
Annex A (normative): Measurement channels

A.1 General

The throughput values defined in the measurement channels specified in Annex A, are calculated and are valid per datastream (codeword). For multi-stream (more than one codeword) transmissions, the throughput referenced in the minimum requirements is the sum of throughputs of all datastreams (codewords).

The UE category entry in the definition of the reference measurement channel in Annex A is only informative and reveals the UE categories, which can support the corresponding measurement channel. Whether the measurement channel is used for testing a certain UE category or not is specified in the individual minimum requirements.

A.2 UL reference measurement channels for E-UTRA TDD Config 2

A.2.1 General

The measurement channels in the following clauses are defined to derive the requirements in clause 6 (Transmitter Characteristics) and clause 7 (Receiver Characteristics). The measurement channels represent example configurations of physical channels for different data rates.

A.2.2 Reference measurement channels for E-UTRA

A.2.2.1 Full RB allocation

A.2.2.1.1 QPSK

Table A.2.2.1.1-1: Reference Channels for QPSK with full RB allocation

Parameter	Unit	Value					
		1.4	3	5	10	15	20
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (NOTE 2)		2	2	2	2	2	2
Special subframe configuration (NOTE 3)		7	7	7	7	7	7
DFT-OFDM Symbols per Sub-Frame		12	12	12	12	12	12
Modulation		QPSK	QPSK	QPSK	QPSK	QPSK	QPSK
Target Coding rate		1/3	1/3	1/3	1/3	1/5	1/6
Payload size							
For Sub-Frame 2,7	Bits	600	1544	2216	5160	4392	4584
Transport block CRC	Bits	24	24	24	24	24	24
Number of code blocks per Sub-Frame (NOTE 1)							
For Sub-Frame 2,7		1	1	1	1	1	1
Total number of bits per Sub-Frame							
For Sub-Frame 2,7	Bits	1728	4320	7200	14400	21600	28800
Total symbols per Sub-Frame							
For Sub-Frame 2,7		864	2160	3600	7200	10800	14400
UE Category		≥ 1	≥ 1	≥ 1	≥ 1	≥ 1	≥ 1
NOTE 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)							
NOTE 2: As per Table 4.2-2 in TS 36.211 [7]							
NOTE 3: As per Table 4.2-1 in TS 36.211 [7]							

A.2.2.1.2 16-QAM

Table A.2.2.1.2-1: Reference Channels for 16-QAM with full RB allocation

Parameter	Unit	Value					
		1.4	3	5	10	15	20
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (NOTE 2)		2	2	2	2	2	2
Special subframe configuration (NOTE 3)		7	7	7	7	7	7
DFT-OFDM Symbols per Sub-Frame		12	12	12	12	12	12
Modulation		16QAM	16QAM	16QAM	16QAM	16QAM	16QAM
Target Coding rate		3/4	1/2	1/3	3/4	1/2	1/3
Payload size							
For Sub-Frame 2,7	Bits	2600	4264	4968	21384	21384	19848
Transport block CRC	Bits	24	24	24	24	24	24
Number of code blocks per Sub-Frame (NOTE 1)							
For Sub-Frame 2,7		1	1	1	4	4	4
Total number of bits per Sub-Frame							
For Sub-Frame 2,7	Bits	3456	8640	14400	28800	43200	57600
Total symbols per Sub-Frame							
For Sub-Frame 2,7		864	2160	3600	7200	10800	14400
UE Category		≥ 1	≥ 1	≥ 1	≥ 2	≥ 2	≥ 2
NOTE 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)							
NOTE 2: As per Table 4.2-2 in TS 36.211 [7]							
NOTE 3: As per Table 4.2-1 in TS 36.211 [7]							

A.2.2.1.3 64-QAM

Table A.2.2.1.3-1: Reference Channels for 64-QAM with full RB allocation

Parameter	Unit	Value					
		1.4	3	5	10	15	20
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (NOTE 2)		2	2	2	2	2	2
Special subframe configuration (NOTE 3)		7	7	7	7	7	7
DFT-OFDM Symbols per Sub-Frame		12	12	12	12	12	12
Modulation		64QAM	64QAM	64QAM	64QAM	64QAM	64QAM
Target Coding rate		3/4	3/4	3/4	3/4	3/4	3/4
Payload size							
For Sub-Frame 2,7	Bits	3752	9528	15840	31704	46888	63776
Transport block CRC	Bits	24	24	24	24	24	24
Number of code blocks per Sub-Frame (NOTE 1)							
For Sub-Frame 2,7		1	2	3	6	8	11
Total number of bits per Sub-Frame							
For Sub-Frame 2,7	Bits	5184	12960	21600	43200	64800	86400
Total symbols per Sub-Frame							
For Sub-Frame 2,7		864	2160	3600	7200	10800	14400
UE Category (NOTE 4)		5, 8	5, 8	5, 8	5, 8	5, 8	5, 8
UE UL Category (NOTE 4)		5, 8, 13, 14	5, 8, 13, 14	5, 8, 13, 14	5, 8, 13, 14	5, 8, 13, 14	5, 8, 13, 14
NOTE 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)							
NOTE 2: As per Table 4.2-2 in TS 36.211 [7]							
NOTE 3: As per Table 4.2-1 in TS 36.211 [7]							
NOTE 4: If UE does not report UE UL category, then the applicability of reference channel is determined by UE category. If UE reports UE UL category, then the applicability of reference channel is determined by UE UL category.							

