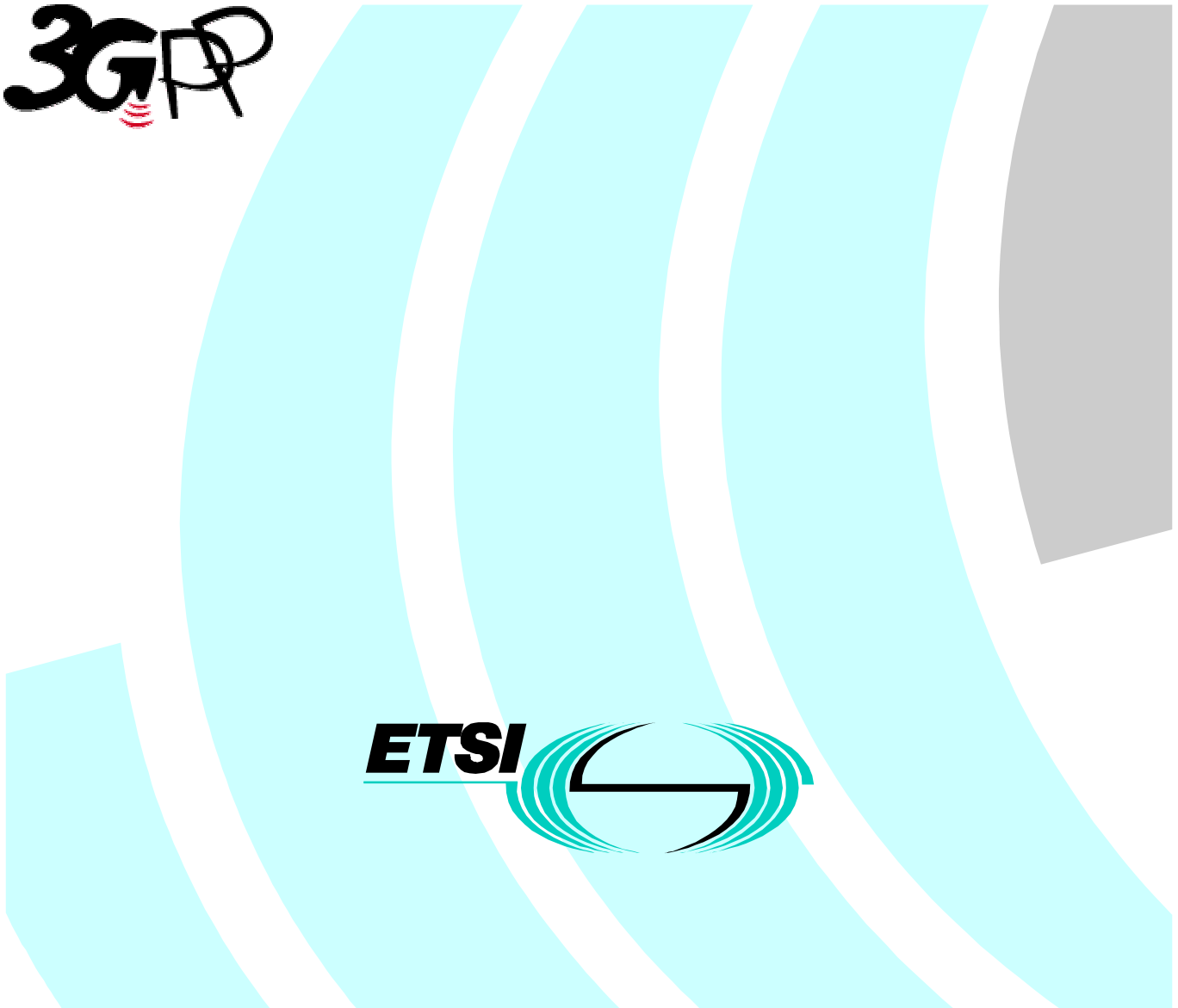
# ETSI TR 125 926 V3.0.0 (2000-03)

*Technical Report*

**Universal Mobile Telecommunications System (UMTS);**
**UE Radio Access Capabilities**
**(3G TR 25.926 version 3.0.0 Release 1999)**



Reference
DTR/TSGR-0225926U

Keywords
UMTS

***ETSI***

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

***Important notice***

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at http://www.etsi.org/tb/status/

If you find errors in the present document, send your comment to:
editor@etsi.fr

***Copyright Notification***

# Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://www.etsi.org/ipr).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

# Foreword

This Technical Report (TR) has been produced by the ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under www.etsi.org/key .

# Contents

# Foreword

This Technical Report (TR) has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

# 1 Scope

The present document identifies the parameters of the access stratum part of the UE radio access capabilities. Furthermore, some reference configurations of these values are defined. The intention is that these configurations will be used for test specifications.

# 2 Void

# 3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|---|---|
| UE | User Equipment |
| UMTS | Universal Mobile Telecommunication System |
| UTRAN | UMTS Terrestrial Radio Access Network |

# 4 UE radio access capability parameters

In the following the UE radio capability parameters are defined. In addition the relevant RRC configuration parameters are shown when applicable. When using the RRC configuration parameters, UTRAN needs to respect the UE capabilities. Only parameters for which there is a need to set different values for different UEs are considered as UE capability parameters. Therefore, the capabilities that are the same for all UEs, including baseline capabilities, are not listed here.

UTRAN is responsible for the respect of the UE capabilities when configuring the RBs. Actions in the UE when capabilities are in conflict with a UTRAN request are specified in RRC.

## 4.1 PDCP parameters

### Header compression algorithm supported

Defines whether header compression algorithms will be supported by the UE. If it will be supported it will be the RFC 2507 as specified in TS 25.323.

## 4.2 BMC parameters

No UE radio access capability parameters identified.

## 4.3 RLC parameters

NOTE: It is FFS whether some of the RLC functions should be considered as UE capabilities.

### Total RLC AM buffer size

The total buffer size across all RLC AM entities puts requirements on memory.

UTRAN controls that the UE capability can be fulfilled through the following parameters:

1. The number of RLC AM entities configured (no explicit RRC parameter);

2. UL PU size;
3. Transmission window size (#PUs);
4. Receiving window size (FFS whether this is configurable).

The following criterion must be fulfilled in the configuration:

$$\sum_{i=1}^{\#RLC\_AM\_entities} Transmission\_window\_size \bullet UL\_PU\_size + \sum_{i=1}^{\#RLC\_AM\_entities} Receiving\_window\_size \bullet DL\_PU\_size \leq Total\_RLC\_buffer\_size$$

where *i* is the RLC "entity number"

Maximum number of AM entities

The number of AM entities affect the main part of the total processing and memory capacity to be shared between different RLC machines.

## 4.4 MAC parameters

No capability parameters identified.

## 4.5 PHY parameters

### 4.5.1 Transport channel parameters in downlink

Maximum sum of number of bits of all transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms

This parameter is defined as:

$$\Sigma_i(N_i)$$

where $N_i$ is defined as the number of bits in transport block #i, and the sum is over all transport blocks received in TTIs that end within the same 10 ms interval. All transport blocks that are to be simultaneously received by the UE on DCH, FACH, PCH and DSCH transport channels are included in the parameter.

A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* * *Transport Block size* over all simultaneous transport channels is larger than what the UE capability indicates.

Maximum sum of number of bits of all convolutionally coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms.

This parameter is defined similar to the parameter above, but the sum includes only convolutionally coded transport blocks.

Maximum sum of number of bits of all turbo coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms.

This parameter is defined similar to the parameter above, but the sum includes only turbo coded transport blocks.

Maximum number of simultaneous transport channels

This is defined as the maximum number of Transport Channels that should be possible to process simultaneously, not taking into account the rate of each Transport Channel.

The number of simultaneous transport channels affects how the total memory space and processing capacity can be shared among the transport channels.

A UE does not need to support more simultaneous transport channels than the UE capability allows for.

#### Maximum number of simultaneous CCTrCH

CCTrCH should be interpreted as CCTrCH of any type, i.e. consisting of DCH, FACH or DSCH.

#### Maximum total number of transport blocks received within TTIs that end within the same 10 ms interval

All transport blocks that are to be simultaneously received by the UE on DCH, FACH, PCH and DSCH transport channels are included in the parameter.

Relates to processing requirements for CRC in downlink.

A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* is larger than what the UE capability indicates.

#### Maximum number of TFC in the TFCS

The maximum number of TFC in a TFCS sets the size of the TFCI to TFCS mapping table to be handled by the UE.

#### Maximum number of TF

The maximum total number of downlink transport formats the UE can store.

#### Support for turbo decoding

Defines whether turbo decoding is supported or not.

The UTRAN configuration parameter is *Type of channel coding* which is part of the Transport format set (TFS) of each transport channel.

### 4.5.2 Transport channel parameters in uplink

#### Maximum sum of number of bits of all transport blocks transmitted in TTIs that start at the same time

This parameter is defined as:

$$\Sigma_i(N_i)$$

where $N_i$ is defined as the number of bits in transport block #i, and the sum is over all transport blocks received in TTIs that end at the same time

This parameter is related to memory requirements for uplink data received from MAC before it can be transmitted over the radio interface. As shown in Figure 4.1 the worst case occurs for the maximum TTI.

A UE does not need to support a TFC within the TFCS for which the sum of *Number of Transport Blocks* * *Transport Block size* over all simultaneous transport channels is larger than what the UE capability indicates.

Maximum sum of number of bits of all convolutionally coded transport blocks transmitted in TTIs that start at the same time.

This parameter is defined similar to the parameter above, but the sum includes only convolutionally coded transport blocks.

#### Maximum sum of number of bits of all turbo coded transport blocks transmitted in TTIs that start at the same time

This parameter is defined similar to the parameter above, but the sum includes only turbo coded transport blocks.

### Maximum number of simultaneous transport channels

The number of simultaneous transport channels affects how the total memory space and processing capacity can be shared among the transport channels.

UTRAN shall not set up more simultaneous transport channels than the UE capability allows for.

### Maximum number of simultaneous CCTrCH

TDD only. For FDD there is always only one CCTrCH at a time.

### Maximum total number of transport blocks transmitted within TTIs that start at the same time

Relates to processing requirements for CRC in uplink.

A UE does not need to support the TFC within the TFCS for which the sum of *Number of Transport Blocks* is larger than what the UE capability allows for.

### Maximum number of TFC in the TFCS

The maximum number of TFC in a TFCS sets the size of the TFCI to TFCS mapping table to be handled by the UE.

### Maximum number of TF

The maximum total number of uplink transport formats the UE can store.

### Support for turbo encoding

Defines whether turbo encoding is supported or not.

The UTRAN configuration parameter is *Type of channel coding* which is part of the Transport format set (TFS) of each transport channel.

