

## CHANGE REQUEST

⌘ **25.306 CR 38** ⌘ rev - ⌘ Current version: **3.4.0** ⌘  
 Spec Title: **UE Radio Access Capabilities** ⌘

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

<b>Title:</b>	⌘ Support of UP measurement reporting in CELL_PCH/URA_PCH		
<b>Source:</b>	⌘ Nortel Networks, Qualcomm, CPS, Ericsson		
<b>Work item code:</b>	⌘	<b>Date:</b>	⌘ 5 <sup>th</sup> March 2002
<b>Category:</b>	⌘ <b>F</b> Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.	<b>Release:</b>	⌘ R99 Use <u>one</u> 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)

<b>Reason for change:</b>	⌘ In R99 the measurement performance requirements for UP measurements in CELL_PCH/URA_PCH are missing from RAN4 specifications.
<b>Summary of change:</b>	⌘ UE positioning reporting in CELL_PCH and URA_PCH is made an UE capability. If the UE supports this capability it will comply to the measurement performance requirements that will be defined in Release 5 RAN4 specifications.  <b>Isolated impact analysis:</b> Impacted function is UE Positioning reporting in CELL_PCH and URA_PCH states. The proposed changes are isolated impact to the impacted functionality.
<b>Consequences if not approved:</b>	⌘ UP measurement reporting in CELL_PCH, URA_PCH is misaligned between RAN2 and RAN4 specifications in R99.

<b>Clauses affected:</b>	⌘ 4.8, 5.1, 5.2.1		
<b>Other specs affected:</b>	⌘ <input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331
<b>Other comments:</b>	⌘		

**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](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.

## 4.8 UE positioning 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 [6].

### Support for IPDL

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

### Support for Rx-Tx time difference type 2

Defines if a UE has the capability to perform the Rx-Tx time difference type 2 measurement.

### Support for UP measurement ~~reporting validity~~ in CELL\_PCH and URA\_PCH RRC states

Defines if ~~a UE has the capability to report~~ the UP measurement ~~results are valid~~ in CELL\_PCH and URA\_PCH RRC states.

## 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		Support for RFC 2507	Yes/No
		Support for loss-less SRNS relocation	Yes/No
		Maximum header compression context space	512, 1024, 2048, 4096, 8192 bytes
RLC parameters		Total RLC AM buffer size	2,10,50,100,150,500,1000 kBytes
		Maximum number of AM entities	3,4,5,6,8,16,30
PHY parameters	Transport channel parameters in downlink	Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant	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 being received at an arbitrary time instant	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 being received at an arbitrary time instant	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 being transmitted at an arbitrary time instant	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 being transmitted at an arbitrary time instant	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 being transmitted at an arbitrary time instant	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
		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)	600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800
		Support for SF 512	Yes/No

		UE radio access capability parameter	Value range
		Support of PDSCH	Yes/No
		Simultaneous reception of SCCPCH and DPCH	Yes/No
		Simultaneous reception of SCCPCH, DPCH and PDSCH	Yes/No
		Maximum number of simultaneous S-CCPCH radio links	1 NOTE: Only the value 1 is part of this release of the specification
		Support of dedicated pilots for channel estimation	Yes/No
	FDD Physical channel parameters in uplink	Maximum number of DPDCH bits transmitted per 10 ms	600, 1200, 2400, 4800, 9600, 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 physical channels per timeslot	1..16
		Maximum Number of timeslots per frame	1..14
		Maximum number of physical channels per timeslot	1, 2
		Minimum SF	16,8,4,2,1
RF parameters	FDD RF parameters	Support of PUSCH	Yes/No
		UE power class	3, 4 NOTE: Only power classes 3 and 4 are part of this release of the specification
RF parameters	TDD RF parameters	Tx/Rx frequency separation	190 MHz 174.8-205.2 MHz 134.8-245.2 MHz
		UE power class	2,3 NOTE: Only power classes 2 and 3 are part of this release of the specification
		Radio frequency bands	a), b), c), a+b), a+c), a+b+c)
		Chip rate capability	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 (per GSM frequency band)
		Support of multi-carrier	Yes/No
UE positioning 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
		Support for Rx-Tx time difference type 2 measurement	Yes/No
Measurement related capabilities		Support for UP measurement reporting validity in CELL_PCH and URA_PCH RRC states	Yes/No
		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)
General capabilities		ICS version	R99

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

NOTE: Measurement-related capabilities are not included in the combinations. These capabilities are independent from the supported RABs.

