



Cuestión 6 del
Orden del Día:

Evaluación de los requisitos operacionales para determinar la implantación de mejoras de las capacidades de comunicaciones, navegación y vigilancia (CNS) para operaciones en ruta y área terminal

Seguimiento en la implantación del servicio de predicción de la disponibilidad RAIM

(Presentada por la Secretaría)

RESUMEN	
Esta nota de estudio presenta información actualizada sobre el estado de implantación del servicio de la predicción de la disponibilidad RAIM vía WEB	
REFERENCIAS	
<ul style="list-style-type: none">Informe del documento de diseño del servicio de la predicción de disponibilidad RAIMResumen de las teleconferencias realizadas para la implantación del servicio de la predicción de la disponibilidad RAIM	
<i>Objetivos estratégicos de la OACI:</i>	<i>A – Seguridad operacional</i> <i>B – Capacidad y eficiencia de la navegación aérea</i>

1 Introducción

1.1 La Reunión SAM/IG/13 en referencia a la implantación del servicio de la predicción de la disponibilidad RAIM consideró que se requerirá inicialmente de la coordinación entre los Estados de la Región, la Secretaría y la empresa proveedora de dicho servicio sobre la definición del formato de la página WEB, la modalidad de acceso a través de asignación de contraseña, así como de la comprobación de la veracidad de la información.

1.2 Asimismo, la Reunión consideró que una vez disponible y en operación el servicio, los Estados deberán hacer uso de él, motivando su utilización eficiente a todos los interesados y que la secretaría procediera a enmendar las circulares de asesoramiento de los procedimientos PBN elaborados para la Región SAM, a efecto que se mencione la existencia del servicio de predicción de la disponibilidad RAIM. En este sentido se formuló la Conclusión 13/7 *Implantación del servicio de predicción de la disponibilidad RAIM en la Región SAM.*

2 Análisis

2.1 La OACI en nombre de todos los Estados miembros del proyecto RLA/06/901 procedió a la firma del contrato 22501411 para la previsión de un servicio de la predicción de la disponibilidad RAIM vía WEB el 30 de mayo de 2014.

2.2 El 16 de junio de 2014 DWI presentó el documento de proyecto (SDD) con información sobre la modalidad de funcionamiento de la disponibilidad del servicio de la predicción RAIM y el sistema que soporta la aplicación de dicho servicio de conformidad con lo requerido en las especificaciones técnicas elaboradas al respecto. Como **Apéndice A** se presenta copia del SDD.

2.3 Al respecto se procedió a la revisión del SDD para que el mismo estuviera conforme con lo indicado en las especificaciones técnica elaboradas para la implantación del servicio de predicción de la disponibilidad RAIM vía WEB.

2.4 Los Estados miembros del proyecto RLA/06/901 procedieron a nominar los puntos focales que se encargarían de la gestión a nivel nacional del servicio de predicción así como a la asignación de las claves para el acceso a la página WEB del servicio. Como **Apéndice B** se presenta el listado de los puntos focales.

2.5 Asimismo se procedió a diseñar el formato de la página WEB para el servicio de predicción de la disponibilidad RAIM, el logo que identificara el servicio y el nombre de la página web. Las actividades realizadas en este proceso fueron informadas y revisadas por los Estados miembros del proyecto a través de intercambio de correos electrónicos con los puntos focales para dar seguimiento a este servicio y una teleconferencia vía WEB realizadas con la presencia del proveedor de servicio DWI el 11 de junio de 2011. La versión final del SDD se presenta como **Apéndice C** de esta nota de estudio. Como resultado de la revisión del SDD cabe destacar que el nombre designado para la página WEB de la Región para el servicio de la predicción de la disponibilidad RAIM fue SATDIS y el nombre de la página WEB www.satdis.aero.

2.6 Las pruebas de aceptación provisional en fábrica tal como previsto en el contrato se realizaron del 13 al 15 de agosto de 2014. Como resultado de las mismas se procedió a su aceptación con comentarios (Ver **Apéndice D** de esta nota de estudio). Las pruebas se realizaron en Windsor Inglaterra y contó con la participación de un representante de un Estado miembro del RLA/06/901 (Uruguay) y un representante de la OACI de la Oficina Regional Sudamericana de la OACI. En la prueba estaba prevista la participación de un segundo representante de Estado miembro del RLA/06/901 pero no pudo participar por no lograr obtener la visa de entrada a Inglaterra a tiempo.

2.7 El 15 y 16 septiembre de 2014 se realizaron dos cursos a distancias vía WEB uno en idioma en inglés y otro en español. En el curso se explicaron fundamentalmente la operación de las herramientas contenidas en la página WEB del servicio de predicción de la disponibilidad RAIM en la Región SAM (SATDIS), el procedimiento para la asignación de las claves, la importación y exportación de datos y el procedimiento de atención para consulta y fallas. El contenido del curso en español fue grabado y se puede bajar del siguiente portal WEB [https://www.cubbyusercontent.com/pl/SATDIS+Formaci%c3%b3n+\(Espa%c3%b1ol\)+2014-09-16.webm/2cbe0bd9f04c43f783468fe5f2f4b15e](https://www.cubbyusercontent.com/pl/SATDIS+Formaci%c3%b3n+(Espa%c3%b1ol)+2014-09-16.webm/2cbe0bd9f04c43f783468fe5f2f4b15e). En el curso participaron todos los puntos focales nominados por los Estados así como otros participantes designados por los Estados.

2.8 Posteriormente al curso todos los puntos focales recibieron del proveedor de servicio el nombre de usuario y clave respectiva para acceder el SATDIS como administradores. Al respecto todos los puntos focales confirmaron la recepción de la información.

2.9 La página WEB del SATDIS con los tres idiomas (español, portugués e inglés) entró en operación el 17 de septiembre de 2014, para la predicción de las operaciones en ruta queda pendiente los datos de los waypoints por parte del proveedor, mientras tanto los waypoints se pueden introducir manualmente.

2.10 Con el fin de monitorear el uso del servicio y comentario sobre el mismo se realizó una teleconferencia vía WEB el 13 de octubre de 2014 con los puntos focales designado por el Estado, como **Apéndice E** se presenta el resumen de la teleconferencia. En la teleconferencia participaron los puntos de Argentina, Bolivia, Brasil, Chile, Panamá, Paraguay, Perú y Venezuela. Uruguay informó que no podía asistir y envió por correo electrónico sus comentarios.

2.11. La prueba de aceptación final FSAT del SATDIS a la fecha todavía no se ha realizado la misma se hará una vez que DWI complete la base de datos con todos los waypoints en ruta y entregue el manual de operación en español y portugués.

2.12 Se espera que los delegados de los Estados del proyecto RLA/06/901 informen sobre las actividades realizadas a la fecha y previstas para la difusión del servicio de predicción a los proveedores del servicio de navegación aérea, las autoridades aeronáuticas, los inspectores de aeronavegabilidad y operaciones del servicio de la predicción de la disponibilidad RAIM vía WEB.

3 Acción requerida

Se invita a la Reunión:

- a) Tomar nota de la información suministrada;
- b) analizar la sección 2 y los Apéndices de la nota de estudio y los Apéndices correspondientes; y
- c) analizar otras consideraciones al respecto que la Reunión considere necesario.



SRRPAS System Design Document

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DOCUMENT APPROVAL

The following table identifies all management authorities who have successively approved the present issue of this document.


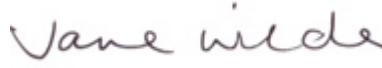
AUTHORITY	NAME AND SIGNATURE	DATE
Author	 Charles Thornberry	June 2014
Reviewer	 Jane Wilde	June 2014
Director	 John Wilde	June 2014

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1 INTRODUCTION

1.1 This document provides the system design information for the South America (SAM) Regional Receiver Autonomous Integrity Monitoring (RAIM) Prediction Availability Service (SRRPAS) as supplied by DW International (DWI) to the SAM Regional States.

1.2 This document provides information on the following topics:

- Technical descriptions of the SRRPAS and the host architecture hardware (Sections 2 and 3).
- SRRPAS branding options (Section 4).
- Training course outline (Section 5).
- Implementation schedule (Section 6).
- Hosting and operation support plan (Section 7).

1.3 The SRRPAS shall offer coverage to all 14 SAM member states though initially 11 states shall use the service:

State	Coverage	Participation
Argentina	✓	✓
Bolivia	✓	✓
Brazil	✓	✓
Chile	✓	✓
Colombia	✓	✓
Ecuador	✓	✓
French Guiana	✓	x
Guyana	✓	x
Paraguay	✓	✓
Peru	✓	✓
Panama	✓	✓
Suriname	✓	x
Uruguay	✓	✓
Venezuela	✓	✓

2 SRRPAS DESCRIPTION

2.1 INTRODUCTION

2.1.1 This Section details the functionality of the SRRPAS. Screen shots from the NETRA RAIM Prediction Service are shown in the following sections to illustrate how RAIM predictions shall be presented. NETRA is based on the same core RAIM prediction solution upon which the SRRPAS shall be based. The presentation and “look and feel” will be updated to meet the ICAO branding guidelines.

2.1.2 The interface shall be provided in English, Spanish and Portuguese.

2.2 FUNCTIONALITY

2.2.1 Constellation Status Tool

2.2.1.1 The Constellation Status Tool shall present a view of the GPS satellite constellation based on the latest almanac and NANUs (Notice Advisory to Navigation Users) issued by the US Coast Guard (USCG). Information disseminated by the USCG can be found at the USCG NAVCEN web site.

2.2.1.2 The Constellation Status Tool shall present the number of operational satellites in the GPS Satellite constellation for a 72-hour period from the time of the request. The almanac used, and NANUs active at the request time, shall also be displayed.

2.2.1.3 A printer friendly version of this report shall be available to the User.

The screenshot displays the NETRA RAIM Prediction Service interface. At the top, there is a navigation bar with 'Home', 'Tools' (selected), 'Account', 'Admin', 'Info', and 'Sitemap'. Below this is a secondary navigation bar with 'Status', 'Visibility', 'Aerodromes Scenario', and 'Route Scenario'. A 'Printable Version' button is located in the top right of the main content area.

The main content area is divided into several sections:

- Scenario Time:**
 - Start: 09-06-2014 10:00:27 UTC
 - End: 12-06-2014 10:00:27 UTC
 - Duration: 72 hours
- Overview:**
 - A minimum of 30 satellites are available during the query period.
- Almanac:**
 - GPS Week: 772
 - GPS TOA: 319488
 - Total Satellites: 31
 - Unhealthy Satellites by PRN: 6
 - Report button
- NANUs:**

Number	PRN	Start	Stop	Type
2014048	4	12-06-2014 14:00:00 UTC	13-06-2014 02:00:00 UTC	FCSTDV

At the bottom of the page, there is a footer with the text: 'Powered by DWI | Disclaimer' and 'Version: 1.0.3-SNAPSHOT | T: +66 2 287 8693 | E: netra.helpdesk@netra.aero'.

Figure 1 – Constellation Status Tool Screen Shot

2.2.2 Aerodrome Tool

2.2.2.1 The Aerodrome Tool shall calculate the predicted RAIM availability for a 24, 48 or 72 hour period (User selectable) for specific aerodromes. The tool shall support calculations for terminal navigation specifications for up to 20 aerodromes in a single scenario.

2.2.2.2 The Aerodrome Tool shall calculate the predicted RAIM availability at the Aerodrome Reference Point (ARP).

2.2.2.3 Calculations can be configured by the User, allowing selection of:

- GPS receiver type C-129 or C-145/6.
- Fault Detection (FD) or Fault Detection Exclusion (FDE).
- Baro-aiding on, off or both.
- Selective Availability (SA) on / off.
- Mask angle between -20 to +25 degrees.

2.2.2.4 The Aerodrome Tool shall provide a formatted report which displays the predicted RAIM outages over the scenario period for each of the selected aerodromes, in graphical and tabular formats.

