15 m (50 ft) above the landing surface.

(r) 'Lateral navigation' means a method of navigation which permits aircraft operation on a horizontal plane using radio navigation signals, other positioning sources, external flight path references, or a combination of these.

(ra) 'mass' and 'weight': In accordance with ICAO Annex 5 and the International System of Units (SI), both terms are used to indicate the actual and limiting masses of aircraft, the payload and its constituent elements, the fuel load, etc. These are expressed in units of mass (kg), but in most approved flight manuals and other operational documentation, these quantities are published as weights in accordance with the common language. In the ICAO standardised system of units of measurement, a weight is a force rather than a mass. Since the use of the term 'weight' does not cause any problem in the day-today handling of aircraft, its continued use in operational applications and publications is acceptable.

(s) 'Maximum structural landing mass' means the maximum permissible total aeroplane mass upon landing under normal circumstances.

(t) 'Maximum zero fuel mass' means the maximum permissible mass of an aeroplane with no usable fuel. The mass of the fuel contained in particular tanks should be included in the zero fuel mass when it is explicitly mentioned in the aircraft flight manual.

(ta) 'Miscellaneous (non-EFB) software applications' means non-EFB applications that support function(s) not directly related to the tasks performed by the flight crew in the aircraft.

(u) 'Overpack', for the purpose of transporting dangerous goods, means an enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage.

(v) 'Package', for the purpose of transporting dangerous goods, means the complete product of the packing operation consisting of the packaging and its contents prepared for transport.

(w) 'Packaging', for the purpose of transporting dangerous goods, means receptacles and any other components or materials necessary for the receptacle to perform its containment function.

(x) 'Personal locator beacon (PLB)' is an emergency beacon other than an ELT that broadcasts distinctive signals on designated frequencies, is standalone, portable and is manually activated by the survivors.

(xa) 'Ramp inspection tool' means the IT application including a centralised database used by all stakehlders to store and exchange data related to ramp inspections.

(y) 'Receiver autonomous integrity monitoring (RAIM)' means a technique whereby a GNSS receiver/processor determines the integrity of the GNSS navigation signals using only GNSS signals or GNSS signals augmented with altitude. This determination is achieved by a consistency check among redundant pseudo-range measurements. At least one satellite in addition to those required for navigation has to be in view for the receiver to perform the RAIM function.

(z) 'Rotation point (RP)' means the point at which a cyclic input is made to initiate a nose-down attitude change during the take-off flight path. It is the last point in the take-off path from which, in the event of an engine failure being recognised, a forced landing on the aerodrome can be achieved.

(za) 'Runway condition assessment matrix (RCAM)' means a matrix that allows the assessment of the runway condition code (RWYCC), using associated procedures, from a set of observed runway surface condition(s) and pilot report of braking action.

(zb) 'Runway condition code (RWYCC)' means a number, to be used in the runway condition report (RCR), that describes the effect of the runway surface condition on aeroplane deceleration performance and lateral control.

(zc) 'Runway surface condition' means a description of the condition of the runway surface used in the RCR which establishes the basis for the determination of the RWYCC for aeroplane performance purposes.

(zd) 'Runway surface condition descriptors' means one of the following elements on the surface of the runway:

(1) 'compacted snow': snow that has been compacted into a solid mass such that aeroplane tyres, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface;

(2) 'dry snow': snow from which a snowball cannot readily be made;

(3) 'frost': ice crystals formed from airborne moisture on a surface whose temperature is at or below freezing; frost differs from ice in that the frost crystals grow independently and, therefore, have a more granular texture;

(4) 'ice': water that has frozen or compacted snow that has transitioned into ice in cold and dry conditions;

(5) 'slush': snow that is so water-saturated that water will drain from it when a handful is picked up or will splatter if stepped on forcefully;

(6) 'standing water': water of depth greater than 3 mm;

(7) 'Wet ice': ice with water on top of it or ice that is melting.

(8) 'wet snow': snow that contains enough water to be able to make a well compacted, solid snowball, but water will not squeeze out.

(ab) 'Touch down and lift-off area (TLOF)' means a load-bearing area on which a helicopter may touch down or lift off.

(ac) 'Transmitting PED (T-PED)' means a portable electronic device (PED) that has intentional radio frequency (RF) transmission capabilities.

(ad) 'Vertical navigation' means a method of navigation which permits aircraft operation on a vertical flight profile using altimetry sources, external flight path references, or a combination of these.

(ae) 'Viewable stowage' means a non-certified device that is attached to the flight crew member (e.g. with a kneeboard) or to an existing aircraft part (e.g. using suction cups), and is intended to hold charts or to hold low-mass portable electronic devices that are viewable by the flight crew members at their assigned duty stations.

(aaa) 'Slippery wet run way' means a wet runway where the surface friction characteristics of a significant portion of the runway have been determined to be degraded.

GM 2 Annex I Definitions

Abbreviations and Acronyms

The following abbreviations and acronyms are used in the Annexes to this Regulation:

2D	two-dimensional
3D	three-dimensional
A	aeroplane
a/c	aircraft
AAC	aeronautical administrative communications
AAIM	aircraft autonomous integrity monitoring
AAL	above aerodrome level
ABAS	aircraft-based augmentation system
AC	advisory circular
AC	alternating current
ACAS	airborne collision avoidance system
ADF	automatic direction finder
ADG	air driven generator
ADS	automatic dependent surveillance
ADS-B	automatic dependent surveillance - broadcast
ADS-C	automatic dependent surveillance - contract
AEA	Association of European Airlines
AEO	all-engines-operative
AFFF	aqueous film forming foams
AFM	aircraft flight manual
AFN	aircraft flight notification
AFN	ATS facilities notification
AGL	above ground level
AHRS	attitude heading reference system
AIREP	air-report
AIS	aeronautical information service
ALAP	aerodrome landing analysis programme
ALARP	as low as reasonably practicable
ALD	actual landing distance
ALSF	approach lighting system with sequenced flashing lights
AMC	Acceptable Means of Compliance
AML	aircraft maintenance licence
AMSL	above mean sea level
ANP	actual navigation performance
AOC	aeronautical operational control
AOC	air operator certificate
APCH	approach
APP	approach
APU	auxiliary power unit
APV	approach procedure with vertical guidance
AR	authorisation required
ARA	airborne radar approach
ARA	Authority Requirements for Aircrew
A-RNP	advanced required navigation performance
ARO	Authority Requirements for Air Operations
ARP	Aerospace Recommended Practices
ASC	Air Safety Committee
ASDA	accelerate-stop distance available
ASE	altimeter system error
ATA	Air Transport Association
ATC	air traffic control
ATIS	automatic terminal information service
ATN	air traffic navigation
ATPL	airline transport pilot licence
ATQP	alternative training and qualification programme
ATS	air traffic services
ATSC	air traffic service communication
AVGAS	aviation gasoline

