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Fourteenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/14) of APANPIRG

Bangkok, Thailand, 3 – 7 August 2026

Agenda Item 6: ATM Coordination and Implementation

6.4: ATS Route Development

PROGRESS UPDATE ON DIRECT ROUTE OPERATIONS (DRO) IMPLEMENTATION INITIATIVE IN MALAYSIA

(Presented by Malaysia)

SUMMARY

This paper provides an update on Malaysia's implementation of the Direct Route Operations (DRO) within the Kuala Lumpur and Kota Kinabalu FIRs as part of the Malaysia's ongoing efforts to improve airspace efficiency, enhance operational performance, and contribute to sustainable aviation outcomes.

1. INTRODUCTION

1.1 The aviation industry continues to seek opportunities to improve operational efficiency while maintaining the highest levels of safety and environmental sustainability. In line with these objectives, Malaysia has undertaken various airspace optimisation initiatives to support more efficient utilisation of available airspace and air traffic management resources.

1.2 Malaysia commenced the phased implementation of Direct Route Operations (DRO) in 2025 under the broader Free Route Operations (FRTTO) framework. The implementation roadmap is supported by the [Air Navigation Services Implementation Plan \(ANSIP\) for FRTTO in the Kuala Lumpur FIR \(KL FIR\) and Kota Kinabalu FIR \(KK FIR\)](#), which outlines the progressive development of route flexibility and airspace efficiency initiatives.

1.3 The initiative aims to support more efficient flight trajectories by enabling aircraft operators to utilise direct routings where operationally feasible. Such initiatives may contribute towards reduced track miles, more efficient fuel use and potential reductions in aviation-related emissions, subject to actual operational usage and traffic conditions.

2. DISCUSSION

Implementation of DRO in Malaysia

2.1 The initial implementation of DRO was introduced in selected portions of the KL FIR and KK FIR following operational assessments, stakeholder consultation and safety evaluations. The implementation adopted a phased approach to allow operational experience to be gained while ensuring that safety and air traffic management performance are maintained.

Date	Milestone
Apr 2025	Publication of National FRTTO Framework
Jun 2025	DRO Trial Implementation
Sep 2025	Trial Completion
Sep 2025+	Permanent DRO Implementation
Jun 2026	Additional KL FIR DRO Implementation
Future	Potential Cross-Boundary DRO and UPR Development

2.2 Following the initial implementation phase, Malaysia continued engagement with aircraft operators and industry stakeholders to identify additional opportunities for further route optimisation.

2.3 As a result of these engagements, five additional direct routing opportunities were identified within the KL FIR:

Original FPL routes	Proposed additional DRO routes	Track miles reduction
VPL Y503 RINBA Y507	VPL DCT ANBIK Y507	7NM
BOGUK Y507 VBA G582 VPK	BOGUK DCT ANBIK DCT ADNUT G582 VPK	32NM
VPK G582 BILIK Y506 GORVU	VPK DCT ATIMU Y506 GORVU	12NM
SALAX DCT BATAR A464 ARAMA	SALAX DCT TOPOR A464 ARAMA	1NM
IGARI R208 VKR Y346 PULIP	IGARI R208 IKUKO DCT LASOB Y346 PULIP	10NM

2.4 These enhancements were subsequently implemented following the completion of the required operational coordination, aeronautical information publication processes and stakeholder notification activities.

2.5 The implementation process involved close collaboration between operational, planning and aeronautical information management functions within Malaysia, together with engagement of relevant industry stakeholders. This collaborative approach enabled the implementation activities to be completed within the planned timeframe while maintaining the required level of operational oversight.

Future Direction

2.6 Malaysia continues to assess opportunities to further enhance the DRO concept through engagement with airspace users and neighbouring Air Navigation Service Providers (ANSPs). Potential future initiatives include additional direct routing opportunities and the exploration of cross-boundary airspace optimisation concepts where operationally appropriate. Any future implementation will remain subject to operational feasibility, safety assessment, stakeholder consultation and inter-State coordination requirements.

2.7 Malaysia continues to assess opportunities to further enhance the DRO concept through engagement with airspace users and neighbouring Air Navigation Service Providers (ANSPs). Potential future initiatives include additional direct routing opportunities and the exploration of cross-boundary airspace optimisation concepts where operationally appropriate. Any future implementation will remain subject to operational feasibility, safety assessment, stakeholder consultation and inter-State coordination requirements.

