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MIKROGLOB

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| 1.1 | 30.04.2025 | JBO | Section 2 | Explanation of report naming convention in the introduction. |
| | | | Section 5.3 | Updated description of risks. |
| | | | Section 6.1.2 | Added information on information included in the lower level documents. |
| | | | Section 6.4 | A new section concerning launch systems. |



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1 Applicable and reference documents

Applicable and reference documents are listed in tables below.

1.1 Applicable documents

| No | Doc title | Doc Identifier | Ver.Rev |
|-------|--|---------------------------------|------------|
| AD1. | Umowa MIKROGLOB02 | AU/135/V/2024 | 20.12.2024 |
| AD2. | Umowa MIKROGLOB01 | 132/V206/ZW/ZOT/USŁ/SS/2022/341 | - |
| AD3. | Concept of Operations | MGB-RP-CTI-SY-0009 | 1.1 |
| AD4. | Mission Analysis Report | MGB-RP-CTI-SY-0010 | 1.1 |
| AD5. | Space debris mitigation plan | MGB-PL-CTI-SY-0011 | 1.1 |
| AD6. | Operations requirements document | MGB-RS-CTI-SY-0012 | 1.1 |
| AD7. | Product tree | MGB-PT-CTI-PM-0013 | 1.1 |
| AD8. | Project management plan | MGB-PL-CTI-PM-0014 | 1.1 |
| AD9. | Work breakdown structure | MGB-WBS-CTI-PM-0015 | 1.0 |
| AD10. | Work package description | MGB-WPD-CTI-PM-0016 | 1.0 |
| AD11. | Schedule | MGB-SC-CTI-PM-0017 | 1.1 |
| AD12. | Configuration management plan | MGB-PL-CTI-CM-0018 | 1.1 |
| AD13. | Configuration item list | MGB-LI-CTI-CM-0019 | 1.1 |
| AD14. | Risk management policy document | MGB-POL-CTI-PM-0020 | 1.1 |
| AD15. | Risk management plan | MGB-PL-CTI-PM-0021 | 1.1 |
| AD16. | Risk assessment report | MGB-RP-CTI-PM-0022 | 1.0 |
| AD17. | System Requirements Specification | MGB-RS-CTI-SY-0023 | 1.1 |
| AD18. | Coordinate system document | MGB-FI-CTI-SY-0025 | 1.0 |
| AD19. | System External Interface Control Document | MGB-ICD-CTI-SY-0026 | 1.0 |
| AD20. | Space Segment Requirements Specification | MGB-RS-CTI-SS-0028 | 1.1 |
| AD21. | Space Segment engineering plan | MGB-PL-CTI-SS-0029 | 1.0 |
| AD22. | Space Segment Technology plan | MGB-PL-CTI-SS-0030 | 1.0 |
| AD23. | Space Segment Verification plan | MGB-PL-CTI-SS-0031 | 1.0 |
| AD24. | Space Segment AIT plan | MGB-PL-CTI-SS-0032 | 1.0 |
| AD25. | Space Segment Design Definition Document | MGB-DD-CTI-SS-0033 | 1.0 |
| AD26. | Space Segment Interface control document | MGB-ICD-CTI-SS-0034 | 1.0 |



