Draft
Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part-Definitions and Part-ATS of Regulation (EU) 2017/373

The text of the amendment is arranged to show deleted, new or amended, and unchanged text as follows:

— deleted text is ~~struck through~~;

— new or amended text is highlighted in blue;

— an ellipsis '[…]' indicates that the rest of the text is unchanged.

Disclaimer

This is a draft document and is provided for information purposes only. Its contents have not been subjected to any type of review whatsoever.

Annex I to ED Decision 2017/001/R is amended as follows:

[…]

GM1 280 Terrain and obstacle coverage areas

AREA 4

In ICAO Annex 15, Area 4 in is specified as *"the area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III"*. Therefore, the same ICAO Annex 15 provision contains both the length and width characteristics of Area 4, as well as the type of runways to which the Area 4 concept is applicable for terrain and obstacle provision purposes.

The equivalent Area 4 definition provided in Regulation (EU) 2017/373, covers only the length and width characteristics of this area, and does not include the runway types, thus focusing only on the Area 4 description. The runway types for which terrain and obstacle provision are required for Area 4, are specified in separate provisions (AIS.OR.355 Terrain data sets, and AIS.OR.360 Obstacle data sets).

This splitting of the provisions is done to improve the readability of the requirements and because, in the EU, apart from the category II and III precision approach runways, there is a need to additionally address runways which are authorised for operations with operational credits with RVR less than 550m or a decision height (DH) less than 200 ft.

This splitting of the provisions however has no legal effect on the outcome.

[…]

GM1 272. Base turn

GENERAL

Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

[…]

GM1 277. Performance-based surveillance (PBS)

GENERAL

A required surveillance performance (RSP) specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

[…]

Annex IV to ED Decision 2017/001/R is amended as follows:

[…]

GM1 Annex IV (Part-ATS)

GENERAL

In the context of the AMC and GM to Part-ATS, the terms listed below have the following meaning:

[…]

~~– 'accepting control unit' refers to the air traffic control unit next to take control of an aircraft;~~

[…]

~~– 'air traffic' refers to all aircraft in flight or operating on the manoeuvring area of an aerodrome;~~

[…]

~~– 'base turn' refers to a turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal. Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure;~~

[…]

AMC7 ATS.OR.110 Coordination between aerodrome operators and air traffic services providers

INTERSECTION TAKE-OFFS AND MULTIPLE LINE-UPS

The air traffic services provider should coordinate with the aerodrome operator the use of and the procedures for intersection take-offs and multiple line-ups, including the establishment of the specific visibility minima, as laid down in ADR.OPS.B.105.

[…]

GM4 ATS.OR.135 Contingency arrangements

Guidance on contingency planning for air navigation services providers, including air traffic services providers, may be found in:

(a) ICAO Annex 11 – Attachment C 'Material relating to contingency planning'; and

(b) the 'EUROCONTROL Guidelines for Contingency Planning of Air Navigation Services (including Service Continuity)' Edition 2.0 of 06/04/2009~~, available at:~~

~~https://www.eurocontrol.int/sites/default/files/article/content/documents/nm/safety/safety-guidelines-contingency-planning-ans-2009.pdf,~~

and in its complementary document named 'Reference Guide to EUROCONTROL Guidelines for Contingency Planning of Air Navigation Services (including Service Continuity)' Edition 2.0 of 06/04/2009, both available at: https://skybrary.aero/articles/contingency-planning.

~~https://www.eurocontrol.int/publication/eurocontrol-guidelines-contingency-planning-air-navigation-services~~

[…]

GM1 ATS.OR.145 Operation of air traffic control

PRESENTATION AND UPDATING OF FLIGHT PLAN AND CONTROL DATA AND OTHER RELEVANT INFORMATION FOR THE AIR TRAFFIC CONTROL SERVICE PROVISION

Human factors principles should be considered when establishing the provisions and procedures stipulated in ATS.OR.145. The SESAR Joint Undertaking has developed a project titled 'Human Performance in Automation Support' (Project Nr. 16.05), which addressed the subject. The relevant final Project Report may be found at https://wikiengagektn.com/16.05_Human_Performance_in_Automation_Support

~~https://www.sesarju.eu/sites/default/files/DEL_16.05-D09-Final_Project_Report_.00.01.00.pdf~~.

[…]

GM1 ATS.OR.405 Use and availability of the VHF emergency frequency

LISTENING WATCH OF THE VHF EMERGENCY ~~CHANNEL~~ FREQUENCY

Requirements for air traffic services units to maintain continuous guard on the emergency frequency 121.500 MHz are specified in SERA.14080(b) of Regulation (EU) No 923/2012.

[…]

GM1 ATS.OR.405(a)(3) Use and availability of the VHF emergency frequency

USE OF VHF EMERGENCY ~~CHANNEL~~ FREQUENCY IN CASE OF HANDLING OF DISTRESS TRAFFIC

The use of the frequency 121.500 MHz for the purpose outlined in point (a)(3) of ATS.OR.405 is to be avoided if it interferes in any way with the efficient handling of distress traffic.

[…]

GM1 ATS.OR.405(b) Use and availability of the VHF emergency frequency

VHF EMERGENCY ~~CHANNEL~~ FREQUENCY

Where two or more of the air traffic services units listed in point (b) of ATS.OR.405 are co-located, provision of the frequency 121.500 MHz at one would meet the requirement.

[…]

GM1 ATS.TR.145(b)(2) Operation of air traffic control

SUSPENSION OF VISUAL FLIGHT RULES OPERATIONS ON AND IN THE VICINITY OF AN AERODROME

In cases where VFR flight operations are suspended due to weather conditions, aerodrome control towers should normally obtain approval from the unit providing approach control service prior to authorising operation of special VFR flights, unless otherwise prescribed in letters of agreement or local instructions.