2.8 Malaysia also considers DRO a progressive step toward the longer-term FRT0 vision outlined in the national implementation framework. Future developments will continue to be implemented incrementally based on operational readiness and regional harmonisation considerations.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;

ATTACHMENT A

Permanent DRO Implemented earlier in 2026

KL FIR

Flight Planning on ATS Routes	Flight Planning for DRO (24-hours)	Applicable Flight Levels	Remarks	Reduction in Distance Flown (NM)
IGOGU N571 GUNIP M630 SUKRI	IGOGU N571 GUNIP DCT SUKRI	FL350 and above	Applicable to Southbound flights	0.8
PUGER R461 VESIS M630 SUKRI	PUGER DCT VESIS DCT SUKRI			0.7
AROSO Y513 KALIL Y501 RINBA Y502 DUBAX	AROSO DCT VIH DCT DUBAX	FL360 and above	Applicable to Northbound flights	14.3
AROSO Y513 KALIL Y501 RIGTO	AROSO DCT VIH DCT RIGTO			14.1
AROSO Y513 KALIL Y501 RINBA R325 VAS A457 TAMOS	AROSO DCT VIH DCT TAMOS			15.6
AROSO Y513 KALIL Y504 GUNIP N571 ...	*AROSO DCT GUNIP N571 ...	FL340 and above	Applicable to Westbound flights	3
AROSO Y513 KALIL Y504 BILIK G582 PUGER	AROSO DCT PUGER			5.6
AROSO Y513 KALIL Y501 RINBA Y503 VPL P628 ...	**AROSO DCT VIH DCT VPL P628 ...	FL380 and above		16.6

KK FIR

Entry WPT	Exit WPT	DRO Flight Planning	Track Miles Saving
AGOBA	OSANU	AGOBA DCT SARVO DCT BRU DCT OSANU	31.6
	VIMAG	AGOBA DCT SARVO DCT BRU DCT VIMAG	44
	VINIK	AGOBA DCT SARVO DCT BRU DCT VINIK	30.6
ATETI	OSANU	ATETI DCT SARVO DCT BRU DCT OSANU	15.7
	VIMAG	ATETI DCT SARVO DCT BRU DCT VIMAG	27.8
	VINIK	ATETI DCT SARVO DCT BRU DCT VINIK	14.2
KAMIN	OSANU	KAMIN DCT DARMU DCT BRU DCT OSANU	1.5
	VIMAG	KAMIN DCT DARMU DCT BRU DCT VIMAG	0.1

OKADA	OSANU	OKADA DCT OSANU	0.1
	VINIK	OKADA DCT BRU DCT SUMLA DCT VINIK	4.8
PAPSA	OSANU	PAPSA DCT SARVO DCT BRU DCT OSANU	2.9
	VIMAG	PAPSA DCT SARVO DCT BRU DCT VIMAG	15
	VINIK	PAPSA DCT SARVO DCT BRU DCT VINIK	1.5
ANIPU	ASISU	ANIPU DCT DARMU DCT ASISU	0.1
PAPSA		PAPSA DCT DARMU DCT ASISU	123.7
OSANU	AGOB	OSANU DCT BRU DCT SARVO DCT AGOB	31.6
	ATETI	OSANU DCT BRU DCT SARVO DCT ATETI	15.7
	KAMIN	OSANU DCT BRU DCT DARMU DCT KAMIN	1.5
	OKADA	OSANU DCT OKADA	0.1
	PAPSA	OSANU DCT BRU DCT SARVO DCT PAPSA	2.9
VIMAG	AGOB	VIMAG DCT BRU DCT SARVO DCT AGOB	44
	ATETI	VIMAG DCT BRU DCT SARVO DCT ATETI	27.8
	KAMIN	VIMAG DCT BRU DCT DARMU DCT KAMIN	6.4
	PAPSA	VIMAG DCT BRU DCT SARVO DCT PAPSA	15
VINIK	AGOB	VINIK M754 BRU DCT SARVO DCT AGOB	30.5
	ATETI	VINIK M754 BRU DCT SARVO DCT ATETI	14.2
	OKADA	VINIK M754 BRU DCT OKADA	4.8
	PAPSA	VINIK M754 BRU DCT SARVO DCT PAPSA	1.5
VIMAG	OLKIT	VIMAG DCT OLKIT	2.5
OSANU	OLKIT	OSANU DCT DOGOG DCT OLKIT	15.7
	ASISU	OSANU DCT ADLEX DCT ASISU	61.1
OSANU	MAMOK	OSANU DCT ELPOX DCT MAMOK	4.6
VINIK	AGSON	VINIK DCT BUTAX DCT AGSON	1.2
OLKIT	OSANU	OLKIT DCT DOGOG DCT OSANU	15.7
	VIMAG	OLKIT DCT VIMAG	2.5
ASISU	AGSON	ASISU DCT AGSON	29.5
AGSON	VINIK	AGSON DCT BUTAX DCT VINIK	1.2

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