TSG RAN Meeting #19 **RP-030071**
Birmingham, UK, 11 - 14 March 2003

Title **CRs (Rel-4 and Rel-5 Category A) to TS 25.423 and 25.433 on Midamble Configuration for Midamble Shift LCR**
Source **TSG RAN WG3**
Agenda Item **8.3.6**

RAN3 Tdoc	Spec	curr. Vers.	new Vers.	REL	CR	Rev	Cat	Title	Work item
R3-030122	25.423	4.7.0	4.8.0	REL-4	791	-	F	Midamble Configuration for Midamble Shift LCR	LCRTDD-lublur
R3-030123	25.423	5.4.0	5.5.0	REL-5	792	-	A	Midamble Configuration for Midamble Shift LCR	LCRTDD-lublur
R3-030120	25.433	4.7.0	4.8.0	REL-4	810	-	F	Midamble Configuration for Midamble Shift LCR	LCRTDD-lublur
R3-030121	25.433	5.3.0	5.4.0	REL-5	811	-	A	Midamble Configuration for Midamble Shift LCR	LCRTDD-lublur

3GPP TSG-RAN Meeting #32 ***Tdoc ⌘R3-030122***
Sophia Antipolis, France, 17th – 21st February 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.423** **CR** **791** ⌘**rev** **-** ⌘ Current version: **4.7.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Midamble Configuration for Midamble Shift LCR		
Source:	⌘	RAN WG3		
Work item code:	⌘	LCRTDD-Iublur	***Date:*** ⌘	17/02/2003
Category:	⌘	**F**	***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)
Rel-6 (Release 6)

Reason for change:	⌘	The Midamble Configuration gives the association between Midambles and Channelisation Codes but the Midamble Configuration is missing in RNSAP for LCR TDD. RAN2 (TS 25.331) has defined the Midamble Configuration via flexible signalling and also RAN3 has defined the Midamble Configuration for HCR TDD in the *Midamble Shift And Burst Type* IE. Therefore the Midamble Configuration should be introduced in the *Midamble Shift LCR* IE in RNSAP. Procedure Text for the three different midamble allocation schemes should be added to indicate the different midamble selections.
Summary of change:	⌘	Midamble Configuration is added in the *Midamble Shift LCR* IE in tabular format and ASN.1. The three different midamble allocation schemes are explained in the procedure text for LCR TDD and for HCR TDD it is updated so that is clarified that the Common midamble is possible in DL only.
Consequences if not approved:	⌘	If this CR is not approved, the Midamble Configuration is missing in the Midamble Shift LCR IE and therefore it is not possible to signal the Midamble Configuration via RNSAP. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because the Midamble Configuration is introduced for LCR TDD. This CR has an impact under functional point of view. The impact can be considered isolated because the change affects one function namely Midamble Alloocation for LCR TDD. The change is backward incompatible but is necessary because it fixes a clear

	error in the specification.

Clauses affected:	⌘	9.2.3.4, 9.2.3.4C, 9.3.4			
		Y	**N**		
Other specs	⌘	**X**		Other core specifications	⌘ 25.433 REL-4 CR810 25.433 REL-5 CR811 25.423 REL-5 CR792
affected:			**X**	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

9.2.3.4 Midamble Shift And Burst Type

This information element indicates burst type and midamble allocation.

Three different midamble allocation schemes exist:

- Default midamble: the midamble ~~shift~~ is ~~selected~~allocated by layer 1 depending on the associated channelisation code (DL and UL);
- Common midamble: the midamble ~~shift~~ is ~~chosen~~allocated by layer 1 depending on the number of channelisation codes (possible in DL only);
- UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL).

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
CHOICE *Burst Type*				
>*Type 1*				
>> Midamble Configuration Burst Type 1 And 3	M		ENUMERATED(4, 8, 16)	As defined in [12]
>>Midamble Allocation Mode	M		ENUMERATED (Default midamble, Common midamble, UE specific midamble)	
>>Midamble Shift Long	C-UE		INTEGER(0..15)	
>*Type 2*				
>> Midamble Configuration Burst Type 2	M		ENUMERATED(3,6)	As defined in [12]
>>Midamble Allocation Mode	M		ENUMERATED (Default midamble, Common midamble, UE specific midamble)	
>>Midamble Shift Short			INTEGER (0..5)	
>*Type 3*				UL only
>> Midamble Configuration Burst Type 1 And 3	M		ENUMERATED(4, 8, 16)	As defined in [12]
>>Midamble Allocation Mode	M		ENUMERATED (Default midamble, UE specific midamble)	
>>Midamble Shift Long	C-UE		INTEGER(0..15)	

Condition	Explanation
UE	The IE shall be present if the *Midamble Allocation Mode* IE is set to "UE-specific midamble".

/* partly omitted */

9.2.3.4C Midamble Shift LCR

This information element indicates midamble allocation in 1.28Mcps TDD.

Three different midamble allocation schemes exist:

- Default midamble: the midamble is allocated by layer 1 depending on the associated channelisation code (DL and UL);

- Common midamble: the midamble is allocated by layer 1 depending on the number of channelisation codes (possible in DL only);

- UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL).

IE/Group name	Presence	Range	IE Type and Reference	Semantics Description
Midamble Allocation Mode	M		ENUMERATED (Default midamble, Common midamble, UE specific midamble,...)	
Midamble Shift Long	C-UE		INTEGER(0..15)	
Midamble Configuration LCR	M		ENUMERATED (2, 4, 6, 8, 10, 12, 14, 16, ...)	As defined in [12]

Condition	Explanation
UE	The IE shall be present if the *Midamble Allocation Mode* IE is set to "UE-specific midamble".