2.2.2.5 A printer friendly version of this report shall be available to the User.

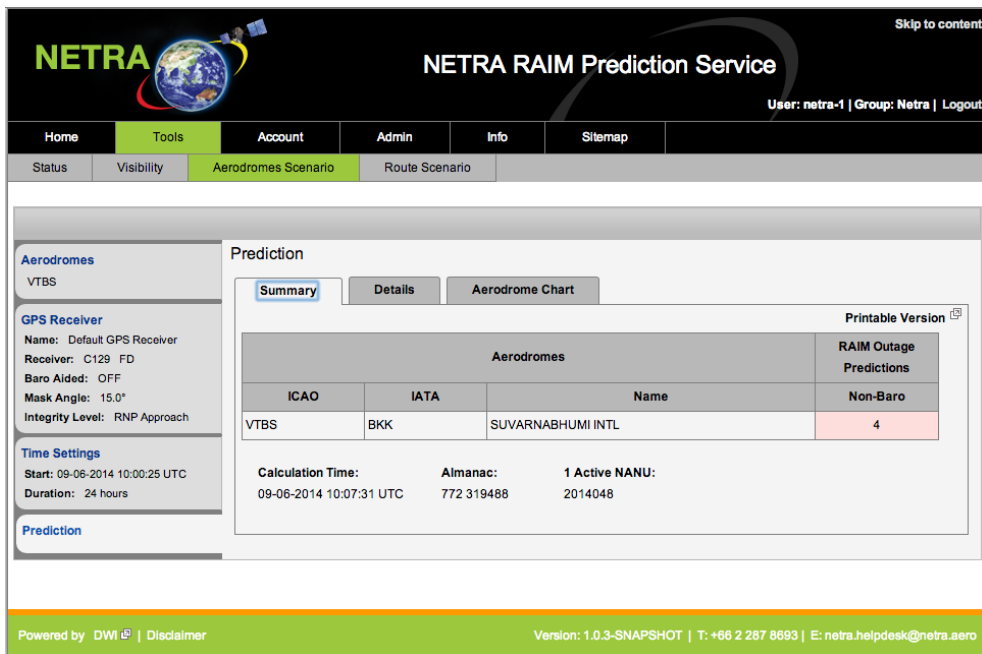


Figure 2 – Aerodrome Tool Summary Screen Shot

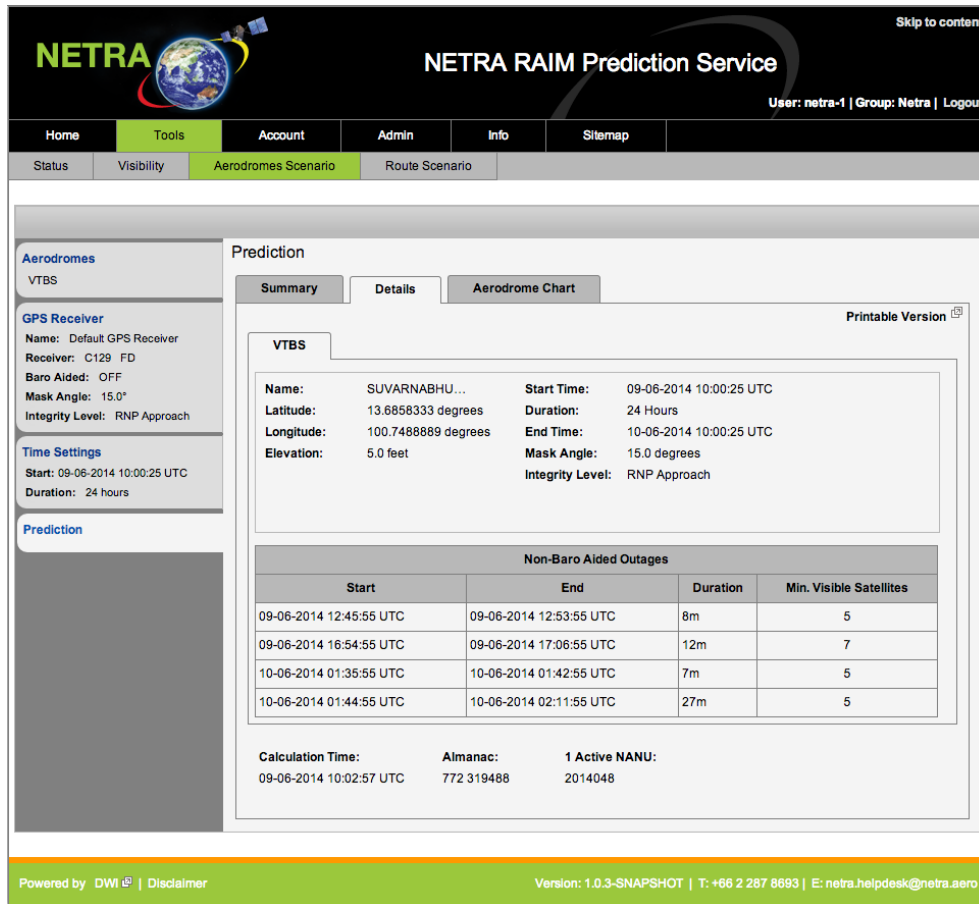


Figure 3 – Aerodrome Tool Details Screen Shot

2.2.3 Route Tool

- 2.2.3.1 The Route Tool shall calculate the predicted RAIM availability for points along a defined route using RAIM algorithms for all PBN Navigation Specifications.
- 2.2.3.2 A route shall be defined by a series of waypoints selected, or input, by the User. The Route Tool will maintain a list of current en-route waypoints and navaids which can be selected by ICAO or IATA identifier. The User shall also be able to define custom waypoints - if the User wants to enter routes in terminal airspace this option must be used. The anticipated time elapsed since the route start time shall be entered in the 'Time Offset' column for each waypoint. The RAIM algorithm, altitude and mask angle to be used shall also be selected for each waypoint - it shall be applied for the route segment following that waypoint.
- 2.2.3.3 The Route Tool shall calculate the predicted RAIM availability for points spaced along the route, based upon the Time Offset values entered, and shall display any predicted RAIM outages appropriate to the selected integrity level.
- 2.2.3.4 The Route Tool shall provide a formatted report, displaying the predicted RAIM outages over the scenario period. The report shall also show the predicted outages if the start time is delayed, or brought forward, by 5, 10 or 15 minutes.
- 2.2.3.5 A printer friendly version of this report shall be available to the User.

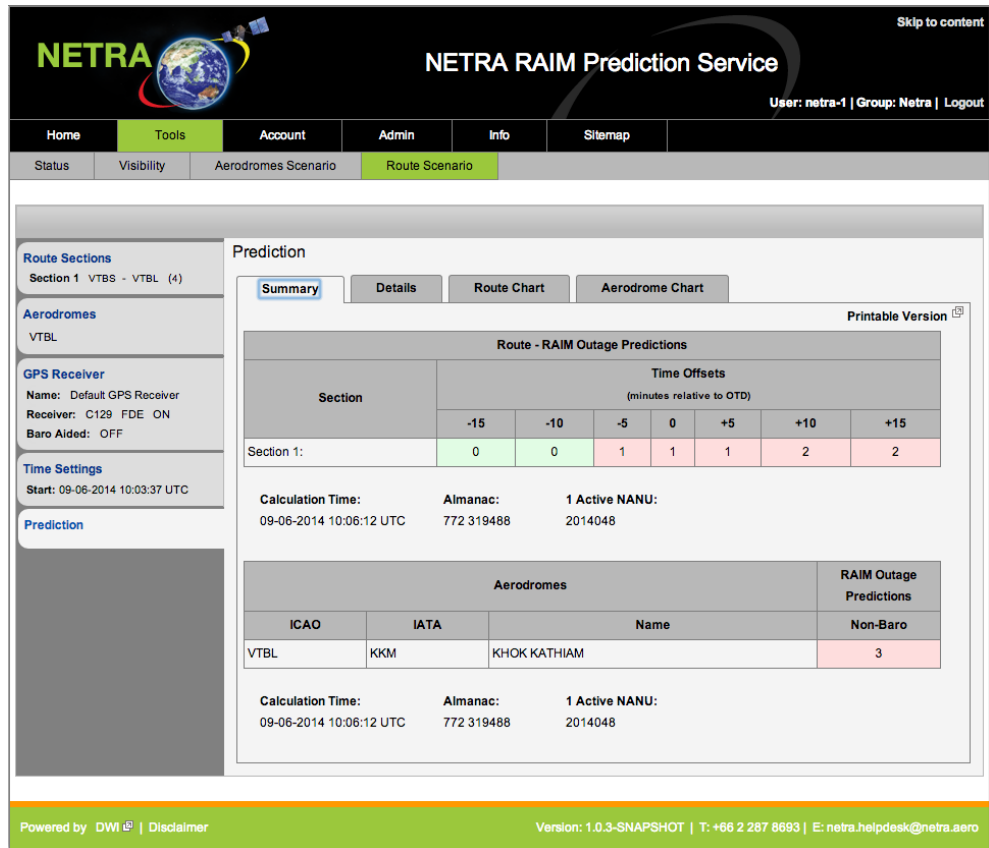


Figure 4 – Route Tool Summary Screen Shot

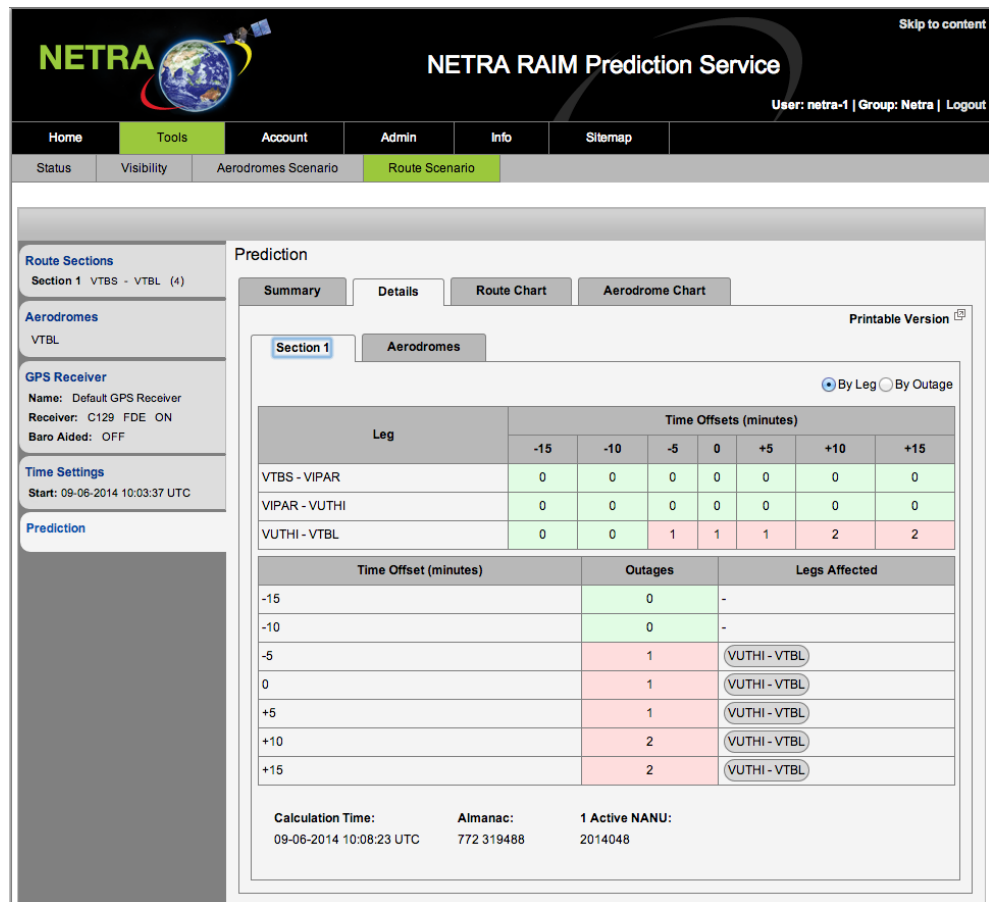


Figure 5 – Route Tool Details by Leg Screen Shot

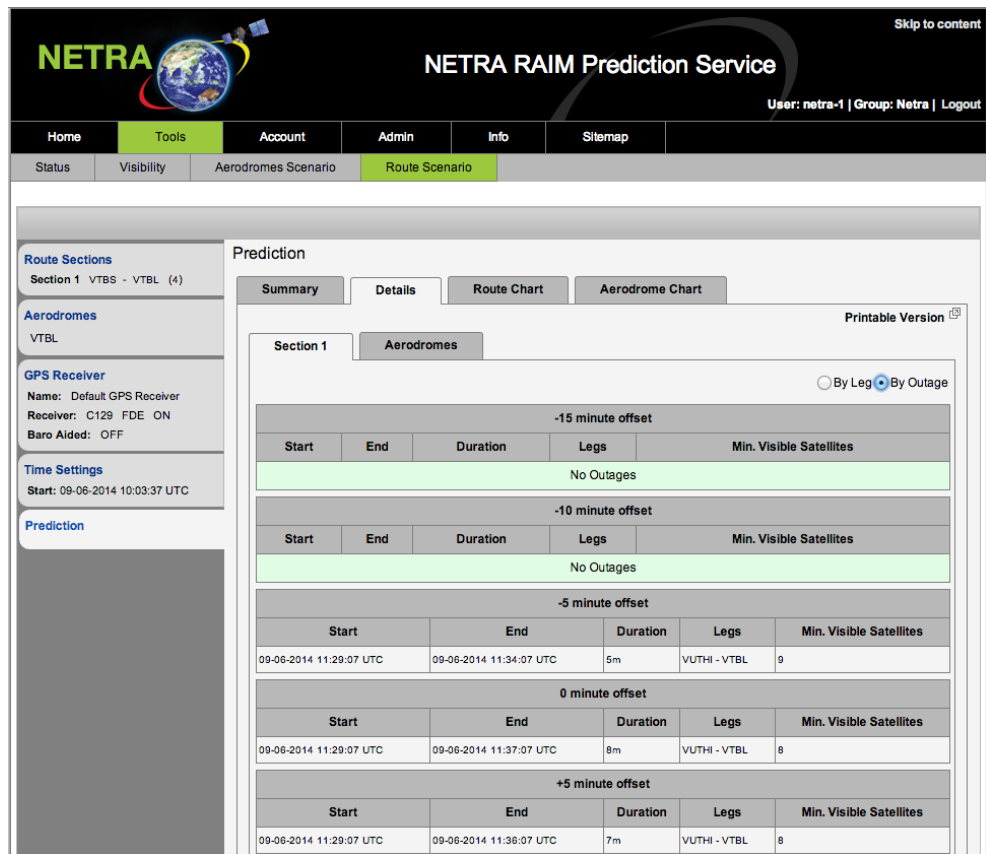


Figure 6 – Route Tool Details by Outage Screen Shot

2.2.4 Visibility Tool

2.2.4.1 The Visibility Tool is supplementary to the Constellation Status Tool. Whilst the Constellation Status Tool shall give the minimum number of operational satellites in the GPS Satellite constellation for up to a 72 hour period, the Visibility Tool shall calculate the location of the GPS satellites relative to a User-defined receiver position for a given time duration of up to 5 hours.

2.2.4.2 Receiver position, mask angle, scenario duration, number of samples and start time shall all be User configurable parameters.

2.2.4.3 The Visibility Tool shall provide the following outputs:

- A graphical sky plot representation of the visible satellites.
 - Only visible and healthy satellites displayed on the sky plot.
 - The area masked by the mask angle (between 0 and the mask angle value) shall be depicted as an opaque red area on the sky plot.
- A table of azimuth and elevation values and the visibility status for each satellite at each sample time in the scenario shall be displayed.
 - Azimuth and elevation shall be displayed in decimal degrees.
 - All satellites shall be included regardless of visibility and health.

2.2.4.4 A printer friendly version of this report shall be available to the User.

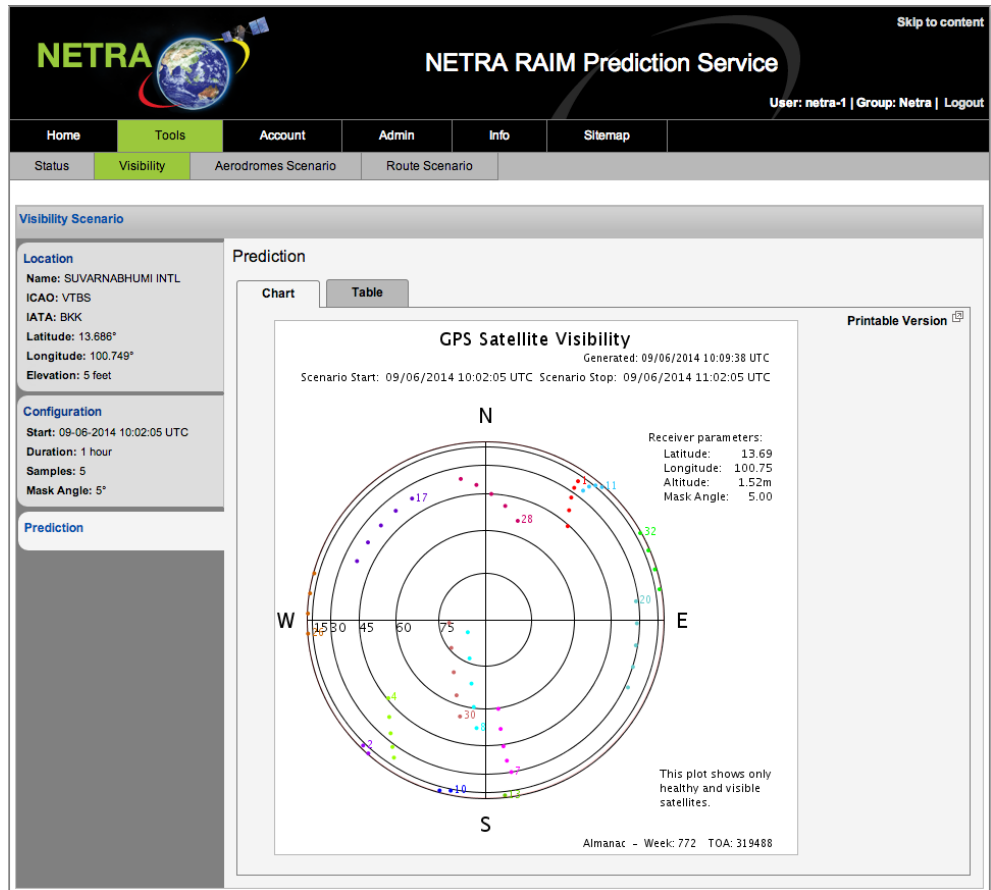


Figure 7 – Visibility Tool Screen Shot

3 SRRPAS HOSTING

3.1 HOSTING

3.1.1 The SRRPAS shall be operated by DWI and deployed across two geographically dispersed servers, at two different Data Centres, offering 24/7 service with a better than 99.5% availability. Figure 8 shows a high level depiction of the SRRPAS architecture.

