

**Agenda Item:** 7.7  
**Source:** Siemens AG  
**Title:** Radio Access Bearer Establishment and Release for TDD  
**Document for:** Decision

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## 1 Introduction

The document summarises the Radio Access Establishment and Release Procedures needed for the TDD operation. Both procedures have two sub-flows, one with and one without a combined Signalling Link Reconfiguration.

The described procedures have strong similarities with FDD, but we think that the differences caused by the different physical layers do not allow to have combined figures for both modes, e.g. within the TDD mode the position of an allocated grid (defined by timeslots and codes) in the time domain is known directly after receiving the allocation message. Within TDD a synchronisation procedure is needed between the network and the UE always if a new DCH has to be established.

## 2 Radio Access Bearer Establishment

After getting the RAB Establishment Request primitive from the NAS including some QoS parameters the RNC-RRC determines the amount of resources which are required and can be assigned for this bearer. Additionally, the RNC-RRC decides whether it is useful to perform a Signalling Link Reconfiguration (see Figure 1), or keep the existing Signalling Link (see Figure 2).

The RNC-RRC sends a RAB set up request message combined or non combined with a Signalling Link Reconfiguration request via the existing Signalling Link to the UE-RRC. This request contains physical, RLC and MAC control information. The UE-RRC acknowledges this request by a complete message via the existing Signalling Link and configures its MAC and creates a new RLC instance.

The RNC-RRC receives the RAB set up complete message and configures its MAC and RLC.

If a DCH has to be allocated the MAC in both entities configures the physical layer.

Finally, a RAB Establishment Indication primitive is sent by the UE-RRC and a RAB Establishment Conformation primitive by the RNC-RRC.

