

## Review of NOTAM Airspace Service at PIA Unit in Medan Area within the Singapore Delegated Area

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Article Info	ABSTRACT
<p><b>Article History:</b> Submitted: July 12, 2025 Revised: July 22, 2025 Accepted: July 24, 2025</p> <hr/> <p><b>Keywords:</b> Raw Data, NOTAM, Airspace Delegation</p>	<p><i>This study examines the effectiveness of the NOTAM service in Indonesian airspace delegated to Singapore, managed by the Medan Regional AIS Unit. Using a qualitative descriptive method with gap analysis, the research compares actual operations with ICAO and LOCA standards. Data were collected from July 2024 to August 2025 through observation, document review, and interviews. Analysis of three delayed NOTAM cases shows that while internal AIS procedures are generally compliant, effectiveness is hindered by delayed data submissions from external agencies. These delays violate ICAO Doc. 10066, limiting verification time, increasing operational stress, and posing flight safety risks. The study concludes that the core problem lies in the lack of compliance and awareness among external stakeholders. It recommends stronger dissemination of ICAO regulations, improved inter-agency coordination, and routine evaluations to ensure timely, accurate, and safe aeronautical information services.</i></p>

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## INTRODUCTION

Effective Aeronautical Information Services (PIA) in Singapore's delegated airspace areas relies heavily on strict procedural compliance from all stakeholders. International standards in ICAO Doc. 10066 sets a minimum time limit of seven days for submitting raw data to ensure a safe verification, coordination and publication of Notice to Airmen (NOTAM) [1].

However, in the Medan Region PIA Unit, there was a compliance gap where data from airspace user agencies submitted raw NOTAM data close to the stipulated deadline. This problem is not just an administrative problem, but a significant operational risk. These delays directly compress crucial time for data validation, inefficiently increase personnel workload, and most importantly, potentially compromise flight safety due to the risk of inaccurate or delayed information dissemination [2].

Although this problem is acknowledged qualitatively, there has been no measurable analysis documenting the frequency, duration, and primary sources of these delays, as well as their quantitative impact on service workflows. Therefore, this study aims to analyze in depth the level of compliance and its impact on the effectiveness of NOTAM services in the Medan Region PIA Unit [3].

## METHODS

This research uses a qualitative approach with a case study design to investigate in depth the NOTAM service process in the Medan Region PIA Unit, especially in the airspace area delegated to Singapore. This approach was chosen to gain a rich and contextual understanding of the complexity of workflows, challenges faced, and operational impacts from the perspective of personnel directly involved.

The data collection process was carried out in three complementary ways. First, documentation studies are carried out on regulations such as ICAO Doc. 10066, Letter of Coordination Agreement (LOCA), and NOTAM submission logbook to establish ideal standards and identify initial data. Second, semi-structured interviews were conducted with key personnel selected through purposive sampling based on their experience and direct involvement. Third, direct observation in work units is used to understand undocumented field practices and dynamics [4].

The collected data is then analyzed using the gap analysis method [5]. This analysis focuses on a systematic comparison between the ideal conditions required by regulations, especially the 7 day submission deadline, with the actual conditions found in the field. The identified gaps between standards and practices are further analyzed to understand the root causes and their impact on service effectiveness and safety.

**Table 1** GAP Analysis

Aspect	Ideal Conditions	Actual Condition	GAP	Impact
Raw data Delivery Time	Raw data is sent at least 7 days before the activity	Raw data is often sent less than 7 days before implementation	Not according to procedure	Medan Region PIA operations, and also the risk of delays in NOTAM publication
Medan Region PIA Operations	Done with sufficient time	The data management process was carried out in a hurry	The quality of checking decreases	The potential for errors is greater and can also cause human error
Understanding Data Sources	All data source parties understand the importance of the 7 days buffer time	Some agencies do not understand this provision	Lack of socialization	Raw data is not sent on time

To ensure the validity of the findings, the validity of the data is strengthened through triangulation, namely by comparing data from interviews, observations and documents. The entire series of research was carried out by upholding ethical principles, including obtaining informed consent from participants and maintaining the confidentiality of their identities [6].

## RESULT AND DISCUSSION

The results of this research clearly identify a significant time compliance gap between regulatory standards and NOTAM submission practices in the field. The delay in submitting raw data from airspace user agencies to the Medan Regional PIA Unit is the main finding in this problem.

