



REQUEST FOR INFORMATION
WAM/ADS-B SOUTH
for
Polish Air Navigation Services Agency

1. General information.
 - 1.1. Enquirer: Polish Air Navigation Services Agency (PANSa) Wieżowa Street 8, 02-147 Warsaw.
 - 1.2. Contact: wamsouth@pansa.pl
 - 1.3. Aim of the enquiry: budget planning, preceding public tender.
 - 1.4. Expected reply date: no later than 17th March, 2023.
 - 1.5. The answer to the query shall be prepared at the sole expense of the answering party.
 - 1.6. The following query is not a public tender procedure announcement, according to the Civil Code or the Public Procurement Law.
 - 1.7. The answer to the following question shall not constitute an offer within the meaning of the art. 66 of the Civil Code and is not binding any parties.
 - 1.8. The information contained below may be used only for their intended purpose, i.e. to prepare a response to the Request.
2. Subject of the query.
 - 2.1. PANSa is interested in purchasing Wide Area Multilateration combined with Automatic Dependent Surveillance-Broadcast system (WAM/ADS-B) with the aim to increase coverage and modernize the surveillance system. The Request for Information is preceding formal public tender procedure. The response to the RFI shall base on the general system definition and responsibilities described below. The subject of the query is rough order of magnitude only.
3. General scope of PANSa responsibilities.
 - 3.1. PANSa will be responsible for providing infrastructure like masts, buildings, shelters for installation of the WAM/ADS-B components.
 - 3.2. PANSa will be responsible for providing 230V/50 Hz AC mains power for components of the WAM/ADS-B system.
 - 3.3. PANSa will be responsible for part of the communication system as described in chapter 6.
4. Applicable standards and recommendations.

- 4.1. All relevant standards and recommendations will be met by WAM/ADS-B system.
- 4.2. The software delivered with WAM/ADS-B system will be developed and documented in the way ensuring compliance with safety requirements of EUROCAE ED-153 „Guidelines for ANS Software Safety Assurance“.
- 4.3. Software of the delivered WAM/ADS-B system will meet, as a minimum, assurance level SWAL 4.
- 4.4. ADS-B system will comply at least with the performance requirements specified in EUROCAE ED-129B.
- 4.5. WAM system will comply at least with the performance requirements specified in EUROCAE ED-142.
5. Generic system description.
 - 5.1. The WAM/ADS-B system will consist of:
 - Redundant Central Processor Unit (CPU),
 - Ground Units (GU) i.e. Receiving (RX), Transmitting (TX), Receiving-Transmitting (RXTX) and Reference And Monitoring Transponders Units (RMTR) in numbers and locations to meet the coverage requirements,
 - Remote Control and Monitoring System (RCMS) for all components,
 - Data Recording and Playback System,
 - Single channel Test System,
 - Technical data display and a control and monitoring system display,
 - necessary set of spare parts,
 - necessary set of tools.
 - technical documentation.
 - 5.2. All components of WAM/ADS-B system will be provided, installed and calibrated by the Contractor at sites chosen from the list of available sites provided by PANSA.
 - 5.3. The Central Processor Unit and other common components will be located at OKRL Krakow.
 - 5.4. RCMS display and technical display of the system will be located in technical room at OKRL Krakow and at OKRL Katowice.
 - 5.5. The WAM/ADS-B system components of Ground Units will be equipped with an Uninterruptible Power Supply (UPS) both for power conditioning and to support the system in the event of a commercial mains power failure.

