

**Draft Report of the
Third Meeting of the Data Link Facilitation Task Force (DLFTF)
London, 13 September 1999**

1. Introduction

The third meeting of the DLFTF was held on 13 September 1999, at the IATA premises in London. The List of Participants is given in Appendix 1.

Apologies have been received from Airbus and SAS. At the same time SAS advised that company data link related information is available on the web at <http://www.sasflightops.com>.

The Meeting was chaired by Mr. Ben Berends of KLM, the Secretary was Steve Zerkowitz of IATA.

The Draft Agenda of the Meeting was as follows:

1. Welcome and opening remarks
2. Approval of the Agenda
3. Review of the DLFTF/2 Report
4. Review of Action Items
5. Role of the DLFTF 6.
6. DLFTF Role in influencing Link 2000+
- 6.1 DLFTF Contribution to the Link2000+ Scope Document - Aircraft data link
equipage commitments
7. Report from the SEA Data Link Business Case Meeting
- 7.1 DLFTF Contribution to the LINK2000+ Business Case
 - Cost of non-availability of ACARS for ACARS equipped airlines
 - Benefits of ACARS for airlines newly equipping with ACARS
8. Status of the FAA data link implementation
9. Petal II/IIe Status
10. SITA/ARINC status report on AOA and ATN activities
11. Role of RTCA/EUROCAE SC189/WG53 SG-4
12. Any other business
 - Wireless Gatelink
 - EC paper on institutional arrangements
 - Level of airline involvement

2. Proceedings of the Meeting

AI1-Welcome and opening remarks

The Chairman welcomed the DLFTF members present and also guests from ARINC. For the benefit of those attending a DLFTF meeting for the first time, the role and purpose of the DLFTF was explained, with special attention to its relationship with IATA's CIWG, EUROCONTROL and the Link2000+ program. The complementary nature of the DLFTF in respect of those other groups/organizations/programs was emphasized.

AI2-Approval of the agenda

The Agenda as shown above was accepted by the meeting. Compared to the original Draft Agenda, the Wireless gatelink and EC ATN institutional arrangements were added.

AI3-Review of DLFTF/2 Report

The report of DLFTF/2 was approved with the only change being to the first paragraph of the United Airlines item under Airlines' AOC plans, which now reads:

“Fleetwide ACARS, SATCOM in oceanic 747, 767 and 777. **52 new** Airbus aircraft from November 1999 will be delivered with ATSU. The CPDLC display device (Data Link Control and Display Unit – DCDU) upgrade starting in June 2000. If airbus could have offered full ATN, UAL would have gone for that option. As it is, they will have to progress via the AOA path *for that specific new aircraft order.*”

AI4-Review of Action Items

DLFTF 1/1. That airlines give serious consideration to joining the PETAL II Extension trials. *This invitation refers to airlines considering ATN based services. No new applicants have been reported. Action Item remains open.*

DLFTF 1/2. That ALITALIA and American Airlines actively examine the possibilities for common implementation of VDL M2/ATN equipment for CPDLC and AOC purposes on their MD80 series aircraft. *ALITALIA is progressing their data link program inside the company. Initial trials will be based on ACARS only. A letter from the DLFTF Chairman urging a reorientation to the ATN is considered useful (Action Item DLFTF3/1 refers). Action Item remains open.*

DLFTF 1/4. That the DLFTF undertake to assist EUROCONTROL with the development of the European Data Link Business Case, to be based on the C/AFT methodology, with appropriate input from airlines. *DLFTF Members, as well as other airlines, have already provided data to be used as input to the Business Case. The activity is ongoing. Action Item remains open.*

DLFTF 1/5. That the DLFTF promote the continued close co-ordination between the FAA and EUROCONTROL with a view to ensuring the coherent development of seamlessly interoperable data link systems and services. *This is an ongoing activity. Action Item remains open.*

DLFTF2/1. That the DLFTF undertake to urge airlines to commit to data link equipage in support of the Link2000+ program, on the basis of demonstrated and quantifiable benefits shown to be achievable with data link as the enabler. *This is an ongoing activity. Action Item remains open.*

DLFTF2/2. That airlines in the United States continue to give the need for global interoperability a high profile and insist that Baseline 2 be developed by a common US/European group. *SG-4 is considered as fulfilling this requirement. Action Item is closed.*

DLFTF2/3. That Paul Henning of United Airlines obtain the CIWG matrix and distribute it to DLFTF members. *Done. Action Item is closed.*