In this case the author has several cases in the issuance of air space NOTAMs which were delegated to Singapore :



**Figure 1** NOTAM Submission Regarding Operational Preparedness Training (LKO) Opsgakkumpamwilud Koopsudnas FY 2024

Based on the three problem descriptions above, it can be seen that there is a gap between the regulations set by ICAO in Doc. 10066 with the NOTAM issuance process taking place at PIA Medan Region. And in this case, the Medan Region PIA issued air space NOTAMs which were delegated to Singapore following a fairly long and complex path, therefore all procedures and regulations have been established to ensure the smoothness and effectiveness of personnel in issuing NOTAMs [7]. In the process of issuing NOTAMs relating to the Singapore airspace delegation area, there is a fairly long coordination flow as follows in figure 4.

TENTARA NASIONAL INDONESIA  
MARKAS BESAR ANGKATAN UDARA

Jakarta, 8 Mei 2025

Nomor : B/ 1445 /V/2025  
 Klasifikasi : Biasa  
 Lampiran : Satu  
 Perihal : Permohonan penerbitan Notam  
 Air Maneuver Exercise (AMX)  
 Latma Elang Indopura XXIII/25

Kepada  
 Yth. Direktur Operasi  
 Perum LPPNPI  
 di  
 Tangerang

1. Dasar

a. Surat Pangkoopsudnas Nomor B/1331-21/09/05/Koopsudnas tanggal 7 Mei 2025 tentang Permohonan Pembuatan Notam.

b. Surat Pangkoopsud I Nomor B/1022/V/2025 tanggal 6 Mei 2025 tentang Permohonan Pembuatan Notam.

2. Sesuai dasar tersebut di atas, dengan hormat disampaikan bahwa akan dilaksanakan kegiatan Air Maneuver Exercise (AMX) Latma Elang Malindo Indopura XXIII/25 antara TNI AU dengan RSAF TA 2025. Guna menjaga keselamatan dan kelancaran kegiatan dimaksud, mohon berkenan menerbitkan Notam dengan data sebagai berikut.

a. Tanggal : 13 s.d. 23 Mei 2025.  
 b. Waktu : 00.00 s.d. 10.00 UTC.  
 c. Ketinggian : Ground/Water s.d. FL 240.  
 d. Lokasi : JTA (Joint Training Area) Lanud Rsn.  
 e. Koordinat :

JTA 1 :		JTA 2 :	
00°18'00.00"N	102°43'00.00"E	01°38'00.00"N	101°39'00.00"E
00°37'00.00"N	102°26'00.00"E	01°25'00.00"N	102°11'00.00"E
01°14'00.00"N	102°44'00.00"E	01°14'00.00"N	102°44'00.00"E
00°45'00.00"N	103°12'00.00"E	00°37'00.00"N	102°26'00.00"E
00°17'00.00"N	103°40'00.00"E	00°45'00.00"N	102°01'00.00"E
00°10'00.00"S	103°10'00.00"E	00°58'00.00"N	101°30'00.00"E
00°18'00.00"N	102°43'00.00"E	01°38'00.00"N	101°39'00.00"E

Figure 2 NOTAM Submission Regarding the Air Maneuver Exercise (AMX) Activities of Latma Elang Malindo Indopura XXIII/25 between the Indonesian Air Force and the RSAF FY 2025

REQUEST NOTAM FORM	
Form No:	
<b>To</b> General Manager of Aeronautical Information Center	<b>From</b> Name : Afin Hananiyah Position : Junior Manager of TMA Service Control
Jenis NOTAM: <input checked="" type="checkbox"/> NOTAM New <input type="checkbox"/> NOTAM Replace Number ..... <input type="checkbox"/> NOTAM Cancel Number .....	
Location indicator	WIFF WSJC
From	24 December 2024 0000UTC
To	31 December 2024 0900UTC
Time Schedule	
Text of NOTAM: UNMANNED AERIAL VEHICLE (UAV) WILL TAKE PLACE WI COORD AS FLW: 011223N 1022307E 011216N 1024739E 005306N 1024737E 005314N 1022310E 011223N 1022307E	
Lower limit : SFC	
Upper limit : A015	
<b>Applicant</b>	<b>Applicant Contact Details</b>
	Handphone/Whatsapp : 08170087004 Telephone : - Email : afin.hananiyah@airnavindonesia.co.id
Date of request : 24 Desember 2024	

Figure 3 Submission of NOTAMs related to unmanned aerial vehicle (UAV) activities that will operate in the airspace delegated to Singapore

