TSG-RAN Meeting #16 Marco Island, FL, USA, 4 - 7 June 2002

Title: Agreed CRs (Release '99 and Rel-4/Rel-5 category A) to TS 25.304

Source: TSG-RAN WG2

Agenda item: 7.2.3

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version	Versio
R2-021437	agreed	25.306	042		R99	Security Capabilities	F	3.5.0	3.6.0
R2-021438	agreed	25.306	043		Rel-4	Security Capabilities	Α	4.4.0	4.5.0
R2-021439	agreed	25.306	044		Rel-5	Security Capabilities	Α	5.0.0	5.1.0

3GPP TSG-RAN2 Meeting #29 Gyeongju, Korea, 13-17 May 2002

R2-021437

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Other comments:	ж										

How to create CRs using this form:

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

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ 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.

4.7a Security parameters

Ciphering algorithm capability

This capabilities defines the ciphering algorithms supported by the UE. In this version of the protocol, the UE shall support UEA0 and UEA1.

Integrity protection algorithm capability

This capabilities defines the integrity protection algorithms supported by the UE. In this version of the protocol, the UE shall support UIA1.

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	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
	downlink	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	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	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
	uplink	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, 180, 2560, 3840, 5120, 6400, 7680, 8960, 10240, 20480, 40960, 81920, 163840

		UE radio access capability parameter	Value range
		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	2, 4, 8, 16, 32, 48, 64, 96, 128, 256, 512
		start at the same time Maximum number of TFC	4, 8, 16, 32, 48, 64, 96, 128, 256, 512, 1024
		Maximum number of TF	32, 64, 128, 256, 512, 1024
	EDD Dhysical	Support for turbo encoding Maximum number of DPCH/PDSCH	Yes/No
	FDD Physical channel	codes to be simultaneously received	1, 2, 3, 4, 5, 6, 7, 8
	parameters in downlink	Maximum number of physical channel bits received in any 10 ms interval	600, 1200, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400,
		(DPCH, PDSCH, S-CCPCH)	48000, 57600, 67200, 76800
		Support for SF 512	Yes/No
		Support of PDSCH Simultaneous reception of SCCPCH	Yes/No Yes/No
		and DPCH Simultaneous reception of SCCPCH,	Yes/No
		DPCH and PDSCH	
		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	Maximum number of DPDCH bits transmitted per 10 ms	600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600
	parameters in uplink	Support of PCPCH	Yes/No
	TDD physical channel	Maximum number of timeslots per frame	114
	parameters in downlink	Maximum number of physical channels per frame	1, 2, 3224
		Minimum SF	16, 1
		Support of PDSCH Maximum number of physical	Yes/No 116
		channels per timeslot	110
	TDD physical channel	Maximum Number of timeslots per frame	114
	parameters in uplink	Maximum number of physical channels per timeslot	1, 2
		Minimum SF	16, 8, 4, 2, 1
RF parameters	FDD RF	Support of PUSCH UE power class	Yes/No 3, 4
7. paramotors	parameters		NOTE: Only power classes 3 and 4 are part of this release of the specification
		Tx/Rx frequency separation	190 MHz 174.8 MHz to 205.2 MHz 134.8 MHz to 245.2 MHz
RF parameters	TDD 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 Chip rate capability	a), b), c), a+b), a+c), a+b+c) 3.84, 1.28
Multi-mode related	d parameters	Support of UTRA FDD/TDD	FDD, TDD, FDD+TDD
Multi-RAT related		Support of GSM	Yes/No (per GSM frequency band)
Coourity parameter	aro.	Support of niphoring algorithm LIEAO	Yes/No
Security paramete	<u> </u>	Support of ciphering algorithm UEA0 Support of ciphering algorithm UEA1	Yes Yes
1		1	I

	UE radio access capability parameter	Value range
	Support of integrity protection algorithm UIA0	Yes
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
	Support for UE Positioning measurement validity in CELL_PCH and URA_PCH RRC states	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)
General capabilities	Access Stratum release indicator	R99

