*International Civil Aviation Organization*

**Second Meeting of the Air Traffic Management Performance Measurement Task Force**

**(APM TF/2)**
***(Cairo, Egypt, 10 – 12 November 2014)***

**Agenda Item 3: Development of the Second MID Region Air Navigation Environmental Report**

# IDENTIFIED OPERATIONAL IMPROVEMENTS IN THE MID REGION

*(Presented by the Secretariat)*

**SUMMARY**

This paper presents the Identified Operational Improvements in the MID Region that would be considered for the development of the Second MID Region Air Navigation Environmental Report.

Action by the meeting is at paragraph 3.

**REFERENCES**

- First MID Region Air Navigation Environmental Report
- MIDANPIRG/14 Report
- States' inputs

## 1. INTRODUCTION

1.1 The meeting may wish to note that the First meeting of Air Traffic Management-Measurement Task Force (ATMM TF/1) was held at the ICAO Middle East Regional Office in Cairo, Egypt, 8-9 September 2013 (the name of the Task Force has been changed to ATM Performance Measurement/APM). The ATMM TF/1 meeting developed, based on the inputs received from Bahrain, Egypt, Jordan, Lebanon, Kuwait, Saudi Arabia and UAE, the First MID Region Air Navigation Environmental Report at **Appendix A** to this working paper. The Report was divided into three parts:

a) 2009-2011: just a listing of the operational improvements which have been implemented during this period and which had environmental benefits;

b) 2012-2013: period to be used for the generation of the First Regional IFSET Report; and

c) 2014 and beyond: listing of planned operational improvements which will have environmental benefits.

1.2 The First MID Region Air Navigation Environmental Report was endorsed by MIDANPIRG/14 meeting, Jeddah, Saudi Arabia, 15 - 19 December 2013.

## 2. DISCUSSION

2.1 MIDANPIRG/14 meeting recalled that Operational improvements are a key strategy that can be applied to deliver tangible reductions in aircraft fuel consumption. The Global Air Navigation Plan (Doc 9750) and the Operational Opportunities to Minimize Fuel Use and Reduce Emissions (Circular 303) are among several documents providing guidance regarding operational improvements being implemented to improve efficiency of the ATM System.

2.2 It is to be highlighted that implementation of operational improvements will generally have benefits in areas such as improved airport and airspace capacity, shorter cruise, climb and descend times through the use of more optimized routes and an increase of unimpeded taxi times. These improvements have the potential to reduce fuel burn and lower levels of pollutants.

2.3 The meeting may wish to note that MIDNPIRG/14 meeting emphasized that what is required is an **estimation** of the environmental benefits accrued from implemented operational improvements and not the determination of the exact amount of fuel saving or CO2 Emission, which would require more advanced model/tool to capture all the operational elements needed to calculate the environment benefits.

2.4 MIDNPIRG/14 meeting recognized the difficulties related to the collection/provision of required data for the generation of the IFSET reports such as the number of movements for the old and new scenarios, aircraft categories, Flight Levels and the reporting frequency/period. The meeting underlined that coordination between the different Departments/Units within the States is very important for the generation of more realistic estimation of Fuel Savings reports.

2.5 MIDANPIRG/14 meeting noted that the ATMM TF/1 questioned about the period to be used for the development of the IFSET reports (i.e: previous year, 2 years, 5 years, etc) as well as the format of the Regional Air Navigation Environmental Report and recognized that if the period was to be just 1 year, this might limit the number of implemented operational benefits.

2.6 MIDANPIRG/14 meeting agreed that the implementation of new instrument approach procedures at the following Aerodromes/RWYs are to be considered by States when planning for future operational improvements:

- Alexandria/Borg El-Arab Intl (HEBA), RWY 14;
- Shiraz/Shahid Dastghaib INTL (OISS), RWYs 11L and 11R;
- Al Najaf (ORNI), RWY 10;
- Tripoli INTL (HLLT), RWY 09; and
- Benghazi/Benina INTL (HLLB), RWYs 15R and 33L.