AVTAG	aviation turbine gasoline (wide-cut fuel)
AWO	all weather operations
BALS	basic approach lighting system
Baro VNAV	barometric VNAV
BCAR	British civil airworthiness requirements
BITD	basic instrument training device
CAP	controller access parameters
CAT	commercial air transport
CAT I/II/III	category I/II/III
CBT	computer-based training
CC	cabin crew
CDFA	continuous descent final approach
CDL	configuration deviation list
CFIT	controlled flight into terrain
CLB	climb
CG	centre of gravity
CM	context management
CMV	converted meteorological visibility
CofA	certificate of airworthiness
COM	communication (EBT competency)
COP	code of practice
CoR	certificate of registration
COSPAS-SARSAT	cosmicheskaya sistyema poiska avariynich sudov - search and rescue satellite-aided tracking
CP	committal point
CPA	closest point of approach
CPDLC	controller pilot data link communication
CPL	commercial pilot licence
C-PED	controlled portable electronic device
CRE	class rating examiner
CRI	class rating instructor
CRM	crew resource management
CRZ	cruise
CS	Certification Specifications
CSP	communication service provider
CVR	cockpit voice recorder
CVS	combine vision system
DA	decision altitude
DA/H	decision altitude/height
DAP	downlinked aircraft parameters
D-ATIS	digital automatic terminal information service
DC	direct current
DCL	departure clearance
D-FIS	data link flight information service
DES	descent
DG	dangerous goods
DH	decision height
DI	daily inspection
DIFF	deck integrated firefighting system
DLR	data link recorder
DME	distance measuring equipment
D-METAR	data link - meteorological aerodrome report
D-OTIS	data link - operational terminal information service
DPATO	defined point after take-off
DPBL	defined point before landing
DR	decision range
DSTRK	desired track
EBT	evidence-based training
EC	European Commission
ECAC	European Civil Aviation Conference
EFB	electronic flight bag
EFIS	electronic flight instrument system

EFVS	enhanced flight vision system
EFVS-A	enhanced flight vision system used for approach
EFVS-L	enhanced flight vision system used for landing
EGNOS	European geostationary navigation overlay service
EGT	exhaust gas temperature
ELT	emergency locator transmitter
ELT(AD)	emergency locator transmitter (automatically deployable)
ELT(AF)	emergency locator transmitter (automatic fixed)
ELT(AP)	emergency locator transmitter (automatic portable)
ELT (DT)	emergency locator transmitter (distress tracking)
ELT(S)	survival emergency locator transmitter
EPE	estimated position error
EPR	engine pressure ratio
EPU	estimated position of uncertainty
ERA	en-route alternate (aerodrome)
ERP	emergency response plan
ETOPS	extended range operations with two-engined aeroplanes
EU	European Union
EUROCAE	European Organisation for Civil Aviation Equipment
EVAL	evaluation phase
EVS	enhanced vision system
FAA	Federal Aviation Administration
FAF	final approach fix
FAS	final approach segment
FALS	full approach lighting system
FANS	future air navigation systems
FAP	final approach point
FAR	Federal Aviation Regulation
FATO	final approach and take-off
FC	flight crew
FCL	flight crew licensing
FCOM	flight crew operating manual
FDM	flight data monitoring
FDO	flying display operation
FDR	flight data recorder
FFS	full flight simulator
FGS	flight control/guidance system
FI	flight instructor
FLIPCY	flight plan consistency
FLTA	forward-looking terrain avoidance
FMECA	failure mode, effects and criticality analysis
FMS	flight management system
FNPT	flight and navigation procedures trainer
FOD	foreign object damage
FOSA	flight operational safety assessment
FOV	field of view
FPA	flight path management – automation (EBT competency)
fpm	feet per minute
FPM	flight path management – manual control (EBT competency)
FRT	fixed radius transition
FSTD	flight simulation training device
ft	feet
FTD	flight training device
FTE	full time equivalent
FTE	flight technical error
FTL	flight and duty time limitations
g	gram
GAGAN	GPS aided geo augmented navigation
GBAS	ground-based augmentation system
GCAS	ground collision avoidance system
GEN	general
GIDS	ground ice detection system

GLS	GBAS landing system
GM	Guidance Material
GMP	general medical practitioner
GND	ground
GNSS	global navigation satellite system
GPS	global positioning system
GPWS	ground proximity warning system
H	helicopter
HEMS	helicopter emergency medical service
HF	high frequency
Hg	mercury
HHO	helicopter hoist operation
HIALS	high intensity approach lighting system
HIGE	hover in ground effect
HLL	helideck limitations list
HOGE	hover out of ground effect
HoT	hold-over time
hPa	hectopascals
HPL	human performance and limitations
HUD	head-up display
HUDLS	head-up guidance landing system
HUMS	health usage monitor system
IAF	initial approach fix
IALS	intermediate approach lighting system
IAP	instrument approach procedure
ICAO	International Civil Aviation Organization
IDE	instruments, data and equipment
IF	intermediate fix
IFR	instrument flight rules
IFSD	in-flight shutdown
IGE	in ground effect
ILS	instrument landing system
IMC	instrument meteorological conditions
in	inches
INS	inertial navigation system
IP	intermediate point
IR	Implementing Rule
IR	instrument rating
IRS	inertial reference system
ISA	international standard atmosphere
ISI	in-seat instruction
ISO	International Organization for Standardization
IV	intravenous
JAA	Joint Aviation Authorities
JAR	Joint Aviation Requirements
kg	kilograms
km	kilometres
KNO	application of knowledge (EBT competency)
kt	knots
LDA	landing distance available
LDF	landing distance factor
LDG	landing
LDP	landing decision point
LDTA	landing distance at time of arrival
LED	light-emitting diode
LHO	local helicopter operation
LHS	left-hand seat
LIFUS	line flying under supervision
LNAV	lateral navigation
LoA	letter of acceptance
LOC	localiser
LOC-I	loss of control in-flight

