*<Insert objective ID>*

**UAS STATEMENT OF OPERATING INTENT AND USAGE**

*<Insert UAS photograph>*

***<Insert UAS type/name>***

***<Insert SOIU version number>***

**APPROVALS PAGE**

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| --- | --- |
| Released by  ***<Insert name>***  *<Insert rank>*  MAO-AM (*or equivalent)* | Cleared by  ***<Insert name>***  *<Insert rank>*  CAMO *(or equivalent) – if required* |
|  |  |
| Endorsed by  ***<Insert name>***  *<Insert rank>*  *<Insert DASA appointment[[1]](#footnote-1)>* | Approved by  ***<Insert name>***  *<Insert rank>*  *<COMAUSFLT/COMD AVNCOMD/ACAUST>* |

**Amendment Certificate**

The UAS Operator should submit proposals for amendments or additions to this document through DASA to COMAUSFLT/COMD AVNCOMD/ACAUST.

**Certification**

The following list captures all issued amendments that the applicant has incorporated and certified:

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| **No.** | **Date Issued** | **Name** | **Comments** |
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**References**

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| Guidance: Enter the relevant references to the SOIU, eg Standard operating procedures, Configuration, role and environment delta assessment (CREA)[[2]](#footnote-2), SIs, and other OIP. |
|  |

**Distribution**

*<Insert POSITION> <Insert location>*

DG DASA (Defence Plaza Melbourne)

**CONTENTS**

[INTRODUCTION 1](#_Toc156299263)

[SYSTEM DESCRIPTION 1](#_Toc156299264)

[ROLE 2](#_Toc156299265)

[TASKS 2](#_Toc156299266)

[FLIGHT PROFILES 3](#_Toc156299267)

[OPERATING ENVIRONMENT 4](#_Toc156299268)

[RATE OF EFFORT AND PLANNED LIFE 9](#_Toc156299269)

[ADF POLICY AND PROCEDURES 9](#_Toc156299270)

[GENERAL INFORMATION 10](#_Toc156299271)

[FUTURE CHANGES 10](#_Toc156299272)

[ANNEXES 10](#_Toc156299273)

**UAS STATEMENT OF OPERATING INTENT AND USAGE**

<*Insert UAS type/name>*

# INTRODUCTION

|  |
| --- |
| Guidance:   1. The primary purpose of the Statement of Operating Intent and Usage (SOIU) is to inform decisions on whether an Aircraft design remains safe for operations across the usage spectrum within the defined configuration, roles and operating environment (CRE). SOIUs for Specific Type UAS ensure that sufficient information is provided to support a CRE delta assessment (CREA) (if applicable) and issue of a UAS Operating Permit (UASOP). Importantly, while the SOIU provides a description of the intended configurations, roles, operating environments and usage spectrum, it is not the appropriate mechanism to promulgate operational limitations, risks or engineering management plans, nor identification of specific risk controls for Specific Type UAS operations. Rather, such limitations, risks, plans or controls form part of the UASOP application. 2. The acquisition project office usually develops the initial SOIU as a joint operational and technical document that is approved by the respective service or Group Two-Star Commander (COMAUSFLT/COMD AVNCOMD/ACAUST) following endorsement by the Authority’s airworthiness delegate (DG DASA). In-service management of the SOIU will be the responsibility of the Military Air Operator (MAO) Accountable Manager (AM), supported by the Continuing Airworthiness Management Organisation (CAMO) (or equivalent technical representative, since not all Specific Type UAS Operators are a MAO or have a CAMO). |

1. Eg [This SOIU has been developed for the <insert UAS type/name>. It includes the intended <insert UAS type/name> configurations, roles, tasks, flight profiles, operating environment and usage spectrum—issued in compliance with DASR ARO.50.]