2.7 Based on the above, MIDANPIRG/14 meeting agreed to the following Conclusion which replaces and supersedes MIDANPIRG/13 Conclusions 13/33 and 13/35:

*CONCLUSION 14/29: ESTIMATING AND REPORTING ENVIRONMENTAL BENEFITS*

*That, in order to follow-up the implementation of the ATM operational improvements and estimate the accrued fuel savings and associated $CO_2$ emission reduction from the corresponding improvements on regional basis:*

*a) States be encouraged to develop/update their Action Plans for $CO_2$ emissions and submit them to ICAO through the APER website on the ICAO Portal or the ICAO MID Regional Office;*

*b) States be urged to:*

i) *identify the operational improvements which have been implemented within their FIR and/or international aerodromes;*

ii) *collect necessary data for the estimation of the environmental benefits accrued from the identified operational improvements;*

iii) *use IFSET to estimate the environmental benefits accrued from operational improvements; and*

iv) *send the IFSET reports/the accrued environmental benefits to ICAO on bi-annual basis; and*

*c) IATA to:*

i) *encourage users to support the APM TF in the development of the MID Region Air Navigation Environmental Reports; and*

ii) *consolidate users' inputs and report the accrued environmental benefits to the ICAO MID Regional Office on bi-annual basis*

2.8 The meeting may wish to note that the ICAO MID Regional Office followed-up the implementation of the above MIDANPIRG/14 Conclusion through direct contact with States and IATA, in addition to the issuance of the State Letter Ref: AN 6/15-14/247 dated 23 September 2014, urging States and Users to provide the ICAO MID Regional Office with their data related to the environmental benefits accrued from the implementation of operational improvements, before 20 October 2014**,** in order to be incorporated in the Second MID Air Navigation Environmental Report, which will be developed by the APM TF/2 meeting.

2.9 Accordingly, only Bahrain and Jordan provided the below list of their planned/implemented operational improvements. However, no inputs related to the environmental benefits accrued from the implementation of operational improvements (States' IFSET Reports) have been received by the ICAO MID Regional Office.

**Bahrain**:

- Single-Engine Taxi Operation: a new technique was adopted and made available for pilots to use which would considerably reduce the fuel consumption of an airline thus reducing the emission of CO2.
- As an attempt to expedite the flow of traffic, Bahrain has activated two approach radar sectors which would resolve conflict of traffic in peak time though minimizing delays.
- More efficient SID/STARS on RNAV1 basis is going to be implemented at BIA by the end of this year.
- Continuous Descent Operations (CDO) will be due for implementation by 2016
- Continuous Climb Operations (CCO) will duly be implemented by 2016 along with CDO.
- New Shortest routes or enhanced ATS Route Structure is introduced to the aviation community as Contingency Routes which would consolidate a smoother traffic flow to Europe through Tehran. Such structure was implemented on 16 October 2014.

- Additional Flight Levels on some routes (RAGAS Eastbound traffic: due to the traffic from UAE to Tehran, RAGAS to be used for Westbound as well above FL300 )
- Procedures to reduce unanticipated delays in flight or on ground (Automated Departure Clearance supported with digital text) and Ground Movement Radar.

**Jordan:**

- Deployment of a new ILS at OJAQ airport for runway 019 including the procedure design;
- Revision and updating the LoA between Eilat airport and Aqaba App sector, the new LoA provided a new coordination scheme which has improved the flow of traffic between Aqaba and Eilat airport;
- New Voice communication system (VCS) was installed at Amman Radar simulator, the new upgraded VCS allow the Radar simulator to be used as alternative and backup for the existing RADAR operation room in case of emergency or unusual circumstances

The following Operational Improvement are planned in 2015

- Trail Continuous Descent Operations (CDOs)
- Trail Continuous Climb Operations (CCOs

2.10 It is to be highlighted that the operational opportunities to reduce emissions represent a double win-win solution. First, based on the premise that the most effective way to minimize aviation emissions is to minimize the amount of fuel used in servicing and operating each flight, environmental benefits that are achieved through reduced fuel consumption also result in reduced fuel costs. Second, operational measures do not necessarily require the introduction of new equipment or the deployment of expensive technologies. Instead, they are based on different ways of operating aircraft that are already in service. In this regards, States and Users are urged to bear the utmost priority for environment benefits while planning for the enhancement of their ATM operations and report these benefits to ICAO MID Regional Office, for incorporation in the relevant Global and Regional Air Navigation Reports.

