**Statement of Requirement for Global Airfield Data & Aircraft Performance Tool (GADAPT)**

| Ref | Requirement | | | |
| --- | --- | --- | --- | --- |
|  |  | | | |
| **A** | **General Requirements** | | | |
|  |  | | | |
| **A.1** | **Scope of Requirement – Single Statement of User Need (SSUN) – A digital facility, most likely internet based with off line use or down load options, giving current airfield obstacle data and a tool that can calculate aircraft take-off and landing performance, including engine out performance and special departure procedures, based on the take-off weight, live met and restrictions outlined in the aircraft Data Manuals / Document Sets. The airfield obstacle data should also be able to be transferred in digital form in stand-alone aircraft take-off performance systems for those aircraft types indicated where performance calculations will remain in stand alone methods.** | | | |
| A.1.a | Large multi-engine aircraft operated by the Authority generally comply with CAA requirements for “Performance A”. The required level of compliance is detailed in the aircraft specific military Release to Service documents. The take-off phase of Performance A requires that in the event of an engine failure upon take-off, the aircraft can either stop safely on the runway, or continue the take-off and safely avoid all obstacles in the airfield’s Obstacle Domain. Many Authority military aircraft types require long-hand calculations to be made from the aircraft ODM. This process is prone to error due to:  i. The limitations of the way in which large amounts of data can be concisely presented in paper form, and:  ii. The complexity of the graph reading, calculations and logic decisions undertaken by the operator. | | | |
|  |  | | | |
| **A.2** | **Definitions** | | | |
|  | In addition to the definitions detailed in the Terms and Conditions of the Contract the following definitions shall also apply. Where the definitions below contrast to those detailed in the Terms and Conditions of the Contract then the definitions within the Terms and Conditions of the Contract shall take precedence. | | | |
|  | Definition | Interpretation | | |
|  | Contractor’s Personal Use | Any use of MOD furnished property, facilities or equipment intended for the primary benefit of the Contractor or the Contractor’s Personnel which is contrary to the MOD’s interests is considered personal use. | | |
|  | Contractor’s Personnel | Any employees, including sub-contractors or other agents working on behalf of the Contractor, shall be deemed the Contractor’s Personnel. | | |
|  | Designated Officer | The Designated Officer is the MOD representative responsible for the Requirement and is as defined at Box 2 of DEFFORM 111 of this Contract. For GADAPT the Designated Officer is SO1 Aircrew Systems. | | |
|  |  | | | |
| **A.3** | **Abbreviations and Acronyms**  In addition to the abbreviations and acronyms detailed in the Terms and Conditions of the Contract the following abbreviations and acronyms will be used. | | | |
|  | Abbreviation or Acronym | Interpretation | | |
|  | AOC | Air Officer Commanding | | |
|  | APT | Air Performance Tool | | |
|  | DO | Designated Officer | | |
|  | MOD | Ministry of Defence | | |
|  | OC | Officer Commanding | | |
|  | RAF | Royal Air Force | | |
|  | SC | Security Check | | |
|  | ADS | Statement of Requirement | | |
|  | ODM | Operating Data Manual | | |
|  | POH | Pilots Operating Handbook | | |
|  | SoR | Aircraft Document Set | | |
|  | SQEP | Suitably qualified and experienced personnel. | | |
|  |  | | | |
| **A.4** | **References**  In addition to the references detailed in the Terms and Conditions of the Contract the following references shall also apply as well as any subsequent revisions and amendments to the references. This list does not absolve the Contractor from conforming to any other relevant publications. | | | |
|  | Reference | | Version | Source |
| A | Data Protection Act 2018 | | 2018 c. 12 | http://www.legislation.gov.uk/ukpga/2018/12/contents/enacted |
| B | Government Security Classifications | | 1.1- 21 May 18 | <https://www.gov.uk/government/publications/government-security-classifications> |
| C | MRP- MAA01 | | Issue 8- 7 Apr 20 | [www.gov.uk/government/publications/maa01-military-aviation-authority-maa-regulatory-policy](http://www.gov.uk/government/publications/maa01-military-aviation-authority-maa-regulatory-policy) |
| D | MRP- MAA02 | | Issue 10- 2 Aug 21 | See above |
| E | MRP- RA1310 – Aircraft Document Set. | | Issue 7- 30 Nov 20 | [www.gov.uk/government/publications/regulatory-article-ra-1310-aircraft-document-set](http://www.gov.uk/government/publications/regulatory-article-ra-1310-aircraft-document-set) |
| F | Defence Aircrew Documentation Specifications – Air Acquisition Publication 00-001. | | AL5 (Dec 15) | [www.handlingsqn.org](http://www.handlingsqn.org) |
| G | Defence Standards 00-970, Design and Airworthiness Requirements for Service Aircraft | | Issue 16- 15 Feb 21 | [www.gov.uk/guidance/uk-defence-standardization](http://www.gov.uk/guidance/uk-defence-standardization) |
| H | EU OPS1 | | Dec 06 | <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006R1899&from=EN> Requires use of the search function |
| I | CS 23/25/26 | | Amendment 1 Jul 20/22 Dec 20/17 Dec 20 | <https://easa.europa.eu/document-library> |
| J | Mil Handbook 1793. | | Original issue | C17 Capability Development - RAF Brize Norton |
| K | DefStan 00-251 Part 3 (Human Factors Integration for defence systems – Part 3 Human Factors Sys Requirements) | | 1 dated 5 Feb 2016 | Account required to view available at: <https://www.dstan.mod.uk/StanMIS/Account/Register> |
| L | DefStan 05-130 Part 3 (Aircraft Maintenance Training Organisations) | | 1 – 15 Feb 21 | Account required to view available at: <https://www.dstan.mod.uk/StanMIS/Account/Register> |
| M | JSP 822 - Governance and Management of Defence Individual Training, Education and Skills | | 4.0- 20 May 21 | <https://www.gov.uk/government/publications/jsp-822-governance-and-management-of-defence-individual-training-education-and-skills> |
| N | Defence Logistics Framework | | 3.13- 9 Jul 21 | <https://dlf.defencegateway.mod.uk/PrimaryElements/6/F61ADF622A364A559D3A9AF3C42A9331.htm> |
| O | DefStan 00- 055 – Requirements for Safety of programable elements in Defence Systems. | | Pt 1 Issue 5 28 Jul 21 | Account required to view available at: <https://www.dstan.mod.uk/StanMIS/Account/Register> |
| P | DefStan 99 – 056 – Safety management Requirements for Defence Systems. | | Pt 1 Issue 8 12 Jul 21  Pt 2 Issue 6 08 Jul 2021 | Account required to view available at: <https://www.dstan.mod.uk/StanMIS/Account/Register> |
| **A.5** | **Processes and Related Taskings**  The requirement is to be developed, tested, approved for use by MoD, and available from 1 July 2023. Any system is referred to herein as a website / application, however digital alternatives to web distribution should not be precluded from submission**. Deliver a system to run concurrently with the current application for a minimum period of 2 months. Required to prove the application is capable, 2 months ties in with a full planning cycle.** | | | |
| **A.6** | **Site**  This is required to be a digital service accessible internationally, most probably via the internet. Main operating bases for the included Aircraft are RAF Waddington, RAF Lossiemouth and RAF Brize Norton. | | | |
| **A.7** | **Security** | | | |
| A.7.a | The Contractor is to ensure that any Contractor’s Personnel who require access to MOD facilities have Security Check (SC) clearance. Where the Contractor’s Personnel does not have SC clearance that individual will not be allowed access. | | | |
| A.7.b | All information related to or generated by this Contract is to be treated in the appropriate manner in accordance with Government Security Classifications. The classification of the material to be handled shall not exceed OFFICIAL in nature. Digital access sites are to use a minimum of 128bit encryption and be accessible by username and password, using any standard Internet browser. An automatic log of when each username logs into an associated website / application is to be kept and viewable online by the Administrator and the Contractor’s Account Manager. | | | |
| A.7.c | All personal data processed under this Contract is to be treated in accordance with the Data Protection Act 2018. | | | |
| **A.8** | **Site Access**  Should contractor personnel require access to the sites listed in A6a this should be arranged via the Designated Officer in the first instance, appropriate procedures will be briefed at that time. | | | |
| **A.9** | **Safety and Environmental Provisions**  When on the Site the Contractor is to comply with all MOD Safety, Health and Environmental Protection regulations and policy, appropriate procedures will be briefed at that time. | | | |
| **A.10** | **Hours of Operation and Times of Delivery**  GADAPT service should be available 24 hours per day, every day of the year. Minor planned stoppages of up to 1 hr for updates may be permitted with 7 days’ notice. | | | |
| **A.11** | **Quality Assurance**  The product data must be delivered to the Authority at a safety standard that will allow the Authority to underwrite the validity (and safety) of the data for direct distribution to the end user. This safety standard must be proven to the Authority’s satisfaction to be no lower than that when performance calculations are carried out manually by suitably qualified crewmembers. | | | |
| **A.12** | **Contract Monitoring** | | | |
| A.12.a | For the purposes of contract monitoring, representatives of the Contractor will routinely report to the Designated Officer on the performance of the Contract. | | | |
| A.12.b | The Contractor is responsible for the performance of the Contract by any sub-contractors or other agents working on behalf of the Contractor. The Contractor is to deal with any issues relating to any sub-contractors or other agents working on behalf of the Contractor, this however does not exclude sub-contractors or other agents working on behalf of the Contractor from attending any Contract Monitoring meeting or contributing to any report where it is appropriate for such sub-contractors or other agents to do so. | | | |
| A.12.c | If any sub-contractors or other agents working on behalf of the Contractor are found unsuitable, for whatever reason, the Contractor is to engage with the relevant sub-contractors or other agents to broker a resolution. | | | |
|  |  | | | |
| **A.13** | **Government Furnished Assets** | | | |
|  | Aircraft performance data documents will be provided for all Platforms requiring the Performance tool. | | | |
| **A.14** | **Personnel Qualification Requirements and Training** | | | |
|  | Initial Instructor training and ongoing self help guides on use of the tool will be required. | | | |
| **A.15** | **Certification and Accreditation** | | | |
|  | Details of certification or accreditation by civil aviation regulatory bodies that the proposed tool holds should be provided to the MOD in order to assist type certification processes, in particular in accordance with MAA RA 5406 and MAA RA 1340 | | | |

