Subject: Operational Authorization Process for ILS Precision Runway Monitor (PRM) and Simultaneous Offset Instrument Approach (SOIA)

1. INTRODUCTION

ILS PRM equipment and procedures enable simultaneous independent approaches to be made in instrument meteorological conditions to parallel or near-parallel runways whose centrelines are spaced less than 4,300 feet apart. There are several airports in the United States of America and other countries that conduct ILS PRM operations. Approval for an air operator to participate in these operations requires approval from the Federal Aviation Administration (FAA)/respective regulatory authority. Air operators wishing to conduct ILS/PRM operations in the USA or other countries will require operational authorization by DGCA India prior to receiving approval from the FAA/respective regulatory authority. This OC is being issued to give guidance to enable operators to obtain approval to conduct ILS PRM approaches.

2. ILS PRM SYSTEM

2.1 The ILS PRM system is an approach system that permits simultaneous ILS PRM approaches to parallel runways with centerlines separated by less than 4,300 feet but at least 3000 ft. The airspace between the final approach courses contains a No Transgression Zone (NTZ) with surveillance provided by two PRM monitor controllers, one for each approach course (NTZ as per ICAO Doc 9643 Manual on SOIR (Simultaneous Operations on Parallel or Near-Parallel Instrument Runways) is 2000 feet between two parallel runways. To qualify for reduced lateral runway separation, monitor controllers must be equipped with high update radar and high resolution ATC radar displays, collectively called a PRM system. The PRM system displays almost instantaneous radar information. Automated tracking software provides PRM
monitor controllers with aircraft identification, position, speed and a ten-second projected position, as well as visual and aural controller alerts. PRM is an acronym for the high update rate Precision Runway Monitor surveillance system which is required to monitor the No Transgression Zone (NTZ) for specific parallel runway separations used to conduct simultaneous close parallel approaches. PRM is also published in the title as part of the approach name for IAPs used to conduct Simultaneous Close Parallel approaches. “PRM” alerts pilots that specific airborne equipment, training, and procedures are applicable.

**PRM Approaches Simultaneous Close Parallel**

2.2 The PRM system is a supplemental requirement for simultaneous close parallel approaches in addition to the system requirements and procedures for simultaneous independent ILS/RNAV/GLS Approaches. Simultaneous Close Parallel PRM approaches, whether conducted utilizing a high update rate PRM surveillance sensor or not, must meet all of the following requirements:

(a) Pilot training,
(b) PRM in the approach title,
(c) NTZ monitoring utilizing a final monitor aid,
(d) Publication on an Attention All Users Page (AAUP), and
(e) Use of a secondary PRM communication frequency.

2.3 Simultaneous close parallel ILS PRM approaches are depicted on a separate Approach Procedure Chart titled ILS PRM Rwy XXX (Simultaneous Close
Parallel).

Note: ATC does not use the word “independent” when advertising these operations on the ATIS.

2.4 RNAV PRM and GLS PRM approaches may be substituted for one or both of the ILS PRM approaches in a simultaneous close parallel operation, or, in the case of SOIA, may be substituted for an ILS PRM and/or LDA PRM approach. RNAV PRM or GLS PRM approaches utilize the same applicable chart notations and the same fixes, crossing altitudes, and missed approach procedures as the ILS PRM or LDA PRM approach it overlays. Vertical guidance for an RNAV PRM or GLS PRM approach must be used when substituting for an ILS PRM or LDA PRM approach.

2.5 The pilot may request to fly the RNAV PRM or GLS PRM approach in lieu of either the ILS PRM and LDA PRM approaches. ATIS may advertise RNAV or GLS PRM approaches to the affected runway or runways in the event of the loss of ground based NAVAIDS. The Attention All Users Page (AAUP) will address ILS PRM, LDA PRM, RNAV PRM, or GLS PRM approaches as applicable.

(a) The RNAV PRM or GLS PRM approaches may be substituted when reference is made to an ILS, LOC, or SOIA offset LDA PRM approach.

(b) The RNAV PRM or GLS PRM Missed Approach Point (MAP) in SOIA operations may be substituted when reference is made to the LDA PRM MAP.