DLFTF2/4. That the FAA, NAV CANADA and EUROCONTROL be urged to collect ATS providers' data link related plans as a matter of priority; and that IATA and airlines assist in obtaining such plans. *No material has yet been received. Action Item remains open.*

DLFTF2/5. That C/AFT-Euro be encouraged to forward to the DLFTF their AOC related questions, in all cases phrased in a form to which concrete answers can be given. *Communication has been established. Action Item is closed.*

DLFTF2/6. That the ATN be implemented in such a way that it leaves all stakeholders free to conduct their business, without any one authority allowed to implement restrictions that would restrict the above freedom. *Secretary's note: At DLFTF3 it was decided that the DLFTF should formulate a number of position statements in respect of important data link issues, to serve as guidance for implementers. Since DLFTF2/6 is more a position statement than an action item, it will be closed as such, with a position statement containing the same text and numbered to reflect its origin from DLFTF2, to be included in the report of DLFTF3. This Action Item is closed.*

DLFTF2/7. That DLFTF members supply the secretary with information on groups which to their knowledge are engaged in work on ground and airborne HMI related issues. *Activity is ongoing. Action Item remains open.*

AI5-Role of the DLFTF 6.

The meeting once again reviewed the circumstances of the creation of DLFTF and concluded that the most important role for the Task Force is to ensure cohesion between the various data link related activities, covering also issues not being looked into by other relevant bodies. It was recognized that the DLFTF may not always be in a position to propose solutions, but it can work towards solutions also by signaling the various issues and problems. This signaling of problems was considered as very important. It was also pointed out that the NAT/NAM and EUR RCGs were depending on the DLFTF for data link related expertise and advice. The Link 2000+ Drafting Group was also relying on the DLFTF when it came to specific airline knowledge.

The DLFTF agreed to formulate a series of position statements on issues it considers important and in respect of which it wishes to make its expert views known. It was expected that the position statements would also help in cases where, for instance, the FAA and EUROCONTROL were implementing things slightly differently, or where vendors were apparently building software with a certain divergence apparent, making the number of possible iterations an airline might face even larger.

DLFTF3/1 That the DLFTF formulate a series of Position Statements on issues it considers important and in respect of which it wishes to make its expert views known, by way of guidance for the RCGs and other bodies (e.g. ICAO, EUROCONTROL).

Secretary's Note: DLFTF Position Statements will be identified as DLFTF POST, followed by the number of the meeting they originated from and a serial number. DLFTF Action Items will continue to be identified as DLFTF, followed by the number of the meeting they originated from and a serial number. As indicated above, the first DLFTF POST has been formulated from Action Item DLFTF2/6 and is given below.

DLFTF POST 2/1. That the ATN be implemented in such a way that it leaves all stakeholders free to conduct their business, without any one authority allowed to implement restrictions that would restrict the above freedom.

AI6. DLFTF Role in influencing Link 2000+

AI6.1 DLFTF Contribution to the Link2000+ Scope Document - Aircraft data link equipage commitments

The DLFTF was informed that the Link 2000+ program at this stage was looking for input from the airlines (data link usage and financial data) and also early commitment to the program. The DLFTF agreed that such commitment would come once it became clear how much extra capacity the use of data links would provide. In any case, the DLFTF was of the opinion that initial implementation of data links will not bring huge benefits, however those first steps must be seen as the building blocks of the future system which will bring more widespread benefits.

Current knowledge shows that data links hold a lot of promise, however indications of quantifiable benefits will only be available after the related simulations are completed.

In respect of pricing issues it was pointed out that the unit price of ATN based services was likely to be lower than those of legacy services and that this in itself will be a major incentive to move to ATN. Those hanging on to legacy ACARS service will find the costs rising as the number of users decreases.

The situation in respect of AOA was briefly discussed. It was felt that over promoting AOA was incorrect, even if this was a relatively cheap solution, but constituting a danger to the migration to full ATN. It was recognized however that airlines will be forced to adopt AOA if full ATN is not available in time.

The situation was further complicated by the appearance of GACS (General ATN Communications Services).

The service providers pointed out that for them AOA was a very small delta, while GACS and full ATN will cost more to develop.

It was explained that GACS was in fact an interface to the ATN for AOC purposes and it should always be identified as GACS/ATN. A short explanation of the nature of GACS was given.

The DLFTF agreed that there was a need to provide a comprehensive explanation of the features, limitations and capabilities of AOA and GACS, as well as their relationship with a full ATN implementation, for the benefit and guidance of those not involved every day with the details of those options.

DLFTF3/2. That Paul Hennig put together an information paper describing AOA and GACS and their relationship to the full ATN implementation.

