

**FIRST FLEXIBLE ATS ROUTE MANAGEMENT  
WORKSHOP**

**Draft REPORT**

**Dakar, Senegal, 11-13 January 2011**

## **PART I – HISTORY OF THE WORKSHOP**

### **1. PLACE AND DURATION**

1.1 The **First Flexible ATS Route Management Workshop** convened at the initiative of IATA and with the support of ICAO and CANSO was held in the Conference Hall of ASECNA Headquarters in Dakar, Senegal from 11 to 13 January 2011.

### **2. OPENING, OFFICERS AND SECRETARIAT**

2.1 The workshop was opened with welcoming remarks by Mr. Sadou Marafa, ICAO WACAF ATM/SAR Regional Officer, and Mr. Kouamé Kissiédo acting Director of Operations of ASECNA.

2.2. The proceedings of the workshop were conducted by Mr. Don Harris from IATA Montreal. Mr. Gaoussou Konaté and Bernard Gonsalvès from IATA, and Sadou Marafa ICAO WACAF, supported him as members of the secretariat for this workshop.

### **3. ATTENDANCE**

3.1 The workshop was attended by a total of thirty eight (38) participants from seven (7) States, namely Angola, Cape Verde, Cote d'Ivoire, Ghana, Morocco, Namibia and Tunisia and four (4) organizations and corporations (ADACEL, ASECNA, IATA, US FAA). The list of participants is at **Appendix B** to this report.

### **4. LANGUAGE**

4.1 Discussions were conducted in the English and French languages with simultaneous interpretation.

### **5. I-FLEX BACKGROUND, CONCEPTS AND SOLUTIONS; AGENDA OF THE WORKSHOP**

5.1 In the Global Air Navigation Plan (Doc.9750), ICAO introduced the concept of dynamic and flexible ATM as one of its Strategic Objective. Global Plan Initiative (GPI-7) states that routes need not be fixed to pre-determined waypoints except where required for control purposes. GPI-8 enhances the implementation process with Collaborative Decision-Management techniques to organize airspace in a collaborative manner involving all stakeholders to accommodate *user-defined flexible routings*.

5.2 iFlex intends to build on these Strategic Objectives and transition into a more dynamic environment that remains agile enough to address daily flight operations variables, yet remains responsive to Air Traffic Management (ATM) and Operators' needs. Flexibility is derived from the design of the airspace and opportunities exist in almost all operating environments, whether dense and short-haul or sparse traffic flows and long-haul flights.

5.3 Specifically, environmental benefits in fuel burn and CO<sub>2</sub> avoidance are significant in longer-range flights. This is evident in the two sampled long-haul flight routings – that of Emirates Airlines flying from Dubai to Sao Paulo and Delta Airlines on the Atlanta to Johannesburg leg. Flying across the South Atlantic airspace, and the recent activation of the AORRA (Atlantic Ocean RNAV Random Routing Area), there remain a limited number of access points available for entering and exiting this airspace,

especially on the northwestern and western boundaries (Dakar, Atlantico, Rochambeau and Piarco FIR's). The relative lack of a supporting infrastructure (lack of transition waypoints/routings) substantially limits the ability to accomplish route efficiencies sought after by the ICAO Global roadmap. Besides finding ways and means to identify the major challenges on long-haul operations, a collaborative process involving all stakeholders in the context of an end-to-end flight routing was necessitated by means of a workshop setting.

5.4 iFlex Solution: In order to realize the fuel savings and Carbon Emission reductions envisioned by the creation of the AORRA, both additional AORRA entry waypoints, transitions to domestic/continental airspace and additional crossing opportunities for the EUROSAM corridor are required. The two 'demo' flights deployed as proving flights for the iFLEX concept are estimated to yield approximately 2,3 million kgs CO<sub>2</sub>.

In view of the above, the agenda at **Appendix A** to this report was established for the workshop.

## **PART II-SUMMARY OF DISCUSSIONS**

### II-1 January 11, 2011 Workshop Agenda:

- IATA presentation introduced the iFlex background, concept and objectives.
- The Meeting Received briefings from:
  - Emirates on Dubai (DXB) to Sao Paulo (GRU) user preferred routes to achieve maximum efficiencies and carbon emissions savings based on prevailing wind models.
  - Delta on Atlanta (ATL) to Johannesburg (JNB) user preferred routes to achieve maximum efficiencies and carbon emissions savings based on prevailing wind models.
  - ADACEL on the capabilities and features of the Oceanic FDPS.
  - CANSO on Best Practices from previous Flex Route implementations in Australia and Canada.
- Discussion among conference attendees about role of safety assessments to identify risks and develop solutions to same.

### II-2 January 12, 2011 Workshop Agenda:

- Breakout sessions developing ATM procedures to Support Flex Route Operations
- Reached agreement for creation of new waypoints and transition routings in Sal, Accra, Abidjan, Angola and Dakar Oceanic FIR's.
- Identified safety and procedural risks and amended proposals to address risk factors so that iFlex operations will proceed with the highest levels of safety by using previously proven ATM procedures.

### II-3 January 13, 2011 Workshop Agenda:

- Representatives from the Accra, Abidjan, Angola, Dakar and Sal FIR's reviewed final agreements and approved creation of the additional waypoints and transition routings identified below for the record.

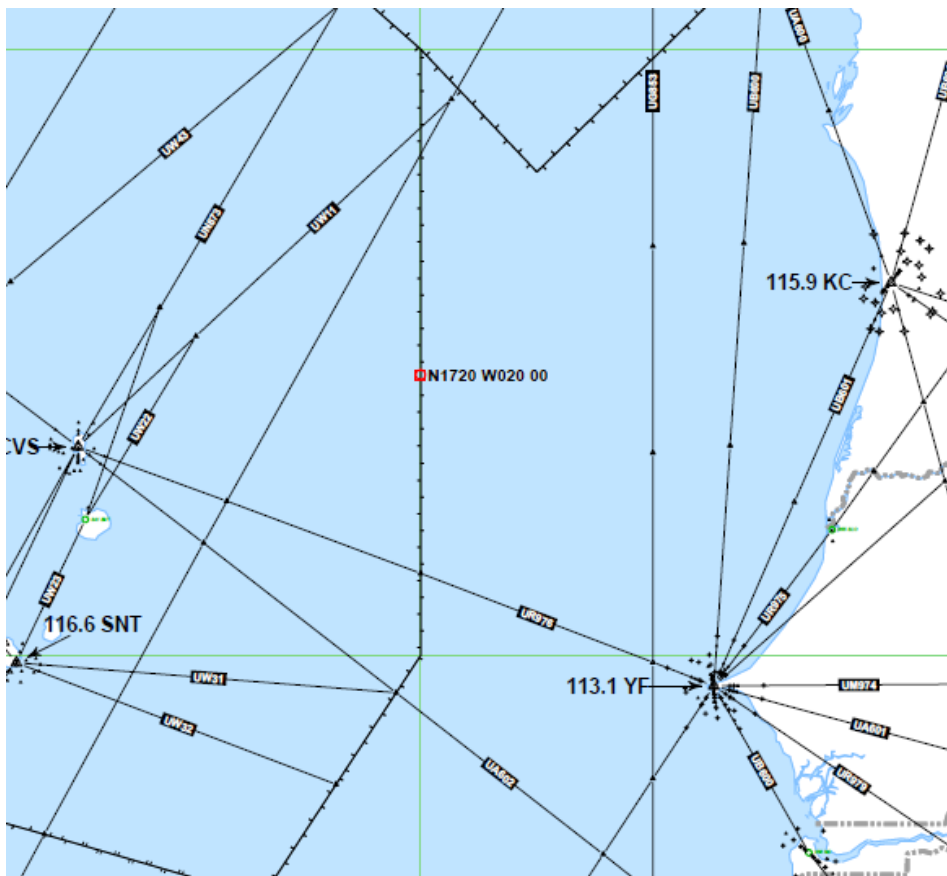
## PART III - POINTS OF AGREEMENT

### 1. Sal and Dakar Oceanic FIR/Boundary

a. Within GVSC FIR (Sal) it is acceptable to file in ICAO FPL field 15 a direct (DCT) segment from any FIR boundary waypoint to any FIR boundary waypoint.

b. Create a new waypoint on Dakar (GOOO) / Sal (GVSC) FIR boundary

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	FIR
N1720W20	FIR boundary	N 17 20 00	W 020 00 0	▲	N/A	N/A	SAL GVSC/ GOOO