A.2.2.1.4 256 QAM

Table A.2.2.1.4-1: Reference Channels for 256 QAM with full RB allocation

Parameter	Unit	Value					
		1.4	3	5	10	15	20
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (NOTE 2)		2	2	2	2	2	2
Special subframe configuration (NOTE 3)		7	7	7	7	7	7
DFT-OFDM Symbols per Sub-Frame		12	12	12	12	12	12
Modulation		256QAM	256QAM	256QAM	256QAM	256QAM	256QAM
Target Coding rate		3/4	3/4	3/4	3/4	3/4	3/4
Payload size							
For Sub-Frame 2,7	Bits	5160	12960	21384	42368	63776	84760
Transport block CRC	Bits	24	24	24	24	24	24
Number of code blocks per Sub-Frame (NOTE 1)							
For Sub-Frame 2,7		1	3	4	8	11	15
Total number of bits per Sub-Frame							
For Sub-Frame 2,7	Bits	6912	17280	28800	57600	86400	115200
Total symbols per Sub-Frame							
For Sub-Frame 2,7		864	2160	3600	7200	10800	14400
UE UL Category		≥ 15	≥ 15	≥ 15	≥ 15	≥ 15	≥ 15
NOTE 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)							
NOTE 2: As per Table 4.2-2 in TS 36.211 [7]							
NOTE 3: As per Table 4.2-1 in TS 36.211 [7]							

A.2.2.2 Partial RB allocation

A.2.2.2.1 QPSK

Table A.2.2.1-1: Reference Channels for QPSK with partial RB allocation

Parameter	Ch BW	Allocated RBs	UL-DL Configuration (NOTE 2)	Special subframe configuration (NOTE 3)	DFT-OFDM Symbols per Sub-Frame	Mod'n	Target Coding rate	Payload size for Sub-Frame 2, 7	Transport block CRC	Number of code blocks per Sub-Frame (NOTE 1)	Total number of bits per Sub-Frame for Sub-Frame 2, 7	Total symbols per Sub-Frame for Sub-Frame 2, 7	UE Category
Unit	MHz							Bits	Bits		Bits		
	1.4 - 20	1	2	7	12	QPSK	1/3	72	24	1	288	144	≥ 1
	1.4 - 20	2	2	7	12	QPSK	1/3	176	24	1	576	288	≥ 1
	1.4 - 20	3	2	7	12	QPSK	1/3	256	24	1	864	432	≥ 1
	1.4 - 20	4	2	7	12	QPSK	1/3	392	24	1	1152	576	≥ 1
	1.4 - 20	5	2	7	12	QPSK	1/3	424	24	1	1440	720	≥ 1
	3-20	6	2	7	12	QPSK	1/3	600	24	1	1728	864	≥ 1
	3-20	8	2	7	12	QPSK	1/3	808	24	1	2304	1152	≥ 1
	3-20	9	2	7	12	QPSK	1/3	776	24	1	2592	1296	≥ 1
	3-20	10	2	7	12	QPSK	1/3	872	24	1	2880	1440	≥ 1
	3-20	12	2	7	12	QPSK	1/3	1224	24	1	3456	1728	≥ 1
	5-20	15	2	7	12	QPSK	1/3	1320	24	1	4320	2160	≥ 1
	5-20	16	2	7	12	QPSK	1/3	1384	24	1	4608	2304	≥ 1
	5-20	18	2	7	12	QPSK	1/3	1864	24	1	5184	2592	≥ 1
	5-20	20	2	7	12	QPSK	1/3	1736	24	1	5760	2880	≥ 1
	5-20	24	2	7	12	QPSK	1/3	2472	24	1	6912	3456	≥ 1
	10-20	25	2	7	12	QPSK	1/3	2216	24	1	7200	3600	≥ 1
	10-20	27	2	7	12	QPSK	1/3	2792	24	1	7776	3888	≥ 1
	10-20	30	2	7	12	QPSK	1/3	2664	24	1	8640	4320	≥ 1
	10-20	32	2	7	12	QPSK	1/3	2792	24	1	9216	4608	≥ 1
	10-20	36	2	7	12	QPSK	1/3	3752	24	1	10368	5184	≥ 1
	10-20	40	2	7	12	QPSK	1/3	4136	24	1	11520	5760	≥ 1
	10-20	45	2	7	12	QPSK	1/3	4008	24	1	12960	6480	≥ 1
	10-20	48	2	7	12	QPSK	1/3	4264	24	1	13824	6912	≥ 1
	15 - 20	50	2	7	12	QPSK	1/3	5160	24	1	14400	7200	≥ 1
	15 - 20	54	2	7	12	QPSK	1/3	4776	24	1	15552	7776	≥ 1
	15 - 20	60	2	7	12	QPSK	1/4	4264	24	1	17280	8640	≥ 1
	15 - 20	64	2	7	12	QPSK	1/4	4584	24	1	18432	9216	≥ 1
	15 - 20	72	2	7	12	QPSK	1/4	5160	24	1	20736	10368	≥ 1
	20	75	2	7	12	QPSK	1/5	4392	24	1	21600	10800	≥ 1
	20	80	2	7	12	QPSK	1/5	4776	24	1	23040	11520	≥ 1
	20	81	2	7	12	QPSK	1/5	4776	24	1	23328	11664	≥ 1
	20	90	2	7	12	QPSK	1/6	4008	24	1	25920	12960	≥ 1

	20	96	2	7	12	QPSK	1/6	4264	24	1	27648	13824	≥ 1
NOTE 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)													
NOTE 2: As per Table 4.2-2 in TS 36.211 [7]													
NOTE 3: As per Table 4.2-1 in TS 36.211 [7]													