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|-------|---|-----------------------|-----|
| AD27. | SRR Review Report | MGB-RP-CTI-PM-0040 | 1.1 |
| AD28. | Mission Requirements Specification | MGB-RS-CTI-SS-0051 | 1.0 |
| AD29. | Risk Register | MGB-CO-CTI-PM-0065 | 1.1 |
| AD30. | Glossary of Abbreviations and Definitions | MGB-GAD-CTI-PM-0136 | 1.1 |
| AD31. | SRR & GSRR RID Summary | MGB-RIDS-CTI-PM-0138 | 1.1 |
| AD32. | SRR & GSRR Organization Review Procedure | MGB02-PR-CTI-PM-0134 | 1.1 |
| AD33. | Ground segment Requirements Specification | MGB-RS-CTI-GS-0035 | 1.1 |
| AD34. | Ground segment engineering plan | MGB-PL-CTI-GS-0036 | 1.0 |
| AD35. | Ground Segment Interface Control Document | MGB-ICD-CTI-GS-0037 | 1.0 |
| AD36. | Ground segment design definition document | MGB-DD-CTI-GS-0038 | 1.0 |
| AD37. | Ground segment configuration management plan | MGB-PL-CTI-CM-0039 | 1.0 |
| AD38. | GSRR Review Report | MGB-RP-CTI-PM-0041 | 1.1 |
| AD39. | Ground segment verification plan | MGB-PL-CTI-GS-0139 | 1.0 |
| AD40. | Ground segment AIT plan | MGB-PL-CTI-GS-0140 | 1.0 |
| AD41. | Ground Segment Technology plan | MGB02-PL-CTI-GS-0068 | 1.0 |
| AD42. | Coordinate system document | MGB02-FI-CTI-SY-0025 | 2.1 |
| AD43. | System External Interface Control Document | MGB02-ICD-CTI-SY-0026 | 2.1 |
| AD44. | Space Segment engineering plan | MGB02-PL-CTI-SS-0029 | 2.1 |
| AD45. | Space Segment Technology plan | MGB02-PL-CTI-SS-0030 | 2.1 |
| AD46. | Space Segment Subsystems Requirements Specification | MGB02-RS-CTI-SS-0067 | 1.0 |
| AD47. | PDR Review Report | MGB02-RP-CTI-PM-0070 | 1.1 |
| AD48. | Space-to-Ground Interface Control Document | MGB02-ICD-CTI-SY-0027 | 2.0 |
| AD49. | Space Segment Verification plan | MGB02-PL-CTI-SS-0031 | 2.0 |
| AD50. | Space Segment AIT plan | MGB02-PL-CTI-SS-0032 | 2.0 |
| AD51. | Space Segment Design Definition Document | MGB02-DD-CTI-SS-0033 | 2.0 |
| AD52. | Space Segment Interface control document | MGB02-ICD-CTI-SS-0034 | 2.0 |
| AD53. | Configuration item list | MGB02-LI-CTI-CM-0019 | 2.1 |
| AD54. | Risk Register | MGB02-CO-CTI-PM-0065 | 2.0 |
| AD55. | Space Segment Verification Control Document | MGB02-CD-CTI-SS-0152 | 1.0 |
| AD56. | Concept of Operations | MGB02-RP-CTI-SY-0009 | 2.1 |
| AD57. | Mission Analysis Report | MGB02-RP-CTI-SY-0010 | 2.1 |



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|-------|---|----------------------------------|-----|
| AD58. | Space debris mitigation plan | MGB02-PL-CTI-SY-0011 | 2.0 |
| AD59. | Product tree | MGB02-PT-CTI-PM-0013 | 2.1 |
| AD60. | Project management plan | MGB02-PL-CTI-PM-0014 | 2.1 |
| AD61. | Work breakdown structure | MGB02-WBS-CTI-PM-0015 | 2.0 |
| AD62. | Work package description | MGB02-WPD-CTI-PM-0016 | 2.1 |
| AD63. | Schedule | MGB02-SC-CTI-PM-0017 | 2.0 |
| AD64. | Configuration management plan | MGB02-PL-CTI-CM-0018 | 2.1 |
| AD65. | Risk management policy document | MGB02-POL-CTI-PM-0020 | 2.0 |
| AD66. | Risk management plan | MGB02-PL-CTI-PM-0021 | 2.0 |
| AD67. | Risk assessment report | MGB02-RP-CTI-PM-0022 | 2.0 |
| AD68. | Operations engineering plan | MGB02-PL-CTI-SY-0072 | 1.0 |
| AD69. | Space Segment Subsystems Design Definition Document | MGB02-DD-CTI-SS-0073 | 1.1 |
| AD70. | Space and ground segment monitoring and control databases | MGB02-FI-CTI-SY-0099 | 1.0 |
| AD71. | Annex 1 to Space Segment Interface control document | Annex 1 to MGB02-ICD-CTI-SS-0034 | 2.0 |
| AD72. | Annex 2 to Space Segment Interface control document | Annex 2 to MGB02-ICD-CTI-SS-0034 | 2.0 |
| AD73. | Appendix 1 to Space segment AIT plan | Appendix to MGB02-PL-CTI-SS-0032 | 2.0 |
| AD74. | Annex 1 to Space Segment Design Definition Document - Data Budget | MGB02-BDG-CTI-SS-0165 | 1.0 |
| AD75. | Annex 2 to Space Segment Design Definition Document - Link Budget | MGB02-BDG-CTI-SS-0166 | 1.0 |
| AD76. | Annex 3 to Space Segment Design Definition Document - Power Budget | MGB02-BDG-CTI-SS-0167 | 1.1 |
| AD77. | Annex 1 to Space Segment Subsystems Requirements Specification - Structure | MGB02-RS-CTI-SS-0170 | 1.1 |
| AD78. | Annex 2 to Space Segment Subsystems Requirements Specification - AOCS | MGB02-RS-CTI-SS-0171 | 1.1 |
| AD79. | Annex 3 to Space Segment Subsystems Requirements Specification -Command & Data Handling | MGB02-RS-CTI-SS-0172 | 1.1 |