LOE	line-oriented evaluation
LOFT	line-oriented flight training
LOQE	line-oriented quality evaluation
LOS	limited obstacle surface
LP	localiser performance
LPV	localiser performance with vertical guidance
LRCS	long range communication system
LRNS	long range navigation system
LSAA	landing system assessment area
LTW	leadership and teamwork (EBT competency)
LVO	low visibility operation
LVP	low visibility procedures
LVTO	low visibility take-off
m	metres
MALS	medium intensity approach lighting system
MALSF	medium intensity approach lighting system with sequenced flashing lights
MALSR	medium intensity approach lighting system with runway alignment indicator lights
MAPt	missed approach point
MCTOM	maximum certified take-off mass
MDA	minimum descent altitude
MDH	minimum descent height
MEA	minimum en-route altitude
MED	medical
MEL	minimum equipment list
METAR	meteorological aerodrome report
MGA	minimum grid altitude
MHA	minimum holding altitude
MHz	megahertz
MID	midpoint
MLR	manuals, logs and records
MLS	microwave landing system
MLX	millilux
mm	millimetres
MM	multi-mode
MMEL	master minimum equipment list
MNPS	minimum navigation performance specifications
MOC	minimum obstacle clearance
MOCA	minimum obstacle clearance altitude
MOPSC	maximum operational passenger seating configuration
MORA	minimum off-route altitude
MPSC	maximum passenger seating capacity
MSA	minimum sector altitude
MSAS	multi-functional satellite augmentation system
MT	manoeuvres training phase
MTCA	minimum terrain clearance altitude
N	North
NADP	noise abatement departure procedure
NALS	no approach lighting system
NCC	non-commercial operations with complex motor-powered aircraft
NCO	non-commercial operations with other-than-complex motor-powered aircraft
NF	free power turbine speed
NG	engine gas generator speed
NM	nautical miles
NOTAM	notice to airmen
NOTECHS	non-technical skills evaluation
NOTOC	notification to captain
NPA	non-precision approach
NPA	Notice of Proposed Amendment
NSE	navigation system error
NVD	night vision device
NVG	night vision goggles
NVIS	night vision imaging system

OAT	outside air temperature
OB	observable behaviour
OCH	obstacle clearance height
OCL	oceanic clearance
ODALS	omnidirectional approach lighting system
OEI	one-engine-inoperative
OFS	obstacle-free surface
OFZ	obstacle free zone
OGE	out of ground effect
OIP	offset initiation point
OM	operations manual
OML	operational multi-pilot limitation
ONC	operational navigation chart
OPS	operations
ORO	Organisation Requirements for Air Operations
OTS CAT II	other than standard category II
PAPI	precision approach path indicator
PAR	precision approach radar
PBCS	performance-based communication and surveillance
PBE	protective breathing equipment
PBN	performance-based navigation
PCDS	personnel carrying device system
PC/PT	proficiency check/proficiency training
PDA	premature descent alert
PDP	predetermined point
PED	portable electronic device
PFC	porous friction course
PIC	pilot-in-command
PIN	personal identification number
PIS	public interest site
PLB	personal locator beacon
PNR	point of no return
POH	pilot's operating handbook
PRM	person with reduced mobility
PRO	application of procedures (EBT competency)
PSD	problem-solving & decision-making (EBT competency)
PVD	paravisual display
QAR	quick access recorder
QFE	atmospheric pressure at aerodrome elevation / runway threshold
QNH	atmospheric pressure at nautical height
SAW	situation awareness (EBT competency)
SBT	scenario-based training
RA	resolution advisory
RAIM	receiver autonomous integrity monitoring
RAT	ram air turbine
RCAM	runway condition assessment matrix
RCC	rescue coordination centre
RCF	reduced contingency fuel
RCLL	runway centre line lights
RCP	required communication performance
RCR	runway condition report
RF	fixed radius
RF	radio frequency
RF	radius to fix
RFC	route facility chart
RI	ramp inspection
RI	rectification interval
RIE	rectification interval extension
RMA	regional monitoring agency
RNAV	area navigation
RNP	required navigation performance
RNP APCH	RNP approach

RNP AR APCH	RNP approach for which authorisation is required
ROD	rate of descent
RP	rotation point
RSP	required surveillance performance
RTCA	Radio Technical Commission for Aeronautics
RTODAH	rejected take-off distance available (helicopters)
RTODRH	rejected take-off distance required (helicopters)
RTOM	reduced take-off mass
RTZL	runway touchdown zone lights
RVR	runway visual range
RVSM	reduced vertical separation minima
RWYCC	runway condition code
S	South
SA CAT I	special authorisation category I
SA CAT II	special authorisation category II
SAFA	safety assessment of foreign aircraft
SALS	simple approach lighting system
SALSF	simple approach lighting system with sequenced flashing lights
SAp	stabilised approach
SAP	system access parameters
SAR	search and rescue
SAS	stability augmentation system
SBAS	satellite-based augmentation system
SCC	senior cabin crew
SCP	special category of passenger
SDCM	system of differential correction and monitoring
SFE	synthetic flight examiner
SFI	synthetic flight instructor
SID	standard instrument departure
SMM	safety management manual
SMS	safety management system
SNAS	satellite navigation augmentation system
SOP	standard operating procedure
SPA	operations requiring specific approvals
SPECI	aviation selected special weather report
SPO	specialised operations
SRA	surveillance radar approach
SSALF	simplified short approach lighting system with sequenced flashing lights
SSALR	simplified short approach lighting system with runway alignment indicator lights
SSALS	simplified short approach lighting system
SSEC	static source error correction
SSR	secondary surveillance radar
STAR	standard terminal arrival route
STC	supplemental type certificate
SVS	synthetic vision system
TA	traffic advisory
TAC	terminal approach chart
TAS	true airspeed
TAWS	terrain awareness warning system
TC	technical crew
TC	type certificate
TCAS	traffic collision avoidance system
TCCA	Transport Canada Civil Aviation
TCH	type certificate holder
TDP	take-off decision point
TDZ	touchdown zone
TDZE	touchdown zone elevation
THR	threshold
TI	Technical Instructions
TIT	turbine inlet temperature
TLS	target level of safety
TMG	touring motor glider

TO	take-off
TODA	take-off distance available (aeroplanes)
TODAH	take-off distance available (helicopters)
TODRH	take-off distance required (helicopters)
TOGA	take-off/go around
TORA	take-off run available
T-PED	transmitting portable electronic device
TRE	type rating examiner
TRI	type rating instructor
TSE	total system error
TVE	total vertical error
TWIP	terminal weather information for pilots
UMS	usage monitoring system
UPRT	upset prevention and recovery training
UTC	coordinated universal time
V_2	take-off safety speed
V_{s0}	stalling speed
V_{AT}	indicated airspeed at threshold
VDF	VHF direction finder
VFR	visual flight rules
VHF	very high frequency
VIS	visibility
VMC	visual meteorological conditions
V_{MO}	maximum operating speed
VNAV	vertical navigation
VOR	VHF omnidirectional radio range
VSS	visual segment surface
V_T	threshold speed
VTOL	vertical take-off and landing
V_{TOSS}	take-off safety speed
WAAS	wide area augmentation system
WAC	world aeronautical chart
WIFI	wireless fidelity
WLM	workload management (EBT competency)
ZFTT	zero flight-time training

GM 3 Annex I Definitions

Helideck
The term 'helideck' includes take-off and landing operations on ships and vessels and covers 'shipboard final approach and take off areas (FATOs)'.