/* partly omitted */

9.3.4 Information Element Definitions

/* partly omitted */

```
-- M

MaxNrOfUL-DPCHs             ::= INTEGER (1..6)

MAC-c-sh-SDU-Length         ::= INTEGER (1..5000)

MAC-c-sh-SDU-LengthList ::= SEQUENCE(SIZE(1..maxNrOfMACcshSDU-Length)) OF MAC-c-sh-SDU-Length

MaximumAllowedULTxPower     ::= INTEGER (-50..33)

MaxNrDLPhysicalchannels     ::= INTEGER (1..224)

MaxNrTimeslots              ::= INTEGER (1..14)

MaxNrULPhysicalchannels     ::= INTEGER (1..2)

MaxTFCIvalue                ::= INTEGER (1..1023)

MeasurementFilterCoefficient ::=  ENUMERATED{k0, k1, k2, k3, k4, k5, k6, k7, k8, k9, k11, k13, k15, k17, k19,...}
-- Measurement Filter Coefficient to be used for measurement

MeasurementID               ::= INTEGER (0..1048575)

MinimumSpreadingFactor      ::= INTEGER (1..16)

Multi-code-info             ::= INTEGER (1..16)

MultipleURAsIndicator ::= ENUMERATED {
    multiple-URAs-exist,
    single-URA-exists
}

MaxAdjustmentStep           ::= INTEGER(1..10)
-- Unit Slot

MeasurementChangeTime       ::= INTEGER (1..6000,...)
-- The MeasurementChangeTime  gives the MeasurementChangeTime
-- in number of 10 ms periods.
-- E.g. Value 6000 means 60000ms(1min)
-- Unit is ms, Step is 10 ms

MeasurementHysteresisTime       ::= INTEGER (1..6000,...)
-- The MeasurementHysteresisTime  gives the
-- MeasurementHysteresisTime in number of 10 ms periods.
-- E.g. Value 6000 means 60000ms(1min)
-- Unit is ms, Step is 10ms
```

```
MeasurementIncreaseDecreaseThreshold        ::= CHOICE {
    sir                             SIR-Value-IncrDecrThres,
    sir-error                       SIR-Error-Value-IncrDecrThres,
    transmitted-code-power          Transmitted-Code-Power-Value-IncrDecrThres,
    rscp                            RSCP-Value-IncrDecrThres,
    round-trip-time                 Round-Trip-Time-IncrDecrThres,
    ...,
    extension-MeasurementIncreaseDecreaseThreshold      Extension-MeasurementIncreaseDecreaseThreshold
}

Extension-MeasurementIncreaseDecreaseThreshold  ::= ProtocolIE-Single-Container {{ Extension-MeasurementIncreaseDecreaseThresholdIE }}

Extension-MeasurementIncreaseDecreaseThresholdIE RNSAP-PROTOCOL-IES ::= {
    { ID id-Load-Value-IncrDecrThres    CRITICALITY reject  TYPE Load-Value-IncrDecrThres   PRESENCE mandatory }|
    { ID id-Transmitted-Carrier-Power-Value-IncrDecrThres   CRITICALITY reject  TYPE Transmitted-Carrier-Power-Value-IncrDecrThres   PRESENCE
mandatory }|
    { ID id-Received-Total-Wideband-Power-Value-IncrDecrThres   CRITICALITY reject  TYPE Received-Total-Wideband-Power-Value-IncrDecrThres
    PRESENCE mandatory }|
    { ID id-UL-Timeslot-ISCP-Value-IncrDecrThres    CRITICALITY reject  TYPE UL-Timeslot-ISCP-Value-IncrDecrThres  PRESENCE mandatory }
}

MeasurementThreshold            ::= CHOICE {
    sir                             SIR-Value,
    sir-error                       SIR-Error-Value,
    transmitted-code-power          Transmitted-Code-Power-Value,
    rscp                            RSCP-Value,
    rx-timing-deviation             Rx-Timing-Deviation-Value,
    round-trip-time                 Round-Trip-Time-Value,
    ...,
    extension-MeasurementThreshold  Extension-MeasurementThreshold
}

Extension-MeasurementThreshold  ::= ProtocolIE-Single-Container {{ Extension-MeasurementThresholdIE }}

Extension-MeasurementThresholdIE RNSAP-PROTOCOL-IES ::= {
    { ID id-TUTRANGPSMeasurementThresholdInformation    CRITICALITY reject  TYPE TUTRANGPSMeasurementThresholdInformation    PRESENCE mandatory }|
    { ID id-SFNSFNMeasurementThresholdInformation   CRITICALITY reject  TYPE SFNSFNMeasurementThresholdInformation    PRESENCE mandatory }|
    { ID id-Load-Value  CRITICALITY reject  TYPE Load-Value     PRESENCE mandatory }|
    { ID id-Transmitted-Carrier-Power-Value     CRITICALITY reject  TYPE Transmitted-Carrier-Power-Value     PRESENCE mandatory }|
    { ID id-Received-Total-Wideband-Power-Value     CRITICALITY reject  TYPE Received-Total-Wideband-Power-Value    PRESENCE mandatory }|
    { ID id-UL-Timeslot-ISCP-Value      CRITICALITY reject  TYPE UL-Timeslot-ISCP-Value     PRESENCE mandatory }|
    { ID id-Rx-Timing-Deviation-Value-LCR   CRITICALITY reject  TYPE Rx-Timing-Deviation-Value-LCR   PRESENCE mandatory}
}

MidambleConfigurationLCR ::=    ENUMERATED {v2, v4, v6, v8, v10, v12, v14, v16, ...}

MidambleConfigurationBurstType1And3 ::=     ENUMERATED {v4, v8, v16}

MidambleConfigurationBurstType2 ::=     ENUMERATED {v3, v6}

MidambleShiftAndBurstType ::=       CHOICE {
    type1                               SEQUENCE {
```

```
        midambleConfigurationBurstType1And3     MidambleConfigurationBurstType1And3,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            commonMidamble                      NULL,
            ueSpecificMidamble                  MidambleShiftLong,
            ...
        },
        ...
    },
    type2                               SEQUENCE {
        midambleConfigurationBurstType2     MidambleConfigurationBurstType2,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            commonMidamble                      NULL,
            ueSpecificMidamble                  MidambleShiftShort,
            ...
        },
        ...
    },
    type3                               SEQUENCE {
        midambleConfigurationBurstType1And3 MidambleConfigurationBurstType1And3,
        midambleAllocationMode          CHOICE {
            defaultMidamble                     NULL,
            ueSpecificMidamble                  MidambleShiftLong,
            ...
        },
        ...
    },
    ...
}

MidambleShiftLong ::=               INTEGER (0..15)

MidambleShiftShort ::=              INTEGER (0..5)

MidambleShiftLCR ::= SEQUENCE {
    midambleAllocationMode      MidambleAllocationMode,
    midambleShift               MidambleShiftLong       OPTIONAL,
        -- The IE shall be present if the Midamble Allocation Mode IE is set to "UE specific midamble".
    midambleConfigurationLCR        MidambleConfigurationLCR,
    iE-Extensions               ProtocolExtensionContainer { {MidambleShiftLCR-ExtIEs} }        OPTIONAL,
    ...
    }

MidambleAllocationMode ::= ENUMERATED {
    defaultMidamble,
    commonMidamble,
    uESpecificMidamble,
    ...
    }

MidambleShiftLCR-ExtIEs  RNSAP-PROTOCOL-EXTENSION ::= {
    ...
```

```
}

MinUL-ChannelisationCodeLength      ::= ENUMERATED {
    v4,
    v8,
    v16,
    v32,
    v64,
    v128,
    v256
}

Modulation ::= ENUMERATED {
    qPSK,
    eightPSK,
    ...
}

MultiplexingPosition ::= ENUMERATED {
    fixed,
    flexible
}
```