[…]

AMC1 ATS.TR.155(b)(2)(i) ATS surveillance services

FACTORS DETERMINING THE NUMBER OF AIRCRAFT SIMULTANEOUSLY PROVIDED WITH AIR TRAFFIC CONTROL SERVICE USING ATS SURVEILLANCE SYSTEMS

When determining the number of aircraft simultaneously provided with ATS surveillance services, the air traffic services provider should take into account, as a minimum:

(a) the structural complexity of the control zone, control area or sector concerned;

(b) the functions to be performed within the control zone, control area or sector concerned;

(c) assessments of air traffic controller workloads, taking into account different aircraft capabilities, and ~~sector~~ capacity of the airspace where ATC is provided; and

(d) the degree of technical reliability and availability of the primary and backup communications, navigation and surveillance systems, both in the aircraft and on the ground.

GM1 ATS.TR.155(b)(2)(i) ATS surveillance services

DETERMINING THE NUMBER OF AIRCRAFT SIMULTANEOUSLY PROVIDED WITH AERODROME AIR TRAFFIC CONTROL SERVICE USING ATS SURVEILLANCE SYSTEMS

The functions for which surveillance could be used in aerodrome control service differ from those described for area and approach control service; moreover, the structural complexity of a CTR may be less relevant as most demanding functions address the vicinity of the aerodrome and the final approach and successive departures. In determining the number of aircraft simultaneously provided with ATS surveillance services by an aerodrome air traffic controller, an air traffic services provider may also consider other factors which are specifically relevant for aerodrome control. These factors may include:

(a) the complexity of the aerodrome traffic; and

(b) other functions to be performed by the aerodrome air traffic controller concerned.

[…]

AMC3 ATS.TR.155(c)(1) ATS surveillance services

METHODS OF IDENTIFICATION – TRANSFER OF IDENTIFICATION

[…]

(b) Transfer of identification should be effected by one of the following methods:

[…]

(3) ~~notification of the automated or system-to-system aircraft address;~~ automated and/or system to system notification of aircraft address;

[…]

AMC1 ATS.TR.155(g) ATS surveillance services

VERIFICATION OF LEVEL OCCUPANCY

(a) ~~In accordance with AMC1 ATS.TR.155(f), t~~The criterion which should be used to determine that a specific level is occupied by an aircraft should be ± 60 m (± 200 ft) in RVSM airspace. In other airspace, this criterion should be ± 90 m (± 300 ft), except that the competent authority may specify a smaller criterion, but not less than ± 60 m (± 200 ft), if this is found to be more practical.

[…]

GM1 AMC1 ATS.TR.155(g) ATS surveillance services

VERIFICATION OF LEVEL OCCUPANCY

The criteria and values for the verification of level occupancy should be the same as those defined in AMC1 ATS.TR.155(f) tolerance value for pressure-altitude-derived level information.

[…]

GM2 to AMC16 ATS.TR.210(a)(3) Operation of air traffic control service

CANCELLING A TAKE-OFF CLEARANCE FOR DEPARTING AIRCRAFT

[…]

(c) The cancellation of a take-off clearance after an aircraft has commenced its take-off run should only occur when the aircraft will be in serious and imminent danger should it continue. Air traffic controllers should be aware of the potential for an aircraft to overrun the end of the runway if the take-off is abandoned at a late stage; this is particularly so with large aircraft or those operating close to their performance limit, such as at maximum take-off mass, in high ambient temperatures or when the ~~runway braking action~~ deceleration rate and directional

control may be adversely affected by the runway surface condition. Because of this risk, even if a take-off clearance is cancelled, the pilot-in-command may consider it safer to continue the take-off than to attempt to stop the aircraft.

[…]

AMC22 ATS.TR.210(a)(3) Operation of air traffic control service

PROCEDURES TO BE APPLIED FOR INTERSECTION TAKE-OFFS

When intersection take-offs are implemented:

(a) an aircraft should only be cleared to depart from a published intersection take-off position:

(1) when requested by the pilot, or

(2) if initiated by the air traffic controller after being accepted by the pilot;

(b) information on the take-off run available (TORA) from the intersection should be provided by the air traffic controller when requested by an aircraft.

AMC23 ATS.TR.210(a)(3) Operation of air traffic control service

MULTIPLE LINE-UPS ON THE SAME RUNWAY

When intersection take-offs are implemented, line-up instructions should only be issued to more than one aircraft at different points on the same runway, provided that:

(a) air traffic controller is able to continuously monitor the line-up sequence either visually or by surveillance;

(b) air traffic services for aircraft involved in multiple line-ups on the same runway are provided on the same radio frequency;

(c) pilots are advised of their number in the departure sequence and of the position of any essential local traffic on the same runway; and

(d) pilot read-back of line-up instructions is required.

[…]

GM2 ATS.TR.210(a)(3) Operation of air traffic control service

AERODROME CONTROL – INSTRUCTIONS FOR LANDING AND ROLL-OUT MANOEUVRES

[…]

(b) In requesting a landing aircraft to perform a specific landing and/or roll-out manoeuvre, the type of aircraft, runway length, location of exit taxiways, reported ~~braking action~~ surface condition on the runway and taxiways, and prevailing meteorological conditions should be considered. A SUPER or HEAVY aircraft should not be requested to land beyond the touchdown zone of a runway.

[…]

AMC1 ATS.TR.210(b) Operation of air traffic control service

IFR FLIGHTS MAINTAINING OWN SEPARATION

An IFR flight may be instructed to maintain own separation in the following circumstances:

(a) An IFR flight executing visual approach when the aircraft has reported the preceding aircraft in sight and has been instructed to follow and maintain own separation from that aircraft;

(b) in the vicinity of an aerodrome:

(1) when each aircraft is continuously visible to flight crews of the other aircraft concerned and the pilots thereof report that they can maintain their own separation, or

(2) in the case of one aircraft following another, the flight crew of the succeeding aircraft reports that the other aircraft is in sight and own separation can be maintained;

(c) in airspace classes D and E, below 10 000 ft, during the hours of daylight in visual meteorological conditions, when requested by an aircraft and agreed by the pilot of the other aircraft to maintain own separation.

[…]

AMC2 ATS.TR.210(c) Operation of air traffic control service

SEPARATION IN THE VICINITY OF AERODROMES

(a) Visual separation

Under conditions and circumstances specified by the air traffic services provider and approved by the competent authority, the aerodrome air traffic controller may apply visual separation between aircraft operating in the vicinity of the aerodrome when aircraft concerned are continuously visible to such controller.