# SYSTEM DESCRIPTION

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| Guidance:   1. The SOIU for Specific Type A UAS should include a systems description section that provides an overview of the Uncrewed Aircraft (UA) and Remote Pilot Station (RPS) / Ground Control Station (GCS) characteristics and configurations (eg Maximum Take-off Weight (MTOW), dimensions, major payloads, components, propulsion and fuel types), including the following considerations: 2. RPS/GCS design and general configuration (including minimum crew number and their respective roles) 3. whether beyond visual line of sight operations will be conducted and what equipment will be used 4. information on the C2 link between the RPS/GCS and UA 5. the various flight control modes used to operate the UA (ie degraded or emergency modes) 6. any applicable transfer of UA C2 between multiple RPS/GCS 7. any applicable separation between launch and recovery crew and the Remote Pilot (RP) 8. any unique aspects of ground manoeuvring, and 9. launch and recovery information. |

1. Eg [The <insert UAS type/name> consists of…:
   1. <insert characteristic #1>…
   2. <insert characteristic #2>…]

# ROLE

|  |
| --- |
| Guidance:   1. The applicant should describe the Aircraft’s role/s as related to its intended operational effect in this section. These may include, for example: offensive counter air, defensive counter air, strategic attack, close air support, air interdiction, anti-surface warfare, anti-submarine warfare, electronic warfare, information operations, and intelligence, surveillance and reconnaissance. The level of detail in the description for each role must be commensurate with the need to define those roles for which the Aircraft is proposed to be authorised, and provides the definition of associated tasks, flight profiles and operating environment. While the Aircraft’s role is a sub-element and intrinsic attribute of the capability, the applicant should not document the capability objectives that the Aircraft supports here. However, alignment of role terminology and definitions across the SOIU and existing capability artefacts is preferable. |

1. Eg [The role/s of <insert UAS type/name> include…:
   1. <insert role #1>…
   2. <insert role #2>…]

# TASKS

|  |
| --- |
| Guidance:   1. This section should describe all authorised tasks within each authorised role. Where different models of UAS are assigned to different tasks, identify which models do which tasks. For example, search and rescue tasks, humanitarian assistance tasks, disaster relief tasks, counter-terrorism tasks, Aircraft displays and flypasts, maintenance test flights. Note, that when developing flight profiles in the next section, there may be multiple flight profiles for each task undertaken. For example, search and rescue may have different flight profiles for over land versus over water operations. |

1. Eg [Within the role of <insert role #1>, the task/s of <insert UAS type/name> include…:
   1. <insert task #1>…
   2. <insert task #2>…]

# FLIGHT PROFILES

|  |
| --- |
| Guidance:   1. This section should separate the range of UAS configurations and roles (or tasks if a given role is divided into multiple tasks) into different flight profiles and provide details of those flight profiles. The applicant should compile flight profiles into logical groups such as ‘Ground Attack’, ‘Air-to-Air’, ‘ISR’, ‘Transit’ etc. 2. The applicant may place descriptions of flight profiles in Annexes to the SOIU if appropriate (an example format is included as an Annex to this template). This Annex provides example headings, reflecting typical considerations for UAS flight profile configurations and parameters. These headings may or may not be applicable to certain UAS, therefore, the applicant should modify this section accordingly. |

1. Eg [The intended flight profiles of the <insert UAS type/name> are in Annexes <A> to <C> of this SOIU].

**Usage Spectrum**

1. Eg [The <insert UAS Operator> has established a <insert usage spectrum program (if applicable)> to monitor the ADF’s actual usage of the <insert UAS type/name> on a <insert periodic cycle>. The <insert UAS Operator> will compare this data against the OEM’s design usage spectrum (DUS) to ensure technical risk continues to be well understood, treated, and therefore SFARP].
2. Eg [<Insert UAS Operator> has conducted a CREA that informs the <insert usage spectrum program>…].

**Mission Mix**

1. Eg [The intended mission mix across roles, further broken down into individual tasks including flight profiles associated with each role/task, is shown in Table 1 below. This mission mix is necessary to understand Defence’s use of <insert UAS type/name> vs. the platform’s DUS (eg to monitor items like component lifing and flight cycles). Mission mix percentage is also included against each flight profile in the Annexes of this SOIU].

