

# **BRASIL**

**MINISTÉRIO DA DEFESA - COMANDO DA AERONÁUTICA**

**DEPARTAMENTO DO CONTROLE DO ESPAÇO AÉREO**

Av. General Justo, 160 – CEP 20021-130 – Rio de Janeiro/RJ

<http://www.decea.gov.br>

**AIC**

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**36/20**

**22 OCT 20**

## **SIMULTANEOUS PARALLEL OPERATIONS AT THE BRASÍLIA INTERNATIONAL AIRPORT (SBBR)**

*Period of validity: from 05 NOV 2020 to PERM*

### **1 PRELIMINARY ARRANGEMENTS**

#### **1.1 PURPOSE**

The purpose of this Aeronautical Information Circular (AIC) is to inform about the implementation of Simultaneous Independent Parallel Operations at the Brasília International Airport (SBBR).

#### **1.2 SCOPE**

The provisions set forth in this AIC apply to SISCEAB users who, during their activities, perform instrument takeoff and approach operations at the Brasília International Airport.

#### **1.3 REFERENCES**

- ICA 100-37 - *Serviços de Tráfego Aéreo*
- MCA 100-16 - *Manual de Fraseologia de Tráfego Aéreo*

#### **1.4 ABBREVIATIONS AND CONCEPTS**

##### **1.4.1 ABBREVIATIONS**

ACFT	Aircraft
APSI	Simultaneous Independent Parallel Approaches:
ATCO	Air Traffic Controller
ATCSMAC	ATC Surveillance Minimum Altitude Chart
DPSI	Simultaneous Independent Parallel Departures
LOC	Localizer
NOZ	Normal Operating Zone
NTZ	No-transgression Zone
OPSI	Simultaneous Independent Parallel Operations
PAOAS	Parallel Approach Obstacle Assessment Surface

## 1.4.2 CONCEPTS

### DEVIATING AIRCRAFT

Aircraft that, after intercepting the LOC course and entering the NOZ, for any reason, deviates from that course. This deviation does not interrupt the approach of any aircraft in simultaneous independent parallel approach operation and it must be reported immediately to the deviating aircraft by the controller responsible for monitoring the approach.

### INTRUDER AIRCRAFT

Aircraft that, after intercepting the LOC course and entering the NOZ, for any reason deviates from that course and penetrates the NTZ. Such violation causes the interruption of the approach of the aircraft on the adjacent approach course.

### SIMULTANEOUS INDEPENDENT PARALLEL APPROACHES

IFR simultaneous approaches to parallel or near-parallel instrument runways in which ATS surveillance separation minima between aircraft on adjacent extended runway centre lines are not prescribed. The separation between aircraft in this operation is ensured by maintaining the NTZ.

### DEVIATION ON APPROACH

Maneuver performed by aircraft in APSI after the LOC course interception and after entering the NOZ, but without penetrating the NTZ.

### DEVIATION ON TAKEOFF

Maneuver performed by aircraft in DPSI after takeoff that invades the takeoff area of the adjacent runway.

### BREAKOUT

Maneuver determined by an ATCO to an approaching aircraft in case of violation of the NTZ by an aircraft on the adjacent approach. The breakout may consist of a vertical and lateral maneuver.

### SEGREGATED PARALLEL OPERATIONS

Simultaneous operations on parallel or near-parallel runways in which one runway is used exclusively for approaches and the other is used exclusively for departures.

### SIMULTANEOUS INDEPENDENT PARALLEL OPERATIONS

Simultaneous approaches and departures on parallel runways, where ATS separation minima are not prescribed.

### OVERRIDE

Modulation capability of the APP to overlay the TWR frequency in the event of a breakout maneuver.

## PARALLEL APPROACH OBSTACLE ASSESSMENT SURFACE

A set of surfaces established below the ATCSMAC, which are defined to protect the execution of a breakout maneuver.

## VIOLATION

Maneuver performed by an aircraft in APSI after the LOC course interception entering the NOZ, violating the lateral boundaries of the NTZ.

## NO-TRANSGRESSION ZONE

In the context of APSI, a corridor of airspace of defined dimensions located centrally between the two extended runway centre lines, where a penetration by an aircraft requires the intervention of a monitoring radar controller to maneuver any threatened aircraft on the adjacent approach.