/* partly omitted */

3GPP TSG-RAN Meeting #32 **Tdoc ⌘R3-030123**
Sophia Antipolis, France, 17th – 21st February 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.423** **CR** **792** ⌘**rev** **-** ⌘ Current version: **5.4.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Midamble Configuration for Midamble Shift LCR			
Source:	⌘	RAN WG3			
Work item code:	⌘	LCRTDD-Iublur	***Date:***	⌘	17/02/2003
Category:	⌘	**A**	***Release:***	⌘	Rel-5

Use one of the following categories:
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A *(corresponds to a correction in an earlier release)*
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Use one of the following releases:
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R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The Midamble Configuration gives the association between Midambles and Channelisation Codes but the Midamble Configuration is missing in RNSAP for LCR TDD. RAN2 (TS 25.331) has defined the Midamble Configuration via flexible signalling and also RAN3 has defined the Midamble Configuration for HCR TDD in the *Midamble Shift And Burst Type* IE. Therefore the Midamble Configuration should be introduced in the *Midamble Shift LCR* IE in RNSAP. Procedure Text for the three different midamble allocation schemes should be added to indicate the different midamble selections.
Summary of change:	⌘	Midamble Configuration is added in the *Midamble Shift LCR* IE in tabular format and ASN.1. The three different midamble allocation schemes are explained in the procedure text for LCR TDD and for HCR TDD it is updated so that is clarified that the Common midamble is possible in DL only.
Consequences if not approved:	⌘	If this CR is not approved, the Midamble Configuration is missing in the Midamble Shift LCR IE and therefore it is not possible to signal the Midamble Configuration via RNSAP. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because the Midamble Configuration is introduced for LCR TDD. This CR has an impact under functional point of view. The impact can be considered isolated because the change affects one function namely Midamble Alloocation for LCR TDD. The change is backward incompatible but is necessary because it fixes a clear

	error in the specification.

Clauses affected:	⌘	9.2.3.4, 9.2.3.4C, 9.3.4			
		Y	**N**		
Other specs	⌘	**X**		Other core specifications	⌘ 25.433 REL-4 CR810 25.433 REL-5 CR811 25.423 REL-4 CR791
affected:			**X**	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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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.

9.2.3.4 Midamble Shift And Burst Type

This information element indicates burst type and midamble allocation.

Three different midamble allocation schemes exist:

- Default midamble: the midamble ~~shift~~ is ~~selected~~allocated by layer 1 depending on the associated channelisation code (DL and UL);
- Common midamble: the midamble ~~shift~~ is ~~chosen~~allocated by layer 1 depending on the number of channelisation codes (possible in DL only);
- UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL).

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
CHOICE *Burst Type*				
>*Type 1*				
>> Midamble Configuration Burst Type 1 And 3	M		ENUMERATED(4, 8, 16)	As defined in [12]
>>Midamble Allocation Mode	M		ENUMERATED(Default midamble, Common midamble, UE specific midamble)	
>>Midamble Shift Long	C-UE		INTEGER(0..15)	
>*Type 2*				
>> Midamble Configuration Burst Type 2	M		ENUMERATED (3, 6)	As defined in [12]
>>Midamble Allocation Mode	M		ENUMERATED(Default midamble, Common midamble, UE specific midamble)	
>>Midamble Shift Short			INTEGER (0..15)	
>*Type 3*				UL only
>> Midamble Configuration Burst Type 1 And 3	M		ENUMERATED (4, 8, 16)	As defined in [12]
>>Midamble Allocation Mode	M		ENUMERATED(Default midamble, UE specific midamble)	
>>Midamble Shift Long	C-UE		INTEGER(0..15)	

Condition	Explanation
UE	The IE shall be present if the *Midamble Allocation Mode* IE is set to "UE-specific midamble".

/* partly omitted */

9.2.3.4C Midamble Shift LCR

This information element indicates midamble allocation in 1.28Mcps TDD.

Three different midamble allocation schemes exist:

- Default midamble: the midamble is allocated by layer 1 depending on the associated channelisation code (DL and UL);

- Common midamble: the midamble is allocated by layer 1 depending on the number of channelisation codes (possible in DL only);

- UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL).

IE/Group name	Presence	Range	IE Type and Reference	Semantics Description
Midamble Allocation Mode	M		ENUMERATED (Default midamble, Common midamble, UE specific midamble,...)	
Midamble Shift Long	C-UE		INTEGER(0..15)	
Midamble Configuration LCR	M		ENUMERATED (2, 4, 6, 8, 10, 12, 14, 16, ...)	As defined in [12]

Condition	Explanation
UE	The IE shall be present if the *Midamble Allocation Mode* IE is set to "UE-specific midamble".

