Agenda Item: **10**

Source: **InterDigital**

Title: **MAC Header Modification for CCCH/CTCH Common Channels**

Document for: **Decision**

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Introduction

The MAC Specification [1] defines the structure of the MAC header for common channels. It is our contention that the CCCH (Section 9.2.1.2) and the CTCH case (Section 9.2.1.3) require a common header format for processing in MAC-c.
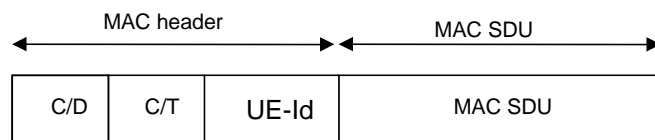
Discussion

Common channel (CCCH/CTCH) MAC PDU's are decoded in the UE MAC-c entity according to MAC header rules defined in [1] sections 9.2.1.2 & 9.2.1.3 (see Tdoc appendix).

The C/D field indicates common or dedicated transport channel, and then a subsequent C/T field is needed to differentiate CCCH from CTCH. The current CTCH header definition includes the C/T distinction, but the CCCH does not. Therefore, when CCCH MAC PDU's are received it is not possible to distinguish the common channel type.

To address this confusion, we propose to add the C/T field to CCCH Case-a MAC Header.

Additionally with CTCH and the possibility of DCCH mapped to RACH/FACH, case-b where CCCH is the only channel mapped to RACH/FACH no longer exists

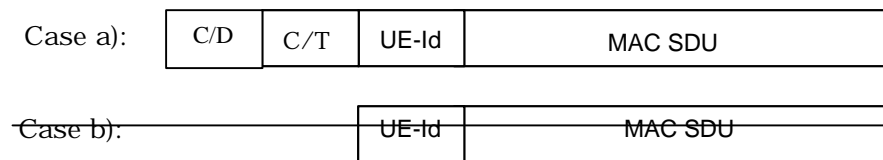### New Header Format for CCCH (replaces existing cases a & b):

Change Request to TS 25.321

9.2.1.2 MAC header for CCCH

Note: The concept for using UE Id on CCCH has to be reviewed

a) CCCH mapped to RACH/FACH:
   C/D has to be included and UE-id field may be included in MAC header. Details of usage the UE-id field is ffs.
b) ~~CCCH mapped to RACH/FACH, where CCCH is the only channel (ffs):~~
   ~~UE-id field may be included in the MAC header.~~

 Note: The usage of the MAC header for BCCH and PCCH is ffs.
The address used for initial addressing is ffs, a possible solution may be to use a Random or CN related Identifier.

Case a):

C/D	C/T	UE-Id	MAC SDU

~~Case b):~~

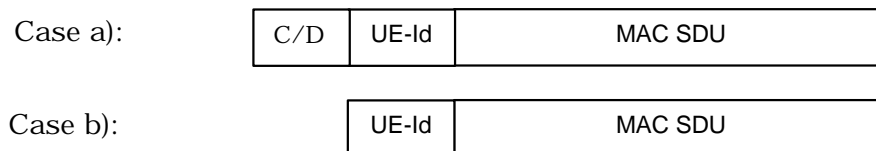| UE-Id	MAC SDU

Figure 9.2.1.2.1 : MAC Data PDU formats for CCCH

APPENDIX - Current CCCH & CTCH MAC Header Definitions

9.2.1.2 MAC header for CCCH

Note: The concept for using UE Id on CCCH has to be reviewed

a) CCCH mapped to RACH/FACH:
   C/D has to be included and UE-id field may be included in MAC header. Details of usage the UE-id field is ffs.
b) CCCH mapped to RACH/FACH, where CCCH is the only channel (ffs):
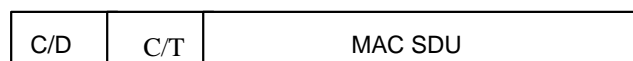   UE-id field may be included in the MAC header.

Note: The usage of the MAC header for BCCH and PCCH is ffs.
The address used for initial addressing is ffs, a possible solution may be to use a Random or CN related Identifier.

Case a):

C/D	UE-Id	MAC SDU

Case b):

UE-Id	MAC SDU

Figure 9.2.1.2.1 : MAC Data PDU formats for CCCH

9.2.1.3 MAC Header for CTCH

The MAC header for CTCH mapped to FACH is as shown in figure 9.2.1.3.1

C/D	C/T	MAC SDU

Figure 9.2.1.3.1 : MAC Data PDU format for CTCH

C/D field indicates whether data is mapped to the common or dedicated logical channel.
C/T field indicates whether it belongs to CCCH or CTCH. In case of CTCH, it identifies whether the message is SMS CB message or Schedule message

References

[1] TS 25.321 (V 2.1.0) MAC Protocol Specification