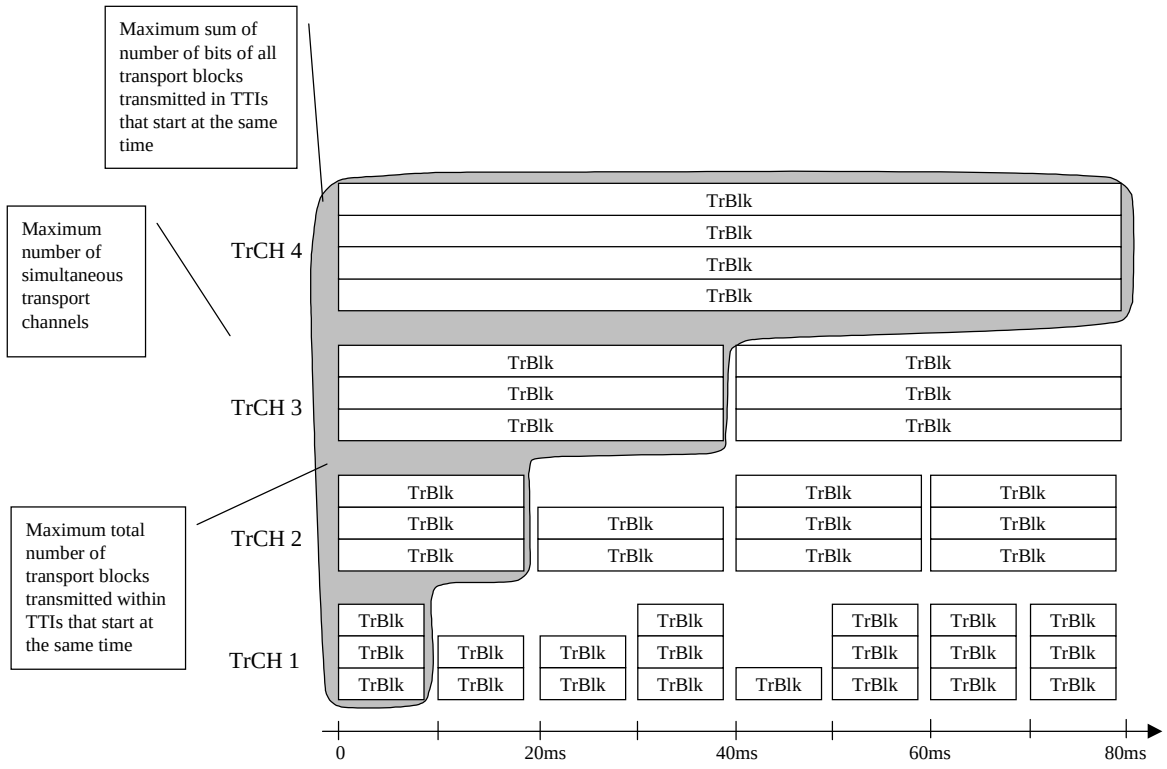



**Figure 4.1: UE transport channel processing limitations in uplink**

### 4.5.3 FDD Physical channel parameters in downlink

#### Maximum number of DPCH/PDSCH codes to be simultaneously received

Defines the number of codes the UE is capable of receiving in parallel. For DPCH in soft/softer handover, each DPCH is only calculated once in this capability. The capability does not include codes used for S-CCPCH.

#### Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH)

Defines the number of physical channel bits the UE is capable of receiving. For DPCH in soft/softer handover, each DPCH is only calculated once in this capability.

The number of DPCH channel bits indicates the capability for normal, un-compressed mode.

#### Support for SF 512

Spreading factor 512 should not be mandatory for all UEs.

The corresponding configuration parameter is *Spreading factor* which is part of *Downlink DPCH info*.

#### Support of PDSCH

Support of PDSCH is only required for some RAB realisations, and is therefore a UE capability.

The corresponding configuration parameter is *Downlink transport channel type*, which is part of *RB mapping info*.

#### Simultaneous reception of SCCPCH and DPCH/PDSCH

Simultaneous reception of SCCPCH and DPCH/PDSCH, i.e. simultaneous reception of FACH and DCH/DSCH is required for e.g. DRAC procedure, but it should not be mandatory for all UEs (e.g. speech only UEs). The PDSCH part of this capability is only relevant if the UE supports PDSCH, as covered by the capability "Support of PDSCH".

There is no specific configuration parameter.

#### Maximum number of simultaneous S-CCPCH radio links

Defines the maximum number of radio links on which the UE is capable of receiving S-CCPCH simultaneously.

### 4.5.4 FDD physical channel parameters in uplink

#### Maximum number of DPDCH bits per 10 ms

This capability combines the 'Max number of DPDCH' and 'Minimum SF' capabilities into one capability. Note that no flexibility is lost due to this, as multiple DPDCH is only used for SF=4, i.e. when the number of DPDCH bits exceed a certain value.

#### Support of PCPCH

Support of PCPCH is only required for some RAB realisations, and is therefore a UE capability.

There is no specific configuration parameter.

### 4.5.5 TDD physical channel parameters in downlink

#### Maximum number of timeslots per frame

Defines the maximum number of timeslots per frame that the UE can receive.

#### Maximum number of physical channels per frame

This parameter defines how many physical channels can be received during one frame. The distribution of the received physical channels on the received timeslots can be arbitrary.

#### Minimum SF

Defines the minimum SF supported by the UE.

#### Support of PDSCH

Defines whether PDSCH is supported or not.

### 4.5.6 TDD physical channel parameters in uplink

#### Maximum Number of timeslots per frame

Defines the maximum number of timeslots per frame that the UE can transmit.

#### Maximum number of physical channels per timeslot

Defines the maximum number physical channels transmitted in parallel during one timeslot.

#### Minimum SF

Defines the minimum SF supported by the UE.

#### Support of PUSCH

Defines whether PUSCH is supported or not.

### 4.5.7 RF parameters

#### UE power class

The value is fixed per UE and is not related to any configuration parameter.

#### Radio frequency bands

Defines the uplink and downlink frequency bands supported by the UE.

Configuration parameters are *UTRA RF Channel numbers* for uplink and downlink, which are part of *Frequency info*.

#### Tx/Rx frequency separation

Defines the uplink/downlink frequency separations supported by the UE.

Configuration parameters are *UTRA RF Channel numbers* for uplink and downlink, which are part of *Frequency info*.

#### Chip rate capability

Chip rates supported by the UE.

Corresponding configuration parameter is *chip rate, which* is part of *Frequency info*.

## 4.6 Multi-mode related parameters

### Support of UTRA FDD/TDD

Defines whether UTRA FDD and/or TDD are supported.

There is no explicit configuration parameter.

## 4.7 Multi-RAT related parameters

### Support of GSM

Defines whether GSM is supported or not.

There is no explicit configuration parameter.

### Support of multi-carrier

Defines whether multi-carrier is supported or not.

There is no explicit configuration parameter.

## 4.8 LCS related parameters

### Standalone location method(s) supported

Defines if a UE can measure its location by some means unrelated to UTRAN (e.g. if the UE has access to a standalone GPS receiver).

### OTDOA UE based method supported

Defines if a UE supports the OTDOA UE based schemes.

### Network Assisted GPS support

Defines if a UE supports either of the two types of assisted GPS schemes, namely "Network based", "UE based", "Both", or "none".

### GPS reference time capable

Defines if a UE has the capability to measure GPS reference time as defined in 25.215.

### Support for IPDL

Defines if a UE has the capability to use IPDL to enhance its "SFN-SFN observed time difference –type 2" measurement.

## 4.9 Measurement related capabilities

### Need for downlink compressed mode

Defines whether the UE needs compressed mode in the downlink in order to perform inter-frequency measurements.

Need for uplink compressed mode

Defines whether the UE needs compressed mode in the uplink in order to perform inter-frequency measurements.

# 5 Possible UE radio access capability parameter settings

## 5.1 Value ranges

**Table 5.1: UE radio access capability parameter value ranges**

| | | UE radio access capability parameter | Value range |
|---|---|---|---|
| PDCP parameters | | Header compression algorithm supported | Yes/No |
| RLC parameters | | Total RLC AM buffer size | 2,10,50,100,150,500,1000 kBytes |
| | | Maximum number of AM entities | 2,3,4,8,16,32 |
| PHY parameters | Transport channel parameters in downlink | Maximum sum of number of bits of all transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum sum of number of bits of all convolutionally coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum sum of number of bits of all turbo coded transport blocks received in TTIs that end within the same arbitrary interval of length T<10 ms | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum number of simultaneous transport channels | 4, 8, 16, 32 |
| | | Maximum number of simultaneous CCTrCH | 1, 2, 3, 4, 5, 6, 7, 8 |
| | | Maximum total number of transport blocks received within TTIs that end within the same 10 ms interval | 4, 8, 16, 32, 48, 64, 96, 128, 256, 512 |
| | | Maximum number of TFC in the TFCS | 16, 32, 48, 64, 96, 128, 256, 512, 1024 |
| | | Maximum number of TF | 32, 64, 128, 256, 512, 1024 |
| | | Support for turbo decoding | Yes/No |
| | Transport channel parameters in uplink | Maximum sum of number of bits of all transport blocks transmitted in TTIs that start at the same time | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum sum of number of bits of all convolutionally coded transport blocks transmitted in TTIs that start at the same time | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum sum of number of bits of all turbo coded transport blocks transmitted in TTIs that start at the same time | 640, 1280, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840 |
| | | Maximum number of simultaneous transport channels | 2, 4, 8, 16, 32 |
| | | Maximum number of simultaneous CCTrCH of DCH type (TDD only) | 1, 2, 3, 4, 5, 6, 7, 8 |
| | | Maximum total number of transport blocks transmitted within TTIs that start at the same time | 2, 4, 8, 16, 32, 48, 64, 96, 128, 256, 512 |
| | | Maximum number of TFC in the TFCS | 4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024 |

| | | UE radio access capability parameter | Value range |
|---|---|---|---|
| | | Maximum number of TF | 32, 64, 128, 256, 512, 1024 |
| | | Support for turbo encoding | Yes/No |
| | FDD Physical channel parameters in downlink | Maximum number of DPCH/PDSCH codes to be simultaneously received | 1, 2, 3, 4, 5, 6, 7, 8 |
| | | Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH) | 300, 600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600, 67200 |
| | | Support for SF 512 | Yes/No |
| | | Support of PDSCH | Yes/No |
| | | Simultaneous reception of SCCPCH and DPCH | Yes/No |
| | | Maximum number of simultaneous S-CCPCH radio links | 1<br>NOTE: Only the value 1 is part of R99 |
| | FDD Physical channel parameters in uplink | Maximum number of DPDCH bits transmitted per 10 ms | 150, 300, 600, 1200, 2400, 4800, 960, 19200, 28800, 38400, 48000, 57600 |
| | | Support of PCPCH | Yes/No |
| | TDD physical channel parameters in downlink | Maximum number of timeslots per frame | 1..14 |
| | | Maximum number of physical channels per frame | 1,2,3..,224 |
| | | Minimum SF | 16, 1 |
| | | Support of PDSCH | Yes/No |
| | TDD physical channel parameters in uplink | Maximum Number of timeslots per frame | 1..14 |
| | | Maximum number of physical channels per timeslot | 1, 2 |
| | | Minimum SF | 16,8,4,2,1 |
| | | Support of PUSCH | Yes/No |
| RF parameters | FDD RF parameters | UE power class<br>(25.101 subclause 6.2.1) | 3, 4<br>NOTE: Only power classes 3 and 4 are part of R99 |
| | | Tx/Rx frequency separation<br><br>(25.101 subclause 5.3) .<br>NOTE: Not applicable if UE is not operating in frequency band a | 190 MHz<br>174.8-205.2 MHz<br>134.8-245.2 MHz |
| RF parameters | TDD RF parameters | UE power class<br>(25.102) | 2,3<br>NOTE: Only power classes 2 and 3 are part of R99 |
| | | Radio frequency bands<br>(25.102) | a), b), c), a+b), a+c), a+b+c) |
| | | Chip rate capability<br>(25.102) | 3.84,1.28 |
| Multi-mode related parameters | | Support of UTRA FDD/TDD | FDD, TDD, FDD+TDD |
| Multi-RAT related parameters | | Support of GSM | Yes/No |
| | | Support of multi-carrier | Yes/No |
| LCS related parameters | | Standalone location method(s) supported | Yes/No |
| | | Network assisted GPS support | Network based / UE based / Both/ None |
| | | GPS reference time capable | Yes/No |
| | | Support for IPDL | Yes/No |
| | | Support for OTDOA UE based method | Yes/No |
| Measurement related capabilities | | Need for downlink compressed mode | Yes/No (per frequency band, UTRA mode and RAT) |
| | | Need for uplink compressed mode | Yes/No (per frequency band, UTRA mode and RAT) |

## 5.2 Reference UE radio access capability combinations

Based on required UE radio access capabilities to support reference RABs as defined in clause 6, this clause lists reference UE Radio Access capability combinations. Subclause 5.2.1 defines reference combinations of UE radio access capability parameters common for UL and DL. Subclause 5.2.2 and 5.2.3 define reference combinations of UE radio access capability parameters that are separate for DL and UL respectively. A reference combination for common UL and DL parameters, one combination for UL parameters and one combination for DL parameters together relate to a UE with a certain implementation complexity, that allows support for one or several combined reference RABs. Combinations for UL and DL can be chosen independently. Different combinations have different levels of implementation complexity.