|  |  |  |
| --- | --- | --- |
| **B** | | **Deliverable Requirements** |
| Ref | Requirement | | | Additional Information | Quantity | Standard of Performance |
| B.1 | Airfield, runway and obstacle data is to be available for airfields listed in Annex A, the required elements that constitute the data required area at Appendix 1 to Annex A. | | | Data for British Military Airfields is provided by the MOD to the Contractor only for sole use of this particular contract and is to be included in the delivered World Wide data set. These are listed in Table 2 of Annex A. | Details for all active runways for the airfields listed in Table 1 of Annex A are to be provided, with the exception of runways less than 3000ft in length (TODA)[[1]](#footnote-2), which will be specifically nominated if required. | Airfield and Obstacle Data must be accurate. Data must be accurate to the tolerances defined in ICAO Annex 15. |
| B.2 | Access by multiple users at the same time is required with a minimum of 150 concurrent users. Admin and Main user access should be separate to ensure info updates or requests are correctly processed and do not affect the main user access unintentionally. | | | Shadow R1 will update to R2 and expected to overlap FY 23/ 24 to 25/26. During such overlap both aircraft Marks will be required. | Access is required for the following Aircraft fleets. A400 M, Shadow. Wedgtail E7B AEW Mk 1 From start of FY 23/24. C-17 will only use the data within the APT side of the tool and does not require separate access. | Minimum of 1 admin and 4 users at any one time for each fleet to enable a user and backup for ops from main Sqn base and a deployed operating unit. and will require 1 admin, 1 Ops user and Access for MASS contractor for download / digital distribution. |
| B.3 | Data is to be available in the following formats: -  i For direct view on input of a nominated airfield and runway in a manner that enables all obstacle data to be viewed for that runway without multiple subsequent selections, and is to be available to be downloaded and or printed in a clear readable format with normally accessible software (PDF/ Office).  ii Automatically available within the Aircraft Performance Tool (as per Requirement section C.1) when airfield and runway area selected.  iii Available for Download / digital distribution for standalone use by the end user or for integration into computerised EPPAs currently in existence. In addition to the primary source, a data update of those airfields that have changed in the preceding 28 days (mirroring the AIRAC cycle) is required for input into existing GADAPT software. This data must be supplied to MOD in a distinct format as per format for 28 Day text file and update in Appendix 1 to Annex A | | |  | Airfields as listed in Annex A | The Airfield and Obstacle Data must be delivered to MOD at a safety standard that will allow MOD to underwrite the validity of the data for direct distribution to the end user. Airfield and Obstacle Data supplied must be safe to use. The probability of a catastrophic accident as a result of using supplied Airfield and Obstacle Data must be less than 1 x 10-6. Evidence to demonstrate compliance with the declared safety target is to be supplied. |
| B.4 | Any changes that affect Airfield and Obstacle Data must be monitored and rapidly promulgated. All changes to Airfield and Obstacle data must be immediately apparent to the end user with date of last change and ARIAC cycle in use prominent in all outputs. | | | Desirable that user be able to manually add a temporary Notamed obstacle to instantly Identify if it caused an extra restriction. | Unlimited updates to data for airfields listed in Annex A as published. | Updates to data should be made within 48 hrs hrs of notification or in line with activation date if later. 28 day AIRAC cycle updates should also be made in line with the update cycle. |
| B.5 | Airfields specified are subject to change in accordance with the customer’s changing operational requirements. As such the ability to add a newly required airfield to the system in a timely manner is required. Requests for changes or additions to airfields supplied under contract will be initiated by the nominated MOD representative as a written request direct to the contractor. | | |  | Up to 30 new Airfields a year may be added on a temporary basis, | Data should be available minimum of 5 days from data notification. Exceptionally an urgent requirement may be placed where turnround of 24 – 48 hrs would be requested. |
| C.1 | A digital system is required to provide aircraft operators with Take-Off and landing information that is correct, timely and reactive. It must contain runway take-off data calculated using published airfield dimensions and correct obstacle data from requirement B.2.ii above, the type specific data as per extant ODM / ADS and optimal aircraft performance and be able to use live or manual input Met. Obstacles considered for the computation must be displayed in a table for each specific runway. | | | Each aircraft type performance data must be presented using imperial or metric units as per those in the aircraft ODM/ADM/ POH. Obstacle distances and heights are to be displayed with respect to the Datum point for each type described in Annex B. Runway surface factors should include wet or dry runways and specific contamination details as per Annex B. | APT is required for the following Aircraft fleets. C17,Shadow and Wedgtail E7B AEW Mk 1 From start of FY 23/24. | As GADAPT are effectively used in the same way as the Aircraft Document Set (ADS) the website is to be controlled in the same manner and must meet the same stringent requirements. All data calculations, computations and web-based pages are to comply with the safety target as specified in Part B.3. All qualification testing and Quality Assurance procedures used with respect to the extraction, digitisation, computation (including functional algorithms), display of aircraft performance data procedures and any software employed are to be provided to the MOD. All information provided will be treated as proprietary and will not be disclosed to any other Commercial Party. However, proof of robust safety measures and configuration control is regarded as essential to the placing of this flight safety critical contract. The contractor should provide evidence of compliance with [DefStan 00-55 and 00-56](https://www.gov.uk/guidance/uk-defence-standardization). |
| C.2 | Access by multiple users at the same time is required. The APT should have a minimum of 2 levels of access that match that of the GAD in B.2 as above, User and Administrator. User rights should allow for the display and printing of GADAPT and the ability to complete a ‘feedback/change request’ form. Administrator rights should also allow access to an Access log and reading/printing of the ‘feedback/change request’ log. | | | Access should be by a single point for those fleets using GAD & APT without requiring duplicate log ins. Admin and Main user access should be separate to ensure info updates or requests are correctly processed and do not affect the main user access unintentionally. | Access is required for the following Aircraft fleets. C17, Shadow (R1 and R2) and Wedgtail E7B AEW Mk 1 (From start of FY 23/24 only). Shadow R1 will update to R2 and expected to overlap FY 23/ 24 to 25/26. During such overlap both aircraft Marks will be required. | Minimum of 1 admin and 4 users at any one time for each fleet to enable a user and backup for operations from both the main Sqn base and a deployed operating unit. |
| C.3 | Data should be available for single point live met calculations and a tabular format for a range of temperature, pressure and wind components at selectable intervals which can be downloaded and or printed. | | | Software Name, Version and Run date should be included in any download / print product. | Unlimited data runs, downloads or prints for fleets listed from the user and admin accounts requested. | Output should include as minimum MTOW, Limiting factor for that Weight (i.e. Runway Length, Tyre Speed, Obstruction Height, Brake Energy), Runway conditions (Wet / Dry Etc), V1, VR, Any correction factors that need to be applied and PCN/LCN if available platform specific output requirements as per Annex B. Data Currency must be clearly displayed showing the Edition and Amendment Status of the ODM/ADS on which the published GADAPT is based. |
| C.4 | The ability to add new/additional aircraft types or marks to the website / Application must be available. The Authority will notify the contractor and provide ODM / ADS. Any modifications to the aircraft type that generate a change in performance will be notified to the Contractor in the form of an Amendment List (AL), Advanced Information Leaflet (AIL), Advanced Notification of Amendment (ANA) or Supplement by Air Commercial. | | | New Ac Types will be notified as soon as possible and be priced on negotiation. | Shadow R1 will update to R2 and expected to overlap FY 23/ 24 to 25/26. During such overlap both aircraft Marks will be required. A Propellor change creating an ODM AL may also occur for Shadow either within or separate to the R1 to R2 update. | Updated APT data, reflecting the changes should ideally be available within 4 weeks of receipt for a planned Amendment notification and in any cases no later than 12 Weeks. New aircraft type data should be available within the APT no more than 12 weeks after receipt of ODM/ADM for the type by the Contractor. |
| C.5 | All instructions for the use of the GADAPT and any additional notes used to highlight, explain or expand on the GADAPT (as appropriate) usage must be available as web pages or downloads. Training should be available for both RAF Instructional personnel and users for each fleet. | | |  | Initial training for use of the system / application will be to ‘Train the Trainer’ and allow RAF conversion course instructors to develop the skills to train fleet operators. | On completion of training users must demonstrate competence to complete calculations as per Fleet SOP’s. |
| C.6 | The system is to have the facility for users to submit ‘feedback’ or ‘change requests’. The availability of this function is to be highlighted on the introduction screen with a direct link to it. | | | A log of these feedback forms and any change requests should be accessible to Admin account holders by fleet type. | Unlimited feedback inputs from the user and admin accounts as listed in C.2 | The feedback system should mirror the content of MOD Form 765X (see Appendix 1 to Annex B) system that is already in use for aircrew publications. The Contractor is to provide reports and detailed analysis of change requests/Form 765Xs as required for each aircraft type. Safety critical reports are to be highlighted immediately and addressed within 24 hrs. simpler non safety critical requests should be addressed within 7 days and implements on next available change. |
| C.7  **KPI’s** | Data output is to be optimised for A4 monochrome printing using standard available software (PDF/ Office etc). Any printing must carry a warning that the GADAPT is confirmed as valid on the day of printing only and that data contained on the GADAPT should be confirmed as being correct before use. | | | Software Name, Version and Run date should be included in any download / print product. | Unlimited data runs, downloads or prints for fleets listed from the user and admin accounts requested. | Font and size is to be appropriate to the accurate reading of the output on the flight deck of the aircraft type. Printed material must meet the same standard of accuracy and legibility as the screen display. |