UAL stated that for them AOA was a last resort solution, to be used only if ATN was not available in time. AOA has most of the limitations of ACARS, with no real possibility for ATC and other new applications.

It was pointed out that in the case of GACS, only the CPDLC ASEs (Application Service Elements) would need to be added for a full ATN implementation.

The DLFTF noted that the development of ATN software was making good progress and it might even be available before VDL Mode 2 itself became available.

Alitalia informed the DLFTF that their AOC data link trial plans currently call for the implementation of a short list of applications using ACARS, this choice having been made to enable an early start of the program. The aim is not to decide one way or another, just to demonstrate the capability and benefits to the company. Their program does point out that ACARS is not the only option and that the ATN is also an alternative. They are looking forward to seeing the business case which will be used to make the final decision.

In view of the fact that the Alitalia program is in such an early stage, the DLFTF felt that it would be beneficial to urge Alitalia to move in the direction of the ATN.

DLFTF3/3. That the Chairman of the DLFTF write a letter to Alitalia, urging a reorientation of their data link activities to include the ATN at an early stage.

SITA queried how the DLFTF may positively influence the Air Traffic Service Providers to also move in the direction of ATN. SITA will enhance their networks, but they will need to know what kind of applications will be used, so that they too may encourage their customers to use the new possibilities. SITA was of the opinion that some deadlines in the Link 2000+ program should be brought forward. The DLFTF members agreed with this proposal.

DLFTF3/4. That the Chairman of the DLFTF, in his capacity as the Chairman of the Link 2000+ Drafting Group, undertake a review of the Link 2000+ deadlines with a view to bringing some forward.

The DLFTF gave brief consideration to information available on the data link commitments of ATS providers. It was noted that commitments from France and the Maastricht UAC were a virtual certainty, with the DFS also having plans in the 2005-2007 timeframe. More information on ATS providers' commitments was still seen as essential (DLFTF2/4 refers).

Swissair pointed out that it will be essential to provide early benefits to those who equip with data links, or else there will reluctance to invest.

The DLFTF discussed the situation in respect of voluntary versus mandated equipage. Recognizing that data links will not bring large-scale benefits until at least 80 % equipage is reached, the DLFTF expressed the feeling that mandating the equipage was probably inevitable. Voluntary equipage would probably result in a piecemeal equipage, with real benefits not being available for a long period of time.

It was pointed out that the airlines were pushing very hard for the approval of the ATM 2000+ Strategy. However the success of this strategy is predicated on a number of enablers, data links being one of them. This hard push for acceptance of ATM 2000+ must be supported by airlines' willingness to equip with data links and if this is seen as unachievable via voluntary means, we must admit that mandating will be necessary.

The DLFTF recognized that this was a possibly contentious approach and agreed to explore the details further with the aim of formulating a Position Statement at the next meeting.

DLFTF3/5. That DLFTF members prepare supporting arguments on the issue of mandated versus voluntary data link equipage, to be discussed at the next meeting with a view to developing a Position Statement.

AI7. Report from the SEA Data Link Business Case Meeting

AI7.1 DLFTF Contribution to the LINK2000+ Business Case

- Cost of non-availability of ACARS for ACARS equipped airlines
- Benefits of ACARS for airlines newly equipping with ACARS

The DLFTF was given a brief report from the Seattle meeting. It was noted that development of the model was making good progress. As expected, a lot of detail questions were being raised, but this was all part of the model development process.

The DLFTF noted that a dedicated display for data link purposes must be part of the cost equation.

The DLFTF was informed that the simulations EUROCONTROL was running did not make it possible to separately identify the benefits attributable to functions like CAP

(or FLIPCY). Apart from the fact that the simulation exercise was not suitable for separating out different functions, EUROCONTROL was contesting the need to identify the benefits of CAP separately. In their view adding up individual benefits might result in a picture less favorable than what might be obtained by considering the synergic total of all the functionalities.

The DLFTF recognized that at some time in the future the bridge to the FMC, required by CAP, might become a standard feature and hence widespread. However, with the current horizon of data link implementation such a feature cannot be taken for granted in respect of the majority of the fleet under consideration. This remains true even in the light of the fact that the capability being discussed is part of the FANS package.

The DLFTF expressed the view that airlines must be able to see the benefits from the various functions separately, in order to decide what to implement and when. Providing the FMC connection required by CAP and FLIPCY inevitably means a substantial increase of the implementation costs. This might result in the business case showing a negative cost/benefit ratio for the total package while in fact a positive ratio might have been obtained if the first implementation were to be without CAP.