2.6 Flight Management System (FMS) coding of the offset RNAV PRM and GLS PRM approaches in a SOIA operation is different than other RNAV and GLS approach coding in that it does not match the initial procedure published on the charted IAP. In the SOIA design of the offset approach, the lateral course terminates at the fictitious threshold point (FTP), which is an extension of the final approach course to a point near the runway threshold. The FTP is designated in the approach coding as the MAP so that vertical guidance is available to the pilot to the runway threshold, just as vertical guidance is provided by the LDA glideslope. RNAV and GLS lateral guidance, in contrast, is discontinued at the charted MAP and replaced by visual maneuvering to accomplish runway alignment in the same manner as LDA course guidance is discontinued at the MAP.

2.7 As a result of this RNAV and GLS approach coding, when executing a missed approach at and after passing the charted MAP, a heading must initially be flown, either hand-flown or using autopilot “heading mode,” before engaging LNAV. If the pilot engages LNAV immediately, the aircraft will continue to track toward the FTP instead of commencing a turn toward the missed approach holding fix. Notes on the charted IAP and in the AAUP make specific reference to this procedure.

2.8 Because the SOIA LDA approach is coded in the FMS in the same manner as the RNAV GPS approach, this same procedure should be utilized when conducting the LDA PRM missed approach at or inside of the LDA MAP.
2.9 Some FMSs do not code waypoints inside of the FAF as part of the approach. Therefore, the depicted MAP on the charted IAP may not be included in the offset approach coding. Pilots utilizing those FMSs may identify the location of the waypoint by noting its distance from the FTP as published on the charted IAP. In those same FMSs, the straight-in SOIA approach will not display a waypoint inside the PFAF. The same procedures may be utilized to identify the uncoded waypoint. In this case, the location is determined by noting its distance from the runway waypoint as published on the charted IAP.

2.10 Because the FTP is coded as the MAP, the FMS map display will depict the initial missed approach course as beginning at the FTP. This depiction does not match the charted initial missed approach procedure on the IAP. Pilots are reminded that charted IAP guidance is to be followed, not the map display. Once the aircraft completes the initial turn when commencing a missed approach, the remainder of the procedure coding is standard and can be utilized as with any other IAP.

3. SIMULTANEOUS OFFSET INSTRUMENT APPROACH (SOIA).

3.1 SOIA is an acronym for Simultaneous Offset Instrument Approach, a procedure used to conduct simultaneous approaches to runways spaced less than 3,000 feet, but at least 750 feet apart. The SOIA procedure utilizes an ILS PRM approach to one runway and an offset Localizer Type Directional Aid (LDA) PRM approach with glide slope to the adjacent runway. In SOIA operations, aircraft are paired, with the aircraft conducting the ILS PRM approach always positioned slightly ahead of the aircraft conducting the LDA PRM approach.

3.2 The ILS PRM approach plates used in SOIA operations are identical to other ILS PRM approach plates, with an additional note, which provides the separation between the two runways used for simultaneous approaches. The LDA PRM approach plate displays the required notations for closely spaced approaches as well as depicting the visual segment of the approach.

3.3 Controllers monitor the SOIA ILS PRM and LDA PRM approaches in exactly the same manner as is done for ILS PRM approaches. The procedures and system requirements for SOIA ILS PRM and LDA PRM approaches are identical with those used for simultaneous close parallel ILS PRM approaches until near the LDA PRM approach missed approach point (MAP), where visual acquisition of the ILS aircraft by the aircraft conducting the LDA PRM approach occurs. Since the ILS PRM and LDA PRM approaches are identical except for the visual segment in the SOIA concept, an understanding of the procedures for conducting ILS PRM approaches is essential before conducting a SOIA ILS PRM or LDA PRM operation.

3.4 In SOIA, the approach course separation (instead of the runway separation) meets established close parallel approach criteria. Refer to figure below for the generic SOIA approach geometry. A visual segment of the LDA PRM approach is established between the LDA MAP and the runway threshold. Aircraft transition in visual conditions from the LDA course, beginning at the LDA MAP, to align with the runway and can be stabilized by 500 feet above ground level (AGL) on the extended runway centerline. Aircraft will be “paired” in SOIA
operations, with the ILS aircraft ahead of the LDA aircraft prior to the LDA aircraft reaching the LDA MAP. A cloud ceiling for the approach is established so that the LDA aircraft has nominally 30 seconds to acquire the leading ILS aircraft prior to the LDA aircraft reaching the LDA MAP. If visual acquisition is not accomplished, a missed approach must be executed at the LDA MAP.

