**3GPP TSG-RAN Meeting#14**
**Kyoto, Japan, 11-14 December 2001**

***RP-01-0932***

*CR-Form-v5*

# CHANGE REQUEST

⌘ **25.211** **CR** **134** ⌘ **rev** **-** ⌘ Current version: **3.8.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Restriction to simultaneous use of SSDT and closed loop mode TX diversity |
| ***Source:*** | ⌘ | Nokia |
| ***Work item code:*** | ⌘ | ***Date:*** ⌘ 11.12.2001 |
| ***Category:*** | ⌘ | **F** ***Release:*** ⌘ R99 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction in an earlier release)*
***B*** *(addition of feature),*
***C*** *(functional modification of feature)*
***D*** *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

*Use one of the following releases:*
*2 (GSM Phase 2)*
*R96 (Release 1996)*
*R97 (Release 1997)*
*R98 (Release 1998)*
*R99 (Release 1999)*
*REL-4 (Release 4)*
*REL-5 (Release 5)*

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | Due to interoperability problems of SSDT and closed loop mode TX diversity it is proposed that features in question are not combined together. |
| ***Summary of change:*** | ⌘ | SSDT and closed loop mode TX diversity are not used together |
| ***Consequences if not approved:*** | ⌘ | Interoperability problems with SSDT and closed loop mode TX diversity |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | 5.2.1 |
| ***Other specs affected:*** | ⌘ | ☐ Other core specifications ⌘<br>☐ Test specifications<br>☐ O&M Specifications |
| ***Other comments:*** | ⌘ | This CR is considered to have isolated impact. This would not affect implementations behaving like indicated in the CR, but would affect implementations supporting the corrected functionality. |

**How to create CRs using this form:**
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

The uplink DPCCH is used to carry control information generated at Layer 1. The Layer 1 control information consists of known pilot bits to support channel estimation for coherent detection, transmit power-control (TPC) commands, feedback information (FBI), and an optional transport-format combination indicator (TFCI). The transport-format combination indicator informs the receiver about the instantaneous transport format combination of the transport channels mapped to the simultaneously transmitted uplink DPDCH radio frame. There is one and only one uplink DPCCH on each radio link.

Figure 1 shows the frame structure of the uplink dedicated physical channels. Each radio frame of length 10 ms is split into 15 slots, each of length $T_{slot}$ = 2560 chips, corresponding to one power-control period.

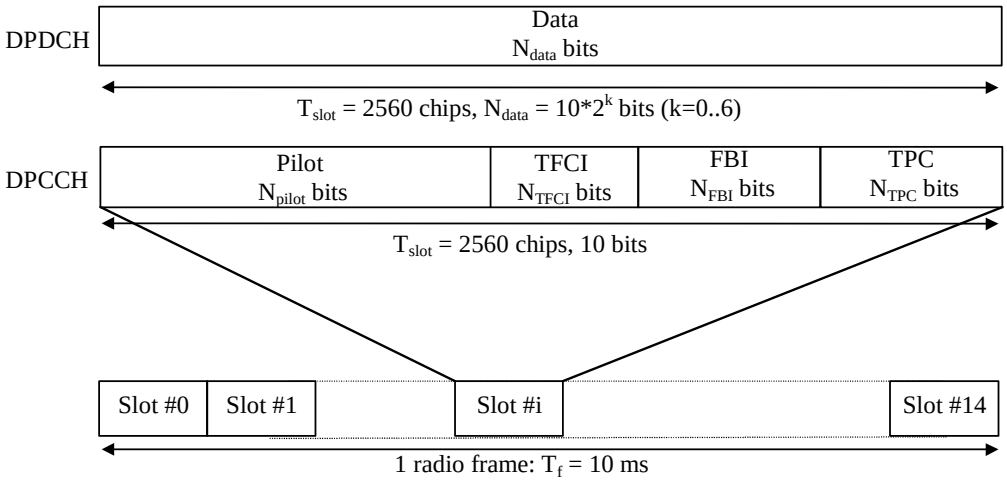


**Figure 1: Frame structure for uplink DPDCH/DPCCH**

The parameter k in figure 1 determines the number of bits per uplink DPDCH slot. It is related to the spreading factor SF of the DPDCH as SF = $256/2^k$. The DPDCH spreading factor may range from 256 down to 4. The spreading factor of the uplink DPCCH is always equal to 256, i.e. there are 10 bits per uplink DPCCH slot.