(b) Own separation

An air traffic controller may instruct aircraft in the vicinity of the aerodrome to maintain own separation in either of the following cases:

(1) when each aircraft is continuously visible to flight crews of the other aircraft concerned and the pilots thereof report that they can maintain their own separation; or

(2) in the case of one aircraft following another, when the flight crew of the succeeding aircraft reports that the other aircraft is in sight and own separation can be maintained.

[…]

GM1 to AMC2 ATS.TR.210(c) Operation of air traffic control service

SEPARATION IN THE VICINITY OF AERODROMES – VISUAL SEPARATION

When applying point (a) of AMC2 ATS.TR.210(c), the air traffic services provider should address, inter alia, the following:

(a) that weather conditions are such that the aircraft concerned are continuously visible to the aerodrome air traffic controller;

(b) to establish scenarios and limitations for the application of these methods and describe them accordingly in local instructions or manual of operations;

(c) that the use of such methods is consistent with the coordination and transfer of control conditions agreed with adjacent air traffic control units;

(d) that the approach air traffic controller is informed when such methods to separate aircraft are used by the aerodrome air traffic controller;

(e) that such methods cannot be used when wake turbulence separation has to be provided between the aircraft concerned;

(f) that as soon as it becomes apparent that these methods can no longer be used, another form of separation is established and the approach air traffic controller is informed, as appropriate.

[…]

GM2 to AMC2 ATS.TR.210(c) Operation of air traffic control service

SEPARATION IN THE VICINITY OF AERODROMES – OWN SEPARATION

(a) When applying point (b) of AMC2 ATS.TR.210(c), if the projected flight path of an aircraft will cross or follow behind the flight path of another aircraft, at the same altitude or less than 300 m (1 000 ft) below, the air traffic controller should issue a caution of possible wake turbulence when necessary, prior to instructing the flight crew to maintain own separation.

(b) When pilots accept to maintain own separation in the vicinity of an aerodrome, the air traffic controller should monitor the progress of flights and issue alternative instructions whenever the distance between aircraft will not ensure the applicable runway separation or at the request of the accepting air traffic control unit.

[…]

AMC1 ATS.TR.210(c)(2) Operation of air traffic control service

HORIZONTAL SEPARATION MINIMA BASED ON ATS SURVEILLANCE SYSTEM

[…]

(b) If so established by the air traffic services provider and approved by the competent authority, the separation minimum in point (a) may be reduced but not below:

[…]

(2) 4.6 km (2.5 NM) between succeeding aircraft which are established on the same final approach track within 18.5 km (10 NM) of the runway threshold. A reduced separation minimum of 4.6 km (2.5 NM) may be applied, provided:

[…]

(ii) ~~braking action is reported as good~~ reported runway condition code is 5 or higher for the whole runway and runway occupancy times are not adversely affected by runway contaminants such as slush, snow or ice;

[…]

AMC3 ATS.TR.210(c)(2) Operation of air traffic control service

PROCEDURAL SEPARATION — REDUCTION IN LATERAL AND LONGITUDINAL SEPARATION MINIMA

~~(a)~~ Provided that prior consultation with airspace users is undertaken and that an appropriate safety assessment has shown that an acceptable level of safety is maintained, the lateral and longitudinal separation minima established in:

— AMC1 ATS.TR.210(c)(2)(i);

— AMC2 ATS.TR.210(c)(2)(i);

— AMC3 ATS.TR.210(c)(2)(i);

— AMC4 ATS.TR.210(c)(2)(i);

— AMC5 ATS.TR.210(c)(2)(i);

— AMC6 ATS.TR.210(c)(2)(i); and

— AMC1 ATS.TR.210(c)(2)(ii)

may be reduced in the following circumstances:

(~~1~~a) when special electronic or other aids enable the pilot-in-command of an aircraft to determine accurately the aircraft's position and when adequate communication facilities exist for that position to be transmitted without delay to the appropriate air traffic control unit; or

(~~2~~b) when, in association with rapid and reliable communication facilities, information of an aircraft's position, derived from an ATS surveillance system, is available to the appropriate air traffic control unit; or

(~~3~~c) when RNAV-equipped aircraft operate within the coverage of electronic aids that provide the necessary updates to maintain navigation accuracy.

~~(b) In addition to the circumstances mentioned in point (a), the lateral and longitudinal separation minima established in:~~

- ~~AMC1 ATS.TR.210(c)(2)(i);~~
- ~~AMC2 ATS.TR.210(c)(2)(i);~~
- ~~AMC3 ATS.TR.210(c)(2)(i);~~
- ~~AMC4 ATS.TR.210(c)(2)(i);~~
- ~~AMC5 ATS.TR.210(c)(2)(i);~~
- ~~AMC6 ATS.TR.210(c)(2)(i); and~~

~~– AMC1 ATS.TR.210(c)(2)(ii)~~

~~may be reduced in the vicinity of aerodromes if:~~

~~(1) adequate separation can be provided by the aerodrome air traffic controller when each aircraft is continuously visible to this air traffic controller; or~~

~~(2) each aircraft is continuously visible to flight crews of the other aircraft concerned and the pilots thereof report that they can maintain their own separation; or~~

~~(3) in the case of one aircraft following another, the flight crew of the succeeding aircraft reports that the other aircraft is in sight and separation can be maintained.~~

[…]

AMC4 ATS.TR.210(c)(2)(i) Operation of air traffic control service

PROCEDURAL SEPARATION – LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE USING DISTANCE MEASURING EQUIPMENT (DME) AND/OR GNSS – AIRCRAFT CLIMBING OR DESCENDING

[…]

(b) Aircraft on reciprocal tracks

Aircraft utilising on-track DME and/or collocated waypoint or same waypoint may be cleared to climb or descend to or through the levels occupied by other aircraft utilising on-track DME and/or collocated waypoint or same waypoint, provided that it has been positively established that the aircraft have passed each other and are at least 10 NM apart, or such other value determined by the air traffic services provider and approved by the competent authority.