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|--------|--|------------------------------------|-----|
| AD80. | Annex 4 to Space Segment Subsystems Requirements Specification - Communication | MGB02-RS-CTI-SS-0173 | 1.1 |
| AD81. | Annex 5 to Space Segment Subsystems Requirements Specification - EPS | MGB02-RS-CTI-SS-0174 | 1.0 |
| AD82. | Annex 6 to Space Segment Subsystems Requirements Specification - Payload | MGB02-RS-CTI-SS-0175 | 1.1 |
| AD83. | Annex 7 to Space Segment Subsystems Requirements Specification - TCS | MGB02-RS-CTI-SS-0176 | 1.0 |
| AD84. | Ground segment engineering plan | MGB02-PL-CTI-GS-0036 | 2.1 |
| AD85. | Ground segment configuration management plan | MGB02-PL-CTI-CM-0039 | 2.1 |
| AD86. | Ground Segment Technology plan | MGB02-PL-CTI-GS-0068 | 2.0 |
| AD87. | Ground segment subsystems requirements documents | MGB02-RS-CTI-GS-0069 | 1.1 |
| AD88. | GSPDR Review Report | MGB02-RP-CTI-PM-0071 | 1.1 |
| AD89. | Ground Segment Interface Control Document | MGB02-ICD-CTI-GS-0037 | 2.1 |
| AD90. | Ground segment design definition document | MGB02-DD-CTI-GS-0038 | 2.1 |
| AD91. | Ground segment verification plan | MGB02-PL-CTI-GS-0139 | 2.0 |
| AD92. | Ground segment AIT plan | MGB02-PL-CTI-GS-0140 | 1.0 |
| AD93. | PDR & GSPDR Organization Review Procedure | MGB02-PR-CTI-PM-0153 | 1.1 |
| AD94. | PDR & GSPDR RID Summary | MGB02-RIDS-CTI-PM-0155 | 1.0 |
| AD95. | Glossary of Abbreviations and Definitions | MGB02-GAD-CTI-PM-0136 | 2.1 |
| AD96. | Ground segment subsystems design definition document | MGB02-DD-CTI-GS-0074 | 1.1 |
| AD97. | Ground Segment Verification Control Document | MGB02-VCD-CTI-GS-0123 | 1.0 |
| AD98. | Appendix 1 to Ground segment AIT plan | Appendix 1 to MGB02-PL-CTI-GS-0140 | 2.1 |
| AD99. | Flight Operations Segment Requirements Specification | Annex 1 to MGB02-RS-CTI-SS-0069 | 1.1 |
| AD100. | Payload Data Ground Segment Requirements Specification | Annex 2 to MGB02-RS-CTI-SS-0069 | 1.1 |
| AD101. | User Access Services Requirements Specification | Annex 3 to MGB02-RS-CTI-SS-0069 | 1.1 |



1.2 Reference documents

| No | Doc title | Doc Identifier | Re |
|------|-------------------------------------|----------------|------|
| RD1. | Project Planning and Implementation | ECSS-M-ST-10C | Re.1 |

1.3 Acronyms list

Acronyms list is presented in AD30.

2 Introduction

This document is issued in reference to §2(13) of Contract No. AU/135/V/2024 dated 20 December 2024 (AD1). It has been prepared in the context of the Recovery and Resilience Facility (RRF) and the Polish National Recovery and Resilience Plan (KPO).