|  |  |  |  |
| --- | --- | --- | --- |
| **KPI Number** | **KPI Description** | **Incident Measure** | **Relevant SOR Line Item** |
| 1 | Availability | GADAPT service should be available 24 hours per day, every day of the year. Minor planned stoppages of up to 1 hr for updates may be permitted with at least 7 days’ notice. | A.10 |
| 2 | Access | Access by multiple users at the same time is required with a minimum of 150 of concurrent users. | B.2 |
| 3 | Access | Admin and Main user access are to be separate to ensure info updates or requests are correctly processed and do not affect the main user access unintentionally. | B2 |
| 4 | Accuracy | Airfield and Obstacle Data must be accurate. Data must be accurate to the tolerances defined inICAO Annex 15. | B.1 |

Annex

A Minimum list of required Airfields for Global Airfield Data.

Appendix:

1. Airfield and Obstruction data format

Annex

B Platform Specific Requirements for Aircraft Performance Tool.

Appendix:

1. RAF Form 765X

Annex

C. GADAPT Risk Register

**Table 1 - MINIMUM LIST OF REQUIRED AIRFIELDS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| AIRFIELD | ICAO | AIRFIELD | ICAO | AIRFIELD | ICAO |
| 4TH OF FEBRUARY | FNLU | GENEVA | LSGG | NORDHOLZ NAVY | ETMN |
| AALBORG | EKYT | GEORGE F. CHARLES | TLPC | NORFOLK NS | KNGU |
| ABU DHABI INTL | OMAA | GETAFE AB | LEGT | NORMAN MANLEY INTL | MKJP |
| ADNAN MENDERES | LTBJ | GHEDI MIL | LIPL | NORTH ISLAND NAS | KNZY |
| ACCRA | DGAA | GIBRALTAR (RAF) | LXGB | NORTHOLT (RAF) | EGWU |
| AGRA AB | VIAG | GIOIA DEL COLLE MIL | LIBV | NORVENICH AB | ETNN |
| AIX-LES-BAINS | LFLB | GLASGOW | EGPF | NORWICH | EGSH |
| AKROTIRI (RAF) | LCRA | GLOUCESTERSHIRE | EGBJ | NSIMALEN | FKYS |
| AKTION AB | LGPZ | GOLENIOW | EPSC | NURNBERG | EDDN |
| AL DHAFRA | OMAM | GOOSE BAY | CYYR | O.R. TAMBO INTL | FAJS |
| ALBENGA | LIMG | GRAN CANARIA | GCLP | OCEANA NAS | KNTU |
| ALBERCETE | LEAB | GRAND FORKS INTL | KGFK | OFFUTT AFB | KOFF |
| ALBUQUERQUE INTL SUNPORT | KIKR | GRANTLEY ADAMS INTL | TBPB | OKECIE | EPWA |
| ALDERGROVE | EGAA | GREENWOOD | CYZX | ORLAND AB | ENOL |
| ALEXANDRIA ARMY | LGAX | GROSSETO MIL | LIRS | ORLANDO INTL | KMCO |
| ALI AL SALEM AB | OKAS | GUAM INTL | PGUM | ORLY | LFPO |
| ALI BASE | ORTL | GUARARAPES - GILBERTO FREYRE, | SBRF | OSAN AB | RKSO |
| ALMATY | UAAA | GUARULHOS-GOV. ANDRE FRANCO MO | SBGR | OSTEND | EBOS |
| ALTA | ENAT | GUERNSEY | EGJB | OTIS ANGB | KFMH |
| ALTUS AFB | KLTS | HALIFAX/STANFIELD INTL | CYHZ | OTTAWA/MACDONALD -CARTIER INTL | CYOW |
| AL-UDEID | OTBH | HALIM INTL | WIHH | OVAR AB | LPOV |
| AMENDOLA MIL | LIBA | HAMBURG | EDDH | PADERBORN/LIPPSTADT | EDLP |
| AMILCAR CABRAL | GVAC | HANNOVER | EDDV | PAFOS INTL | LCPH |
| ANDERSEN AFB | PGUA | HARARE INTL | FVHA | PAGO PAGO INTL | NSTU |
| ANDOYA | ENAN | HARRISBURG INTL | KMDT | PALESE MACCHIE | LIBD |
| ANDRAVIDA AB | LGAD | HARTSFIELD - JACKSON ATLANTA I | KATL | PALMA DE MALLORCA | LEPA |
| ANDREWS AFB/NAF | KADW | HAWARDEN | EGNR | PALMDALE REGIONAL/ PLANT 4 | KPMD |
| ANDROS TOWN INTL | MYAF | HEATHROW | EGLL | PARIS-PLAGE | LFAT |
| ARLANDA | ESSA | HENRI COANDA | LROP | PATRICK AFB | KCOF |
| ARMSTRONG NEW ORLEANS INTL | KMSY | HEYDAR ALIYEV INTL | UBBB | PATUXENT RIVER NAS | KNHK |
| ARTURO MERINO BENITEZ INTL | SCEL | HILL AFB | KHIF | PAYA LEBAR | WSAP |
| ASCENSION AUX AB | FHAW | HOHN AB | ETNH | PENANG INTL | WMKP |
| ATATURK | LTBA | HOLLOMAN AFB | KHMN | PERETOLA | LIRQ |
| AUCKLAND INTL | NZAA | HOLTENAU | EDHK | PERTH INTL | YPPH |
| AVALON | YMAV | HOMESTEAD ARB | KHST | PHILIP S W GOLDSON INTL | MZBZ |
| AVIANO MIL | LIPA | HONOLULU INTL | PHNL | PHOENIX SKY HARBOR INTL | KPHX |
| AVORD AB | LFOA | HOSEA KUTAKO INTL | FYWH | PIARCO INTL | TTPP |
| BAGHDAD INTL | ORBI | HOUSTON INTERCONTINENTAL | KIAH | PLATTSBURGH INTL | KPBG |
| BAGOTVILLE | CYBG | HOWARD INTL | MPHO | PLESO | LDZA |
