



**THE FORTY-FIFTH MEETING OF THE
INFORMAL PACIFIC ATC CO-ORDINATING GROUP
(IPACG/45)**

(Tokyo, 11 & 12 December 2019)

Agenda Item : CNS Issues

**Use of appropriate CPDLC message element
(Presented by JCAB ATMC)**

SUMMARY

There are many cases where clearance requests were composed by free text message element or inappropriate message element. This paper provides actual examples of them and attention to use of appropriate CPDLC message element.

1. Introduction

1.1. The provisions and guidance about use of standard message element are found in ICAO Doc 4444, *Procedures for Air Navigation Services Air Traffic Management* (PANS-ATM) and Doc 10037, *Global Operational Data Link Manual* (GOLD Manual).

PANS-ATM, paragraph 14.3.1.2

When CPDLC is being used, and the intent of the message is included in the CPDLC message set contained in Appendix 5, the associated standard message elements shall be used.

GOLD Manual, paragraph 4.4.1.3

The flight crew should use standard downlink message elements to compose and send clearance requests, CPDLC position reports and other requested reports. Additional qualifying standard message elements, such as SUPD-1 DUE TO (*specified reason downlink*) or DUE TO WEATHER, should also be used as needed.

Note.— The use of standard message elements is intended to minimize the risk of input errors, misunderstandings, and confusion, and facilitate use by a non-native English speaking flight crew. The use of standard message elements allows the aircraft and ground systems to automatically process the information in the messages that are exchanged. For example, the flight crew can automatically load clearance information into the FMS and review the clearance, the ground system can automatically update flight plan data for route conformance monitoring, and both aircraft and ground systems can associate responses to messages.

GOLD Manual, paragraph 4.4.2.2

The flight crew should only use a free text message element when an appropriate standard message element does not exist.

1.2. Despite the provisions and guidance above, there are many cases where CPDLC clearance

requests composed in free text or inappropriate message element.

2. Discussion

2.1. CPDLC clearance requests composed in free text

2.1.1. When Trajectorized Oceanic ATC data Processing System (TOPS) received CPDLC clearance request composed by specific message element, it performs conflict probe and creates associated response depending on the downlink message element. However, if the clearance request is composed in free text, the function does not work.

2.1.2. The response attribute of free text downlink message is “N” (No response required). Therefore, Air Traffic Service Unit (ATSU) cannot send a clearance or “UNABLE” as a response for the clearance request composed by free text.

2.1.3. Followings are actual examples of clearance requests composed in free text.

a) Vertical requests

- REQUEST BLOCK FL430 TO FL450
- REQUEST BL FL360-400
- DUE TO TURBULENCE REQ FL 360
- DUE TO TURBULENCE REQ 320
- REQ NON STANDARD FL390
- REQUEST FL350
- REQ BLOCK ALT 340-360
- BACK ON ROUTE REQUEST FL380
- CURRENTLY HAVE MODERATE TURBULENCE AT 360 REQUEST DESCENT TO 340

The above messages should be composed by following message elements,

- LVLD-1 (DM6) REQUEST (altitude) / (DM7) REQUEST BLOCK (altitude) TO (altitude)
- LVLD-2 (DM9) REQUEST CLIMB TO (level)
- LVLD-3 (DM10) REQUEST DESCENT TO (level)

b) Deviation requests

- REQ DEVS LEFT AND RIGHT 50 NM
- REQ 60NM L/R WX
- REQ DEVS LEFT AND RIGHT 50NM
- AFTER AVLAS REQ UP TO R15
- REQUEST DEVIATION LEFT OF TRACK UPTO 50NM DUE WEATHER
- REQUEST UP TO 10NM RIGHT OF COURSE FOR WEATHER
- REQ UP TO 40 MILES L AND R OF ROUTE FOR WX
- REQ DEV R-SIDE 20NM

The above messages should be composed by following message element,

- LATD-2 (DM27) REQUEST WEATHER DEVIATION UP TO (specified distance) (direction) OF ROUTE

c) Speed requests

- REQ TO REDUCE M0.78
- REQUEST MACH.83 FOR CROSSING TONIGHT PLEASE

The above messages should be composed by following message element,

- SPDD-1 (DM18) REQUEST (speed)

d) Route requests

- REQ DIRECT DAGDA
- REQUEST BEGAD DUE TO WEATHER
- REQ DIR BIXAK
- CLEAR OF WEATHER REQ DIRECT N27E143

The above messages should be composed by following message element,

- RTED-1 (DM22) REQUEST DIRECT TO (position)

2.1.4. When an appropriate standard message element exists, the standard message element should be used for clearance request.

2.2. Weather deviation vs Offset

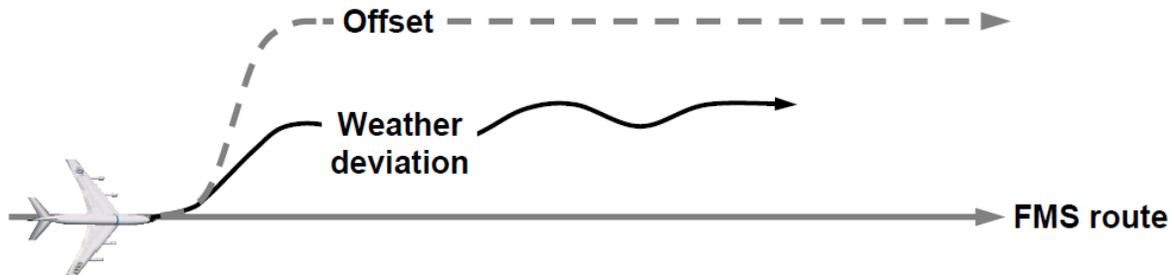
2.2.1. The table below shows the number of deviation and offset request messages that ATMC received.

	Deviation “L” or “R”	Deviation “Both Side”	Offset “L” or “R”	Offset “Either Side”
Mar-19	772	136	80	9
Apr-19	1235	212	117	8
May-19	2354	474	204	27
Jun-19	3855	691	255	33
Jul-19	3985	836	283	42
Aug-19	4114	860	282	37
Sep-19	4202	735	237	31
Oct-19	3177	575	184	30

2.2.2. We picked up some cases where CPDLC downlink messages “REQUEST OFFSET xx NM EITHER SIDE OF ROUTE” were received. From the interview with the flight crews, we found that their original intention was “REQUEST WEATHER DEVIATION UP TO xx NM BOTH SIDE OF ROUTE”. From the above fact, in most cases requesting “OFFSET”, it is considered that their original intention was “REQUEST WEATHER DEVIATION”.

2.2.3. An offset instruction is definitely different from a deviation clearance. When an offset instruction was issued, flight crew should maintain at the specified distance in the specified direction from the route in flight plan and cannot back to the original route without instruction. When a deviation clearance is issued, the protected airspace is “expanded” in the specified direction and distance. In

contrast, when an offset instruction is issued, the protected airspace is “moved” with the offset track. If flight crew is mixing the definition of “Deviation” and “Offset”, there is a risk of an inadvertent lack of separation.



2.2.4. When flight crews request the weather deviation, LATD-2 (DM27) “REQUEST WEATHER DEVIATION UP TO (specified distance) (direction)” should be used.

3. Conclusion

3.1 The meeting is invited to note the information provided.