**Eg [Table 1: <Insert UAS type/name> Flight Profiles and Mission Mix]**

|  |  |  |  |
| --- | --- | --- | --- |
| **Role** | **Task** | **Flight Profile** | **% of ROE** |
| <Insert Role #1> | <Insert Task #1> | <Insert Flight Profile #1> | <Insert %> |
| <Insert Task #2> | <Insert Flight Profile #2> | <Insert %> |
| <Insert Role #2> | <Insert Task #3> | <Insert Flight Profile #3> | <Insert %> |
| <Insert Task #4> | <Insert Flight Profile #4> | <Insert %> |
| <Insert Role #3> | <Insert Task #5> | <Insert Flight Profile #5> | <Insert %> |

# OPERATING ENVIRONMENT

|  |  |  |
| --- | --- | --- |
| Guidance:   1. The applicant should breakdown then describe the operating environment in terms of the components detailed under the ‘Component’ heading in the table below. The operating environment components listed below are examples only and may not represent the best operating environment description breakdown for a given UAS. The applicant should modify the components below as required. | | |
| **UA airborne physical environment** | | |
| **Component** | **Guidance** | **Description** |
| **Airspace** | For Specific Type UAS, this component refers to the class of airspace that the applicant intends the UA to operate in (eg Restricted Areas, Temporary Restricted Areas, Class A, B, C, D, E and G airspace). If known and relevant, this component could include information on other expected airspace users. Additionally, the applicant should include an overview of how the UAS Operator intends to comply with the relevant airspace entry requirements. If an ATMP exists for the UAS, the applicant may reference this document here rather than repeating all details. |  |
| **Physical flight conditions** | Including (as applicable) dust, sand, rain, snow, icing, volcanic ash, wind shear, humidity, and lightning—as this may determine whether additional protections such as anti-ice systems or servicing regimes are required. |  |
| **Impact with objects** | The applicant should include a description of the likely objects the UAS could impact (eg hail, bird strike, foreign object debris/damage) when operating in its intended environment; and a brief overview of the risks and controls associated with striking such objects. |  |
| **Turbulence** | Including any differences between high and low altitude operations or operating region effects. |  |
| **Solar conditions** | Level of exposure to radiation and UV. |  |
| **Temperature ranges** | Normal or extreme—as this may assist in determining system environmental operating requirements. |  |
| **Gust loads/wind shear** | Eg Ship UAS Operating Limits (SUOL), operations IVO thunderstorms. |  |
| **Electromagnetic environment** | Eg high intensity radiated fields and lightning—as this will assist in determining the level of HIRF protection required. |  |
| **Additional considerations (as required)** | Eg chase Aircraft, custodian[[3]](#footnote-3). |  |
| **UA ground physical environment** | | |
| **Component** | **Guidance** | **Description** |
| **Area of Operations** | This refers to the Unpopulated, Sparsely Populated or Populous areas in which the applicant intends the UA to operate over or near for both land-based and embarked operations. Describing the area of operations provides an indication of the risk exposure to people and critical infrastructure on the ground/water. |  |
| **Operating Aerodromes** | Eg runway/taxiway/heliport characteristics, pavement strength (PCN/ACN) considerations, MOBs. |  |
| **Unprepared airfields/landing sites** | Eg diversion airfields, termination/recovery points, FOBs. |  |
| **Embarked operations** | Eg flight deck, movement areas, equipment. |  |
| **Tie-down and lashings** | Eg Land-based including expected wind conditions and ship-based (embarked) including expected sea conditions. |  |
| **Ground handling** | Eg Towing distances, frequency, hangars. |  |
| **Ground running** | Eg proximity of MEP, surrounding facilities. |  |
| **Corrosive/salt laden atmospheric conditions whilst on the ground** | Eg those experienced during embarked operations, requiring specialist continuing airworthiness support (eg Aircraft washing facilities, surface finish maintenance). |  |