| BAGRAM | OAIX | HRADEC KRALOVE | LKHK | PLEURTUIT-ST MALO | LFRD |
| BAHRAIN INTL | OBBI | HUMBERSIDE | EGNJ | PLYMOUTH | EGHD |
| BALAD SOUTHEAST | ORBD | HURGHADA INTL | HEGN | POINT MUGU NAS | KNTD |
| BALI INTL | WADD | HURLBURT | KHRT | POPE AFB | KPOB |
| BALICE | EPKK | HYDERABAD | VOHY | PORETTA | LFKB |
| BALTIMORE/WASHINGTON INTL THUR | KBWI | ILE DE RE | LFBH | PORTO SANTO | LPPS |
| BANAK | ENNA | INCIRLIK AB | LTAG | PORTSMOUTH INTL AT PEASE | KPSM |
| BANDARANAIKE INTL | VCBI | INDIRA GANDHI INTL | VIDP | POULMIC NAVY | LFRL |
| BANEASA-AUREL VLAICU | LRBS | INVERNESS | EGPE | POWIDZ | EPPW |
| BANGALORE | VOBG | INYOKERN | KIYK | PRATICA DI MARE MIL | LIRE |
| BANGKOK DON MUEANG INTL | VTBD | IOANNIS DASKALOGIANNIS | LGSA | PRESTWICK | EGPK |
| BANGOR INTL | KBGR | IOANNIS KAPODISTRIAS | LGKR | PRINCE SULTAN AB | OEPS |
| BANJA LUKA | LQBK | ISLAY | EGPI | PRISTINA | BKPR |
| BANJUL INTL | GBYD | ISLE OF MAN | EGNS | PROVIDENCIALES INTL | MBPV |
| BARAJAS | LEMD | J.M. NKOMO | FVBU | PULA | LDPL |
| BARDUFOSS AB | ENDU | JACKSONVILLE NAS | KNIP | PULKOVO | ULLI |
| BARKSDALE AFB | KBAD | JAMES ARMSTRONG RICHARDSON INT | CYWG | PUNTA RAISI | LICJ |
| BARKSTON HEATH (RAF) | EGYE | JERSEY | EGJJ | QUEEN ALIA INTL | OJAI |
| BASLE-MULHOUSE | LFSB | JOMO KENYATTA | HKJK | RAMSTEIN AB | ETAR |
| BASRAH INTL | ORMM | JOSE JOAQUIN DE OLMEDO INTL | SEGU | RANDOLPH AFB | KRND |
| BEAUVECHAIN AB | EBBE | KABUL INTL | OAKB | REBIECHOWO | EPGD |
| BEJA AB | LPBJ | KADENA AB | RODN | REGGIO CALABRIA | LICR |
| BELFAST CITY | EGAC | KANDAHAR | OAKN | REINA SOFIA | GCTS |
| BELGRADE | LYBE | KANEOHE BAY MCAF | PHNG | REYKJAVIK | BIRK |
| BELLEGARDE | LFBL | KANGERLUSSUAQ | BGSF | RICHMOND (MILITARY) | YSRI |
| BENBECULA | EGPL | KARLSTAD | ESOK | RIGA INTL | EVRA |
| BENSON (RAF) | EGUB | KARUP AB | EKKA | RIMINI MIL | LIPR |
| BILLUND | EKBI | KASTELA | LDSP | RIVOLTO MIL | LIPI |
| BIRGI MIL | LICT | KASTRUP | EKCH | ROBERTS INTL | GLRB |
| BIRMINGHAM | EGBB | KEFLAVIK | BIKF | ROBINS AFB | KWRB |
| BLACKPOOL | EGNH | KEMBLE | EGBP | ROBINSON AB | LFSI |
| BLAGNAC | LFBO | KEY WEST NAS | KNQX | RONCHI DEI LEGIONARI | LIPQ |
| BODO | ENBO | KHARTOUM | HSSS | ROSTOCK-LAAGE | ETNL |
| BORG EL ARAB INTL | HEBA | KIDLINGTON | EGTK | ROTTERDAM | EHRD |
| BOSCOMBE DOWN (MOD) | EGDM | KING ABDULAZIZ AB | OEDR | RUZYNE | LKPR |
| BOURNEMOUTH | EGHH | KING ABDULAZIZ INTL | OEJN | RYGGE AB | ENRY |
| BRICY AB | LFOJ | KING FAISAL AB | OETB | SAINT EXUPERY | LFLL |
| BRISBANE INTL | YBBN | KING HUSSEIN INTL | OJAQ | SALALAH | OOSA |
| BRISTOL | EGGD | KING KHALED INTL | OERK | SALON AB | LFMY |
| BRIZE NORTON (RAF) | EGVN | KING KHALID AB | OEKM | SALZBURG | LOWS |
| BROMMA | ESSB | KING KHALID MILITARY CITY | OEKK | SAN ANGELO REGL/MATHIS | KSJT |
| BRUNEI INTL | WBSB | KINGSFORD SMITH INTL | YSSY | SAN ANTONIO INTL | KSAT |
| BRUNSWICK NAS | KNHZ | KINLOSS (RAF) | EGQK | SAN BERNARDINO INTL | KSBD |
| BRUSSELS NATIONAL | EBBR | KJEVIK | ENCN | SAN DIEGO INTL | KSAN |
| BUCKLEY AFB | KBKF | KLEINE-BROGEL AB | EBBL | SAN GIUSTO | LIRP |
| BUTTERWORTH | WMKB | KOKSIJDE AB | EBFN | SANTA MARIA | LPAZ |
| CAIRO INTL | HECA | KONYA AB | LTAN | SANTIAGO | LEST |
| CAIRO WEST AIRPORT | HECW | KORTRIJK-WEVELGEM | EBKT | SARAJEVO | LQSA |
| CALGARY INTL | CYYC | KOSICE | LZKZ | SASKATOON/DIEFENBAKER INTL | CYXE |
| CAMBRIDGE | EGSC | KOTA KINABALU | WBKK | SAVANNAH/HILTON HEAD INTL | KSAV |
| CAMERI MIL | LIMN | KOTOKA INTL | DGAA | SCAMPTON (RAF) | EGXP |
| CAMPBELTOWN | EGEC | KUALA LUMPUR INTL - SEPANG | WMKK | SCATSTA | EGPM |
| CAMPO DELL' ORO | LFKJ | KUANTAN | WMKD | SCHIPHOL | EHAM |
| CANCUN INTL | MMUN | KUWAIT INTL | OKBK | SCHONEFELD | EDDB |
| CANOAS AB | SBCO | KVERNBERGET | ENKB | SCHWECHAT | LOWW |
| CAPE CANAVERAL AFS SKID STRIP | KXMR | L F WADE INTL | TXKF | SCONE | EGPT |
| CAPE TOWN INTL | FACT | LA RONGE | CYVC | SCOTT AFB/MIDAMERICA | KBLV |