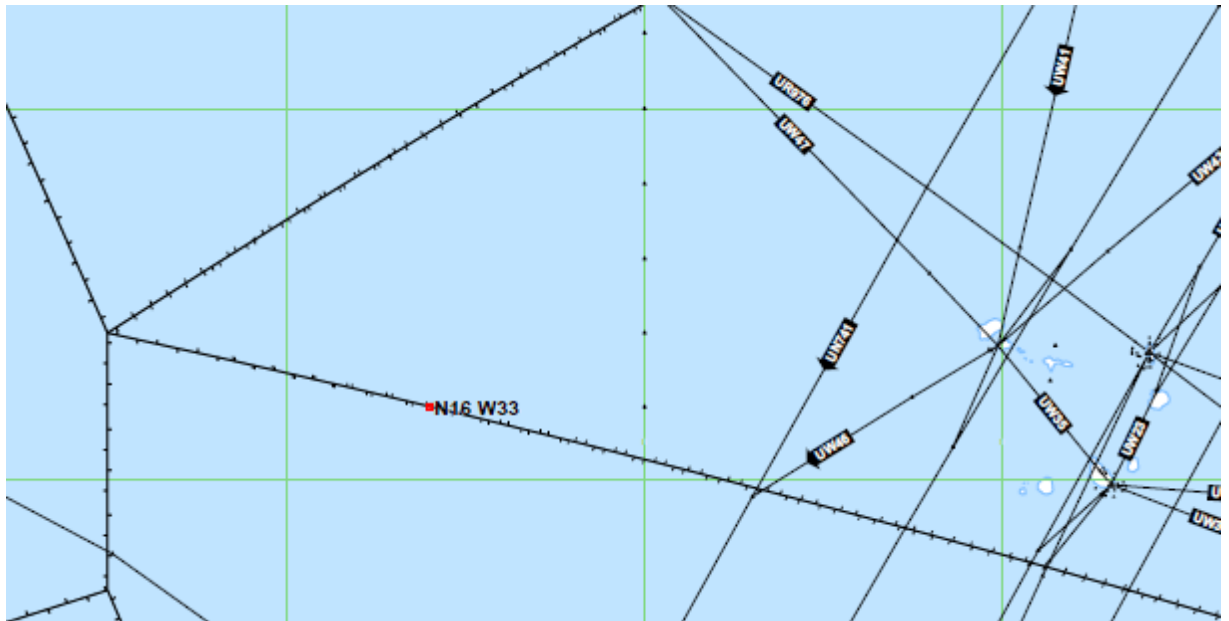
c. For Flight Plan filing purposes the intended track to/from the newly created waypoint will proceed direct to/from the Dakar VOR (YF).

d. No changes to ATM procedures required to accommodate the direct tracks.

### 2. Dakar Oceanic FIR: New Waypoints

a. Create New Waypoint on Dakar (GOOO) / Sal (GVSC) Sal FIR Boundary.

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	FIR
WP DS1	FIR boundary	N 16 00 24	W 033 00 00	▲	N/A	N/A	SAL GVSC/ Dakar Oceanic

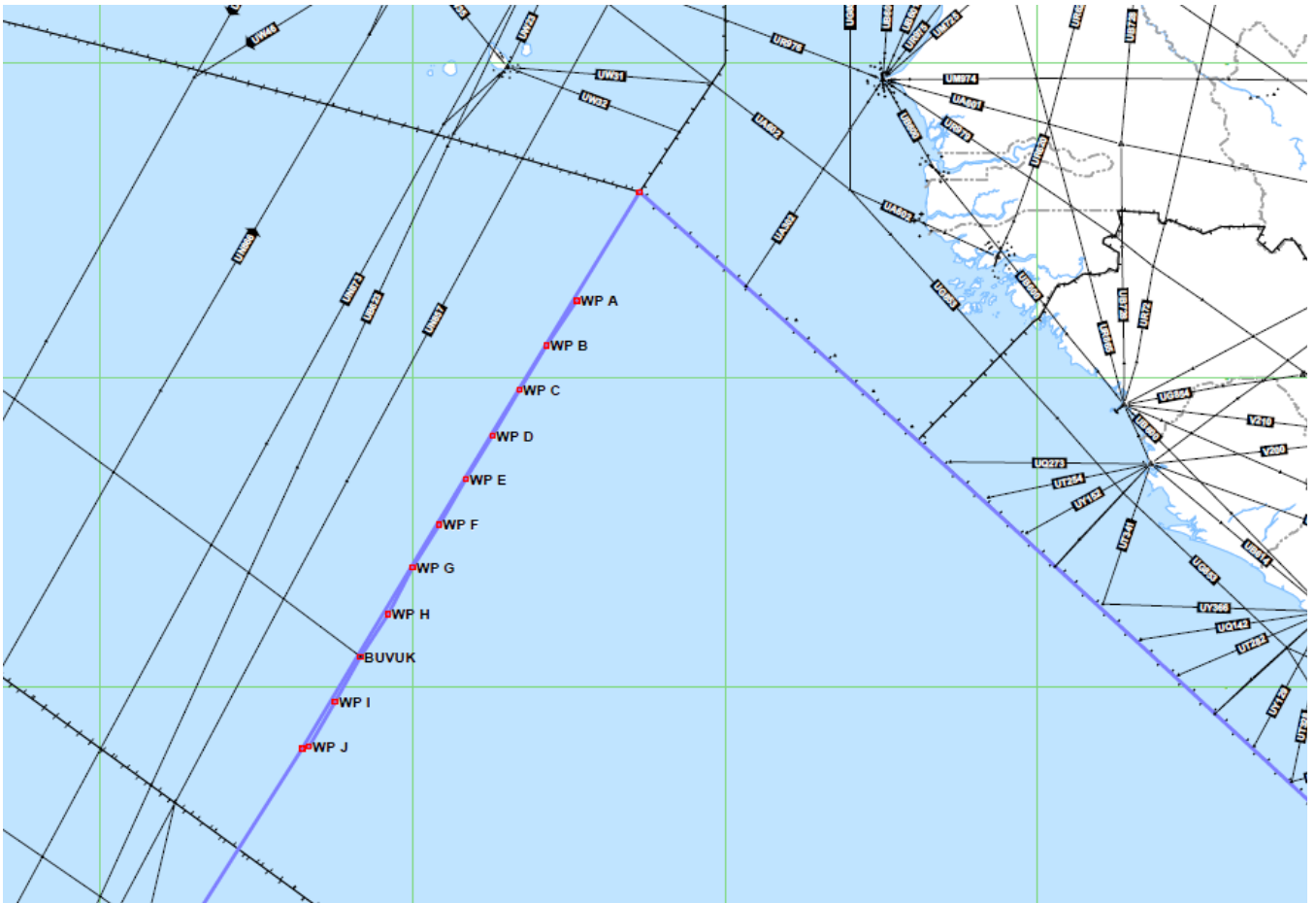


b. Create New Waypoints on Northwestern AORRA boundary.

*\*Newly created waypoints will observe a 100 nautical mile buffer from Atlantico and Sal FIR boundaries.*

*\*\* Existing Waypoint.*

POSITION SNLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
WP A	AORRA Boundary	N 11 15 54	W 022 24 24	▲	N/A	N/A	Dakar Ocean
WP B	AORRA Boundary	N 10 32 42	W 022 50 24	▲	N/A	N/A	Dakar Ocean
WP C	AORRA Boundary	N 09 49 36	W 023 16 24	▲	N/A	N/A	Dakar Ocean
WP D	AORRA Boundary	N 09 06 24	W 023 42 12	▲	N/A	N/A	Dakar Ocean
WP E	AORRA Boundary	N 08 23 12	W 024 07 54	▲	N/A	N/A	Dakar Ocean
WP F	AORRA Boundary	N 07 39 54	W 024 33 36	▲	N/A	N/A	Dakar Ocean
WP G	AORRA Boundary	N 06 56 36	W 024 59 06	▲	N/A	N/A	Dakar Ocean
WP H	AORRA Boundary	N 06 13 18	W 025 24 36	▲	N/A	N/A	Dakar Ocean
BUVUK**	AORRA Boundary	N 05 30 00	W 025 50 00	▲	N/A	N/A	Dakar Ocean
WP I	AORRA Boundary	N 04 47 24	W 026 16 36	▲	N/A	N/A	Dakar Ocean
WP J	AORRA Boundary	N 04 04 48	W 026 43 06	▲	N/A	N/A	Dakar Ocean