GM 4 Head-up Guidance Landing System (HUDLS)

A HUDLS is typically used for primary approach guidance to decision heights of 50 ft.

GM 5 Helicopter Emergency Medical Services (HEMS) Flight

(a) A HEMS flight normally starts and ends at the HEMS operating base following tasking by the 'HEMS dispatch centre'. Tasking can also occur when airborne, or on the ground at locations other than the HEMS operating base.
(b) The following elements should be regarded as integral parts of the HEMS mission:
  (1) flights to and from the HEMS operating site when initiated by the HEMS dispatch centre;
  (2) flights to and from an aerodrome/operating site for the delivery or pick-up of medical supplies and/or persons required for completion of the HEMS mission; and
  (3) flights to and from an aerodrome/operating site for refuelling required for completion of the HEMS mission.

GM 6 Hostile Environment

Those parts of an open-sea area not considered to constitute a hostile environment should be designated by the appropriate authority in the appropriate aeronautical information publication (AIP) or other suitable documentation.

GM 7 Night Vision Imaging System (NVIS)

Helicopter components of the NVIS include the radio altimeter, visual warning system and audio warning system.

GM 8 Offshore Location

'Offshore location' includes, but is not limited to:
(a) helidecks;
(b) shipboard heliports; and
(c) winching areas on vessels or renewable-energy installations.

GM 9 Offshore Operations

An offshore operation is considered to be a helicopter flight for the purpose of:
(a) support of offshore oil, gas and mineral exploration, production, storage and transport;
(b) support to offshore wind turbines and other renewable-energy sources; or
(c) support to ships including sea pilot transfer.

GM 10 Coastline

The national definition of coastline should be included by the appropriate authority in the aeronautical information publication (AIP) or other suitable documentation.

GM 11 Public Interest Site

An example of a public interest sites is a landing site based at a hospital located in a hostile environment in a congested area, which due to its size or obstacle environment does not allow the application of performance class 1 requirements that would otherwise be required for operations in a congested hostile environment.

GM 12 Technical Instructions

The ICAO document number for the Technical Instructions is Doc 9284-AN/905.

GM 13 V_1

The first action includes for example: apply brakes, reduce thrust, deploy speed brakes.

GM 14 Task Specialists

For the purpose of this Regulation, persons that are carried in a specialised operation, e.g. on a parachute flight, sensational flight or scientific research flight, are considered to be task specialists.

GM 15 Upset Prevention and Recovery Training (UPRT) Definitions

Aeroplane upset prevention and recovery training (UPRT)' refers to training consisting of:

— aeroplane upset prevention training: a combination of theoretical knowledge and flying training with the aim of providing flight crew with the required competencies to prevent aeroplane upsets; and

— aeroplane upset recovery training: a combination of theoretical knowledge and flying training with the aim of providing flight crew with the required competencies to recover from aeroplane upsets.

'Aeroplane upset' refers to an undesired aircraft state characterised by unintentional divergences from parameters normally experienced during operations. An aeroplane upset may involve pitch and/or bank angle divergences as well as inappropriate airspeeds for the conditions.

'Angle of attack (AOA)' means the angle between the oncoming air, or relative wind, and a defined reference line on the aeroplane or wing.

'Approach-to-stall' means flight conditions bordered by the stall warning and stall.

'Competency' means a combination of skills, knowledge, and attitudes required to perform a task to the prescribed standard.

'Developed upset' means a condition meeting the definition of an aeroplane upset.

'Developing upset' means any time the aeroplane begins to unintentionally diverge from the intended flight path or airspeed.

'Energy state' means how much of each kind of energy (kinetic, potential or chemical) the aeroplane has available at any given time.

'Error' means an action or inaction by the flight crew that leads to deviations from organisational or flight crew intentions or expectations.

'Error management' means the process of detecting and responding to errors with countermeasures that reduce or eliminate the consequences of errors, and mitigate the probability of further errors or undesired aircraft states.

'First indication of a stall' means the initial aural, tactile or visual sign of an impending stall, which can be either naturally or synthetically induced.

'Flight crew resilience' means the ability of a flight crew member to recognise, absorb and adapt to disruptions.

'Fidelity level' means the level of realism assigned to each of the defined FSTD features.

'Flight path' means the trajectory or path of the aeroplane travelling through the air over a given space of time.

'Flight path management' means active manipulation, using either the aeroplanes automation or manual handling, to command the aeroplane flight controls to direct the aeroplane along a desired trajectory.

'FSTD Training Envelope' refers to the high and moderate confidence regions of the FSTD validation envelope.

'Load factor' factor means the ratio of a specified load to the weight of the aeroplane, the former being expressed in terms of aerodynamic forces, propulsive forces, or ground reactions.

'Loss of control in flight (LOCI)' means a categorisation of an accident or incident resulting from a deviation from the intended flight path.

'Manoeuvre-based training' means training that focuses on a single event or manoeuvre in isolation.

'Negative training' means training which unintentionally introduces incorrect information or invalid concepts, which could actually decrease rather than increase safety.

'Negative transfer of training' means the application (and 'transfer') of what was learned in a training environment (i.e., a classroom, an FSTD) to normal practice, i.e. it describes the degree to which what was learned in training is applied to actual normal practices. In this context, negative transfer of training refers to the inappropriate generalisation of knowledge and skill to a situation or setting in normal practice that does not equal the training situation or setting.

'Post-stall regime' means flight conditions at an angle of attack greater than the critical angle of attack.

'Scenario-based training' means training that incorporates manoeuvres into real-world experiences to cultivate practical flying skills in an operational environment.

'Stall' means a loss of lift caused by exceeding the aeroplane's critical angle of attack.

Note: A stalled *condition can exist at any attitude and airspeed, and may be recognised by continuous stall warning activation accompanied by at least one of the following:*

(a) buffeting, which could be heavy at times;

(b) lack of pitch authority and/or roll control; and

(c) inability to arrest the descent rate.

'Stall Event' means an occurrence whereby the aeroplane experiences conditions associated with an approach-to-stall or a stall.

'Stall (event) recovery procedure' means the manufacturer-approved aeroplane-specific stall recovery procedure. If an OEM-approved recovery procedure does not exist, the aeroplane-specific stall recovery procedure developed by the operator, based on the stall recovery template contained in GM5 ORO.FC.220&230, may be used.

'Stall warning' means a natural or synthetic indication provided when approaching a stall that may include one or more of the following indications:

(a) aerodynamic buffeting (some aeroplanes will buffet more than others);

(b) reduced roll stability and aileron effectiveness;

(c) visual or aural cues and warnings;

(d) reduced elevator (pitch) authority;

(e) inability to maintain altitude or arrest rate of descent; and

(f) stick shaker activation (if installed).

Note: A stall warning indicates an immediate need to reduce the angle of attack.