| **Wind limits** | Eg crosswind/tailwind limits for taxi, take-off and landing. |  |
| **Specific Meteorological conditions** | Eg snow and ice, high temperatures, dust/sand storms. |  |
| **Additional considerations (as required)** | Eg chase vehicle for taxi, take-off, landing. |  |
| **RPS/GCS ground physical environment** | | |
| **Component** | **Guidance** | **Description** |
| **RPS/GCS location or surrounds** | If the applicant intends to locate the RPS/GCS separately to the UA, provide information on the ground physical operating environment that the RPS/GCS is exposed to that may affect the correct operation of the RPS/GCS (eg ship compartment characteristics that may affect RP performance). |  |
| **Physical security** | Eg access control, locks, safes, system hardware. |  |
| **UA functional environment** | | |
| **Component** | **Guidance** | **Description** |
| **Description of UA functional environment** | The functional environment represents the set of conditions that the UAS must comply with prior to conducting specified operations—usually through airspace access regulations (eg required navigation performance), or where compliance provides desired safety enhancements for certain niche activities (eg frequent operations close to the ground), or it is mandated in Defence Policy (eg C4ISR policy). For any items classified above the security classification of this SOIU, a reference to the applicable document that contains the required information is appropriate. |  |
| **Due Regard** | Describe how the applicant has met the requirements of AC 001/2023 Defence Aviation Due Regard Operations, if Due Regard operations are planned/required. |  |
| **Communication, Navigation, Surveillance / Air Traffic Management (CNS/ATM)** | Include descriptions of any CNS/ATM systems/capabilities fitted to the UAS. DASDRM S4C3 expands on any design requirements for the applicable systems. Example systems/capabilities could include the following:   * RNP/RNAV * VNAV * ADS-B * IFR * VOR/ILS * TCAS/ACAS * IFF/Transponder * TAWS/GPWS * Class of Airspace * Navigation Systems * Communication Systems * Aircraft Command and Control (C2) Links * Flight Planning * Flight Control/Navigation | Input details below |
| **RNP/RNAV** | If applicable |  |
| **VNAV** | If applicable |  |
| **ADS-B** | If applicable |  |
| **IFR** | If applicable |  |
| **VOR/ILS** | If applicable |  |
| **TCAS/ACAS** | If applicable |  |
| **IFF/Transponder** | If applicable |  |
| **TAWS/GPWS** | If applicable |  |
| **Class of Airspace** | If applicable |  |
| **Navigation Systems** | If applicable |  |
| **Communication Systems** | If applicable |  |
| **Aircraft Command and Control (C2) Links** | If applicable |  |
| **Flight Planning** | If applicable |  |
| **Flight Control/Navigation** | If applicable |  |
| **Flight over water** | Consider extended flight over water operations, ditching capabilities, etc |  |
| **Units of measurement** | QNH, fuel, oil, etc |  |
| **Frequency spectrum requirements** | This component should also include information on C2 links |  |
| **Night vision capabilities (during mission)** | Eg FLIR, EO/IR pod |  |
| **Minimum crew requirements for specified roles/tasks** |  |  |
| **RPS/GCS functional environment** | | |
| **Component** | **Guidance** | **Description** |
| **Description of the RPS/GCS functional environment** | This component refers to the ‘flight deck’ environment of the RPS/GCS and should describe the general functions that must be present to operate the UA safely. This may include functional C2 links, weather information of the UA’s location, communication equipment with ATC, etc |  |
| **Cybersecurity** | Eg encrypted C2 links, secure mission planning software[[4]](#footnote-4) |  |
| **Electronic flight bags (EFB) or other Portable Electronic Equipment (PEE)** | If applicable |  |
| **Night vision capabilities** | Any Night Vision Devices (NVDs) used for UA flight, navigation or mission elements (eg UAS crew-worn NVG for manual launch and recovery) |  |
| **Minimum crew requirements for specified roles/tasks** |  |  |
| **Units of measurement** | QNH, fuel, oil, etc |  |