## 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) identify the operational improvements in the MID Region;

b) estimate the fuel savings accrued from the corresponding improvements using the IFSET tool; and

c) take the appropriate measures for the development of the Second MID Region Air Navigation Environmental Report.

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**APPENDIX A**

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

# THE MIDDLE EAST AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (MIDANPIRG)

# FIRST MID REGION AIR NAVIGATION ENVIRONMENTAL REPORT

***(December 2013)***

**Appendix A**

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## INTRODUCTION

### 1. BACKGROUND

1.1 The Operational improvements are a key strategy that can be applied to deliver tangible reductions in aircraft fuel consumption. The Global Air Navigation Plan (Doc 9750) and the Operational Opportunities to Minimize Fuel Use and Reduce Emissions (Circular 303) are among several documents providing guidance regarding operational improvements being implemented to improve efficiency of the ATM System.

1.2 Implementation of operational improvements will generally have benefits in areas such as improved airport and airspace capacity, shorter cruise, climb and descend times through the use of more optimized routes and an increase of unimpeded taxi times. These improvements have the potential to reduce fuel burn and lower levels of pollutants.

1.3 Environmental Protection represents one of the ICAO strategic objectives. It was highlighted in this respect that ICAO is introducing regional 'Performance Dashboard' homepages for every public website of the ICAO Regional Offices. These dashboards will illustrate the regional implementation status relating to the strategic objectives on Safety, Air Navigation Capacity and Efficiency, and Environmental Protection. The first Air Navigation Report is expected to be released in March 2014.

1.4 The 38th Session of the ICAO Assembly resolved through Resolution A38-18 (bullet 5) that States and relevant organizations will work through ICAO to achieve a global annual average fuel efficiency improvement of 2 per cent until 2020 and an aspirational global fuel efficiency improvement rate of 2 per cent per annum from 2021 to 2050, calculated on the basis of volume of fuel used per revenue tonnes kilometre performed.

### 2. ICAO FUEL SAVINGS ESTIMATION TOOL (IFSET)

2.1. The ICAO Fuel Savings Estimation Tool (IFSET) was developed to assist States to estimate and report fuel savings consistently with the models approved by ICAO's Committee on Aviation Environmental Protection (CAEP) and aligned with the Global Air Navigation Plan.

2.2. The IFSET, as well as instructions on its use, can be accessed at: http://www.icao.int/environmental-protection/Pages/Tools.aspx.

2.3. It is to be highlighted that what is required is an **estimation** of the environmental benefits accrued from **implemented** operational improvements and not the determination of the exact amount of fuel saving or $CO_2$ emission, which would require more advanced model/tool to capture all the operational elements needed to calculate the environment benefits.

2.4. MIDANPIRG mandated the reporting of the operational improvements in the MID Region through MIDANPIRG/13 Conclusion 13/35, as follows:

> *CONCLUSION 13/35: ESTIMATING ENVIRONMENT BENEFITS*
>
> *That, in order to allow the Air Traffic Management Measurement Task Force (ATMM TF) and the CNS/ATM/IC SG to follow-up the implementation of the ATM operational improvements and estimate the fuel savings accrued from the corresponding improvements on regional basis:*

a) *States be urged to:*

*i) use IFSET or a more advanced model/measurement capability available to estimate environment benefits accrued from operational improvements;*
*ii) send the IFSET reports/the accrued environmental benefits to ICAO MID Regional office on a bi-annual basis.*

b) *IATA to:*

*i) encourage users to support the programme; and*
*ii)* consolidate users' inputs *and report the accrued environmental benefits to ICAO MID Regional Office on a bi-annual basis.*

2.5. The first meeting of Air Traffic Management-Measurement Task force (ATMM TF/1) held at the ICAO Middle East Regional Office in Cairo, Egypt, 8-9 September 2013 agreed that the operational improvements be reported in three Parts as follows:

a) 2009-2011 just a listing of the operational improvements which have been implemented during this period and which had environmental benefits, as at **Part I, Table I-1**;
b) 2012-2013: period used for the generation of the first regional IFSET report as at **Part II, Table II-1** and **Table II-2**; and
c) 2014 and beyond listing of planned operational improvements which will have environmental benefits, as at **Part III, Table III-1**.

2.6. This Report has been prepared based on the inputs received from Bahrain, Egypt, Jordan, Lebanon, Kuwait, Saudi Arabia and UAE.