## NORMAL OPERATING ZONE

Airspace of defined dimensions extending to either side of an approach track. Only the inner half of the normal operating zone is considered in simultaneous independent parallel approaches.

## 2 GENERAL ARRANGEMENTS

### 2.1 FACTORS AFFECTING PARALLEL OPERATIONS

**2.1.1** First, it is important to highlight that the implementation of OPSI at the Brasília airport will not affect the operating minima of the procedures involved. The main return expected is the increase on the number of aerodrome runway capacity.

**2.1.2** Flight crews shall be advised prior to starting the approach or takeoff procedure that OPSI are being performed at SBBR. To make them aware of the importance of performing extremely precise manoeuvres when intercepting the localizer course or immediately after takeoff. For instance, if an aircraft invades NTZ or turns towards the departure path of the parallel runway, the other aircraft will be instructed to discontinue the procedure. The information concerning the start of OPSI shall be preferably provided through ATIS broadcasts. If ATIS is not available, the controller shall provide this information.

**2.1.3** To maintain the OPSI safety level, a standard for identifying the approach and departures procedures used in this mode of operation was established, to distinguish these procedures between two adjacent runways. For instance: the approach procedure provided for RWY11R will be the ILS Z RWY11R and the one provided for RWY11L will be the ILS Y RWY11L. For departure, the procedure provided for RWY11R may be SID RNAV LIVEV 1A RWY11R and for RWY11L, the procedure may be SID RNAV PANOK 2C.

**2.1.4** During OPSI, the flight crew shall pay attention to avoid approach to the wrong runway or execute incorrect SID initial procedure, which will cause a breakout of the aircraft on the adjacent departure, causing an air traffic incident. These topics may cause unwanted approaches between the aircraft:

- a) The pilot does not understand the approach authorization or uses the incorrect approach chart;
- b) The pilot aligns to the wrong runway. Such an event might occur too quick and too close to the threshold to be reliably detected by the controller, which will require the pilots to be more careful at the visual identification of the approach runway; and
- c) During a DPSI, the pilot may select the wrong runway or SID, which makes the aircraft turn to intercept the departure track of the adjacent runway, during the transfer of control between the TWR and the APP.

**2.1.5** During DPSI, the flight crew shall pay attention to DEPARTURE instructions and information on the direction of the first turn after departure, issued by TWR-BR, especially referring to SID insertion and runway selection confirmation in FMS. In addition, due to the particularity of the DPSI, the pilot must call the APP immediately after takeoff.

**2.1.6** After landing, the runway occupation time should be optimized, and the crew should use the maximum operationally safe taxi speed.

### 3 SPECIFIC ARRANGEMENTS

#### 3.1 NO-TRANSGRESSION ZONE

**3.1.1** The NTZ is established due to the non-application of ATS surveillance separation minima between traffic proceeding to adjacent runways in APSI.

**3.1.2** The NTZ determined for the APSI at Brasilia airport is an 800 m wide corridor, established equidistant between the two extended runway centre lines. It extends from the nearest threshold out to the point in which the 1000FT vertical separation minimum is reduced between aircraft on adjacent approaches (Figure 1).

NOTE: If the NTZ is violated, the ATCO shall interfere immediately to establish the separation between aircraft.



Figure 1: NTZ and NOZ configuration of SBBR runways 29

### **3.2 NORMAL OPERATING ZONE**

**3.2.1** NOZ is the airspace in which aircraft are expected to operate, while maneuvering to intercept and fly the LOC course.

**3.2.2** There is one NOZ associated with each extended runway centre line. The NOZ is centered on the extended runway centre line to the nearest edge of the NTZ. Once established on the LOC, aircraft are expected to remain within the NOZ without radar controller interventions.

**3.2.3** The NOZ extends, longitudinally, from the threshold out to the point where the aircraft joins the extended runway centre line. The width of the NOZ is determined by considering the guidance systems involved and the track-keeping accuracy of the aircraft.