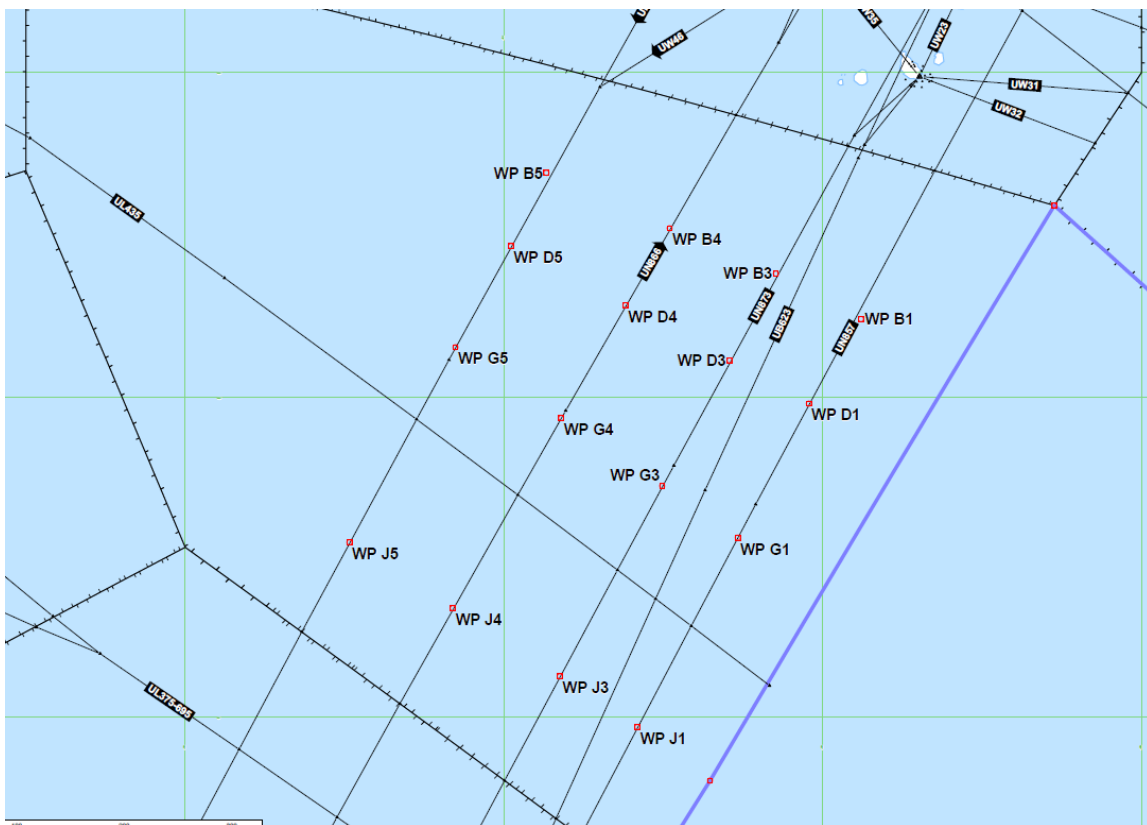
c. Create new waypoints crossing the EUROSAM corridor.

POSITION SNLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
WP B1	X UN857	N 11 15 42	W 024 28 24	▲	N/A	N/A	Dakar Ocean
WP B3	X UN873	N 11 48 54	W 025 45 12	▲	N/A	N/A	Dakar Ocean
WP B4	X UN866	N 12 31 54	W 027 26 24	▲	N/A	N/A	Dakar Ocean
WP B5	X UN741	N 13 19 06	W 029 19 48	▲	N/A	N/A	Dakar Ocean

POSITION SNLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
WP D1	X UN857	N 09 54 30	W 025 12 30	▲	N/A	N/A	Dakar Ocean
WP D3	X UN873	N 10 33 42	W 026 26 54	▲	N/A	N/A	Dakar Ocean
WP D4	X UN866	N 11 24 54	W 028 05 36	▲	N/A	N/A	Dakar Ocean
WP D5	X UN741	N 12 19 48	W 029 53 18	▲	N/A	N/A	Dakar Ocean

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
WP G1	X UN857	N 07 50 30	W 026 18 54	▲	N/A	N/A	Dakar Oceanic
WP G3	X UN873	N 08 38 06	W 027 30 06	▲	N/A	N/A	Dakar Oceanic
WP G4	X UN866	N 09 41 24	W 029 05 30	▲	N/A	N/A	Dakar Oceanic
WP G5	X UN741	N 10 46 36	W 030 45 18	▲	N/A	N/A	Dakar Oceanic

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
WP J1	X UN857	N 04 51 48	W 027 53 30	▲	N/A	N/A	Dakar Oceanic
WP J3	X UN873	N 05 40 00	W 029 06 12	▲	N/A	N/A	Dakar Oceanic
WP J4	X UN866	N 06 45 36	W 030 45 42	▲	N/A	N/A	Dakar Oceanic
WP J5	X UN741	N 07 48 54	W 032 22 36	▲	N/A	N/A	Dakar Oceanic

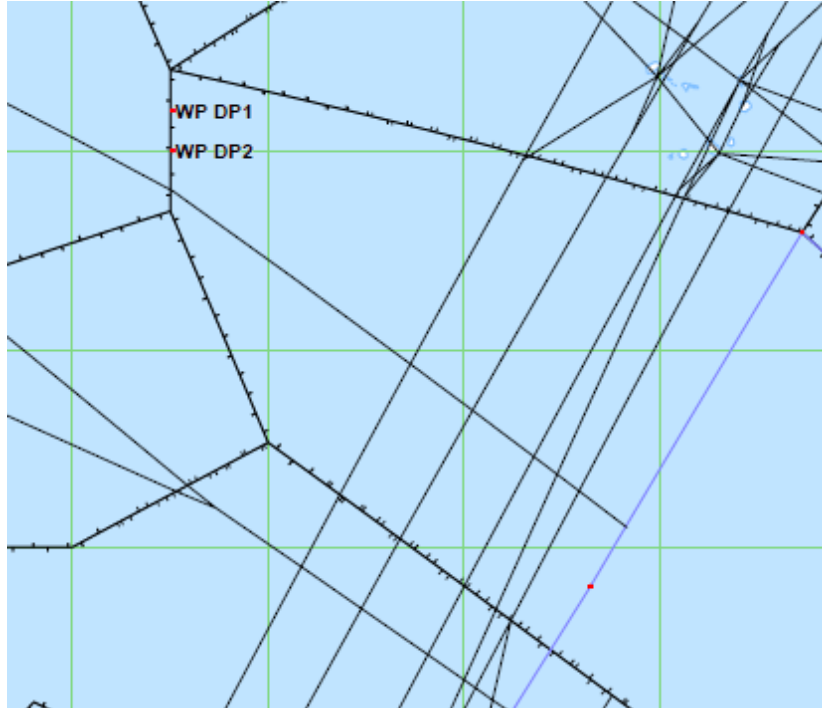


- It was noted that the existing waypoints will remain in place pending evaluation by Dakar Oceanic and will be subsequently deleted as may be required
- All new waypoints will be published as compulsory reporting points
- Waypoint crossings on UB623 are not required.
- No changes on UL435 are required



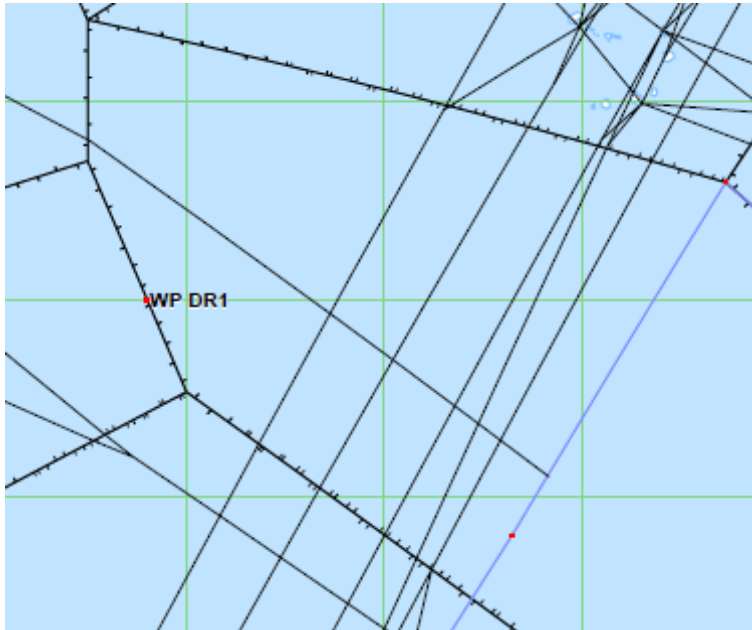
d. Create new waypoints on Dakar (GOOO) /Piarco (TTZP) Oceanic FIR boundary.

POSITION SNLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
WP DP1	FIR boundary	N 16 00 00	W 037 30 00	▲	N/A	N/A	Dakar Oceanic Piarco TTZP
WP DP2	FIR boundary	N 15 00 00	W 037 30 00	▲	N/A	N/A	Dakar Oceanic Piarco TTZP



e. Create new waypoint on Dakar (GOOO) /Cayenne Rochambeau (S000) Oceanic FIR boundary.

POSITION SNLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
WP DR1	FIR boundary	N 10 00 00	W 035 59 18	▲	N/A	N/A	Dakar Oceanic Rochambeau



f. No changes will be required in ATM procedures to accommodate these new waypoints and EUR SAM crossings.