| CAPODICHINO | LIRN | LACKLAND AFB (KELLY FLD ANNEX) | KSKF | SEATTLE-TACOMA INTL | KSEA |
| CARDIFF | EGFF | LAJES AB | LPLA | SEEB INTL | OOMS |
| CARITAT AB | LFMO | LAKENHEATH AB | EGUL | SESTRI | LIMJ |
| CARLISLE | EGNC | LAMBERT-ST LOUIS INTL | KSTL | SEYCHELLES INTL | FSIA |
| CARLOS IBANEZ DEL CAMPO INTL | SCCI | LANDIVISIAU NAVY | LFRJ | SEYMOUR JOHNSON AFB | KGSB |
| CARRASCO INTL/GEN C L BERISSO | SUMU | LANDSBERG AB | ETSA | SHANNON | EINN |
| CASALE MIL | LIBR | LANGKAWI INTL | WMKL | SHARM EL SHEIKH INTL | HESH |
| CASELLE | LIMF | LANGLEY AFB | KLFI | SHAW AFB | KSSC |
| CAZAUX AB | LFBC | LANGNES | ENTC | SHEREMETYEVO | UUEE |
| CHAKLALA INTL | OPRN | LANN-BIHOUE NAVY | LFRH | SIGONELLA MIL | LICZ |
| CHAMPAGNE AB | LFSR | LANZAROTE | GCRR | SIMPANG | WMKF |
| CHANDLER | KAXN | LARNACA INTL | LCLK | SIR SERETSE KHAMA INTL | FBSK |
| CHANGI | WSSS | LAWICA | EPPO | SKOPJE | LWSK |
| CHARLES-DE-GAULLE | LFPG | LAWSON AAF | KLSF | SLIAC | LZSL |
| CHARLESTON AFB/INTL | KCHS | LE LAMENTIN | TFFF | SOEKARNO-HATTA INTL | WIII |
| CHATEAUBERNARD AB | LFBG | LE PALYVESTRE NAVY | LFTH | SOESTERBERG AB | EHSB |
| CHEDDI JAGAN INTL | SYCJ | LE TUBE AB | LFMI | SOFIA | LBSF |
| CHENNAULT | KCWF | LECHFELD AB | ETSL | SOLA | ENZV |
| CHERRY POINT MCAS | KNKT | LEEDS BRADFORD | EGNM | SOUDA BAY (NAS CRETE) | LGSA |
| CHICAGO-O'HARE INTL | KORD | LEEMING (RAF) | EGXE | SOLENZARA | LFKS |
| CHIEVRES AB | EBCV | LEEUWARDEN AB | EHLW | SOUTHAMPTON INTL | EGHI |
| CHINA LAKE NAWS | KNID | LEICESTER | EGBG | SOUTHEND | EGMC |
| CHISINAU INTL | LUKK | LEIRIN | ENFG | SPANGDAHLEM AB | ETAD |
| CHRISTCHURCH INTL | NZCH | LEON M'BA | FOOL | ST ATHAN (RAF) | EGDX |
| CHURCHILL | CYYQ | LEOPOLD SEDAR SENGHOR | GOOY | ST JOHN'S INTL | CYYT |
| CIAMPINO | LIRA | LESQUIN | LFQQ | ST PETERSBURG-CLEARWATER INTL | KPIE |
| CIGLI AB | LTBL | LEUCHARS (RAF) | EGQL | ST MAWGAN (RAF) | EGDG |
| CILIPI | LDDU | LIEGE | EBLG | STANSTED | EGSS |
| CITY OF COLORADO SPRINGS MUN | KCOS | LILONGWE INTL | FWKI | STEPHENVILLE | CYJT |
| CLERMONT-FERRAND/AUVERGNE | LFLC | LINCOLN MUN | KLNK | STEVENS ANCHORAGE INTL | PANC |
| COLD LAKE | CYOD | LINTON-ON-OUSE (RAF) | EGXU | STORNOWAY | EGPO |
| COLOGNE-BONN | EDDK | LISBON | LPPT | STURUP | ESMS |
| COMOX | CYQQ | LITTLE ROCK AFB | KLRF | STUTTGART | EDDS |
| CONGONHAS INTL | SBSP | LIVERPOOL | EGGP | SULEYMAN DEMIREL | LTFC |
| CONINGSBY (RAF) | EGXC | LJUBLJANA | LJLJ | SULTAN ABDUL AZIZ SHAH-SUBANG | WMSA |
| CORPUS CHRISTI NAS/TRUAX | KNGP | LOGAN INTL | KBOS | SULTAN AZLAN SHAH | WMKI |
| COSFORD (RAF) | EGWC | LONG BEACH | KLGB | SUMBURGH | EGPB |
| COTTESMORE (RAF) | EGXJ | LONGVIC AB | LFSD | SWANSEA | EGFH |
| COVENTRY | EGBE | LOS ANGELES INTL | KLAX | TAIF | OETF |
| CRANWELL (RAF) | EGYD | LOS RODEOS | GCXO | TALLINN | EETN |
| CULDROSE (ROYAL NAVY) | EGDR | LOSSIEMOUTH (RAF) | EGQS | TAMPA INTL | KTPA |
| DAKAR | GOOY | LOURDES-PYRENEES | LFBT | TANCOS | LPTN |
| DALLAS-FT WORTH INTL | KDFW | LUKE AFB | KLUF | TBILISI | UGTB |
| DARWIN INTL | YPDN | LUNGI | GFLL | TEGEL | EDDT |
| DAVIS MONTHAN AFB | KDMA | LUQA | LMML | TEMPELHOF | EDDI |
| DE KOOY NAVY | EHKD | LUSAKA INTL | FLLS | TENGAH | WSAT |
| DECIMOMANNU MIL | LIED | LUTON | EGGW | TESSERA | LIPZ |
| DENVER INTL | KDEN | LUXEMBOURG | ELLX | THULE AB | BGTL |
| DEOLS | LFLX | LUXOR INTL | HELX | THUMRAIT AB | OOTH |
| DES MOINES INTL | KDSM | L'VIV | UKLL | TINKER AFB | KTIK |
| DEURNE | EBAW | LYNDEN PINDLING INTL | MYNN | TORREJON | LETO |
| DIAGORAS | LGRP | LYNEHAM (RAF) | EGDL | TOWNSVILLE INTL | YBTL |
| DIEGO ARACENA INTL | SCDA | M.R. STEFANIK | LZIB | TRAPANI | LICT |
| DIEGO GARCIA NAVY | FJDG | MAASTRICHT-AACHEN | EHBK | TRAVIS AFB | KSUU |
| DISHFORTH (ARMY) | EGXD | MACDILL AFB | KMCF | TRENTON | CYTR |
| DOBBINS ARB | KMGE | MAKEDONIA | LGTS | TRIBHUVAN INTL | VNKT |
| DOHA INTL | OTBD | MALE INTL | VRMM | TUCSON INTL | KTUS |
| DOMODEDOVO | UUDD | MALINDI | HKML | TULSA INTL | KTUL |