The exact number of bits of the uplink DPDCH and the different uplink DPCCH fields ($N_{pilot}$, $N_{TFCI}$, $N_{FBI}$, and $N_{TPC}$) is given by table 1 and table 2. What slot format to use is configured by higher layers and can also be reconfigured by higher layers.

The channel bit and symbol rates given in table 1 and table 2 are the rates immediately before spreading. The pilot patterns are given in table 3 and table 4, the TPC bit pattern is given in table 5.

The FBI bits are used to support techniques requiring feedback from the UE to the UTRAN Access Point, including closed loop mode transmit diversity and site selection diversity transmission (SSDT). The structure of the FBI field is shown in figure 2 and described below.

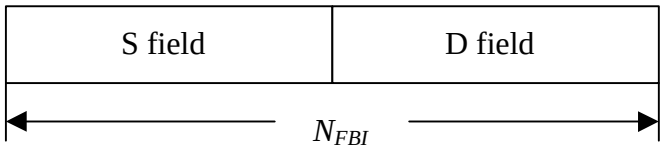


**Figure 2: Details of FBI field**

The S field is used for SSDT signalling, while the D field is used for closed loop mode transmit diversity signalling. The S field consists of 0, 1 or 2 bits. The D field consists of 0 or 1 bit. The total FBI field size $N_{FBI}$ is given by table 2. If total FBI field is not filled with S field or D field, FBI field shall be filled with "1". When $N_{FBI}$ is 2bits, S field is 0bit and D field is 1bit, left side field shall be filled with "1" and right side field shall be D field. ~~Simultaneous use of SSDT power control and closed loop mode transmit diversity requires that the S field consists of 1 bit.~~ The use of the FBI fields is described in detail in [5].

**3GPP TSG-RAN Meeting#14**
**Kyoto, Japan, 11-14 December 2001**

***RP-01-0932***

*CR-Form-v5*

# CHANGE REQUEST

⌘ **25.211** **CR** **135** ⌘ **rev** **-** ⌘ Current version: **4.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Restriction to simultaneous use of SSDT and closed loop mode TX diversity |
| ***Source:*** | ⌘ | Nokia |
| ***Work item code:*** | ⌘ | ***Date:*** ⌘ 11.12.2001 |
| ***Category:*** | ⌘ | **A** ***Release:*** ⌘ REL-4 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction in an earlier release)*
***B*** *(addition of feature),*
***C*** *(functional modification of feature)*
***D*** *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

*Use one of the following releases:*
*2 (GSM Phase 2)*
*R96 (Release 1996)*
*R97 (Release 1997)*
*R98 (Release 1998)*
*R99 (Release 1999)*
*REL-4 (Release 4)*
*REL-5 (Release 5)*

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | Due to interoperability problems of SSDT and closed loop mode TX diversity it is proposed that features in question are not combined together. |
| ***Summary of change:*** | ⌘ | SSDT and closed loop mode TX diversity are not used together |
| ***Consequences if not approved:*** | ⌘ | Interoperability problems with SSDT and closed loop mode TX diversity |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | 5.2.1 |
| ***Other specs affected:*** | ⌘ | ☐ Other core specifications ⌘<br>☐ Test specifications<br>☐ O&M Specifications |
| ***Other comments:*** | ⌘ | This CR is considered to have isolated impact. This would not affect implementations behaving like indicated in the CR, but would affect implementations supporting the corrected functionality. |

**How to create CRs using this form:**
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

The uplink DPCCH is used to carry control information generated at Layer 1. The Layer 1 control information consists of known pilot bits to support channel estimation for coherent detection, transmit power-control (TPC) commands, feedback information (FBI), and an optional transport-format combination indicator (TFCI). The transport-format combination indicator informs the receiver about the instantaneous transport format combination of the transport channels mapped to the simultaneously transmitted uplink DPDCH radio frame. There is one and only one uplink DPCCH on each radio link.