5.2 Reference UE radio access capability combinations

Based on required UE radio access capabilities to support reference RABs as defined in [2], 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. Subclauses 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. The bit rate supported by the selected combination of common UL and DL parameters needs to be at least as high as the maximum out of the supported bit rates of the selected combination of DL parameters and the selected combination of UL parameters. 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: 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	32kbps class	64kbps class	128 kbps	384 kbps	768 kbps	2048 kbps
Radio Access capability			class	class	class	class
parameters common for UL and						
DL						
PDCP parameters						

Reference combination of UE Radio Access capability parameters common for UL and DL	32kbps class	64kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class
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/ NO	Yes ΓE 1		
Maximum header compression context space		Not a		conformance te	esting	I
RLC parameters						
Total RLC AM buffer size (kbytes)	10	10	50	50	100	500
Maximum number of AM entities	4	4	5	6	8	8
Multi-mode related parameters						
Support of UTRA FDD/TDD			FDD / FDD- NO	+TDD / TDD ΓΕ 1		
Multi-RAT related parameters						
Support of GSM			Yes NO	S/No FF 1		
Support of multi-carrier			Yes	/No		
Security parameters			NO ⁻	IE 1		
Support of ciphering algorithm UEA0			Y	<u>es</u>		
Support of ciphering algorithm UEA1			<u>Y</u> (<u>es</u>		
Support of integrity protection algorithm UIA0			<u>Y</u> .	<u>es</u>		
UE positioning related parameters						
Standalone location method(s) supported			NO ⁻	s/No ΓΕ 1		
Network assisted GPS support		Netwo	NO		None	
GPS reference time capable			Yes NO	s/No ΓΕ 1		
Support for IPDL			Yes NO			
Support for OTDOA UE based method			Yes NO	s/No ΓΕ 1		
Support for Rx-Tx time difference type 2 measurement			Yes NO	5/No ΓΕ 1		
Support for UE Positioning measurement validity in CELL_PCH and URA_PCH RRC states	Yes/No NOTE 1					
RF parameters for FDD						
UE power class	3 / 4 NOTE 1					
Tx/Rx frequency separation	190 MHz					
RF parameters for TDD						
Radio frequency bands		A	/b/c/a+b/a NO	ı+c / b+c / a+b ГЕ 1	+c	
Chip rate capability			1.28 / 3.8	4 Mchip/s ΓE 1		
UE power class			2 NO	/ 3 ГЕ 1		

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

3GPP TSG-RAN2 Meeting #29 Gyeongju, Korea, 13-17 May 2002

R2-021438

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Other comments:	ж	_	·						

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4.7a Security parameters

Ciphering algorithm capability

This capabilities defines the ciphering algorithms supported by the UE. In this version of the protocol, the UE shall support UEA0 and UEA1.

Integrity protection algorithm capability

This capabilities defines the integrity protection algorithms supported by the UE. In this version of the protocol, the UE shall support UIA1.

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
FDCF parameters		Support for RFC 3095	Yes/No
		Support for loss-less SRNS relocation	Yes/No
		Maximum header compression	512, 1024, 2048, 4096, 8192 bytes
		context space	
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	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
	channel	transport blocks being received at an	7680, 8960, 10240, 20480, 40960,
	parameters in	arbitrary time instant	81920, 163840
	downlink	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
		convolutionally coded transport blocks	7680, 8960, 10240, 20480, 40960,
		being received at an arbitrary time	81920, 163840
		instant	01020, 100010
		Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
		turbo coded transport blocks being	7680, 8960, 10240, 20480, 40960,
		received at an arbitrary time instant	81920, 163840
		Maximum number of simultaneous	4, 8, 16, 32
		transport channels	4, 0, 10, 32
			1, 2, 3, 4, 5, 6, 7, 8
		Maximum number of simultaneous	1, 2, 3, 4, 5, 6, 7, 6
		CCTrCH	4 0 40 00 40 04 00 400 050 54
		Maximum total number of transport	4, 8, 16, 32, 48, 64, 96, 128, 256, 512
		blocks received within TTIs that end	
		within the same 10 ms interval	
		Maximum number of TFC	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	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
	channel	transport blocks being transmitted at	7680, 8960, 10240, 20480, 40960,
	parameters in	an arbitrary time instant	81920, 163840
	uplink	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
	•	convolutionally coded transport blocks	7680, 8960, 10240, 20480, 40960,
		being transmitted at an arbitrary time	81920, 163840
		instant	,
		Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
		turbo coded transport blocks being	7680, 8960, 10240, 20480, 40960,
		transmitted at an arbitrary time instant	81920, 163840