| DOVER AFB | KDOV | MALPENSA | LIMC | TUZLA | LQTZ |
| DRESDEN | EDDC | MANCHESTER | EGCC | V C BIRD INTL | TAPA |
| DUBAI INTL | OMDB | MANDELIEU | LFMD | VAERLOSE AB | EKVL |
| DUNDEE | EGPN | MANISES | LEVC | VAERNES AB | ENVA |
| DURBAN INTL | FADN | MANSTON | EGMH | VAL DE LOIRE AB | LFOT |
| DURHAM TEES VALLEY | EGNV | MAPUTO | FQMA | VALKENBURG NAVY | EHVB |
| DUSHANBE | UTDD | MARCH ARB | KRIV | VALLEY (RAF) | EGOV |
| DUSSELDORF | EDDL | MARHAM (RAF) | EGYM | VANCOUVER INTL | CYVR |
| DYCE | EGPD | MARIBOR | LJMB | VELIZY AB | LFPV |
| EAST MIDLANDS | EGNX | MARISCAL SUCRE INTL | SEQU | VICENZA AB | LIPT |
| EDINBURGH | EGPH | MARITSA | LGRD | VIGRA | ENAL |
| EDMONTON INTL | CYEG | MARKA INTL | OJAM | VILLAFRANCA | LIPX |
| EDWARDS AFB | KEDW | MARSEILLE/PROVENCE | LFML | VILNIUS INTL | EYVI |
| EELDE | EHGG | MASIRAH ISLAND | OOMA | VNUKOVO | UUWW |
| EGLIN AFB | KVPS | MAUPERTUS | LFRC | VOJENS/SKRYDSTRUP AB | EKSP |
| EGLINTON | EGAE | MAYA-MAYA | FCBB | WADDINGTON (RAF) | EGXW |
| EIELSON AFB | PAEI | MC CARRAN INTL | KLAS | WALNEY ISLAND | EGNL |
| EINDHOVEN AB | EHEH | MC CHORD AFB | KTCM | WALVIS BAY | FYWB |
| EL CENTRO NAF | KNJK | MC CONNELL AFB | KIAB | WARTON | EGNO |
| EL PASO INTL | KELP | MC GUIRE AFB | KWRI | WASHINGTON DULLES INTL | KIAD |
| ELEFTHERIOS VENIZELOS INTL | LGAV | MELBOURNE INTL | YMML | WATERKLOOF AB | FAWK |
| ELLSWORTH AFB | KRCA | MEMMINGEN AB | ETSM | WATTISHAM (ARMY) | EGUW |
| ELMAS MIL | LIEE | MEMPHIS INTL | KMEM | WESTERLAND/SYLT | EDXW |
| ELMENDORF AFB | PAED | MENARA | GMMX | WESTOVER ARB/METRO | KCEF |
| ENTEBBE INTL | HUEN | MERIGNAC | LFBD | WHENUAPAI (MILITARY) | NZWP |
| ENTZHEIM | LFST | MIAMI INTL | KMIA | WHIDBEY I NAS | KNUW |
| EPINOY AB | LFQI | MIHAIL KOGALNICEANU-CONSTANTA | LRCK | WHITEMAN AFB | KSZL |
| ERFURT | EDDE | MILDENHALL AB | EGUN | WICK | EGPC |
| ESBJERG | EKEB | MINNEAPOLIS-ST PAUL INTL | KMSP | WIESBADEN AAF | ETOU |
| ESENBOGA | LTAC | MIRAMAR MCAS | KNKX | WILLEMSTAD/HATO INTL. | TNCC |
| EVENES | ENEV | MOI | HKMO | WITTERING (RAF) | EGXT |
| EXETER | EGTE | MOJAVE | KMHV | WOENSDRECHT AB | EHWO |
| EXUMA INTL | MYEF | MONT-DE-MARSAN AB | LFBM | WOODFORD | EGCD |
| FAIRBANKS INTL | PAFA | MONTE REAL AB | LPMR | WRIGHT-PATTERSON AFB | KFFO |
| FAIRFORD | EGVA | MONTIJO AB | LPMT | WUNSTORF AB | ETNW |
| FALCONARA MIL | LIPY | MONTREAL INTL (MIRABEL) | CYMX | YEOVILTON (ROYAL NAVY) | EGDY |
| FALLON NAS | KNFL | MONTREAL/PIERRE-ELLIOTT-TRUDEA | CYUL | YOKOTA AB | RJTY |
| FARNBOROUGH | EGLF | MORON AB | LEMO | YUMA MCAS/YUMA INTL | KYUM |
| FARO | LPFR | MOSTAR | LQMO | YUZHNY | UTTT |
| FAUVILLE AB | LFOE | MOUNT PLEASANT (RAF) | EGYP | ZARAGOZA | LEZG |
| FERIHEGY | LHBP | MOUNTAIN HOME AFB | KMUO | ZVARTNOTS | UDYZ |
| FILTON | EGTG | MOUNTAIN VIEW/MOFFETT FEDERAL | KNUQ |  |  |
| FIUMICINO | LIRF | MUNICH | EDDM |  |  |
| FLESLAND | ENBR | MUNSTER/OSNABRUCK | EDDG |  |  |
| FLORENNES AB | EBFS | MURTALA MUHAMMED | DNMM |  |  |
| FONTANAROSSA | LICC | MYRTLE BEACH INTL | KMYR |  |  |
| FRANCISCO SA CARNEIRO | LPPR | NADI INTL | NFFN |  |  |
| FRANKFURT/MAIN | EDDF | NAHA | ROAH |  |  |
| FREDERICTON | CYFC | NAMEST | LKNA |  |  |
| FRIEDRICHSHAFEN | EDNY | NANTES/ATLANTIQUE | LFRS |  |  |
| FT LAUDERDALE-HOLLYWOOD INTL | KFLL | NARSARSUAQ | BGBW |  |  |
| FURSTENFELDBRUCK | ETSF | NASHVILLE INTL | KBNA |  |  |
| FUTENMA MCAS | ROTM | NELLIS AFB | KLSV |  |  |
| GALEAO-ANTONIO C JOBIM INTL | SBGL | NETAJI SUBHASH CHANDRA BOSE IN | VECC |  |  |
| GANDER INTL | CYQX | NEW ORLEANS NAS | KNBG |  |  |
| GARDERMOEN | ENGM | NEW ORLEANS INTERNATIONAL | KMSY |  |  |
| GARONS NAVY | LFTW | NEWARK LIBERTY INTL | KEWR |  |  |
| GATWICK | EGKK | NEWCASTLE | EGNT |  |  |
| GBESSIA | GUCY | NICE/COTE D'AZUR | LFMN |  |  |
| GEILENKIRCHEN AB | ETNG | NIKOS KAZANTZAKIS | LGIR |  |  |
| GEN MITCHELL INTL | KMKE | NNAMDI AZIKIWE INTL | DNAA |  |  |