## PART I – LIST OF OPERATIONAL IMPROVEMENTS IMPLEMENTED DURING YEAR 2009-2011

### TABLE I-1: IMPLEMENTED OPERATIONAL IMPROVEMENTS 2009-2011

| State | Implemented Operational Improvements 2009-2011 | Remarks |
|---|---|---|
| Bahrain | 1- New Eastern Apron established for 9 code E aircraft or 19 code C. This apron Ramp services are all underground such as APU etc.<br>2- Reducing the final approach separation to 3NM, due to newly established rapid. TWY D.<br>3- Using EUROCAT system.<br>4- New ATS & NOTAM Management System Installed and operational.<br>5- eAIP is available on Web.<br>6- Full Airport aeronautical Survey was done up to annex 15 Ch 10 requirements.<br>7- ISO 9001:2008 certified.<br>8- New VISALA automatic weather observation system (Aerodrome station).<br>9- New weather radar system.<br>10- Climate database upgrade CLDB.<br>11- Terminal area forecast TAF verification.<br>12- New massages switch (Moving Weather).<br>13- Competency Assessment System for Aeronautical Meteorological Personnel (CAS).<br>14- Radar winds and temperature profiler system.<br>15- First weather radar link interface between Bahrain and UAE.<br>16- New VISALA automatic weather observation system Backup (Aerodrome station). | |
| Egypt | 1- Ban of air traffic over Sidi Krair and P18 & P19 is cancelled<br>2- Ban of air traffic over Ras El Hekma P20 is cancelled.<br>3- Ban of air traffic between FYM & CVO via R778 is partially suspended.<br>4- Restrictions regarding landing on 05L and departure on 23R are cancelled<br>5- Establishing route Q680 between DBA & SALUN<br>6- Traffic between Cairo and Arish via V602-ISM-V606 is permitted.<br>7- Establishing route L315 between CVO & HGD | |
| Iran | | |
| Iraq | 1- RVSM Implementation<br>2- implementation of ATS route UP975 to increase the trafflic flow capacity from Turkey to the Gulf through Baghdad FIR. | |
| Jordan | 1- METSA- MAZAR-ZELAF (UM690)<br>2- GRY-BUSRA-DAM (G662)<br>3- ZELAF DCT QAA (A412)<br>4- GRY DCT QAA (UN318) | |

| | | |
|---|---|---|
| Kuwait | SIDs and STARs implementation | |
| Lebanon | RNAV STARs implementation | |
| Libya | New ATS Routes Implemented | |
| Oman | | |
| Qatar | | |
| Saudi Arabia | | |
| Sudan | | |
| Syria | | |
| UAE | RNAV1/5 SID/STARs, PBN routes | |
| Yemen | | |

**Appendix A**

**PART II - OPERATIONAL IMPROVEMENTS IMPLEMENTED DURING YEAR 2012-2013**

**Table II-1: Identified Operational Improvements 2012-2013**

| State | Identified Operational Improvements 2012-2013 | Nr. of Movements Per Month | Total Fuel Saving Per Month |
|---|---|---|---|
| **Bahrain** | UM677 | 3418 | |
| | UP975 | 3802 | |
| | UL602 | 1047 | |
| | UL768 | 700 | |
| | UP699 | 399 | |
| | UN318 | 991 | |
| | UP559 | 993 | |
| **Egypt** | NABED-KATAB (T55) | 1800 | 396000 |
| | TBA-NWB-KITOT (UL550-N697) via Saudi Arabia | 1170 | 330000 |
| **Iran** | | | |
| **Iraq** | | | |
| **Jordan** | End of 2013: Implementation of RNAV SIDs, STARs and Approach Procedures at OJAI, OJAM and OJAQ. | N/A | N/A |
| **Kuwait** | No Operational Improvement implemented | | |
| **Lebanon** | No Operational Improvement implemented | | |
| **Libya** | | | |
| **Oman** | | | |

| | | | |
|---|---|---|---|
| **Qatar** | | | |
| **Saudi Arabia** | UM449 ( ) | | |
| | UM318 ( ) | | |
| | UM863 ( ) | | |
| | UL564 ( ) | | |
| | UM430 (SALWA-HAS) | | |
| | UL681 ( ) | | |
| | UP517 ( ) | | |
| | UL550 ( ) | | |
| | UB411 ( ) | | |
| | R652 ( ) | | |
| **Sudan** | | | |
| **Syria** | | | |