The MIKROGLOB project is implemented under Investment A2.6.1 – "Expansion of the national system of monitoring services, products, analytical tools, and supporting infrastructure using satellite data."

This report constitutes one of three documents (Mission Definition Review, Preliminary Requirements Review, Critical Design Review) indicated in the official KPO monitoring table as qualitative indicators for milestone A9L.

The project work under milestone A9L was divided according to ECSS methodology into three phases:

- Phase O/A (mission feasibility study),
- Phase B (early mission definition),
- Phase C (detailed mission definition).

For the purpose of preparing the reports that serve as qualitative indicators for the milestone, and using the report names provided in the KPO documentation description, the following assignment of phases to reports will be applied:

- Phase O/A – Mission Definition Review Report,
- Phase B – Preliminary Requirements Review Report,
- Phase C – Critical Design Review Report.

The present document provides a public summary of the Phase B results and accompanies the Contracting Authority's reporting obligations toward Polish and EU institutions.

Due to the incremental nature of the project's implementation, the following study refers to one or more applicable documents at a time. Multiple references are used wherever the contracting authority specified deliveries of documents in an incremental form.

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3 Scope

This report covers the full set of activities carried out during Phase B of the MIKROGLOB project, leading up to and including the System Requirements Review (SRR), Ground Segment SRR (GSSRR), Preliminary Design Review (PDR) and Ground Segment PDR (GSPDR).

The scope includes:

- Consolidation of system-level and subsystem-level requirements;
- Definition of architectural baselines and key interfaces;
- Progress in project planning, risk management, and configuration control;
- Development of verification, AIT, and operations concepts;
- System-level coordination between the space and ground segments.

It includes inputs from the Contractor and its cooperating entities, and reflects the formal status as reviewed during SRR/GSSRR and PDR/GSPDR.

4 Purpose

The purpose of this document is to provide a concise and structured summary of Phase B outcomes, demonstrating the technical maturity and implementation progress of the MIKROGLOB project.

It supports the justification for continued financing under the KPO framework and provides a reference for evaluating project alignment with the Recovery and Resilience Facility (RRF). It also supports the Contracting Authority in fulfilling its reporting obligations under §2(13) of the Contract, including the provision of financial and technical evidence when required.

5 Project Overview

5.1 Phase Status Summary

Phase B of the MIKROGLOB project was initiated following the successful completion of Phase 0/A as part of the earlier feasibility study (AD2), followed by the signing of the current contract (AD1) for the execution of Phases B to E. It was split into Phases B1 (System Requirements) and B2 (Preliminary Design) in line with ECSS standards (RD1). It progressed in accordance with the approved Project Management Plan (AD8, AD60). During this phase, the Contractor and cooperating entities carried out system-level engineering activities to consolidate mission requirements, define technical baselines, and prepare for the start of detailed design work in Phase C.

The System Requirements Review (SRR) and Ground Segment SRR (GSSRR) were held to assess the maturity of the requirements baseline and system-level concepts, completing phase B1 of the contract. These were followed by the Preliminary Design Review (PDR) and Ground Segment PDR (GSPDR), which evaluated the coherence and completeness of the preliminary design definitions – thus completing phase B2 of the contract, and as such, Phase B in total.

All reviews were successfully completed (see AD27, AD38, AD47, AD88), and the project is proceeding toward Phase C in line with contractual and technical expectations.





5.2 Work Organisation and Planning

Phase B activities were organised according to the Work Breakdown Structure (AD9, AD61) and executed under the management structures defined in the Project Management Plan (AD8, AD60) – both elaborated further as part of phase B. Engineering work was performed by the Contractor with contributions from cooperating entities responsible for specific domains within the space and ground segments.

Work was distributed across the following key activity areas:

- System engineering and requirements management;
- Subsystem-level requirement development and preliminary design;
- Definition of system and segment architectures;
- Interface definition and coordination;
- Verification, AIT, and operations concept preparation;
- Risk and configuration management;
- Review preparation and documentation (AD32, AD93).

Phase B covered the timeframe from 20.12.2024 to 04.04.2025, with all planned milestones achieved within the updated schedule baseline.