# RATE OF EFFORT AND PLANNED LIFE

|  |
| --- |
| Guidance:   1. This section should provide an indication of the annual rate of effort as well as the intended or required life for the Aircraft type. 2. **Rate of effort (RoE).** Planned number of hours per annum for the fleet of <insert number> Aircraft (breakdown of hours may be useful). 3. **Planned withdrawal date (PWD).** Indicate the PWD including the expected out-of-service drawdown if applicable. For UAS with different PWD for the UA and RPS/GCS, the applicant should discuss both dates here. |

1. Eg [**Rate of effort (RoE).** Planned number of hours per annum for the fleet of <insert number> Aircraft is <insert number> AFHRS.
2. **Planned withdrawal date (PWD).** The PWD of <insert UAS type/name> is <insert date>…].

# ADF POLICY AND PROCEDURES

|  |
| --- |
| Guidance:   1. There may be ADF policies and procedures, or Australian legislation requirements that could affect Defence Aircraft design or Aircraft operations. For example, Defence policy and Australian legislation governing laser and radiation safety imposes different exposure standards to those of other countries, which could influence Aircraft operations. Therefore, this section should describe any ADF policy and procedures that could influence the Defence Aircraft operations, as well as identify any Australian legislation that must be complied with that could affect the Aircraft design. |

1. Eg [The following ADF policy and procedures will influence operations of the <insert UAS type/name> in its proposed operating environment:]

# GENERAL INFORMATION

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| --- |
| Guidance:   1. Any additional information that may enhance the understanding of the usage spectrum for the type or model should be included here. |

# FUTURE CHANGES

|  |
| --- |
| Guidance:   1. **General.** This section details the initial or future intent for the Aircraft type. If the future use is likely to be the same as historical use, the applicant should clearly state this. The applicant should make determinations on any potential significant future modification/upgrade programmes, changes in operational environments, capabilities, roles or Aircraft usage (if applicable). 2. **Timescale.** The applicant should describe the timescale for the expected changes described above. |

1. Eg [The acquisition of <insert UAS type/name> will occur in <insert number> phases. Within each phase, <insert UAS Operator> will apply an OEM spiral upgrade programme to the system. This includes the following UAS upgrades to occur in the first phase:
   1. <Insert upgrade #1>. This upgrade will enhance the UA through…
   2. <Insert upgrade #2>. This upgrade will enhance the RPS/GCS through…]

# ANNEXES

1. <Insert Flight Profile ‘A’>
2. <Insert Flight Profile ‘B’>
3. <Insert Flight Profile ‘C’>