| | | | |
|---|---|---|---|
| **UAE** | L308 | 5343 | |
| | P559 | 3720 | |
| | M557 | 5865 | |
| | N571 | 4448 | |
| | P699 | 2340 | |
| | N318 | 2389 | |
| | L604 / N685 | 4041 | |
| | L305 | 1049 | |
| | Arrival Manager (AMAN) implemented<br>(1 min flight time saved/arrival to OMDB) | | |
| | RNP-AR STARs at Abu Dhabi and Al Bateen Airports | | |
| **Yemen** | | | |

## Table II-2: IFSET REPORT

| **BAHRAIN** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **UM677** | | | | | | | | | | | | |
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Twin Aisle Jet | 3418 | 399 | 3019 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 136 | Level | 29000 | 29000 | 289 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 60 | Level | 35000 | 35000 | 289 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **UM677** | 0 | 0 | 0 | 0 | 0 | 0 | 14331200 | 12592400 | **-1738800** | 0 | 0 | 0 |
| **UP975** | | | | | | | | | | | | |
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Twin Aisle Jet | 3802 | 554 | 3248 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 137 | Level | 29000 | 29000 | 159 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 61 | Level | 35000 | 35000 | 159 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **UP975** | 0 | 0 | 0 | 0 | 0 | 0 | 8770400 | 7741200 | **-1029200** | 0 | 0 | 0 |

**Appendix A**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **UL602** | | | | | | | | | | | | |
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Twin Aisle Jet | 1047 | 382 | 665 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 138 | Level | 29000 | 29000 | 278 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 62 | Level | 35000 | 35000 | 278 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **UL602** | 0 | 0 | 0 | 0 | 0 | 0 | 4222800 | 3854400 | **-368400** | 0 | 0 | 0 |
| **UL768** | | | | | | | | | | | | |
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Twin Aisle Jet | 700 | 230 | 470 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 139 | Level | 29000 | 29000 | 312 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 63 | Level | 35000 | 35000 | 312 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **UL768** | 0 | 0 | 0 | 0 | 0 | 0 | 3168600 | 2876300 | **-292300** | 0 | 0 | 0 |
| **UP699** | | | | | | | | | | | | |
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Twin Aisle Jet | 399 | 99 | 300 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 140 | Level | 29000 | 29000 | 178 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 64 | Level | 35000 | 35000 | 178 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **UP699** | 0 | 0 | 0 | 0 | 0 | 0 | 1030400 | 924000 | **-106400** | 0 | 0 | 0 |
| **UN318** | | | | | | | | | | | | |
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Twin Aisle Jet | 991 | 36 | 955 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 141 | Level | 29000 | 29000 | 403 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 65 | Level | 35000 | 35000 | 403 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **UN318** | 0 | 0 | 0 | 0 | 0 | 0 | 5794200 | 5027200 | **-767000** | 0 | 0 | 0 |
| **UP559** | | | | | | | | | | | | |
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Twin Aisle Jet | 993 | 11 | 983 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 142 | Level | 29000 | 29000 | 426 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 66 | Level | 35000 | 35000 | 426 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **UP559** | 0 | 0 | 0 | 0 | 0 | 0 | 6137200 | 5308900 | **-828300** | 0 | 0 | 0 |
| **EGYPT** | | | | | | | | | | | | |

**Appendix A**

| NADEB-KATAB (T55) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Single Aisle Jet | 1800 | 150 | 1650 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 143 | Level | 24000 | 24000 | 245 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 67 | Level | 28000 | 28000 | 212 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **NADEB-KATAB (T55)** | 0 | 0 | 0 | 0 | 0 | 0 | 3187200 | 2490000 | **-697200** | 0 | 0 | 0 |
| **TBA-NWB-KITOT (IL550-N697)** | | | | | | | | | | | | |
| Aircraft | Baseline _Ops | MidProc _ops | NewProc _ops | ASL | | | | | | | | |
| Twin Aisle Jet | 1170 | 30 | 1140 | 3050 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 144 | Level | 33000 | 33000 | 62 | | | | | | | | |
| ID | Action | Frm_Alt | To_Alt | ASL | Time | | | | | | | |
| 68 | Level | 33000 | 33000 | 41 | | | | | | | | |
| Scenario | Old Climb Fuel in Kg | New Climb Fuel in Kg | Climb Savings in Kg | Old Descend Fuel in Kg | New Descend Fuel in Kg | Descend Savings in Kg | Old Level Fuel in Kg | New Level Fuel in Kg | Level Savings in Kg | Old Taxi Fuel in Kg | New Taxi Fuel in Kg | Taxi Savings in Kg |
| **TBA-NWB-KITOT (IL550-N697)** | 0 | 0 | 0 | 0 | 0 | 0 | 949800 | 636400 | **-313400** | 0 | 0 | 0 |