For defined reference RABs, it is possible to require a UE to meet a certain reference UE radio access capability combination. Each UE needs to have capabilities complying with a given reference radio access capability combination. Each individual radio access capability parameter as defined in Subclause 5.1 shall be signalled.

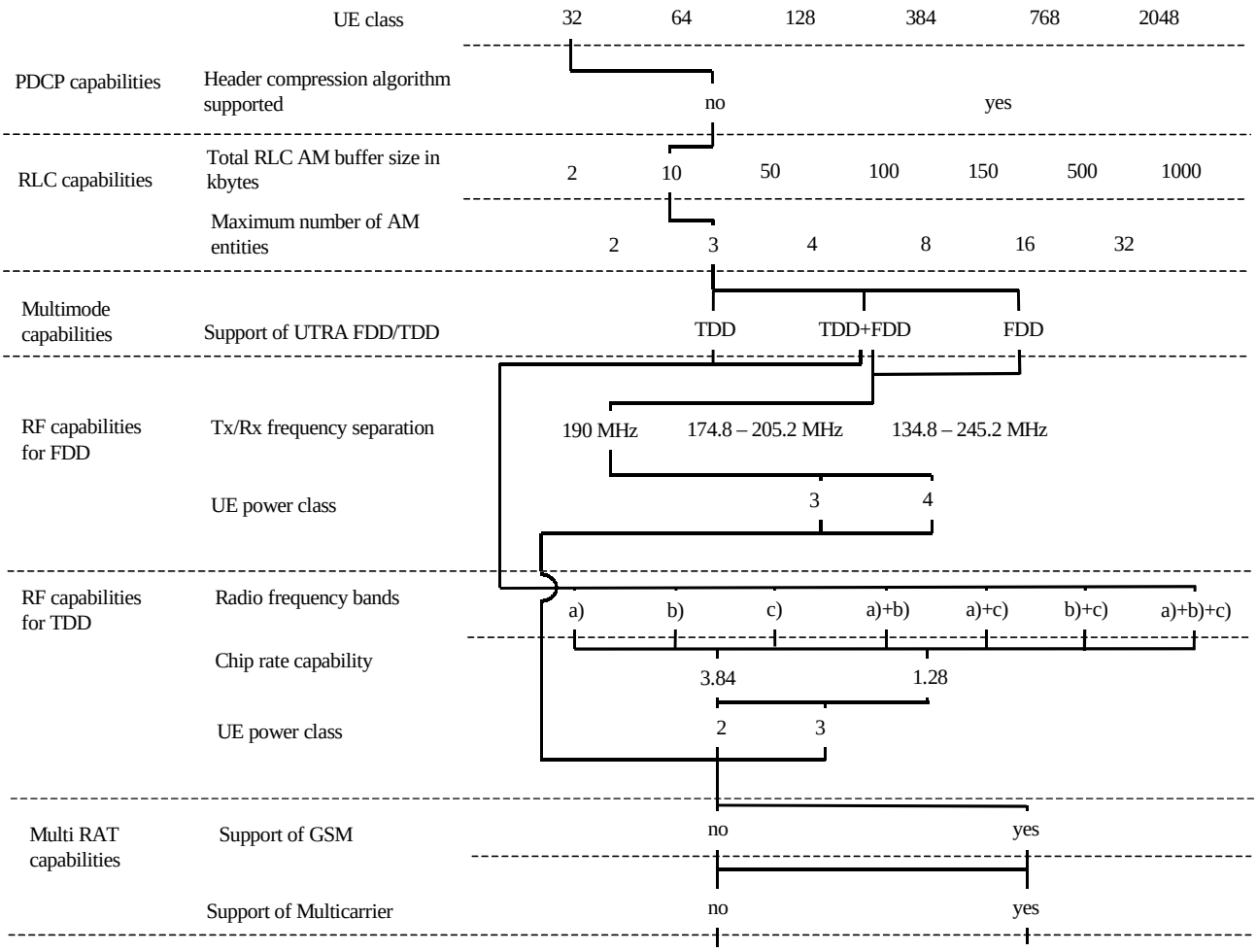
The reference combination numbers shall not be used in the signalling of UE radio access capabilities between the UE and UTRAN. Reference UE radio access capability combinations provide default configurations that should be used as a basis for conformance testing against reference RABs.

Allowed values of UE capability parameters are limited by the defined range and granularity of values in Subclause 5.1. Values might change depending on further definition of reference RABs for testing.

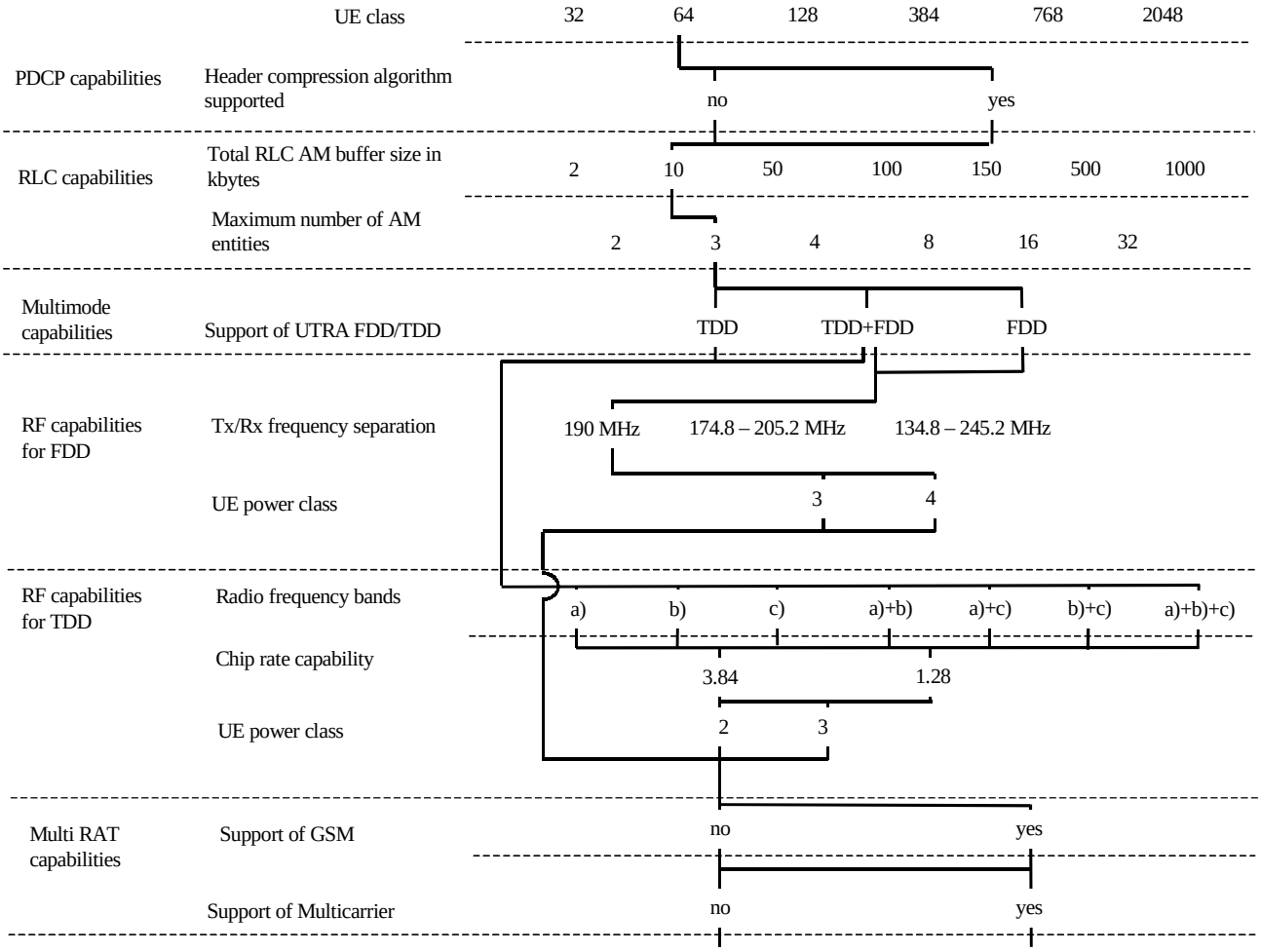
## 5.2.1 Combinations of common UE Radio Access Parameters for UL and DL

NOTE: It is FFS whether LCS capabilities and measurement-related capabilities need to be included in the combinations. These capabilities are independent from the supported RABs.

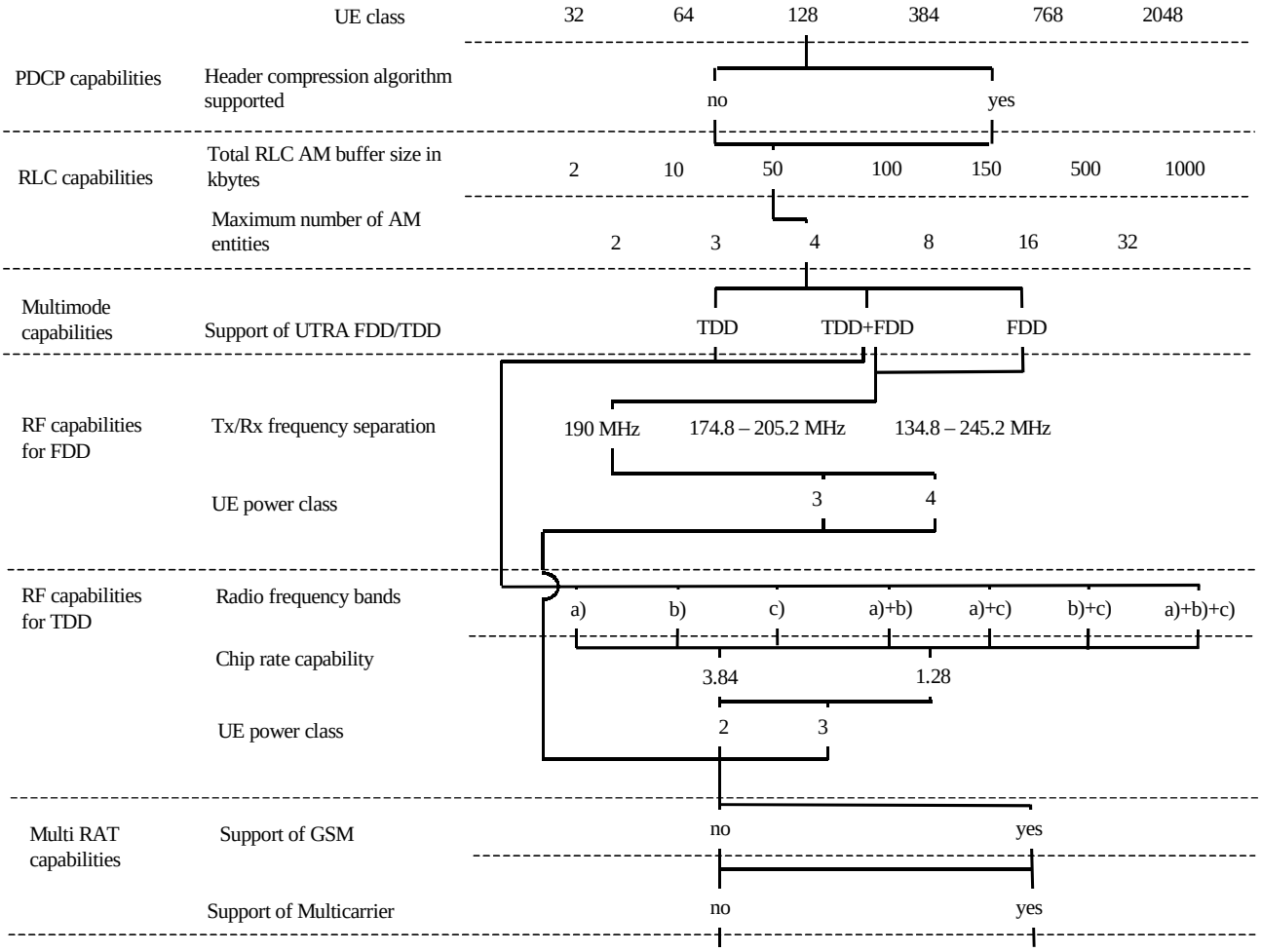
Common UE Radio Access Capability Parameters for UL and DL for 32 kbps class