A.2.2.2.2 16-QAM

Table A.2.2.2-1: Reference Channels for 16QAM with partial RB allocation

Parameter	Ch BW	Allocated RBs	UL-DL Configuration (NOTE 2)	Special subframe configuration (NOTE 3)	DFT-OFDM Symbols per Sub-Frame	Mod'n	Target Coding rate	Payload size for Sub-Frame 2, 7	Transport block CRC	Number of code blocks per Sub-Frame (NOTE 1)	Total number of bits per Sub-Frame for Sub-Frame 2, 7	Total symbols per Sub-Frame for Sub-Frame 2, 7	UE Category
Unit	MHz							Bits	Bits		Bits		
	1.4 - 20	1	2	7	12	16QAM	3/4	408	24	1	576	144	≥ 1
	1.4 - 20	2	2	7	12	16QAM	3/4	840	24	1	1152	288	≥ 1
	1.4 - 20	3	2	7	12	16QAM	3/4	1288	24	1	1728	432	≥ 1
	1.4 - 20	4	2	7	12	16QAM	3/4	1736	24	1	2304	576	≥ 1
	1.4 - 20	5	2	7	12	16QAM	3/4	2152	24	1	2880	720	≥ 1
	3-20	6	2	7	12	16QAM	3/4	2600	24	1	3456	864	≥ 1
	3-20	8	2	7	12	16QAM	3/4	3496	24	1	4608	1152	≥ 1
	3-20	9	2	7	12	16QAM	3/4	3880	24	1	5184	1296	≥ 1
	3-20	10	2	7	12	16QAM	3/4	4264	24	1	5760	1440	≥ 1
	3-20	12	2	7	12	16QAM	3/4	5160	24	1	6912	1728	≥ 1
	5-20	15	2	7	12	16QAM	1/2	4264	24	1	8640	2160	≥ 1
	5-20	16	2	7	12	16QAM	1/2	4584	24	1	9216	2304	≥ 1
	5-20	18	2	7	12	16QAM	1/2	5160	24	1	10368	2592	≥ 1
	5-20	20	2	7	12	16QAM	1/3	4008	24	1	11520	2880	≥ 1
	5-20	24	2	7	12	16QAM	1/3	4776	24	1	13824	3456	≥ 1
	10-20	25	2	7	12	16QAM	1/3	4968	24	1	14400	3600	≥ 1
	10-20	27	2	7	12	16QAM	1/3	4776	24	1	15552	3888	≥ 1
	10-20	30	2	7	12	16QAM	3/4	12960	24	3	17280	4320	≥ 2
	10-20	32	2	7	12	16QAM	3/4	13536	24	3	18432	4608	≥ 2
	10-20	36	2	7	12	16QAM	3/4	15264	24	3	20736	5184	≥ 2
	10-20	40	2	7	12	16QAM	3/4	16992	24	3	23040	5760	≥ 2
	10-20	45	2	7	12	16QAM	3/4	19080	24	4	25920	6480	≥ 2
	10-20	48	2	7	12	16QAM	3/4	20616	24	4	27648	6912	≥ 2
	15 - 20	50	2	7	12	16QAM	3/4	21384	24	4	28800	7200	≥ 2
	15 - 20	54	2	7	12	16QAM	3/4	22920	24	4	31104	7776	≥ 2
	15 - 20	60	2	7	12	16QAM	2/3	23688	24	4	34560	8640	≥ 2
	15 - 20	64	2	7	12	16QAM	2/3	25456	24	4	36864	9216	≥ 2
	15 - 20	72	2	7	12	16QAM	1/2	20616	24	4	41472	10368	≥ 2
	20	75	2	7	12	16QAM	1/2	21384	24	4	43200	10800	≥ 2
	20	80	2	7	12	16QAM	1/2	22920	24	4	46080	11520	≥ 2
	20	81	2	7	12	16QAM	1/2	22920	24	4	46656	11664	≥ 2
	20	90	2	7	12	16QAM	2/5	20616	24	4	51840	12960	≥ 2

	20	96	2	7	12	16QAM	2/5	22152	24	4	55296	13824	≥ 2
NOTE 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)													
NOTE 2: As per Table 4.2-2 in TS 36.211 [7]													
NOTE 3: As per Table 4.2-1 in TS 36.211 [7]													

A.2.2.2.3 64-QAM

Table A.2.2.3-1: Reference Channels for 64-QAM with partial RB allocation

Parameter	Ch BW	Allocated RBs	UL-DL Configuration (NOTE 2)	Special subframe configuration (NOTE 3)	DFT-OFDM Symbols per Sub-Frame	Mod'n	Target Coding rate	Payload size for Sub-Frame 2, 7	Transport block CRC	Number of code blocks per Sub-Frame (NOTE 1)	Total number of bits per Sub-Frame for Sub-Frame 2, 7	Total symbols per Sub-Frame for Sub-Frame 2, 7	UE Category (NOTE 4)
Unit	MHz							Bits	Bits		Bits		
	1.4 - 20	1	2	7	12	64QAM	3/4	616	24	1	864	144	5,8
	1.4 - 20	2	2	7	12	64QAM	3/4	1256	24	1	1728	288	5,8
	1.4 - 20	3	2	7	12	64QAM	3/4	1864	24	1	2592	432	5,8
	1.4 - 20	4	2	7	12	64QAM	3/4	2536	24	1	3456	576	5,8
	1.4 - 20	5	2	7	12	64QAM	3/4	3112	24	1	4320	720	5,8
	3-20	6	2	7	12	64QAM	3/4	3752	24	1	5184	864	5,8
	3-20	8	2	7	12	64QAM	3/4	5160	24	1	6912	1152	5,8
	3-20	9	2	7	12	64QAM	3/4	5736	24	1	7776	1296	5,8
	3-20	10	2	7	12	64QAM	3/4	6200	24	2	8640	1440	5,8
	3-20	12	2	7	12	64QAM	3/4	7480	24	2	10368	1728	5,8
	5-20	15	2	7	12	64QAM	3/4	9528	24	2	12960	2160	5,8
	5-20	16	2	7	12	64QAM	3/4	10296	24	2	13824	2304	5,8
	5-20	18	2	7	12	64QAM	3/4	11448	24	2	15552	2592	5,8
	5-20	20	2	7	12	64QAM	3/4	12576	24	3	17280	2880	5,8
	5-20	24	2	7	12	64QAM	3/4	15264	24	3	20736	3456	5,8
	10-20	25	2	7	12	64QAM	3/4	15840	24	3	21600	3600	5,8
	10-20	27	2	7	12	64QAM	3/4	16992	24	3	23328	3888	5,8
	10-20	30	2	7	12	64QAM	3/4	19080	24	4	25920	4320	5,8
	10-20	32	2	7	12	64QAM	3/4	20616	24	4	27648	4608	5,8
	10-20	36	2	7	12	64QAM	3/4	22920	24	4	31104	5184	5,8
	10-20	40	2	7	12	64QAM	3/4	25456	24	5	34560	5760	5,8
	10-20	45	2	7	12	64QAM	3/4	28336	24	5	38880	6480	5,8
	10-20	48	2	7	12	64QAM	3/4	30576	24	5	41472	6912	5,8
	15 - 20	50	2	7	12	64QAM	3/4	31704	24	6	43200	7200	5,8
	15 - 20	54	2	7	12	64QAM	3/4	34008	24	6	46656	7776	5,8
	15 - 20	60	2	7	12	64QAM	3/4	37888	24	7	51840	8640	5,8
	15 - 20	64	2	7	12	64QAM	3/4	40576	24	7	55296	9216	5,8
	1.4 - 20	1	2	7	12	64QAM	3/4	616	24	1	864	144	5,8
	1.4 - 20	2	2	7	12	64QAM	3/4	1256	24	1	1728	288	5,8
	1.4 - 20	3	2	7	12	64QAM	3/4	1864	24	1	2592	432	5,8
	1.4 - 20	4	2	7	12	64QAM	3/4	2536	24	1	3456	576	5,8
	1.4 - 20	5	2	7	12	64QAM	3/4	3112	24	1	4320	720	5,8