### 3. Accra and Abidjan FIR

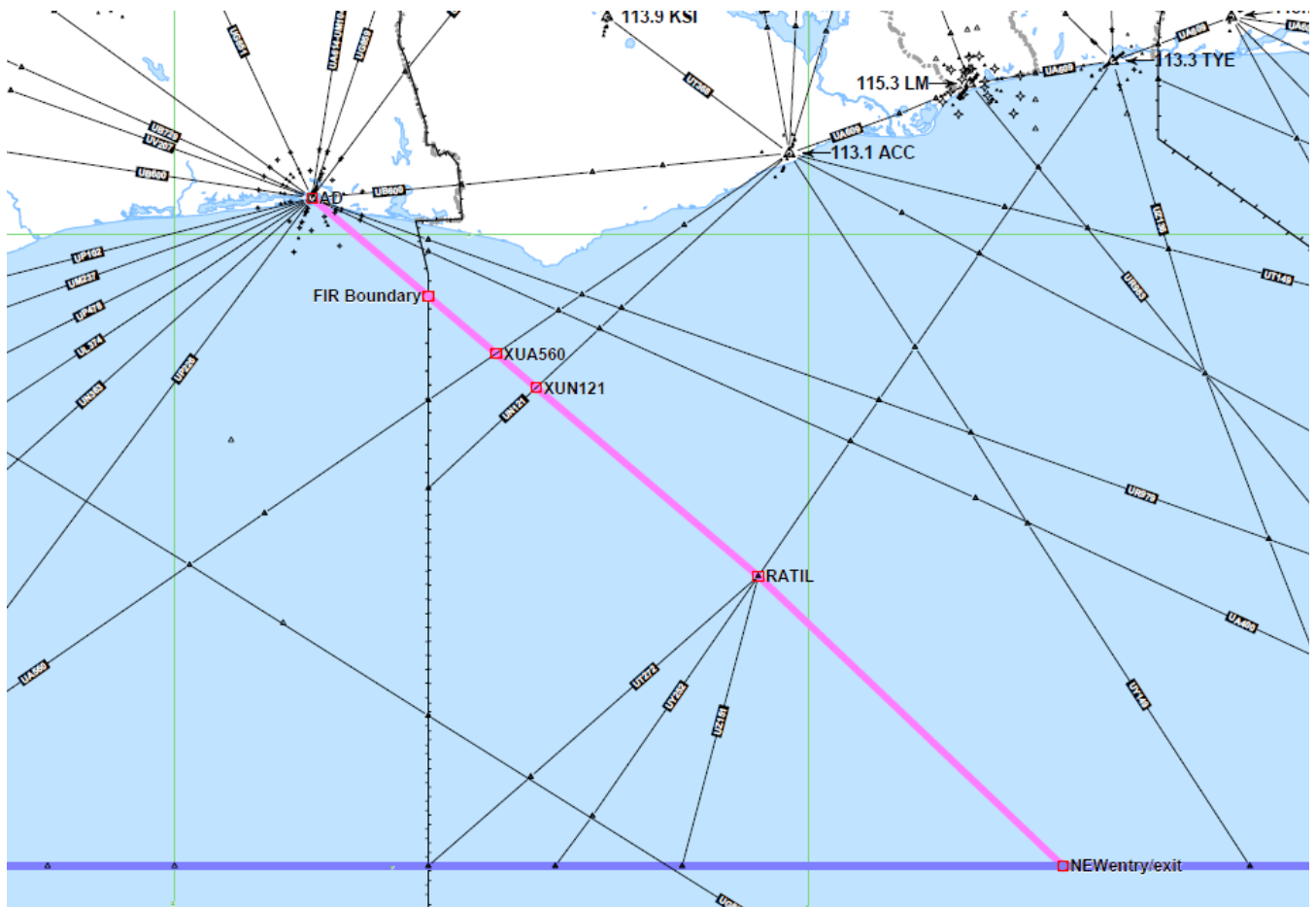
**a. AORRA-Abidjan Transition**

- i. Create a new waypoint within Accra FIR on the AORRA boundary
- ii. RATIL (Existing waypoint)
- iii. Create a new waypoint on existing Airway UN121
- iv. Create a new waypoint on existing Airway UA560
- v. Create a new waypoint on the Accra FIR /Abidjan FIS boundary
- vi. Within Accra FIR it is acceptable to file in ICAO field 15 a new transition route between the new waypoint on the Accra FIR/Abidjan FIS boundary and the new AORRA boundary waypoint via new waypoint at N04 03 16 W002 28 00 – new waypoint at N03 47 08 W002 09 00 - existing waypoint RATIL.
- vii. Within Abidjan FIS it is acceptable to file a new transition route between Abidjan VOR (AD) and new Accra FIR / Abidjan FIS waypoint described above.

**b. No changes will be required in ATM procedures to accommodate these new waypoints transitions.**

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
AD	VOR	N 05 17 00	W 003 55 00	▲	136/316	71.8 NM	Dakar GOO
3.1	FIR boundary	N 04 30 26	W 003 00 00	▲	136/316	41.9 NM	Dakar GOO/
3.2	X UA560	N 04 03 16	W 002 28 00	▲	136/316	24.9 NM	Accra DGAC
3.3	X UN121	N 03 47 08	W 002 09 00	▲	136/316	137.7 NM	Accra DGAC
RATIL		N 02 17 42	W 002 24 00	▲	139/319	198.9 NM	Accra DGAC

3.4	Entry/Exit	N 00 00 00	E 002 00 00	▲			Accra DGAC
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#### 4. Libreville – Sao Tome – Accra

- New AORRA Entry/Exit Wpts

Working 5NLC	Existing 5NLC	Latitude	Longitude
“AOR01”	tba	N 00 00 00.00	E 005 26 25.09
“AOR02”	72LV	N 00 00 00.00	E 006 35 00.00
“AOR03”	68LV	S 03 00 00.00	E 006 35 00.00
“AOR04”	17LV	S 04 00 00.00	E 006 35 00.00

- New Transitions

- FCCC (Brazzaville) / DGAC (Accra)

- LV – ONPOX

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
LV	VOR	N 00 28 47.40	E 009 24 07.10	▲	212°/033°	82.0NM	Brazzaville
PG	VOR	S 00 43 43.60	E 008 44 50.90	▲	213°/033°	67.81NM	Brazzaville

ONPOX		S 01 43 12.00	E 008 11 48.00	▲			Brazzaville
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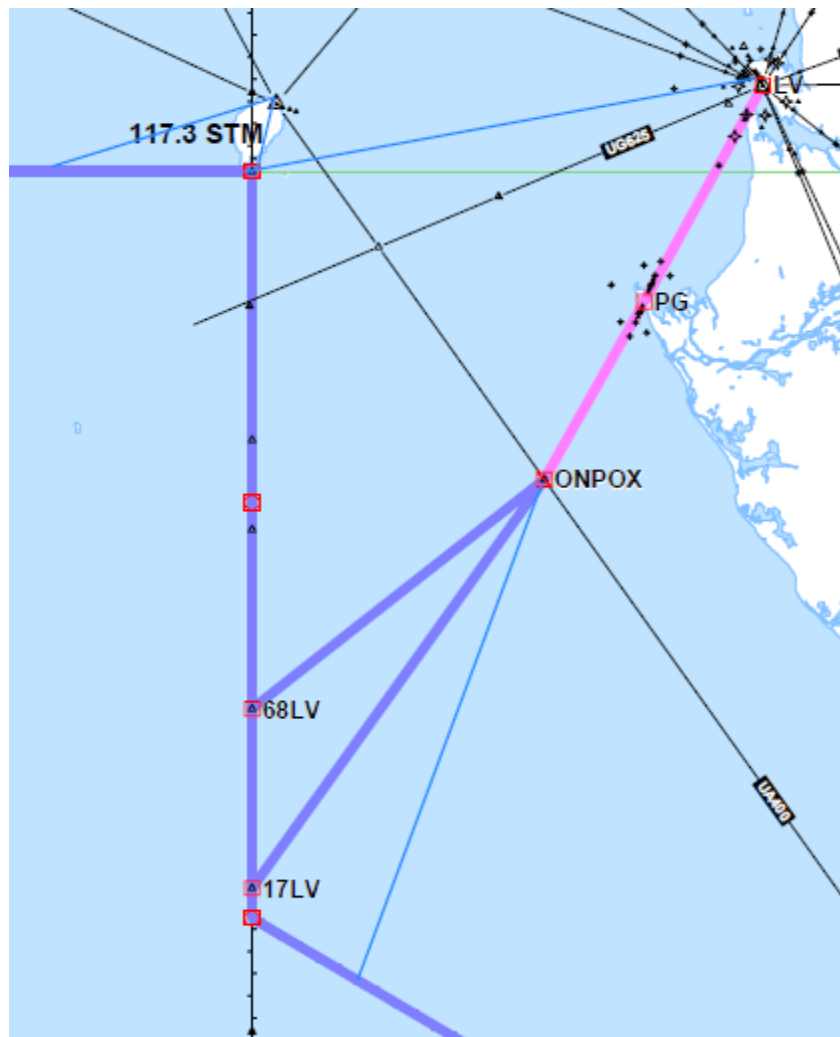
I) ONPOX - 68LV (“AOR03”)