	UE radio access capability parameter	Value range
	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	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	Maximum number of DPCH/PDSCH codes to be simultaneously received	1, 2, 3, 4, 5, 6, 7, 8
parameters in downlink	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
	Maximum number of simultaneous S-CCPCH radio links	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	Maximum number of DPDCH bits transmitted per 10 ms	600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 48000, 57600
parameters in uplink	Support of PCPCH	Yes/No
TDD 3.84 Mcps physical channel	Maximum number of timeslots per frame	114
parameters in downlink	Maximum number of physical channels per frame	1, 2, 3224
	Minimum SF	16, 1
	Support of PDSCH	Yes/No
	Maximum number of physical channels per timeslot	116
TDD 3.84 Mcps physical channel	Maximum Number of timeslots per frame	114
parameters in uplink	Maximum number of physical channels per timeslot	1, 2
	Minimum SF Support of PUSCH	16, 8, 4, 2, 1 Yes/No
TDD 1.28 Mcps physical channel	Maximum number of timeslots per subframe	16
parameters in downlink	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	116
	Support 8PSK	Yes/No
TDD 1.28 Mcps physical channel	Maximum number of timeslots per subframe	16
parameters in uplink	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

		UE radio access capability parameter	Value range		
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 MHz to 205.2 MHz 134.8 MHz to 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	UE power class	2, 3		
	RF parameters	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 p	parameters	Support of GSM	Yes/No (per GSM frequency band)		
		Support of multi-carrier	Yes/No		
Security parameter	'S	Support of ciphering algorithm UEA0	Yes		
	_	Support of ciphering algorithm UEA1	Yes		
		Support of integrity protection algorithm UIA0	Yes		
UE positioning rela	ted 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		
		Support for UE Positioning measurement validity in CELL_PCH and URA_PCH RRC states	Yes/No		
Measurement relat	ed 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 capabilitie	S	Access Stratum release indicator	R99, REL-4		

5.2 Reference UE radio access capability combinations

Based on required UE radio access capabilities to support reference RABs as defined in [2], 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. Subclauses 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. The bit rate supported by the selected combination of common UL and DL parameters needs to be at least as high as the maximum out of the supported bit rates of the selected combination of DL parameters and the selected combination of UL parameters. 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: 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	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class
PDCP parameters						
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						
Maximum header compression context space		Not a	applicable for c	onformance te	esting	
RLC parameters						
Total RLC AM buffer size (kbytes)	10	10	50	50	100	500
Maximum number of AM entities	4	4	5	6	8	8
Multi-mode related parameters						
Support of UTRA FDD			Yes NO	s/No ΓΕ 1		
Support of UTRA TDD 3.84 Mcps			Yes NO	i/No ΓΕ 1		
Support of UTRA TDD 1.28 Mcps	Yes/No NOTE 1					
Multi-RAT related parameters						
Support of GSM			Yes NO	i/No ΓΕ 1		
Support of multi-carrier			Yes NO	i/No ΓΕ 1		
Security parameters						
Support of ciphering algorithm UEA0			Y	<u>es</u>		
Support of ciphering algorithm UEA1			Y	es		
Support of integrity protection algorithm UIA0			<u>Y</u> (<u>es</u>		
UE positioning related parameters						
Standalone location method(s)			Yes	/No		
supported			NO			
Network assisted GPS support		Netw	ork based / UE NO		None	
GPS reference time capable				/No		
Support for IPDL				/No		
Support for OTDOA UE based method				/No		
Support for Rx-Tx time difference type				s/No		
2 measurement			NO ⁻			
Support for UE Positioning				s/No		
measurement validity in CELL_PCH and URA_PCH RRC states			NO ⁻			