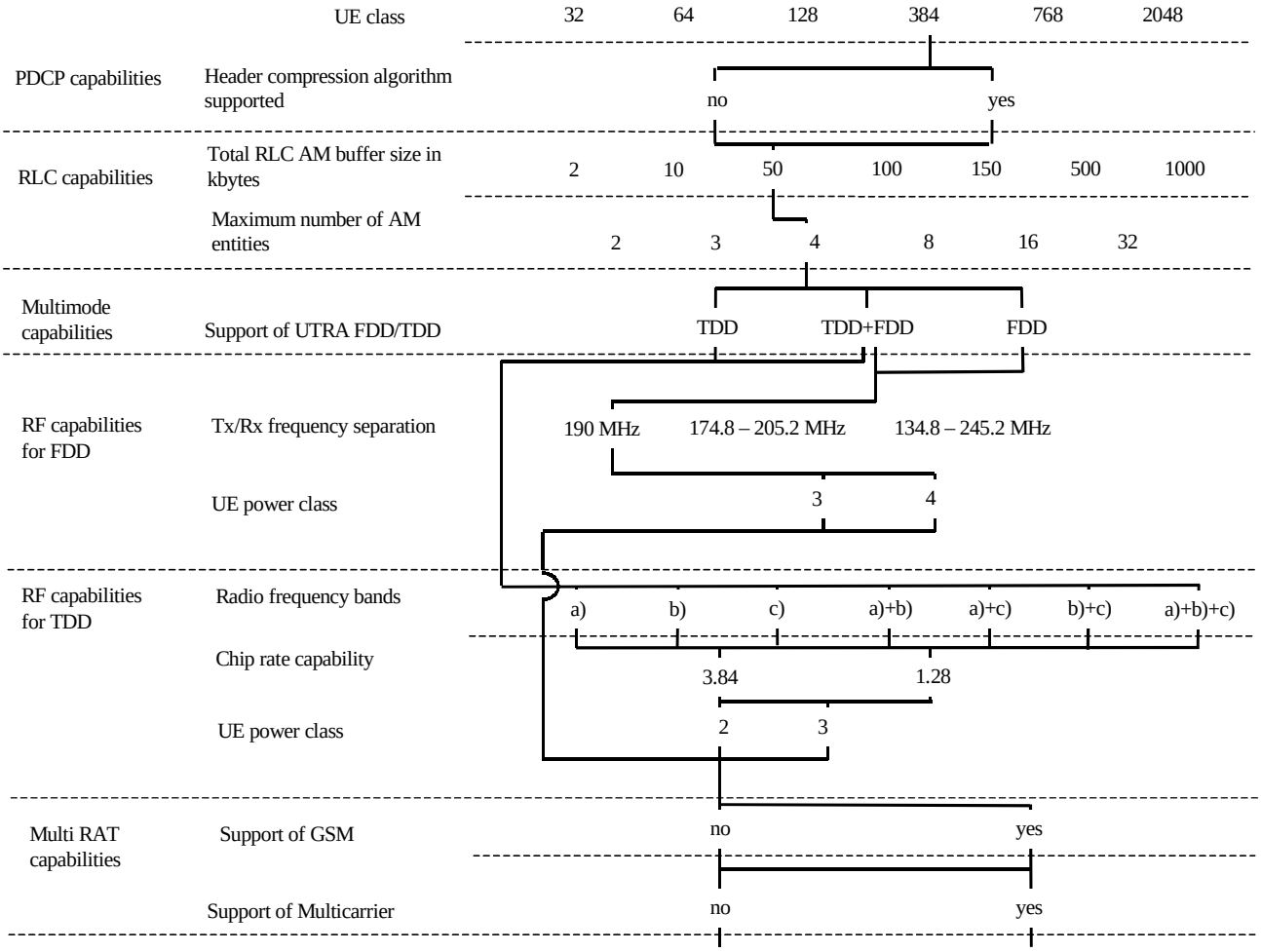
Common UE Radio Access Capability Parameters for UL and DL for 64 kbps class



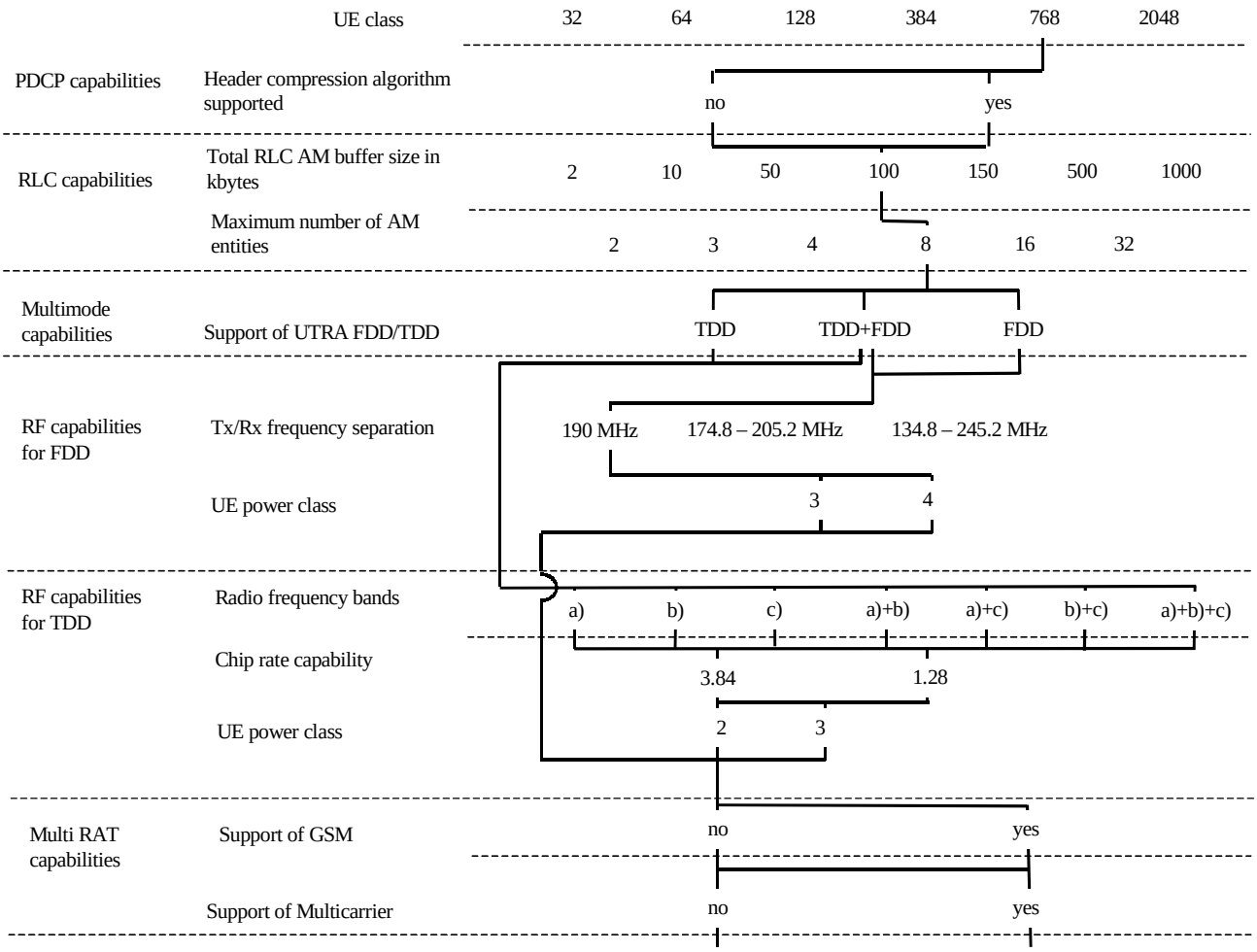
Common UE Radio Access Capability Parameters for UL and DL for 128 kbps class



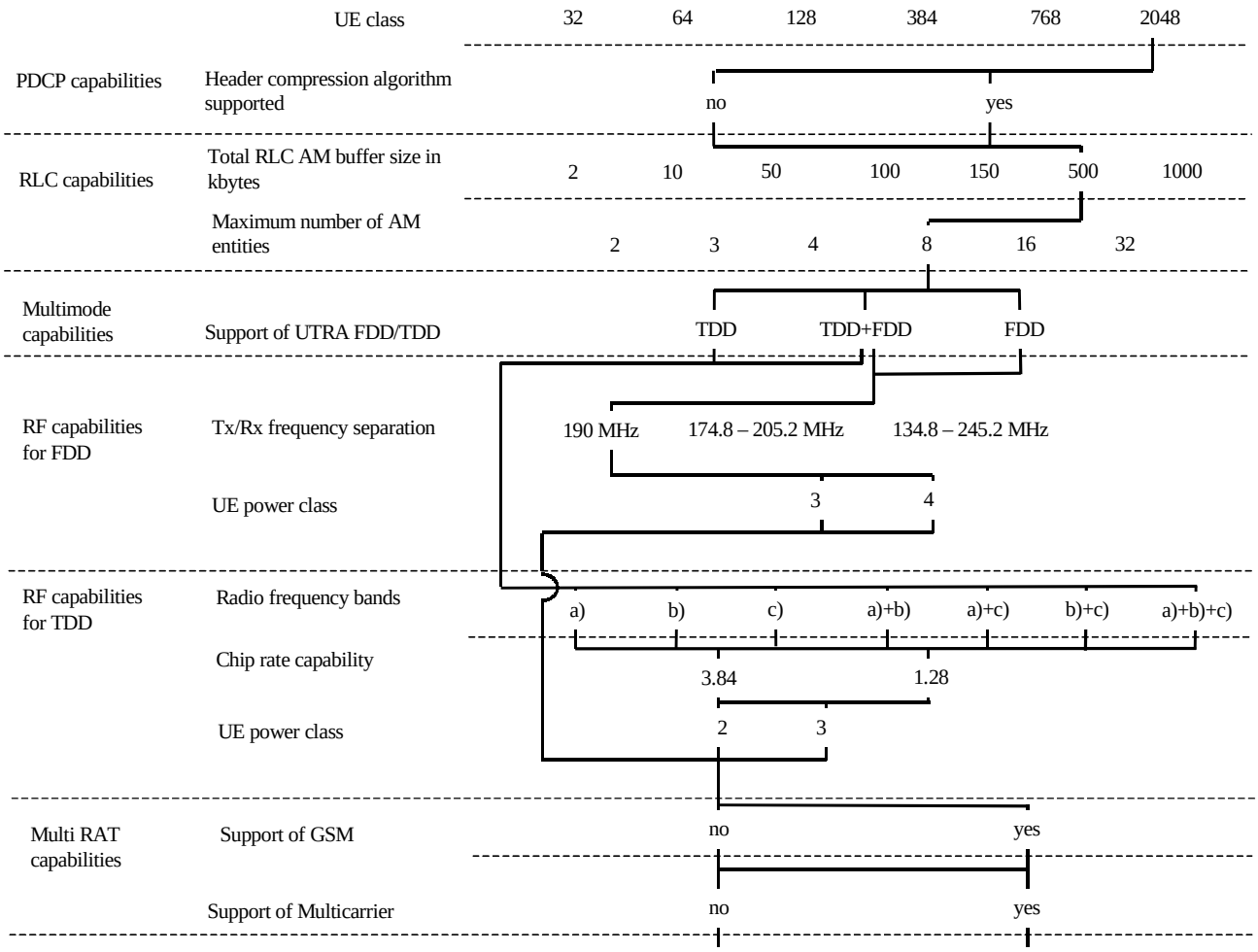
Common UE Radio Access Capability Parameters for UL and DL for 384 kbps class



