AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL

WG2/20

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Requirement for a standard on the ground interface to mobile subnetworks

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SUMMARY

This paper is the STNA answer to Action 19/11

The WG2 is invited to propose AMCP to standardize the ground interfaces to the VDL Mode 2 subnetwork.

In the event where the AMCP is not in position (for practical reasons) to develop SARPs on the ground interface to the VDL Mode 2 Subnetwork, the WG2 is invited to add this topic to the list of work items to be considered by ATNP/WG2 beyond ATNP/3.

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1 Background

At the 19th WG2 meeting, the Working Paper 551 raised an issue concerning the lack of specification on the ground interface between ATN A/G BISs and mobile subnetworks (notably the VDL Mode 2 subnetwork). In the discussion of this paper, it was pointed out that this issue was possibly covered by the AEEC 631/A or AEEC 637A document. An action item (Action 19/11) was created to review the AEEC documents and report conclusions to the WG2.

The review of the two AEEC documents was performed with the conclusion that these documents do not provide a sufficiently detailed description of the ground interface to a VDL Mode 2 subnetwork. In particular, the documents do not specify the way the calling Aircraft address is passed to a called Air/Ground BIS.

It was then asked to the AEEC documents editor whether it could be possible for AEEC to update the AEEC 631A document with a detailed specification of the ground VDL Mode 2 interface. No firm and definite answer was received. However, the editor of the AEEC 631A and AEEC 637A documents indicated that at the moment the VDL Mode 2 ground interface is considered to be implementation specific and he expects some resistance to fix the issue one way versus another because several implementation options exist.

2 STNA position

While STNA generally sees benefits in having standards as much open as possible and allowing manufacturers proposing their own valuable solutions, STNA considers that the ground interface between an ATN router and a subnetwork equipment must not be a proprietary interface.

Any customers of VDL Mode 2 Ground Radio Stations and ATN routers manufacturers, should have the capability to choose its manufacturers and interconnect the different equipment without constraints as this is done everywhere today for general telecommunications.

In the context of the current VDL/ATN experiments, it has become apparent that the lack of standard specifications of the ground interface to the VDL Mode 2 subnetwork is one cause of delay in the implementation process. At the moment, there are at least three known different variations on the VDL ground station/ATN BIS interface, and interconnecting an ATN air-ground BIS to the different VDL ground equipment is not possible without spending several months in upgrading the systems to make them inter-operable. At dawn of ATN and VDL Mode 2 implementation, STNA thinks that it is time to fix unresolved issues such as this one and get rid of any unnecessary causes of delay in the implementation process.

The STNA initial intent was to propose that the ground VDL/ATN interface be specified by an industrial standard (e.g. an AEEC document). However further considerations of this issue have led us to the conclusion that the VDL/ATN interface should not simply be considered as a local interface to organizations, but should also be considered as a potential cross-domain interface falling in the scope of ICAO standardization. Indeed, it is premature to assume that organizations providing VDL Mode 2 services, will also systematically be in charge of the air-ground ATN internet services provision. There might be some advantage, in some regions, in having the capability for an aircraft to contact an air-ground BIS belonging to a different organization than the one providing the VDL Mode 2 subnetwork service (for instance if this allows avoiding IDRP overhead on handoff).

In conclusion, STNA considers that the ground VDL Mode 2/ATN interface must be standardized by ICAO.

3 Recommendation

The WG2 is invited to endorse the fact that the VDL Mode 2/ATN ground interface issue requires co-ordination with AMCP, and is to be added to the list of issues to be discussed with AMCP.

The WG2 is invited to propose AMCP to standardize the ground interface to the VDL Mode 2 subnetwork, and more specifically to specify:

❑ One standard way (or a small set of standard solutions) for a VDL Mode 2 GRS to provide the calling aircraft address to a called air-ground router, and

❑ Solutions to any other ground interface issues, such as, for instance, the way handoff events are reported by a VDL/2 GRS to an A/G BIS in the case of Ground Initiated Handoff with expedited subnetwork connection maintenance.

In the event where AMCP is not in position (for pratical reasons) to develop SARPs on the interface between mobile subnetworks and the ground ATN, STNA proposes that WG2 adds this topic to the list of work items to be considered beyond ATNP/3.