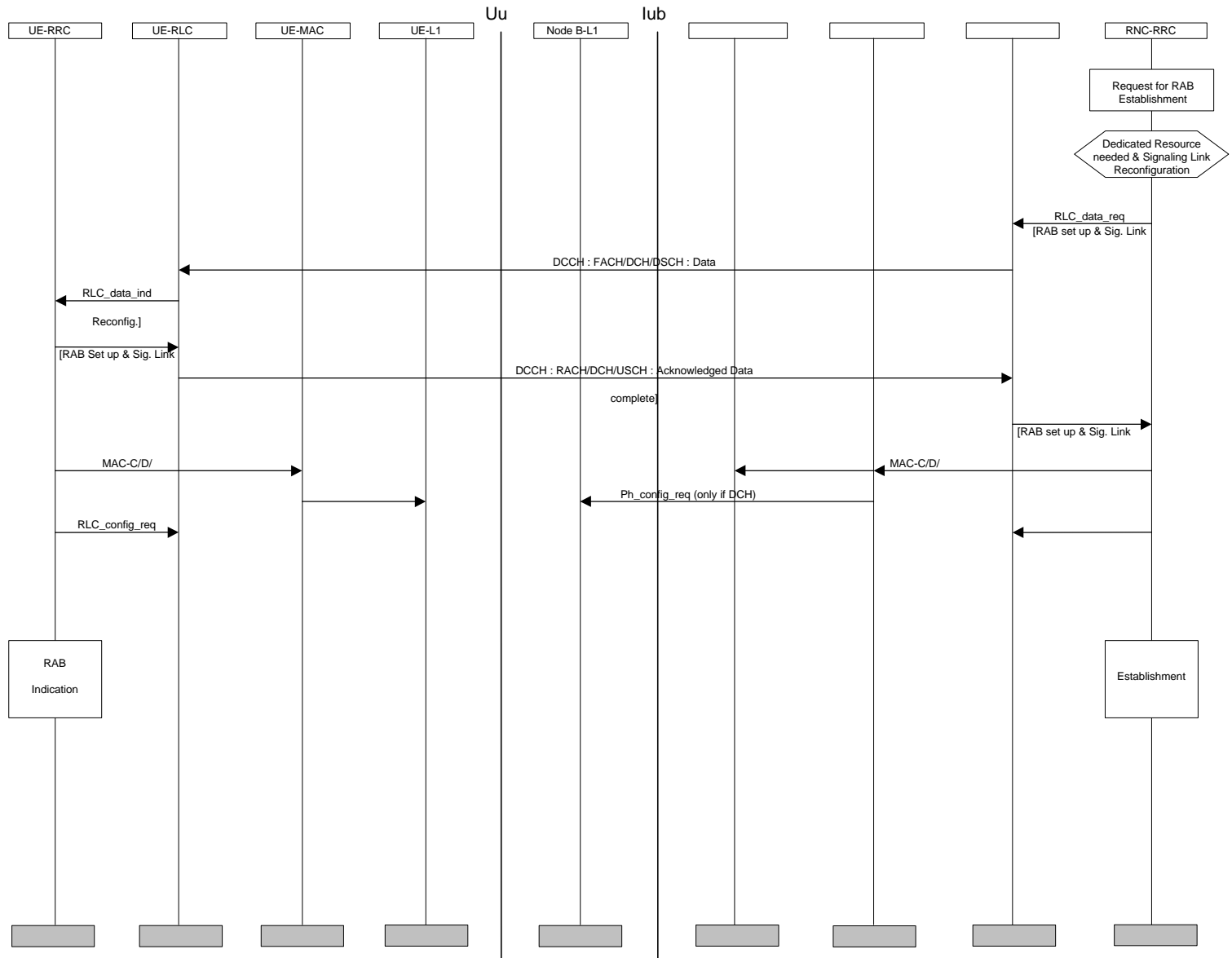


Figure 1: Radio Access Bearer Establishment combined with Signalling Link Reconfiguration

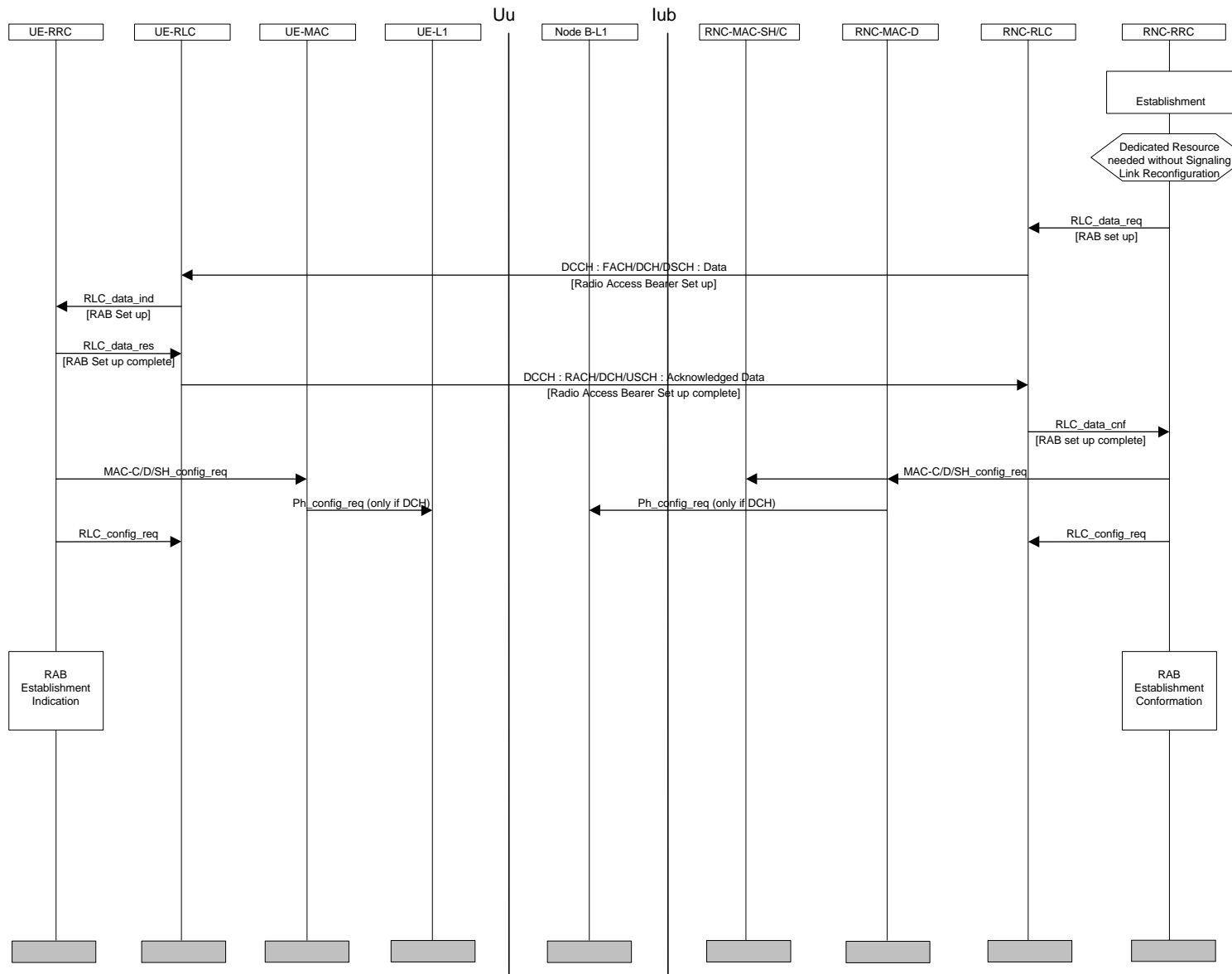


Figure 2: Radio Access Bearer Establishment without Signalling Link Reconfiguration

### 3 Radio Access Bearer Release

After reception of a RAB Release Request the RNC-RRC determines whether a combined Signalling Link Reconfiguration is needed (see Figure 3) or to keep the existing allocation (see Figure 4).