**3.2.4** The width of the NOZ is such that the probability of any aircraft deviating from its limits is minimal. This assists in keeping the controller workload low and gives pilots confidence that all action taken by the monitoring controller is necessary. The remainder of the spacing between the approach tracks, that is, the NTZ, must then provide for the safe resolution of potential conflicts.

**3.2.5** The NOZ designed for Brasília APSI has a semi-width of 500 m, which corresponds to the distance between the nominal LOC course and the boundary of the NTZ.

### **3.3 APSI OPERATION REQUIREMENTS**

**3.3.1** The APSI shall only be conducted under the following requirements:

- a) ILS systems for both runways are operational;
- b) DECEA approved IFR approach procedures are used;
- c) The ATS Surveillance system is available and the precision requirements for the configuration of the synthesis meet those defined in ICA 100-37;
- d) Final control sectors are activated and in operation for both runways: one for RWY 11L/29R and another for RWY 11R/29L;
- e) Final control sectors for both runways are under ATS surveillance and radar control; and
- f) Each one of the final sectors must be operated in isolation and provided with an exclusive controller for the sector, which must be equipped with specific frequencies.

NOTE: A specific controller may be assigned for monitoring the NTZ.

**3.3.2** Situations in which APSI will not be performed or will be suspended:

- a) Meteorological conditions that may cause deviations in the final approach track and the separation minimum may be compromised;
- b) Presence of noise or interference to VHF frequencies used at the final sector, which might affect the clarity and understanding of messages transmitted; and
- c) Approaching aircraft in an emergency, transporting a Head of State or in an aeromedical evacuation (TROV/TREN).

NOTE: Since the aircraft's weather radar shows more accurate information, the pilot must inform the ATC, as soon as possible, of any need for meteorological deviation during the final approach, preferably before executing it. This is so that the ATC can provide the necessary separation with the aircraft in the adjacent approach.

### **3.4 APS OPERATION PROCEDURES**

**3.4.1** For APSI operations, the APP-BR ATCO shall advise each aircraft of the runway in use and the selected ILS approach procedure as soon as possible.

**3.4.2** The final approach sector controller shall repeat the information of the procedure and the runway designated for each aircraft, in the authorization of the ILS procedure.

**3.4.3** The pilot-in-command must read back immediately the information received about the runway in use and the ILS procedure to be performed.

**3.4.4** ATCO shall provide separation of 1000FT or 3 NM, according to the capabilities of the ATS surveillance system, until the aircraft are stabilized on the respective LOC courses and within the NOZ.

**3.4.5** The flight crew must adjust the aircraft rate of descent, preferably from the beginning of the STAR, so that it can comply with the altitude and speed restrictions provided for in the approach procedure. Incompatible altitudes cause vectors to guarantee the separation mentioned in the previous item and consequently, undesirable delays.

**3.4.6** A Breakout is the main means of resolving conflict in APSI. The TCAS, when installed, provides another form of conflict resolution in the unlikely possibility of failure of the other separation standards.

**3.4.7** The breakout maneuver instruction issued by the ATC provides both vertical and lateral instructions, while TCAS provides only vertical maneuver. During APSI, if a TCAS Resolution Advisory (RA) alert is triggered, flight crew shall immediately follow this instruction, any time it occurs.

**3.4.8** If, during an ATC-issued breakout maneuver, the pilot receives an RA alert, he/she shall comply with TCAS instructions and, after it is clear of conflict, the pilot shall advise ATC and stand by for new instructions.

**3.4.9** The ILS LOC course interception shall preferably be made with the RNAV transition procedure depicted on the chart or, if the aircraft is not RNAV capable, it may be vectored to the ILS final approach. Such vectoring must meet the following requirements:

- a) Allow the aircraft to intercept at a maximum angle of 30°;
- b) Provide at least 1 NM of straight and leveled flight before interception; and
- c) Allow the aircraft to stabilize at the LOC in leveled flight for at least 2 NM before the glide slope interception.

**3.4.10** A 3.0 NM longitudinal separation minima shall be established between aircraft flying the same LOC course, unless greater separation is required due to wake turbulence (Table 1) or other reasons, such as, for instance, TWR request for spacing to allow departures.