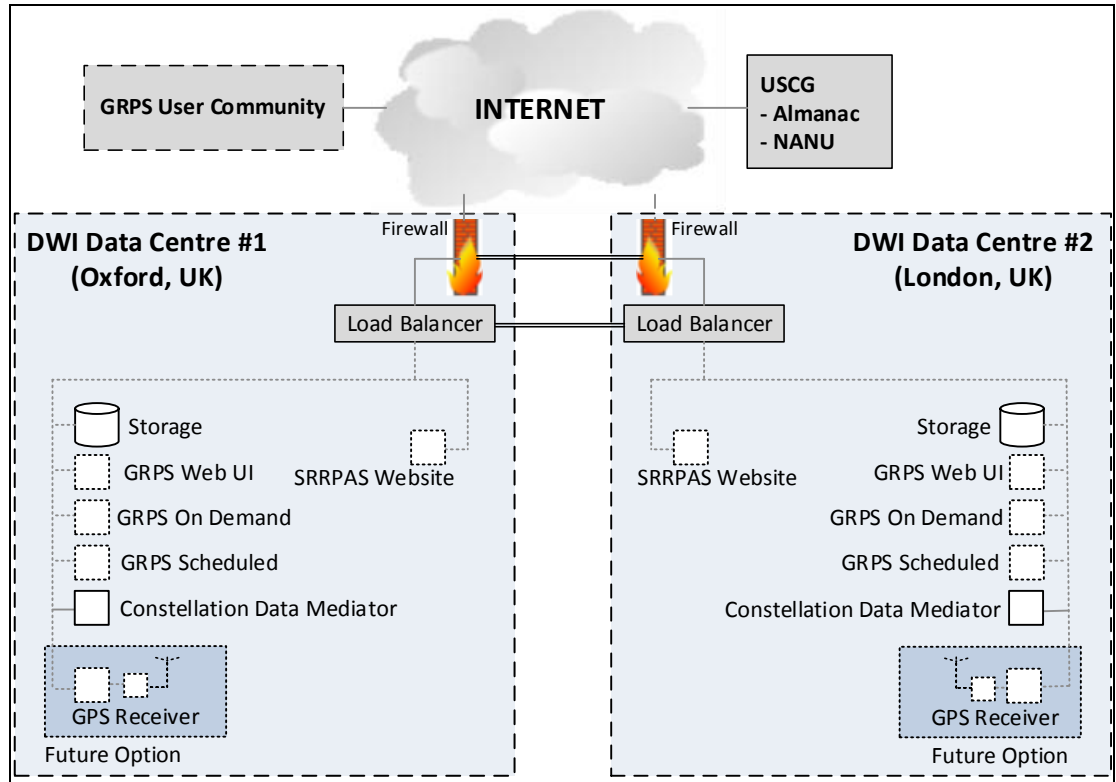


Figure 8 – SRRPAS Architecture

3.1.2 The SRRPAS application shall be hosted on an application server with a database back-end providing highly available data storage facilities.

3.1.3 The server shall be fault-tolerant and shall include support for hot-swapping of essential hardware such as disks and power supplies.

3.1.4 The hardware shall consist of two servers and other components, one for the redundant primary and mirror (2 in total) with the following minimum specification:

- Servers provided shall be HP Proliant DL360 G5 – E5335 Processor (Quad 2.0Ghz) – 4Gb Ram – 2x 72Gb SAS 10k Disks in Raid 1.
- Redundant Pair of Hardware Load Balancers balancing traffic at layer 4 100Mbit access switch ports with 1Gbps trunks between distribution, aggregation and core switching layers.
- Multiple upstream Internet providers shall be provided.

-
- 3.1.5 State of the art fire suppression facilities and fully backed up power supplies shall ensure the highest possible levels of availability for hosted systems. The SRRPAS shall be supported by a 24/7 monitoring and support presence on site in the data centre. Spare hardware shall be kept on site to enable fast recovery from failure.
- 3.1.6 The SRRPAS shall be subjected to a rigorous backup regime with daily system backups and off-site media storage.

3.2 IP SECURITY

- 3.2.1 The SRRPAS server infrastructure shall be protected by a dual Cisco PIX auto-failover firewall system.
- 3.2.2 The internal network clusters shall be hosted on a private network segment with a private address range – not directly accessible from outside the firewall. Only web traffic, email traffic and management traffic shall be permitted through the firewall.
- 3.2.3 The SRRPAS shall be patched with software security updates (OS, Database, etc) as they become available.
- 3.2.4 Local physical security measures shall be implemented.

3.3 CONSTELLATION DATA MEDIATOR

- 3.3.1 It is imperative that the SRRPAS maintains an up to date record of the GPS satellite constellation as well as scheduled changes to the constellation in order to ensure that the system calculations are based on the best available data.
- 3.3.2 The SRRPAS shall obtain constellation data and constellation updates from USCG of sources, as follows:
- Almanac.
 - Forecast and unscheduled outages/changes (NANU).
- 3.3.3 The Constellation Data Mediator subsystem shall mediate the constellation information to provide the system with the best available picture of the constellation for the calculation time periods available via the SRRPAS website.
- 3.3.4 The Constellation Data Mediator subsystem shall be written to be resilient to errors in the data feeds from the external data sources. The SRRPAS shall not update reference constellation data until it is verified as good with respect to format validity and data value range checking.
- 3.3.5 By using multiple data sources, the SRRPAS shall be able to use the best data available if one or more of the data sources is not functioning correctly. The SRRPAS shall allow customisation of audit logging and notifications to system administrators based on errors detected in the source data (availability or content) to allow timely manual override of default behaviour and investigation of the issue if necessary.
- 3.3.6 All geographical data in the SRRPAS shall be sourced from commercially available data providers such as Jeppesen Inc.

4 THE SRRPAS BRANDING OPTIONS

4.1 SERVICE NAME

- 4.1.1 The service name is yet to be determined. Current options include:

-
- SRRPAS: The South American Regional RAIM Availability Service.
 - RISAT: RAIM ICAO SAM Tool.
 - SAMRAIM: South America Region RAIM Tool.

4.2 URL

4.2.1 A single URL shall be used for the service, based on the service name. The following URLs are proposed for the SRRPAS website:

- <http://www.srrpas.com/>
- <http://www.srrpas.aero/>
- <http://www.risat.com/>
- <http://www.risat.aero/>
- <http://www.samraim.com/>
- <http://www.samraim.aero/>
- <http://www.samprediraim.com/>
- <http://www.samprediraim.aero/>

4.3 LOOK & FEEL

4.3.1 The RAIM Project Group (RPG) shall provide DWI with the approved graphics to brand the SRRPAS website as required. At a minimum, a graphics file of the logo in .jpg or .png format shall for a 98 pixel by 98 pixel image to appear at the top left hand side of the page banner. The same graphics file shall be used for the basis to create the favicon which will appear on internet browser tabs.

4.3.2 The RPG may select up to 6 colours (by html colour code) for elements highlighted in Figure 9.

4.4 HOME PAGE TEXT CONTENT

4.4.1 DWI and the RPG shall agree the wording for the home page of the website. It is recommended that the text is approximately 200 words.

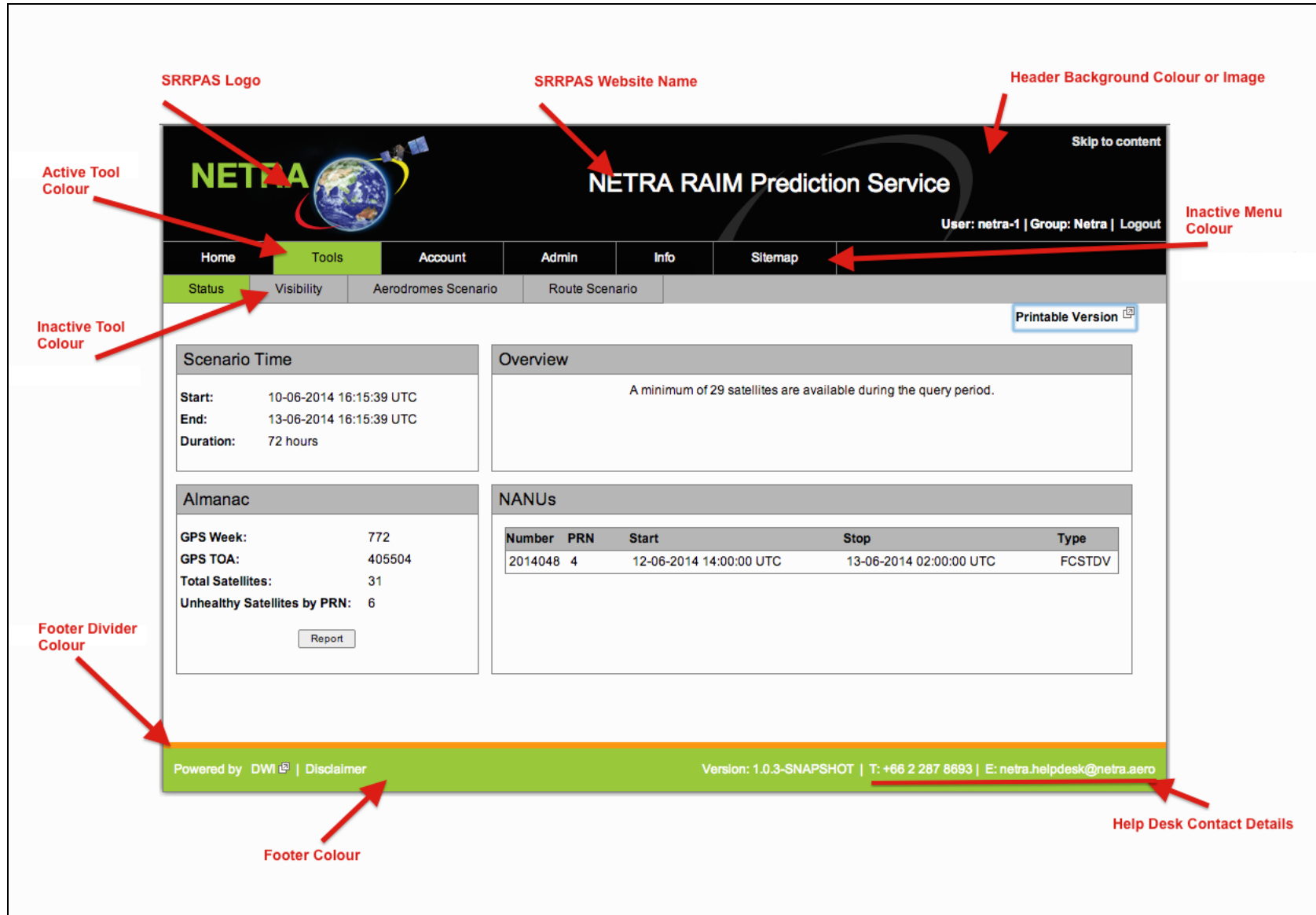


Figure 9 – SRRPAS Configurable Items

5 TRAINING COURSE OUTLINE

5.1 INTRODUCTION

5.1.1 The training course shall take place over 2 consecutive days and shall be conducted in English (Day 1) and Spanish (Day 2) via web conference.

5.1.2 It is intended that the Focal Point (FP) for each state shall participate in the training so that they in turn shall be able to train Users from their state. Training materials will be made available to the FPs.

5.2 COURSE OUTLINE

5.2.1 The course content shall contain the following topics:

- Course Aims & Objectives.
- Navigation & Access.
- Login.
- Site Structure.
- Tools:
 - Constellation Status Tool.
 - Aerodrome Tool.
 - Route Tool.
 - Visibility Tool.
- User Roles & Management.
- Helpdesk and Support.

5.3 COURSE CONTENT

5.3.1 The course content shall be made available to the RPG in soft copy in both English and Spanish.

5.4 JOINING INSTRUCTIONS

5.4.1 DWI uses the join.me application for web conferencing. Course attendees may participate in the conference by downloading the join.me application to their local computer and using a unique Meeting Code.