5.3 Risk Assessment Summary

Risk management activities in Phase B were based on the Risk Management Policy (AD65) and Risk Management Plan (AD66). The Contractor maintained and updated the Risk Register (AD54), which includes both technical and programmatic risks relevant to Phase B and the transition to Phase C.

During the phase, several risks were identified and addressed, including:

- Potential delays in launch opportunities due to shared rideshare constraints, with mitigation through optional procurement of dedicated launch services and coordination of backup scenarios.
- Component cost escalation beyond planned buffers, addressed by early procurement and currency risk analysis.
- Launcher failure or loss of payload, mitigated through insurance and reconstitution planning.
- Risk of unusual circumstances leading to space debris collision - mitigated by implementing collision warning services and evasive maneuver capability.
- LTAN orbit constraints, impacting ground segment visibility windows, addressed through ground station scheduling flexibility.
- Low TRL or incomplete qualification of new subsystems, mitigated through targeted delta qualification and increased quality assurance during testing.
- Impact of anomalous space weather events on electronics performance, managed via component selection and shielding margin reviews.

Each risk was assessed for probability and impact before and after mitigation, and the majority now fall into a low-to-moderate risk class. No high-criticality risks remain open at the end of Phase B. All mitigation plans have been integrated into the preparation for Phase C and are subject to ongoing monitoring.



6 Technical Status

6.1 Space Segment

6.1.1 Architecture Overview

The MIKROGLOB space segment is based on a modular microsatellite platform HyperSat, supporting optical Earth Observation payloads. The architecture consolidates the lessons learned from prior missions and reflects a dual-track approach: one aligned with a national supply chain, and one leveraging heritage commercial components.

The spacecraft architecture includes a platform and payload interface standardized across the constellation. The platform provides:

- Core services including power, data handling, and communication;
- Advanced attitude control with high-accuracy pointing;
- Modular thermal and structural subsystems.

Key configuration decisions were made regarding payload volume, mechanical interface standardization, and avionics bus compatibility.

6.1.2 Preliminary Subsystem Requirements and Designs

Subsystem requirements were defined and validated through design iterations during Phase B. Major subsystems include:

- Electrical Power System (EPS): Designed for solar panel input scaling with optional battery redundancies. Power budgets were defined for both minimum and extended mission scenarios (AD76).
- AOCS: High-precision pointing and agility requirements are met through reaction wheel and star tracker configurations. Specific margins are defined for pointing error budgets (AD78).
- Command and Data Handling (C&DH): Redundant onboard computers and scalable data buses. Interfaces to payload and TT&C are standardized (see AD79).
- Communications: X-band downlink and S-band TTC systems, with defined link budgets and antenna constraints (see AD80).
- Structure and Thermal Control: The platform layout follows an internal stacking approach, with modular payload bay and interface adapters (see AD77, AD83).
- Payload Interface: Design is compatible with both national and commercial optical payload options.

Subsystem-level trade-offs were finalized in the Space Segment Design Definition Document (AD51) and supporting annexes (AD74, AD75, AD76).

Consolidation of the performance expected, further iterations on mission analysis as part of the PDR, and the confirmation of compatibility with the launcher candidate have been included in the lower level documents.

6.1.3 Interface Definition Status

Interfaces were defined through Interface Control Documents (AD52, AD71, AD72). The Space-to-Ground ICD (AD48) and platform internal interfaces reached a baseline level. Payload interface control is being finalized with provision for late-stage payload selection.





6.2 Ground Segment

6.2.1 Architecture and Functional Concept

The ground segment includes mission control, ground network, and data reception and processing infrastructure. The architecture is structured into the following subsystems:

- Mission Control (CGS): Manages TTC and platform health.
- Payload Data Ground Segment (PDGS): Handles raw data processing and archiving.
- User Access Segment: Manages user requests, catalogue access, and tasking.

Operational concept reflects standard LEO mission profiles, with multiple ground station compatibility and reconfigurable mission planning (see AD56, AD57).

6.2.2 Subsystem Definition and Interface Status

All ground segment subsystems were defined in terms of architecture, key interfaces, and functional baselines. Key documents include:

- Ground Segment Design Definition Document (AD90)
- Ground Segment Interface Control Document (AD89)
- Ground Segment Verification Plan (AD91)

Subsystem specifications and configurations were documented in the Requirements Specification (AD87) and Design Definition Document (AD96).