While the DLFTF agreed with the notion that it was more economical in the long run to go for a maximum solution right at the start than to carry out mods in a piecemeal fashion, it was still felt that knowing the costs per element was essential.

The DLFTF concluded that the benefits and costs attributable to CAP and FLIPCY must be separately identified. The DLFTF sees a considerable risk in an approach which considers only the total set, especially when it comes to justifying retrofit costs.

DLFTF3/6. That EUROCONTROL be urged to separate out the functions requiring an FMC connection from those that do not need such a connection; and that the costs and benefits to be identified separately.

In respect of the costs per year an airline would experience if AOC were lost, the DLFTF decided to propose the figures from UAL (600 aircraft), this being 63 million USD.

It was noted that the actual loss figure would change depending on whether AOC were out for one day, one week or a month. Also, new generation aircraft benefit more from AOC and hence airlines with a preponderance of such aircraft would be hit that much harder.

The benefits to a non-data link airline if it were to equip with data link were considered to be the same as the loss figure quoted above.

It was pointed out that the justification for data link equipage must be built on the ATC benefit, with AOC piggybacking on it, since otherwise airlines will tend to equip for AOC only.

AI8- Status of the FAA data link implementation

The DLFTF was informed that the FAA program was on track. The problems around the hand-off event might result in a slight delay in implementation, however Rockwell-Collins is working on an alternative solution. Build 1 is still planned for June 2002, with Build 1A to start in Miami one year later. Build 1A consists of only four services, none of which require the pilot to change the vector state of the aircraft. While VDL Mode 2 is still seen as a high-risk element in Petal, Build 1 has more time. The Miami Build 1 software will be Level D only, this can be achieved faster.

The current AA cockpit user interface implementation means that data links will initially only be usable for en-route level cruise. Anything beyond that requires that data links be usable at least as easily as the microphone. The current MCDU solution does not meet that requirement.

It was noted that not much was happening on the advanced user interface issue in Europe either. A study was available from the Dutch NLR, however the Link 2000+ program had no plans to address the cockpit interface question.

It was noted that aircraft equipped with EICAS did offer a solution, but this solution was too expensive for non-EICAS equipped types. The Airbus DCDU was also on the right track.

The DLFTF noted that providing a suitable cockpit user interface for data link purposes will be a major challenge for many aircraft types, with no real solution in sight at this time.

It was decided to ask AEEC to develop a user interface solution for CPDLC, suitable especially for retrofit. The issue would be raised at the AEEC General Session during the week following DLFTF3.

AI9- Petal II/IIe Status

No specific information was available about that program. It was noted however that the VDL Mode 2 risks were a mixture of the mismatch in the handoff event, the VDL Mode 2 spectrum mask issues and the guard channel problems. There were various options for resolving these problems, including developing software only to Level D.

AI10- SITA/ARINC status report on AOA and ATN activities

SITA reported that LH and SR have expressed an interest in AOA. SITA will have no problems with supporting AOA to solve the ACARS congestion problems, however they are also committed to providing an ATN service. A VDL focus group has been established with the purpose of obtaining customer plans and intentions. More information will be provided once the results of a questionnaire on the subject have been processed.

DLFTF3/7. That SITA report on the customer plans and intentions gathered from their VDL Focus Group.

SITA pointed out that it was difficult for airlines to follow all the rapid developments taking place. In respect of the handoff problem between the VDL subnetwork and the ATNSI router, SITA explained that they will contribute even financially to help ATNSI to straighten out the problems.

The DLFTF noted that SITA was not planning to develop ATN end systems to accommodate ATN aircraft talking to non-ATN hosts. However, if a customer asks SITA, they can develop this with a lead-time to be clarified later.

ARINC provided a comprehensive update of the VDL/ATN program status. It was noted that all Integrated ARINC Ground Stations (IAGS) would support VDL Mode 2 and ACARS simultaneously. Furthermore, ARINC will support FAA and industry VDL Mode 3 and 4 requirements as they evolve and airline requirements are demonstrated.

If a transition step towards full ATN is required, AOA will be implemented.

ARINC's VDL Mode 2 program continues to meet its schedule milestones.

The DLFTF noted that both ARINC and SITA are unconditionally committed to ATN and AOA is being implemented out of necessity with the aim remaining full ATN.