	3-20	6	2	7	12	64QAM	3/4	3752	24	1	5184	864	5,8
	3-20	8	2	7	12	64QAM	3/4	5160	24	1	6912	1152	5,8
	3-20	9	2	7	12	64QAM	3/4	5736	24	1	7776	1296	5,8
	3-20	10	2	7	12	64QAM	3/4	6200	24	2	8640	1440	5,8
	3-20	12	2	7	12	64QAM	3/4	7480	24	2	10368	1728	5,8
	5-20	15	2	7	12	64QAM	3/4	9528	24	2	12960	2160	5,8
	5-20	16	2	7	12	64QAM	3/4	10296	24	2	13824	2304	5,8
	5-20	18	2	7	12	64QAM	3/4	11448	24	2	15552	2592	5,8
	5-20	20	2	7	12	64QAM	3/4	12576	24	3	17280	2880	5,8
	5-20	24	2	7	12	64QAM	3/4	15264	24	3	20736	3456	5,8
	10-20	25	2	7	12	64QAM	3/4	15840	24	3	21600	3600	5,8
	10-20	27	2	7	12	64QAM	3/4	16992	24	3	23328	3888	5,8
	10-20	30	2	7	12	64QAM	3/4	19080	24	4	25920	4320	5,8
	15 - 20	50	2	7	12	64QAM	3/4	31704	24	6	43200	7200	5,8
	15 - 20	54	2	7	12	64QAM	3/4	34008	24	6	46656	7776	5,8
	15 - 20	60	2	7	12	64QAM	3/4	37888	24	7	51840	8640	5,8
	15 - 20	64	2	7	12	64QAM	3/4	40576	24	7	55296	9216	5,8
	15 - 20	72	2	7	12	64QAM	3/4	45352	24	8	62208	10368	5,8
	20	75	2	7	12	64QAM	3/4	46888	24	8	64800	10800	5,8
	20	80	2	7	12	64QAM	3/4	51024	24	9	69120	11520	5,8
	20	81	2	7	12	64QAM	3/4	51024	24	9	69984	11664	5,8
	20	90	2	7	12	64QAM	3/4	51024	24	9	77760	12960	5,8
	20	96	2	7	12	64QAM	3/4	61664	24	11	82944	13824	5,8
NOTE 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)													
NOTE 2: As per Table 4.2-2 in TS 36.211 [7].													
NOTE 3: As per Table 4.2-1 in TS 36.211 [7]													
NOTE 4: If UE does not report UE UL category, then the applicability of reference channel is determined by UE category. If UE reports UE UL category, then the applicability of reference channel is determined by UE UL category													

A.2.2.2.4 256 QAM

Table A.2.2.2.4-1: Reference Channels for 256 QAM with partial RB allocation

Parameter	Ch BW	Allocated RBs	UL-DL Configuration (NOTE 2)	Special Slot Configuration (NOTE 3)	DFT-OFDM Symbols per Sub-Frame	Mod'n	Target Coding rate	Payload size for Sub-Frame 2, 7	Transport block CRC	Number of code blocks per Sub-Frame (NOTE 1)	Total number of bits per Sub-Frame for Sub-Frame 2, 7	Total symbols per Sub-Frame for Sub-Frame 2, 7	UE UL Category
Unit	MHz						Bits	Bits		Bits			
	1.4 - 20	1	2	7	12	256QAM	3/4	840	24	1	1152	144	≥ 15
	1.4 - 20	2	2	7	12	256QAM	3/4	1672	24	1	2304	288	≥ 15
	1.4 - 20	3	2	7	12	256QAM	3/4	2536	24	1	3456	432	≥ 15
	1.4 - 20	4	2	7	12	256QAM	3/4	3368	24	1	4608	576	≥ 15
	1.4 - 20	5	2	7	12	256QAM	3/4	4264	24	1	5760	720	≥ 15
	3-20	6	2	7	12	256QAM	3/4	5160	24	1	6912	864	≥ 15
	3-20	8	2	7	12	256QAM	3/4	6712	24	2	9216	1152	≥ 15
	3-20	9	2	7	12	256QAM	3/4	7736	24	2	10368	1296	≥ 15
	3-20	10	2	7	12	256QAM	3/4	8504	24	2	11520	1440	≥ 15
	3-20	12	2	7	12	256QAM	3/4	10296	24	2	13824	1728	≥ 15
	5-20	15	2	7	12	256QAM	3/4	12960	24	3	17280	2160	≥ 15
	5-20	16	2	7	12	256QAM	3/4	13536	24	3	18432	2304	≥ 15
	5-20	18	2	7	12	256QAM	3/4	15264	24	3	20736	2592	≥ 15
	5-20	20	2	7	12	256QAM	3/4	16992	24	3	23040	2880	≥ 15
	5-20	24	2	7	12	256QAM	3/4	20616	24	4	27648	3456	≥ 15
	10-20	25	2	7	12	256QAM	3/4	21384	24	4	28800	3600	≥ 15
	10-20	27	2	7	12	256QAM	3/4	22920	24	4	31104	3888	≥ 15
	10-20	30	2	7	12	256QAM	3/4	25456	24	5	34560	4320	≥ 15
	10-20	32	2	7	12	256QAM	3/4	27376	24	5	36864	4608	≥ 15
	10-20	36	2	7	12	256QAM	3/4	30576	24	6	41472	5184	≥ 15
	10-20	40	2	7	12	256QAM	3/4	34008	24	6	46080	5760	≥ 15
	10-20	45	2	7	12	256QAM	3/4	37888	24	7	51840	6480	≥ 15
	10-20	48	2	7	12	256QAM	3/4	40576	24	8	55296	6912	≥ 15
	15 - 20	50	2	7	12	256QAM	3/4	42368	24	8	57600	7200	≥ 15
	15 - 20	54	2	7	12	256QAM	3/4	46888	24	8	62208	7776	≥ 15
	15 - 20	60	2	7	12	256QAM	3/4	51024	24	9	69120	8640	≥ 15
	15 - 20	64	2	7	12	256QAM	3/4	55056	24	9	73728	9216	≥ 15
	15 - 20	72	2	7	12	256QAM	3/4	61664	24	11	82944	10368	≥ 15
	20	75	2	7	12	256QAM	3/4	63776	24	11	86400	10800	≥ 15
	20	80	2	7	12	256QAM	3/4	68808	24	12	92160	11520	≥ 15
	20	81	2	7	12	256QAM	3/4	68808	24	12	93312	11664	≥ 15
	20	90	2	7	12	256QAM	3/4	76208	24	13	103680	12960	≥ 15

