



ICAO

International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

FPL/AD/MON — WP/18
23/02/15

FPL Ad hoc Group Missing/duplicated/erroneous Filed flight plan /Flight plan (FPL) evaluation meeting (FPL/AD/MON)

Mexico City, Mexico, 24-26 February 2015

Agenda Item 5 Review of airlines' FPL processing capabilities

AIRLINES FPL PROCESSING CAPABILITIES

(Presented by IATA)

EXECUTIVE SUMMARY	
This working paper present an introduction on the airlines capabilities to process the ATS messages FPL, CHG, CNL, and DLA.	
Action:	The recommended action could be found on part 6.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety
<i>References:</i>	<ul style="list-style-type: none">• Doc 4444

1. Introduction

1.1 The current software capabilities and access to the AFTN, has lead several airlines to implement automatic flight planning systems that are interfaced with the weight and balance information, weather, AIS, OpSpec, etc. in order to create a seamless environment during the planning phase and when creating/transmitting the FPL as well as the relates ATS messages.

- 1.2. This automated environment helped the users to:
- Reduce the human error when creating and transmitting the FPL.
 - Reduce human errors when gathering information from different sources.
 - Increase the efficiency on the information transmission.
 - Centralize all the FPL messages transmission.
 - Etc.

1.3. Nowadays, many commercial software are available on the market that allows the users, to use and transmit and receive the best available information. The following pictures are providing a quick look into the capabilities that the airlines are having to ensure a seamless environment and the basic procedures that are followed to transmit the FPL and relates ATS messages.

2. Plan the flight

2.1 According to the flight the dispatcher will compare and estimate the most efficient route, the shortest flying time, air navigation services cost, payload, Wx, operations restrictions (NOTAMs, AIC, etc.), MEL, OpSpec, etc.

Example 1

The screenshot displays the 'qlhtaap - Metaframe Presentation Server Client' interface. The main window is titled 'Analysis' and contains a menu bar (File, Edit, Frame, Graphic, Map, Weather, Help) and a toolbar. The flight details are as follows:

- Flight Info:** AL Flight-No. OS Date DEP STD STA DEST: TA 210 I 05MAR11 MGGT 051610 051815 MMYX
- Operational Case:** Standard ST, Set to Def. 01, 051610 051815 23L, Graphic OFF, Zoom Mem, Map, ALTN I
- Initial Time:** 042001, Scenario No. 1, Prognosis actual, Non ETOPS, Route Display: ATS

The central table displays performance metrics for four routes (UAHEX41, UAHEX43, UAHEX45, UAHEX46):

ROUTE	UAHEX41	UAHEX43	UAHEX45	UAHEX46
OFF NO	1	3	5	6
REG	N479TA	N479TA	N479TA	N479TA
FLT TIME	01:45	01:48	01:44	01:46
ETA	18:11	18:14	18:10	18:12
CRUISE	CI40	CI40	CI40	CI40
SAVINGS				
COSTS	6125	6309	6090	6204
BURN OFF	4000	4132	3974	4054
ALTN	MHAA	MHAA	MHAA	MHAA
ALTNFUEL	1479	1479	1479	1479
RESERVE				
CONT	400	413	397	405
ADD FUEL				
T/O FUEL	6928	7073	6899	6987
EXTRA				
TTL FUEL	7088	7233	7059	7147
LOAD	6727	6727	6727	6727
MALTOW	75500	75500	75500	75500
PLNTOW	55481	55626	55452	55540
MALLW	62500	62500	62500	62500
PLNLW	51481	51494	51478	51486
MAXZFW	58500	58500	58500	58500
PLNZFW	48553	48553	48553	48553
ESTZFW	48553	48553	48553	48553
DIST	694	723	691	709
AVG WC	H022	H020	H020	H019
MAX FL				

The interface also includes several control panels on the left: 'Climb' (Procedure MN IAS, Speed 0.780 280), 'Cruise' (Procedure Cost Index, ECON 40, Fixed MN Airspace/Airway, VSOPS, Optimum MN ON), and 'Descent' (Procedure MN IAS, Speed 0.780 280). A 'Dispatcher Fuel' section is at the bottom left with options like 'Restriction view', 'Route Survey ...', 'Route Options ...', 'ALTN Survey ...', 'Inflight ...', 'DD/DP ...', 'Tankering ...', 'ETOPS ...', 'Reclearance ...', 'Restriction ...', 'Analysis', 'Opt Param ...', and 'In background'.