'Startle' means the initial short-term, involuntary physiological and cognitive reactions to an unexpected event that commence the normal human stress response.

'Stick pusher' means a device that, automatically applies a nose down movement and pitch force to an aeroplane's control columns, to attempt to decrease the aeroplane's angle of attack. Device activation may occur before or after aerodynamic stall, depending on the aeroplane type.

Note: A stick pusher is not installed on all aeroplane types.

'Stick shaker' means a device that automatically vibrates the control column to warn the pilot of an approaching stall.

Note: A stick shaker is not installed on all aeroplane types.

'Stress (response)' means the response to a threatening event that includes physiological, psychological and cognitive effects. These effects may range from positive to negative and can either enhance or degrade performance.

'Surprise' means the emotionally-based recognition of a difference in what was expected and what is actual.

'Threat' means events or errors that occur beyond the influence of the flight crew, increase operational complexity and must be managed to maintain the margin of safety.

'Threat management' means the process of detecting and responding to threats with countermeasures that reduce or eliminate the consequences of threats and mitigate the probability of errors or undesired aircraft states.

'Train-to-proficiency' means approved training designed to achieve end-state performance objectives, providing sufficient assurances that the trained individual is capable to consistently carry out specific tasks safely and effectively.

Note: In the context of this definition, 'train-to-proficiency' can be replaced by 'training-to-proficiency'.

'Undesired aircraft state' means flight crew-induced aircraft position or speed deviation, misapplication of controls, or incorrect systems configuration, associated with a reduction in margins of safety.

Note: Undesired states can be managed effectively, restoring margins of safety, or flight crew response(s) can induce an additional error, incident, or accident.

Note: All countermeasures are necessary flight crew actions. However, some countermeasures to threats, errors and undesired aircraft states that flight crew employ, build upon 'hard'/systemic-based resources provided by the aviation system.

'Unsafe situation' means a situation, which has led to an unacceptable reduction in safety margin.

GM16 Annex I Definitions

MINOR FAILURE CONDITION

Minor failure conditions may include, for example, a slight reduction in safety margins or functional capabilities, a slight increase in crew workload, such as routine flight plan changes, or some physical discomfort to passengers or cabin crew. Further guidance can be found in AMC 25.1309.

Minor failure conditions are not considered to be unsafe conditions in accordance with AMC 21.A.3B(b).

GM17 Annex I Definitions

Simple and Complex Personnel-Carrying Device System (PCDS)

(a) The following may qualify as a simple PCDS:

(1) A safety harness or rescue triangle for no more than two persons.

(2) A fixed-rope system for no more than two persons, to be attached under a single cargo hook or Y-rope to be attached to a dual hook.

(b) The following may not qualify as a simple PCDS:

(1) Any system that connects three persons or more to the helicopter.

(2) A PCDS with new or novel features.

(3) A PCDS that has not yet been proven by an appreciable and satisfactory service experience.

(c) The connecting elements to the hoist or cargo hook are part of the PCDS.

(d) The following standards may be used for a simple PCDS:

Table 1: Information on existing available standards applicable to a simple PCDS

Regulation (EU) 2016/425[1] or Directive 89/686/EEC if validly marketed before 21 April 2019	**Personal protective equipment**
Directive 2006/42/EC[2]	Machinery
EN 354	Personal protective equipment for work positioning and prevention of falls from a height — lanyards
EN 355	Personal protective equipment against falls from a height — energy absorbers
EN 358	Personal protective equipment for work positioning and prevention of falls from a height — belts for work positioning and restraint and work positioning lanyards
EN 361	Personal protective equipment against falls from a height — full body harnesses

EN 362	Personal protective equipment against falls from a height — connectors
EN 363	Personal fall protection equipment — personal fall-protection systems
EN 364	Personal protective equipment against falls from a height — test methods
EN 365	Marking/packaging/instructions to use
EN 813	Personal fall-protection equipment — sit harnesses
EN 1497	Personal protective equipment against falls from a height - rescue harnesses
EN 1891	Personal protective equipment for the prevention of falls from a height — low stretch kernmantle ropes
EN 12275	Mountaineering equipment — connectors — safety requirements and test methods
EN 12277	Mountaineering equipment — harnesses — safety requirements and test methods

GM18 Annex I Definitions

Determining the Principal Place of Business

(a) The principal place of business encompasses the principal financial functions and operational control of the activities of an operator. It may refer to the organisation's site from which the majority of its management personnel specified in ORO.GEN.110 directs, controls or coordinates its operational activities, ensuring that the organisation complies with relevant requirements. For non-commercial operations, this is usually the home base of the aircraft concerned or the location of the flight department.

(b) Since an operator, especially in the world of non-commercial operations, may use several places where it performs financial transactions, or several operational bases where there are personnel in charge of operational control, for the purpose of an effective oversight, it is relevant that the principal place of business be the one:

(1) where the operator has registered its organisation with the local register and where it pays corporate tax;

(2) where its main building facilities are located;

(3) where main administrative and financial work is being done (where salaries and employment benefits are paid); and

(4) from where the organisation management directs, controls or coordinates a substantial part of its activities, ensuring that the organisation complies with the requirements specified.

(c) Organisations that perform also activities which are not subject to Part-ORO, Part-NCC or Part-SPO are recommended to consider that part of the organisation which is responsible for the operation of aircraft subject to Part-ORO, Part-NCC or Part-SPO.

For such organisations, the accountable manager is that manager who has the authority to ensure that all activities subject to Part-ORO, Part-NCC or Part-SPO can be financed and carried out in accordance with the applicable requirements. If the accountable manager is not located in the part of the organisation that is responsible for the operation of aircraft, but the other criteria mentioned in point (b) apply, the location of the accountable manager does not need to be considered for the determination of the principal place of business.

GM19 Annex I Definitions

CONTAMINATED RUNWAY

As the runway condition is reported in runway thirds, a significant portion of the runway surface area is more than 25 % of one third of the runway surface area within the required length and width being used.

The runway length being used in this context is the physical length of runway available, typically from the start of the take-off run available (TORA) in one direction to the start of the TORA in the opposite direction. When the runway is shortened by a notice to airmen (NOTAM) – for example, due to works, or the aerodrome operator is not able to clear the full length of the runway and closes part of it for operations, the length being used is that declared in the NOTAM and the 'reduced runway length' that declared in the RCR.

The runway width being used in this context is the physical width of the runway (between the runway edge lights), or the 'cleared width' if reported in the RCR. It is not intended that 25 % coverage is reported when contaminants affect only the runway edges after runway cleaning. Runway inspectors are instructed to focus on the area around the wheel tracks when reporting the contaminant type, coverage and depth.

EVIDENCE-BASED TRAINING

'Behaviour' refers to the way a person responds, either overtly or covertly, to a specific set of conditions, and which is capable of being measured.