/* partly omitted */

9.3.4 Information Element Definitions

/* partly omitted */

```
-- M

MaxNrOfUL-DPCHs             ::= INTEGER (1..6)

MAC-c-sh-SDU-Length         ::= INTEGER (1..5000)

MAC-c-sh-SDU-LengthList ::= SEQUENCE(SIZE(1..maxNrOfMACcshSDU-Length)) OF MAC-c-sh-SDU-Length

MACdPDU-Size ::= INTEGER (1..5000,...)

MACdPDU-Size-IndexList ::= SEQUENCE (SIZE (1..maxNrOfPDUIndexes)) OF MACdPDU-Size-IndexItem

MACdPDU-Size-IndexItem ::= SEQUENCE {
    sID                             SID,
    mACdPDU-Size                    MACdPDU-Size,
    iE-Extensions                   ProtocolExtensionContainer { { MACdPDU-Size-IndexItem-ExtIEs } }        OPTIONAL,
    ...
}

MACdPDU-Size-IndexItem-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

MACdPDU-Size-IndexList-to-Modify ::= SEQUENCE (SIZE (1..maxNrOfPDUIndexes)) OF MACdPDU-Size-IndexItem-to-Modify

MACdPDU-Size-IndexItem-to-Modify ::= SEQUENCE {
    sID                             SID,
    mACdPDU-Size                    MACdPDU-Size                            OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { { MACdPDU-Size-IndexItem-to-Modify-ExtIEs } }       OPTIONAL,
    ...
}

MACdPDU-Size-IndexItem-to-Modify-ExtIEs RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

MAC-hsWindowSize        ::= ENUMERATED {v4, v6, v8, v12, v16, v24, v32,...}

MaximumAllowedULTxPower     ::= INTEGER (-50..33)

MaxNrDLPhysicalchannels     ::= INTEGER (1..224)

MaxNrTimeslots              ::= INTEGER (1..14)

MaxNrULPhysicalchannels     ::= INTEGER (1..2)
```

```
MaxTFCIvalue                ::= INTEGER (1..1023)

MeasurementFilterCoefficient ::=  ENUMERATED{k0, k1, k2, k3, k4, k5, k6, k7, k8, k9, k11, k13, k15, k17, k19,...}
-- Measurement Filter Coefficient to be used for measurement

MeasurementID               ::= INTEGER (0..1048575)

Measurement-Power-Offset ::= INTEGER(-12 .. 26)
-- Actual value = IE value * 0.5

MinimumSpreadingFactor      ::= INTEGER (1..16)

Multi-code-info             ::= INTEGER (1..16)

MultipleURAsIndicator ::= ENUMERATED {
    multiple-URAs-exist,
    single-URA-exists
}

MaxAdjustmentStep           ::= INTEGER(1..10)
-- Unit Slot

MeasurementChangeTime       ::= INTEGER (1..6000,...)
-- The MeasurementChangeTime  gives the MeasurementChangeTime
-- in number of 10 ms periods.
-- E.g. Value 6000 means 60000ms(1min)
-- Unit is ms, Step is 10 ms

Measurement-Feedback-Offset ::= INTEGER (0..79,...)

MeasurementHysteresisTime       ::= INTEGER (1..6000,...)
-- The MeasurementHysteresisTime  gives the
-- MeasurementHysteresisTime in number of 10 ms periods.
-- E.g. Value 6000 means 60000ms(1min)
-- Unit is ms, Step is 10ms

MeasurementIncreaseDecreaseThreshold        ::= CHOICE {
    sir                             SIR-Value-IncrDecrThres,
    sir-error                       SIR-Error-Value-IncrDecrThres,
    transmitted-code-power          Transmitted-Code-Power-Value-IncrDecrThres,
    rscp                            RSCP-Value-IncrDecrThres,
    round-trip-time                 Round-Trip-Time-IncrDecrThres,
    ...,
    extension-MeasurementIncreaseDecreaseThreshold      Extension-MeasurementIncreaseDecreaseThreshold
}

Extension-MeasurementIncreaseDecreaseThreshold  ::= ProtocolIE-Single-Container {{ Extension-MeasurementIncreaseDecreaseThresholdIE }}

Extension-MeasurementIncreaseDecreaseThresholdIE RNSAP-PROTOCOL-IES ::= {
    { ID id-Load-Value-IncrDecrThres    CRITICALITY reject  TYPE Load-Value-IncrDecrThres   PRESENCE mandatory }|
    { ID id-Transmitted-Carrier-Power-Value-IncrDecrThres   CRITICALITY reject  TYPE Transmitted-Carrier-Power-Value-IncrDecrThres   PRESENCE
mandatory }|
```

```
    { ID id-Received-Total-Wideband-Power-Value-IncrDecrThres   CRITICALITY reject  TYPE Received-Total-Wideband-Power-Value-IncrDecrThres
    PRESENCE mandatory }|
    { ID id-UL-Timeslot-ISCP-Value-IncrDecrThres    CRITICALITY reject  TYPE UL-Timeslot-ISCP-Value-IncrDecrThres  PRESENCE mandatory }|
    { ID id-RT-Load-Value-IncrDecrThres CRITICALITY reject  TYPE RT-Load-Value-IncrDecrThres    PRESENCE mandatory }|
    { ID id-NRT-Load-Information-Value-IncrDecrThres    CRITICALITY reject  TYPE NRT-Load-Information-Value-IncrDecrThres PRESENCE mandatory }
}

MeasurementThreshold            ::= CHOICE {
    sir                             SIR-Value,
    sir-error                       SIR-Error-Value,
    transmitted-code-power          Transmitted-Code-Power-Value,
    rscp                            RSCP-Value,
    rx-timing-deviation             Rx-Timing-Deviation-Value,
    round-trip-time                 Round-Trip-Time-Value,
    ...,
    extension-MeasurementThreshold  Extension-MeasurementThreshold
}

Extension-MeasurementThreshold  ::= ProtocolIE-Single-Container {{ Extension-MeasurementThresholdIE }}

Extension-MeasurementThresholdIE RNSAP-PROTOCOL-IES ::= {
    { ID id-TUTRANGPSMeasurementThresholdInformation    CRITICALITY reject  TYPE TUTRANGPSMeasurementThresholdInformation    PRESENCE mandatory }|
    { ID id-SFNSFNMeasurementThresholdInformation   CRITICALITY reject  TYPE SFNSFNMeasurementThresholdInformation    PRESENCE mandatory }|
    { ID id-Load-Value  CRITICALITY reject  TYPE Load-Value     PRESENCE mandatory }|
    { ID id-Transmitted-Carrier-Power-Value     CRITICALITY reject  TYPE Transmitted-Carrier-Power-Value     PRESENCE mandatory }|
    { ID id-Received-Total-Wideband-Power-Value     CRITICALITY reject  TYPE Received-Total-Wideband-Power-Value    PRESENCE mandatory }|
    { ID id-UL-Timeslot-ISCP-Value      CRITICALITY reject  TYPE UL-Timeslot-ISCP-Value     PRESENCE mandatory }|
    { ID id-RT-Load-Value   CRITICALITY reject  TYPE RT-Load-Value      PRESENCE mandatory }|
    { ID id-NRT-Load-Information-Value  CRITICALITY reject  TYPE NRT-Load-Information-Value     PRESENCE mandatory }|
    { ID id-Rx-Timing-Deviation-Value-LCR   CRITICALITY reject  TYPE Rx-Timing-Deviation-Value-LCR   PRESENCE mandatory}
}

MidambleConfigurationLCR ::=    ENUMERATED {v2, v4, v6, v8, v10, v12, v14, v16, ...}

MidambleConfigurationBurstType1And3 ::=     ENUMERATED {v4, v8, v16}

MidambleConfigurationBurstType2 ::=     ENUMERATED {v3, v6}

MidambleShiftAndBurstType ::=       CHOICE {
    type1                               SEQUENCE {
        midambleConfigurationBurstType1And3     MidambleConfigurationBurstType1And3,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            commonMidamble                      NULL,
            ueSpecificMidamble                  MidambleShiftLong,
            ...
        },
        ...
    },
    type2                               SEQUENCE {
        midambleConfigurationBurstType2     MidambleConfigurationBurstType2,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
```

```
            commonMidamble                      NULL,
            ueSpecificMidamble                  MidambleShiftShort,
            ...
        },
        ...
    },
    type3                               SEQUENCE {
        midambleConfigurationBurstType1And3 MidambleConfigurationBurstType1And3,
        midambleAllocationMode          CHOICE {
            defaultMidamble                     NULL,
            ueSpecificMidamble                  MidambleShiftLong,
            ...
        },
        ...
    },
    ...
}

MidambleShiftLong ::=               INTEGER (0..15)

MidambleShiftShort ::=              INTEGER (0..5)

MidambleShiftLCR ::= SEQUENCE {
    midambleAllocationMode      MidambleAllocationMode,
    midambleShift               MidambleShiftLong       OPTIONAL,
        -- The IE shall be present if the Midamble Allocation Mode IE is set to "UE specific midamble".
    midambleConfigurationLCR        MidambleConfigurationLCR,
    iE-Extensions               ProtocolExtensionContainer { {MidambleShiftLCR-ExtIEs} }        OPTIONAL,
    ...
    }

MidambleAllocationMode ::= ENUMERATED {
    defaultMidamble,
    commonMidamble,
    uESpecificMidamble,
    ...
    }

MidambleShiftLCR-ExtIEs  RNSAP-PROTOCOL-EXTENSION ::= {
    ...
}

MinUL-ChannelisationCodeLength      ::= ENUMERATED {
    v4,
    v8,
    v16,
    v32,
    v64,
    v128,
    v256
}

Modulation ::= ENUMERATED {
```

```
    qPSK,
    eightPSK,
    ...
}

MultiplexingPosition ::= ENUMERATED {
    fixed,
    flexible
}

MAChs-ResetIndicator ::= ENUMERATED{
    mAChs-NotReset
}
```