6.3 System Engineering and Integration

6.3.1 Requirements Traceability

Traceability matrices were developed linking system requirements (AD17, AD28) to subsystem-level specifications and ECSS standards. These matrices were reviewed at SRR/PDR milestones and are maintained under configuration control.

6.3.2 Verification and Validation Planning

Verification and validation activities were structured following ECSS-E-ST-10-02 (**Błąd! Nie można odnaleźć źródła odwołania.**). Verification Control Documents (AD55, AD97) and dedicated Verification Plans (AD49, AD91) define the approach across the platform and ground segments. Formal verification campaigns are scheduled for Phase C and D.

6.3.3 AIT Concept

The Assembly, Integration and Test (AIT) approach was established for both space and ground segments. Dedicated AIT Plans (AD50– space; AD92– ground) define required equipment, environments, and stepwise integration flow. Testing responsibility is distributed and supported by participating entities.

6.3.4 Operations Planning Approach

The operations engineering concept is defined in the Operations Engineering Plan (AD68) and Concept of Operations (AD56). Mission phases are aligned with standard ESA LEO models: LEOP, Commissioning, and Routine Operations. Early tasking procedures, autonomy levels, and contingency actions have been drafted.



6.4 Launch System

As part of the project activities, a comprehensive tender process was conducted to identify prospective launch service providers. Only one provider was identified whose offer met the technical requirements and who had sufficient launch slots available within the timeframe specified in the contract. Due to very high demand and limited availability of launch slots during the specified period, the earliest available slots were promptly reserved.

7 Programme Management Status

7.1 Schedule and Progress vs. Baseline

Phase B was executed in alignment with the baseline schedule defined in the Project Management Plan (AD60) and updated in the project schedule documents (AD63). All Phase B activities, including key reviews (SRR, GSSRR, PDR, GSPDR), were conducted within the agreed timeframe, concluding on 04.04.2025.

Progress was monitored at the work package level, with updates provided to the Contracting Authority during routine progress meetings. Schedule analysis was performed prior to Phase C planning and indicates sufficient buffer remains for critical path activities.

7.2 Work Breakdown Structure and Deliverables Overview

The project Work Breakdown Structure (WBS) was defined at the system level in AD61 and further elaborated for Phase B activities. Each WBS element is linked to dedicated deliverables described in the Work Package Description (AD62). It is organised into major branches including Project Management, Engineering, AIT, Operations Preparation, Launch Segment, Mission Operations, Product Assurance, and Review Support.

Each WBS element is associated with specific deliverables, as defined in the Work Package Description (AD62), supporting traceability from high-level planning to subsystem activities.

During Phase B, key deliverables included:

- System and subsystem-level requirements specifications (e.g., AD46, AD87);
- Preliminary design documentation (AD51, AD96);
- Interface control documents (AD52, AD89);
- Planning and management documents (AD60, AD64, AD66);
- Review packages formally accepted at SRR, GSSRR, PDR, and GSPDR (AD27, AD38, AD47, AD88).

The WBS was also used to map progress against contractual milestones and will continue to serve as the structural backbone for implementation, verification, and reporting activities in subsequent phases..

7.3 Configuration Management and Documentation

Configuration management processes followed the Configuration Management Plan (AD64). All major design documents, interface definitions, and review baselines were placed under configuration control in accordance with the plan.

The Configuration Item List (AD53) and document version tracking logs were maintained through the internal document management file. Key version changes and review decisions were captured in RID summaries and closure logs (AD94).



Traceability of technical documentation was ensured across all work packages, supporting readiness for the upcoming Configuration Baseline Freeze at CDR.

7.4 Risk Management

Risk management activities were conducted in alignment with the Risk Policy (AD65) and Risk Management Plan (AD66). A continuous review cycle was maintained, with updates to the Risk Register (AD54) carried out after each major technical milestone.

8 Documents Delivered and Reviewed

This section summarises the documents submitted and accepted during formal review milestones in Phase B. Each review was conducted in accordance with the applicable organisation procedure (e.g. AD93) and documented through dedicated review reports and RID summaries. All listed items were subject to configuration control and constitute the formal baseline for transition to Phase C.