'Instructor concordance' is also called 'inter-rater reliability'.

'Conditions' refers to anything that may qualify a specific environment in which performance will be demonstrated.

'Cycle' refers to the combination of two modules where Cycle 1 comprises Modules 1 and 2, Cycle 2 comprises Modules 3 and 4, and Cycle 3 comprises Modules 5 and 6 of the 3-year EBT programme.

'Equivalency of approaches' refers to approach clustering in other industry documentation.

'Equivalency of malfunctions' refers to malfunction clustering in other industry documentation.

'Evaluation phase (EVAL)' refers to the phase where a first assessment of competencies is performed in order to identify individual training needs. On completion of the evaluation phase, any areas that do not meet the minimum competency standard will become the focus of the subsequent training. The evaluation phase comprises a complete mission as a crew but not necessarily a complete flight.

'Facilitation technique' refers to an active training method, which uses effective questioning, listening and a non-judgemental approach, and is particularly effective in developing skills and attitudes, assisting trainees in developing insight and their own solutions, resulting in better understanding, retention and commitment.

'Line-orientated flight scenario(s)' are comprised of scenario elements derived from the table of assessment and training topics.

'Line-orientated safety audit (LOSA)' is one of the tools used to help evaluate the performance of the operations. It consists of line flights that are observed by appropriately qualified operator personnel to provide feedback to validate the EBT programme. LOSA may be one of the tools used to look at those elements of the operation that are unable to be monitored by FDM or Advanced FDM programmes.

'Manoeuvres training phase' refers to the phase where skill retention is trained (body memory actions). Flight path control may be accomplished by a variety of means including manual aircraft control and the use of auto flight systems.

'Monitoring' refers to a cognitive process to compare an actual to an expected state. It requires knowledge, skills and attitudes to create a mental model and to take appropriate action when deviations are recognised.

'Observable behaviour (OB)' refers to a single role-related behaviour that can be observed. The instructor may or may not be able to measure it.

'Performance criteria' refers to statements used to assess whether the required levels of performance have been achieved for a competency. A performance criterion consists of an OB, a condition (or conditions) and a competency standard.

'Practical assessment (or EBT practical assessment)' refers to a method for assessing performance that serves to verify the integrated performance of competencies. It takes place in either a simulated or an operational environment. An EBT assessment is equivalent to a proficiency check and is performed under the instructor privilege in the context of proficiency check in accordance with Appendix 10 to Part-FCL. More information can be found in ICAO Doc 9868 'PANS-TRG'.

'Scenario-based training phase (SBT)' refers to the largest phase in the EBT programme. It is designed to maximise crew's exposure to a variety of situations that develop and sustain a high level of competency and resilience. The scenario for this

phase should include critical external and environmental threats, to build effective crew interaction to identify and manage errors. A portion of the phase will also be directed towards the management of critical system malfunctions.

Scenario elements address the training topic and detail the threat and/or error that the crew are exposed to.

'Train-to-proficiency' refers to approved training designed to achieve end-state performance objectives, providing sufficient assurance that the trained individual is capable of consistently carrying out specific tasks safely and effectively.

Note: In the context of this definition, 'train-to-proficiency' can be replaced by 'training-to-proficiency'.

GM20 Annex I Definitions

Dry Runway/Wet Runway

The 'area intended to be used' means the area of the runway that is part of the TORA, accelerate and stop distance available (ASDA) or landing distance available (LDA) declared in the aeronautical information publication (AIP) or by a NOTAM.

GM21 Annex I Definitions

Runway Condition Code (RWYCC)

The purpose of the runway condition code (RWYCC) is to permit an operational aeroplane landing performance calculation by the flight crew.

GM22 Annex I Definitions

Runway Surface Condition(s)

(a) The runway surface conditions used in the RCR establish a common language between the aerodrome operator, the aeroplane manufacturer and the aeroplane operator.
(b) Aircraft de-icing chemicals and other contaminants are also reported but are not included in the list of runway surface condition descriptors because their effect on the runway surface friction characteristics and the RWYCC cannot be evaluated in a standardised manner.

GM23 Annex I Definitions

Runway Surface Condition Descriptors — General

The runway surface condition descriptors are used solely in the context of the RCR and are not intended to supersede or replace any existing World Meteorological Organization (WMO) definitions.

Runway Surface Condition Descriptors — Frost

(a) Freezing refers to the freezing point of water (0 °C).
(b) Under certain conditions, frost can cause the surface to become very slippery, and it is then reported appropriately as downgraded RWYCC

Runway Surface Condition Descriptors — Standing Water

Running water of depth greater than 3 mm is reported as 'standing water' by convention.

Runway Surface Condition Descriptors – Wet Ice

Freezing precipitation can lead to runway conditions associated with wet ice from an aeroplane performance point of view. Wet ice can cause the surface to become very slippery. It is then reported appropriately as downgraded RWYCC.

GM24 Annex I Definitions

Landing Distance at Time of Arrival

The landing distance data to be used for a landing performance assessment at time of arrival allow to establish an operationally achievable landing distance from 50ft above runway threshold to full stop that takes into account AFM procedures for final approach and landing and is provided as a function of the main influence parameters such as aeroplane mass and configuration, pressure altitude, wind, outside air temperature, runway slope and approach speed increments. It may be provided for use of automation such as autobrakes and autoland and may account for reverse thrust use. As the landing distance at time of arrival

is the unfactored minimum landing distance achievable for the assumed conditions, an appropriate margin should be applied to this distance to determine the minimum LDA necessary for a safe stop.

GM25 Annex I Definitions

Slippery Wet Runway

(a) The surface friction characteristics of the runway are considered degraded when below the minimum standards.
(b) A portion of runway in the order of 100 m long may be considered significant.

GM26 Annex I Definitions

Flight Recorder

A flight recorder may be crash-protected or lightweight and may be deployable or not. Crash-protected flight recorders are capable of withstanding very severe crash conditions such as those encountered during some accidents of large aeroplanes and large helicopters. Crash-protected flight recorders comprise one or more of the following systems: a flight data recorder (FDR), a cockpit voice recorder (CVR), an airborne image recorder (AIR), or a data link recorder (DLR). Lightweight flight recorders are usually designed to meet less demanding requirements than crash-protected flight recorders, which allows them to be lighter. A non- deployable flight recorder is permanently attached to the aircraft. A deployable flight recorder includes a part that is capable of automatically deploying from the aircraft.