Common UE Radio Access Capability Parameters for UL and DL for 768 kbps class

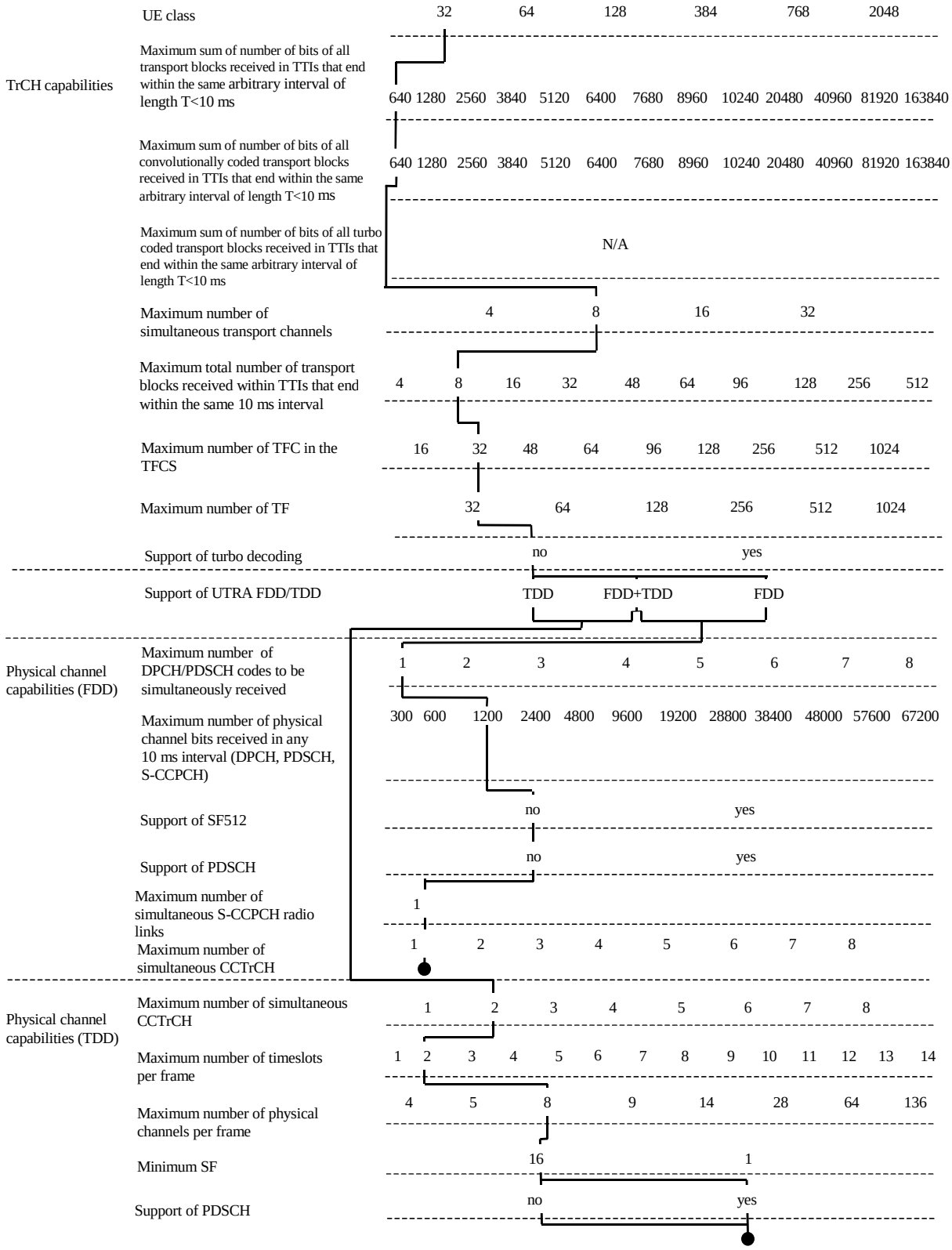


Common UE Radio Access Capability Parameters for UL and DL for 2048 kbps class

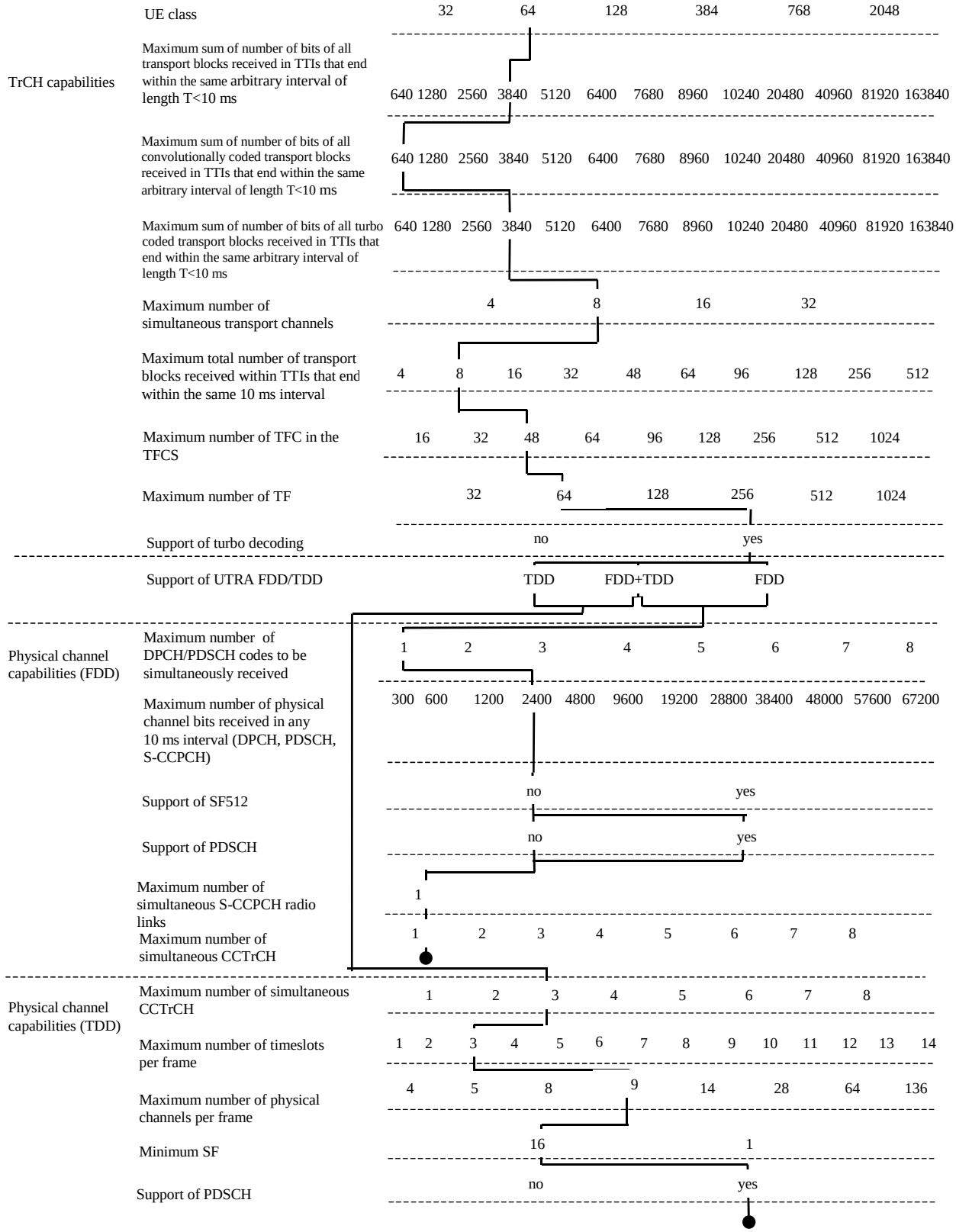


## 5.2.2 Combinations of UE Radio Access Parameters for DL

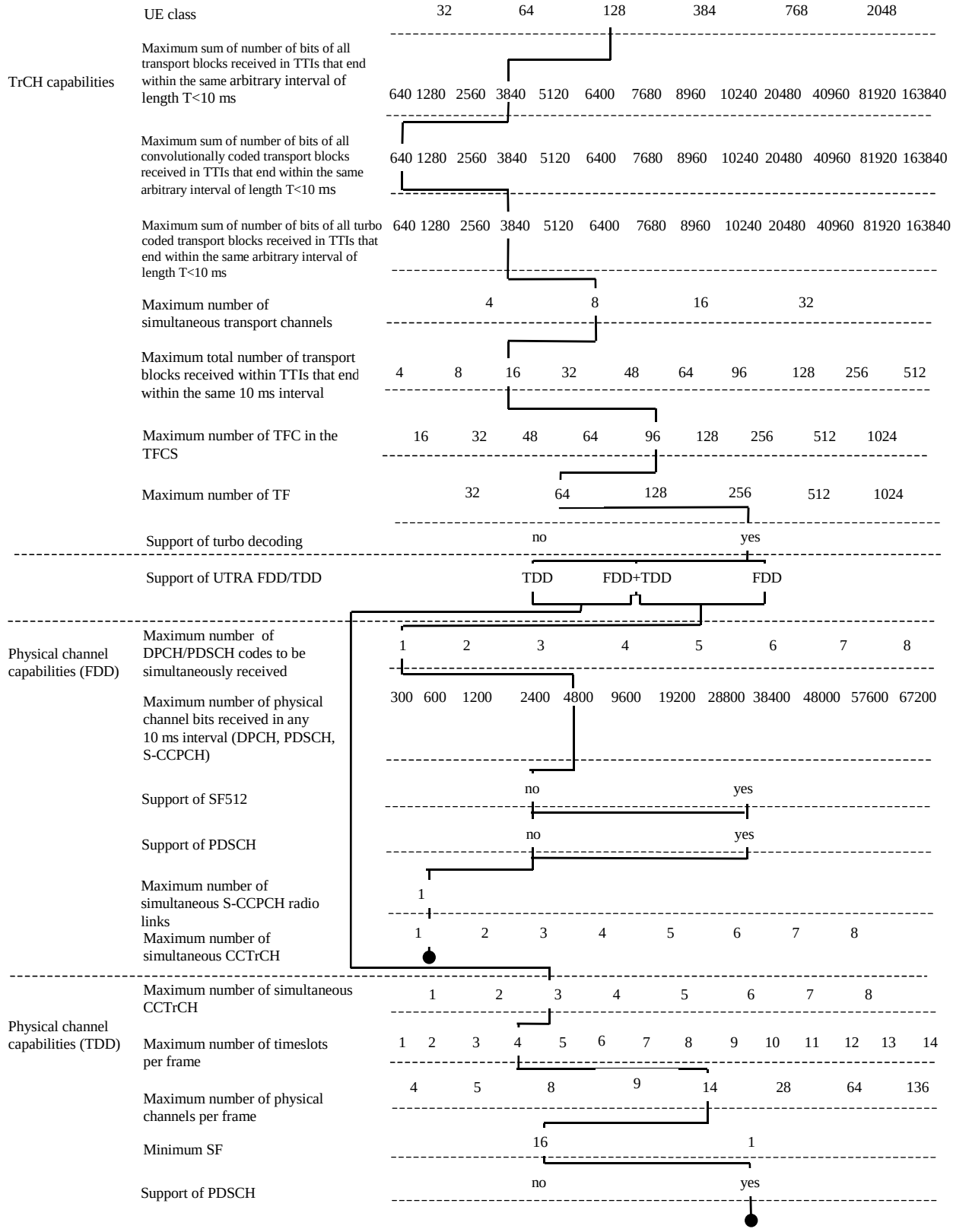
UE Radio Access Capability Parameters for DL 32 kbit class