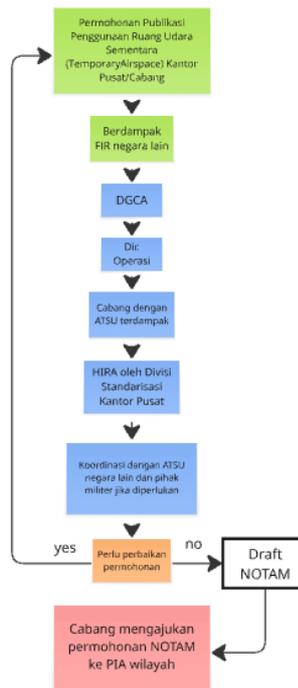


Figure 4 Airspace NOTAM Submission Flow Delegated to Singapore

The following is from the picture above the flow in the publication of air space NOTAMs in the Singapore envoy area which applies to the PIA Medan Region and this has been stated in the internal documents of the PIA Medan Region. Starting from the stages of the submission process from the data source until finally the raw data is sent to PIA Medan Region for submission for NOTAM publication. The use of air space in the Singapore delegation area goes through quite complex stages in the licensing process related to the publication of NOTAMs [8]. Therefore, the NOTAM raw data submission process must be carried out well in advance (seven days at the latest) before the activity is carried out. In Doc. ICAO 10066 concerning Procedures for Air Navigation Services – Aeronautical Information Management which is contained in the Letter of Coordination Agreement (LOCA) between PIA Medan Region and data sources, there are provisions regarding procedures for aeronautical information services.

	NOTA KESEPAKATAN KOORDINASI OPERASIONAL	Revisi No.	00
	PELAYANAN INFORMASI AERONAUTIKA	Isued	MARET 2019

<p><b>8. KESEPAKATAN</b></p>	<p><b>NOTAM</b></p> <p>Penyampaian raw data publikasi beserta data dukung untuk penerbitan NOTAM sebagai berikut :</p> <ol style="list-style-type: none"> <li>1. Pengajuan raw data NOTAM untuk kegiatan <b>VVIP Movement</b> di bandar udara Internasional Kualanamu dilakukan oleh Pangkalan TNI Angkatan Udara Soewondo kepada Unit Pelayanan Informasi Aeronautika Wilayah Medan Melalui Manager Operasi Aimav Cabang Medan pada kesempatan pertama.</li> <li>2. Pengajuan raw data NOTAM untuk kegiatan yang menyangkut reservasi wilayah ruang udara disampaikan selambat - lambatnya 7 (tujuh) hari sebelum pelaksanaan kegiatan tersebut.</li> <li>3. Pengajuan raw data NOTAM untuk kegiatan tidak terencana/insidentil disampaikan pada kesempatan pertama kemudian diikuti penyampaian menggunakan form permohonan Notam.</li> <li>4. Notam terkait kegiatan TNI AD dan TNI AL dapat langsung mengajukan ke Danlanud terdekat dimana area kegiatan dilaksanakan, dalam hal ini Pangkalan TNI Angkatan Udara Soewondo yang selanjutnya diteruskan ke PIA Wilayah Medan.</li> </ol>
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Figure 5 Airspace Reservation Provisions Within LOCA

One of the provisions in the figure states that the application for the issuance of a NOTAM for the use of air space must be submitted no later than 7 (seven) days before the activity is carried out. If the application is made less than this time period, this could have an impact on the Medan Region PIA operations [9]. This is because PIA personnel need time to carry out the procedures required in the NOTAM issuance process. Therefore, adequate time is needed so that PIA personnel can process data appropriately in accordance with applicable regulations so that the information published is accurate and in accordance with procedures [10].

The impact of delays in submitting data for NOTAM issuance is that the data verification and validation process becomes rushed even though in NOTAM issuance, even though this stage is important to ensure that the information to be contained in the NOTAM complies with procedures, if this is done in a limited time it can increase the risk of errors. Then the workload of PIA Medan Region personnel increases and can cause human error due to work being carried out in a hurry.

## CONCLUSION

This research found that delays in sending raw NOTAM data by airspace user agencies in the Singapore delegation area were the main cause of not achieving the minimum deadline of seven days before carrying out activities, as regulated in ICAO Doc 10066. This condition not only reduces the effectiveness of aeronautical information services (AIS), but also has the potential to cause disruption to the safety and smooth operation of flights.

This delay reflects the still weak understanding of international regulations, lack of internal supervision, and lack of optimal inter-agency coordination mechanisms. This research is limited to NOTAM analysis during a certain observation period, so it does not cover the entire operational pattern in the delegation area as a whole.

For this reason, it is recommended that there be regular and structured socialization of international regulations (ICAO) and local provisions (LOCA), especially to technical implementing units and NOTAM applicants. Apart from that, it is necessary to establish internal operational standards regarding the raw data submission deadline of at least seven days, as well as establishing a digital monitoring system based on automatic reminders to increase compliance.

Further research is recommended to explore the effectiveness of the internal monitoring system in the AIS unit, as well as evaluate the role of information technology in speeding up the process of coordinating the issuance of NOTAMs in delegate airspace.

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With gratitude, we have successfully completed this article. Although not perfect, hopefully it can enrich the treasure of aviation science and be useful for those who read it.

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