[…]

AMC5 ATS.TR.210(c)(2)(i) Operation of air traffic control service

PROCEDURAL SEPARATION – LONGITUDINAL SEPARATION MINIMA WITH MACH NUMBER TECHNIQUE BASED ON TIME

[…]

(b) if the aircraft have not reported over the same common point and it is possible to ensure, by radar, ADS-B or other means, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks, minimum longitudinal separation between ~~turbojet~~ aircraft on the same track, whether in level, climbing or descending flight should be:

[…]

AMC9 ATS.TR.210(c)(2)(i) Operation of air traffic control service

REDUCED RUNWAY SEPARATION MINIMA BETWEEN AIRCRAFT USING THE SAME RUNWAY

[…]

(e) Reduced runway separation minima should be subject to the following conditions:

[…]

(7) the ~~braking action~~ deceleration rate and directional control should not be adversely affected by runway contaminants such as ice, slush, snow and water.

[…]

AMC11 ATS.TR.210(c)(2)(i) Operation of air traffic control service

PROCEDURAL CONTROL — SEPARATION OF DEPARTING AIRCRAFT FROM ARRIVING AIRCRAFT

The following separation should be applied when take-off clearance is based on the position of an arriving aircraft:

[…]

(c) If an arriving aircraft is following an RNAV or RNP instrument flight procedure, a departing aircraft may take off on a departure path that is clear of the arrival protection area for the arriving aircraft (see Figure 37a), provided that:

(1) vertical separation is applied until the arriving aircraft has reported passing the compulsory reporting waypoint on the instrument flight procedure, the location of such waypoint to be determined by the ATS provider,

(2) the take-off takes place before the arriving aircraft crosses a designated waypoint on the instrument flight procedure, the location of such waypoint to be determined by the ATS provider, and

(3) the departing aircraft remains clear of the arrival protection area until another form of separation is established.

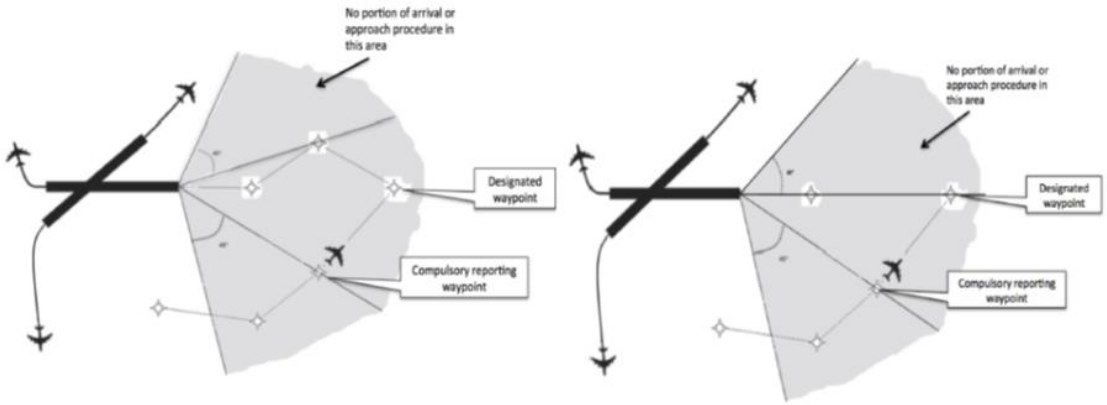

Figure 37a: Examples of an arrival protection area

[…]

GM1 to AMC11 ATS.TR.210(c)(2)(i) Operation of air traffic control service

ARRIVAL PROTECTION AREA

The arrival protection area is defined as the shaded area extending from a line 45 degrees from an established compulsory reporting waypoint to a line 45 degrees from the outermost edge of the remainder of the arrival and/or approach procedure (See Figure 37a).

[…]

~~GM1 to AMC1 ATS.TR.220 Application of wake turbulence separation~~

~~For the Airbus A380-800 aircraft, with a maximum take-off mass in the order of 560 000 kg, it is recommended to apply an increase of the wake turbulence separation minima associated with the HEAVY category.~~

[…]

AMC2 ATS.TR.220 Application of wake turbulence separation

TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA – ARRIVING AIRCRAFT

Except for ~~arriving VFR flights, and for arriving IFR flights executing visual approach~~ the cases listed in point (b) of ATS.TR.220, the following separation minima should be applied to aircraft landing behind a SUPER, a HEAVY and a MEDIUM:

(a) HEAVY aircraft landing behind SUPER aircraft: 2 minutes;

~~(a)~~ (b) MEDIUM aircraft landing behind SUPER aircraft: 3 minutes;

~~(b)~~ (c) MEDIUM aircraft landing behind HEAVY aircraft: 2 minutes;

~~(c)~~ (d) LIGHT aircraft landing behind SUPER aircraft: 4 minutes; and

~~(d)~~ (e) LIGHT aircraft landing behind a HEAVY or MEDIUM aircraft: 3 minutes.

GM1 to AMC2 ATS.TR.220 Application of wake turbulence separation

A LANDING AIRCRAFT

The term landing is to be considered as a general term including also aircraft performing a touch and go, missed approach, low approach, etc. in order to ensure appropriate wake turbulence separation.

AMC3 ATS.TR.220 Application of wake turbulence separation

TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA – DEPARTING AIRCRAFT

(a) A separation minimum of 2 minutes should be applied for a HEAVY aircraft taking off behind a SUPER aircraft when the aircraft are using:

(1) the same runway;

(2) parallel runways separated by less than 760 m (2 500 ft);

(3) crossing runways, if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below; and

(4) parallel runways separated by 760 m (2 500 ft) or more, if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below.

~~(a)~~(b) A separation minimum of 3 minutes should be applied for a LIGHT or MEDIUM aircraft and 2 minutes for a HEAVY aircraft taking off behind a SUPER aircraft when the aircraft are using:

(1) the same runway;

(2) parallel runways separated by less than 760 m (2 500 ft);

(3) crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below; and

(4) parallel runways separated by 760 m (2 500 ft) or more if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below.

~~(b)~~(c) A separation minimum of 4 minutes should be applied for a LIGHT or MEDIUM aircraft when taking off behind a~~n~~ SUPER aircraft from:

(1) an intermediate part of the same runway; or

(2) an intermediate part of a parallel runway separated by less than 760 m (2 500 ft).