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
ONPOX		S 01 43 12.00	E 008 11 48.00	▲	236°/057°	123.40NM	Brazzaville
68LV	AORRA	S 03 00 00.00	E 006 35 00.00	▲			Brazzaville Accra DG

II) ONPOX – 17LV (“AOR04”)

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
ONPOX		S 01 43 12.00	E 008 11 48.00	▲	219°/041°	167.06NM	Brazzaville
17LV	AORRA	S 04 00 00.00	E 006 35 00.00	▲			Brazzaville Accra DG

III) ONPOX – 17LV (“AOR04”) is described under item 5a of this report.



b. Sao Tome UTA (FCCC (Brazzaville) / DGAC (Accra))

i. STM – “AOR1”

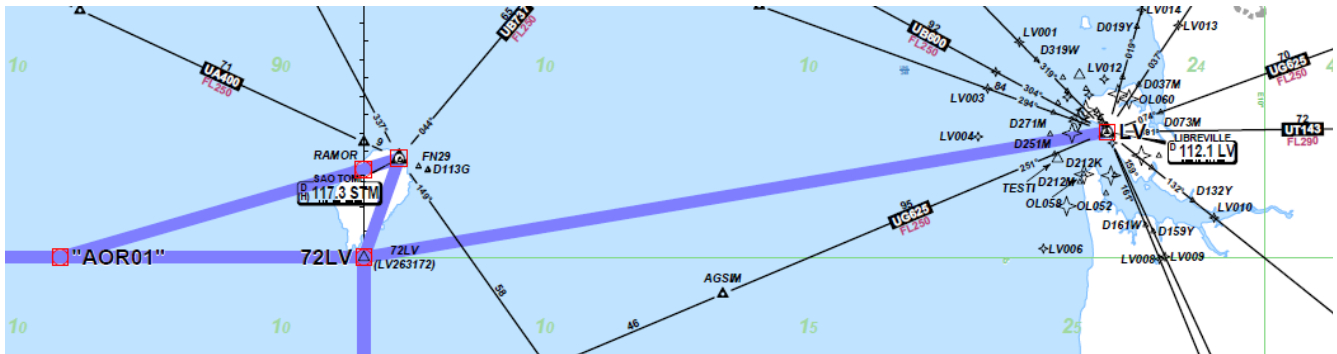
POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
STM	VOR	N 00 22 42.41	E 006 43 01.41	▲	258°/078°	8.38NM	Sao Tome (
TBA	FIR boundary	N 00 20 19.73	E 006 35 00.00	▲	258°/078°	71.62NM	Sao Tome ( / Sao Tome
TBA (AOR01)	AORRA	N 00 00 00.00	E 005 26 25.09	▲			Sao Tome (

ii. STM – 72LV (“AOR2”)

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
STM	VOR	N 00 22 42.41	E 006 43 01.41	▲	204°/023°	23.98NM	Sao Tome (
72LV	AORRA	N 00 00 00.00	E 006 35 00.00	▲			Sao Tome ( / Sao Tome

iii. LV – 72LV (“AOR2”)

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
LV	VOR	N 00 28 47.40	E 009 24 07.10	▲	263°/085°	172NM	Brazzaville
72LV	AORRA	N 00 00 00.00	E 006 35 00.00				Brazzaville



5. Luanda Oceanic FIR: New Waypoints and Transitions

• New AORRA Entry/Exit Wpts

Working 5NLC	Existing 5NLC	Latitude	Longitude
“LUA01”	tba	S 04 24 52.23	E 007 00 00.00
“LUA 02”	tba	S 05 00 00.00	E 008 00 00.00
“LUA 03”	tba	S 05 28 34.79	E 009 00 00.00
“LUA 04”	tba	S 05 20 00.00	E 010 00 00.00
“LUA 05”	tba	S 06 00 00.00	E 010 25 00.00
“LUA 06”	tba	S 07 00 00.00	E 011 00 00.00

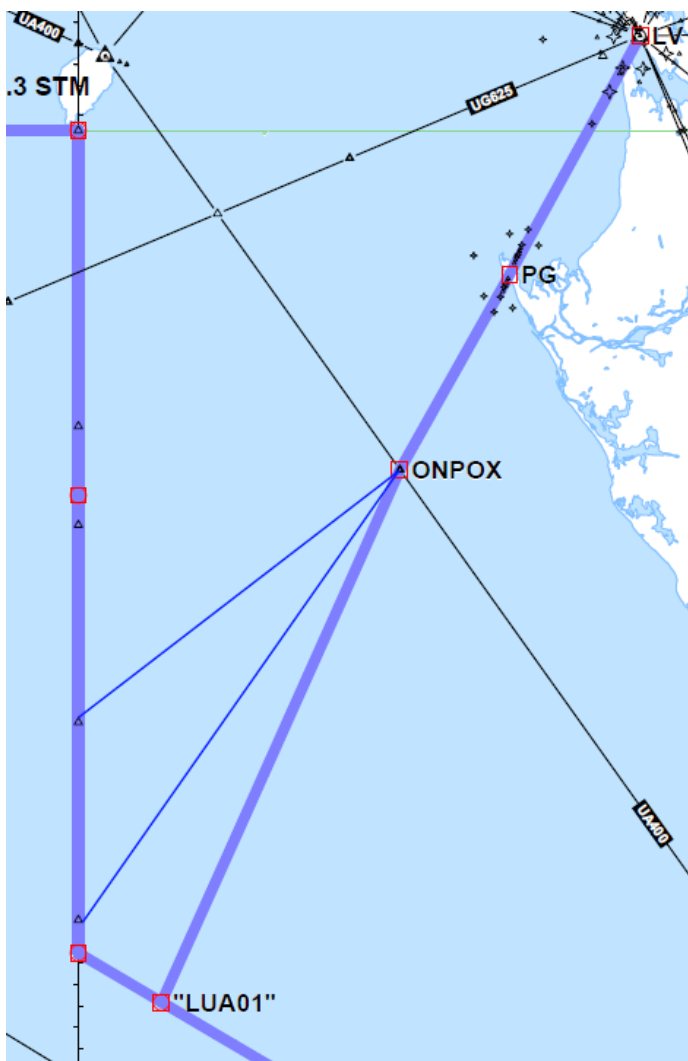
- New Transitions

- a. FCCC (Brazzaville) / FNAN (Luanda)

- i. \*ONPOX – “LUA01”

*\*Segment LV-PG-ONPOX described under item 4; a; i. of this report.*

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
ONPOX		S 01 43 12.00	E 008 11 48.00	▲	208°/029°	176.18NM	Brazzaville
TBA (LUA01)	AORRA	S 04 24 52.23	E 007 00 00.00	▲			Brazzaville Luanda F



ii. INOKA – VAKED – TABIL – BUNDO – “LUA01”; “LUA02”; “LUA03”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
INOKA	X UG727&UG625	N 02 17 13.00	E 014 17 54.00	▲	224°/045°	143.27NM	Braz
VAKED	X UR986 &UT146	N 00 31 27.14	E 012 40 49.81	▲	226°/047°	33.94NM	Braz
TBA (UA604-01)	X UA604	N 00 07 11.74	E 012 17 00.42	▲	227°/047°	48.35NM	Braz
TBA (UTA limit)	Libreville UTA	S 00 27 21.03	E 011 43 04.75	▲	226°/046°	43.75NM	Braz
TBA (UG856-01)	X UG856	S 00 59 15.30	E 011 13 02.09	▲	226°/046°	18.26NM	Braz
TBA (UG861-01)	X UG861	S 01 12 34.15	E 011 00 29.59	▲	226°/047°	48.52NM	Braz
TAPIL	X UR987	S 01 47 57.00	E 010 27 09.00	▲	249°/070°	06.50NM	Braz
BUNDO	X UR526	S 01 50 34.00	E 010 21 12.00	▲			Braz

I) BUNDO – “LUA01”