Figure 1 shows the frame structure of the uplink dedicated physical channels. Each radio frame of length 10 ms is split into 15 slots, each of length $T_{slot}$ = 2560 chips, corresponding to one power-control period.

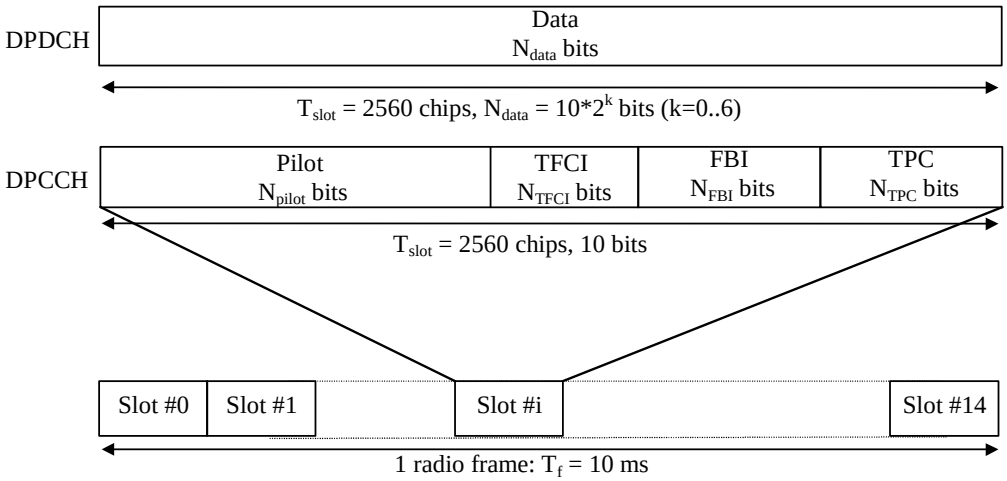


**Figure 1: Frame structure for uplink DPDCH/DPCCH**

The parameter k in figure 1 determines the number of bits per uplink DPDCH slot. It is related to the spreading factor SF of the DPDCH as SF = $256/2^k$. The DPDCH spreading factor may range from 256 down to 4. The spreading factor of the uplink DPCCH is always equal to 256, i.e. there are 10 bits per uplink DPCCH slot.

The exact number of bits of the uplink DPDCH and the different uplink DPCCH fields ($N_{pilot}$, $N_{TFCI}$, $N_{FBI}$, and $N_{TPC}$) is given by table 1 and table 2. What slot format to use is configured by higher layers and can also be reconfigured by higher layers.

The channel bit and symbol rates given in table 1 and table 2 are the rates immediately before spreading. The pilot patterns are given in table 3 and table 4, the TPC bit pattern is given in table 5.

The FBI bits are used to support techniques requiring feedback from the UE to the UTRAN Access Point, including closed loop mode transmit diversity and site selection diversity transmission (SSDT). The structure of the FBI field is shown in figure 2 and described below.

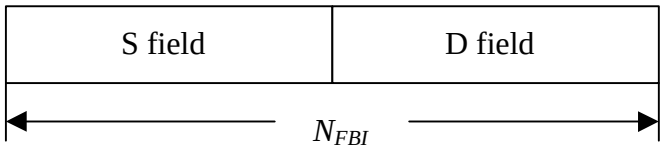


**Figure 2: Details of FBI field**

The S field is used for SSDT signalling, while the D field is used for closed loop mode transmit diversity signalling. The S field consists of 0, 1 or 2 bits. The D field consists of 0 or 1 bit. The total FBI field size $N_{FBI}$ is given by table 2. If total FBI field is not filled with S field or D field, FBI field shall be filled with "1". When $N_{FBI}$ is 2bits, S field is 0bit and D field is 1bit, left side field shall be filled with "1" and right side field shall be D field. ~~Simultaneous use of SSDT power control and closed loop mode transmit diversity requires that the S field consists of 1 bit.~~ The use of the FBI fields is described in detail in [5].