	20	96	2	7	12	256QAM	3/4	81176	24	14	110592	13824	≥ 15
NOTE 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)													
NOTE 2: As per Table 4.2-2 in TS 36.211 [7]													
NOTE 3: As per Table 4.2-1 in TS 36.211 [7]													

A.3 DL reference measurement channels for E-UTRA

A.3.1 General

The number of available channel bits varies across the sub-frames due to PBCH and PSS/SSS overhead. The payload size per sub-frame is varied in order to keep the code rate constant throughout a frame.

Unless otherwise stated, no user data is scheduled on subframes #5 in order to facilitate the transmission of system information blocks (SIB).

The algorithm for determining the payload size A is as follows; given a desired coding rate R and radio block allocation N_{RB}

1. Calculate the number of channel bits N_{ch} that can be transmitted during the first transmission of a given sub-frame.
2. Find A such that the resulting coding rate is as close to R as possible, that is,

$$\min \left| R - \frac{A + 24 * (N_{CB} + 1)}{N_{ch}} \right|, \text{ where } N_{CB} = \begin{cases} 0, & \text{if } C = 1 \\ C, & \text{if } C > 1 \end{cases},$$

subject to

- a) A is a valid TB size according to clause 7.1.7 of TS 36.213 [6] assuming an allocation of N_{RB} resource blocks.
 - b) C is the number of Code Blocks calculated according to clause 5.1.2 of TS 36.212 [5].
3. If there is more than one A that minimizes the equation above, then the larger value is chosen per default and the chosen code rate should not exceed 0.93.
 4. For TDD, the measurement channel is based on DL/UL configuration ratio of 3DL+DwPTS (10 OFDM symbol SSF7): 1UL

A.3.1.1 QPSK

Table A.3.1.1-1: Fixed Reference Channel for Receiver Requirements (TDD)

Parameter	Unit	Value					
		1.4	3	5	10	15	20
Channel Bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (NOTE 5)		2	2	2	2	2	2
Special subframe configuration (NOTE 6)		7	7	7	7	7	7
Allocated subframes per Radio Frame (D+S)		3	3+2	3+2	3+2	3+2	3+2
Number of HARQ Processes	Processes	7	7	7	7	7	7
Maximum number of HARQ transmission		1	1	1	1	1	1
Modulation		QPSK	QPSK	QPSK	QPSK	QPSK	QPSK
Target coding rate		1/3	1/3	1/3	1/3	1/3	1/3
Information Bit Payload per Sub-Frame	Bits						
For Sub-Frame 3, 4, 8, 9		408	1320	2216	4392	6712	8760
For Sub-Frame 1, 6		N/A	776	1288	2664	4008	5352
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		208	1064	1800	4392	6712	8760
Transport block CRC	Bits	24	24	24	24	24	24
Number of Code Blocks per Sub-Frame (NOTE 4)							
For Sub-Frame 3, 4, 8, 9		1	1	1	1	2	2
For Sub-Frame 1, 6		N/A	1	1	1	1	1
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		1	1	1	1	2	2
Binary Channel Bits Per Sub-Frame	Bits						
For Sub-Frame 3, 4, 8, 9		1368	3780	6300	13800	20700	27600
For Sub-Frame 1, 6		N/A	2616	4456	9056	13656	18256
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		672	3084	5604	13104	20004	26904
Max. Throughput averaged over 1 frame	kbps	102.4	564	932	1965.6	3007.2	3970.4
UE Category		≥ 1	≥ 1	≥ 1	≥ 1	≥ 1	≥ 1
NOTE 1: For normal subframes(0,3,4,5,8,9), 2 symbols allocated to PDCCH for 20 MHz, 15 MHz and 10 MHz channel BW; 3 symbols allocated to PDCCH for 5 MHz and 3 MHz; 4 symbols allocated to PDCCH for 1.4 MHz. For special subframe (1&6), only 2 OFDM symbols are allocated to PDCCH for all BWs.							
NOTE 2: For 1.4MHz, no data shall be scheduled on special subframes(1&6) to avoid problems with insufficient PDCCH performance							
NOTE 3: Reference signal, Synchronization signals and PBCH allocated as per TS 36.211 [7]							
NOTE 4: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit).							
NOTE 5: As per Table 4.2-2 in TS 36.211 [7]							
NOTE 6: As per Table 4.2-1 in TS 36.211 [7]							

A.3.1.2 64-QAM

Table A.3.1.2-1: Fixed Reference Channel for Maximum input level for UE Categories ≥ 3 (TDD)