~~(c)~~(d) A separation minimum of 2 minutes should be applied between a LIGHT or MEDIUM aircraft taking off behind a HEAVY aircraft or a LIGHT aircraft taking off behind a MEDIUM aircraft when the aircraft are using:

(1) the same runway (see Figure 43);

(2) parallel runways separated by less than 760 m (2 500 ft) (see Figure 43);

(3) crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below (see Figure 44); and

(4) parallel runways separated by 760 m (2 500 ft) or more if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below (see Figure 44).

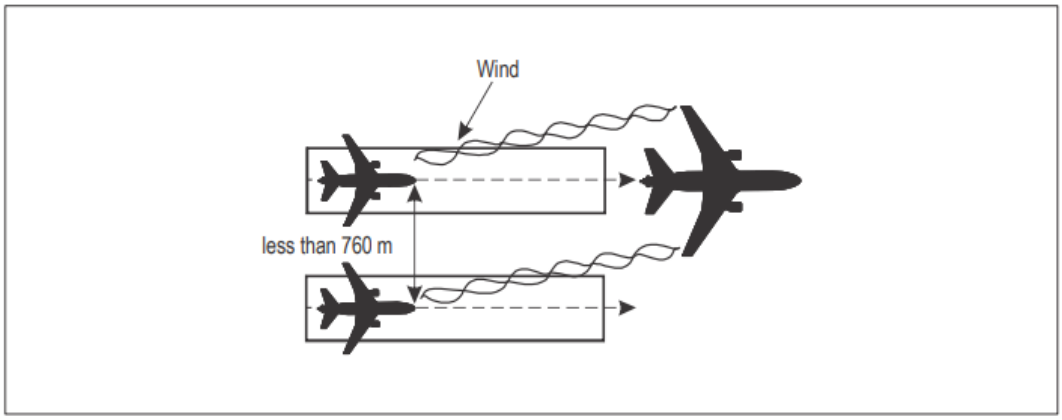

Figure 43: ~~2-minute~~ Wake turbulence separation for following aircraft

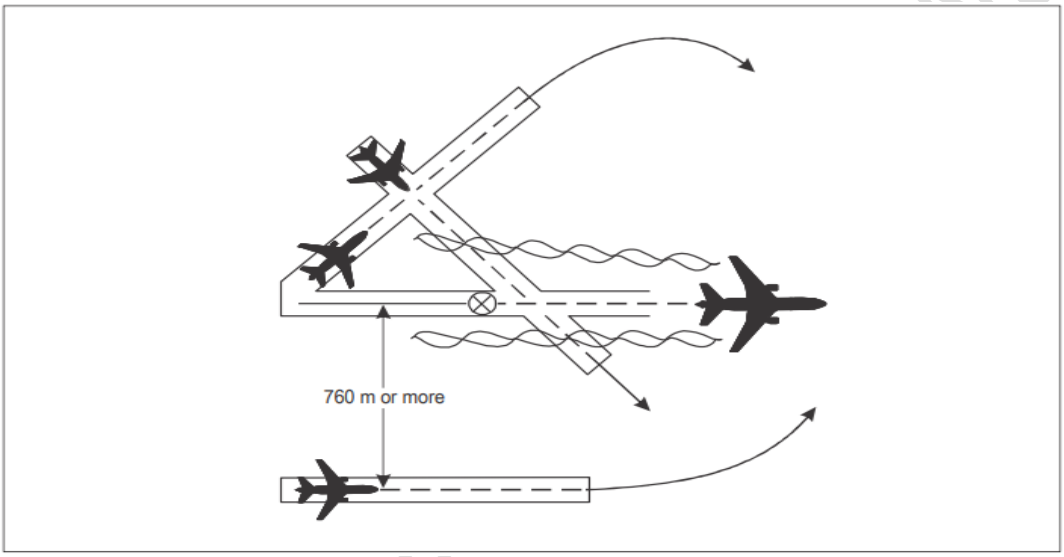

Figure 44: ~~2-minute w~~Wake turbulence separation for crossing aircraft

~~(d)~~(e) A separation minimum of 3 minutes should be applied (see Figure 45) between a LIGHT or MEDIUM aircraft when taking off behind a HEAVY aircraft or a LIGHT aircraft when taking off behind a MEDIUM aircraft or a HEAVY aircraft when taking off behind a SUPER aircraft from:

(1) an intermediate part of the same runway; or

(2) an intermediate part of a parallel runway separated by less than 760 m (2 500 ft).

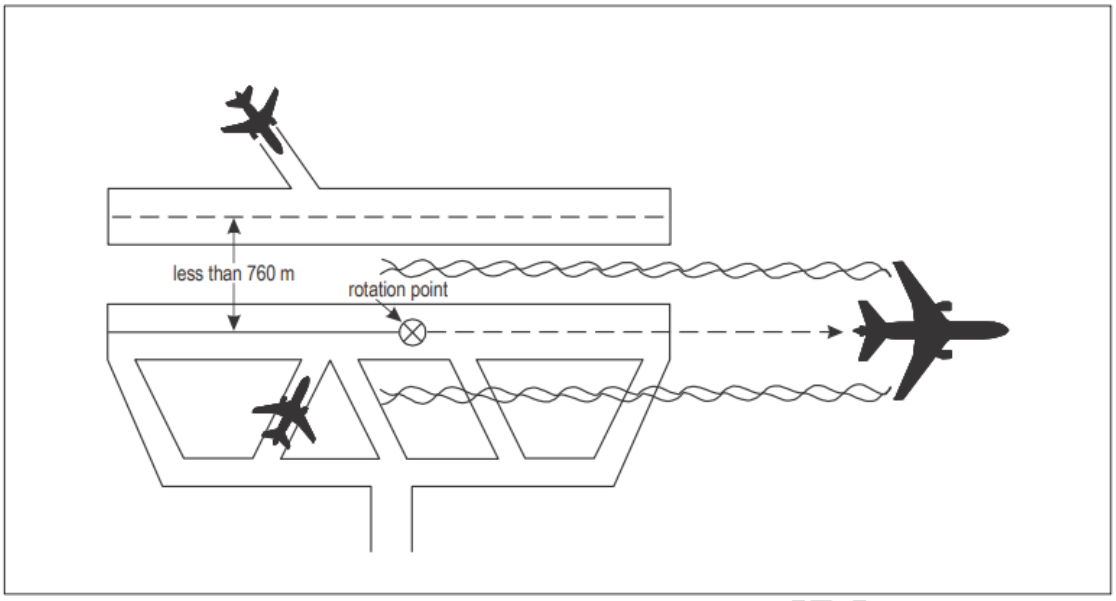

Figure 45: ~~3 minute w~~Wake turbulence separation for following aircraft

AMC4 ATS.TR.220 Application of wake turbulence separation

TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA – DISPLACED LANDING THRESHOLD