Aircraft Sequence	Longitudinal Separation Minima
HEAVY AFTER HEAVY	4.0 NM
MEDIUM AFTER HEAVY	5.0 NM
LIGHT AFTER HEAVY	6.0 NM
LIGHT AFTER MEDIUM	5.0 NM

Table 1: Wake turbulence minimum horizontal separation

**3.4.11** During APSI, the final approach monitoring controller shall report any track deviation performed by an approaching aircraft within the NOZ. Such deviations will not interrupt the approach, provided that the deviating aircraft returns to the ILS final approach track before the NTZ boundary.

**3.4.12** If a deviating aircraft penetrates the NTZ, the ATCO shall discontinue the approach of the aircraft established on the adjacent final approach, instructing the aircraft to breakout. This maneuver shall have vertical and horizontal components, to establish the minimum limits required between aircraft or as soon as possible. The horizontal component of the breakout cannot exceed 45° with the ILS track.

NOTE 1: If the aircraft are already on the TWR-BR frequency, the breakout will be commanded by the ATCO that is monitoring the NTZ, through the override on the TWR-BR frequency.

NOTE 2: If the monitoring sector is not activated, the breakout will be commanded by the ATCO of the stabilized aircraft approach.

**3.4.13** Breakouts shall not be made below a height of 400FT in relation to the approach threshold.

**3.4.14** The use of the autopilot is encouraged while flying APS. However, it is recommended that breakout maneuvers be flown manually or in accordance with each operator's operational policy, to minimize the aircraft reaction time.

**3.4.15** Breakout maneuvers below SBBR ATCSMAC are protected by PAOAS. This way, when in final approach and within PAOAS limits, the aircraft may be vectored until approved vertical or horizontal separation minima are established.

**3.4.16** The PAOAS analysis criteria were developed to accommodate heading variations of up to 45 degrees from the approach track, with a minimum initiation height of 400 ft above threshold elevation. The evaluation further considers that the initial part of the breakout maneuver must be executed in landing configuration, with a minimum climbing gradient of 8.3%.