**SOIA Approach Geometry**

**SAP**

The Stabilized Approach Point (SAP) is a design point along the extended centerline of the intended landing runway on the glide slope at 500 above the landing threshold. It is used to verify a sufficient distance is provided for the visual maneuver after the offset course approach DA to permit the pilots to conform to approved, stabilized approach criteria. The SAP is not published on the IAP.

**Offset Course DA**

The point along the LDA or other offset course, where the course separation with the adjacent ILS or other straight-in course reaches the minimum distance permitted to conduct closely spaced approaches. Typically that minimum distance will be 3,000 feet.
without use of high update radar, with high update radar, course separation of less than 3,000 feet may be used when validated by a safety study. The altitude of the glide slope/glide path at that point determines the offset course approach decision altitude and is where the NTZ terminates. Maneuvering inside the DA is done in visual conditions.

**Visual Segment Angle**

Angle, as determined by the SOIA design tool, formed by the extension of the straight segment of the calculated flight track (between the offset course MAP/DA and the SAP) and the extended runway centerline. The size of the angle is dependent on the aircraft approach categories (Category D or only selected categories/speeds) that are authorized to use the offset course and the spacing between the runways.

**Visibility**

Distance from the offset course approach DA to runway threshold in statute miles/metres.

**Procedure**

The aircraft on the offset course approach must see the runway-landing environment and if ATC has advised that traffic on the straight-in approach is a factor, the offset course approach aircraft must visually acquire the straight-in approach aircraft and report it in sight to ATC prior to reaching the DA for the offset course approach.

**CC**

The Clear of Clouds point is the position on the offset final approach course where aircraft first operate in visual meteorological conditions below the ceiling, when the actual weather conditions are at, or near the minimum ceiling for SOIA operations. Ceiling is defined by the Aeronautical Information Manual.

### 4. REQUIREMENTS AND PROCEDURES

4.1 Besides system requirements and pilot procedures as identified above, all pilots must have completed special training before accepting a clearance to conduct ILS PRM or LDA PRM Simultaneous Close Parallel Approaches.

4.2 **Pilot Training Requirement.** Pilots must complete special pilot training, as outlined below, before accepting a clearance for a simultaneous close parallel ILS PRM or LDA PRM approach. For commercial operations, pilots must comply with DGCA approved operator training as identified in their Operations Manual. Training, at a minimum, must require pilots to view the FAA video “ILS PRM AND SOIA APPROACHES: INFORMATION FOR AIR CARRIER PILOTS.” Refer to [https://www.faa.gov/training_testing/training/prm/](https://www.faa.gov/training_testing/training/prm/) or search key words FAA PRM for additional information and to view or download the video. For general aviation operations, pilots must be familiar with PRM.
operations as contained in this OC. In addition, pilots must view the FAA video referred to above.

Note - Either simultaneous dependent ILS approaches, or SOIA LDA PRM and ILS PRM approaches may be conducted depending on weather conditions and traffic volume. Pilots should use caution so as not to confuse these operations. Use SOIA procedures only when the ATIS advertises PRM approaches are in use. SFO is the only airport where both procedures are presently conducted.

4.3 **ATC Directed Breakout.** An ATC directed “breakout” is defined as a vector off the ILS or LDA approach course of a threatened aircraft in response to another aircraft penetrating the NTZ.

4.4 **Dual Communications.** The aircraft flying the ILS PRM or LDA PRM approach must have the capability of enabling the pilot/s to listen to two communications frequencies simultaneously.

4.5 **Radar Services.** During turn on to parallel final approach, aircraft will be provided 3 miles radar separation or a minimum of 1,000 feet vertical separation. The assigned altitude must be maintained until intercepting the glide path, unless cleared otherwise by ATC. Aircraft will not be vectored to intercept the final approach course at an angle greater than thirty degrees. The final monitor controller will have the capability of overriding the tower controller on the tower frequency. Pilots will be instructed to contact the tower frequency prior to the point where NTZ monitoring begins. Pilots will begin monitoring the secondary PRM frequency at that time (see Dual Communications Required below). To ensure separation is maintained, and in order to avoid an imminent situation during simultaneous close parallel ILS PRM or SOIA ILS PRM and LDA PRM approaches, pilots must immediately comply with PRM monitor controller instructions. Aircraft observed to overshoot the turn or to continue on a track which will penetrate the NTZ will be instructed to return to the correct final approach course immediately. The final monitor controller may cancel the approach clearance, and issue missed approach or other instructions to the deviating aircraft.