5.4.2 The download and Meeting Code are made available with the training invitation email.

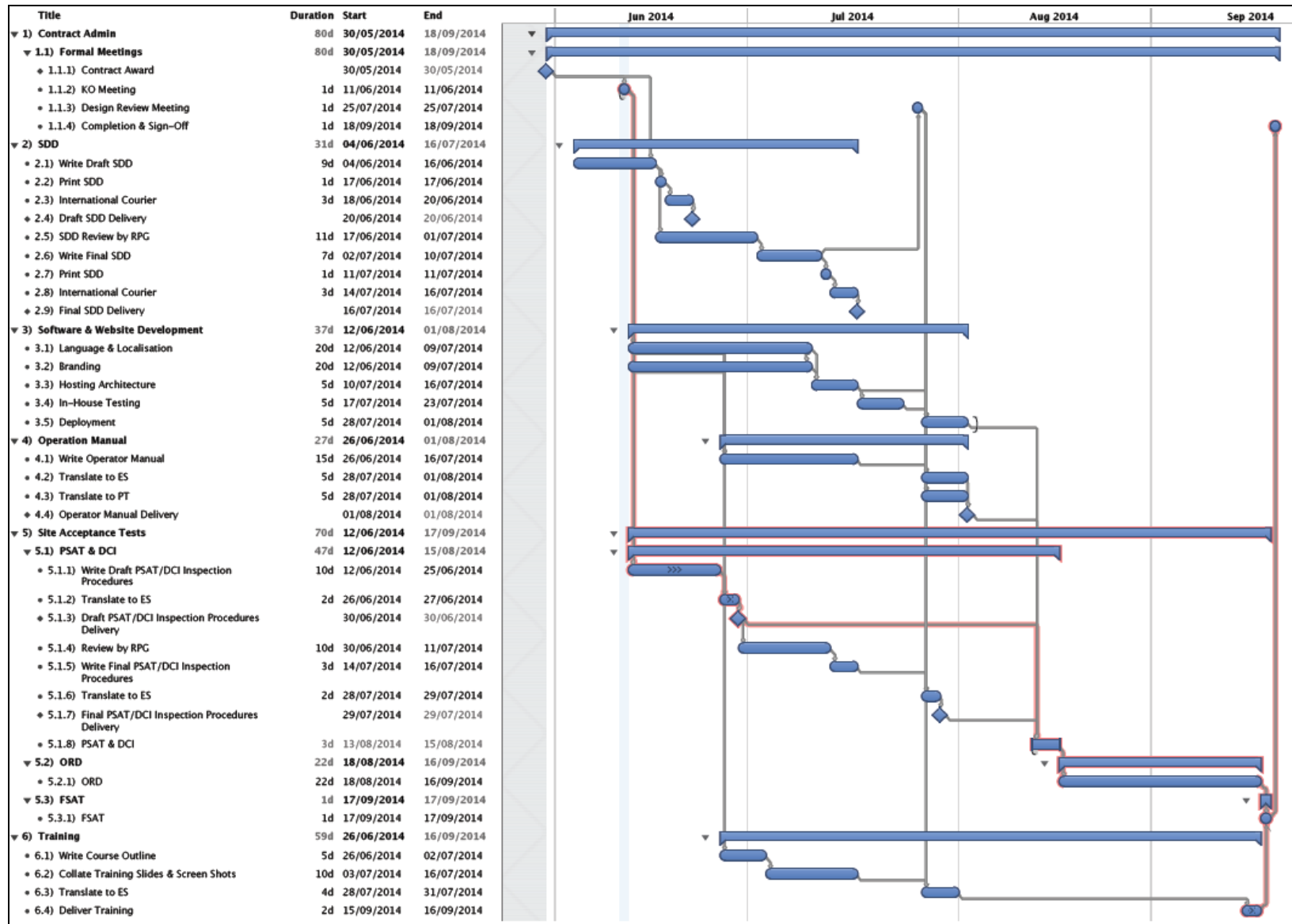
5.5 TRAINING ATTENDEES

5.5.1 DWI will require a complete list of attendees from the RPG at least 10 working days prior to the first training session.

5.5.2 The following information for each attendee will be required:

- Full name.
- Organisation.
- Role.
- Email address.
- Phone number.
- Course preference – English / Spanish.

6 IMPLEMENTATION SCHEDULE



7 HOSTING AND OPERATION SUPPORT PLAN

7.1 AVAILABILITY

7.1.1 Availability means that the system is functioning at any given time.

7.1.2 Conversely, “down-time” is the cumulative time that the system has not been working within acceptable parameters.

7.1.3 The availability of the SRRPAS shall be at least 99.5% each calendar month.

7.2 RESPONSE TIME

7.2.1 For SRRPAS a response time of 2 seconds is offered, based on reasonable volumes and outside Internet response times and delays caused by non DWI systems.

7.3 HELP DESK

7.3.1 Help Desk Support

7.3.1.1 Help desk support shall be offered to Users for the SRRPAS. The language used by the DWI help desk team is English. If any translation is required in the replies to the user, the DWI team may request assistance from the state FP.

7.3.1.2 It is intended that DWI provide support to the FPs. FPs shall provide frontline support to their User base. If additional technical support is required then DWI shall assist via the help desk.

7.3.2 Help Desk Working Hours and Response Times for Non-Emergency Enquiries

7.3.2.1 DWI will provide a help desk that will be available to answer help desk enquiries during normal working hours in the UK.

7.3.2.2 The normal working hours for DWI staff are Monday to Friday, 09:00 to 17:00 GMT (or BST depending on daylight savings).

7.3.2.3 DWI staff will not normally be expected to provide help desk cover for non-emergency enquiries during national holiday days in the UK. These days are as identified by UK government and DWI’s working time and holiday policy (available upon request).

7.3.3 Help Desk Working Hours and Response Times for Emergency Enquiries

7.3.3.1 The DWI help desk will be available to answer emergency enquires 24 hours a day, 7 days a week.

7.3.3.2 Issues that causes an emergency enquiry shall be defined as:

- The SRRPAS is not available.
- At least one tool or function is out of service.

7.3.4 Error Correction Schedule

7.3.4.1 DWI shall respond to error reports according to the following schedule:

Response Times for Error Classification			
	Level 1	Level 2	Level 3
Severity 1	4 Hours.	2 Working Days.	Next maintenance release.
Severity 2	1 Working Day.	5 Working Days.	Next maintenance release.
Severity 3	3 Working Days.	15 Working Days.	As appropriate.

7.3.4.2 Level of Response indicates the nature of the response to be expected as the error is resolved.

Level Identification	Description
Level 1	Acknowledgement of receipt of error report.
Level 2	Provide one or more of the following as appropriate: <ul style="list-style-type: none"> - Patch. - Workaround. - Temporary fix. - Details of the problem resolution plan and timetable for fix. Explanatory notes for the patch, workaround or temporary fix.
Level 3	Official compiled/object/binary code fix or software update; and updated user manuals, if appropriate.

7.3.4.3 Error Classification indicates the severity of impact of the error and the typical resource that will be used to resolve the issue.

Error Classification	Description	Impact
<p>Severity 1</p>	<p>Criteria:</p> <ul style="list-style-type: none"> a) The software is unavailable.* b) There are no existing workarounds to restore product functionality. <p>DWI shall place top priority on the technical issue; necessary technical resources shall be assigned to resolving the issue or implementing a workaround. Work shall be carried out during normal working hours and over-time hours.</p>	<p>High Business Impact.</p>
<p>Severity 2</p>	<p>Criteria:</p> <ul style="list-style-type: none"> a) Significant functionality* is not working according to the software specification. b) Through the use of the software, significant business objectives cannot be met. <p>DWI shall place high priority on the technical issue; necessary technical resources shall be assigned to resolving the issue or implementing a workaround. Work shall be carried out during normal working hours.</p>	<p>Medium Business Impact.</p>
<p>Severity 3</p>	<p>Criteria:</p> <ul style="list-style-type: none"> a) Minor functionality* is not working according to the software specification. b) Through the use of the software, minor business objectives cannot be met. <p>DWI shall place a lower priority on the technical issue; appropriate technical resources shall be assigned to resolving the issue or implementing a workaround. Work shall be carried out during normal working hours.</p>	<p>Low Business Impact.</p>

7.3.4.4 If it becomes necessary to escalate an issue, Users can request to have a named point of contact within the DWI’s technical team. This team member will become the primary point of contact until the issue is resolved.

7.3.4.5 * Unavailable, significant and minor functionality in the SRRPAS are specified as follows:

Unavailable Functionality:

- The software does not generate RAIM prediction results or the website does not present the RAIM prediction results.
- Any tool fails to load, display or generate results and no workaround is available.

Significant Functionality:

- The SRRPAS is using the incorrect GPS Almanac and/or NANUs.
- Requests to increase the total number of users for the SRRPAS website.

Minor Functionality:

- Requests for clarification / explanation of RAIM prediction results.
- Group / user account management.
- User permissions change requests.
- Requests to assist with creation or changes to scenario information and / or saved GPS Rx configurations.
- Website response times are slower than normal / expected but is otherwise functioning correctly.
- Cosmetic and / or layout problems with the website.
- Other similar.

7.3.4.6 DWI's Working Hours

Working and Non-Working Hours	Description	Days	Hours
Working Hours	Working hours are the routine hours worked by DWI's staff.	Monday to Friday.	09:00 - 17:00 GMT or BST depending on UK daylight savings.
Overtime Hours	Overtime hours are the hours that DWI's staff would be asked to work to implement a patch, fix or workaround while based at their normal place of work.	Monday to Friday.	07:00 - 09:00 and 17:00-20:00 GMT or BST depending on UK daylight savings.
Exceptional Hours	Exceptional hours are the hours that DWI staff would be expected to work while working to resolve a pre-agreed escalated support request	Monday to Sunday.	00:00 - 24:00 By prior arrangement.
National Holidays	National Holidays as identified by UK government and DWI's working time and holiday policy.	Available upon request.	

7.3.5 Help Desk Contact Details

7.3.5.1 The help desk e-mail address will be determined during the development phase of the project but shall take the form helpdesk@srrpas.com once the URL has been agreed.

7.4 ACCESS REQUESTS

7.4.1 Each state shall be given access for the FP and 10 additional accounts. These accounts shall be distributed and managed by the state FPs.

7.4.2 The SRRPAS shall include a page displaying the contact details for each state FP for incoming requests for access from state users.

7.5 QUARTERLY SUMMARIES OF SUPPORT ISSUES

7.5.1 DWI shall send the RPG a detailed summary report including information on all tickets including:

- Open tickets which have yet to be resolved at the time of reporting.
- Tickets which have been closed since the last quarterly report.

7.5.2 The report shall contain at least the following information:

- Ticket status – Open / Closed.
- Priority.
- Age.
- Date created.
- Ticket number – unique identifying number.

APENDICE B

PUNTOS FOCALES NACIONALES

SERVICIO REGIONAL DISPONIBILIDAD DE PREDICCIÓN RAIM

ESTADO	ADMINISTRACIÓN	NOMBRE	CARGO	TELEFONO	E-MAIL
ARGENTINA	Dirección Nacional de Inspección de Navegación Aérea - ANAC	Rafael Alberto Molina	Director de Relaciones Regionales	(54 11) 594-13000 Ext. 69126	rmolina@anac.gov.ar
BOLIVIA	DGAC	Jaime Alvarez	Inspector CNS	(591 2) 244-4450 (2651)	jalvarez@dgac.gob.bo
BRASIL	Departamento de Control del Espacio Aéreo DECEA	Julio César Pereira Rosa		(55 21) 2101-6398	cezar@cgna.gov.br
COLOMBIA	Unidad Administrativa Especial de Aeronáutica Civil - UAEAC	John Jairo Mesa Alcaraz	Técnico Aeronáutico, Grupo AIS-COM-MET	(57 1) 296 2389	john.mesa@aerocivil.gov.co
CHILE	Dirección General de Aeronáutica Civil - DGAC	Alfonso de la Vega Sepúlveda	Encargado de la Sección Navegación Aérea del Dpto. de Planificación	(56 2) 439 2952	adelavega@dgac.gob.cl
ECUADOR	Dirección General de Aviación Civil - DGAC	Darwin Francisco Suárez León	Especialista de la Dirección de Navegación Aérea	(593 2) 294 7400 Ext. 4117 - 4084	darwin.suarez@aviacioncivil.gob.ec darwin-suarez@hotmail.com
GUYANA					
GUYANA FR.					
PANAMA	Autoridad Aeronáutica Civil de Panamá - AAC	Ana Montenegro	Jefa de la Unidad de Planificación del Espacio Aéreo	(507) 315-9834	anadeleon@aeronautica.gob.pa
PARAGUAY	Dirección Nacional de Aeronáutica Civil - DINAC	Alexis Morán Maldonado	Jefe Depto. de Comunicaciones Gerencia de Telecomunicaciones y Electrónica-GTE	(595 21) 758 5208	moranchu@gmail.com
PERÚ	Dirección General de Aeronáutica Civil – DGAC	Sady Beaumont Jorge Taramona	Inspector de Naveg. Aérea	(511) 615-7881 (511) 615-7881	orlandobe@gmail.com jtaramona@gmail.com
SURINAME					
URUGUAY	DINACIA	José Carbone Martín Ruíz	Téc. en Información Aeronáutica Inspector de CNS División Navegación Aérea	(5982) 2604-0067 2601-1265 (5982) 2604-0408 Int.4045	aispub@dinacia.gub.uy aruiz@dinacia.gub.uy navegacionaerea@dinacia.gub.uy

ESTADO	ADMINISTRACIÓN	NOMBRE	CARGO	TELEFONO	E-MAIL
VENEZUELA	Omar Linares			(58 212) 303 4514	o.linares@inac.gob.ve

Actualización: 20 de octubre de 2014

APÉNDICE C



SRRPAS System Design Document

Version	1.3	Status	Draft
Version Date	August 2014	Class	Commercial in Confidence
Reference	DW/02/001/084/004/1.3		

DOCUMENT APPROVAL

The following table identifies all management authorities who have successively approved the present issue of this document.


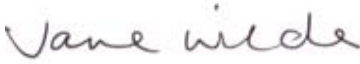

AUTHORITY	NAME AND SIGNATURE	DATE
Author	 Charles Thornberry	August 2014
Reviewer	 Jane Wilde	August 2014
Director	 John Wilde	August 2014

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1 INTRODUCTION

1.1 This document provides the system design information for the South America (SAM) Regional Receiver Autonomous Integrity Monitoring (RAIM) Prediction Availability Service (SRRPAS) as supplied by DW International (DWI) to the SAM Regional States.

1.2 This document provides information on the following topics:

- Technical descriptions of the SRRPAS and the host architecture hardware (Sections 2 and 3).
- SRRPAS branding options (Section 4).
- Training course outline (Section 5).
- Implementation schedule (Section 6).
- Hosting and operation support plan (Section 7).

1.3 The SRRPAS shall offer coverage to all 14 SAM member states though initially 11 states shall use the service:

State	Coverage	Participation
Argentina	✓	✓
Bolivia	✓	✓
Brazil	✓	✓
Chile	✓	✓
Colombia	✓	✓
Ecuador	✓	✓
French Guiana	✓	x
Guyana	✓	x
Paraguay	✓	✓
Peru	✓	✓
Panama	✓	✓
Suriname	✓	x
Uruguay	✓	✓
Venezuela	✓	✓

2 SRRPAS DESCRIPTION

2.1 INTRODUCTION

2.1.1 This Section details the functionality of the SRRPAS. Screen shots from the NETRA RAIM Prediction Service are shown in the following sections to illustrate how RAIM predictions shall be presented. NETRA is based on the same core RAIM prediction solution upon which the SRRPAS shall be based. The presentation and “look and feel” will be updated to meet the ICAO branding guidelines.

2.1.2 The interface shall be provided in English, Spanish and Portuguese.

2.2 FUNCTIONALITY

2.2.1 Constellation Status Tool

2.2.1.1 The Constellation Status Tool shall present a view of the GPS satellite constellation based on the latest almanac and NANUs (Notice Advisory to Navigation Users) issued by the US Coast Guard (USCG). Information disseminated by the USCG can be found at the USCG NAVCEN web site.

2.2.1.2 The Constellation Status Tool shall present the number of operational satellites in the GPS Satellite constellation for a 72-hour period from the time of the request. The almanac used, and NANUs active at the request time, shall also be displayed.