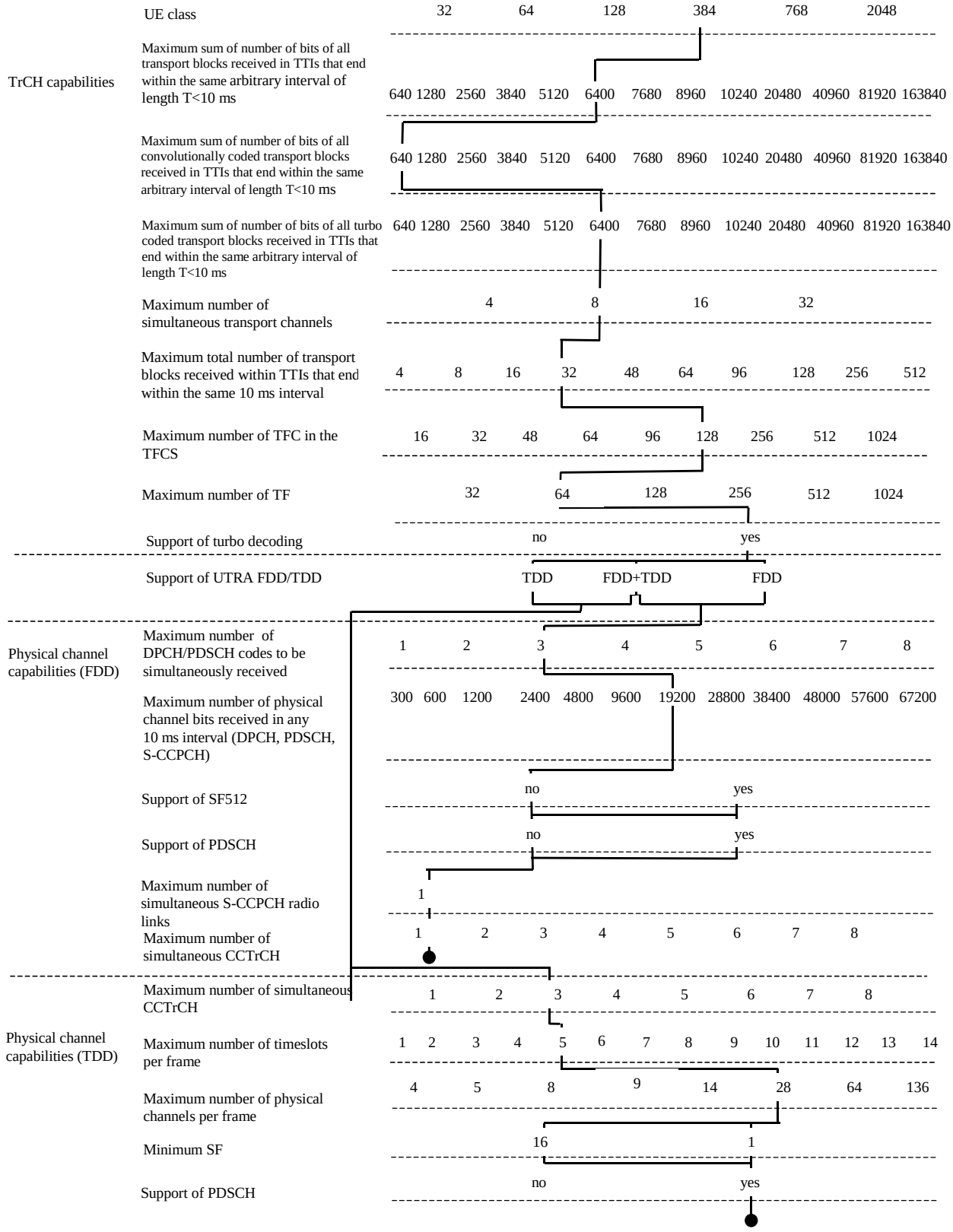
UE Radio Access Capability Parameters for DL 64 kbit class



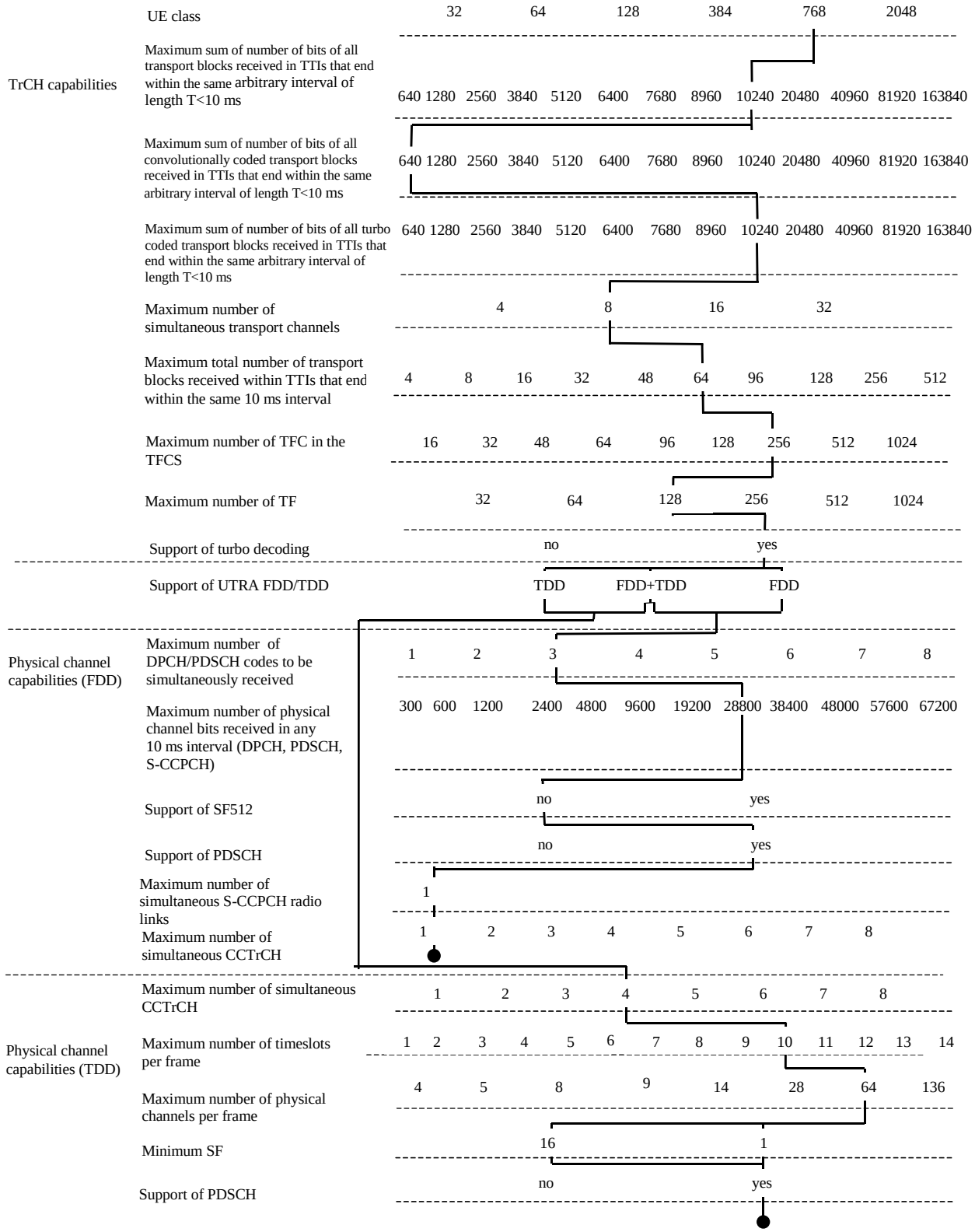
UE Radio Access Capability Parameters for DL 128 kbit class



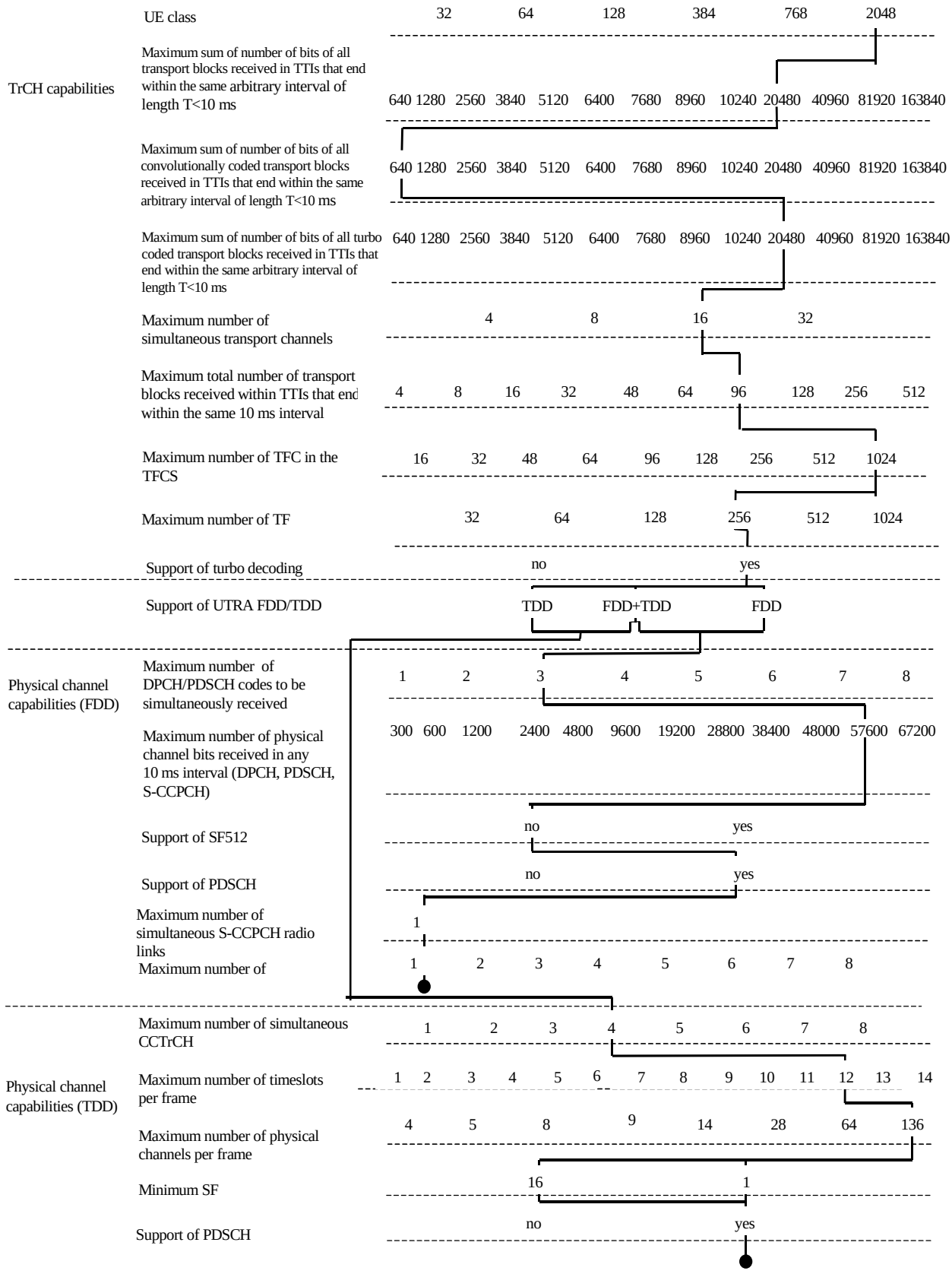
UE Radio Access Capability Parameters for DL 384 kbit class



