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Input Received from SICASP Technical Sub-Group

Presented by Ron Jones

The Technical Sub-Group (TSG) of WG1 of the SICAS Panel has recently produced draft guidance material on the DTE 8208 interface for the Mode S GDLP. ATNP WG2 is invited to note the work of the SICAS TSG and to provide any feedback as appropriate.

Attachment: "PROPOSED GUIDANCE MATERIAL FOR THE DTE ISO 8208 INTERFACE," SICASP TSG working paper

SSR IMPROVEMENTS AND COLLISION AVOIDANCE SYSTEMS PANEL

SSR MODE S SYSTEM

TSG

PROPOSED GUIDANCE MATERIAL FOR THE DTE ISO 8208 INTERFACE

Prepared by STNA
Presented by STNA

SUMMARY

This paper proposes guidance material to be taken into account when manufacturing a GDLP to enable the connection of a GDLP to an end system through a X25 ground network. This new material will have no impact on the mode S subnetwork SARPs since the solution does not require any change in the format of DTE addresses used by the mode S subnetwork.

The whole purpose of this material is to ensure compatibility between the addressing scheme used by X25 and the mode S DTE addresses.

Background

Following the presentation of WP1/644, the TSG was tasked to introduce guidance material for the mode S subnetwork SARPs (action 27/14) regarding the addressing problem which could occur between a ground DTE and a GDLP when using a X25 network. A X25 network uses most frequently the X121 addressing scheme. The DTE address expected by the GDLP is not compliant with this addressing scheme. WP1/644 proposes a solution to this problem which is also the solution retained for the VDL subnetwork.

This paper is a GM proposal from STNA for the mode S subnetwork.

Proposed text

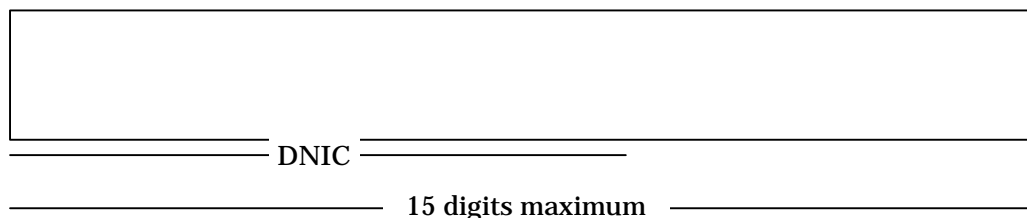
Section 5.3.1.3 of the current GM already presents this solution but does not precise the necessary processes which should be done at the GDLP level. It is propose to remove existing 5.3.1.3 and to replace it with the following text.

START OF NEW TEXT

5.3.1.3 It is most likely that a GDLP will be connected to a ground DTE (an ATN router or a ground end-system) through a packet switching network (wide area network). Consequently, the data exchange between these two entities are to be done using ISO 8208 network addresses, compliant with the X121 addressing scheme.

5.3.1.3.1 **Format of the DTE address expected by the GDLP.** The ground DTE addresses have a total length of 3 BCD digits. They shall be decimal numbers in the range of 0 to 255 coded in BCD. The mobile DTE addresses have a total length of 10 BCD digits. The 8 most significant digits contain the octal representation of the aircraft address coded in BCD. The 2 less significant digits identify a sub-address for specific DTEs on board an aircraft and shall be a decimal number in the range of 0 through 15 coded in BCD.

5.3.1.3.2 **X121 addressing scheme**



Note. The DNIC identifies the network. The fields following the DNIC will enable the identification of the GDLP and the ground DTE when they are connected through a unique packet switching network.

5.3.1.3.3 The DTE address expected by the GDLP is not consistent with the X121 addressing scheme. The ISO 8208 protocol nevertheless enables the use of a Called/Calling Address Extension Facility which will enable data transfer between the GDLP and a ground DTE over a packet switching network as defined in 5.3.1.3.4, 5.3.1.3.5, 5.3.1.3.6.

5.3.1.3.4 **Uplink processing.** A GDLP should be assigned a single X121 address depending on the particular packet switching network it is connected to. Thus, this GDLP will be regarded as a network end-user. On the uplink, Mode S ground and airborne DTE addresses will be inserted in the Called/Calling Address Extension Facility field of CALL packets (in any other ISO 8208 packets, these addresses are absent, because the SVC channel number unambiguously identify a particular SVC). The GDLP will therefore be responsible for extracting the Calling and Called DTE address from this extension field in order to reformat the ISO 8208 packet into the associated Mode S packet.

5.3.1.3.5 **Downlink processing.** On the downlink, the GDLP will be responsible for extracting the AG (Ground Address) and AM (Mobile Address) fields from the Mode S packet, and reformatting it into an ISO 8208 packet. It shall insert AG and AM into the address extension facility field of the ISO 8208 packet destined to the ground DTE.

5.3.1.3.6 **Called/Calling Address Extension Facility field coding.** The Called/Calling Address Extension Facility field shall be encoded as described in ISO 8208.

Note. According to the 1990 version of ISO 8208, the facility code shall be set to 0xCB for calling DTE address extension facility, and to 0xC9 for called DTE address extension facility (this is the first byte of the address extension facility field). The second byte is encoded as followed : bits 8-7 = 10 (to indicate that the address is not compliant with X.213 recommendation); bits 6-1 indicate the number of semi-octets of the address field (this number is binary coded). The following octets convey the address field. The address field can contain up to 40 semi-octets coded in BCD. An airborne DTE address will have a length of 10 semi-octets (even number of bytes); an ground DTE address will have a length of 3 semi-octets (odd number of bytes, so the last semi-octet shall be filled with four consecutive ZEROs).

END OF NEW TEXT

Consequences

There is no consequence on the mode S subnetwork SARPs but it is to be noted that such processes shall also be performed by the ATN router or stand-alone ground DTEs. With regards to the ATN SARPs, it shall be checked that this approach has been taken into account.