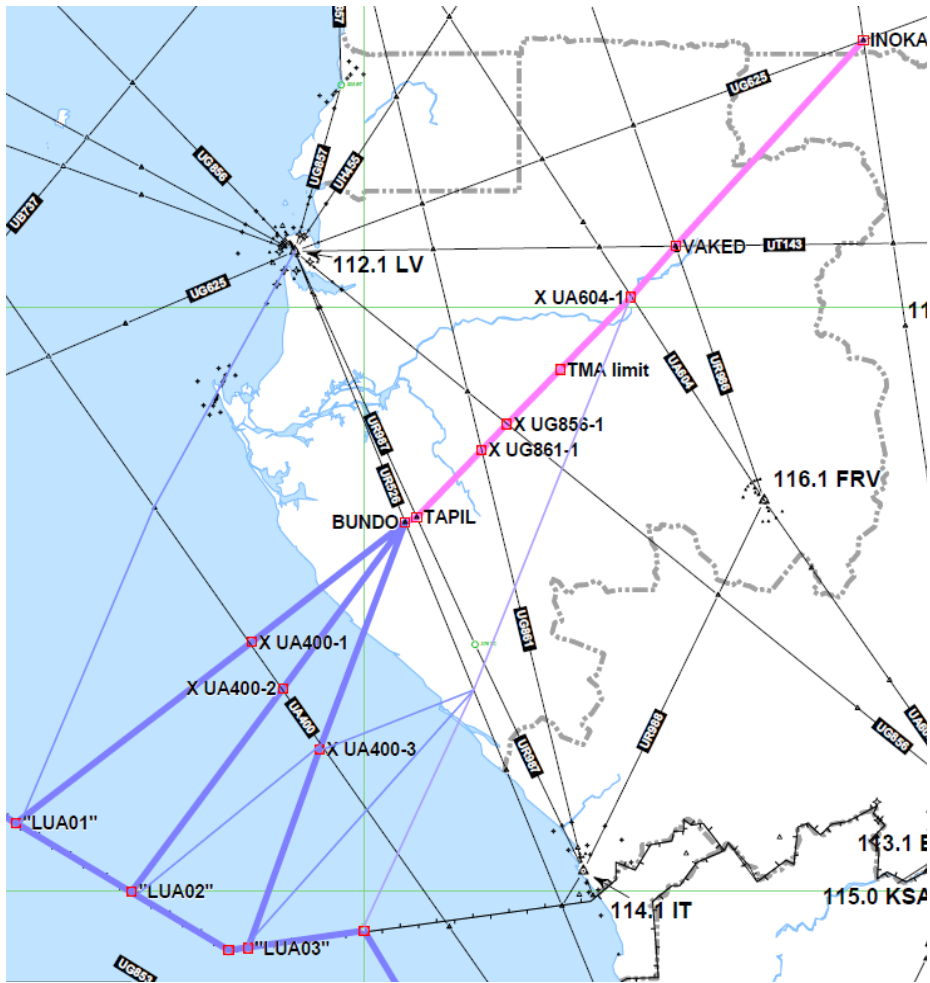
POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
BUNDO	X UR526	S 01 50 34.00	E 010 21 12.00	▲	236°/057°	101.43NM	Braz
TBA (UA400-1)	X UA400	S 02 52 28.42	E 009 00 41.52	▲	237°/058°	151.70NM	Braz
TBA (LUA01)	AORRA	S 04 24 52.23	E 007 00 00.00	▲			Braz

II) BUNDO – “LUA02”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
BUNDO	X UR526	S 01 50 34.00	E 010 21 12.00	▲	220°/041°	106.46NM	Braz
TBA (UA400-2)	X UA400	S 03 16 14.16	E 009 17 29.34	▲	221°/042°	129.06NM	Braz
TBA (LUA02)	AORRA	S 05 00 00.00	E 008 00 00.00	▲			Braz

III) BUNDO – “LUA03”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
BUNDO	X UR526	S 01 50 34.00	E 010 21 12.00	▲	204°/025°	122.37NM	Braz
TBA (UA400-3)	X UA400	S 03 45 45.72	E 009 38 23.02	▲	205°/025°	109.26NM	Braz
TBA (LUA03)	AORRA	S 05 28 34.79	E 009 00 00.00	▲			Braz



- iii. \* “Crossing of UA604-1 & UR526” - :Crossing of UR526” – “LUA02”; “LUA03”; “LUA04”  
 \*Segment INOKA – VAKED – “Crossing of UA604-1 & UR526” described under item 5; a; ii; I). of this report.  
 \*\* 5NLC will be issued for S02 53 18.00 E010 57 19 as RNAV route should not use NDB

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
TBA (UA604-01)	X UA604	N 00 07 11.74	E 012 17 00.42	▲	206°/027°	94.83NM	Braz
TBA (UG856-02)	X UG856	S 01 19 53.79	E 011 38 34.95	▲	207°/027°	57.78NM	Braz
TBA (UG861-02)	X UG861	S 02 12 57.28	E 011 15 09.14	▲	207°/028°	43.94NM	Braz
TBA*** (5NLC instead TC)	XUR987	S 02 53 18.00 (TC NDB coords)	E 010 57 19.00	▲	207°/026°	13.46NM	Braz
TBA (UR526-02)	X UR526	S 03 05 44.98	E 010 52 03.57	▲			Braz



I) X UR526 – “LUA02”

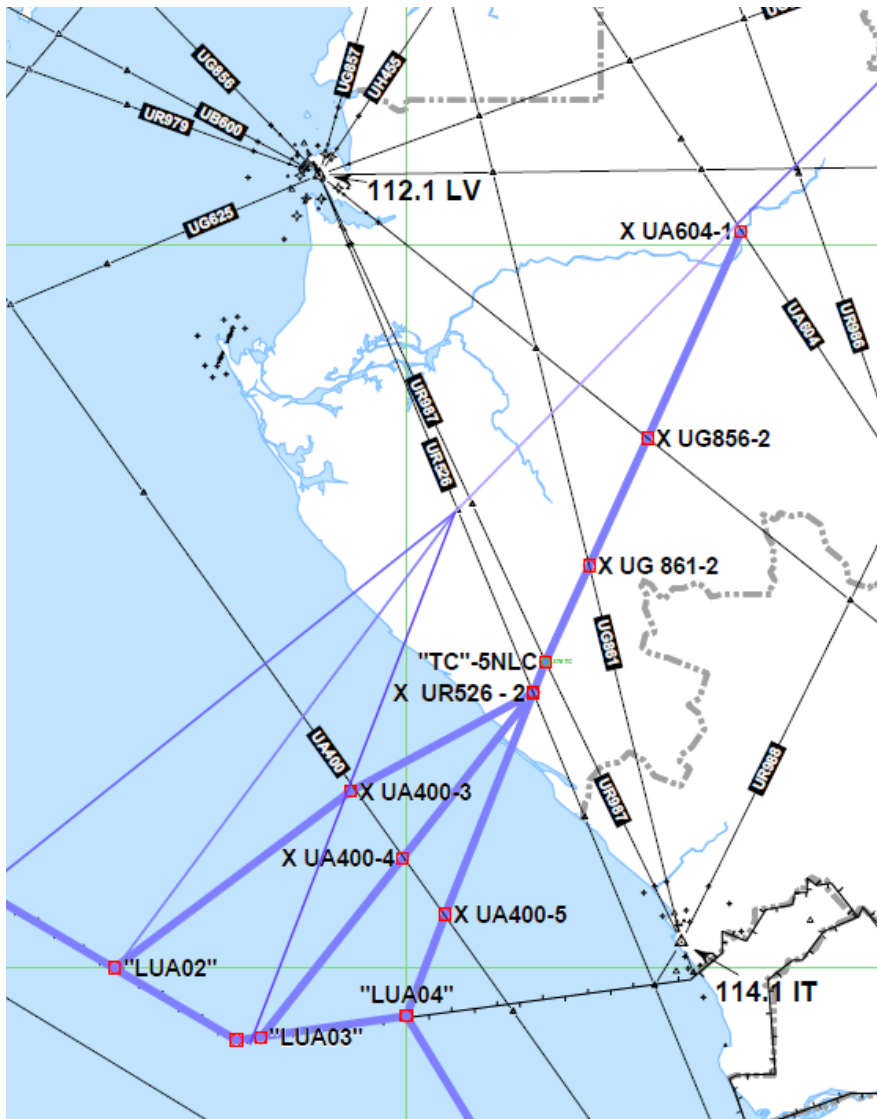
POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
TBA (UR526-02)	X UR526	S 03 05 44.98	E 010 52 03.57	▲	245°/066°	83.75NM	Brazza
TBA (UA400-3)	X UA400 & new transition BUNDO-LUA03	S 03 45 45.72	E 009 38 23.02	▲	237°/058°	122.94NM	Brazza
TBA (LUA02)	AORRA	S 05 00 00.00	E 008 00 00.00	▲			Brazza

II) X UR526 – “LUA03”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
TBA (UR526-02)	X UR526	S 03 05 44.98	E 010 52 03.57	▲	222°/042°	86.60NM	Brazzavil
TBA (UA400-4)	X UA400	S 04 14 09.31	E 009 58 30.27	▲	222°/043°	94.32NM	Brazzavil
TBA (LUA03)	AORRA	S 05 28 34.79	E 009 00 00.00	▲			Brazzavil