2.2.1.3 A printer friendly version of this report shall be available to the User.

The screenshot displays the SAM RAIM Prediction Availability Service interface. At the top, there is a header with the SATDIS logo and the text 'SAM RAIM Prediction Availability Service'. A navigation menu includes 'Home', 'Tools' (selected), 'Resources', 'Account', 'Admin', 'System Admin', 'Info', and 'Sitemap'. Below the menu, there are sub-menus for 'Status', 'Aerodromes', 'Dispatch Tool', 'Route', and 'Visibility'. A 'Printable Version' link is visible in the top right of the content area.

The main content area is divided into four sections:

- Scenario Time:**
 - Start: 25-07-2014 09:12:52 UTC
 - End: 28-07-2014 09:12:52 UTC
 - Duration: 72 hours
- Overview:**
 - A minimum of 30 satellites are available during the query period.
- Almanac:**
 - GPS Week: 766
 - GPS TOA: 319488
 - Total Satellites: 31
 - Unhealthy Satellites by PRN: 30
 - Report button
- NANUs:**

Number	PRN	Start	Stop	Type
No Active NANUs				

At the bottom of the page, there is a footer with 'Powered by DWI | Disclaimer' and 'Version: 3.1.0-SNAPSHOT | T: ? | E: samhelpdesk@sam.aero'.

Figure 1 – Constellation Status Tool Screen Shot

2.2.2 Aerodrome Tool

2.2.2.1 The Aerodrome Tool shall calculate the predicted RAIM availability for a 24, 48 or 72 hour period (User selectable) for specific aerodromes. The tool shall support calculations for terminal navigation specifications for up to 20 aerodromes in a single scenario.

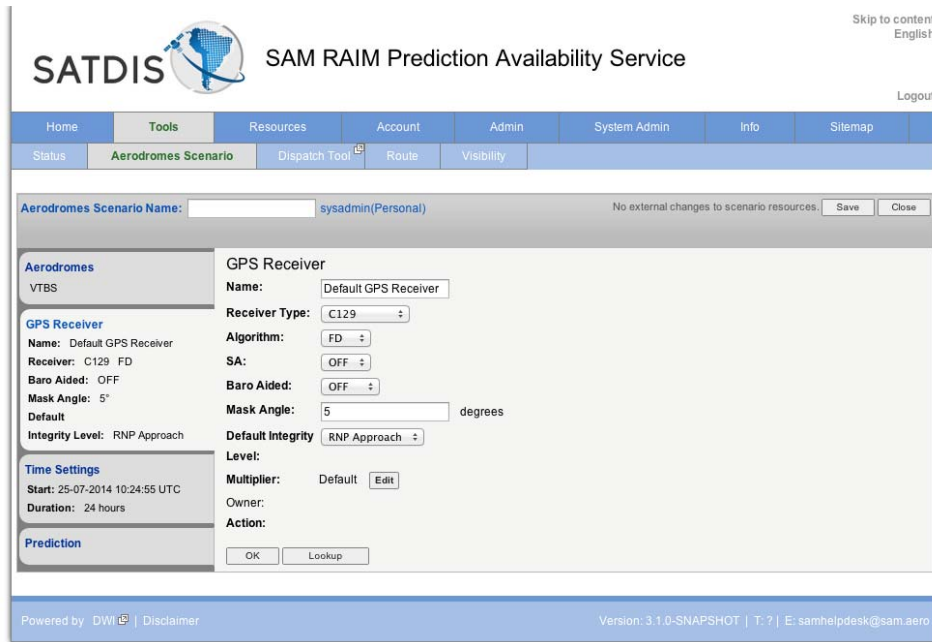
2.2.2.2 The Aerodrome Tool shall calculate the predicted RAIM availability at the Aerodrome Reference Point (ARP).

2.2.2.3 Calculations can be configured by the User, allowing selection of:

- GPS receiver type C-129 or C-145/6.
- Fault Detection (FD) or Fault Detection Exclusion (FDE).
- Baro-aiding on, off or both.
- Selective Availability (SA) on / off.
- Mask angle between -20 to +25 degrees.
- RAIM integrity levels:
 - RNAV 5.
 - RNAV 2.
 - RNAV 1.
 - RNP 1.
 - RNP 0.3.
 - RNP Approach.
 - Advanced RNP¹.

¹ *The planned deployment of SATDIS shall meet the requirements of Advanced RNP but shall exclude Advanced RNP as a Navigation Specification as this shall only require that the User further select a Navigation Specification that already exists.*

2.2.2.4 The selection of these options for the RAIM calculation are made in the “GPS Receiver” tab and are used to calculate RAIM for all aerodromes added to the scenario.



2.2.2.5 The Aerodrome Tool shall provide a formatted report which displays the predicted RAIM outages over the scenario period for each of the selected aerodromes, in graphical and tabular formats.

2.2.2.6 A printer friendly version of this report shall be available to the User.

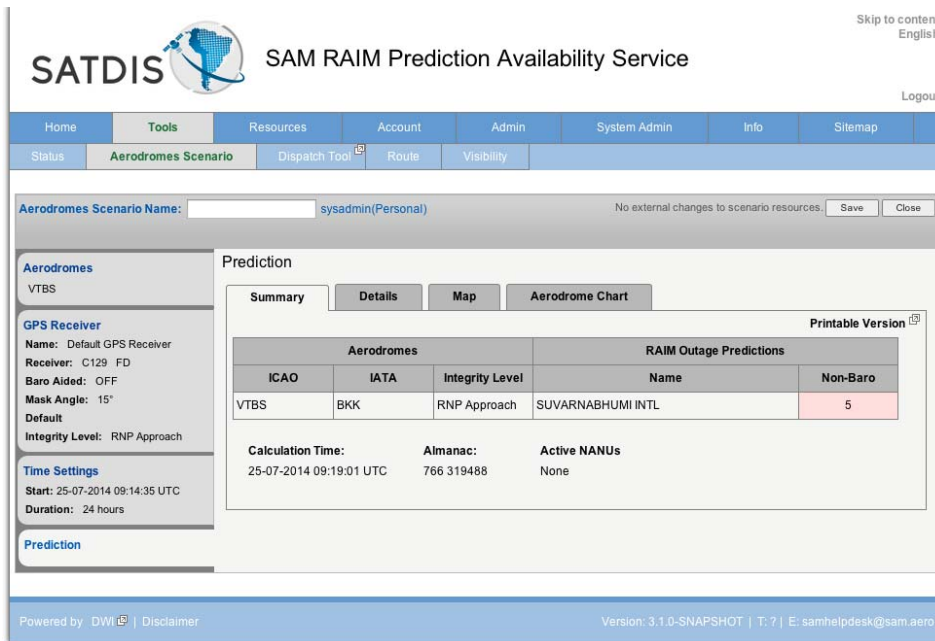


Figure 2 – Aerodrome Tool Summary Screen Shot

The screenshot shows the SATDIS SAM RAIM Prediction Availability Service interface. The main content area is titled 'Prediction' and includes a 'Summary' tab. The prediction details for the aerodrome 'SUVARNABHU...' are as follows:

Name:	SUVARNABHU...	Start Time:	25-07-2014 09:14:35 UTC
Latitude:	13.686 degrees	Duration:	24 Hours
Longitude:	100.749 degrees	End Time:	26-07-2014 09:14:35 UTC
Elevation:	5 feet	Mask Angle:	15 degrees
		Integrity Level:	RNP Approach

Below the prediction details is a table of 'Non-Baro Aided Outages':

Start	End	Duration	Min. Visible Satellites
25-07-2014 13:46:05 UTC	25-07-2014 13:58:05 UTC	12m	7
25-07-2014 21:20:05 UTC	25-07-2014 21:30:05 UTC	10m	5
25-07-2014 22:26:05 UTC	25-07-2014 22:37:05 UTC	11m	5
25-07-2014 22:41:05 UTC	25-07-2014 23:02:05 UTC	21m	5
25-07-2014 23:06:05 UTC	25-07-2014 23:12:05 UTC	6m	5

At the bottom of the prediction section, the following information is displayed:

Calculation Time:	Almanac:	Active NANUs
25-07-2014 09:19:01 UTC	766 319488	None

Figure 3 – Aerodrome Tool Details Screen Shot

2.2.3 Route Tool

- 2.2.3.1 The Route Tool shall calculate the predicted RAIM availability for points along a defined route using RAIM algorithms for all PBN Navigation Specifications.
- 2.2.3.2 A route shall be defined by a series of waypoints selected, or input, by the User. The Route Tool will maintain a list of current en-route waypoints and nav aids which can be selected by ICAO or IATA identifier. The User shall also be able to define custom waypoints - if the User wants to enter routes in terminal airspace this option must be used.
- 2.2.3.3 For each waypoint on the route the user shall be able to select:
- Anticipated time elapsed since the route start.
 - Altitude.
 - Mask angle.
 - Integrity levels:
 - RNP 10.
 - RNP 4.
 - RNP 2.

- RNAV 5.
- RNAV 2.
- RNAV 1.
- RNP 0.3.
- Advanced RNP².

2.2.3.4 For the entire route the user shall be able to select GPS receiver parameters:

- GPS receiver type C-129 or C-145/6.
- Fault Detection (FD) or Fault Detection Exclusion (FDE).
- Baro-aiding on, off or both.
- Selective Availability (SA) on / off.

2.2.3.5 The anticipated time elapsed since the route start time shall be entered in the 'Time Offset' column for each waypoint. The RAIM algorithm, altitude and mask angle to be used shall also be selected for each waypoint - it shall be applied for the route segment following that waypoint.

2.2.3.6 The Route Tool shall calculate the predicted RAIM availability for points spaced along the route, based upon the Time Offset values entered, and shall display any predicted RAIM outages appropriate to the selected integrity level.

2.2.3.7 The Route Tool shall provide a formatted report, displaying the predicted RAIM outages over the scenario period. The report shall also show the predicted outages if the start time is delayed, or brought forward, by 5, 10 or 15 minutes.

2.2.3.8 A printer friendly version of this report shall be available to the User.

² *The planned deployment of SATDIS shall meet the requirements of Advanced RNP but shall exclude Advanced RNP as a Navigation Specification as this shall only require that the User further select a Navigation Specification that already exists.*

SATDIS SAM RAIM Prediction Availability Service

Route Scenario Name: sysadmin (Personal) No external changes to scenario resources. Save Close

RouteSections
Section 1 VTBS - VTBL (4)

Aerodromes
VTBL

GPS Receiver
Name: Default GPS Receiver
Receiver: C129 FD OFF
Baro Aided: OFF

Time Settings
Start: 25-07-2014 09:23:41 UTC

Prediction

Summary | Details | Map | Route Chart | Aerodrome Chart Printable Version

Route - RAIM Outage Predictions

Section	Time Offsets (minutes relative to OTD)						
	-15	-10	-5	0	+5	+10	+15
Section 1:	2	2	2	2	2	2	2

Calculation Time: 25-07-2014 09:28:27 UTC Almanac: 766 319488 Active NANUs: None

Aerodromes			RAIM Outage Predictions	
ICAO	IATA	Integrity Level	Name	Non-Baro
VTBL	KKM	RNP Approach	KHOK KATHIAM	7

Calculation Time: 25-07-2014 09:28:27 UTC Almanac: 766 319488 Active NANUs: None

Powered by DWI | Disclaimer Version: 3.1.0-SNAPSHOT | T: ? | E: samhelpdesk@sam.aero

Figure 4 – Route Tool Summary Screen Shot

SATDIS SAM RAIM Prediction Availability Service

Route Scenario Name: sysadmin (Personal) No external changes to scenario resources. Save Close

RouteSections
Section 1 VTBS - VTBL (4)

Aerodromes
VTBL

GPS Receiver
Name: Default GPS Receiver
Receiver: C129 FD OFF
Baro Aided: OFF

Time Settings
Start: 25-07-2014 09:23:41 UTC

Prediction

Summary | Details | Map | Route Chart | Aerodrome Chart Printable Version

Section 1 | Aerodromes

By Leg By Outage

Leg	Time Offset (minutes)						
	-15	-10	-5	0	+5	+10	+15
VTBS - VTBD	0	0	0	0	0	0	0
VTBD - VTBU	0	0	0	0	0	0	0
VTBU - VTBL	2	2	2	2	2	2	2

Time Offset (minutes)	Outages	Legs Affected
-15	2	VTBU - VTBL
-10	2	VTBU - VTBL
-5	2	VTBU - VTBL
0	2	VTBU - VTBL
+5	2	VTBU - VTBL
+10	2	VTBU - VTBL
+15	2	VTBU - VTBL

Calculation Time: 25-07-2014 09:28:27 UTC Almanac: 766 319488 Active NANUs: None

Powered by DWI | Disclaimer Version: 3.1.0-SNAPSHOT | T: ? | E: samhelpdesk@sam.aero

Figure 5 – Route Tool Details by Leg Screen Shot

The screenshot shows the SATDIS SAM RAIM Prediction Availability Service interface. The main content area displays the 'Route Scenario' details for 'sysadmin (Personal)'. The 'Prediction' section is active, showing a table of satellite visibility data for 'Section 1' at 'VTBL' aerodrome. The table is organized by time offsets: -15 minute, -10 minute, -5 minute, and 0 minute. Each offset section contains a table with columns for Start, End, Duration, Legs, and Min. Visible Satellites. The data shows consistent results across all offsets, with 5 visible satellites and a duration of 12m or 15m for the two sample times shown.

-15 minute offset				
Start	End	Duration	Legs	Min. Visible Satellites
26-07-2014 09:20:11 UTC	26-07-2014 09:32:11 UTC	12m	VTBU - VTBL	5
26-07-2014 09:37:11 UTC	26-07-2014 09:52:11 UTC	15m	VTBU - VTBL	5

-10 minute offset				
Start	End	Duration	Legs	Min. Visible Satellites
26-07-2014 09:20:11 UTC	26-07-2014 09:32:11 UTC	12m	VTBU - VTBL	5
26-07-2014 09:37:11 UTC	26-07-2014 09:52:11 UTC	15m	VTBU - VTBL	5

-5 minute offset				
Start	End	Duration	Legs	Min. Visible Satellites
26-07-2014 09:20:11 UTC	26-07-2014 09:32:11 UTC	12m	VTBU - VTBL	5
26-07-2014 09:37:11 UTC	26-07-2014 09:52:11 UTC	15m	VTBU - VTBL	5

0 minute offset				
Start	End	Duration	Legs	Min. Visible Satellites
26-07-2014 09:20:11 UTC	26-07-2014 09:32:11 UTC	12m	VTBU - VTBL	5
26-07-2014 09:37:11 UTC	26-07-2014 09:52:11 UTC	15m	VTBU - VTBL	5

Figure 6 – Route Tool Details by Outage Screen Shot

2.2.4 Visibility Tool

2.2.4.1 The Visibility Tool is supplementary to the Constellation Status Tool. Whilst the Constellation Status Tool shall give the minimum number of operational satellites in the GPS Satellite constellation for up to a 72 hour period, the Visibility Tool shall calculate the location of the GPS satellites relative to a User-defined receiver position for a given time duration of up to 5 hours.