(a) A separation minimum of 3 minutes should be applied between a LIGHT or MEDIUM aircraft and a SUPER aircraft when operating on a runway with a displaced landing threshold when:

(1) a departing LIGHT or MEDIUM aircraft follows a SUPER aircraft arrival; or

(2) an arriving LIGHT or MEDIUM aircraft follows a SUPER aircraft departure,

if the projected flight paths are expected to cross.

(b) A separation minimum of 2 minutes should be applied between a HEAVY aircraft and a SUPER aircraft and between a LIGHT or MEDIUM aircraft and a HEAVY aircraft and between a LIGHT aircraft and a MEDIUM aircraft when operating on a runway with a displaced landing threshold when:

(1) a departing HEAVY aircraft follows a SUPER aircraft arrival and a departing LIGHT or MEDIUM aircraft follows a HEAVY aircraft arrival and a departing LIGHT aircraft follows a MEDIUM aircraft arrival; or

(2) an arriving HEAVY aircraft follows a SUPER aircraft departure and an arriving LIGHT or MEDIUM aircraft follows a HEAVY aircraft departure and an arriving LIGHT aircraft follows a MEDIUM aircraft departure,

if the projected flight paths are expected to cross.

AMC5 ATS.TR.220 Application of wake turbulence separation

TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA – OPPOSITE DIRECTION

(a) A separation minimum of ~~3~~4 minutes should be applied between a LIGHT or MEDIUM aircraft and a SUPER aircraft when the SUPER aircraft is making a low or missed approach and the LIGHT or MEDIUM aircraft is:

(1) utilising an opposite-direction runway for take-off; or

(2) landing on the same runway in the opposite direction, or on a parallel opposite-direction runway separated by less than 760 m (2 500 ft).

(b) A separation minimum of ~~2~~3 minutes should be applied between a HEAVY aircraft and a SUPER aircraft and between a LIGHT or MEDIUM aircraft and a HEAVY aircraft and between a LIGHT aircraft and a MEDIUM aircraft when the heavier aircraft is making a low or missed approach and the lighter aircraft is:

(1) utilising an opposite-direction runway for take-off (see Figure 46); or

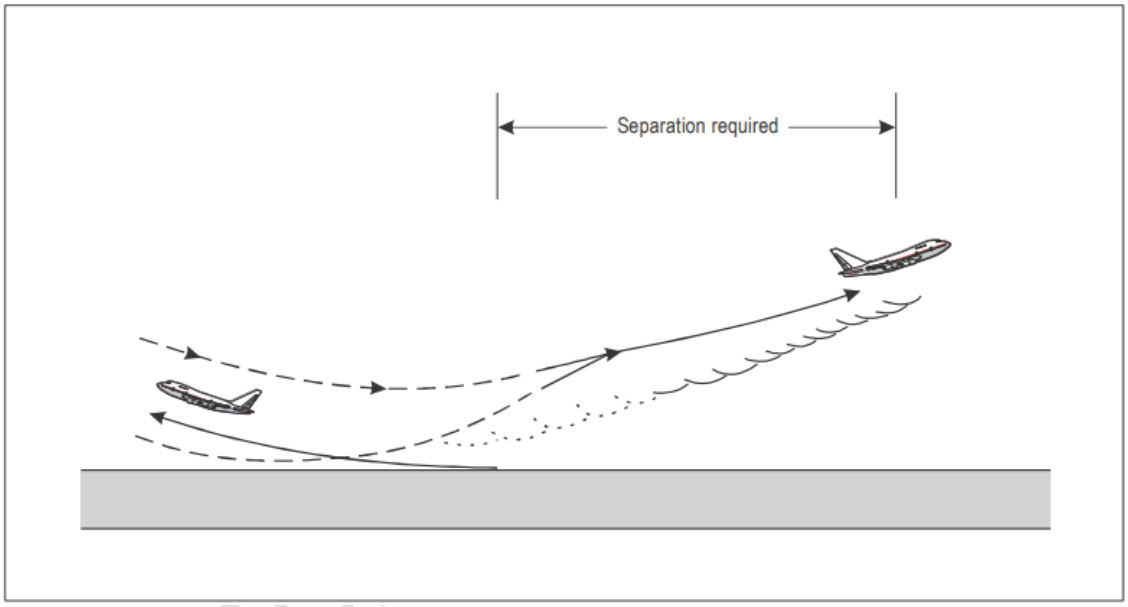

Figure 46: ~~2-minute w~~Wake turbulence separation for opposite-direction take-off

(2) landing on the same runway in the opposite direction, or on a parallel opposite-direction runway separated by less than 760 m (2 500 ft) (see Figure 47).