**PHRASEOLOGY—**

“(Aircraft call sign) YOU HAVE CROSSED THE FINAL APPROACH COURSE. TURN (left/right) IMMEDIATELY AND RETURN TO THE LOCALIZER FINAL APPROACH COURSE,” or “(aircraft call sign) TURN (left/right) AND RETURN TO THE LOCALIZER FINAL APPROACH COURSE.”

If a deviating aircraft fails to respond to such instructions or is observed penetrating the NTZ, the aircraft on the adjacent final approach course (if threatened) will be issued a breakout instruction.

**PHRASEOLOGY—**

“TRAFFIC ALERT (aircraft call sign) TURN (left/right) IMMEDIATELY HEADING (degrees), (climb/descend) AND MAINTAIN (altitude).”

Radar monitoring will automatically be terminated when visual separation is applied or the aircraft reports the approach lights or
runway in sight. Otherwise, monitoring continues to at least .5 NM beyond the furthest DER (Departure End of Runway). Final monitor controllers will not advise pilots when radar monitoring is terminated.

4.6 **Attention All Users Page (AAUP).** At airports that conduct PRM operations, (ILS PRM, and the case of airports where SOIAs are conducted, ILS PRM and LDA PRM approaches) the Attention All Users Page (AAUP) informs pilots who are unable to participate that they will be afforded appropriate arrival services as operational conditions permit and must notify the controlling ARTCC (Air Route Traffic Control Center) as soon as practical, but at least 100 miles from destination. Multiple PRM approach charts at the same airport have a single AAUP associated with them that must be referred to in preparation for conducting the approach. Bullet points are published which summarize the PRM procedures which apply to each approach and must be briefed before conducting a PRM approach. The following information may be summarized in the bullet points or published in more detail in the Expanded Procedures section of the AAUP. Briefing on the Expanded Procedures is optional.

(a) **ATIS.** When the ATIS broadcast advises ILS PRM approaches are in progress (or ILS PRM and LDA PRM approaches in the case of SOIA), pilots should brief to fly the ILS PRM or LDA PRM approach. If later advised to expect the ILS or LDA approach (should one be published), the ILS PRM or LDA PRM chart may be used after completing the following briefing items. The pilot may also request to fly the RNAV (GPS) PRM in lieu of either the ILS PRM or LDA PRM approach. In the event of the loss of ground based NAVAIDS, the ATIS may advertise RNAV (GPS) PRM approaches to the effected runway or runways.  

(i) Minimums and missed approach procedures are unchanged.  
(ii) PRM Monitor frequency no longer required.  
(iii) ATC may assign a lower altitude for glide slope intercept.

*Note— In the case of the LDA PRM approach, this briefing procedure only applies if an LDA-DME approach is also published.*

In the case of the SOIA ILS PRM and LDA PRM procedure, the AAUP describes the weather conditions in which simultaneous approaches are authorized: Simultaneous approach weather minimums are X,XXX feet (ceiling), x miles (visibility).

(b) **Dual VHF Communications Required.** To avoid blocked transmissions, each runway will have two frequencies, a primary and a PRM monitor frequency. The tower controller will transmit on both frequencies. The monitor controller’s transmissions, if needed, will override both frequencies. Pilots will only transmit on the tower controller’s frequency, but will listen to both frequencies. Select the PRM monitor frequency audio only when instructed by ATC to contact the tower. The volume levels should be set about the same on both
radios so that the pilots will be able to hear transmissions on at least one frequency if the other is blocked. Site specific procedures take precedence over the general information presented in this paragraph. Refer to the AAUP for applicable procedures at specific airports.

Note— At SFO, pilots conducting SOIA operations select the monitor frequency audio when communicating with the final radar controller. In this special case, the monitor controller’s transmissions, if required, override the final controller’s frequency.