III) X UR526 – “LUA04”

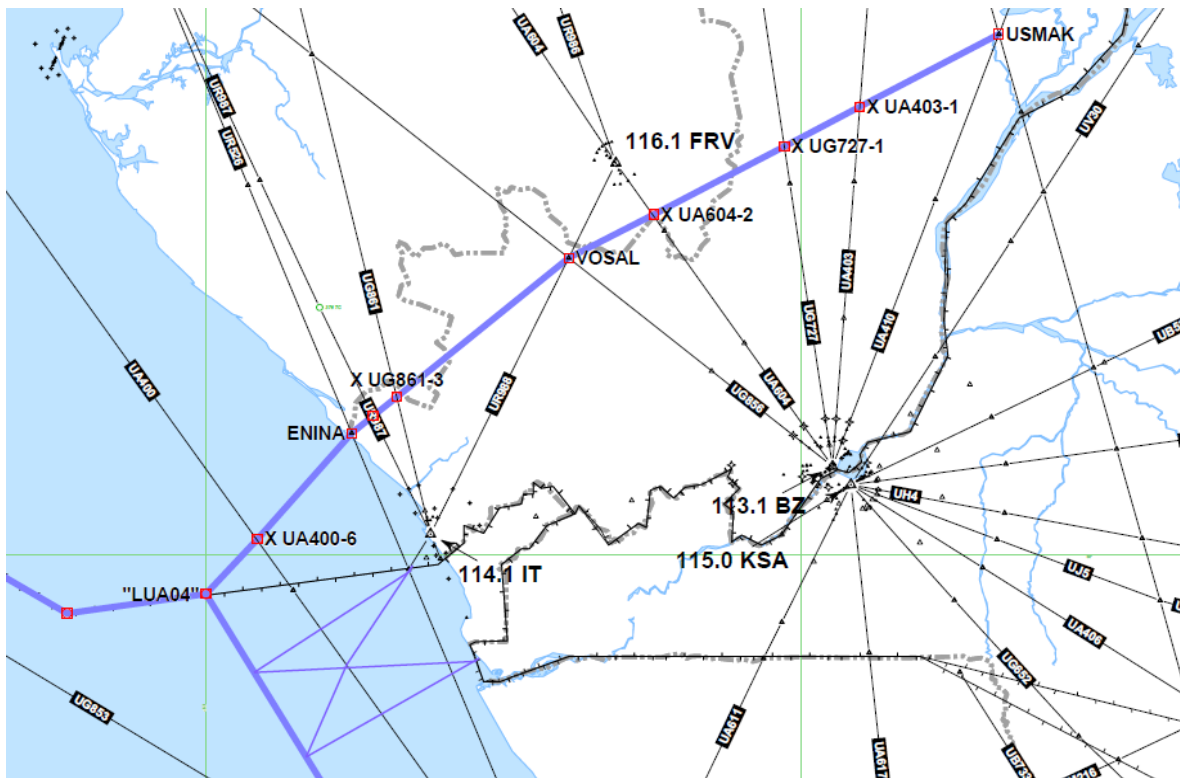
POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
TBA (UR526-02)	X UR526	S 03 05 44.98	E 010 52 03.57	▲	205°/025°	99.38NM	Brazzavil
TBA (UA400-5)	X UA400	S 04 38 48.97	E 010 16 00.34	▲	205°/026°	43.99NM	Brazzavil
TBA (LUA04)	AORRA	S 05 20 00.00	E 010 00 00.00	▲			Brazzavil



iv. USMAK- VOSAL - ENINA – “LUA04”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
USMAK	X UM998 & UA410	S 00 33 03.00	E 016 39 43.00	▲	243°/064°	79.37NM	Brazza
TBA (UA403-1)	X UA403	S 01 10 13.67	E 015 29 36.45	▲	244°/064°	43.13NM	Brazza
TBA (UG727-1)	X UG727	S 01 30 24.99	E 014 51 30.15	▲	244°/064°	75.12NM	Brazza
TBA (UA604-2)	X UA604	S 02 05 33.19	E 013 45 06.10	▲	244°/065°	47.79NM	Brazza
VOSAL	X UG856&UR998	S 02 27 53.00	E 013 02 50.00	▲	233°/054°	112.05NM	Brazza
TBA (UG861-3)	X UG861	S 03 39 08.71	E 011 36 06.84	▲	234°/054°	15.47NM	Brazza
TBA (UR987-3)	X UR987	S 03 48 58.43	E 011 24 07.49	▲	234°/054°	13.79NM	Brazza
ENINA	X UR526	S 03 57 44.00	E 011 13 26.00	▲	238°/059°	70.45NM	Brazza

<b>TBA (UA400-5)</b>	X UA400	S 04 38 48.97	E 010 16 00.34	▲	205°/026°	43.99NM	Brazza
<b>LUA 04</b>	AORRA	S 05 20 00.00	E 010 00 00.00	▲			Brazza



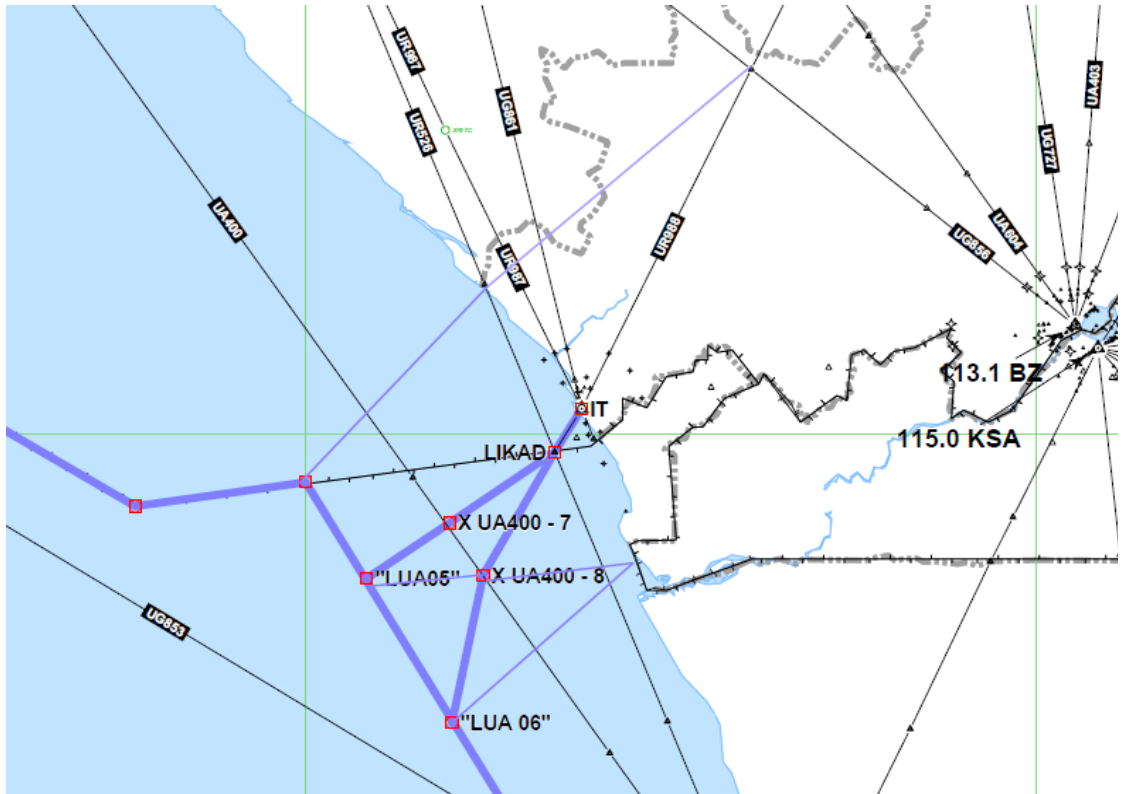
v. LIKAD – “LUA05”; “LUA06”

I) LIKAD – “LUA05”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
<b>LIKAD</b>	X UR526	S 05 07 24.00	E 011 42 10.00	▲	240°/060°	53.60NM	Brazzaville
<b>TBA (UA400-7)</b>	X UA400	S 05 37 43.01	E 010 57 44.93	▲	240°/060°	39.46NM	Luanda
<b>TBA (LUA05)</b>	AORRA	S 06 00 00.00	E 010 25 00.00	▲			Luanda

II) LIKAD – “LUA06”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
<b>LIKAD</b>	X UR526	S 05 07 24.00	E 011 42 10.00	▲	204°/025°	64.80NM	Brazzaville
<b>TBA (UA400-8)</b>	X UA400 & new	S 06 08 22.47	E 011 19 22.32	▲	205°/025°	54.88NM	Luanda
<b>TBA (LUA06)</b>	AORRA	S 07 00 00.00	E 011 00 00.00	▲			Luanda