On the right side, there is a vertical toolbar with buttons: 'Remove OFF', 'OFF ...', 'More Info ...', 'Recheck', 'SELECT', 'FLT LIST', 'PLAN PARAM', 'RTE DEF', 'OFF TRANS', 'WXNOTAM', 'A/C DEV', 'COSTS', 'REMARK', 'CLEAR', 'REFRESH', 'PRINT', 'HELP', and 'CLOSE'.

Example 2

Flight Planner
File Flight Route Aircraft View Tools Help

0901 ATL-SJO

File/Dt: 0901/19 Ship: 699 Orig: KATL Dptr: 2254 ETD: 2254 Dest: MROC Anvl: 0252 ETA: 0231 Anvl Var: 3:21 DP: 14

Block: 37200 95 - N/A Hold Tm: 15 TGAF: 10962

Prim: MNMG Sec: CAT 1 Tkof: CAT 2 Pax: 184 Cargo: 541 SCF Remark: NONE

Performance: VCI ECON ICAO

Lock	Status	Map	ID	Cost	Burn	Bm Diff	Trip Tm	ETA	Anvl Df	Init FL	Comments	Status	Scenario
			CAN 7	0	25672		03:17	02:31	-0:21	370	14 - SPECIAL		Initial
			GEN 0	15	25672	0	03:15	02:29	-0:23	370			Current
			GEN NRP.1	15	25672	0	03:15	02:29	-0:23	370			
			CAN 3	86	26672	1000	03:26	02:40	-0:12	370	19 - PREF DAL		
			CAN 9	91	25872	200	03:20	02:34	-0:18	370	2 - SPECIAL		
			CAN 4	135	25971	299	03:19	02:33	-0:19	370	1 - PREF ATC		

Fuel

	Req Time	Req Fuel	Plan Time/Fuel
Taxi Out	16		16/453
95 - N/A			
99 - N/A	15		15/1509
Contingency			
Tanker Fuel			0
Block Fuel			37200
TGAF			10962

Weights

	Structural	Limits	Dispatcher	Planned
Zero Fuel	185400			176517
Ramp	241000			213717
Takeoff	240000			213264
Driftdown				
Landing	198000			187592

Payload

	Estimated	Requested	Planned	Source
Total Pax Count	184	184	184	Estimator
Child Count	3	3	3	Estimator
Bag Count	166	166	166	Estimator
Cargo Wt	541	541	541	Estimator
Total Payload	41077	41077	41077	

Alternates

Dest Altn 1: MNMG Max FL: Takeoff Altn: ...

Dest Altn 2: ...

Planned Dest Altn 1: MNMG Flt Lvl: 320 Time: 39 Fuel: 4908

Planned Dest Altn 2: ...

Performance Data

```

FLT0901/19 ATL-SJO SH-0699-D LIMIT PLND WT MARGIN
MTOW BASED ON **MSLW* 223671 213264 10407 MTOW
MTOW BASED ON **MSTOW* 240000 213264 26736 MTOW
MAX ZERO FUEL WT. 185400 176517 8883 ZFW
TROF ATL DCM 24F

LNDG SJO HAA 74F RWY 7 *WET*
FLAP LNDG LMT BURNOFF ENRTE ICE APP ICE MTOW/LNDG
*MSLW* 30 198000 25671 NONE NONE 223671
    
```

2.2 Destination alternate aerodrome

2.2.1 Please note that on these automated systems, if the alternate aerodrome is required by the ANSP, then the fuel is automatically calculated and it affects directly into the weight and balance estimation. If a “ZZZZ” is required on this field to avoid the ATM system filter, that have this field as mandatory, then the dispatcher must introduce a manual change increasing the chances of human error that could affect the flight.

Alternates

Dest Altn 1: MNMG Max FL: Takeoff Altn: ...

Dest Altn 2: ...

Planned Dest Altn 1: MNMG Flt Lvl: 320 Time: 39 Fuel: 4908

Planned Dest Altn 2: ...