8.1 Documents Accepted at SRR

| Document Identifier | Document Title | Revision |
|---------------------|-----------------------------------|----------|
| MGB-RP-CTI-SY-0009 | Concept of Operations | 1.1 |
| MGB-RP-CTI-SY-0010 | Mission Analysis Report | 1.1 |
| MGB-PL-CTI-SY-0011 | Space debris mitigation plan | 1.1 |
| MGB-RS-CTI-SY-0012 | Operations requirements document | 1.1 |
| MGB-PT-CTI-PM-0013 | Product tree | 1.1 |
| MGB-PL-CTI-PM-0014 | Project management plan | 1.1 |
| MGB-WBS-CTI-PM-0015 | Work breakdown structure | 1.0 |
| MGB-WPD-CTI-PM-0016 | Work package description | 1.0 |
| MGB-SC-CTI-PM-0017 | Schedule | 1.1 |
| MGB-PL-CTI-CM-0018 | Configuration management plan | 1.1 |
| MGB-LI-CTI-CM-0019 | Configuration item list | 1.1 |
| MGB-POL-CTI-PM-0020 | Risk management policy document | 1.1 |
| MGB-PL-CTI-PM-0021 | Risk management plan | 1.1 |
| MGB-RP-CTI-PM-0022 | Risk assessment report | 1.0 |
| MGB-RS-CTI-SY-0023 | System Requirements Specification | 1.1 |



| | | |
|----------------------|--|-----|
| MGB-FI-CTI-SY-0025 | Coordinate system document | 1.0 |
| MGB-ICD-CTI-SY-0026 | System External Interface Control Document | 1.0 |
| MGB-RS-CTI-SS-0028 | Space Segment Requirements Specification | 1.1 |
| MGB-PL-CTI-SS-0029 | Space Segment engineering plan | 1.0 |
| MGB-PL-CTI-SS-0030 | Space Segment Technology plan | 1.0 |
| MGB-PL-CTI-SS-0031 | Space Segment Verification plan | 1.0 |
| MGB-PL-CTI-SS-0032 | Space Segment AIT plan | 1.0 |
| MGB-DD-CTI-SS-0033 | Space Segment Design Definition Document | 1.0 |
| MGB-ICD-CTI-SS-0034 | Space Segment Interface control document | 1.0 |
| MGB-RP-CTI-PM-0040 | SRR Review Report | 1.1 |
| MGB-RS-CTI-SS-0051 | Mission Requirements Specification | 1.0 |
| MGB-CO-CTI-PM-0065 | Risk Register | 1.1 |
| MGB-GAD-CTI-PM-0136 | Glossary of Abbreviations and Definitions | 1.1 |
| MGB-RIDS-CTI-PM-0138 | SRR & GSRR RID Summary | 1.1 |
| MGB02-PR-CTI-PM-0134 | SRR & GSRR Organization Review Procedure | 1.1 |

8.2 Documents Accepted at GSSRR

| Document Identifier | Document Title | Revision |
|---------------------|--|----------|
| MGB-RS-CTI-GS-0035 | Ground segment Requirements Specification | 1.1 |
| MGB-PL-CTI-GS-0036 | Ground segment engineering plan | 1.0 |
| MGB-ICD-CTI-GS-0037 | Ground Segment Interface Control Document | 1.0 |
| MGB-DD-CTI-GS-0038 | Ground segment design definition document | 1.0 |
| MGB-PL-CTI-CM-0039 | Ground segment configuration management plan | 1.0 |
| MGB-PL-CTI-GS-0139 | Ground segment verification plan | 1.0 |
| MGB-PL-CTI-GS-0140 | Ground segment AIT plan | 1.0 |



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| MGB02-PL-CTI-GS-0068 | Ground Segment Technology plan | 1.0 |
| MGB-RP-CTI-PM-0041 | GSRR Review Report | 1.1 |
| MGB-RIDS-CTI-PM-0138 | SRR & GSRR RID Summary | 1.1 |
| MGB02-PR-CTI-PM-0134 | SRR & GSRR Organization Review Procedure | 1.1 |