A11- Role of STCA/EUROCAE SC189/WG53 SG-4

The DLFTF considered that SG-4 was responsible for important activities, like developing the operational scope of Baseline 2 and hence it was important that the appropriate experts participate in the SG-4 meetings. The DLFTF expressed concern that due to the insistence of the Chairmen of SC189/WG53 that SG-4 always meet parallel to their Plenary Meeting, attendance of some experts in SG-4 may no longer be possible. This is due to the parallel running of e.g. SG-1 meetings as well as the need for the same experts to attend meetings of the PIT, which is not aligned with the plenary meetings. The extra traveling this would impose is beyond the budgetary possibilities of most organizations concerned. The DLFTF was of the opinion that meetings of SG-4 should be arranged in such a way that it minimizes the need for extra traveling and that this should be brought to the attention of the Chairmen concerned.

DLFTF3/8. That the Chairman of the DLFTF send a letter to the Chairmen of RTCA/EUROCAE SC189/WG53 expressing the concerns of the DLFTF about the SG-4 meeting arrangements and its consequences.

It was also agreed that the Baseline 2 Scope Document should be sent to DLFTF members when it reaches sufficient maturity.

A112- Any other business

- Wireless Gatelink

- EC paper on institutional arrangements
- Level of airline involvement

The DLFTF noted that the Wireless Gatelink, on test in e.g. Zurich, is being developed without consideration for making it an ATN subnetwork. It was also revealed that the airlines in the project appear to look upon any attempt to involve the ATN with disapproval, as this would, in their view, only slow things down.

The DLFTF considered that it would be cheaper to use this facility while the aircraft was on the ground than for instance VDL. In any case, the wireless gate link should also be ATN compatible, since otherwise serious problems would arise the moment someone thought of connecting the gatelink to the cockpit systems while the gatelink software was only certified to a very low level. The DLFTF was of the opinion that there definitely was a case for ATS applications to run via the wireless gatelink (e.g. uplink of ATS flight plan).

It was decided to invite a member of the wireless gatelink project to the next meeting of the DLFTF with a view to discussing the issues.

DLFTF3/9. That an invitation be extended to the Wireless Gatelink project to attend the next meeting of the DLFTF with a view to discussing the issues related to ATN.

Noting the EC paper on ATN institutional arrangements, the DLFTF expressed the view that there must indeed be a regulator for European ATN. However, regulation must encourage competition and not act as a brake in any way. The EC study must be considered in detail and a DLFTF position developed. The airlines must agree a framework now to avoid a stumbling block in the way of implementation later. The framework must provide for timely implementation and workable solutions on the regional, and not purely on the national, level. SITA and ARINC undertook the task of developing a draft position for discussion by the DLFTF members.

DLFTF3/10. That ARINC and SITA develop a draft position on the EC paper, to be discussed by the DLFTF members. (Deadline end October).

The Secretary was asked to inform the EC that a reaction from the DLFTF would be forthcoming in early November and also that a meeting might be requested to discuss the details.

Secretary's note: The EC has been informed of this and they agreed the proposed date. They are looking forward to the feedback from the DLFTF.

Mr. Paul Hennig of United Airlines gave a short presentation on the outcome of the recent CIWG meeting. The CIWG, noting that some States were planning to mandate the use of their own air-ground routers, passed a resolution opposing this. This resolution is expected to become official IATA policy by the end of October, whereupon it will be presented as such to various groups and panels, including those of ICAO.

Turning to the matter of airline involvement in the activities of the DLFTF and Link 2000+, it was noted that there was general interest, however resources were extremely scarce. Recognizing this, the DLFTF still considered that the airlines must show more visibility in the various data link related meetings to demonstrate their support.

In particular, a way must be found to obtain written statements from the airlines indicating their need for the data link business case. The DLFTF Chairman was asked to write a letter to this effect, to be endorsed by the IATA OPC. The letter to be cleared by the DLFTF members before being submitted to the OPC.

DLFTF3/11. That the Chairman write a letter to be endorsed by the OPC, indicating the need to obtain written statements from the airlines confirming their need for a data link business case.

Date and place of next meeting

In line with its decision at DLFTF2 to keep meeting imposed travel requirements to a minimum, the DLFTF agreed to hold its 4th meeting on

19 November 1999, in Dallas, Texas, USA

just after the PIT meeting being held there the same week.

American Airlines will provide the Secretary with details of the meeting arrangements, including proposals for hotel accommodation near the meeting location.

Appendix 1

DLFTF3 - List of Participants

Ben Berends	KLM	Chairman
Luciano Bozzo	Alitalia	
Frank Cheshire	American Airlines	
Walter Fuelber	Lufthansa	
Marc Huber	Swissair	
Paul Hennig	United Airlines	
David Fischer	ARINC	
John Pumfrey	ARINC	
Richard Hoad	ARINC	
David Russel	SITA	
Steve Zerkowitz	IATA	Secretary