/* partly omitted */

3GPP TSG-RAN Meeting #34 **Tdoc ⌘R3-030120**
Sophia Antipolis, France, 17th – 21st February 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.433** **CR** **810** ⌘**rev** **-** ⌘ Current version: **4.7.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Midamble Configuration for Midamble Shift LCR
Source:	⌘	RAN WG3
Work item code:	⌘	LCRTDD-Iublur
Date:	⌘	17/02/2003
Category:	⌘	**F**
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)
Rel-6 (Release 6)

Reason for change:	⌘	The Midamble Configuration gives the association between Midambles and Channelisation Codes but the Midamble Configuration is missing in NBAP for LCR TDD. RAN2 (TS 25.331) has defined the Midamble Configuration via flexible signalling and also RAN3 has defined the Midamble Configuration for HCR TDD in the *Midamble Shift And Burst Type* IE. Therefore the Midamble Configuration should be introduced in the *Midamble Shift LCR* IE in NBAP. Procedure Text for the three different midamble allocation schemes should be added to indicate the different midamble selections.
Summary of change:	⌘	Midamble Configuration is added in the *Midamble Shift LCR* IE in tabular format and ASN.1 and the tabular format is aligned with ASN.1. The three different midamble allocation schemes are explained in the procedure text for LCR TDD and for HCR TDD it is updated so that is clarified that the Common midamble is possible in DL only.
Consequences if not approved:	⌘	If this CR is not approved, the Midamble Configuration is missing in the Midamble Shift LCR IE and therefore it is not possible to signal the Midamble Configuration via NBAP. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because the Midamble Configuration is introduced for LCR TDD. This CR has an impact under functional point of view. The impact can be considered isolated because the change affects one function namely Midamble Alloocation for LCR TDD. The change is backward incompatible but is necessary because it fixes a clear

	error in the specification.

Clauses affected:	⌘	9.2.3.7, 9.2.3.7A, 9.3.4			
		Y	**N**		
Other specs	⌘	**X**		Other core specifications	⌘ 25.423 REL-4 CR791 25.423 REL-5 CR792 25.433 REL-5 CR811
affected:			**X**	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

9.2.3.7 Midamble Shift And Burst Type

This information element indicates burst type and midamble allocation.