UE Radio Access Capability Parameters for DL 768 kbit class

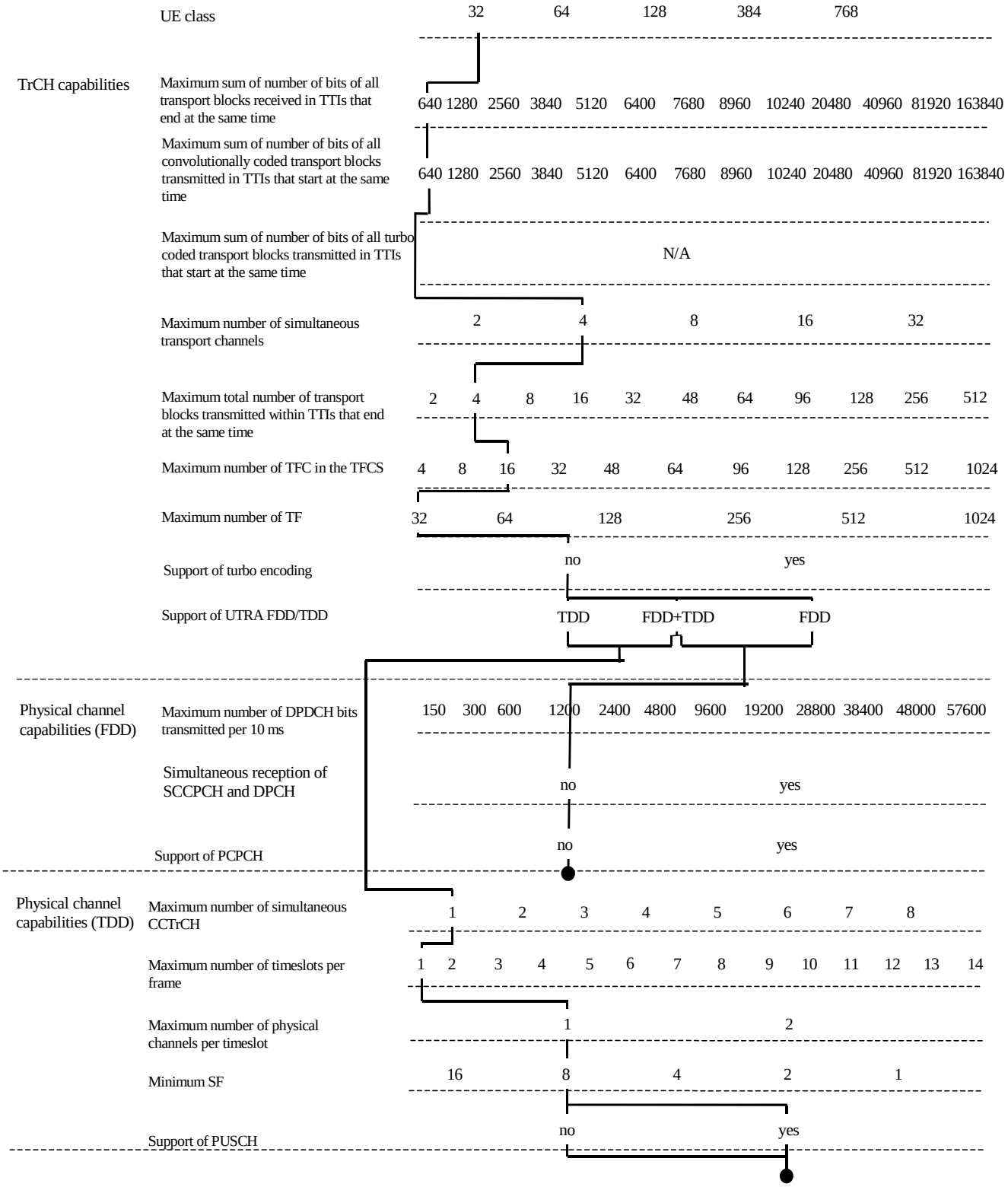


UE Radio Access Capability Parameters for DL 2048 kbit class

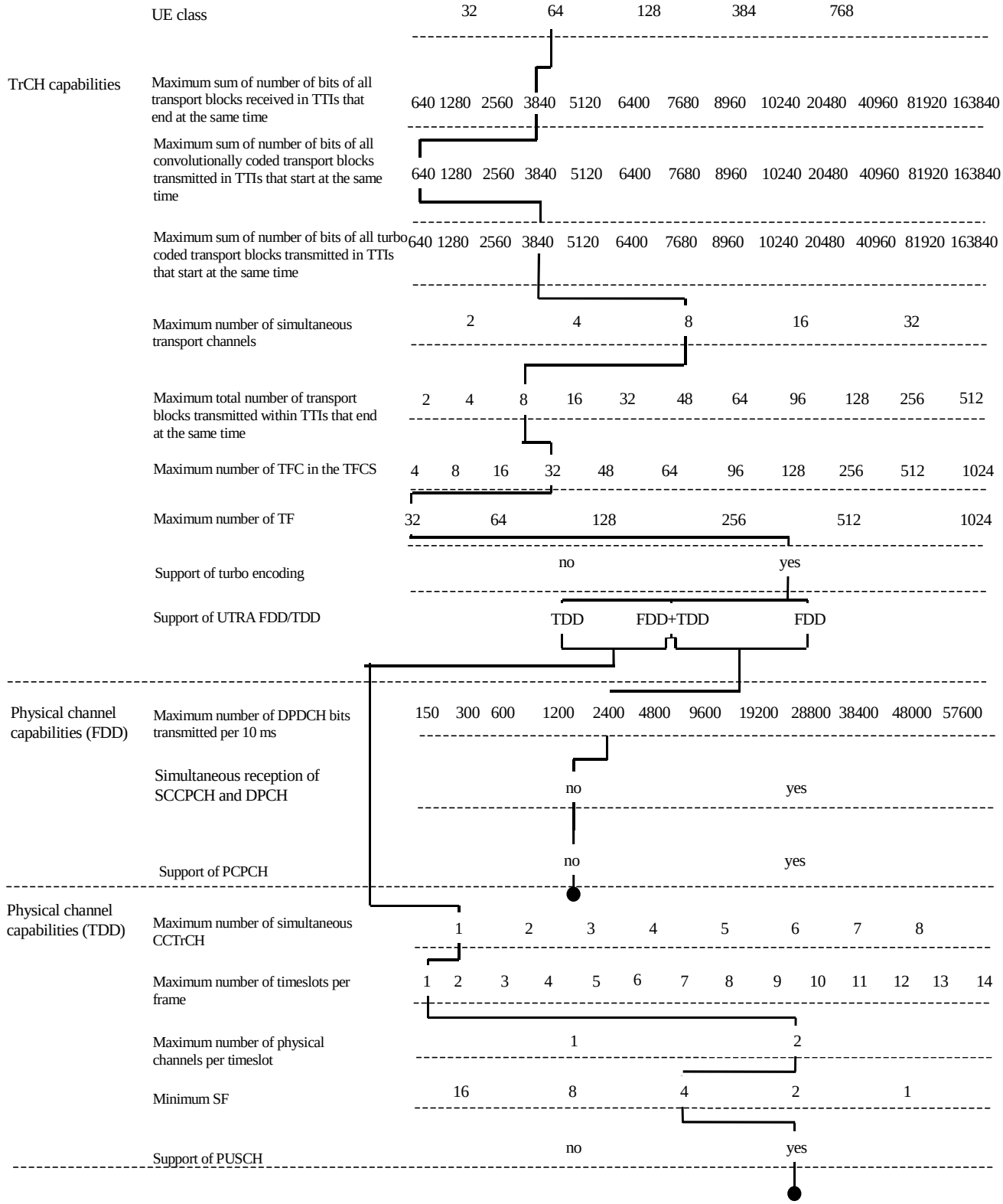


## 5.2.3 Combinations of UE Radio Access Parameters for UL

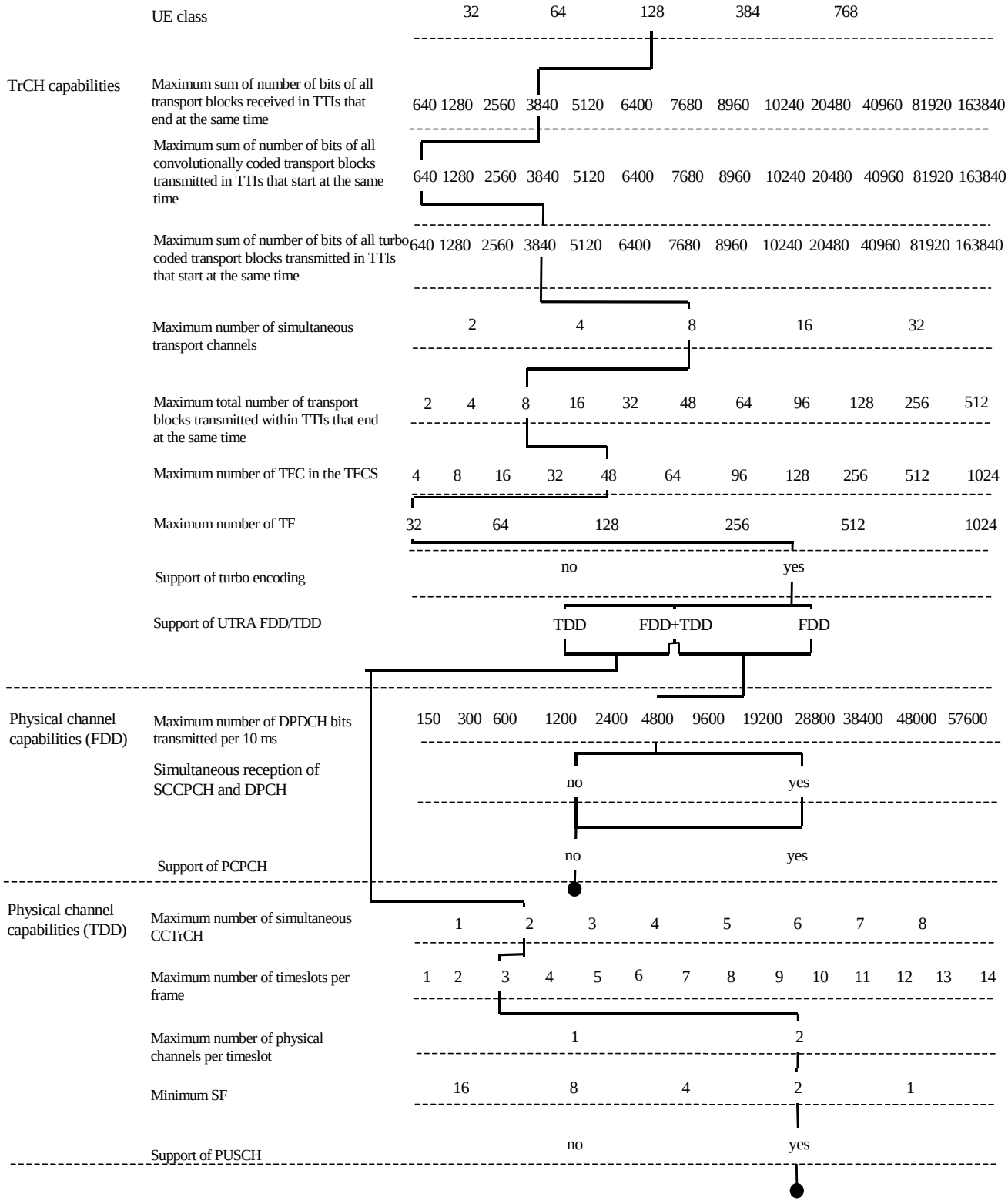
UE Radio Access Capability Parameters for UL 32 kbit class