Reference combination of UE Radio Access capability parameters common for UL and DL	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class		
RF parameters for FDD		•	•	•	•	•		
UE power class		3 / 4 NOTE 1						
Tx/Rx frequency separation			190	MHz				
RF parameters for TDD 3.84 Mcps								
Radio frequency bands	A/b/c/a+b/a+c/b+c/a+b+c NOTE 1							
UE power class	2/3 NOTE 1							
RF parameters for TDD 1.28 Mcps								
Radio frequency bands	A / b / c / a+b / a+c / b+c/ a+b+c NOTE 1							
UE power class	2 / 3 NOTE 1							

Radio Access capability parameters common for UL and	32kbps clas	s64kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class	
DL PDCP parameters							
-		N. 07	N1 07	N. 07	N1 07	NI 07	
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				Yes TE 1			
Maximum header compression context space		Not a	pplicable for o	conformance te	esting		
RLC parameters							
Total RLC AM buffer size (kbytes)	10	10	50	50	100	500	
Maximum number of AM entities	4	4	5	6	8	8	
Multi-mode related parameters		_ I		I	I	<u> </u>	
Support of UTRA FDD/TDD				+TDD / TDD TE 1			
Multi-RAT related parameters							
Support of GSM				s/No ΓΕ 1			
Support of multi-carrier				i/No ΓΕ 1			
Security parameters							
Support of ciphering algorithm UEA0			<u>Y</u>	<u>es</u>			
Support of ciphering algorithm UEA1			<u>Y</u>	<u>es</u>			
Support of integrity protection algorithm UIA0			Y	<u>es</u>			
UE positioning related parameters							
Standalone location method(s) supported				s/No ΓΕ 1			
Network assisted GPS support	Note in Note i						
GPS reference time capable	Yes/No NOTE 1						
Support for IPDL			Yes	s/No			
Support for OTDOA UE based method	NOTE 1 Yes/No NOTE 1						
Support for Rx-Tx time difference type 2 measurement				s/No ΓΕ 1			

Reference combination of UE Radio Access capability parameters common for UL and DL	32kbps class	64kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class	
Support for UE Positioning measurement validity in CELL_PCH and URA_PCH RRC states		Yes/No NOTE 1					
RF parameters for FDD							
UE power class		3 / 4 NOTE 1					
Tx/Rx frequency separation			190	MHz			
RF parameters for TDD							
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/s NOTE 1						
UE power class			2 / NO	•			

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

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R2-021439

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For <u>HELP</u> on t	For HELP on using this form, see bottom of this page or look at the pop-up text over the % symbols.									
Proposed change affects:										
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Summary of change: The meaning of Security Capability parameters has been added in a new section. Rel5 shadow CR. Impact analysis: Impacted functionality: Security Correction to a function where the specification was uncomplet. The change only affer the Security functionality. If the UE does not implement the change, but the UTRAN does, there is a risk for difficulty interpretation of the meaning of the IE included in the Security Capability in the UE at the RAN. This may lead in theory to RAN not respecting the UE capabilities when configuring the RBs, which could lead to failure of the connection.							different JE and in			
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Other specs affected:	¥	Te	ther core specest specification &M Specification	ons	¥		v3.5.0, CR 09 v4.4.0, CR 10			
Other comments:	æ									

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

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

4.7a Security parameters

Ciphering algorithm capability

This capabilities defines the ciphering algorithms supported by the UE. In this version of the protocol, the UE shall support UEA0 and UEA1.

Integrity protection algorithm capability

This capabilities defines the integrity protection algorithms supported by the UE. In this version of the protocol, the UE shall support UIA1.