2.2.4.2 Receiver position, mask angle, scenario duration, number of samples and start time shall all be User configurable parameters.

2.2.4.3 The Visibility Tool shall provide the following outputs:

- A graphical sky plot representation of the visible satellites.
 - Only visible and healthy satellites displayed on the sky plot.
 - The area masked by the mask angle (between 0 and the mask angle value) shall be depicted as an opaque red area on the sky plot.
- A table of azimuth and elevation values and the visibility status for each satellite at each sample time in the scenario shall be displayed.
 - Azimuth and elevation shall be displayed in decimal degrees.
 - All satellites shall be included regardless of visibility and health.

2.2.4.4 A printer friendly version of this report shall be available to the User.

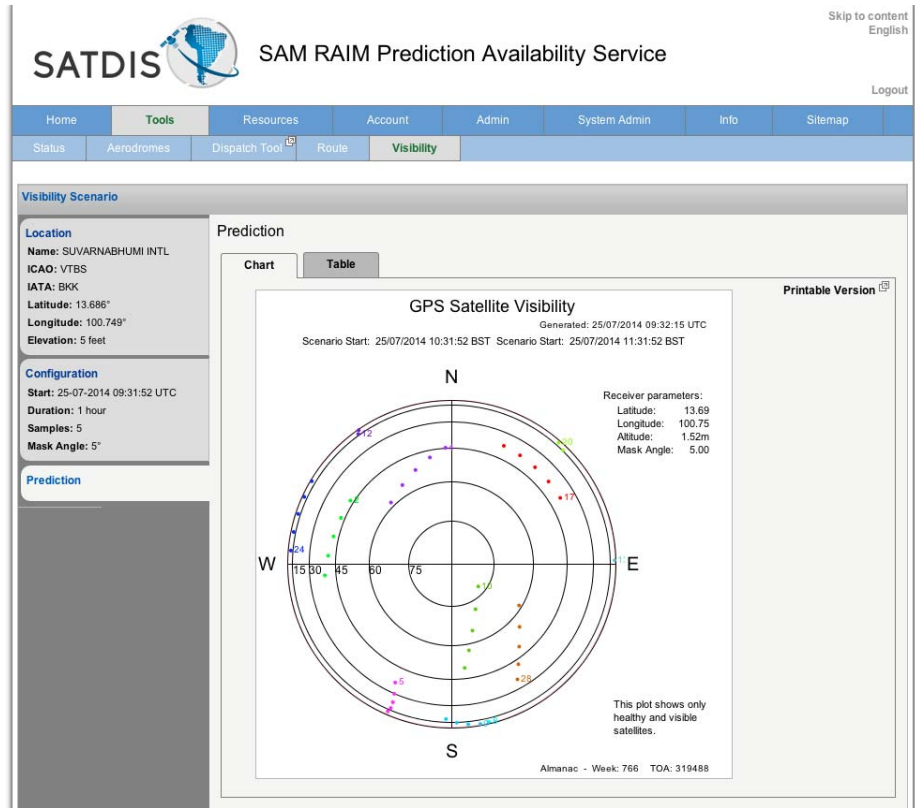


Figure 7 – Visibility Tool Screen Shot

3 SRRPAS HOSTING

3.1 HOSTING

3.1.1 The SRRPAS shall be operated by DWI and deployed across two geographically dispersed servers, at two different Data Centres, offering 24/7 service with a better than 99.5% availability. Figure 8 shows a high level depiction of the SRRPAS architecture.

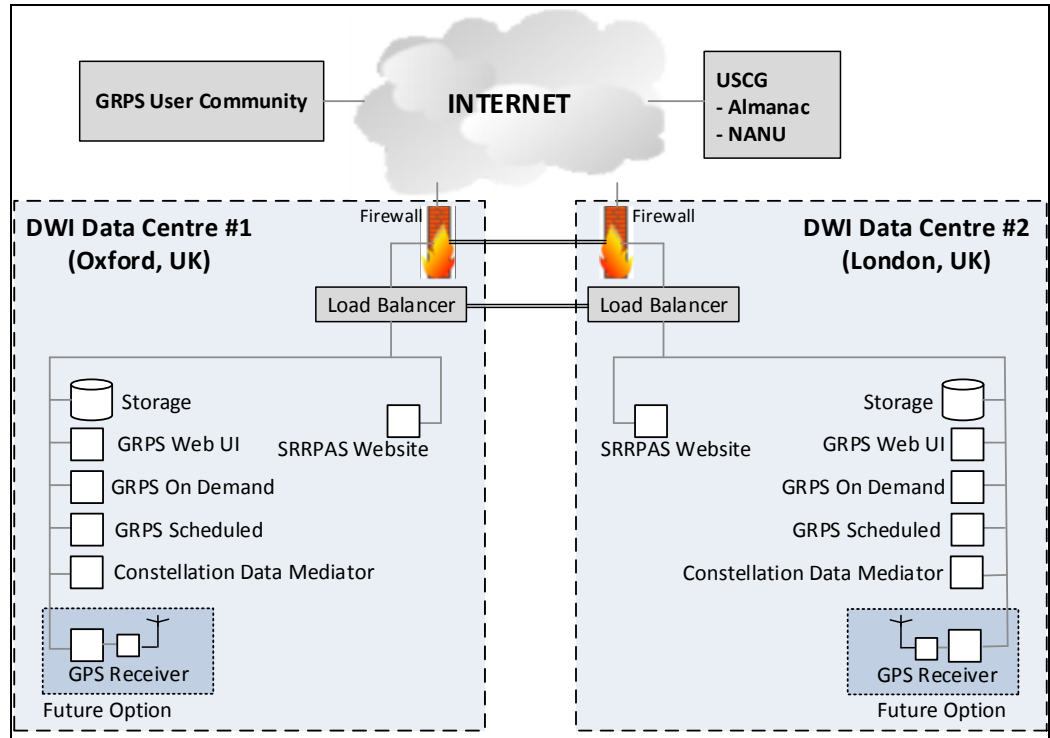


Figure 8 – SRRPAS Architecture

3.1.2 The SRRPAS application shall be hosted on an application server with a database back-end providing highly available data storage facilities.

3.1.3 The server shall be fault-tolerant and shall include support for hot-swapping of essential hardware such as disks and power supplies.

3.1.4 The hardware shall consist of two servers and other components, one for the redundant primary and mirror (2 in total) with the following minimum specification:

- Servers provided shall be HP Proliant DL360 G5 – E5335 Processor (Quad 2.0Ghz) – 4Gb Ram – 2x 72Gb SAS 10k Disks in Raid 1.
- Redundant Pair of Hardware Load Balancers balancing traffic at layer 4 100Mbit access switch ports with 1Gbps trunks between distribution, aggregation and core switching layers.
- Multiple upstream Internet providers shall be provided.

3.1.5 State of the art fire suppression facilities and fully backed up power supplies shall ensure the highest possible levels of availability for hosted systems. The SRRPAS shall be supported by a 24/7 monitoring and support presence on site in the data centre. Spare hardware shall be kept on site to enable fast recovery from failure.

3.1.6 The SRRPAS shall be subjected to a rigorous backup regime with daily system backups and off-site media storage.

3.2 IP SECURITY

3.2.1 The SRRPAS server infrastructure shall be protected by a dual Cisco PIX auto-failover firewall system.

3.2.2 The internal network clusters shall be hosted on a private network segment with a private address range – not directly accessible from outside the firewall. Only web traffic, email traffic and management traffic shall be permitted through the firewall.

3.2.3 The SRRPAS shall be patched with software security updates (OS, Database, etc) as they become available.

3.2.4 Local physical security measures shall be implemented.

3.3 CONSTELLATION DATA MEDIATOR

3.3.1 It is imperative that the SRRPAS maintains an up to date record of the GPS satellite constellation as well as scheduled changes to the constellation in order to ensure that the system calculations are based on the best available data.

3.3.2 The SRRPAS shall obtain constellation data and constellation updates from USCG of sources, as follows:

- Almanac.
- Forecast and unscheduled outages/changes (NANU).

3.3.3 The Constellation Data Mediator subsystem shall mediate the constellation information to provide the system with the best available picture of the constellation for the calculation time periods available via the SRRPAS website.

3.3.4 The Constellation Data Mediator subsystem shall be written to be resilient to errors in the data feeds from the external data sources. The SRRPAS shall not update reference constellation data until it is verified as good with respect to format validity and data value range checking.

3.3.5 By using multiple data sources, the SRRPAS shall be able to use the best data available if one or more of the data sources is not functioning correctly. The SRRPAS shall allow customisation of audit logging and notifications to system administrators based on errors detected in the source data (availability or content) to allow timely manual override of default behaviour and investigation of the issue if necessary.

3.3.6 All geographical data in the SRRPAS shall be sourced from commercially available data providers such as Jeppesen Inc.

4 THE SRRPAS BRANDING OPTIONS

4.1 SERVICE NAME

4.1.1 The service name shall be: SATDIS: Satélites Disponibles

4.2 URL

4.2.1 A single URL shall be used for the service, based on the service name. The following URL is proposed for the SRRPAS website:

- <http://www.satdis.aero/>

4.3 LOOK & FEEL

4.3.1 The RAIM Project Group (RPG) shall provide DWI with the approved graphics to brand the SRRPAS website as required. At a minimum, a graphics file of the logo in .jpg or .png format shall for a 98 pixel by 98 pixel image to appear at the top left hand side of the page banner. The same graphics file shall be used for the basis to create the favicon which will appear on internet browser tabs.

4.3.2 A mock-up of the website homepage, to show indicative colours is shown below.

Spanish | Portuguese

SATDIS **SAM RAIM PREDICTION AVAILABILITY SERVICE** Login

Home Tools Account Info Sitemap

SAM RAIM PREDICTION AVAILABILITY SERVICE

SAM Regional RAIM Prediction Availability Service (SRRPAS) for the following PBN/RNAV /RNP operations

En route
 Oceanic and remote continental area: RNP 10, RNP 4, RNP 2, Advanced RNP
 Continental area: RNAV 5, RNAV 2, RNAV 1, RNP 2, Advanced RNP, RNP 0.3

Terminal
 RNAV 5, RNAV 2, RNAV 1, RNP 1, Advanced RNP, RNP 0.3

Approach
 RNAV 1 (Initial, intermediate, missed approach segments)
 RNP 1 (Initial, intermediate, missed approach segments)
 RNP 0.3 (Initial, intermediate, missed approach segments)
 Advanced RNP (all segments)
 RNP APCH (all segments)

Departure
 RNAV 2, RNAV 1, RNP 1, Advanced RNP, RNP 0.3

SRRPAS meets the Requirements for RNAV/RNP operation as outlined in the SAM Circular Advice. See here. <http://www1.lima.icao.int/srvop/circular>

SAMRAIM Prediction Availability service provide access to four tools:

Route Prediction **Aerodrome Prediction**

Satellite Visibility **Constellation Status**

Registration

Login to perform RAIM predictions for Aerodromes and Routes.

To register send an email to samhelodesk@sam.aero and a representative will contact you as soon as possible with pricing information and contract options.

Who we are

The purpose of Project RLA/06/901 is to provide assistance to the civil aviation authorities of participating States and organizations in the development of global air navigation plan initiatives that will contribute to the implementation of a regional air traffic management

Link to access at the project:
<http://www1.lima.icao.int/rla06901>

4.3.3 The RPG may select up to 6 colours (by html colour code).

4.4 HOME PAGE TEXT CONTENT

4.4.1 DWI and the RPG shall agree the wording for the home page of the website. It is recommended that the text is approximately 200 words.

5 TRAINING COURSE OUTLINE

5.1 INTRODUCTION

5.1.1 The training course shall take place over 2 consecutive days and shall be conducted in English (Day 1) and Spanish (Day 2) via web conference.

5.1.2 It is intended that the Focal Point (FP) for each state shall participate in the training so that they in turn shall be able to train Users from their state. Training materials will be made available to the FPs.

5.2 COURSE OUTLINE

5.2.1 The course content shall contain the following topics:

	Duration	Topics Covered
Introduction	0h 15m	Introduction About DWI Course Aims & Objectives
Principles of RAIM	0h 30m	GNSS Principles
Introduction to SatDis	0h 25m	SatDis Building Blocks Accessing the SatDis Website SatDis Website Structure
Short Break	0h 10m	
SatDis in Detail – Part #1	1h 0m	GPS Constellation Status Tool GPS Satellite Visibility Tool Airport Approach/Departure RAIM Check
Break	0h 30m	
SatDis in Detail – Part #2	1h 0m	Route RAIM Check User Roles and Permissions
Short Break	0h 10m	
Help Desk & Support	0h 30m	Tier 1 Support - In-Country “Focal Point” Tier 2 & 3 Support - DWI Help Desk
Open Session / Q&A	0h 20m	Recap of any topic as requested by attendees Questions & Answers
Wrap-Up & Close	0h 10m	Course Hand-Outs Help Desk Contact Details
Course Duration	5h 0m	

5.3 COURSE CONTENT

5.3.1 The course content shall be made available to the RPG in soft copy in both English and Spanish.

5.4 JOINING INSTRUCTIONS

5.4.1 DWI uses the join.me application for web conferencing. Course attendees may participate in the conference by downloading the join.me application to their local computer and using a unique Meeting Code.