Parameter	Unit	Value					
		1.4	3	5	10	15	20
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Subcarriers per resource block		12	12	12	12	12	12
Uplink-Downlink Configuration (NOTE 5)		2	2	2	2	2	2
Special subframe configuration (NOTE 6)		7	7	7	7	7	7
Allocated subframes per Radio Frame		2	3+2	3+2	3+2	3+2	3+2
Modulation		64QAM	64QAM	64QAM	64QAM	64QAM	64QAM
Target Coding Rate		$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Number of HARQ Processes	Processes	7	7	7	7	7	7
Maximum number of HARQ transmissions		1	1	1	1	1	1
Information Bit Payload per Sub-Frame							
For Sub-Frames 3, 4, 8, 9	Bits	2984	8504	14112	30576	46888	61664
For Sub-Frames 1,6	Bits	N/A	5544	9528	19848	30576	40576
For Sub-Frame 5	Bits	N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0	Bits	N/A	6968	12576	30576	45352	61664
Transport block CRC	Bits	24	24	24	24	24	24
Number of Code Blocks per Sub-Frame (NOTE 4)							
For Sub-Frames 3, 4, 8, 9		1	2	3	5	8	11
For Sub-Frames 1,6		N/A	2	2	4	6	8
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		N/A	2	3	5	8	11
Binary Channel Bits per Sub-Frame							
For Sub-Frames 3, 4, 8, 9	Bits	4104	11340	18900	41400	62100	82800
For Sub-Frames 1,6		N/A	7848	13368	27168	40968	54768
For Sub-Frame 5	Bits	N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0	Bits	N/A	9252	16812	39312	60012	80712
Max. Throughput averaged over 1 frame	kbps	596.8	3791.2	6369.6	13910	20945	27877
NOTE 1: For normal subframes(0,3,4,5,8,9), 2 symbols allocated to PDCCH for 20 MHz, 15 MHz and 10 MHz channel BW; 3 symbols allocated to PDCCH for 5 MHz and 3 MHz; 4 symbols allocated to PDCCH for 1.4 MHz. For special subframe (1&6), only 2 OFDM symbols are allocated to PDCCH for all BWs.							
NOTE 2: For 1.4MHz, no data shall be scheduled on special subframes(1&6) to avoid problems with insufficient PDCCH performance.							
NOTE 3: Reference signal, Synchronization signals and PBCH allocated as per TS 36.211 [7].							
NOTE 4: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit).							
NOTE 5: As per Table 4.2-2 in TS 36.211 [7].							
NOTE 6: As per Table 4.2-1 in TS 36.211 [7]							

A.3.1.3 256-QAM

Table A.3.1.3-1: Fixed Reference Channel for Maximum input level for UE Categories 11/12 and UE DL categories ≥ 11 (TDD)

Parameter	Unit	Value					
		1.4	3	5	10	15	20
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Subcarriers per resource block		12	12	12	12	12	12
Uplink-Downlink Configuration (NOTE 5)		2	2	2	2	2	2
Special subframe configuration (NOTE 6)		7	7	7	7	7	7
Allocated subframes per Radio Frame		2	3+2	3+2	3+2	3+2	3+2
Modulation		256QAM	256QAM	256QAM	256QAM	256QAM	256QAM
Target Coding Rate		4/5	4/5	4/5	4/5	4/5	4/5
Number of HARQ Processes	Processes	7	7	7	7	7	7
Maximum number of HARQ transmissions		1	1	1	1	1	1
Information Bit Payload per Sub-Frame							
For Sub-Frames 3,4,8,9	Bits	4392	12216	19848	42368	63776	84760
For Sub-Frames 1,6	Bits	N/A	10464	17824	36224	54624	73024
For Sub-Frame 5	Bits	N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0	Bits	N/A	9912	17568	42368	63776	84760
Transport block CRC	Bits	24	24	24	24	24	24
Number of Code Blocks per Sub-Frame (NOTE 4)							
For Sub-Frames 3,4,8,9		1	2	4	7	11	14
For Sub-Frames 1,6		N/A	2	3	6	9	13
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		N/A	2	3	7	11	14
Binary Channel Bits per Sub-Frame							
For Sub-Frames 3,4,8,9	Bits	5472	15120	25200	55200	82800	110400
For Sub-Frames 1,6		N/A	8248	13536	27376	40576	55056
For Sub-Frame 5	Bits	N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0	Bits	N/A	12336	22416	52416	80016	107616
Max. Throughput averaged over 1 frame	kbps	878.4	5570.4	9240	20049.6	30144	40503.2
NOTE 1: For normal subframes(0,3,4,5,8,9), 2 symbols allocated to PDCCH for 20 MHz, 15 MHz and 10 MHz channel BW; 3 symbols allocated to PDCCH for 5 MHz and 3 MHz; 4 symbols allocated to PDCCH for 1.4 MHz. For special subframe (1&6), only 2 OFDM symbols are allocated to PDCCH for all BWs.							
NOTE 2: For 1.4MHz, no data shall be scheduled on special subframes(1&6) to avoid problems with insufficient PDCCH performance.							
NOTE 3: Reference signal, Synchronization signals and PBCH allocated as per TS 36.211 [7].							
NOTE 4: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit).							
NOTE 5: As per Table 4.2-2 in TS 36.211 [7].							
NOTE 6: As per Table 4.2-1 in TS 36.211 [7]							

Annex B: Void

Annex C: Void

Annex D: Void

Annex E: Void

Annex F: Void

Annex G: Void

Annex H (normative):
Modified MPR behavior

The definitions of the bits in the modifiedMPRbehavior field have been moved to Annex H of 38.101-1[2].

Annex I (normative): Dual uplink interferer

UE is mandated to support operation in dual and triple uplink mode for EN-DC configuration in NR FR1 listed in Table 5.5B.2-1, Table 5.5B.3-1, and Table 5.5B.4.1-1 and indicated by column single uplink allowed, Table 7.3B.2.3.5.1-1, Table 7.3B.2.3.5.2-0, Table 7.3B.2.3.5.2-1 or NE-DC configuration in NR FR1 listed in Table 5.5B.4a.1-1 and indicated by column single uplink allowed if the intermodulation products caused by the dual uplink operation do not interfere with its own primary downlink transmission channel bandwidth of PCell or PSCell. For intermodulation products falling into any secondary downlink channel bandwidth, UE single UL capability is not considered.

Formula for determining if the EN-DC in NR FR1 configuration with dual uplink operation interferes with its own downlink reception.

Interference bandwidth: $IBW = |a| * CBW1 + |b| * CBW2$

- $|a| + |b| = 2$ (or 3)
- CBW1 and CBW2 are the transmission bandwidth configurations of the UL channels

Center frequency of IBW: $f_{IBW} = |a * f1 + b * f2|$

- f1 and f2 are center frequency of the transmission bandwidth configurations of each UL channel

The range of IMD 2 (or 3): $[f_{IBW} - IBW/2, f_{IBW} + IBW/2]$

NOTE 1: UE shall be able to apply operations which are configured by RRC reconfiguration and corresponding HARQ timing on the transmission bandwidth.

NOTE 2: For identified difficult band combination, during two adjacent RRC reconfiguration, the changing of transmission bandwidth should not introduce IM2 and IM3, which will result in UE changing from 2Tx to 1Tx. Otherwise, UE behavior is not specified.

For DC_3A_n3A intra-band non-contiguous EN-DC combination, only single switched UL is supported in Rel-15.