3.4.17 The SBBR PAOAS are configured as follows:

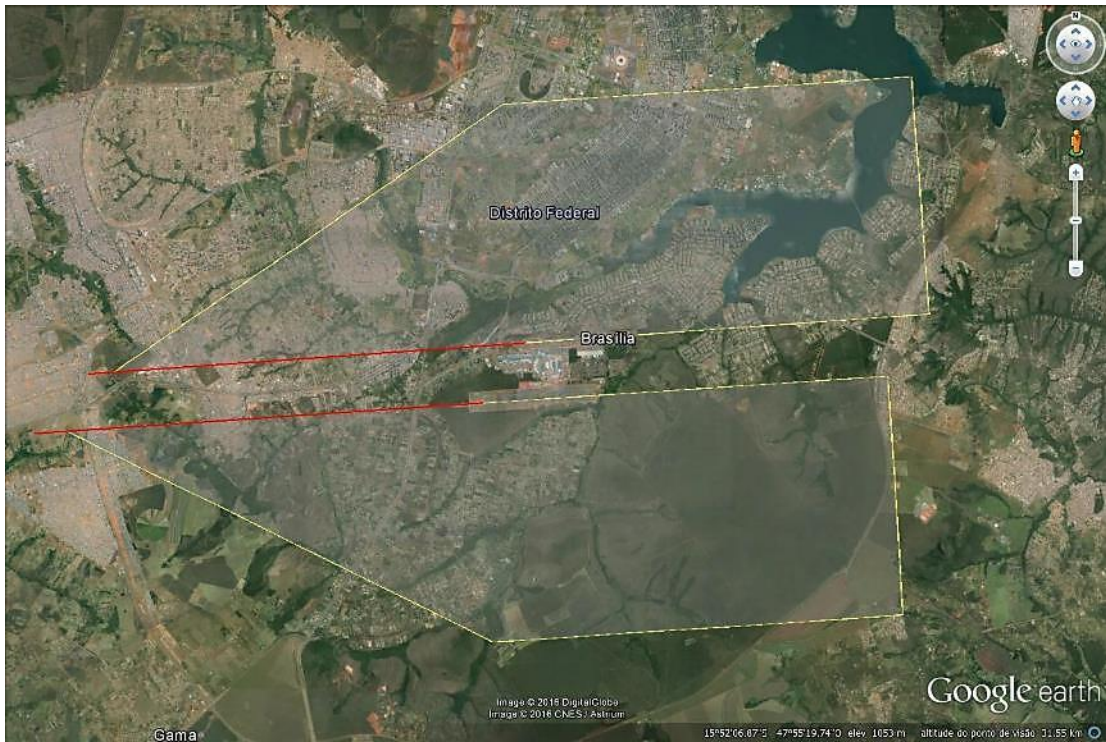


Figure 2: PAOAS RWY 11



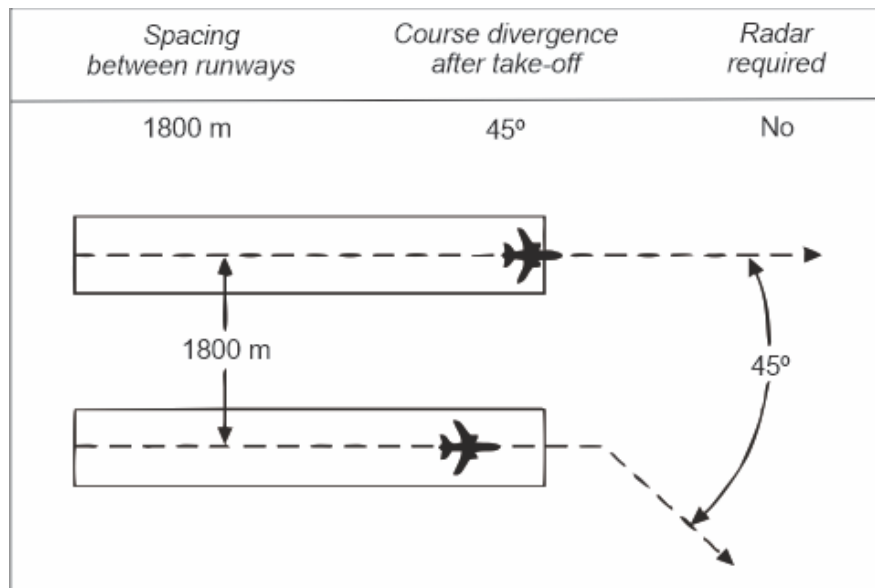
Figure 3: PAOAS RWY 29



### 3.5 DPSI OPERATION PROCEDURES

**3.5.1** The DPSI performed in Brasília are based on item 7.2.2.2. of ICA 100-37, as transcribed below:

7.2.2.2 When the spacing between parallel runways is 1 525 m (5,000 feet) or more, and a divergence of at least 45 ° between the tracks after takeoff can be achieved, the only requirement for conducting independent IFR takeoffs is the existence of bilateral radio communications satisfactory for any other specialized form of control or navigation specification.



**3.5.2** TWR shall inform the aircraft involved in the DPSI operation of the direction of the first turn after takeoff. This information will be given to the aircraft, via frequency or data link, in the traffic authorization on CLR and reinforced in the takeoff clearance.

NOTE: Data link capable aircraft may receive the first turn direction information via DCL, with the message “AFT DEP FST TURN TO RIGHT/LEFT”.

**3.5.3** Flight crew, after receiving the initial information about the direction of the first turn, shall check the procedure selection in the FMS. Special attention must be given to the runway in use informed by BR-TWR.

**3.5.4** The pilot-in-command shall read back the direction of the first turn given by the TWR and, given the particularity of the DPSI, shall contact the BR-APP immediately after takeoff. Delay in frequency change may reduce the time available for the BR-APP to solve traffic incidents right after takeoff.

**3.5.5** If, after the initial authorization, for any reason, the aircraft is cleared to depart from a runway other than the one previously authorized, the BR-TWR must reinforce the SID change information and the direction of the first turn.

NOTE: The authorization information for a new runway, departure procedure and first turn must be anticipated as much as possible, in order to allow crews to select the procedure in the cabin and check the initial trajectory related to the new authorization.

**3.5.6** During DPSI operations, the crew is expected to be especially attentive to the trajectory of the departure procedure and the direction of the first turn after takeoff. If the autopilot prescribes a trajectory that is different from the cleared procedure, the flight crew must promptly react, manually controlling the aircraft, returning to the authorized procedure track, and informing the APP as soon as possible.