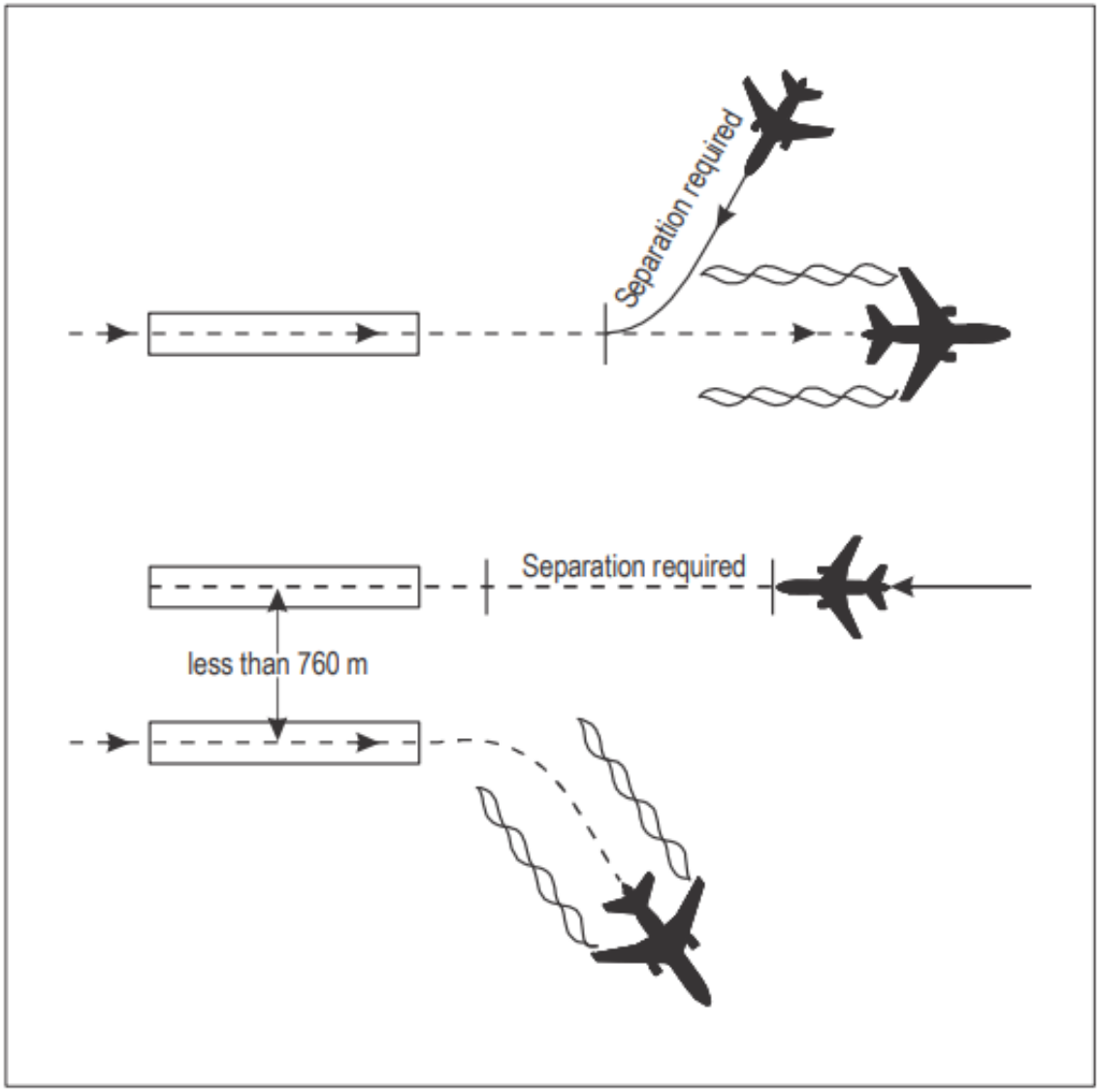

Figure 47: ~~2-minute w~~Wake turbulence separation for opposite-direction landing

GM1 to AMC5 ATS.TR.220 Application of wake turbulence separation

HEAVIER AIRCRAFT DEPARTING TO OPPOSITE DIRECTION

Separation minima in AMC5 ATS.TR.220 points (a) and (b) may be applied between a departing heavier aircraft and a lighter aircraft;

(1) utilising an opposite-direction runway for take-off, or

(2) landing on the same runway in the opposite direction, or on a parallel opposite-direction runway separated by less than 760 m (2 500 ft),

If their projected flight paths are expected to cross.

AMC6 ATS.TR.220 Application of wake turbulence separation

DISTANCE-BASED WAKE TURBULENCE SEPARATION MINIMA BASED ON ATS SURVEILLANCE SYSTEM

The following distance-based wake turbulence separation minima should be applied to aircraft being provided with an ATS surveillance service in the approach and departure phases:

PRECEDING AIRCRAFT	SUCCEEDING AIRCRAFT	WAKE TURBULENCE RADAR SEPARATION MINIMA
SUPER or HEAVY	SUPER	Not required. In this case, separation reverts to radar separation minima as established by the air traffic services provider and approved by the competent authority.
SUPER	HEAVY	~~11.1 km (6.0 NM)~~ 9.3 km (5.0 NM)
SUPER	MEDIUM	13.0 km (7.0 NM)
SUPER	LIGHT	14.~~8~~9 km (8.0 NM)
HEAVY	HEAVY	7.4 km (4.0 NM)
HEAVY	MEDIUM	9.3 km (5.0 NM)
HEAVY	LIGHT	11.1 km (6.0 NM)
MEDIUM	LIGHT	9.3 km (5.0 NM)

GM1 to AMC6 ATS.TR.220 Application of wake turbulence separation

Figure~~s~~ 48 ~~and 49~~ illustrate~~s~~ the application of the separation minima between SUPER, HEAVY, MEDIUM and LIGHT aircraft prescribed in AMC6 ATS.TR.220.