For DC_2A_n2A, DC_5A_n5A, DC_7A_n7A, DC_48A_n48A, DC_66A_n66A, DC_71A_n71A intra-band non-contiguous EN-DC combination, and DC_(n)5AA, DC_(n)12AA, DC_(n)38AA, DC_(n)48AA intra-band contiguous EN-DC combination, only single switched UL is supported.

Annex J: Void

Annex K: Void

Annex L (informative): Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2017-08	RAN4#84					Initial Skeleton	0.0.1
2017-11	RAN4#84 Bis	R4-1711980				Number TPs from editors	0.1.0
2017-12	RAN4#85	R4-1713807				Approved TPs in RAN4#85 R4-1714444, CA BW classes, TP, Ericsson R4-1714170, How to list DC configurations into TS 38.101-3, Nokia R4-1714530, TP on introducing operating bands for NR-LTE DC including SUL band combinations in 38.101-3, Qualcomm R4-1714098, TP to TS 38.101-3: UE RF requirements for non-standalone SUL, Huawei R4-1713206, TP on general parts for 38.101-3 NR interwork, Ericsson R4-1714443, TP to TS 38.101-3: On dual uplink operation for EN-DC in NR FR1 and single uplink, Nokia R4-1714450, TP to 38.101-3: maximum output power and unwanted emissions for EN-DC, Ericsson R4-1714346, TP to 38.101-3: REFSSENS for intra-band EN-DC, Ericsson R4-1714345, TP for TS 36.101-3: clause 7 receiver requirements, Huawei Band list according to R4-1714542, List of bands and band combinations to be introduced into RAN4 NR core requirements by December 2017, RAN4 Chairmen	0.2.0
2017-12	RAN4#85	R4-1714571				Further corrections after email review	0.3.0
2017-12	RAN#78	RP-172477				v1.0.0 submitted for plenary approval. Contents same as 0.3.0	1.0.0
2017-12	RAN#78					Approved by plenary – Rel-15 spec under change control	15.0.0
2018-03	RAN#79	RP-180264	0005		F	Implementation of endorsed CRs to 38.101-3 Endorsed draft CR F: R4-1801267, Draft CR on UE RF requirements for SUL in TS 38.101-3, Huawei B: R4-1801111, Draft CR for completed LTE 1CC + NR 1band for TS 38.101-3, NTT DOCOMO, INC. B: R4-1800716, Draft CR for introduction of completed band combinations from 37.863-03-01 into 38.101-3, Ericsson B: R4-1800063, Draft CR for completed EN-DC of LTE 4CC + NR 1band for TS 38.101-3, Nokia B: R4-1800717, Draft CR for introduction of completed band combinations from 37.865-01-01 into 38.101-3, Ericsson F: R4-1800049, Modification for TS38.101-3, CATT F: R4-1800287, 38.101-3 DC_(n)71B draft CR for clause 6.2.4.1 - A-MPR for intra-band EN-DC - NS value, T-Mobile USA Inc. F: R4-1800288, 38.101-3 DC_(n)71B draft CR for clause 7.3.3 Reference sensitivity for DC_(n)71B - MSD values, T-Mobile USA Inc. F: R4-1801139 Draft CR to 38.101-3: MSD for inter-band EN-DC, Ericsson	15.1.0
2018-06	RAN#80	RP-181374	0013	1	F	CR to TS 38.101-3: Implementation of endorsed draft CRs from RAN4 #87 Missing figures (Figure 6.3B.1.1-1, Figure 6.3B.1.1-2, Figure 6.3B.1.1-3 and Figure 6.3B.1.1-4) from the endorsed draftCR (R4-1807235) were added during the CR implementation.	15.2.0
2018-09	RAN#81	RP-182129	0020	2	F	Big CR for 38.101-3 Draft CRs from RAN4#88: R4-1809960 Draft CR to TS 38.101-3: to introduce new NR inter-band DC band combinations Samsung,KDDI,SKT,KT,LGU+ R4-1809991 CR to 38.101-3:Corrections on UE coexistence table for Table 6.5B.3.3.1-1 MediaTek Inc. R4-1810054 Pcmx for Rel-15 inter-band EN-DC for FR1 and NR in FR2 InterDigital, Inc. R4-1810111 Single UL allowed corrections for DC_28A-n51A	15.3.0