5.4.2 The download and Meeting Code are made available with the training invitation email.

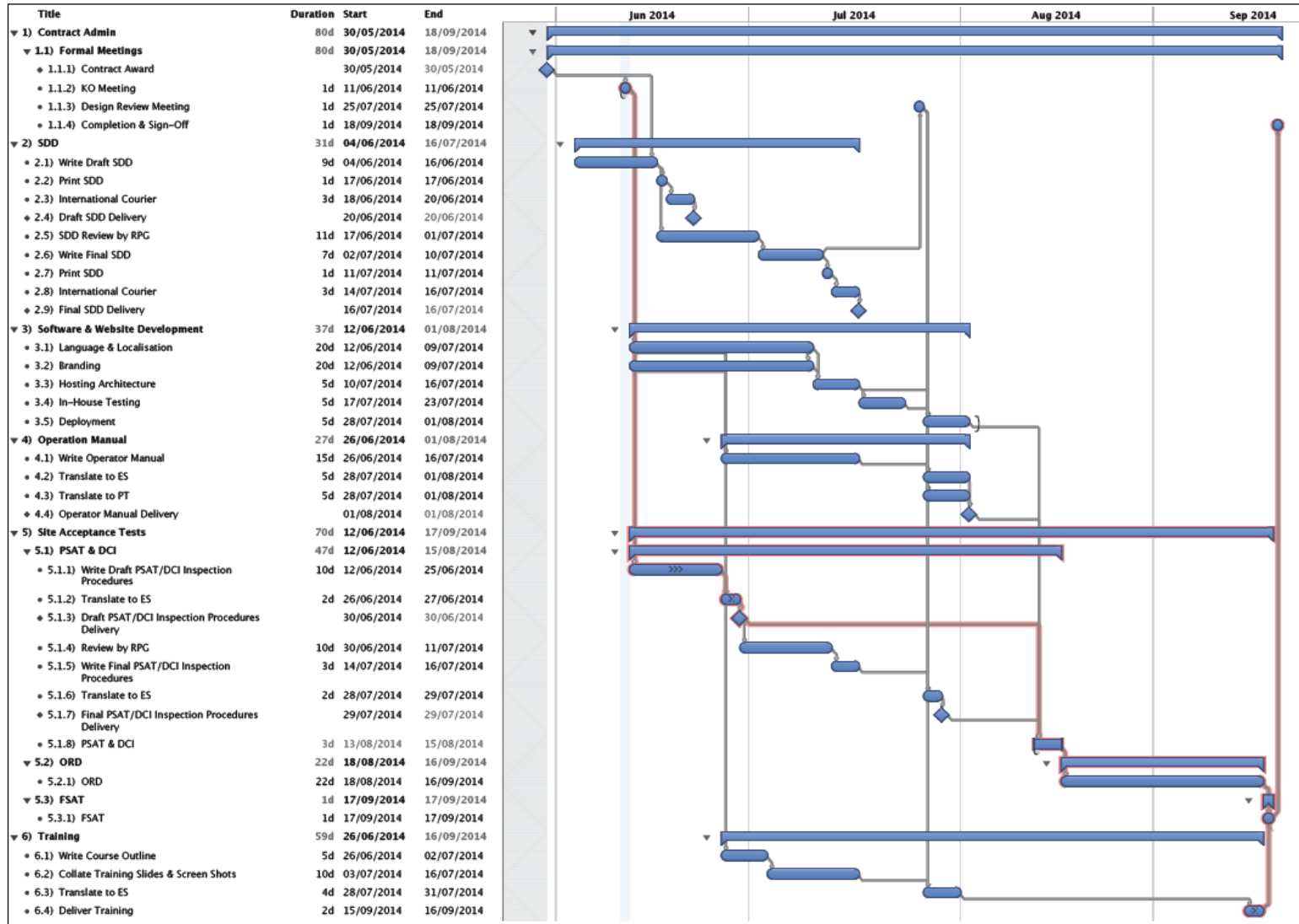
5.5 TRAINING ATTENDEES

5.5.1 DWI will require a complete list of attendees from the RPG at least 10 working days prior to the first training session.

5.5.2 The following information for each attendee will be required:

- Full name.
- Organisation.
- Role.
- Email address.
- Phone number.
- Course preference – English / Spanish.

6 IMPLEMENTATION SCHEDULE- BASELINE



7 HOSTING AND OPERATION SUPPORT PLAN

7.1 AVAILABILITY

7.1.1 Availability means that the system is functioning at any given time.

7.1.2 Conversely, “down-time” is the cumulative time that the system has not been working within acceptable parameters.

7.1.3 The availability of the SRRPAS shall be at least 99.5% each calendar month.

7.2 RESPONSE TIME

7.2.1 For SRRPAS a response time of 2 seconds is offered, based on reasonable volumes and outside Internet response times and delays caused by non DWI systems.

7.3 HELP DESK

7.3.1 Help Desk Support

7.3.1.1 Help desk support shall be offered to Users for the SRRPAS.

7.3.1.2 In the first instance FPs shall provide frontline support to their User base. It is intended that DWI provide support to the FPs. If additional technical support is required then DWI shall assist via the help desk.

7.3.1.3 The language used by the DWI help desk team is English. If any translation is required in the replies to the user, the DWI team may request assistance from the state FP.

7.3.1.4 Queries to the helpdesk email shall generate an automated response including a unique ticket number (for example: Ticket#2014071810000123) to enable tracking of a query.

7.3.1.5 If the query relates to access or account management, DWI shall contact the relevant FP (for example a request for access coming from a Brazilian operator shall be referred to the Brazilian FP). FPs shall then address the issue. Such assistance may include:

- a) Allowing access to new Users.
- b) Resetting the password of existing Users.
- c) Removing Users.

7.3.1.6 See Section 7.4 for more information.

7.3.1.7 FPs shall provide initial support to the Users. Where the FP requires technical assistance, DWI shall provide this by email to the end-user. Technical assistance may relate to:

- a) The quality of the GPS RAIM predictions,
- b) Monitoring and validation of the US Notice Advisory to NAVSTAR Users (NANU) Service and GPS NOTAMs.
- c) Interface or operational assistance.

7.3.1.8 See Section 7.3.4 for response times.

7.3.1.9 Queries for access to the SRRPAS originating from outside of the South American Region shall be shall be declined.

7.3.2 Help Desk Working Hours and Response Times for Non-Emergency Enquiries

7.3.2.1 DWI will provide a help desk that will be available to answer help desk enquiries during normal working hours in the UK.

7.3.2.2 The normal working hours for DWI staff are Monday to Friday, 09:00 to 17:00 GMT (or BST depending on daylight savings).

7.3.2.3 DWI staff will not normally be expected to provide help desk cover for non-emergency enquiries during national holiday days in the UK. These days are as identified by UK government and DWI's working time and holiday policy (available upon request).

7.3.3 Help Desk Working Hours and Response Times for Emergency Enquiries

7.3.3.1 The DWI help desk will be available to answer emergency enquires 24 hours a day, 7 days a week.

7.3.3.2 Issues that causes an emergency enquiry shall be defined as:

- The SRRPAS is not available.
- At least one tool or function is out of service.

7.3.4 Error Correction Schedule

7.3.4.1 DWI shall respond to error reports according to the following schedule:

Response Times for Error Classification	Level 1	Level 2	Level 3
Severity 1	4 Hours.	2 Working Days.	Next maintenance release.
Severity 2	1 Working Day.	5 Working Days.	Next maintenance release.
Severity 3	3 Working Days.	15 Working Days.	As appropriate.

7.3.4.2 Level of Response indicates the nature of the response to be expected as the error is resolved.

Level Identification	Description
Level 1	Acknowledgement of receipt of error report.
Level 2	Provide one or more of the following as appropriate: <ul style="list-style-type: none"> - Patch. - Workaround. - Temporary fix. - Details of the problem resolution plan and timetable for fix. Explanatory notes for the patch, workaround or temporary fix.
Level 3	Official compiled/object/binary code fix or software update; and updated user manuals, if appropriate.

7.3.4.3 Error Classification indicates the severity of impact of the error and the typical resource that will be used to resolve the issue.

Error Classification	Description	Impact
Severity 1	Criteria: a) The software is unavailable.* b) There are no existing workarounds to restore product functionality. DWI shall place top priority on the technical issue; necessary technical resources shall be assigned to resolving the issue or implementing a workaround. Work shall be carried out during normal working hours and over-time hours.	High Business Impact.
Severity 2	Criteria: a) Significant functionality* is not working according to the software specification. b) Through the use of the software, significant business objectives cannot be met. DWI shall place high priority on the technical issue; necessary technical resources shall be assigned to resolving the issue or implementing a workaround. Work shall be carried out during normal working hours.	Medium Business Impact.
Severity 3	Criteria: a) Minor functionality* is not working according to the software specification. b) Through the use of the software, minor business objectives cannot be met. DWI shall place a lower priority on the technical issue; appropriate technical resources shall be assigned to resolving the issue or implementing a workaround. Work shall be carried out during normal working hours.	Low Business Impact.

7.3.4.4 If it becomes necessary to escalate an issue, Users can request to have a named point of contact within the DWI's technical team. This team member will become the primary point of contact until the issue is resolved.

7.3.4.5 * Unavailable, significant and minor functionality in the SRRPAS are specified as follows:

Unavailable Functionality:

- The software does not generate RAIM prediction results or the website does not present the RAIM prediction results.
- Any tool fails to load, display or generate results and no workaround is available.

Significant Functionality:

- The SRRPAS is using the incorrect GPS Almanac and/or NANUs.
- Requests to increase the total number of users for the SRRPAS website.

Minor Functionality:

- Requests for clarification / explanation of RAIM prediction results.
- Group / user account management.
- User permissions change requests.
- Requests to assist with creation or changes to scenario information and / or saved GPS Rx configurations.
- Website response times are slower than normal / expected but is otherwise functioning correctly.
- Cosmetic and / or layout problems with the website.
- Other similar.

7.3.4.6 DWI's Working Hours

Working and Non-Working Hours	Description	Days	Hours
Working Hours	Working hours are the routine hours worked by DWI's staff.	Monday to Friday.	09:00 - 17:00 GMT or BST depending on UK daylight savings.
Overtime Hours	Overtime hours are the hours that DWI's staff would be asked to work to implement a patch, fix or workaround while based at their normal place of work.	Monday to Friday.	07:00 - 09:00 and 17:00-20:00 GMT or BST depending on UK daylight savings.
Exceptional Hours	Exceptional hours are the hours that DWI staff would be expected to work while working to resolve a pre-agreed escalated support request	Monday to Sunday.	00:00 - 24:00 By prior arrangement.
National Holidays	National Holidays as identified by UK government and DWI's working time and holiday policy.	Available upon request.	

7.3.5 Help Desk Contact Details

7.3.5.1 The help desk e-mail address will be determined during the development phase of the project but shall take the form helpdesk@srrpas.com once the URL has been agreed.

7.4 ACCESS REQUESTS

7.4.1 Each state shall be given access for the FP and 10 additional accounts. These accounts shall be distributed and managed by the state FPs.

7.4.2 The SRRPAS shall include a page displaying the contact details for each state FP for incoming requests for access from state users.

-
- 7.4.3 Access is provided by username/password credentials. FPs provide access by using the SRRPAS to generate an automated email to the intended new User. This email includes temporary access credentials. The new User must use these credentials to access their account and change the password within 24 hours of receipt of the email. If the User fails to do so the FP can generate a new email with new temporary access credentials.
- 7.4.4 Each state shall be allowed to create up to 10 accounts. The FP shall have the ability to add, remove and manage these accounts. The FPs shall be given detailed instruction on the management and administration of access during the training, see Section 5 for more information. In addition, FPs can use the same helpdesk system (see Section 7.3) to assist them with any issues they may encounter relating to administration. The training materials will be made available to the FPs for reference.
- 7.4.5 Contact email addresses for each FP shall be listed on the website.

7.5 QUARTERLY SUMMARIES OF SUPPORT ISSUES

- 7.5.1 DWI shall send the RPG a detailed summary report including information on all tickets including:
- Open tickets which have yet to be resolved at the time of reporting.
 - Tickets which have been closed since the last quarterly report.
- 7.5.2 The report shall contain at least the following information:
- Ticket status – Open / Closed.
 - Priority.
 - Age.
 - Date created.
 - Ticket number – unique identifying number.
- Visitor statistics and page views derived from logs for system access and tool user activity.
- 7.5.3 Post processing of files for reporting/troubleshooting will be as and when required. There is no proposed self-service user interface to the logged data. All logging will be to file in DWI defined format - files will be kept by DWI for minimum of 6 months.
- 7.5.4 SRRPAS User statistics reporting log detail for audit purposes:
- System access – logs for user login/logout events to SRRPAS .
 - Tool activity logs - Calculation actions identifying each user, group and action; for the following specific tools (All configurable on/off):
 - Status - no input data, log almanac reference and nanu references only.
 - Aerodrome - log calculation summary data, raw calculation input and output.
 - Route - log calculation summary data, raw calculation input and output

- Visibility - log input data and constellation data (almanac reference and nanu references), sufficient to reproduce the output if required.
- The period for historical logged data is configurable and will be set at 6 months.

PROVISIONAL SITE ACCEPTANCE TEST CERTIFICATE

Reference: International Civil Aviation Organization (ICAO)
Contract: 22501411
SAM Regional Receiver Autonomous Integrity Monitoring (RAIM) Prediction
Availability Service, and associated equipment
RLA/06/901 – SAM Regional States

We hereby acknowledge that the RAIM Prediction Availability Service and associated equipment, as well as the Data Centre facilities, have been verified in accordance with the mutually agreed upon test procedures and are compliant with the provisions of ICAO Contract No 22501411.

On behalf of DW International Limited

JOHN WILDE

Authorized Representative (BLOCK LETTERS)

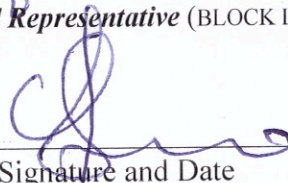


Signature and Date

On behalf of the SAM Regional States

Onofrio Smarrelli

Authorized Representative (BLOCK LETTERS)



Signature and Date

*Note: Any comments, deficiencies or observations discovered during the PSAT shall be indicated.
Pages detailing the above shall be attached to this certificate.*



COMMENTARIES AND ACTIONS AS A RESULT OF THE PSAT FOR THE SAM RAIM
PREDICTION AVAILABILITY SERVICE VIA WEB

(Windsor Office 13 to 15 August 2014)

- 1| The web site used to access the SAM Regional RAIM Prediction Availability Service (SRRPAS) was <https://test.dwinst.com/satdis/home.html> and not www.satdis.aero . The www.satdis.aero will be in operation the 22 August 2014.
- 2 In the home WEB page of SRRPAS the following correction , changes and input have to be made:
 - 2.1 Change the word PGN for PBN
 - 2.2 Introduction of the direct access tools as images as specified in the SDD document (figure in paragraph 4.3.2)
 - 2.3 For the registration part the email address samhelpdesk@sam.aero has to be replaced by a direct access through INFO and after that CONTACT . Once in contact a list of 12 email address will be displayed. The list of email addresses correspond to the focal points selected by the 11 States that are participating at the SRRPAS services and the email of the SRRPAS project manager from the ICAO SAM Region for the States of SAM Region that are not member of SRRPAS.
 - 2.4 At the bottom of the WEB page for the helpdesk access a direct link acces has to be made
- 3 For the disclaimer content that will be acceded from the bottom of the SRRPAS web page change the name of ICAO with the SRRPAS states members.
- 4 The Spanish and Portuguese web page contents are not completed the same are in progress and will be completed the 22 August 2014.
- 5 The PSAT document in the section related to Main Menu bar navigation is missing the test related to Resources.
- 6 For route section no waypoint data contains the SRRPAS , in order to obtain the RAIM prediction availability service for a specific national or regional route the way point data has to be introduced manually. On this respect the SRRPAS States will supplied their route national waypoint data in a specified format that DWI will informed the 19TH August 2014 .Once DWI received the waypoint data the same will be introduced in the SRRPAS.
- 7 Printable PDF report has to be fixed the same do not reflect the same information in the monitor,
- 8 The data stored for audit process is in progress and is expected to be completed Friday 22 August. The data remain stored for a period of 6 months.