(c) **Breakouts.** Breakouts differ from other types of abandoned approaches in that they can happen anywhere and unexpectedly. Pilots directed by ATC to break off an approach must assume that an aircraft is blundering toward them and a breakout must be initiated immediately.

(i) **Hand-fly breakouts.** All breakouts are to be hand-flown to ensure the maneuver is accomplished in the shortest amount of time.

(ii) **ATC Directed “Breakouts.”** ATC directed breakouts will consist of a turn and a climb or descent. Pilots must always initiate the breakout in response to an air traffic controller’s instruction. Controllers will give a descending breakout only when there are no other reasonable options available, but in no case will the descent be below the minimum vectoring altitude (MVA) which provides at least 1,000 feet required obstruction clearance. The AAUP may provide the MVA in the final approach segment as X,XXX feet at (Name) Airport.

    Note— “TRAFFIC ALERT.” If an aircraft enters the “NO TRANSGRESSION ZONE (NTZ),” the controller will breakout the threatened aircraft on the adjacent approach. The phraseology for the breakout will be:

    **PHRASEOLOGY—**

    TRAFFIC ALERT, (aircraft call sign) TURN (left/right) IMMEDIATELY, HEADING (degrees), CLIMB/DESCEND AND MAINTAIN (altitude).

(d) **ILS PRM Glideslope Navigation.** The pilot may find crossing altitudes published along the final approach course. If the approach geometry warrants it, the pilot is advised on the AAUP that descending on the ILS or LDA glideslope ensures complying with any charted crossing restrictions.

(e) **SOIA and ILS PRM differences as noted on the AAUP.**

(i) ILS PRM, LDA Traffic (only published on the AAUP when the ILS PRM approach is used in conjunction with an LDA PRM approach to the adjacent runway). To provide better situational
awareness, and because traffic on the LDA may be visible on the ILS aircraft’s TCAS, pilots are reminded of the fact that aircraft will be maneuvering behind them to align with the adjacent runway. While conducting the ILS PRM approach to Runway XXX, other aircraft may be conducting the offset LDA PRM approach to Runway XXX. These aircraft will approach from the (left/right) rear and will realign with Runway XXX after making visual contact with the ILS traffic. Under normal circumstances, these aircraft will not pass the ILS traffic.

(ii) **SOIA LDA PRM Items.** The AAUP section for the SOIA LDA PRM approach contains most information found in the ILS PRM section. It replaces certain information as seen below and provides pilots with the procedures to be used in the visual segment of the LDA PRM approach from the LDA MAP until landing.

(iii) **SOIA LDA PRM Navigation (replaces ILS PRM (d) and (e)(i) above).** The pilot may find crossing altitudes published along the final approach course. The pilot is advised that descending on the LDA glideslope ensures complying with any charted crossing restrictions. Remain on the LDA course until passing XXXXX (LDA MAP name) intersection prior to maneuvering to align with the centerline of Runway XXX.

(iv) **SOIA (Name) Airport Visual Segment (replaces ILS PRM (d) above).** Pilot procedures for navigating beyond the LDA MAP are spelled out. If ATC advises that there is traffic on the adjacent ILS, pilots are authorized to continue past the LDA MAP to align with runway centerline when:

- the ILS traffic is in sight and is expected to remain in sight,
- ATC has been advised that “traffic is in sight.” (ATC is not required to acknowledge this transmission),
- the runway environment is in sight. Otherwise, a missed approach must be executed. Between the LDA MAP and the runway threshold, pilots conducting the LDA PRM approach are responsible for separating themselves visually from traffic conducting the ILS PRM approach to the adjacent runway, which means maneuvering the aircraft as necessary to avoid that traffic until landing, and providing wake turbulence avoidance, if applicable. Pilots maintaining visual separation should advise ATC, as soon as practical, if visual contact with the aircraft conducting the ILS PRM approach is lost and execute a missed approach unless otherwise instructed by ATC.