The RNC-RRC sends a RAB release request message combined or not combined with a Signalling Link Reconfiguration request to the UE-RRC. This request contains physical, RLC and MAC control information. The UE-RRC acknowledges the request by a complete message, configures the MAC and removes the RLC instance.

The RNC-RRC receives the RAB release complete message and configures its MAC and RLC.

If a DCH has to be deleted the MAC of both entities configures the physical layer.

Finally, a RAB Release Indication primitive is sent by the UE-RRC and a RAB Release Conformation primitive by the RNC-RRC.

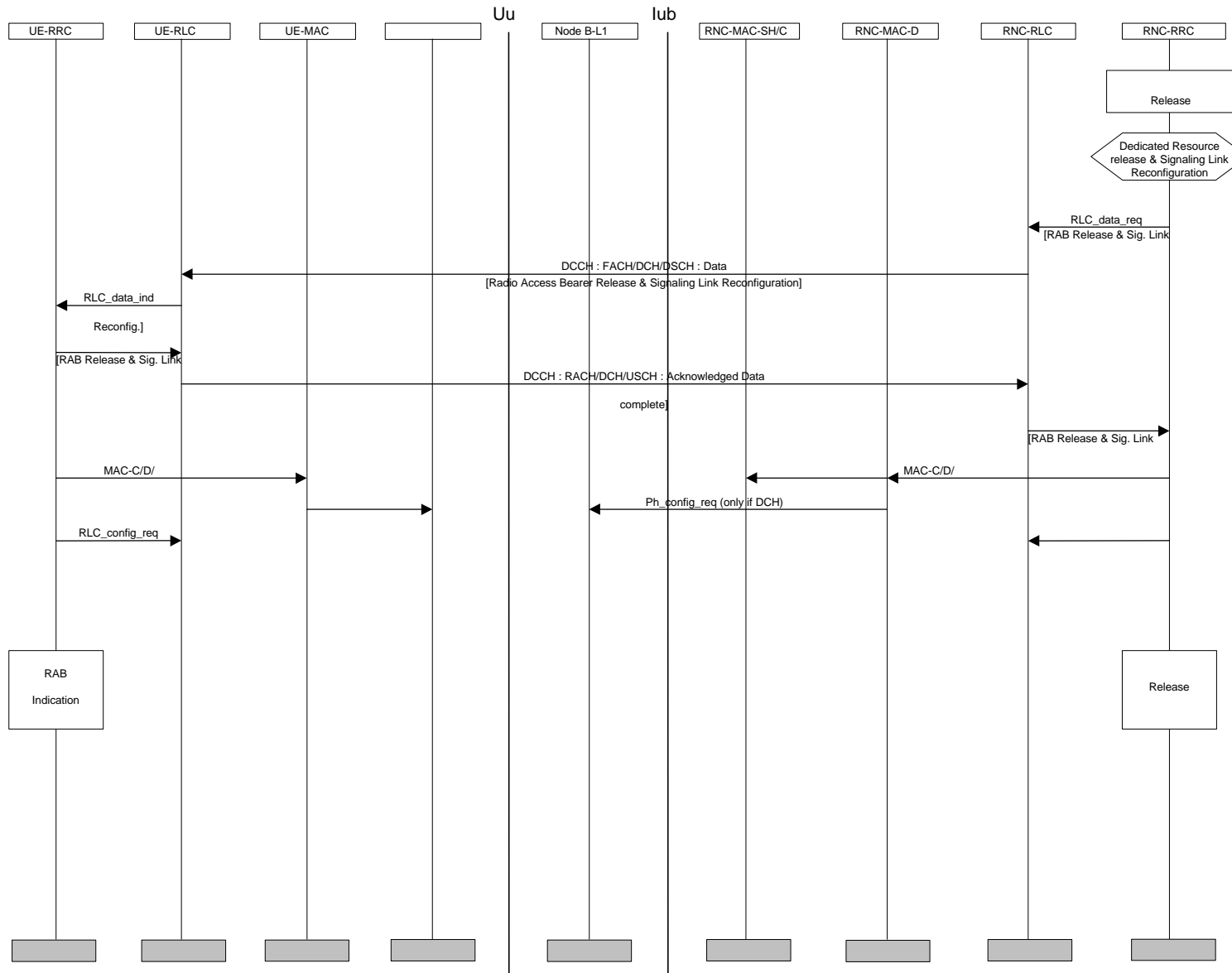


Figure 3: Radio Access Bearer Release combined with Signalling Link Reconfiguration