GM28 Annex I Definitions for terms used in Annexes II to VIII

FLIGHT MONITORING AND FLIGHT WATCH — RELEVANT SAFETY INFORMATION

Relevant safety information is any element that may affect the safety of the flight, such as:

(a) an aircraft technical failure (e.g. failures where flight operations personnel can help to calculate the landing distance or new trip fuel or to update the aerodrome minima);
(b) unforeseen hazards:

(1) air traffic (e.g. delays and/or long distance to complete the approach, extensive use of radar vectoring);
(2) meteorological conditions (e.g. DH and aerodrome operating minima, adverse or extreme meteorological conditions);
(3) aerodrome and runway status (e.g. insufficient runway length due to brake failure, obstruction or closure of the runway, runway contamination, failure or malfunction caused by on-ground navigation or approach equipment);
(4) navigation aid status (e.g. failure of the navigation aids);
(5) availability of communications (e.g. failure of communications capabilities, interruptions, interferences, change of frequency channels); and
(6) terrain and obstacles (e.g. geophysical phenomena (volcanic eruptions, earthquakes, tsunami), difficult terrain at an unplanned aerodrome (large bodies of water, mountains);

(c) updates of the operational flight plan when they affect the fuel reserves:

(1) diversion to an en route alternate (ERA)aerodrome, a destination alternate, or a take-off alternate aerodrome;
(2) change of the runway selected for landing if the new runway is shorter;
(3) location of the decision point or the point of no return (PNR) due to, for instance, change in altitude, in wind data, etc.;
(4) significant in-flight change of the flight route compared to the route in the flight planning; or
(5) significant deviation from the planned fuel consumption; and

(d) position reporting:

(1) flight-monitoring personnel should report in every phase of the flight: taxi, take-off, climb, cruise, cruise steep climb, descent, approach, landing;
(2) flight watch provides active tracking; and
(3) where no real-time automatic position-reporting is possible, the operator should have an acceptable alternative to ensure in-flight reporting at least every hour.

GM29 Annex I Definitions for terms used in Annexes II to VIII

FUEL/ENERGY

The energy used for aircraft propulsion comes from various sources and is of various types.

A frequently used type of energy in aviation is derived from processing (in a piston or turbine engine) hydrocarbon-based fuels that include gasoline (leaded or unleaded), diesel, avgas, JET A-1, and JET B. Hydrogen may also be used as fuel for fuel cell applications, which generate electricity that is used to generate propulsion. However, as current technologies already use other sources of energy for aircraft propulsion, such as stored electrical energy, the typical term 'fuel' has become restrictive and no longer covers emerging technologies.

Therefore, a broader, combined term is introduced to accommodate new types of energy, other than fuel, used for aircraft propulsion purposes.

The term 'fuel/energy' should cater for both typical fuel and any other type or source of energy used for aircraft propulsion, including but not limited to electrical energy stored in batteries.

When used in the combination 'fuel/energy', the term 'energy' only refers to the electrical energy used for aircraft propulsion purposes. It does not include any other form of stored electrical energy that is used on board an aircraft (e.g. batteries of EFBs, ELTs, underwater locating devices (ULDs), automatic external defibrillators (AEDs), or backup energy sources).

GM30 Annex I Definitions for terms used in Annexes II to VIII

FUEL/ENERGY EN ROUTE ALTERNATE (ERA) AERODROME

Fuel/energy ERA aerodromes could be used in the following cases:
(a) 'fuel ERA aerodrome critical scenario': that aerodrome is used when additional fuel is required at the most critical point along the route to comply with point (c)(6) of point CAT.OP.MPA.181 'Fuel/energy scheme — fuel/energy planning and in-flight re-planning policy — aeroplanes';
(b) 'fuel ERA aerodrome 3 %': that aerodrome is used when an operator reduces the contingency fuel to 3 %; and
(c) 'fuel ERA aerodrome PNR': that aerodrome is used at the PNR during isolated aerodrome operations

GM31 Annex I Definitions

DEFINITIONS OF TERMS RELATED TO ALL-WEATHER OPERATIONS

The following terms and concepts are used in the provisions related to all-weather operations in the AMC and GM to BAR 6.

'Advanced aircraft' means an aircraft with equipment in addition to that required for a basic aircraft for a given take-off, approach or landing operation.

'AFM or additional data from the TC/STC holder'- an AFM or additional data from the TC/STC holder may provide:

- limitations, in accordance with which the aircraft must be operated, as described under point 4.1 of Annex V to Regulation (EU) 2018/1139. This means that the aircraft may NOT exceed those given values; or
- demonstrated capabilities, which are the assumptions, envelope or conditions that were used to demonstrate adequate performance to comply with the appropriate certification specifications.

However, some AFMs (especially for those aircraft or landing systems that were certified before the introduction of CS-AWO Issue 2) may not include all of the assumptions, envelope or conditions that were used to demonstrate adequate performance. Information regarding the assumptions, envelope, or conditions that were used to demonstrate adequate performance of a landing system can be provided by equivalent documentation issued by TC/STC holder.

Other types of information issued by the TC/STC holder may include(not an exhaustive list):

- equivalence between different aircraft models (types);
- equivalence between aircraft types and variants;
- landing systems equivalence;

- a list of runways with their demonstrated performance;
- a letter of no-technical objection/ evaluation letter.

Note: 'TC/STC holder' should be understood as the holder of the certificate for the landing system.

'Basic aircraft' means an aircraft which has the minimum equipment required to perform the intended take-off, approach or landing operation.

'Continuous descent final approach (CDFA)': when the circling altitude/height is reached, it is acceptable to maintain altitude (level-off) and transition to the visual segment. The operator may provide a point in the visual segment in which the descent may be resumed to follow a continuous descent to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre begins for the type of aircraft flown.

'Enhanced flight vision system (EFVS)-Approach (EFVS-A)' means a system that has been demonstrated to meet the criteria to be used for approach operations from a decision altitude/height (DA/H) or a minimum descent altitude/height (MDA/H) to 100 ft (30 m) threshold elevation while all system components are functioning as intended, but may have failure modes that could result in the loss of EFVS capability. It should be assumed for an EFVS-A that:

(a) the pilot will conduct a go-around at or above 100 ft threshold elevation, in the event of an EFVS failure; and
(b) descent below 100 ft above the threshold elevation through to touchdown and roll-out should be conducted using natural vision so that any failure of the EFVS does not prevent the pilot from completing the approach and landing.

'Enhanced flight vision system (EFVS)-Landing (EFVS-L)' means a system that has been demonstrated to meet the criteria to be used for approach and landing operations that rely on sufficient visibility conditions to enable unaided roll-out and to mitigate for loss of EFVS function.

'Head-up display (HUD) or equivalent display system' means a display system which presents flight information to the pilot's forward external field of view (FOV), and which does not significantly restrict the external view.

'Landing system' means an airborne equipment, which:

(a) provides automatic control of the aircraft during the approach and landing (i.e. automatic landing system); or
(b) has been demonstrated to meet the criteria to be used for approach and landing operations (e.g. HUD landing system, EFVS-L or any other approved system).