The 256 chip midamble supports 3 different time shifts, the 512 chips midamble may support 8 or even 16 time shifts.

Three different midamble allocation schemes exist:

Default midamble: the midamble ~~shift~~ is ~~selected~~allocated by layer 1 depending on the associated channelisation code (DL and UL)

Common midamble: the midamble ~~shift~~ is ~~chosen~~allocated by layer 1 depending on the number of channelisation codes (possible in DL only)

UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL)

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
CHOICE *Burst Type*				
>Type1				
>>Midamble Configuration Burst Type 1 And 3	M		INTEGER (4, 8, 16)	As defined in [19]
>>CHOICE *Midamble Allocation Mode*	M			
>>>Default Midamble			NULL	
>>>Common Midamble			NULL	
>>>UE Specific Midamble				
>>Midamble Shift Long	M		INTEGER (0..15)	
>Type2				
>>Midamble Configuration Burst Type 2	M		INTEGER (3,6)	As defined in [19]
>>CHOICE *Midamble Allocation Mode*	M			
>>>Default Midamble			NULL	
>>>Common Midamble			NULL	
>>>UE Specific Midamble				
>>Midamble Shift Short	M		INTEGER (0..5)	
>Type3				UL only
>>Midamble Configuration Burst Type 1 And 3	M		INTEGER (4, 8, 16)	As defined in [19]
>>CHOICE *Midamble Allocation Mode*	M			
>>>Default Midamble			NULL	
>>>UE Specific Midamble				
>>Midamble Shift Long	M		INTEGER (0..15)	

9.2.3.7A Midamble Shift LCR

This information element indicates midamble allocation in 1.28Mcps TDD.

Three different midamble allocation schemes exist:

Default midamble: the midamble is allocated by layer 1 depending on the associated channelisation code (DL and UL)

Common midamble: the midamble is allocated by layer 1 depending on the number of channelisation codes (possible in DL only)

UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL)

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
Midamble Allocation Mode	M		ENUMERATED (Default midamble, Common midamble, UE specific midamble, …)	
Midamble Shift L~~CR~~ong	C-UE		INTEGER (0..15)	
Midamble Configuration LCR	M		ENUMERATED (2, 4, 6, 8, 10, 12, 14, 16, ...)	As defined in [19]

Condition	Explanation
UE	The IE shall be present if the *Midamble Allocation Mode* IE is set to "UE-specific midamble".

/* partly omitted */

9.3.4 Information Element Definitions

/* partly omitted */

```
-- ========================================
--  M
-- ========================================

MaximumDL-PowerCapability ::=  INTEGER(0..500)
-- Unit dBm, Range 0dBm .. 50dBm, Step +0.1dB

MaximumTransmissionPower ::=  INTEGER(0..500)
-- Unit dBm, Range 0dBm .. 50dBm, Step +0.1dB

MaxNrOfUL-DPDCHs ::= INTEGER (1..6)

Max-Number-of-PCPCHes ::= INTEGER (1..64,...)

MaxPRACH-MidambleShifts ::= ENUMERATED {
    shift4,
    shift8,
    ...
}

MeasurementFilterCoefficient ::= ENUMERATED {k0, k1, k2, k3, k4, k5, k6, k7, k8, k9, k11, k13, k15, k17, k19,...}
-- Measurement Filter Coefficient to be used for measurement

MeasurementID ::= INTEGER (0..1048575)

MessageStructure ::= SEQUENCE (SIZE (1..maxNrOfLevels)) OF
    SEQUENCE {
        iE-ID                   ProtocolIE-ID,
        repetitionNumber        RepetitionNumber1       OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {MessageStructure-ExtIEs} } OPTIONAL,
        ...
    }

MessageStructure-ExtIEs NBAP-PROTOCOL-EXTENSION ::= {
    ...
}


MidambleConfigurationLCR ::=    ENUMERATED {v2, v4, v6, v8, v10, v12, v14, v16, ...}

MidambleConfigurationBurstType1And3 ::=     ENUMERATED {v4, v8, v16}

MidambleConfigurationBurstType2 ::=     ENUMERATED {v3, v6}

MidambleShiftAndBurstType ::=       CHOICE {
    type1                               SEQUENCE {
```

```
        midambleConfigurationBurstType1And3 MidambleConfigurationBurstType1And3,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            commonMidamble                      NULL,
            ueSpecificMidamble                  MidambleShiftLong,
            ...
        },
    ...
    },
    type2                               SEQUENCE {
        midambleConfigurationBurstType2     MidambleConfigurationBurstType2,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            commonMidamble                      NULL,
            ueSpecificMidamble                  MidambleShiftShort,
            ...
        },
        ...
    },
    type3                               SEQUENCE {
        midambleConfigurationBurstType1And3 MidambleConfigurationBurstType1And3,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            ueSpecificMidamble                  MidambleShiftLong,
        ...
        },
        ...
    },
    ...
}

MidambleShiftLong ::=               INTEGER (0..15)

MidambleShiftShort ::=              INTEGER (0..5)

MidambleShiftLCR ::= SEQUENCE {
    midambleAllocationMode      MidambleAllocationMode,
    midambleShift               MidambleShiftLong       OPTIONAL,
        -- The IE shall be present if the Midamble Allocation Mode IE is set to "UE specific midamble".
    midambleConfigurationLCR        MidambleConfigurationLCR,
    iE-Extensions               ProtocolExtensionContainer { {MidambleShiftLCR-ExtIEs} }        OPTIONAL,
    ...
    }

MidambleAllocationMode ::= ENUMERATED {
    defaultMidamble,
    commonMidamble,
    uESpecificMidamble,
    ...
    }

MidambleShiftLCR-ExtIEs  NBAP-PROTOCOL-EXTENSION ::= {
```

```
    ...
}

MinimumDL-PowerCapability ::=  INTEGER(0..800)
-- Unit dBm, Range -30dBm .. 50dBm, Step +0.1dB

MinSpreadingFactor ::= ENUMERATED {
        v4,
        v8,
        v16,
        v32,
        v64,
        v128,
        v256,
        v512
}
--  TDD Mapping scheme for  the minimum spreading factor 1 and 2: "256" means 1, "512" means 2

Modulation ::= ENUMERATED {
    qPSK,
    eightPSK,
    ...
}

MinUL-ChannelisationCodeLength ::= ENUMERATED {
    v4,
    v8,
    v16,
    v32,
    v64,
    v128,
    v256,
    ...
}

MultiplexingPosition ::= ENUMERATED {
    fixed,
    flexible
}
```