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	Value range
		parameter	
PDCP parameters	1	Support for RFC 2507	Yes/No
		Support for RFC 3095	Yes/No
		Support for loss-less SRNS relocation	Yes/No
		Maximum header compression	512, 1024, 2048, 4096, 8192 bytes
		context space	
RLC and MAC-hs parameters		Total RLC AM and MAC-hs 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	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
	channel	transport blocks being received at an	7680, 8960, 10240, 20480, 40960,
	parameters in	arbitrary time instant	81920, 163840
	downlink	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
		convolutionally coded transport blocks	7680, 8960, 10240, 20480, 40960,
		being received at an arbitrary time	81920, 163840
		instant	
		Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
		turbo coded transport blocks being	7680, 8960, 10240, 20480, 40960,
		received at an arbitrary time instant	81920, 163840
		Maximum number of simultaneous	4, 8, 16, 32
		transport channels	10015070
		Maximum number of simultaneous CCTrCH	1, 2, 3, 4, 5, 6, 7, 8
		Maximum total number of transport	4, 8, 16, 32, 48, 64, 96, 128, 256, 512
		blocks received within TTIs that end	
		within the same 10 ms interval	
		Maximum number of TFC	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	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
	channel	transport blocks being transmitted at	7680, 8960, 10240, 20480, 40960,
	parameters in	an arbitrary time instant	81920, 163840
	uplink	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
		convolutionally coded transport blocks	7680, 8960, 10240, 20480, 40960,
		being transmitted at an arbitrary time instant	81920, 163840

		UE radio access capability parameter	Value range
	1	Maximum sum of number of bits of all	640, 1280, 2560, 3840, 5120, 6400,
		turbo coded transport blocks being	7680, 8960, 10240, 20480, 40960,
		transmitted at an arbitrary time instant	81920, 163840
		Maximum number of simultaneous	2, 4, 8, 16, 32
		transport channels	2, 1, 0, 10, 02
		Maximum number of simultaneous	1, 2, 3, 4, 5, 6, 7, 8
		CCTrCH of DCH type (TDD only)	1, 2, 0, 7, 0, 0, 1, 0
		Maximum total number of transport	2, 4, 8, 16, 32, 48, 64, 96, 128, 256,
		blocks transmitted within TTIs that	512
		start at the same time	0.2
		Maximum number of TFC	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	Maximum number of DPCH/PDSCH	1, 2, 3, 4, 5, 6, 7, 8
	channel	codes to be simultaneously received	
	parameters in	Maximum number of physical channel	600, 1200, 2400, 3600, 4800, 7200,
	downlink	bits received in any 10 ms interval	9600, 14400, 19200, 28800, 38400,
		(DPCH, PDSCH, S-CCPCH)	48000, 57600, 67200, 76800
		Support for SF 512	Yes/No
		Support of PDSCH	Yes/No
		Support of HS-PDSCH	Yes/No
		Simultaneous reception of SCCPCH	Yes/No
		and DPCH	\\\-\-\\\\-\\\\\\\\\\\\\\\\\\\\\\\\\\\
		Simultaneous reception of SCCPCH,	Yes/No
		DPCH and PDSCH	1
		Maximum number of simultaneous S-	NOTE: Only the value 1 is part of
		CCPCH radio links	NOTE: Only the value 1 is part of this release of the
			specification
		Support of dedicated pilots for	Yes/No
		channel estimation	103/140
	FDD Physical	Maximum number of DPDCH bits	600, 1200, 2400, 4800, 9600, 19200,
	channel	transmitted per 10 ms	28800, 38400, 48000, 57600
	parameters in	Support of PCPCH	Yes/No
	uplink		
	TDD 3.84 Mcps	Maximum number of timeslots per	114
	physical channel	frame	
	parameters in	Maximum number of physical	1, 2, 3224
	downlink	channels per frame	
		Minimum SF	16, 1
		Support of PDSCH	Yes/No
		Maximum number of physical	116
	TDD 0 04 M	channels per timeslot	4.44
	TDD 3.84 Mcps	Maximum Number of timeslots per	114
	physical channel	frame Maximum number of physical	1 2
	parameters in uplink	Maximum number of physical channels per timeslot	1, 2
	аршік	Minimum SF	16, 8, 4, 2, 1
		Support of PUSCH	Yes/No
	TDD 1.28 Mcps	Maximum number of timeslots per	16
	physical channel	subframe	10
	parameters in	Maximum number of physical	1, 2, 3,, 96
	downlink	channels per subframe	., _, 0,, 00
		Minimum SF	16, 1
		Support of PDSCH	Yes/No
		Maximum number of physical	116
		channels per timeslot	
		Support 8PSK	Yes/No
	TDD 1.28 Mcps	Maximum number of timeslots per	16
	physical channel	subframe	
	parameters in	Maximum number of physical	1, 2
	uplink	channels per timeslot	
		Minimum SF	16, 8, 4, 2, 1
		Support of 8PSK	Yes/No
		3GPP	
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		UE radio access capability parameter	Value range
		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 MHz to 205.2 MHz 134.8 MHz to 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	UE power class	2, 3
	RF parameters	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
Security parameter	<u>rs</u>	Support of ciphering algorithm UEA0	Yes
		Support of ciphering algorithm UEA1	Yes
		Support of integrity protection algorithm UIA0	Yes
UE positioning rela	ited 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
		Support for UE Positioning measurement validity in CELL_PCH and URA_PCH RRC states	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)
General capabilitie	S	Access Stratum release indicator	R99, REL-4