<input type="checkbox"/> BURN OFF	4000	4132	3974	4054
<input type="checkbox"/> ALTN				
<input type="checkbox"/> ALTNFUEL	1479	1479	1479	1479
<input type="checkbox"/> RESERVE				
<input type="checkbox"/> CONT	400	413	397	405
<input type="checkbox"/> ADD FUEL				
<input type="checkbox"/> T/O FUEL	6928	7073	6899	6987
<input type="checkbox"/> EXTRA				
<input type="checkbox"/> TTL FUEL	7088	7233	7059	7147

Example 2

ICAO Send
✕

Warnings

Enter Address

KZTLZQZX
 ATLLCDL
 ATLLIDL
 MUFHZQZX
 MUFHZRZQ
 MKJKZQZX
 MHTGZQZX
 MHCC7QZX

▲
☰
▼

Add to Dom Filing Adrs
Add to Other Addresses

<- Remove Address

Add to Dom Filing Adrs
Add To Other Addresses

Domestic Filing Addresses:

KZTLZQZX

▲
▼

Other Addresses:

ATLLCDL
 ATLLIDL
 MUFHZQZX
 MUFHZRZQ
 MKJKZQZX
 MHTGZQZX

▲
☰
▼

Original ICAO Strip

```

(FPL-DAL901-IS
-B752/M-SDE2E3FGHIRWZ/S
-KATL2254
-NO450F370 BRAVS8 WALET DCT OTK J89 HITTR J75 KRNEL/NO457F360
J75 RSW/NO459F370 DCT MTH G448 VRGAS/NO469F340 G448 TADPO
UG448 UVA/NO471F330 UG448 GCM UB767 RADON DCT
-MROC0317 MNMG
-PBN/A1B1C1D1O1S1T1 NAV/RNVD1E2A1 REG/N699DL
EET/KZJX0019 KZMA0047 MUFH0118 MKJK0148 MHTG0210

```

▲
☰
▼

Edit ICAO Strip Reset ICAO Strip

```

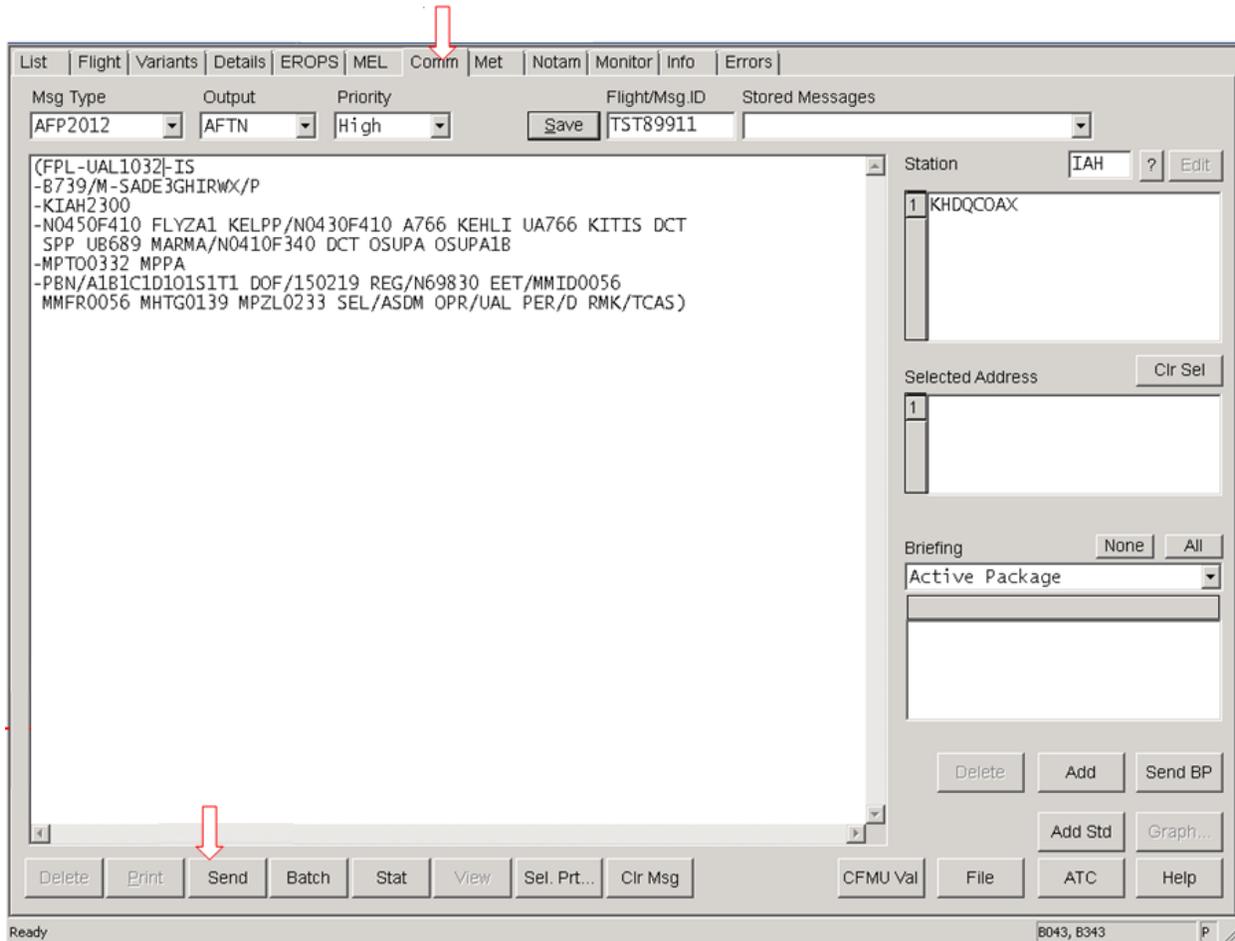
(FPL-DAL901-IS
-B752/M-SDE2E3FGHIRWZ/S
-KATL2254
-NO450F370 BRAVS8 WALET DCT OTK J89 HITTR J75 KRNEL/NO457F360
J75 RSW/NO459F370 DCT MTH G448 VRGAS/NO469F340 G448 TADPO
UG448 UVA/NO471F330 UG448 GCM UB767 RADON DCT
-MROC0317 MNMG
-PBN/A1B1C1D1O1S1T1 NAV/RNVD1E2A1 REG/N699DL
EET/KZJX0019 KZMA0047 MUFH0118 MKJK0148 MHTG0210