**Table 5.2.1.1: UE radio access capability parameter combinations, parameters common for UL and DL**

Reference combination of UE Radio Access capability parameters common for UL and DL	32kbps class	64kbps class	128kbps class	384kbps class	768kbps class	2048kbps class
<b>PDCP parameters</b>						
Support for RFC 2507	No	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1
Support for loss-less SRNS relocation	No/Yes NOTE 1					
Maximum header compression context space	Not applicable for conformance testing					
<b>RLC parameters</b>						
Total RLC AM buffer size (kbytes)	10	10	50	50	100	500
Maximum number of AM entities	4	4	5	6	8	8
<b>Multi-mode related parameters</b>						
Support of UTRA FDD/TDD	FDD / FDD+TDD / TDD NOTE 1					
<b>Multi-RAT related parameters</b>						
Support of GSM	Yes/No NOTE 1					
Support of multi-carrier	Yes/No NOTE 1					
<b>UE positioning related parameters</b>						
Standalone location method(s) supported	Yes/No NOTE 1					
Network assisted GPS support	Network based / UE based / Both/ None NOTE 1					
GPS reference time capable	Yes/No NOTE 1					
Support for IPDL	Yes/No NOTE 1					
Support for OTDOA UE based method	Yes/No NOTE 1					
Support for Rx-Tx time difference type 2 measurement	Yes/No NOTE 1					
Support for UP measurement reporting validity in CELL_PCH and URA_PCH RRC states	Yes/No NOTE 1					
<b>RF parameters for FDD</b>						
UE power class	3 / 4 NOTE 1					
Tx/Rx frequency separation	190 MHz					
<b>RF parameters for TDD</b>						
Radio frequency bands	A / b / c / a+b / a+c / b+c / a+b+c NOTE 1					
Chip rate capability	1.28 / 3.84 Mchip/sec NOTE 1					
UE power class	2 / 3 NOTE 1					

NOTE 1: Options represent different combinations that should be supported with Conformance Tests.

## CHANGE REQUEST

⌘ **25.306 CR 39** ⌘ rev - ⌘ Current version: **4.3.0** ⌘  
 Spec Title: **UE Radio Access Capabilities** ⌘

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

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<b>Source:</b>	⌘ Nortel Networks, Qualcomm, CPS, Ericsson		
<b>Work item code:</b>	⌘	<b>Date:</b>	⌘ 5 <sup>th</sup> March 2002
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
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<b>Reason for change:</b>	⌘ In REL4 the measurement performance requirements for UP measurements in CELL_PCH/URA_PCH are missing from RAN4 specifications.
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<b>Consequences if not approved:</b>	⌘ UP measurement reporting in CELL_PCH, URA_PCH is misaligned between RAN2 and RAN4 specifications in REL4.

<b>Clauses affected:</b>	⌘ 4.8, 5.1, 5.2.1		
<b>Other specs affected:</b>	⌘ <input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	25.331
<b>Other comments:</b>	⌘		

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## 4.8 UE positioning related parameters

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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 [6].

### Support for IPDL

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

### Support for Rx-Tx time difference type 2

Defines if a UE has the capability to perform the Rx-Tx time difference type 2 measurement.

### Support for UP measurement reporting validity in CELL\_PCH and URA\_PCH RRC states

Defines if ~~a UE has the capability to report~~ the UP measurement ~~results are valid~~ in CELL\_PCH and URA\_PCH RRC states.

## 5.1 Value ranges

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

		UE radio access capability parameter	Value range
PDCP parameters		Support for RFC 2507	Yes/No
		Support for RFC 3095	Yes/No
		Support for loss-less SRNS relocation	Yes/No
		Maximum header compression context space	512, 1024, 2048, 4096, 8192 bytes
RLC parameters		Total RLC AM buffer size	2,10,50,100,150,500,1000 kBytes
		Maximum number of AM entities	3,4,5,6,8,16,30
PHY parameters	Transport channel parameters in downlink	Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant	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 being received at an arbitrary time instant	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 being received at an arbitrary time instant	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 being transmitted at an arbitrary time instant
	Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant		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 being transmitted at an arbitrary time instant		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
	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
		Maximum number of physical channel bits received in any 10 ms interval (DPCH, PDSCH, S-CCPCH)	600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 48000, 57600, 67200, 76800
		Support for SF 512	Yes/No
		Support of PDSCH	Yes/No
		Simultaneous reception of SCCPCH and DPCH	Yes/No
		Simultaneous reception of SCCPCH, DPCH and PDSCH	Yes/No