Total Airfields = 627

**TABLE 2 – AIRFIELDS FOR WHICH MOD SUPPLY REQUIRED DATA**

|  |  |  |  |
| --- | --- | --- | --- |
| Airfield | ICAO | Airfield | ICAO |
| Akrotiri | LCRA | Linton-on-Ouse | EGXU |
| Barkston Heath | EGYE | Lossiemouth | EGQS |
| Benson | EGUB | Marham | EGYM |
| Boscombe Down | EGDM | Mount Pleasant | EGYP |
| Brize Norton | EGVN | Northolt | EGWU |
| Coningsby | EGXC | Scampton | EGXP |
| Cosford | EGWC | St Athan | EGDX |
| Cranwell | EGYD | Valley | EGOV |
| Culdrose | EGDR | Waddington | EGXW |
| Dishforth | EGXD | Wattisham | EGUW |
| Gibraltar | LXGB | Wittering | EGXT |
| Kinloss | EGQK | Yeovilton | EGDY |
| Leeming | EGXE | Linton-on-Ouse | EGXU |
| Leuchars | EGQL | Lossiemouth | EGQS |

Total MOD Supplied Airfields = 26

**AIRFIELD AND OBSTACLE DATA FORMAT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Ser No** | **Data** | **Access Format** |  |
| **1** | Airfield Name | Text | Naming convention should be City / Local Name / Military Designation eg Yuma Intl / Yuma MCAS or Montreal / Pierre-Elliott-Trudeau. |
| **2** | Special Procedures | Memo | Any special procedures employed to reduce the number of Obstacles in Take-off domain, such as changes to heading etc, must be available as text in the ‘Special Procedures’ field. |
| **3** | Update? | \* or blank only | The asterisk is required for each Runway that has changed over the preceding 28-day period. |
| **4** | Date of Last Change | Text | The date the data was last modified. |
| **5** | Airfield ICAO Code | Text |  |
| **6** | Airfield IATA Code | Text |  |
| **7** | Runway ID | Text | The full Runway ID, minimum of 2 characters eg 01, 22L, 31RT |
| **8** | Runway Slope | Number | Gradient in Degrees to 2 decimal places. |
| **9** | Runway Brake Release Elevation | Number (in feet) |  |
| **10** | Take-Off-Run-Available (TORA) | Number (in feet) |  |
| **11** | Clearway Length | Number (in feet) |  |
| **12** | Take-Off-Distance-Available (TODA)  TODA must equal TORA + Clearway | Number (in feet) |  |
| **13** | Stopway Length | Number (in feet) |  |
| **14** | Accelerate Stop Distance Available (ASDA) must equal TORA + Stopway | Number (in feet) |  |
| **15** | Landing-Distance-Available (LDA) | Number (in feet) |  |
| **16** | Obstruction Distance (measured from Brake Release Point) | Text (in feet) | Obstructions data as per the ICAO definition of Obstruction Data for Net Flight Path Take-off Calculations. |
| **17** | Obstruction Height (measured in relation to Brake Release Elevation) | Text (in feet) | Obstructions data as per the ICAO definition of Obstruction Data for Net Flight Path Take-off Calculations. |

Table 1 below shows the required elements that make up the required Airfield and Obstacle Data in the required order. The Access Format column shows what is required for the 28 Day text file. This distinct format is for input to other software packages.

Table 1 – Airfield and Obstacle Data Required Fields

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Update | AIRFIELD | ICAO | RWY | Elev | Slope | TORA | Clearway | TODA | Stopway | ASDA | LDA |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Obst1Dist | Obst1Ht | Obst2Dist | Obst2Ht | Obst3Dist | Obst3Ht | Obst4Dist | Obst4Ht | Obst5Dist | Obst5Ht | Obst6Dist | Obst6Ht |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Obst7Dist | Obst7Ht | Obst8Dist | Obst8Ht | Obst9Dist | Obst9Ht | Obst10Dist | Obst10Ht | Obst11Dist | Obst11Ht | Obst12Dist | Obst12ht |

|  |  |
| --- | --- |
| Special Procedures | Last Update |

**Notes:**

1. Data output must be in pipe delimited text format for ease of insertion into a Microsoft Access database, and be either provided via e-mail to be sent to a customer defined list (to be provided), or be downloadable from the primary Airfield and Obstacle Data source.

2. To comply with RAF file naming conventions, obstacle data files are to be named as follows:

Normal RAF Wide File:- yyyymmddRAF-Extract.txt

eg 20080624RAF-Extract.txt.