(v) **Differences between Simultaneous ILS and ILS PRM or LDA PRM approaches of importance to the pilot.**

- **Runway Spacing.** Prior to simultaneous close parallel
approaches, most ATC directed breakouts were the result of two aircraft in-trail on the same final approach course getting too close together. Two aircraft going in the same direction did not mandate quick reaction times. With PRM closely spaced approaches, two aircraft could be alongside each other, navigating on courses that are separated by less than 4,300 feet. In the unlikely event that an aircraft “blunders” off its course and makes a worst case turn of 30 degrees toward the adjacent final approach course, closing speeds of 135 feet per second could occur that constitute the need for quick reaction. A blunder has to be recognized by the monitor controller, and breakout instructions issued to the endangered aircraft. The pilot will not have any warning that a breakout is imminent because the blundering aircraft will be on another frequency. It is important that, when a pilot receives breakout instructions, he/she assumes that a blundering aircraft is about to or has penetrated the NTZ and is heading toward his/her approach course. The pilot must initiate a breakout as soon as safety allows. While conducting PRM approaches, pilots must maintain an increased sense of awareness in order to immediately react to an ATC instruction (breakout) and maneuver as instructed by ATC, away from a blundering aircraft.

- **Communications.** To help in avoiding communication problems caused by stuck microphones and two parties talking at the same time, two frequencies for each runway will be in use during ILS PRM and LDA PRM approach operations, the primary tower frequency and the PRM monitor frequency. The tower controller transmits and receive in a normal fashion on the primary frequency and also transmits on the PRM monitor frequency. The monitor controller’s transmissions override on both frequencies. The pilots flying the approach will listen to both frequencies but only transmit on the primary tower frequency. If the PRM monitor controller initiates a breakout and the primary frequency is blocked by another transmission, the breakout instruction will still be heard on the PRM monitor frequency.

*Note – At some airports, the override capability may be on other than the tower frequency (KSFO overrides the final radar controller frequency). Pilots should carefully review the dual communications requirements on the AAUP prior to accepting a PRM approach.*

- **Breakouts.** The probability is extremely low that an aircraft will “blunder” from its assigned approach course
and enter the NTZ, causing ATC to “breakout” the aircraft approaching on the adjacent ILS or LDA course. However, because of the close proximity of the final approach courses, it is essential that pilots follow the ATC breakout instructions precisely and expeditiously. The controller’s “breakout” instructions provide conflict resolution for the threatened aircraft, with the turn portion of the “breakout” being the single most important element in achieving maximum protection. A descending breakout will only be issued when it is the only controller option. In no case will the controller descend an aircraft below the MVA, which will provide at least 1,000 feet clearance above obstacles. The pilot is not expected to exceed 1,000 feet per minute rate of descent in the event a descending breakout is issued.

- **Hand-flown Breakouts.** The use of the autopilot is encouraged while flying an ILS PRM or LDA PRM approach, but the autopilot must be disengaged in the rare event that a breakout is issued. Simulation studies of breakouts have shown that a hand-flown breakout can be initiated consistently faster than a breakout performed using the autopilot.

- **TCAS.** The ATC breakout instruction is the primary means of conflict resolution. TCAS, if installed, provides another form of conflict resolution in the unlikely event other separation standards would fail. TCAS is not required to conduct a closely spaced approach. The TCAS provides only vertical resolution of aircraft conflicts, while the ATC breakout instruction provides both vertical and horizontal guidance for conflict resolutions. Pilots should always immediately follow the TCAS Resolution Advisory (RA), whenever it is received. Should a TCAS RA be received before, during, or after an ATC breakout instruction is issued, the pilot should follow the RA, even if it conflicts with the climb/descent portion of the breakout maneuver. If following an RA requires deviating from an ATC clearance, the pilot must advise ATC as soon as practical. While following an RA, it is extremely important that the pilot also comply with the turn portion of the ATC breakout instruction unless the pilot determines safety to be factor. Adhering to these procedures assures the pilot that acceptable “breakout” separation margins will always be provided, even in the face of a normal procedural or system failure.

5. **ISSUE OF APPROVAL**
Commercial operators will be required to establish and obtain approval of the ILS PRM training programme in compliance with this OC and incorporate this in the Operations Manual. Approval to conduct ILS PRM approaches will be accorded by FSD, DGCA through an operations specification for a particular approach/aerodrome. General aviation operators will be issued a letter of authorization to conduct ILS PRM for particular aerodromes/approaches on compliance with this OC.

Sd/-
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