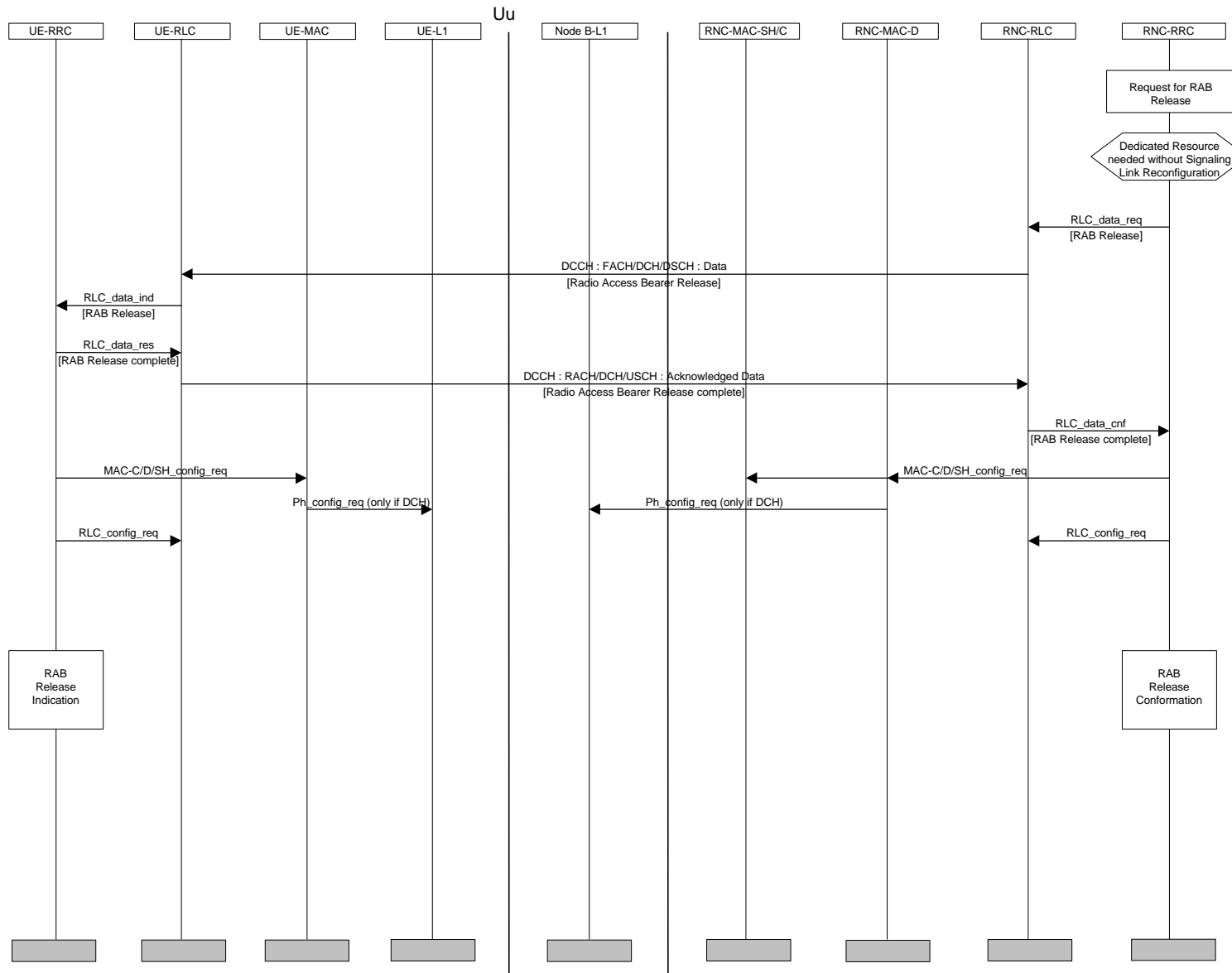


Figure 4: Radio Access Bearer Release without Signalling Link Reconfiguration

## 4 Conclusions

As shown in the figures above there are some significant differences to the FDD operation. Therefore, it is proposed to incorporate this material anyway into the relevant specifications.

## 5 References

- [1] 3GPP S2.01      Radio Interface Protocol Architecture
- [2] 3GPP S2.03      UE Functions and Interlayer Procedures in Connected Mode
- [3] 3GPP S2.21      MAC Protocol Specification
- [4] 3GPP RAN WG2 TDocs 31,32,33/99      Uplink Shared Channel (USCH), Motorola