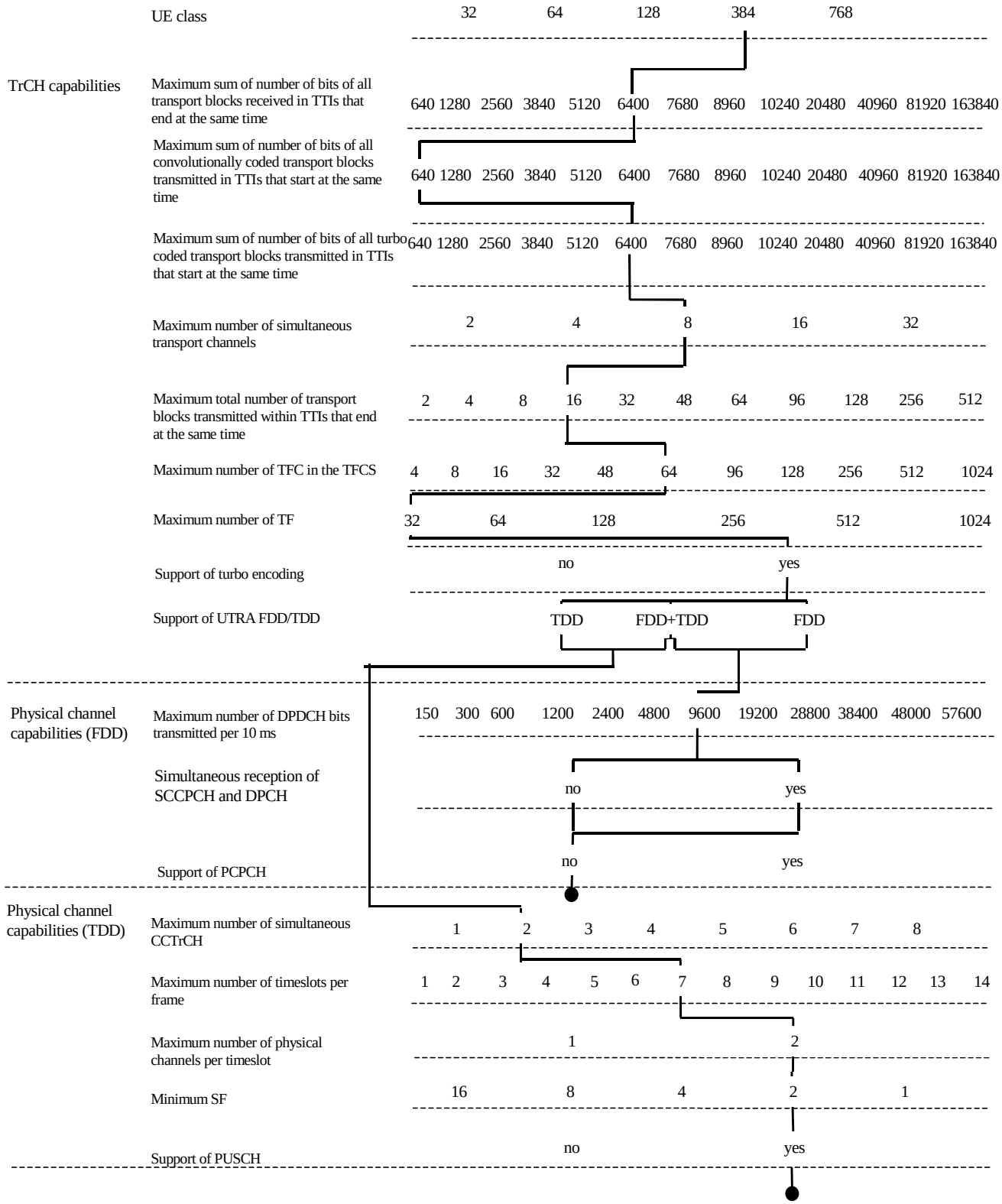
UE Radio Access Capability Parameters for UL 64 kbit class



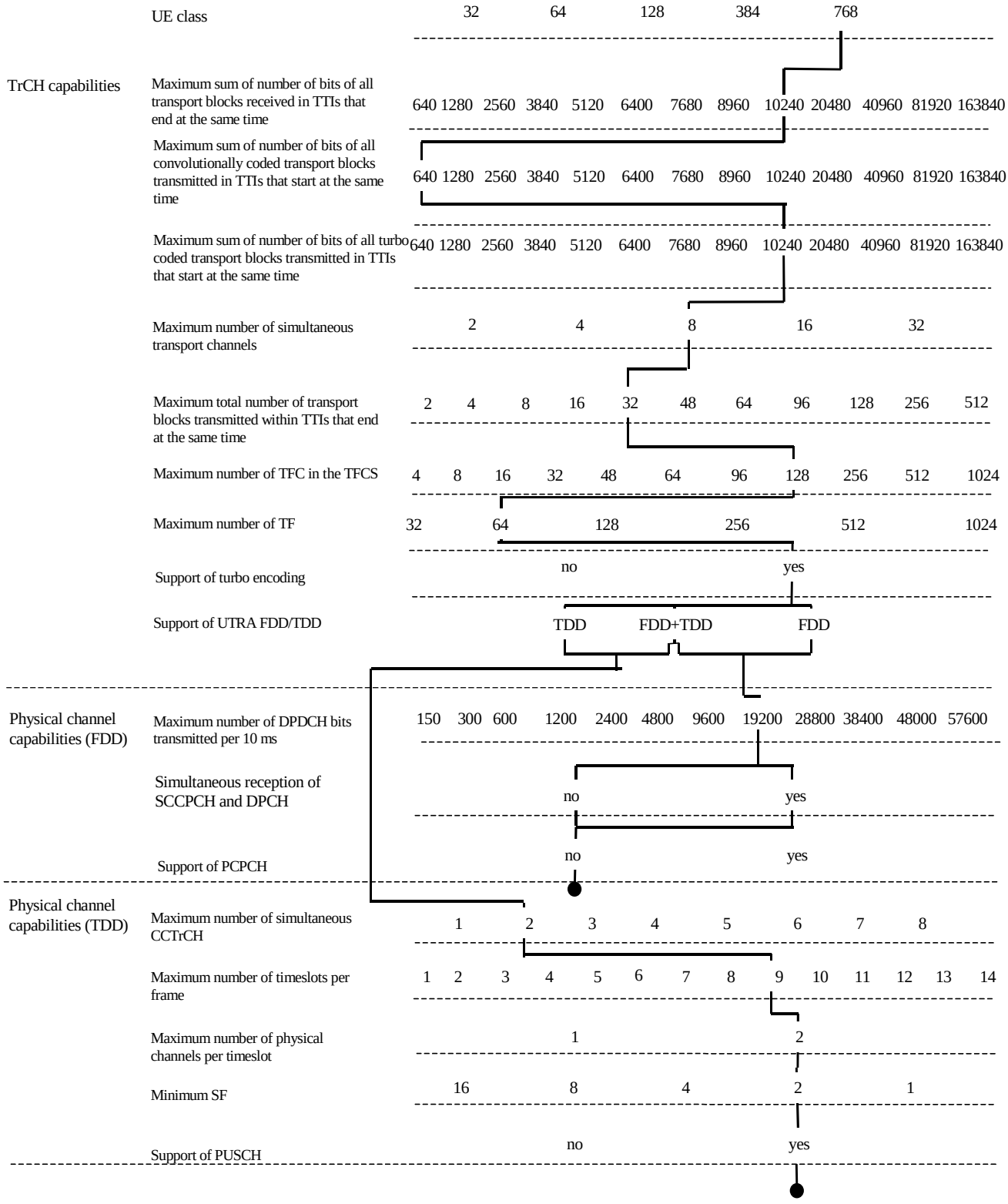
UE Radio Access Capability Parameters for UL 128 kbit class



UE Radio Access Capability Parameters for UL 384 kbit class



UE Radio Access Capability Parameters for UL 768 kbit class



# 6 Usage of UE radio access capabilities

NOTE: The rationale for the parameter combination settings will be explained here.

## 6.1 Examples of reference radio access bearers

In Table 6.1 reference RAB A-F are defined with their main characteristics that impact the required UE Radio Access capabilities. These reference RABs shall be seen as example RABs covered by the reference UE radio access capability combinations defined in Subclause 5.2.

**Table 6.1: Reference RABs**

| Reference RAB | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| RAB characteristics and mapping to DCH | Conversational speech 4.75-12.2 kbps (20 ms TTI) All AMR modes + rate ctrl, but max. 4 at a time | Conversational 64 kbps (40 ms TTI) | Streaming max. 57.6 kbps (40 ms TTI) | Interactive/ Background max. 32 kbps (10 ms TTI) | Interactive/ Background max. 64 kbps (10 ms TTI) | Interactive/ Background max. 384 kbps (10 ms TTI) |
| DCH carrying DCCH (rate, TTI) | 3.2kpbs, 40ms | 6.4kbps, 20ms | 6.4kbps, 20ms | 12.8kbps, 10ms | 12.8kbps, 10ms | 12.8kpbs, 10ms |

## 6.2 Example mappings between reference RABs and capability combinations

The following examples show how the reference RABs of Table 6.1 can be mapped to the reference UE radio access capability combinations that are listed in Clause 5.

**Table 6.2: Example mappings between capability combinations and RAB combinations**

| Reference UE radio access capability combinations | Examples of supported reference RAB combination |
|---|---|
| 32kbps class | One at the time of the following:<br>- A<br>- C |
| 64kbps class | One at the time of the following:<br>- B<br>- C<br>- E<br>- A and D simultaneously<br>- The RAB combination supported by 32kbps class |
| 128kbps class | One at the time of the following:<br>- 2 times E<br>- A and E simultaneously<br>- A and B simultaneously<br>- A and C simultaneously<br>- The RAB combination supported by 64kbps class |
| 384kbps class | One at the time of the following:<br>- 2 times B<br>- A and F simultaneously<br>- The RAB combination supported by 128kbps class |
| 762kbps class | One at the time of the following:<br>- 2 times F in DL. 1 times F in UL<br>- 2 times B and F simultaneously<br>- The RAB combination supported by 384kbps class |
| 2048kbps class | One at the time of the following:<br>- 6 times F in DL<br>- The RAB combination supported by 762kbps class |

# 7 Mandatory UE radio access capabilities

NOTE: In this section features and requirements that are mandatory for UEs (capabilities that do not need to be signalled) will be listed for information. The normative descriptions are part of the respective specifications.

# Annex A (informative): Change history

| Change history | | | | | |
|---|---|---|---|---|---|
| TSG-RAN# | Version | CR | Tdoc RAN | New Version | Subject/Comment |
| RAN_07 | - | - | RP-000052 | 3.0.0 | (03/00)<br>Approved at TSG-RAN #7 and placed under Change Control |

# History

| Document history | | |
|---|---|---|
| V3.0.0 | March 2000 | Publication |
| | | |
| | | |
| | | |
| | | |