## PART III – STATES' PLANNED OPERATIONAL IMPROVEMENTS FOR YEAR 2014 AND BEYOND

### TABLE III-1: PLANNED OPERATIONAL IMPROVEMENTS FOR YEAR 2014 AND BEYOND

| State | Planned Operational Improvements for year 2014 and beyond | Planned Year | Remarks |
|---|---|---|---|
| **Bahrain** | 1- RNAV1 SIDs and STARs.<br>2- Introducing new RNAV1 AWYs with Kuwait FIR.<br>3- Installation of Ground radar which will be used during CAT 2 operations and during LVP.<br>4- We are planning for ASMGCS for the TWR to be used at the airport.<br>5- DCL system in test.<br>6- Upgrading ILS CAT 1 to CAT 2. This is under study.<br>7- Special producer for A380 handling at Bahrain airport.<br>8- IAPs will be reviewed and republish to reflect the new Airport Survey results.<br>9- We are planning to open Clearance Delivery Position (CDP) at the TWR to release TWR GMC workload and frequency congestions.<br>10- Also, planning to have ADM 270 degree simulator to train them on all emergencies and different abnormal situations to enhance the efficiency of our TWR operations.<br>11- New automatic weather observation system three stationary and one portable station for Bahrain.<br>12- Second weather radar link interface between Bahrain, UAE and Kuwait.<br>13- Third weather radar link interface between Bahrain, UAE, Kuwait and Riyadh.<br>14- Fourth weather radar link interface between Bahrain, UAE, Kuwait, Riyadh and Oman.<br>15- Link common meteorological system with other GCC in order to enhance the cooperation (Integrated GCC automatic weather observation system). | 2014 | |
| **Egypt** | PBN Implementation at HECA | 2016 | |
| **Iran** | | | |
| **Iraq** | SIDs, STARs and RNAV Approach at ORBI | 2014 | |
| **Jordan** | 1- Airway between METSA and MDB<br>2- Airway between PASIP and METSA<br>3- Airway between PASIP and METSA<br>4- Expansion of GNSS | 2014 | |
| **Kuwait** | | | |

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| **Lebanon** | 1- Planning for shorter RNAV SIDs and STARs<br>2- Direct routing between boundary points for over flight traffic. | | |
| **Libya** | SIDs, STARs at HLLT | 2014 | |
| **Oman** | | | |
| **Qatar** | | | |
| **Saudi Arabia** | | | |
| **Sudan** | | | |
| **Syria** | | | |
| **UAE** | 1. Advanced AMAN/DMAN<br>2. PRISMA system updates additional ATS Routes Civil/Military cooperation<br>3. Seamless ANS provision throughout the UAE<br>4. PBN route structure throughout the UAE<br>5. Flight procedures optimised for CCO/CDO<br>6. Airport infrastructure that maximises throughput and minimises congestion<br>7. Interoperable ATM systems in the UAE<br>8. Cost effective service provision.<br>9. ANSP facilities accommodate the needed number of operational positions, support equipment, and personnel.<br>10. ATM systems have sufficient capacity and functional capability to meet operational needs.<br>11. Sufficient capacity without routine delays.<br>12. Stakeholders are afforded a collaborative active role.<br>13. Aviation policy development.<br>14. Strategic planning. Tactical decision making.<br>15. Routine and frequent communications among stakeholders, ANSP, and governmental organisations.<br>16. Best Capable – Best Served during peak periods.<br>17. Ground-Based Augmentation System (GBAS) for major airports | 2014/2030 | |
| **Yemen** | | | |

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