



International Civil Aviation Organization and the Directorate General of Air Communication, Indonesia

SIXTH MEETING OF AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) TRANSITION TASK FORCE OF APANPIRG



Bali, Indonesia, 26-30 April 2004

Agenda Item 3: Discussion and review AMHS activities

AMHS ROUTING IMPACT

(Presented by Hong Kong, China)

SUMMARY

This working paper details the study on the benefits of the interim direct ATN link between USA and Hong Kong, China and the impact to the AFTN/AMHS routing in the region.

1. Introduction

1.1 In the 9th ATNTTF Adhoc Working Group Meeting at Bangkok in November 2003, it was agreed that an interim direct ATN link was to be established between Hong Kong, China and USA as soon as possible to serve as an alternate for the Japan-USA ATN link to facilitate the regional migration towards ATN/AMHS operations. The benefits were, firstly, that this could avoid the need to introduce expensive interim measures to modify software or intensive manual intervention to re-route AMHS messages via AFTN. Secondly, the additional Hong Kong, China-USA link would enhance the robustness and resilience of the ATN Network between NAM and Asia/Pacific regions. The meeting recommended that the link be implemented on a temporary basis to increase redundancy and to mitigate the impact of ATN link failures on the AFTN, and the need for the circuit would subsequently be reviewed based on the progress of ATN implementation in the region.

1.2 Subsequently in the 10th ATNTTF Adhoc Working Group Meeting, discussions on the concerns raised by Japan and the impact to the current Asia-Pacific AFTN routing and future AMHS routing were made. It was then agreed that a small sub-group of early AMHS operators, including Hong Kong, China, Japan and the USA, be formed to discuss the issues and to provide further clarity.

2. Study on AFTN/AMHS Routing Impact

2.1 A study has been carried out on the effect of the interim Hong Kong, China-USA link on current AFTN routing basing on the 25th Edition Asia/Pacific AFTN Routing Directory (issued in January 2004). The table below shows the results of the study.

From	To	Hong Kong, China's Proposal	25th Routing Directory	Same or different
ZBBB	RJ AA	A,B,C,D,E,F,G,H,K,L,M,N,P, R(except RP,RK),S,T,W,Y	A,B,C,D,E,F,G,H,K,L,M,N,P, R(except RP,RK),S,T,W,Y	same
RJAA	ZB BB	VN,Z	VN,Z	same
ZBBB	ZG GG	RP,ZG,VC,VD,VG,VH, VL,VM,VR,VT,VV,ZJ	RP,ZG,VC,VD,VG,VH, VL,VM,VR,VT,VV,ZJ	same
ZGGG	ZB BB	B,C,D,F,G,H,K,M,O,P R(except RP),S,T,U,VN Z(except ZG,ZJ)	B,C,D,F,G,H,K,M,O,P, R(except RP),S,T,U,VN, Z(except ZG,ZJ)	same
RJAA	RK SS	RK	RK	same
RKSS	RJ AA	All stations (except RK,Z)	All stations (except RK,Z)	same
RJAA	RO AH	RC,RO	RC,RO	same
ROAH	RJ AA	A,B,C,E,K,L,M,N,OA,P,RJ, RK,S,T,U,Y,Z	A,B,C,E,K,L,M,N,OA,P,RJ, RK,S,T,U,Y,Z	same
RJAA	WS SS	A,D,E,F,G,H,L,O,RP,VA,VC,VE,VI,VO, VQ,VR,W,Y	A,D,E,F,G,H,L,O,RP,VA,VC,VE,VI,VO, VQ,VR,W,Y	same
WSSS	RJ AA	B,C,K,M,P,R(except RP), S,T,U,VH,Z(except ZG,ZJ)	B,C,K,M,P,R(except RP), S,T,U,VH,Z(except ZG,ZJ)	same
VHHH	RP LL	RP	RP	same
RPLL	VH HH	B,C,E,K,L,M,P,RJ,RK,S, T,U,VD,VE,VG,VH,VL,VM, VN,VT,VV,VY,Z	B,C,E,K,L,M,P,RJ,RK,S, T,U,VD,VE,VG,VH,VL,VM, VN,VT,VV,VY,Z	same
VHHH	VV TS	VV	VV	same
VVTS	VH HH	B,C,E,K,L,M,P, R(except RP),S,T,U,VH	B,C,E,K,L,M,P, R(except RP),S,T,U,VH	same
VHHH	VT BB	A,D,E,F,G,H,L,N,O, V(except VH,VM,VN,VV),W,Y	A,D,E,F,G,H,L,N,O, V(except VH,VM,VN,VV),W,Y	same
VTBB	VH HH	B,C,K,M,P,R,S,T,U,VH,VM,Z	B,C,K,M,P,R,S,T,U,VH,VM,Z	same
VHHH	VM MC	VM	VM	same
VMMC	VH HH	All stations (except VM, VN,Z)	All stations (except VM, VN,Z)	same

From the above, it can be concluded that the introduction of the interim Hong Kong, China-USA ATN link will not cause any change to the existing AFTN routing.

2.2 On the impact to AMHS routing, the followings are the results of the study.

- (a) The AMHS routing policy for the Asia/Pacific region is not yet available at the time being. Hong Kong, China is in full support to finalise as soon as possible the AMHS routing policy in the region.
- (b) In the absence of the above routing policy, it is considered necessary to maintain a high performance AMHS service by the provision of an additional interim ATN link between Hong Kong, China-USA as fallback to the USA-Japan ATN Link. The use of the existing alternate AFTN link as fallback will result in most AMHS Element of Service such as acknowledgement of receipt, disclosure of other recipient, file attachment, etc. to be discarded when an AMHS message is forced to convert to an AFTN message. This could become a critical task for the operators concerned.

- (c) As the backbone ATN links will operate on 64Kbps, there is serious concern on the capacity of some segments of the existing alternate AFTN link when the Japan-USA ATN link fails (see Attachment). It is considered that message delay is inevitable and could be very serious when alternate AFTN link is used.
- (d) The additional interim link between Hong Kong, China and USA would further offer an advantage by enhancing the IDRP dynamic routing between Hong Kong, China, Japan and USA by forming a simple triangular topology connecting the three centers.
- (e) The additional interim link will also provide a load sharing function on the link(s) between North America and Asia/Pacific regions, taking into account of the projected annual traffic growth before the full implementation of ATN in the region.

2.3 It is noted that the cost of the interim link would be borne by Hong Kong, China and the USA.

3. Coordination and Implementation

3.1 To gain early operational experience and reap full benefits of ATN/AMHS implementation, including the interim back up ATN link, Hong Kong, China has coordinated with the USA to carry out an AMHS Trial planned in July this year.

4. Recommendation

4.1 The meeting is invited to take note of the results of the above study and the progress made in conducting the ATN/AMHS trial between Hong Kong, China and USA.

Alternate route for RJAA / KSLC circuit interruption

(based on 25th Ed. AFTN Routing Directory - ASIA & PACIFIC Region)