Temporary Airfields:- yyyymmddRAF-Temporary\_Airfield.txt

Additional Airfields:- yyyymmddRAF-Additional\_Airfield.txt

3. When Obstacle Data Files are corrected outside the AIRAC cycle, the corrected file is to be e-mailed as directed by the customer. Corrected files must include a Change Number (CH#) to enable it to be distinguished from the corrupt file eg 20050624RAF-Extract-CH1.txt

**Annex B**

**GADAPT data – Aircraft types and formats**

**Platform Specific Requirements for Aircraft Performance Tool**

|  |  |
| --- | --- |
| **C-17 Specific Requirements -** Normal T/O configuration as specified in the 1C-17A-1-1 | |
|  | |
| A1 | The User requires an alignment distance of 350 feet to account for line-up penalty to be automatically added to the product specification. |
| a2 | The User Requires that the airfield pressure can be input in millibars or inches of mercury. |
| a3 | The User requires that Drag Index is an input parameter. |
| a4 | The User requires that Runway condition Reading (RCR) is an input parameter. |
| a5 | The User requires that Runway contamination is an input parameter, 0 – 0.5 inches Wet Snow and 0 – 4 inches Dry Snow. |
| a6 | The User requires that minimum flap retraction altitude, or minimum safe acceleration altitude, is displayed on the product. |
| a7 | The User requires that terminology in accordance with Ref. J is used on the product. |
| A8 | The User requires that anti-ice on/off selection is an input parameter of the product. |
| A9 | The user requires the input parameter Thrust Reverser NORM/ 2Eng/ Forward Idle |
| A10 | The user requires the input parameter Ground Spoilers NORM / half retracted |
| A.11 | The user requires the input parameter Brakes Config All main gear brakes operational, 1 main brake unit inop, 2 main gear brake units inop  The Datum Elevation is the Departure End Elevation |
|  | |

|  |  |
| --- | --- |
| **SHADOW R1 Specific Requirements –** Shadow R1 / R2 All configurations as specified in the Pilots Operating Handbook | |
|  | |
| C1 | The User requires that T/O Flap setting at Approach or Up be an input parameter |
| C2 | The User requires that Air Con/ Bleed Air on or off be an input parameter |
| C3 | The User requires that Engine Anti-ice on or off be an input parameter. |
| C4 | The User requires that Wet or Dry runways are an input parameter. |
| C5 | The User requires that minimum flap retraction altitude, or minimum safe acceleration altitude, is displayed on the product. |
| C6 | The User requires that Flap up Landing distance be an output parameter. |
| C7 | The User requires that Landing distance with one engine inoperative (OEI) is an output parameter. |
| C8 | The datum Elevation is the brake release point elevation for the Shadow R1 |
| C9 | It Is highly desirable that Single Engine service Ceiling is an output parameter |
| C10 | It would be desirable for C of G, Trim and Weight and balance data be available as an output parameter. |
|  |  |

|  |  |
| --- | --- |
| **WEDGETAIL Specific Requirements -** Wedgetail E7 - All configurations as specified in the Operating Data Manual | |
|  | |
| D1 | The User requires that Runway condition Reading (RCR) is an input parameter |
| D2 | The User requires that Runway contamination is an input parameter - depth 3mm -15mm water equivalent depth for water, Slush, wet snow, dry snow, compacted snow and wet ice. |
| D3 | The User requires that minimum flap retraction altitude, or minimum safe acceleration altitude, is displayed on the product. |
| D4 | The User requires that anti-ice on/off selection is an input parameter of the product. |
| D5 | The User requires that flap position is an input parameter. |
| D6 | The User requires that bleed air selection is an input parameter to the product. |
| D7 | The User requires the input parameter Thrust Reversers Inoperative |
| D8 | The User requires the input parameter Brakes Config All main gear brakes operational, 1 main brake unit inop, 2 main gear brake units inop |
| D9 | The datum Elevation is the brake release point elevation for the Wedgetail E7 |
| D9 | The User may require additional abnormal configuration items once ODM is released (Q4 2022) |

MOD Form 765X

****

**GADAPT AND OBSTRUCTION DATA RISK REGISTER**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Risk ID | Risk Type | Risk Title | Risk Description | Likelihood | Severity | Risk | Mitigations |
| 1 | RTL | Controlled Flight Into Terrain. | Aircraft flightpath following GADAPT instructions operating One Engine Inoperative (OEI) results in controlled flight into terrain. Resulting from incorrect product database, incorrectly flown procedures or incorrect aircraft performance algorithms. | Remote | Catastrophic | High | Crews practice GADAPT /JRA procedures in synthetic training device. Encompass product procedures in standard operating procedures. Ensure supplier uses data from an approved source. Ensure product designed and meets industry standards and therefore FFP. Validate a sample of procedures though manual ODM calculation and / or in an endorsed synthetic training device. Residual risk to be reviewed as an operating risk by DH Chain. |
| 2 | RTL | Runway Overrun OEI. | Use of GADAPT procedures result in a runway over-run during a take-off abort OEI due to incorrect product airfield database or aircraft performance algorithms (contaminated performance, incorrect Min equipment list performance allowances etc). | Improbable | Catastrophic | High | As per Risk ID (1) mitigations. |
| 3 | RTL | Runway Overrun all engines operating. | Use of GADAPT procedures result in a runway over-run during a take-off abort (all engines operating) due to incorrect product airfield database or aircraft performance algorithms (contaminated performance, Min equipment list allowances etc). | Improbable | Critical | Medium | As per Risk ID (1) mitigations. |
| 4 | RTL | Aircraft departs intended flight path due to incorrect data entry into product by operating crew. | Crew mis-enter data into product prior to calculation, resulting in incorrect data being used to execute a departure. | Remote | Critical | Medium | As per Risk ID (1) mitigations. Ensure CRM and cross-check of product data entry parameters is included in Standard Operating Procedures. |
| 5 | RTL | Controlled Flight into Obstacle (declared). | Aircraft flightpath following GADAPT instructions operating One Engine Inoperative (OEI) results in controlled flight into an obstacle declared in the product database. Resulting from incorrect product database, incorrectly flown procedures or incorrect aircraft performance algorithms. | Remote | Critical | Medium | As per Risk ID (1) mitigations. |
| 6 | RTL | Controlled Flight into Obstacle (undeclared) | Aircraft flight path following GADAPT instructions operating One Engine Inoperative (OEI) results in controlled flight into an obstacle not declared in the product database. Resulting from incorrect product database, incorrectly flown procedures or incorrect aircraft performance algorithms. | Improbable | Critical | Medium | As per Risk ID (1) mitigations. Ensure supplier has robust procedures to add declared obstacles to database within a reasonable timeframe. Product **should** be capable of adding NOTAM obstacles as an input parameter, unless a product mitigation to this risk is provided. |
| 9 | Risk to Output | Service is not re-let in sufficient time to prevent loss of current JRA capabilities. | Due to limitations in resource (manpower, SQEP, funding), JRA contract is not re let with sufficient time to prevent an impact to output. This Risk should include timelines involved to re-write SOPs, re-train crews and to re-validate products if a competitive bid chooses an alternative product to the one currently in use due to EU competition laws, thus requiring a change to current practices and procedures. | Medium | Major | Medium | Air Command to consider appropriate resource to manage the re-let of the JRA contract. |
| 7 | Risk to Output | Service unavailable online. | Service unavailable online due to provider server outage. It is assumed that user connectivity is not the issue when considering this risk. | Remote | Major | Low | Specify minimum uptime required as part of contracted product. |
| 8 | Risk to Output | Service unavailable offline. | Service unavailable offline due to limitations in product functionality. Crew will not have online connectivity when using this product on the flight deck. | Remote | Major | Low | Specify appropriate offline digital output, both in printed and digital formats. |

1. TODA is Take Off Distance Available and is defined as “The length of the take off run available ([TORA](http://www.skybrary.aero/index.php/TORA)) plus the length of the clearway, where provided.” [↑](#footnote-ref-2)