**3.5.7** The departure trajectory correction maneuvers prescribed in 3.5.6 should be executed, preferably, manually.

**3.5.8** Cases of suspension or cancellation of DPSI:

- a) Adverse weather conditions in BR-TMA, especially when they affect the approach and/or departure trajectories;
- b) Presence of noise or interference to VHF frequencies used at the feeder or departure sector, which might affect the clarity and understanding of messages transmitted;
- c) Loss of RNAV capability of the aircraft;
- d) Departing or Approaching aircraft in an emergency, transporting a Head of State or in an aeromedical evacuation (TROV/TREN); and
- e) Flock of birds on the departure sector.

NOTE 1: This suspension shall be coordinated between BR-APP and BR-TWR and must be timely reported to CGNA.

NOTE 2: If the weather suspension is going to affect the BR-TMA airspace capacity, it shall be transmitted to the aircrew via AFIS or ATS frequency.

### **3.6 TRANSITION TO THE DPSI**

**3.6.1** Simultaneous independent parallel departures (DPSI) will be gradually implemented at the Brasília airport to enable a smooth transition for controllers and pilots to the new operation standard.

**3.6.2** DPSI will be applied on the effective date of this Circular. Initially, DPSI will be conducted only on VMC. After the transition phase, DPSI will be authorized in IMC.

**3.6.3** DECEA will constantly track the OPSI evolution at the Brasília airport, to determine any schedule adjustment need, in view of the project's operational maturity.

**3.6.4** Every phase evolution will be analyzed with the airport users through CMD sessions, to be convened by DECEA with the representative entities.

### **3.7 PHRASEOLOGY**

Considering that simultaneous operations occur in quite limited airspaces, on which all maneuvers demand greater precision by the flight crews, and that the time for corrections is very short, the pilot-in-command, after starting a simultaneous independent approach or departure operation, shall immediately follow all instructions issued by air traffic control.

The pilot-in-command shall read back all instructions issued by the ATC contained in this AIC.

The phraseology contained in this AIC complements the one provided in MCA 100-16.

### 3.7.1 SPECIFIC PHRASEOLOGY

#### 3.7.1.1 Approach control service

a) Information about APSI:

ATCO	PT CTA, simultaneous parallel approach in progress in Brasília.
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NOTE: Such information shall be issued preferably via ATIS.

b) Phraseology used during APSI:

Clearance to start ILS procedure in APSI:	
ATCO	PT CTA, cleared to start Z ILS approach to RWY 29L.
Traffic information on adjacent approach:	
ATCO	PT CTA, traffic in parallel approach, one o'clock, 2NM, A320

NOTE: The crew must comply with all segments of the IAC starting at the IAF. The pilot is not authorized to shorten his approach, except from express and specific authorization from ATCO.

After intercepting the LOC course, the pilot must report stabilization on the course and the runway in use:	
ACFT	Brasília Approach Control, PT CTA established on localizer course, runway 29L.
Aircraft proceeds to land:	
ATCO	PT CTA, contact Brasília Tower, on frequency 118.10.
Aircraft starts missed approach:	
ACFT	Brasília Tower, PT CTA, starting missed approach procedure
ATCO	Roger, PT CTA. Contact Brasília Approach Control on frequency 119.20.

## c) Phraseology used in case of deviation and violation of NTZ

LOC course deviation (within NOZ):	
ATCO	PT CTA, you are left of the course, turn right, and return to the localizer course.
NTZ violation by the aircraft on adjacent approach (direct communication):	
ATCO	PT CTA, at the adjacent approach, violates the NTZ). Traffic alert, PT BCT. turn right immediately, heading 320. climb and maintain 6000FT.
ACFT	Roger, turn right, heading 320, climbing to 6000 feet
ATCO	Intruder aircraft at 10 o'clock, 4500 feet

NOTE: When the aircraft is in contact with the TWR, item b above shall be performed by the APP through overriding.

NTZ violation by the aircraft on adjacent approach (communication via override):	
ATCO	PT CTA, at the adjacent approach, violates the NTZ). PT BCT, Brasília Approach override, turn right immediately, heading 320. Climb and maintain 6000FT.