```

▲
☰
▼

Send
Cancel

Example 3



3.2 Missing FPLs and AFTN addressing errors

3.2.1 Please note that because the AFTN addresses are also pulled from a database, the chances to fix the case of FPL constantly missing on certain ATS unit, could be easily solved. Once this case is notified to the involved airline, they will update their database in order to correct this deficiency. Afterwards no matter which of the dispatcher is using the system, this error should not happen again.

3.2.2 If required the dispatchers are able to add manually AFTN addresses, nevertheless one of the automation benefits could be affected by unintentional human error. The goal should be filing the FPLs the same way using pre-formatted information every day, automatically and error free per the actual route filed.



3.3 *Item 19*

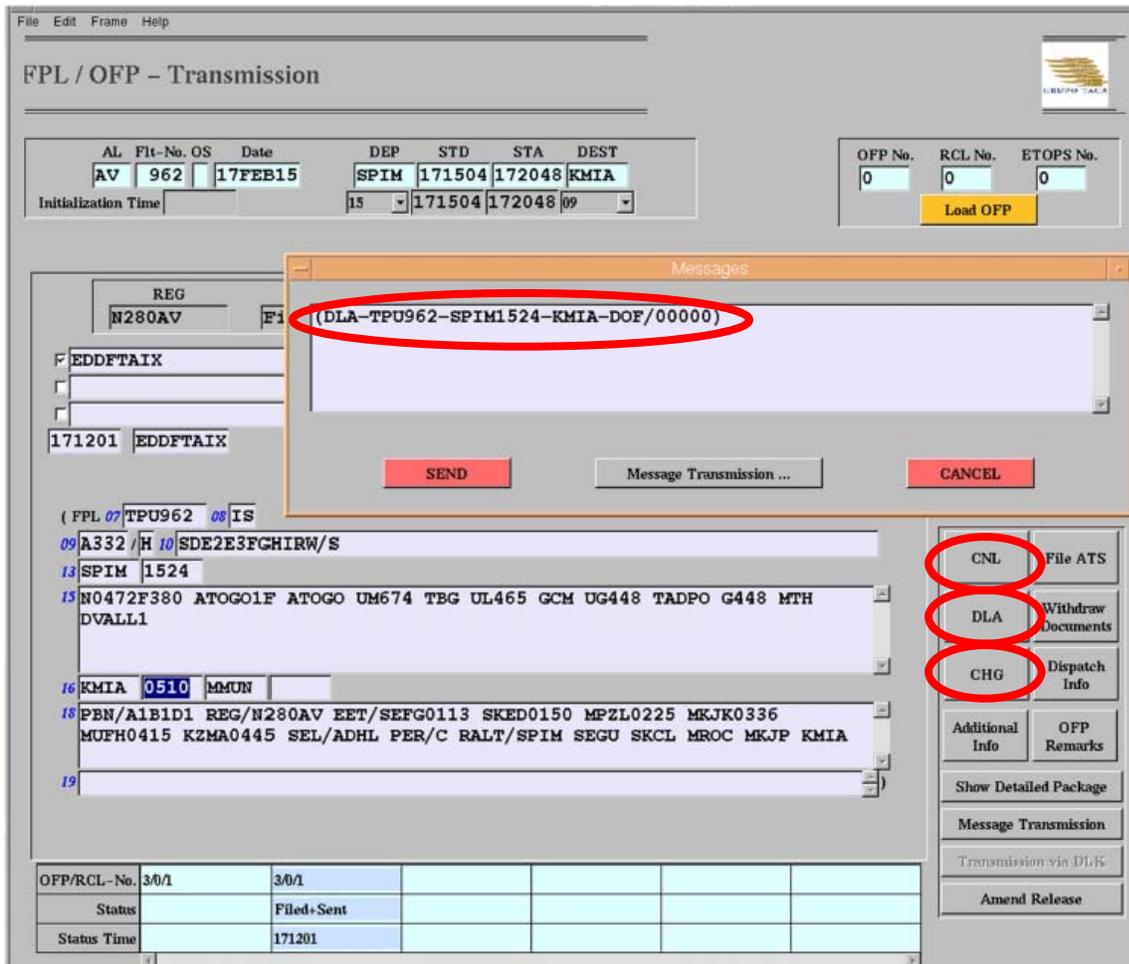
3.3.1 Please note that the ITEM 19 is not considered and/or configured under the ICAO format for FPLs, because all the vendors and FPL software providers are compliant with the Doc.4444.

3.3.2 If a SPL is required by a specific ANPS (according to the Annex 11, 5.2.2.1), then a different process is used by the airlines that are transmitting their FPLs via the AFTN in order to comply with the request.

4. **CHG, DLA, CNL messages**

4.1 If the dispatcher required to send an update using their automated system, they select the same flight and the pre-formatted message (ICAO compliant) will show up.