5.2 Reference UE radio access capability combinations

Based on required UE radio access capabilities to support reference RABs as defined in [2], 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. Subclauses 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. The bit rate supported by the selected combination of common UL and DL parameters needs to be at least as high as the maximum out of the supported bit rates of the selected combination of DL parameters and the selected combination of UL parameters. 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: 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	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class	
common for UL and DL PDCP parameters							
-	NI-	NI- O/	NI- 0/	NI- O/	NI- M	N- M-	
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/ NO	Yes ΓΕ 1		•	
Maximum header compression context space	Not applicable for conformance testing						
RLC parameters							
Total RLC AM buffer size (kbytes)	10	10	50	50	100	500	
Maximum number of AM entities	4	4	5	6	8	8	
Multi-mode related parameters		l .	J.	l .	l .		
Support of UTRA FDD			Yes NO	i/No ΓΕ 1			
Support of UTRA TDD 3.84 Mcps				/No			
Support of UTRA TDD 1.28 Mcps				/No			
Multi-RAT related parameters				· - ·			
Support of GSM			Yes NO	i/No ΓΕ 1			
Support of multi-carrier			Yes NO	s/No ΓE 1			
Security parameters							
Support of ciphering algorithm UEA0			<u>Y</u> (<u>es</u>			
Support of ciphering algorithm UEA1			<u>Y</u> (<u>es</u>			
Support of integrity protection algorithm UIA0			<u>Ye</u>	<u>es</u>			
UE positioning related parameters							
Standalone location method(s)			Yes	s/No			
supported			NO				
Network assisted GPS support		Netw	ork based / UE		None		
GPS reference time capable			NOT Voc	s/No			
GFS reference time capable			NOT				
Support for IPDL				s/No			
	NOTE 1						
Support for OTDOA UE based method	Yes/No NOTE 1						
Support for Rx-Tx time difference type							
2 measurement	NOTE 1						
Support for UE Positioning measurement validity in CELL_PCH			Yes NO	s/No ΓΕ 1			
and URA_PCH RRC states							

Reference combination of UE Radio Access capability parameters common for UL and DL	32 kbps class	64 kbps class	128 kbps class	384 kbps class	768 kbps class	2048 kbps class		
RF parameters for FDD			•					
UE power class		3 / 4 NOTE 1						
Tx/Rx frequency separation			190	MHz				
RF parameters for TDD 3.84 Mcps								
Radio frequency bands		A / b / c / a+b / a+c / b+c / a+b+c NOTE 1						
UE power class	2 / 3 NOTE 1							
RF parameters for TDD 1.28 Mcps								
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.