## d) Aircraft initial call to the APP in DPSI

ACFT	Brasilia Approach Control, PT CTA, airborne runway 11R, LIVEV 1B Departure NIMKI transition, first turn to the right.
ATCO	PT CTA, Brasilia Approach Control roger, climb via SID para FL330.

## e) Protection maneuver for aircraft in DPSI

ATCO	(PT CTA, airborne from runway 11R, and turn LEFT inadvertently) Traffic alert, PT BCT. Turn left immediately, heading 340. Climb and maintain FL090.
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NOTE: The HORIZONTAL maneuver will be performed after the aircraft crosses the safety altitude.

**3.7.1.2 Aerodrome control service**

In case of communication failure between BR-APP and the aircraft in APSI, and in the event of violation of NTZ, the BR-TWR, after the coordination made by BR-APP, shall

retransmit the instructions issued by the APP to the aircraft determined to execute the breakout maneuver.

NOTE 1: The BR TWR will only be able to take the action prescribed above after coordination by the BR-APP. In this coordination, APP shall specify which aircraft violated the NTZ and which aircraft shall execute the coordinated breakout maneuver.

NOTE 2: BR TWR is not allowed to use the surveillance repeater equipment to issue breakout maneuver instructions under any circumstances.

a) TWR ATCO instruction after coordination with the APP in case of communication failure of the APP with the aircraft:

PT CTA, on the adjacent approach, violates the NTZ:	
ATCO	PT BCT, breakout to the right, climb to 6000FT, (heading 320), contact Brasília Approach Control on frequency 119.20.
ACFT	Roger, turn left, (heading 320), climb to 6000FT. Contact Brasília Approach Control on frequency 119.20.

b) Information about DPSI:

ATCO	PT CTA, independent simultaneous parallel departures in progress in Brasília.
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NOTE: Such information shall be issued preferably via ATIS. In case of ATIS unavailability, it becomes the responsibility of the Traffic Authorization position of Torre Brasília controller.

c) Phraseology used during DPSI:

Information on the direction of the first turn via ATS frequency (before clearance)	
ACFT	Brasília clearance, PT CTA request ATC clearance, BRAVO information.
ATCO	PT CTA, Brasília Clearance roger. Cleared to Confins airport (or SBCF); flight plan route (or MUGIS UZ35 MEBLU), FL350, climb via LIVEV 1B Departure, MUGIS Transition, after airborne, first turn to the right, Squawk 4035, departure control on frequency 129.15, Read Back.
ACFT	Brasília Clearance, PT CTA roger. Cleared to Confins airport (or SBCF); flight plan route (or MUGIS UZ35 MEBLU), FL350, climb via LIVEV 1B Departure, MUGIS Transition, after airborne, first turn to the right, Squawk 4035, departure control on frequency 129.15.
ATCO	PT CTA, your read back is correct, report ready for engine start up.

Information on the direction of the first turn in case of change of authorized takeoff runway	
ACFT	(PT CTA initially cleared to departure from RWY 11R) Brasília Clearance, PT CTA request departure from runway 11L.
ATCO	PT CTA, cleared departure from runway 11L, expect ESBUX 3A departure. After airborne, maintain heading 108° until KOTVU.
ACFT	PT CTA roger, cleared departure from runway 11L, expect ESBUX 3A departure. After airborne, maintain heading 108° until KOTVU.
Information on the direction of the first turn via ATS frequency (before takeoff)	
ATCO	PT CTA, cleared takeoff, runway 11R wind 110 degrees, 10 KT. After airborne, first turn to the right. Contact now Brasília Approach Control on frequency 119.20.
ACFT	PT CTA roger, cleared takeoff, runway 11R wind 110 degrees, 10 KT. After airborne, first turn to the right. Contact Brasília Approach Control on frequency 119.20.

#### 4 FINAL PROVISIONS

**4.1** This AIC comes into force in 05.NOV.2020, revoking, on this date, AIC A 27/20, of 30 JUL 2020.

**4.2** Cases not provided for in this Circular shall be settled by the Head Director of the Department of Airspace Control (DECEA).