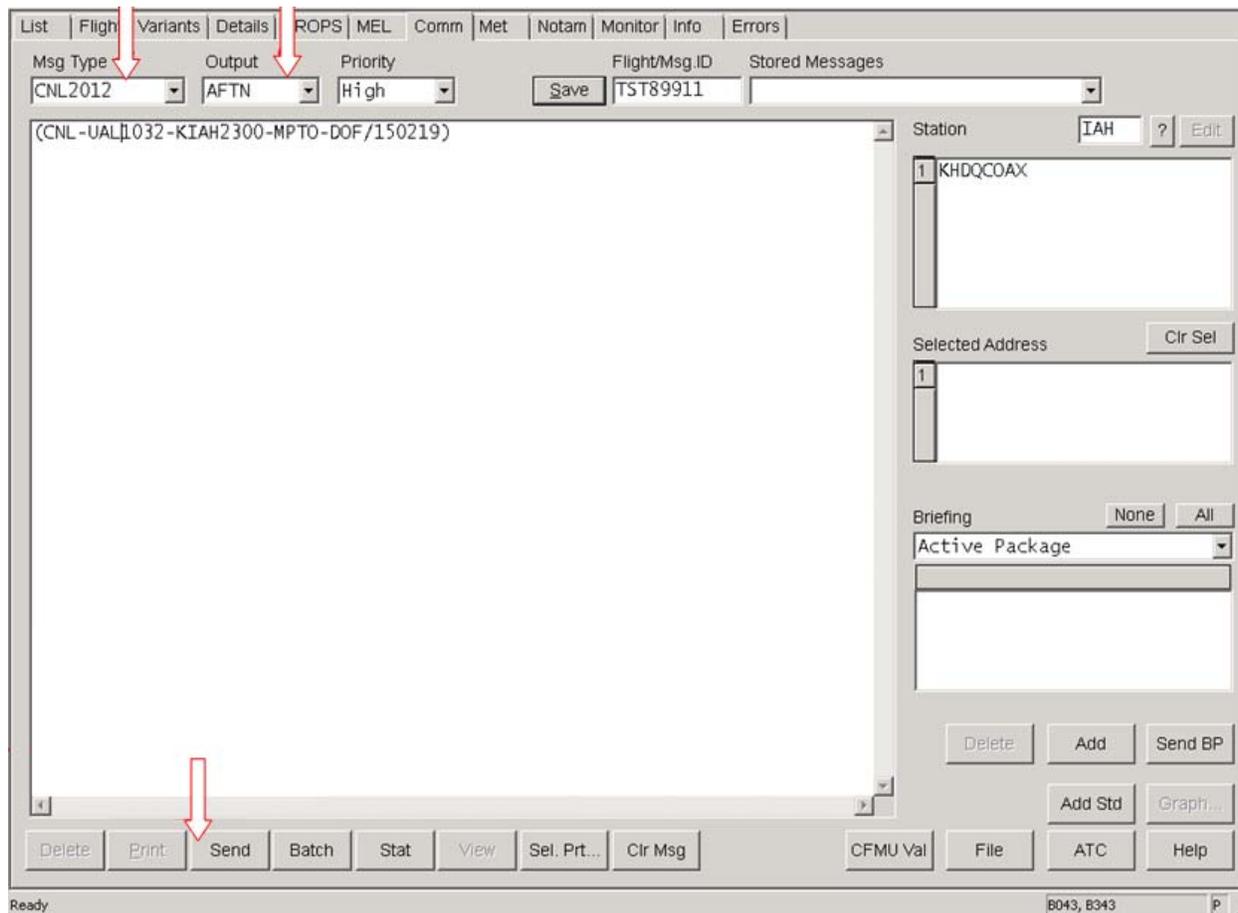
Example 1



Example 2

The screenshot displays a flight operations software interface with three main sections:

- Duty Roster:** A table listing flight assignments with columns for IND, Flight, Ship, Day, Dpr, D..., Latt, Crew Block, Crew Duty, Status, SCE, Block, Hold, TGAF, Pr..., Se..., Plan Payload, and Payload. Rows include flights like 703, 575, 900, 370, 353, 849, 392, 902, 872, 962, 904, 1392, and 1396.
- Flight Details:** A detailed view of flight 903 (Ship 3606, SAL, ATL, 19, 1728A, 1958S). It shows a table with columns for IND, PP, Flight, Ship, Orig, Dest, Day, FPE, Dpt..., Arr Ti..., Arr Var, SCE, Crew Block, Crew Duty, Disp ID, Block, Hold, TGAF, Pri..., Sec..., WDR, and Status. A context menu is open over this flight, with options like 'Cancel', 'Delay', and 'Refile' circled in red.
- Events Log:** A list of events for flight 903, including 'Flight Release Event', 'Amended Takeoff Alternate Airport', 'Estimated Payload Event', and 'Ship Change Event'. The log shows various operational actions and status changes.

Example 3**5. Conclusions**

- 5.1. No automated system is perfect because it requires the human update or input.
- 5.2. Not all the FPLs software perform the same way. Some of them requires more steps to get to the final message and the HMIs are different, but the results are the same by reducing the manual inputs, therefore the unintentional human error.
- 5.3. Few trials are the best way to confirm and gain trust that a new procedure using the available technology today could help maintaining the quality of the information running on the ATS system.

6. Suggested Action:

The meeting is invited to review the information provided that shows how the airline's automated systems and processes to handle the FPL, could help improve the quality of the information delivered to the ANSPs in the region.