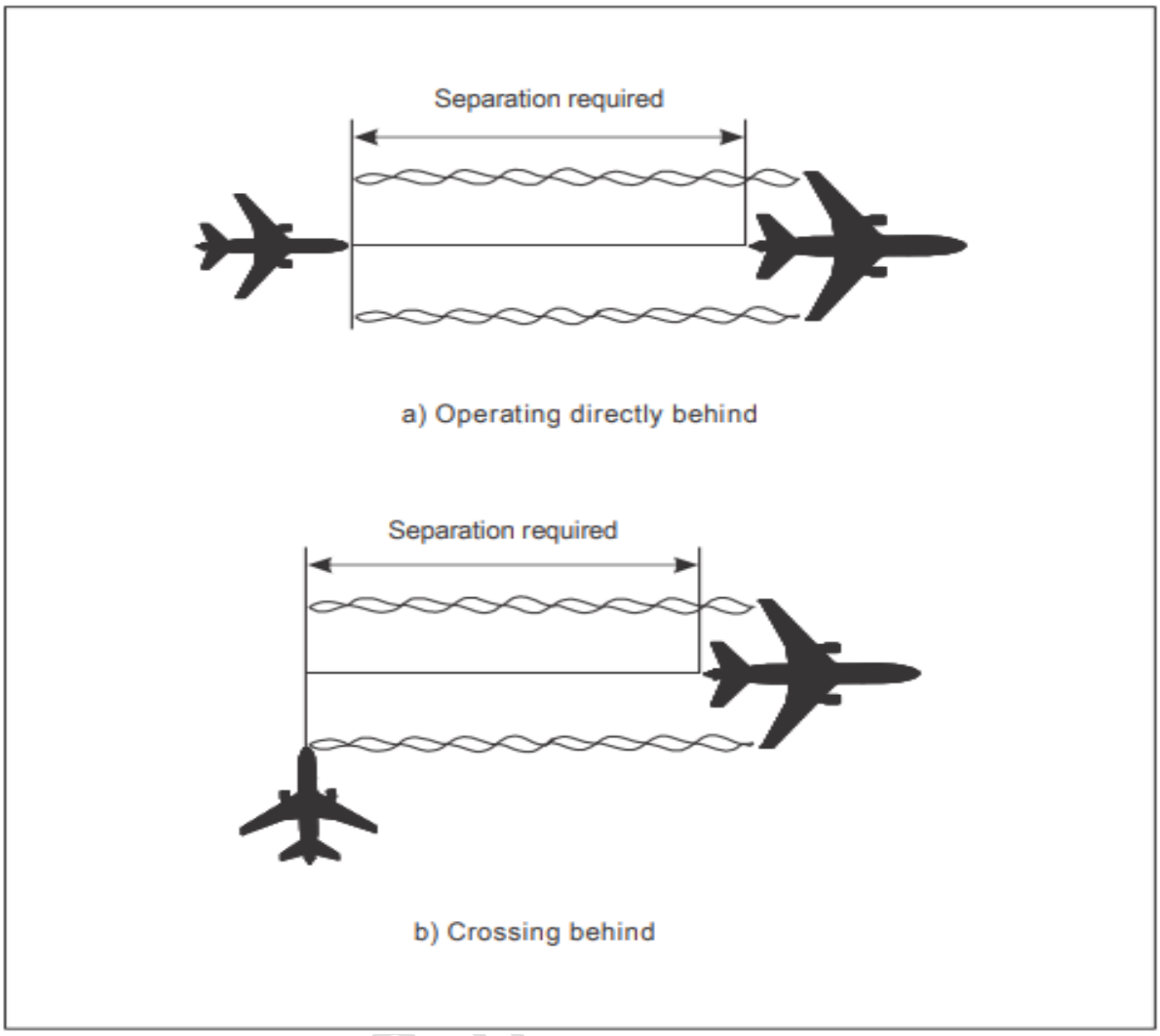

Figure 48: Operating directly behind or crossing behind

[…]

GM2 ATS.TR.220 Application of wake turbulence separation

Wake turbulence separation minima are defined for scenarios and pairs of aircraft for which the separation minima applied to fulfil the objectives of ATS are not sufficient to protect from potential wake turbulence encounters.

[…]

GM1 ATS.TR.220(b)(2) Application of wake turbulence separation

IFR FLIGHTS MAINTAINING OWN SEPARATION

IFR flights may be instructed to maintain own separation in the following circumstances:

(a) IFR flights executing visual approach when the aircraft has reported the preceding aircraft in sight and has been instructed to follow and maintain own separation from that aircraft;

(b) in the vicinity of an aerodrome:

(1) when each aircraft is continuously visible to the flight crews of the other aircraft concerned and the pilots thereof report that they can maintain their own separation, or

(2) in the case of one aircraft following another, the flight crew of the succeeding aircraft reports that the other aircraft is in sight and own separation can be maintained;

(c) in airspace classes D and E, below 10 000 ft, during the hours of daylight in visual meteorological conditions, when requested by an aircraft and agreed by the pilot of the other aircraft to maintain own separation.

[…]

GM3 to AMC3 ATS.TR.255 Operations on parallel or near-parallel runways

AIR TRAFFIC CONTROLLERS RESPONSIBLE FOR SEQUENCING AND SPACING AIRCRAFT

With reference to point (a) of AMC3 ATS.TR.255, the air traffic controller responsible for applying and maintaining:

(a) horizontal separation diagonally between successive aircraft on adjacent final approaches, and/or

(b) horizontal longitudinal between successive aircraft on the same final approach,

is different from the air traffic controller responsible for sequencing and spacing arriving aircraft to final approaches for each runway.

[…]

GM1 ATS.TR.265(a)(1) Control of aerodrome surface traffic in low-visibility conditions

HOLDING POSITION LIMITS

The definition of holding position limits by intermediate holding positions marking, stop bar or taxiway intersection marking is established in accordance with EASA ED Decision 2014/013/R 'Certification Specification and Guidance Material for Aerodrome Design', as amended.

[…]

GM1 to AMC1 ATS.TR.265(b) Control of aerodrome surface traffic in low-visibility conditions

NAVIGATION EQUIPMENT

With reference to points (c)(2) and (c)(4), navigation equipment may include, inter alia:

(a) ILS,

(b) MLS,

(c) GBAS,

(d) Other GNSS augmentations.

[…]

AMC1 ATS.TR.305 Scope of flight information service

TRANSMISSION OF INFORMATION

[…]

(g) Transmission of information to supersonic aircraft

The following information should be available at appropriate ACCs or flight information centres for aerodromes determined by the competent authority and should be transmitted on request to supersonic aircraft prior to commencement of deceleration/descent from supersonic cruise:

[…]

(3) ~~sufficient~~ information on the runway surface conditions to permit assessment of the ~~runway braking action~~ landing performance characteristics of the runway in use.

[…]

GM1 ATS.TR.400(c) Application

CONTACT DETAILS

The contact details to be maintained in the OPS Control Directory should be those of the appropriate ATS duty supervisor position or equivalent.

[…]

GM2 ATS.TR.400(c) Application

GENERAL

The OPS Control Directory provides a means to establish contact, primarily between aircraft operators and ATS units, in the event of any uncertainty regarding the safety of an aircraft. It is hosted by Eurocontrol.