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **<Insert Flight Profile ‘A’>** | | | | | | | | |
| **Description of the sortie** | Eg [Typical profiles for Logistics Support will either be medium range or short range. Generically, this profile consists of a sortie in which one take-off, normal climb, cruise, normal descent and landing occur.] A general explanation should be included to indicate how the UAS will perform this flight profile (eg will the RP be controlling the UA at all times, or is the UA following a pre-programmed flight route with the RP monitoring). | | | | | | | |
| **UAS Configuration/s** | | | | | | | | |
| **Component** | **Guidance** | | | | | **Description** | | |
| **UA configuration** | General description of the UA configuration required for the flight profile. | | | | |  | | |
| **RPS/GCS configuration** | If a different RPS/GCS will be used for different flight profiles, clarify which will be used for this particular sortie. The RPS/GCS configuration component also considers the required minimum number of crew, or crew model (Remote Pilot, Payload Specialist, Mission Commander, etc) to operate the UA. | | | | |  | | |
| **Beyond visual line of sight configuration** | If the UAS Operator intends to use either visual or beyond visual line of sight configurations across the various roles/tasks, the applicant should specify for this particular flight profile. This component refers to the operation of the UA by the crew using beyond visual line of sight datalink and means of de-confliction. This component should detail the methods for how the applicant will conduct such operations. | | | | |  | | |
| **Command & Control (C2) datalink** | If different C2 datalinks will be used for different profiles, clarify which will be used for this particular sortie. | | | | |  | | |
| **Flight Control Modes** | If different flight control modes will be used for different profiles, clarify which will be used for this particular sortie. | | | | |  | | |
| **Detect and Avoid (DAA) or separation service technology solution** | If a particular DAA solution will be used for this profile, identify what this will be. If applicable, include information on any alternative separation service/equipment. | | | | |  | | |
| **Launch and Recovery Equipment (LRE)** | If multiple options are available, describe what LRE will be used for this profile (eg catapult system for launch and a sky-net for recovery). | | | | |  | | |
| **Parameter** | **Type** | | | **Quantity** | | **Limitations/Notes** | | |
| **Stores (weapons, external pods, external fuel tanks)** |  | | |  | |  | | |
| **Loads** |  | | |  | |  | | |
| **Mission/Role equipment** |  | | |  | |  | | |
| **Weight movement during cargo delivery, stores release etc** |  | | |  | |  | | |
| **Take off AUW** |  | | |  | |  | | |
| **Average sortie weight** |  | | |  | |  | | |
| **Take-off fuel / battery** |  | | |  | |  | | |
| **Fuel/battery use schedule** | Climb:  Cruise:  Descent:  Land: | | |  | |  | | |
| **Duration of sortie** | Flight hours: | | |  | |  | | |
| Percentage of sortie over various areas (eg land vs. sea, Unpopulated vs. Sparsely Populated vs. Populous): | | |  | |  | | |
| **Flight Parameters** | | | | | | | | |
|  | | | | | | | | |
| **Manoeuvres** | | **% of sortie** | **# occurences per sortie** | | **Altitude/ Height (ft)** | | **Speed (KIAS)** | **Comments** |
| Take-off | |  |  | |  | |  |  |
| Climb | |  |  | |  | |  |  |
| Cruise | |  |  | |  | |  |  |
| Mission manoeuvres (eg weapon/ stores release profile/s) | |  |  | |  | |  |  |
| Descent | |  |  | |  | |  |  |
| Circuit | |  |  | |  | |  |  |
| Landing | |  |  | |  | |  |  |
| Engine/rotor stops/starts | |  |  | |  | |  |  |
| **NOTE:** These lists are not exhaustive and should be adapted as appropriate for the UAS type and flight profile. | | | | | | | | |

1. Refer to DASA(I) BUS 06-004 *DASA Delegation Release Authorities.* [↑](#footnote-ref-1)
2. The [DASR Templates](https://dasa.defence.gov.au/sites/default/files/minisite/static/a1fd0899-071c-4a60-9499-26756f84f7f9/pgp/DASR_Templates.htm#DASR_Templates) link includes a ‘DASR 21 – CREA’ template to assist with the introduction to service of a new aircraft platform. Where the applicant intends to leverage any existing operating approvals (eg from foreign militaries), CRE delta assessments can identify areas where further engineering assessments may be warranted by comparing any differences between the CRE adopted for a UAS design program (including Major changes) and a UAS’s SOIU, so that additional or amended airworthiness requirements can be established. [↑](#footnote-ref-2)
3. Referring to the person that controls the UAS (which may include Aircrew in a crewed Aircraft). [↑](#footnote-ref-3)
4. Further information can be found in the [Cyber Hazards to Aviation Safety - a DASA Blueprint](https://objective/id:BJ4230440) and the [Defence Aviation Safety Requirements Manual Section 2 Chapter 12 – Cyber Security](https://dasa.defence.gov.au/sites/default/files/minisite/static/10e1e71f-08c0-4c98-bd5f-1d63b809b1ee/pgp/dasdrm/s2_ch12.htm) (requirements not mandated for Specific category) [↑](#footnote-ref-4)