/* partly omitted */

3GPP TSG-RAN Meeting #32 **Tdoc ⌘R3-030121**
Sophia Antipolis, France, 17th – 21st February 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.433** **CR** **811** ⌘**rev** **-** ⌘ Current version: **5.3.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Midamble Configuration for Midamble Shift LCR
Source:	⌘	RAN WG3
Work item code:	⌘	LCRTDD-Iublur
Date:	⌘	17/02/2003
Category:	⌘	**A**
Release:	⌘	Rel-5

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)*
Rel-6 *(Release 6)*

Reason for change:	⌘	The Midamble Configuration gives the association between Midambles and Channelisation Codes but the Midamble Configuration is missing in NBAP for LCR TDD. RAN2 (TS 25.331) has defined the Midamble Configuration via flexible signalling and also RAN3 has defined the Midamble Configuration for HCR TDD in the *Midamble Shift And Burst Type* IE. Therefore the Midamble Configuration should be introduced in the *Midamble Shift LCR* IE in NBAP. Procedure Text for the three different midamble allocation schemes should be added to indicate the different midamble selections.
Summary of change:	⌘	Midamble Configuration is added in the *Midamble Shift LCR* IE in tabular format and ASN.1 and the tabular format is aligned with ASN.1. The three different midamble allocation schemes are explained in the procedure text for LCR TDD and for HCR TDD it is updated so that is clarified that the Common midamble is possible in DL only.
Consequences if not approved:	⌘	If this CR is not approved, the Midamble Configuration is missing in the Midamble Shift LCR IE and therefore it is not possible to signal the Midamble Configuration via NBAP. Impact Analysis: Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because the Midamble Configuration is introduced for LCR TDD. This CR has an impact under functional point of view. The impact can be considered isolated because the change affects one function namely Midamble Alloocation for LCR TDD. The change is backward incompatible but is necessary because it fixes a clear

	error in the specification.

Clauses affected:	⌘	9.2.3.7, 9.2.3.7A, 9.3.4			
		Y	**N**		
Other specs	⌘	**X**		Other core specifications	⌘ 25.423 REL-4 CR791 25.423 REL-5 CR792 25.433 REL-4 CR810
affected:			**X**	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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.

9.2.3.7 Midamble Shift And Burst Type

This information element indicates burst type and midamble allocation.

The 256 chip midamble supports 3 different time shifts, the 512 chips midamble may support 8 or even 16 time shifts.

Three different midamble allocation schemes exist:

Default midamble: the midamble ~~shift~~ is ~~selected~~allocated by layer 1 depending on the associated channelisation code (DL and UL)

Common midamble: the midamble ~~shift~~ is ~~chosen~~allocated by layer 1 depending on the number of channelisation codes (possible in DL only)

UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL)

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
CHOICE *Burst Type*				
>Type1				
>>Midamble Configuration Burst Type 1 And 3	M		INTEGER (4, 8, 16)	As defined in [19]
>>CHOICE *Midamble Allocation Mode*	M			
>>>Default Midamble			NULL	
>>>Common Midamble			NULL	
>>>UE Specific Midamble				
>>Midamble Shift Long	M		INTEGER (0..15)	
>Type2				
>>Midamble Configuration Burst Type 2	M		INTEGER (3,6)	As defined in [19]
>>CHOICE *Midamble Allocation Mode*	M			
>>>Default Midamble			NULL	
>>>Common Midamble			NULL	
>>>UE Specific Midamble				
>>Midamble Shift Short	M		INTEGER (0..5)	
>Type3				UL only
>>Midamble Configuration Burst Type 1 And 3	M		INTEGER (4, 8, 16)	As defined in [19]
>>CHOICE *Midamble Allocation Mode*	M			
>>>Default Midamble			NULL	
>>>UE Specific Midamble				
>>Midamble Shift Long	M		INTEGER (0..15)	

9.2.3.7A Midamble Shift LCR

This information element indicates midamble allocation in 1.28Mcps TDD.

Three different midamble allocation schemes exist:

Default midamble: the midamble is allocated by layer 1 depending on the associated channelisation code (DL and UL)

Common midamble: the midamble is allocated by layer 1 depending on the number of channelisation codes (possible in DL only)

UE specific midamble: a UE specific midamble is explicitly assigned (DL and UL)

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
Midamble Allocation Mode	M		ENUMERATED (Default midamble, Common midamble, UE specific midamble, …)	
Midamble Shift L~~CR~~ong	C-UE		INTEGER (0..15)	
Midamble Configuration LCR	M		ENUMERATED (2, 4, 6, 8, 10, 12, 14, 16, ...)	As defined in [19]

Condition	Explanation
UE	The IE shall be present if the *Midamble Allocation Mode* IE is set to "UE-specific midamble".