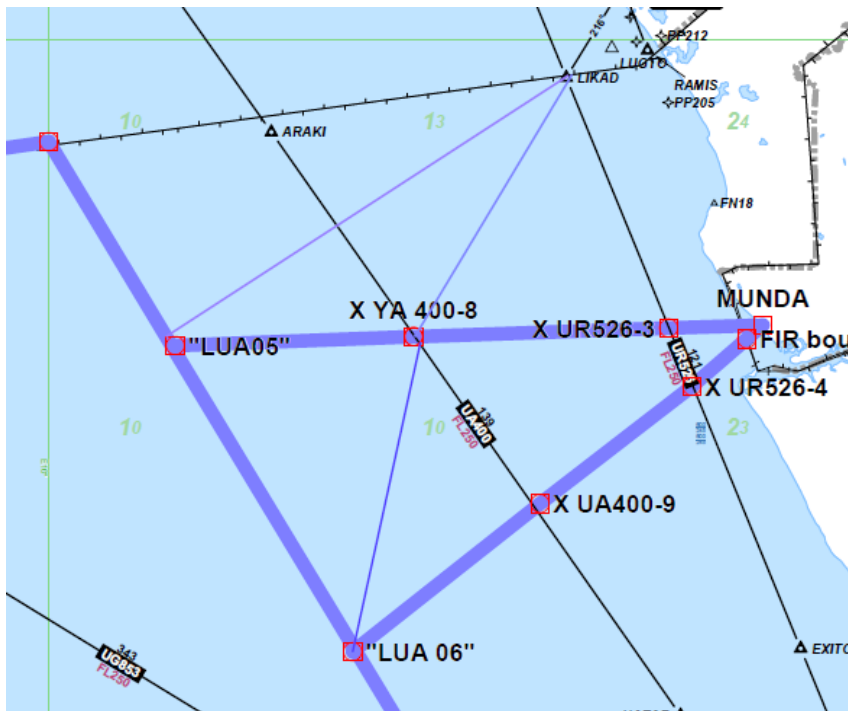
vi. MUNDA – “LUA05”; “LUA06”

I) MUNDA – “LUA05”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
MUNDA	VOR	S 05 56 00.00	E 012 21 00.00	▲	263°/083°	3.81NM	Kinsha
TBA	FIR boundary	S 05 56 45.37	E 012 17 15.09	▲	263°/083°	13.82NM	Kinsha
TBA (UR526-3)	X UA526	S 05 59 29.69	E 012 03 39.46	▲	263°/083°	44.99NM	Luanda
TBA (UA400-8)	X UA400 & NEW	S 06 08 22.47	E 011 19 22.32	▲	283°/103°	54.80NM	Luanda
TBA (LUA05)	AORRA	S 06 00 00.00	E 010 25 00.00	▲			Luanda

## II) MUNDA – “LUA06”

POSITION 5NLC	COMMENT	LATITUDE	LONGITUDE	STATUS	MAGNETIC BEARING	DISTANCE IN NM	
MUNDA	VOR	S 05 56 00.00	E 012 21 00.00	▲	236°/056°	4.02NM	Kinsha
TBA	FIR boundary	S 05 58 30.54	E 012 17 50.14	▲	236°/056°	13.96NM	Kinsha
TBA (UR526-4)	X UA526	S 06 07 12.93	E 012 06 50.93	▲	236°/056°	39.32NM	Luanda
TBA (UA400-9)	X UA400	S 06 31 43.06	E 011 35 52.24	▲	236°/056°	45.45NM	Luanda
TBA (LUA06)	AORRA	S 07 00 00.00	E 011 00 00.00	▲			Luanda



*The new waypoints and transitions as above will be discussed in February 2011 in Dubai among the FIR's concerned. In view of the number of proposals involved, Emirates Airline will coordinate a prioritized list of Transitions for implementation.*

### 6. AORRA

ICAO and IATA agreed to conduct a feasibility study to determine if it would be operationally advantageous and feasible to move the AORRA boundary northward. IATA and ICAO undertook to coordinate with all affected FIRS. A Working Paper will be presented to the SAT Group in May 2011.

## **7. Future Action/Proposals for iFlex for Waypoints and Transitions between Dakar, Piarco, Cayenne Rochambeau, and Atlantico FIR's.**

- a. Individual FIR agencies to conduct safety assessment and to confirm the findings of the Dakar Route Conference representatives that operations utilizing the new waypoints created herein may be performed safely and in accordance with existing ATM procedures.
- b. Individual FIR agencies to review and reconfirm all points: Latitudes/ Longitudes for accuracy by January 20, 2011.
- c. IATA to submit all approved points Latitudes/Longitudes to Jeppesen for verification and forward them back to the ANSP's involved before January 24, 2011.
- d. Once validated, the ANSP's will obtain the agreed 5-letter name codes from ICAO in preparation for publishing the same under the March 10, 2011 Airac Cycle.
- e. The Transitions Routes and waypoints pending negotiation between Luanda/Brazzaville/Libreville/Accra only will be finalized at the Dubai meeting by end-February, 2011. The target publication date will be April 7, 2011.
- f. Individual FIR's to publish named waypoints for implementation date allowing for 3 AIRAC cycles starting March 10, 2011 and for an effective date of June 2, 2011.
- g. A trial period will allow Delta Airlines and Emirates Airline to commence participating with trial flights from April 7, 2011 through June 2, 2011. The trial will be conducted on the basis of a Letter of Agreement between individual ANSP's and the two participating airlines respectively.
- h. Convene a joint meeting with Atlantico, Piarco, Cayenne-Rochambeau, and Dakar to reach further agreements to complete and harmonize implementation of iFlex infrastructure improvements allowing for more efficient routes and environmental savings in the South Atlantic airspace.
- i. A final agreement among Accra, Brazzaville FIR, Libreville UTA and Sao Tomé UTA will be concluded at a later meeting in February 2011 in Dubai.
- j. IATA to present an Information Paper to update the SAT meeting in May 2011. The IP will outline the outcome of iFlex workshops in building the required infrastructure to support 'demo' flights.

## **8. Next Meeting**

The second Flexible ATS Route Management Workshop will be held in Dubai, United Arab Emirates from 15 to 17 February, 2011.

The third Flexible ATS Route Management Workshop will be held at the ICAO EUR/NAT Offices in Paris from 8 to 10 March, 2011.

## 9. AOB

The group was advised of the forthcoming Technical Meeting between ASECNA & IATA to be held on February 8-9, 2011 at the ASECNA headquarters in Dakar.

\* Affected Oceanic FIR's: Sal (GVSC), Dakar (GOOO), Accra (DGAC), Abidjan FIS (DIII).

### **PROVISIONAL AGENDA**

#### **Agenda Item 1: Welcome, Introductions and Logistics**

#### **Agenda Item 2: Briefing on the aims of the iFLEX program.**

IATA will brief the Workshop on the origin, aims and objectives of the iFLEX Program.

#### **Agenda Item 3: Best practices briefings and demonstrations.**

CANSO will brief the Workshop on Flexible Route initiatives that have been implemented in other Regions and States. The briefing will highlight successes and procedural requirements that have been developed in support of Flex Route implementation. CANSO industry partners will also provide ATM demonstrations as used in order to support implementation

#### **Agenda Item 4: Briefing on Dubai – Sao Paulo operations.**

Emirates Airlines as a volunteer airline will brief the workshop on operations on the Dubai – Sao Paulo route and v.v. The briefing will highlight challenges faced in today's environment and

present iFLEX options that would allow Emirates to gain operational efficiencies reduce fuel consumption and carbon emissions.

**Agenda Item 5: Briefing on Atlanta– Johannesburg operations.**

Delta Airlines as a volunteer airline will brief the Workshop on operations on the Atlanta - Johannesburg route and v.v. The briefing will highlight challenges faced in today's environment and present iFLEX options that would allow Delta Airlines to gain operational efficiencies reduce fuel consumption and carbon emissions.

**Agenda Item 6: Develop ATM procedures to support Flex Route operations.**

This session will consider strategies that will support the use of Flexible Routes on demonstration flights between Dubai and Sao Paulo and Atlanta and Johannesburg and v.v. ATM system experts and airline representatives will collaborate to develop the necessary ATM procedures to support the use of Flexible Routes

**Agenda Item 7: Develop pilot and dispatcher procedures to support Flex Route operations.**

This session will consider, if required, what special procedures may need to be developed for pilots and dispatchers in support of implementing Flex Route operations.

**Agenda Item 8: Any other business.**

Any other matters not specifically provided for and covered under the above agenda items, might be addressed under this agenda item.

END





## APPENDIX B

### FLEXIBLE ATS ROUTE MANAGEMENT WORKSHOP

Dakar, 11 - 13 January, 2011

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