APÉNDICE E

RESUMEN TELECONFERENCIA SEGUIMIENTO OPERACIÓN DEL SATDIS

(13 de octubre de 2015 de 8:30 a 10:00 am (Hora local Lima))

1 Introducción

1.1 Con el fin de dar seguimiento al operación y uso del servicio de predicción de la disponibilidad RAIM en la Región SAM vía web que se encuentra en la página WEB www.satdis.aero, se llevó a cabo el 13 de octubre de 2014 una teleconferencia de las 8:30 am a 10:00am (Hora local Lima).

1.2 En la teleconferencia participaron los siguientes puntos focales nacionales (representantes de puntos focales) encargados de las coordinaciones nacionales requeridas para la gestión de la página WEB de la predicción de la disponibilidad RAIM:

Argentina:	Luis Alarcón	lalarcon@anac.gov.ar
Bolivia	Jaime Álvarez	jalvarez@dgac.gob.bo
Brasil	Julio Cezar Pereira Rosa	cezar@cgna.gov.br
Chile	Alfonso De La Vega	adelavega@dgac.gob.cl
Panamá	Ana De León Toro	anadeleon@aeronautica.gob.pa
Paraguay	Victor Moran	moranchu@gmail.com
	Diego Aldana	
PerÚ	Sady Beaumont	orlandobe@gmail.com
Venezuela	Omar Linares	o.linares@inac.gob.ve

1.3 Uruguay no participó en la teleconferencia pero envió por correo electrónico sus comentarios, asimismo el punto focal de Venezuela entró inicialmente a la teleconferencia pero después se mantuvo sin contacto no asistiendo prácticamente en toda la teleconferencia.

1.4 La agenda adoptada para la teleconferencia fue la siguiente:

Comentarios sobre el uso del SATDIS

1.4.1 En referencia a este asunto se espera que cada Estado a través de sus puntos focales de sus comentarios sobre el uso del SATDIS y del manual de operación. Como resultado de los comentarios se establecerán acciones que serán presentadas al proveedor siempre que las mismas estén dentro de lo especificado en el contrato establecido entre la OACI y DWI (Especificaciones técnicas).

Uso operacional del SATDIS a nivel nacional

1.4.2 En este punto los Estados informaran como tiene previsto el uso operacional del SATDIS

Otros asuntos

1.4.3 En este punto los asistentes a la teleconferencias podrán proponer aspectos relacionados al asunto en cuestión que consideren necesario

2 Comentarios sobre el uso del SATDIS

2.1 Sobre este asunto la mayoría de los delegados informaron que al consultar la predicción de la disponibilidad RAIM para operaciones en ruta la base de datos no incluía todos los way points de la ruta sino solamente los que estaban relacionados con los VORs. Al respecto se informó que DWI está ampliando la base de datos para incluir todos los way point para operaciones en ruta, esta es una actividad pendiente que DWI debe completar, sino no se completa la base de datos con toda la información de los waypoints no se procederá a la aceptación final del servicio SATDIS.

2.2 Así mismo algunos delegados informaron que continúan practicando con el servicio y que están difundiendo el SATDIS a nivel nacional principalmente a nivel de los proveedores de servicios de navegación aérea.

2.3 Todos los puntos focales que participaron a la teleconferencia, informaron que recibieron por parte de DWI el user name y password para entrar al SATDIS como Administrador, de forma tal que tienen entre otras funciones , asignar a nivel local user name y password a nivel nacional . El delegado de Argentina informó que no estaba seguro si su acceso era como administrador, al respecto lo verificaría e informaría a la Oficina SAM de la OACI a la brevedad. (**A más tardar viernes 17 de octubre**).

2.4 En referencia a algunos comentarios sobre el uso del SATDIS, fue informado que se chequeará el Manual de Operación del SATDIS para ver si el mismo le daba orientación para superar el problema en caso de que el manual de operación no indicara nada se informó que se contactara al help desk de DWI para aclarar y solventar el mismo. Sobre el Manual de operación DWI no ha entregado todavía el Manual de Operación en Español y Portugués los mismos estaban estimados completarse el 10 de octubre de 2014.

2.5 Al respecto se recordó a los puntos focales, que el funcionamiento y prestaciones del SATDIS respondía a las especificaciones técnica elaborada y revisadas por los Estados de la Región miembros del Proyecto RLA/06/901 así como a la revisión del documento de proyecto del SATDIS (SDD) presentado por DWI y revisado también por todos los Estados miembros del RLA/06/901. En caso se informara como problema una prestación no contemplada en las especificaciones técnicas del RAIM o aceptada en el SDD esta no podía ser solicitada a DWI para que la incluyera al SATDIS . Las mismas se podrían incluir al SATDIS pero tendrían un costo de implantación.


2.6 A continuación se hace un resumen sobre lo indicado por cada punto focal:

Argentina

2.6.1 El representante de Argentina informó que había procedido a practicar con el SATDIS, que el uso del servicio era bastante amigable y sencillo de usar. Asimismo informó que se había iniciado

un programa de difusión del servicio del SATDIS a nivel nacional para el personal de las Oficinas AIS .

Bolivia

2.6.2 El delegado de Bolivia mostró algunas dificultades en el uso de la herramienta para operaciones en ruta, al respecto se le solicitó que también enviara la Oficina SAM a la brevedad a mas tardar el **17 de octubre de 2014**, una breve descripción de los problemas. Uno de estos se refería a la posibilidad de poner más grande y claro los iconos  para la selección de variación de algunos parámetros para completar la predicción de operaciones en ruta. Sobre otro problema presentado, se sugirió que verificara si el manual de operación del SATDIS presentaba información que clarificara el problema. En caso que no, se informaría a DWI al respecto. En relación al icono se informaría DWI sobre la posibilidad de ponerlo más claro.

2.6.3 Asimismo el delegado de Bolivia informó que estaba en proceso de dar a conocer al prestador de servicio (AASANA) el servicio SATDIS.

Brasil

2.6.4 Brasil informó sobre algunas dificultades inicialmente encontradas, las cuales fueron consultadas a DWI y aclaradas. Entre estas dificultades presentadas estaba, que al cerrar la pagina WEB del SATDIS se mantenía el login, permaneciendo abierta a todos el mundo el satdis , para evitar esto, DWI informó que al terminar de usar el SATDIS había que hacer un logout.

2.6.5 Algunos puntos fueron aclarados como el formato de las coordenadas usadas en el SATDIS y la inserción de datos a la base de datos del SATDIS para operaciones de aeródromos o waypoints que no estuvieran en la base de datos del SATDIS. En este sentido quedó aclarado que para la latitud y longitud el SATDIS utiliza grados decimales y para importar datos en la base de datos del SATDIS, el manual de operación del SATDIS contiene información al respecto.

2.6.6 Otra observación reportada por Brasil fue la posibilidad que el home page del SATDIS explicara el funcionamiento del SATDIS y la posibilidad de tener un glosario de términos. Sobre estas solicitudes se informó que el home page del SATDIS tiene un número limitado de caracteres por lo tanto no puede ampliarse. En este sentido se solicitará a DWI para que a través del SATDIS se pueda acceder al manual de operación y también incluir en el manual de operación un glosario de términos

Chile

2.6.7 El delegado de Chile informó que había enviado comentarios sobre el SATDIS a la Oficina Regional SAM el 25 de septiembre de 2014, copia de la información enviada se presenta como **Apéndice A** de este resumen. Muchos de los comentarios informados, en especial el formato de coordenadas y la visualización de las trayectorias GPS en google earth, al no estar consideradas en las especificaciones técnica del servicio de predicción de la disponibilidad RAIM, el contratista no está obligado a incluirlas.

2.6.8 Estas observaciones podrían discutirse para su inclusión al SATDIS en la próxima reunión de la SAM IG (SAM/IG/14, Lima Perú 10 - 14 de noviembre de 2014) y si la reunión lo considera apropiado se podría solicitar a DWI una cotización al respecto. De la misma forma se solicita la posibilidad de realizar un curso presencial, esto también se podría analizarlo en la Reunión SAMIG/14.

2.6.9 En referencia a la consulta s

obre el significado de los números 0, 15,30,45,60,75 y 90 en el grafico de visibilidad de los GPS se informó que los numero eran representación de grados, el centro representa 90 grados (zenit) y 0 grados era el nivel de superficie.

Panamá

2.6.10 El delegado de Panamá informó que había tenido problema al inicio con el password y que posteriormente DWI le envió un nuevo password. Al respecto se informó que una vez recibido el password había que usarlo a la brevedad e introducir un nuevo password por el solicitante, si esto no hacia a la brevedad (más de 24 horas) se perdía el password y había que solicitar uno nuevo. Asimismo informó que continuaba practicando con el SATDIS y poniéndolo a conocimiento al restante personal del proveedor de servicio de navegación aérea involucrado (Oficinas AIS).

Paraguay

2.6.11- El delegado de Paraguay informó que al utilizar la aplicación de la determinación de la disponibilidad de la predicción RAIM en ruta no estaban los waypoints de las rutas. Como se indicó en el párrafo 2.1 de este resumen esta es una actividad pendiente del contratista (DWI) que debe completarla.

Perú

2.6.11 El Punto focal de Perú informó que había realizado las coordinaciones iniciales con el proveedor de servicio (CORPAC) para difundir el servicio y como se pondrá a disposición el servicio a los usuarios.

Uruguay

2.6.12 El delegado de Uruguay no pudo participar en la teleconferencia pero informó por correo electrónico las observaciones obtenidas como resultados del uso del SATDIS. En este sentido informó que la aplicación solo tiene cargados los VOR, que la herramienta de ruta no permite guardar rutas predefinidas y que la aplicación se "cuelga" bastante seguido, habiendo probado con distintas conexiones de internet y navegadores y pasaba con todos.

2.6.13 Con respecto a la primera observación en el punto 2.1 responde a la consulta, la segunda consulta el manual de operación indica cómo se importan datos y con respecto al tercer punto es importante informar al help desk de DWI de la situación encontrada. Sobre este punto en vista que solamente un Estado presentó la observación, mucho se agradecería a los restantes puntos focales informarme a la brevedad antes del **17 de octubre de 2014** si también se le cuelga la aplicación.

3 Uso operacional del SATDIS

3.1 En referencia a este punto la mayoría de los puntos focales informó que por el momento lo que se está haciendo es difundir el servicio a nivel de los proveedores de servicios de navegación aérea involucrados es decir las Oficinas AIS.

3.2 Brasil informó que tiene considerado publicar en la página WEB del CGNA (Centro de Gerenciamiento de la Navegación Aérea de la DECEA) la disponibilidad de la predicción de la disponibilidad RAIM en aeropuerto y ruta como resultado de las consultas en el SATDIS.

3.3 Otros Estados todavía no han determinado como van a proceder sobre el uso operacional del servicio.

3.4 Se informó a los puntos focales sobre la necesidad de que el personal de la autoridad aeronáutica de los estados miembros del SATDIS encargados de la aprobación de las operaciones de los explotadores sobre el uso de los procedimientos de navegación basados con el GNSS (RNAV y RNP) verifiquen que el explotador considere el uso del servicio de predicción de la disponibilidad RAIM tal como se indica en las circulares de asesoramiento publicadas en la Región SAM para la aprobación de operaciones de aeronaves y explotadores ver <http://www1.lima.icao.int/srvsop/circular>.

3.5 Sobre este punto se informó que el uso operacional del SATDIS era de la responsabilidad de los Estados y que en la Reunión de la SAMIG/14 los Estados miembros del SATDIS presentaran mayor información al respecto para que la Reunión lo analizara y formulara posibles recomendaciones sobre usos operacionales del servicio.

4 Otros Asuntos

4.1 Sobre este asunto no hubieron comentarios, solo se informó que podría haber otra teleconferencia para informar sobre el avance de la implantación de los puntos pendientes del contratista DWI en el SATDIS.

Apéndice

ANALISIS Y EVALUACIÓN DEL SATDIS – RAIM WD Int.

1.- Las Coordenadas LAT / LONG, vienen en Grados y décimas y conforme se ha trabajado desde larga data, se utiliza como referencia el WGS-84 y este viene en Grados, minutos y Segundos.

No queda claro como incorporar en forma “manual” un nuevo aeródromo y sus coordenadas geográficas.

2.- El Globo de “Predicción”, resulta difícil su interpretación, sería mucho mejor visualizar el “track” o el AP/AD por la vía de un link del Google Earth y este mostrase el track en colores, denotando con estos las “predicción” RAIM.

3.- En la Predicción, mucho mejor sería que imprimiese el Globo (N-S-E-W) y no las tablas, no obstante que igual así es difícil “imaginar” los satélites que se tendrán a la vista. Por otro lado no queda claro: a) Que son los anillos, b) Que significa la escala 15-30-45 ect...

4.- El SW no permite imprimir la página “as it is”, sino que deriva a otra que contiene un listado que tal vez no se requiere.

5.- Herramientas – Visibilidad muestra LAT /LONG en Grados y decimales.

7.- Herramientas – Escenarios de Aeródromos 10 ADs seleccionados

a) No se puede imprimir el listado de los ADs.

b) Predicción de ADs., Detalles completos no se puede imprimir.

c) Gráficos y Resumen, NO se imprimen.

d) Gráficos de ADs., Interrupción hacerla por Horas (1) y no por bloques de 4 horas, así no resulta tener acotada la precisión horaria.

8.- Predicción satelital entre WP. La predicción de la disponibilidad satelital debe estar dada en directa relación a la distancia en NM entre los WP y la velocidad de la aeronave. De esta forma se sabrá que para un tipo de aeronave sea este un Cessna 172 o B747 la predicción será totalmente diferente por el tiempo de vuelo para el tramo entre los WP.

9.- En el SW al hacer “click” en la “Versión Imprimible”, lleva al lector a otra página. Debiera ser que sea “imprimible” todo aquello que el lector quiera.

10.- No se explica en “Predicción – Escenario de Rutas el “grafico de Rutas.

11.- En Predicción, Grafico de Aeródromos:

a) Los intervalos horarios debieran estar acotados a intervalos de 30 min. y/o de horas esto como se señaló anteriormente, permitirá a lector visualizar con mejor “precisión” el *outage time block de los satélites*.

Sugerencia/Recomendación

Este es un SW que por sus características No es del todo amigable, su “expresión” está muy acotada a “Tablas” que no son fáciles de interpretar. Con lo cual se requiere de un alto dominio de esta herramienta en cuanto a su uso e interpretación. Un apoyo del Google Earth será de alta conveniencia para visualizar en colores la “Predicción”.

Se sugiere en el marco de si los presupuestos así lo permiten un WorkShop con el fabricante en Lima con quienes tendrán la tarea de efectuar la instrucción en los Estados.