- 5.6. WAM/ADS-B system will provide coverage for the airspace volume of Krakow TMA.
 - 5.7. Surveillance data and coverage area of WAM/ADS-B system will be presented on a technical display of the system over region map with marked locations and statuses of all Ground Units for fully operational system and for N-1 Scenario.
 - 5.8. The WAM/ADS-B system will be capable of providing target reports in accordance with the ASTERIX data format.
 - 5.9. The WAM/ADS-B system will output target and status reports on multiple, individually configurable, outputs.
 - 5.10. The WAM/ADS-B system will provide at least two separate physical output connections and six independent logical output channels.
 - 5.11. The WAM/ADS-B system will include a Built In Test Equipment (BITE) in a configuration, ensuring a continuous monitoring of the operating status of all the equipment.
 - 5.12. The WAM/ADS-B system will provide capability to design and simulate coverage related to an addition or redeployment of any ground unit.
 - 5.13. The WAM/ADS-B system will provide recording and replay/export functionality at least the following data:
 - plot reports,
 - target reports,
 - interrogation activity,
 - status and performance data,
 - configuration changes.
 - 5.14. In order to integrate with the CNS PANSA monitoring system, the Contractor will provide hardware with SNMP protocol support, a described MIB's tree, and provide resources to integrate with the external PANSA monitoring system.
 - 5.15. It will be possible to provide to the CNS PANSA monitoring system at least WAM/ADS-B system status, output data status and site parameters (i.e. temperature, main power supply, UPS power supply).
 - 5.16. WAM/ADS-B test system will operate autonomously from the operational system and will be used for testing, verification, validation and training purposes.
6. Communication
 - 6.1. The Contractor will build and configure WAM/ADS-B dedicated network, with partial use of the WAN infrastructure. In addition to the scope of the network

infrastructure provided by PANSA, the Contractor shall provide all network constituents, including necessary data links.

- 6.2. PANSA will provide network infrastructure for 20 of the 30 sites, where Ground Units will be installed.
 - 6.3. For the remaining 10 sites network infrastructure, including data links between Ground Units and Central Processor Unit, will be provided by Contractor for the period up to minimum 2 (two) years after successful final SAT acceptance.
 - 6.4. PANSA will provide network connection between OKRL Kraków and OKRL Katowice to link units of the Control and Monitoring System (CMS).
 - 6.5. WAM/ADS-B System local network connections at OKRL Krakow and OKRL Katowice will be provided by Contractor.
 - 6.6. Communication between Ground Units and Central Processor Unit will be over IP.
7. Training
- 7.1. The training on the WAM/ADS-B system will enable PANSA's technical staff to efficiently undertake the necessary activities to evaluate the condition of the system, error detection and tuning down to the Lowest Replaceable Unit (LRU) level, equipment parameterization, preventive maintenance and system configuration, including unit location change or ground unit system addition.
 - 7.2. The Contractor will organize four (4) non-overlapping courses :
 - 2 x factory maintenance/administrator training (including tasks like extended system configuration, unit change or addition),
 - 2 x on-site refresher course.
 - 7.3. Each factory course will last two (2) weeks at least, each refresher course will last three (3) days at least.
 - 7.4. Maximum number of each training course participants will be six (6).
8. Scale and expandability of WAM/ADS-B System - RFI assumptions.
- 8.1. For the purpose of the RFI it shall be assumed that the WAM/ADS-B system will consist of 20 RX and 10 RX/TX ground stations.
 - 8.2. The WAM/ADS-B system will provide the ability to increase or alter the coverage area or the system performance through the addition or redeployment of any ground units.
 - 8.3. Beyond the main scope of the WAM/ADS-B system described in this document, PANSA plans in future contract options to expand the system.

- 8.4. The RFI shall include information on the system expansion cost for two independent options:
- the commissioned system expansion by 10 RX and 6 RX/TX ground stations,
 - the commissioned system expansion by 20 RX and 12 RX/TX ground stations.
9. Other requirements.
- 9.1. The Contractor will provide the Safety Case for WAM/ADS-B system, including provision of safety evidence and support necessary for:
- Functional Hazard Assessment (FHA),
 - Preliminary System Safety Assessment (PSSA),
 - System Safety Assessment (SSA).
- 9.2. Verification and validation of the system will be performed in three phases :
- Factory Acceptance Test
 - Site Acceptance Test
 - Final Acceptance after operational validation period.
- 9.3. Warranty period will be at least 24 months.
- 9.4. In addition to standard spares set five (5) RX and three (3) RX/TX ground unit will be delivered.
10. Planned contract award and execution dates.
- 10.1. PANSA intention is to award the contract in 2024/2025 and expected execution time is fourteen (14) months.
11. Response form
- 11.1. Please provide response by e-mail to the address given in 1.2 in a form of the table :

ID	Item	Approximate total price
1	System (goods and services)	
2	Training	
3	GUs-CP links lease	
4	System expansion option 1	
5	System expansion option 2	