8.3 Documents Accepted at PDR

| Document Identifier | Document Title | Revision |
|-----------------------|--|----------|
| MGB02-FI-CTI-SY-0025 | Coordinate system document | 2.1 |
| MGB02-ICD-CTI-SY-0026 | System External Interface Control Document | 2.1 |
| MGB02-PL-CTI-SS-0029 | Space Segment engineering plan | 2.1 |
| MGB02-PL-CTI-SS-0030 | Space Segment Technology plan | 2.1 |
| MGB02-RS-CTI-SS-0067 | Space Segment Subsystems Requirements Specification | 1.0 |
| MGB02-RP-CTI-PM-0070 | PDR Review Report | 1.1 |
| MGB02-RS-CTI-SS-0170 | Annex 1 to SS Subsystems Req Spec – Structure | 1.1 |
| MGB02-RS-CTI-SS-0171 | Annex 2 to SS Subsystems Req Spec – AOCS | 1.1 |
| MGB02-RS-CTI-SS-0172 | Annex 3 to SS Subsystems Req Spec – Command & Data Handling | 1.1 |
| MGB02-RS-CTI-SS-0173 | Annex 4 to SS Subsystems Req Spec – Communication | 1.1 |
| MGB02-RS-CTI-SS-0174 | Annex 5 to SS Subsystems Req Spec – Electrical Power Subsystem (EPS) | 1.0 |
| MGB02-RS-CTI-SS-0175 | Annex 6 to SS Subsystems Req Spec – Payload | 1.1 |
| MGB02-RS-CTI-SS-0176 | Annex 7 to SS Subsystems Req Spec – Thermal Control System (TCS) | 1.0 |

8.4 Documents Accepted at GSPDR

| Document Identifier | Document Title | Revision |
|----------------------|--|----------|
| MGB02-PL-CTI-GS-0036 | Ground segment engineering plan | 2.1 |
| MGB02-PL-CTI-CM-0039 | Ground segment configuration management plan | 2.1 |



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|---------------------------------|--|-----|
| MGB02-PL-CTI-GS-0068 | Ground Segment Technology plan | 2.0 |
| MGB02-RS-CTI-GS-0069 | Ground segment subsystems requirements documents | 1.1 |
| MGB02-RP-CTI-PM-0071 | GSPDR Review Report | 1.1 |
| Annex 1 to MGB02-RS-CTI-SS-0069 | Flight Operations Segment Requirements Specification | 1.1 |
| Annex 2 to MGB02-RS-CTI-SS-0069 | Payload Data Ground Segment Requirements Specification | 1.1 |
| Annex 3 to MGB02-RS-CTI-SS-0069 | User Access Services Requirements Specification | 1.1 |

9 Conclusions

Phase B of the MIKROGLOB project has been successfully completed, fulfilling all contractual and technical requirements defined for this stage. The activities undertaken during this phase led to the consolidation of system and subsystem-level requirements, the definition of architectural and interface baselines, and the development of key engineering, verification, and operations plans in alignment with ECSS standards.

All formal reviews—System Requirements Review (SRR), Ground Segment SRR (GSSRR), Preliminary Design Review (PDR), and Ground Segment PDR (GSPDR)—were completed with positive outcomes. The required documentation packages were submitted, reviewed, and accepted, establishing a comprehensive and coherent baseline for the detailed design phase. These include both technical specifications and management/control documentation, covering space and ground segments.

In Phase B, the following key results were achieved:

- Approval of system and subsystem requirements;
- Establishing the system architecture and main interfaces;
- Define the approach to verification, AIT and operations;
- Development of engineering, management and quality plans;
- Identify and reduce technical and software risks;
- Preparation of the documentation required to start Phase C.

The system architecture has matured significantly, with preliminary subsystem designs validated and risks effectively identified and mitigated. No high-criticality risks remain open at the conclusion of Phase B. The project maintains schedule alignment, and Phase C planning has already been initiated.

This report demonstrates that the project remains in full compliance with the objectives and qualitative indicators defined under the KPO framework (Milestone A9L). The maturity of the design and supporting processes confirm the project's readiness to advance to the Critical Design Phase, thus supporting its continued eligibility for Recovery and Resilience Facility (RRF) financing.