/* partly omitted */

9.3.4 Information Element Definitions

/* partly omitted */

```
-- ==========================================
--  M
-- ==========================================

MACdPDU-Size ::= INTEGER (1..5000,...)

MACdPDU-Size-Indexlist ::= SEQUENCE (SIZE (1..maxNrOfMACdPDUIndexes)) OF MACdPDU-Size-IndexItem

MACdPDU-Size-IndexItem ::= SEQUENCE {
    sID                                 INTEGER (0..7),
    macdPDU-Size                        MACdPDU-Size,
    iE-Extensions                       ProtocolExtensionContainer { { MACdPDU-Size-IndexItem-ExtIEs} }              OPTIONAL,
    ...
}

MACdPDU-Size-IndexItem-ExtIEs NBAP-PROTOCOL-EXTENSION ::= {
    ...
}

MACdPDU-Size-Indexlist-to-Modify ::= SEQUENCE (SIZE (1..maxNrOfMACdPDUIndexes)) OF MACdPDU-Size-IndexItem-to-Modify

MACdPDU-Size-IndexItem-to-Modify ::= SEQUENCE {
    sID                                 INTEGER (0..7),
    macdPDU-Size                        MACdPDU-Size                                                        OPTIONAL,
    iE-Extensions                       ProtocolExtensionContainer { { MACdPDU-Size-IndexItem-to-Modify-ExtIEs} }     OPTIONAL,
    ...
}

MACdPDU-Size-IndexItem-to-Modify-ExtIEs NBAP-PROTOCOL-EXTENSION ::= {
    ...
}

MAC-hsWindowSize        ::= ENUMERATED {v4, v6, v8, v12, v16, v24, v32,...}

MaximumDL-PowerCapability ::=  INTEGER(0..500)
-- Unit dBm, Range 0dBm .. 50dBm, Step +0.1dB

Maximum-PDSCH-Power ::= SEQUENCE {
    maximum-PDSCH-Power-SF4     DL-Power        OPTIONAL,
    maximum-PDSCH-Power-SF8     DL-Power        OPTIONAL,
    maximum-PDSCH-Power-SF16    DL-Power        OPTIONAL,
    maximum-PDSCH-Power-SF32    DL-Power        OPTIONAL,
    maximum-PDSCH-Power-SF64    DL-Power        OPTIONAL,
    maximum-PDSCH-Power-SF128   DL-Power        OPTIONAL,
    maximum-PDSCH-Power-SF256   DL-Power        OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { Maximum-PDSCH-Power-ExtIEs} }        OPTIONAL,
```

```
    ...
}

Maximum-PDSCH-Power-ExtIEs NBAP-PROTOCOL-EXTENSION ::= {
    ...
}

MaximumTransmissionPower ::=  INTEGER(0..500)
-- Unit dBm, Range 0dBm .. 50dBm, Step +0.1dB

MaxNrOfUL-DPDCHs ::= INTEGER (1..6)

Max-Number-of-PCPCHes ::= INTEGER (1..64,...)

MaxPRACH-MidambleShifts ::= ENUMERATED {
    shift4,
    shift8,
    ...
}

MeasurementFilterCoefficient ::= ENUMERATED {k0, k1, k2, k3, k4, k5, k6, k7, k8, k9, k11, k13, k15, k17, k19,...}
-- Measurement Filter Coefficient to be used for measurement

MeasurementID ::= INTEGER (0..1048575)

Measurement-Power-Offset ::= INTEGER(-12 .. 26)
-- Actual value = IE value * 0.5

MessageStructure ::= SEQUENCE (SIZE (1..maxNrOfLevels)) OF
    SEQUENCE {
        iE-ID                   ProtocolIE-ID,
        repetitionNumber        RepetitionNumber1       OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {MessageStructure-ExtIEs} } OPTIONAL,
        ...
    }

MessageStructure-ExtIEs NBAP-PROTOCOL-EXTENSION ::= {
    ...
}


MidambleConfigurationLCR ::=    ENUMERATED {v2, v4, v6, v8, v10, v12, v14, v16, ...}

MidambleConfigurationBurstType1And3 ::=     ENUMERATED {v4, v8, v16}

MidambleConfigurationBurstType2 ::=     ENUMERATED {v3, v6}

MidambleShiftAndBurstType ::=       CHOICE {
    type1                               SEQUENCE {
        midambleConfigurationBurstType1And3 MidambleConfigurationBurstType1And3,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            commonMidamble                      NULL,
```

```
            ueSpecificMidamble                  MidambleShiftLong,
            ...
        },
    ...
    },
    type2                               SEQUENCE {
        midambleConfigurationBurstType2     MidambleConfigurationBurstType2,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            commonMidamble                      NULL,
            ueSpecificMidamble                  MidambleShiftShort,
            ...
        },
        ...
    },
    type3                               SEQUENCE {
        midambleConfigurationBurstType1And3 MidambleConfigurationBurstType1And3,
        midambleAllocationMode              CHOICE {
            defaultMidamble                     NULL,
            ueSpecificMidamble                  MidambleShiftLong,
        ...
        },
        ...
    },
    ...
}

MidambleShiftLong ::=               INTEGER (0..15)

MidambleShiftShort ::=              INTEGER (0..5)

MidambleShiftLCR ::= SEQUENCE {
    midambleAllocationMode      MidambleAllocationMode,
    midambleShift               MidambleShiftLong       OPTIONAL,
    -- The IE shall be present if the Midamble Allocation Mode IE is set to "UE specific midamble".
    midambleConfigurationLCR        MidambleConfigurationLCR,
    iE-Extensions               ProtocolExtensionContainer { {MidambleShiftLCR-ExtIEs} }        OPTIONAL,
    ...
    }

MidambleAllocationMode ::= ENUMERATED {
    defaultMidamble,
    commonMidamble,
    uESpecificMidamble,
    ...
    }

MidambleShiftLCR-ExtIEs  NBAP-PROTOCOL-EXTENSION ::= {
    ...
}

MinimumDL-PowerCapability ::=  INTEGER(0..800)
-- Unit dBm, Range -30dBm .. 50dBm, Step +0.1dB
```

```
MinSpreadingFactor ::= ENUMERATED {
        v4,
        v8,
        v16,
        v32,
        v64,
        v128,
        v256,
        v512
}
--  TDD Mapping scheme for the minimum spreading factor 1 and 2: "256" means 1, "512" means 2

Modulation ::= ENUMERATED {
    qPSK,
    eightPSK,
    ...
}

MinUL-ChannelisationCodeLength ::= ENUMERATED {
    v4,
    v8,
    v16,
    v32,
    v64,
    v128,
    v256,
    ...
}

MultiplexingPosition ::= ENUMERATED {
    fixed,
    flexible
}
```

/* partly omitted */