'Landing system assessment area (LSAA)' means the part of the runway that extends from the threshold to a distance of 600 m from the threshold.

Note — Although the landing systems certification criteria use a value greater than 600 m after the threshold to evaluate limit conditions, for the purpose of flight operations assessment a distance of 600 m is the relevant part as landing beyond this point is not expected to occur in day-to-day operations. The LSAA may not necessarily be coincident with the touchdown zone. The touchdown zone is specified in CS-ADR DSN.

'Low-visibility procedures (LVPs)' means procedures applied by an aerodrome for the purpose of ensuring safety during low-visibility operations (LVOs).

Regular runway means a runway whose characteristics fit within the acceptable limits demonstrated by the original equipment manufacturer (OEM) during certification. The classification of a runway as a 'regular runway' is different from one set of equipment to another.

'Required visual reference' refers to 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. In the case of a circling approach, the required visual reference is the runway environment.

'Satellite-based augmentation system (SBAS)' means a wide coverage augmentation system in which the user receives augmentation information from a satellite-based transmitter. The most common form of SBAS in Europe is the European Geostationary Navigation Overlay Service (EGNOS).

'Synthetic vision system (SVS)' means a system that displays data derived synthetic images of the external scene from the perspective of the flight deck.

'Landing area' means that part of a movement area intended for the landing or take-off of aircraft.

'Touchdown zone (TDZ)' means the portion of a runway, beyond the threshold, where landing aeroplanes are intended to first contact the runway.

'Type B instrument approach operations categories': where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach operation would be conducted in accordance with requirements of the most demanding category. This does not apply if the RVR and/or DH has been approved as operational credits.

GM32 Annex I Definitions EFVSs — Differences With Enhanced Vision Systems (EVSS)

(a) Introduction to EVSs

EVSs use sensing technology to improve a pilot's ability to detect objects and topographical features ahead of the aircraft. Different types of sensing technology are used on different aircraft installations. Sensing technologies used include forward-looking infrared, millimetre wave radiometry, millimetre wave radar or low-light level intensification; additional technologies may be developed in the future. The image from sensors may be displayed to the pilot in a number of different ways including 'head-up' and 'head-down' displays.

(b) EVSs and EFVSs

An EFVS is an EVS that is integrated with a flight guidance system, which presents the image from sensors to the pilot on a head-up display (HUD) or equivalent display. If EFVS equipment is certified according to the applicable airworthiness requirements and an operator holds the necessary specific approval, then an EFVS may be used for EFVS operations. An EFVS operation is an operation with an operational credit which allows operating in visibility conditions lower than those in which operations without the use of EFVS are permitted.

(c) Functions of EVSs

Depending on the capabilities of the particular system, EVSs may be useful during operations at night or in reduced visibility for the following:

(1) improving visibility of airport features and other traffic during ground operations;
(2) displaying terrain and obstructions in flight;
(3) displaying weather in flight;
(4) improving visibility of the runway environment during approach operations; and
(5) improving visibility of obstructions on a runway (e.g. aircraft, vehicles or animals) during take-off and approach operations.

(d) Limitations of EVSs EVSs are a useful tool for enhancing situational awareness; however, each EVS installation has its own specific limitations. These may include:

(1) Performance variations depend on conditions including ambient temperature and lighting and weather phenomena. A system may provide very different image qualities in the same visibility depending on the particular phenomena causing restricted visibility, e.g. haze, rain, fog, snow, dust, etc.
(2) An EVS may not be able to detect certain types of artificial lighting. Light emitting diode (LED) lights have a much lower infrared signature than incandescent lights and therefore may not be detected by some types of EVSs. LED lighting is used for runway, taxiway and approach lighting at many airports.
(3) Monochrome display. EVSs will generally not be able to detect and display the colour of airport lighting. This means that colour coding used on airport lighting will not be visible to the pilot using an EVS.
(4) Many EVS installations do not have redundancy, so a single failure may lead to loss of EVS image.
(5) The location of the sensor on the airframe may mean that in certain conditions it could be susceptible to ice accretion or obscuration from impact damage from objects such as insects or birds.
(6) Where an EVS image is presented on a HUD or an equivalent display, the image needs to be consistent with the pilot's external view through the display. Particular installations may have limitations on the conditions under which this consistent image can be generated (e.g. crosswind conditions during approach).

(7) Imaging sensor performance can be variable and unpredictable. Pilots should not assume that a flightpath is free of hazards because none are visible in an EVS image.

(e) Considerations for the use of EVSs

EVSs may be used in all phases of flight and have significant potential to enhance the pilot's situational awareness. No specific approval is required for the use of an EVS; however, the operator is responsible for ensuring that the flight crew members have received training on the equipment installed on their aircraft in accordance with ORO.FC.120. In addition, the operator is responsible for evaluating the risks associated with system limitations and for implementing suitable mitigation measures in accordance with ORO.GEN.200(a)(3) before using the EVS.

The use of EVSs does not permit the use of different operating minima, and EVS images cannot replace natural vision for the required visual reference in any phase of flight including take-off, approach or landing.

An EVS that is not an EFVS cannot be used for EFVS operations and therefore does not obtain an operational credit.

GM33 Annex I Definitions

INSTRUMENT APPROACH OPERATIONS

(a) Depending on the instrument approach procedure (IAP) in use, the lateral and vertical navigation guidance for an instrument approach operation may be provided by:

(1) a ground-based radio navigation aid; or
(2) computer-generated navigation data from ground-based, space-based or self-contained navigation aids or a combination of these.

(b) A non-precision approach (NPA) procedure flown as CDFA with vertical path guidance calculated by on-board equipment is considered to be a 3D instrument approach operation. Depending on the limitations of the equipment and information sources used to generate vertical guidance, it may be necessary for the pilot to cross-check this guidance against other navigational sources during the approach and to ensure that the minimum altitude/height over published step-down fixes is observed. CDFAs with manual calculation of the required rate of descent are considered 2D operations.

(c) Further guidance on the classification of an instrument approach operation based on the designed lowest operating minima is contained in Appendix J to ICAO Doc 9365 Manual of All-Weather Operations, Fourth Edition, 2017.

GM34 Annex I Definitions

DECISION ALTITUDE (DA) OR DECISION HEIGHT (DH)

(a) Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.

(b) For operations using DA, the aircraft altimeters are set to QNH. For operations using a barometric DH, the aircraft altimeters are set to QFE.

(c) For SA CAT I, SA CAT II, CAT II/III operations, the DH is based on the use of a radio altimeter or other devices capable of providing equivalent performance. The DH is determined with reference to threshold elevation, but the value of the DH set for the approach will be based on the height of the aircraft above the pre-threshold terrain, which may be higher or lower than the threshold.

(d) For convenience, when both expressions are used, they may be written in the form 'decision altitude/height' and abbreviated 'DA/H'.