		UE radio access capability parameter	Value range
		Support for RFC 2507	Yes/No
		Maximum number of simultaneous S-CCPCH radio links	1 NOTE: Only the value 1 is part of this release of the specification
		Support of dedicated pilots for channel estimation	Yes/No
	FDD Physical channel parameters in uplink	Maximum number of DPDCH bits transmitted per 10 ms	600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600
		Support of PCPCH	Yes/No
	TDD 3.84 Mcps 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
		Maximum number of physical channels per timeslot	1..16
	TDD 3.84 Mcps 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
	TDD 1.28 Mcps physical channel parameters in downlink	Maximum number of timeslots per subframe	1..6
		Maximum number of physical channels per subframe	1,2,3,...,96
		Minimum SF	16, 1
		Support of PDSCH	Yes/No
		Maximum number of physical channels per timeslot	1..16
		Support 8PSK	Yes/No
	TDD 1.28 Mcps physical channel parameters in uplink	Maximum number of timeslots per subframe	1..6
		Maximum number of physical channels per timeslot	1,2
		Minimum SF	16,8,4,2,1
		Support of 8PSK	Yes/No
Support of PUSCH		Yes/No	
RF parameters	FDD RF parameters	UE power class	3, 4 NOTE: Only power classes 3 and 4 are part of this release of the specification
		Tx/Rx frequency separation	190 MHz 174.8-205.2 MHz 134.8-245.2 MHz
RF parameters	TDD 3.84 Mcps RF parameters	UE power class	2,3 NOTE: Only power classes 2 and 3 are part of this release of the specification
		Radio frequency bands	a), b), c), a+b), a+c), b+c), a+b+c)
	TDD 1.28 Mcps RF parameters	UE power class	2,3
		Radio frequency bands	a), b), c), a+b), a+c), b+c), a+b+c)
Multi-mode related parameters		Support of UTRA FDD	Yes/No
		Support of UTRA TDD 3.84 Mcps	Yes/No
		Support of UTRA TDD 1.28 Mcps	Yes/No
Multi-RAT related parameters		Support of GSM	Yes/No (per GSM frequency band)
		Support of multi-carrier	Yes/No
UE positioning related parameters		Standalone location method(s) supported	Yes/No
		Network assisted GPS support	Network based / UE based / Both/ None

	<b>UE radio access capability parameter</b>	<b>Value range</b>
	Support for RFC 2507	Yes/No
	GPS reference time capable	Yes/No
	Support for IPDL	Yes/No
	Support for OTDOA UE based method	Yes/No
	Support for Rx-Tx time difference type 2 measurement	Yes/No
	Support for UP measurement <u>reporting validity</u> in CELL_PCH and URA_PCH RRC states	<u>Yes/No</u>
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)
General capabilities	ICS version	R99

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

NOTE: Measurement-related capabilities are not included in the combinations. These capabilities are independent from the supported RABs.

**Table 5.2.1.1: UE radio access capability parameter combinations, parameters common for UL and DL**

Reference combination of UE Radio Access capability parameters common for UL and DL	32kbps class	64kbps class	128kbps class	384kbps class	768kbps class	2048kbps class
<b>PDCP parameters</b>						
Support for RFC 2507	No	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1
Support for RFC 3095	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1	No/Yes NOTE 1
Support for loss-less SRNS relocation	No/Yes NOTE 1					
Maximum header compression context space	Not applicable for conformance testing					
<b>RLC parameters</b>						
Total RLC AM buffer size (kbytes)	10	10	50	50	100	500
Maximum number of AM entities	4	4	5	6	8	8
<b>Multi-mode related parameters</b>						
Support of UTRA FDD	Yes/No NOTE 1					
Support of UTRA TDD 3.84 Mcps	Yes/No NOTE 1					
Support of UTRA TDD 1.28 Mcps	Yes/No NOTE 1					
<b>Multi-RAT related parameters</b>						
Support of GSM	Yes/No NOTE 1					
Support of multi-carrier	Yes/No NOTE 1					
<b>UE positioning related parameters</b>						
Standalone location method(s) supported	Yes/No NOTE 1					
Network assisted GPS support	Network based / UE based / Both/ None NOTE 1					
GPS reference time capable	Yes/No NOTE 1					
Support for IPDL	Yes/No NOTE 1					
Support for OTDOA UE based method	Yes/No NOTE 1					
Support for Rx-Tx time difference type 2 measurement	Yes/No NOTE 1					
Support for UP measurement reporting validity in CELL_PCH and URA_PCH RRC states	Yes/No NOTE 1					
<b>RF parameters for FDD</b>						
UE power class	3 / 4 NOTE 1					
Tx/Rx frequency separation	190 MHz					
<b>RF parameters for TDD 3.84 Mcps</b>						
Radio frequency bands	A / b / c / a+b / a+c / b+c / a+b+c NOTE 1					
UE power class	2 / 3 NOTE 1					
<b>RF parameters for TDD 1.28 Mcps</b>						
Radio frequency bands	A / b / c / a+b / a+c / b+c / a+b+c NOTE 1					
UE power class	2 / 3 NOTE 1					

NOTE 1: Options represent different combinations that should be supported with Conformance Tests.