					<p>EN-DC in 38.101-3 Skyworks Solutions Inc. R4-1810125 Draft CR to 38.101-3 Single UL allowed corrections for DC_28A_51A EN-DC Skyworks Solutions Inc. R4-1810128 Draft CR to 38.101-3 Single UL allowed corrections for EN-DC operation in NR FR1 (two bands) Skyworks Solutions Inc. R4-1810167 TP for TR 37.863-01-01: MSD for DC_5A_n78A due to the 4th harmonic MediaTek Inc. R4-1810410 Draft CR to 38.101-3: Corrections on symbols and abbreviations in clause 3 ZTE Corporation R4-1810417 Correction to DC_(n)71B MSD definition Nokia R4-1810433 Correction on EN-DC 8A_n79A SoftBank Corp.,ZTE R4-1810476 Draft CR to TS 38.101-3 correction for DC_3_n3-n77, DC_3_n3-n78 CHTTL R4-1810976 Annex lettering change for 38.101-3Qualcomm Incorporated R4-1811461 Clarification and corrections of EN-DC REFSSENS exceptions requirement Nokia, Nokia Shanghai Bell R4-1811462 Correction to DC_(n)71B scs restriction for NR Nokia R4-1811466 EN DC_41-79 CATT R4-1811467 Draft CR TS 38.101-3 Corrections to Single UL Allowed Criteria for Mid-Band EN-DC in FR1 Skyworks Solutions Inc. R4-1811484 Pcmx for inter-band EN-DC FR1 draft CR InterDigital, Inc. R4-1811525 Draft CR TS 38.101-3 on missing requirements for FR1 EN-DC Skyworks Solutions, Inc. R4-1811542 Draft CR to 38.101-3 on correction on some errors Huawei, HiSilicon R4-1811796 Draft CR to 38.101-3 Corrections to Single UL allowed criteria for EN-DC Skyworks Solutions Inc. R4-1811800 DRAFT CR for PCmax FR2 correction Qualcomm Incorporated R4-1811810 Draft CR TS 38.101-3: Corrections for B41/n41 SPRINT Corporation</p>	
2018-12	RAN#82	RP-182359	0030	F	<p>Endorced draft CRs from RAN4#88Bis :</p> <p>R4-1812057, Introduction of Intra-band contiguous EN-DC bandwidth classes, Nokia R4-1812290 Draft CR on MSD for EN-DC including Band 66 and n78 Huawei, HiSilicon R4-1812293 Draft CR on switching time mask for EN-DC Huawei, HiSilicon R4-1812298 Draft CR to TS 38.101-3: to add missing requirements for inter-band CA between FR1 and FR2. Samsung R4-1812360 Draft CR to 38.101-3: Correction to UL configuration for EN-DC reference sensitivity exceptionsSkyworks Solutions Inc. R4-1812361 Draft CR to 38.101-3: NR uplink DFT-S-OFDM waveforms for EN-DC reference sensitivity Skyworks Solutions Inc. R4-1812362 Draft CR to 38.101-3: Editorial and RB allocation corrections to table 7.3B.2.3.4-2Skyworks Solutions Inc. R4-1812363 Draft CR to 38.101-3: Single UL allowed operation corrections in clause 7.3B.2.3.5 Skyworks Solutions Inc. R4-1812404 Non-contiguous intra-band EN-DC emission requirements Qualcomm Incorporated R4-1812410 Correction on REFSSENS exception for EN-DC 41A-n77A/n78ASoftBank Corp. R4-1812670 Correction on REFSSENS exceptions of DC_5A-7A_n78A to TS 38.101-3 LG Uplus R4-1813471 draftCR on applicability of TDD configuratiin for CA in TS 38.101-3 Huawei R4-1813796 Draft CR for 38.101-3: Intra-band Pcmx for Type 2 UEs Sprint Corporation R4-1813816 Renaming of DC_(n)71B into DC_(n)71AA Nokia R4-1813817 Correction to EN-DC operating bands and configurations Nokia R4-1813818 Draft CR on correction REFSSENS exceptions due to dual uplink operation for inter-band EN-DC to TS 38.101-3 Samsung R4-1813822 Draft CR for 38.101-3: Single UL allowed criteria in Annex I Vodafone España SA R4-1814157 Draft CR for UE-to-UE coexistence requirements for intra-band EN-DC in TS38.101-3LG Electronics France</p>	15.4.0

						<p>R4-1814167 Draft CR on Single UL for some EN-DC combinations Huawei</p> <p>Endorsed draft CRs from Ran4#89:</p> <p>R4-1815952 dCR on TS38.101-3 merging draft CRs from RAN4#(88Bis) Qualcomm Incorporated</p> <p>R4-1814803 Draft CR on editorial error for EN-DC band combinations to TS 38.101-3 Huawei, HiSilicon</p> <p>R4-1815802 draft CR editorial correction in 38.101-3 Ericsson</p> <p>R4-1814425 Simplification of requirements for EN-DC configuration including FR2 NTT DOCOMO, INC.</p> <p>R4-1814512 Draft CR to TS38.101-3 Corrections on MSD requirements for EN-DC combinations of band 8 and n77 n78(Clause 7.3B.2.3.1) ZTE Corporation</p> <p>R4-1814938 Draft CR to 38.101-3 on operating bands for CA and DC ZTE Corporation Zhifeng Ma</p> <p>R4-1814976 Correction for Maximum output power for inter-band EN-DC (two bands) Nokia, Nokia Shanghai Bell</p> <p>R4-1814977 Correction for ?TIB,c for EN-DC Nokia, Nokia Shanghai Bell</p> <p>R4-1814978 MPR and A-MPR for interband EN-DC Nokia, Nokia Shanghai Bell</p> <p>R4-1814980 Correction for intra-band EN-DC bandwidth class Nokia, Nokia Shanghai Bell</p> <p>R4-1815065 draft CR for adding missing transmit signal quality for inter band EN-DC for TS 38.101-3 NTT DOCOMO, INC.</p> <p>R4-1815811 draft Rel-15 CR to 38.101-3 to correct n260 BW class Ericsson, AT&T</p> <p>R4-1815865 Draft CR for 38.101-3 Intra-band EN-DC nominal carrier spacing for 30 kHz raster SPRINT Corporation</p> <p>R4-1815973 Draft CR to 38.101-3 rel. 15 to fix MSD issues for higher order EN-DC combinations</p> <p>R4-1816227 Draft CR on Power Class for inter band EN-DC within FR1 OPPO</p> <p>R4-1816233 Receiver requirements for intra-band EN-DC Qualcomm Incorporated</p> <p>R4-1816621 Introduction of maxUplinkDutyCycle to ENDC HPUE in FR1 OPPO</p> <p>R4-1816638 Pcmx computation and evaluation for inter band ENDC Qualcomm</p> <p>R4-1816178 Draft CR for correction for missing agreed DC combinations in Rel-15 for TS 38.101-3 NTT DOCOMO, INC.</p> <p>R4-1816197 Draft CR to TS38.101-3 Clarifications on MSD and UL configuration tables for EN-DC ZTE Corporation</p> <p>R4-1816198 Simplification of EN-DC and CA between FR1 and FR2 UE to UE co-ex table by adopting CA band approach Nokia, Nokia Shanghai Bell</p> <p>R4-1816202 Correction to interband EN-DC OOB emission requirements Nokia, Nokia Shanghai Bell</p> <p>R4-1816203 Receiver requirements for interband EN-DC Nokia, Nokia Shanghai Bell</p> <p>R4-1816207 Draft CR to 38.101-3 rel. 15 to fix MPR issue Apple GmbH</p> <p>R4-1816224 Draft CR for 38.101-3 NS_04 applicability for intra-band EN-DC SPRINT Corporation</p> <p>R4-1816231 Draft CR on output power dynamic for DC OPPO</p> <p>R4-1816237 Correction for Intra-band contiguous EN-DC A-MPR definition Nokia, Nokia Shanghai Bell</p> <p>R4-1816246 Draft CR to TS38.101-3: Corrections on TS for MSD calculations based on ENDC bands combination including of bands 1,3,8, n77, and n78 MediaTek Inc.</p> <p>R4-1816247 Draft CR 38-101-3 Corrections for EN-DC Single Uplink allowed Operation Skyworks Solutions Inc.</p> <p>R4-1816250 draft CR for adding note about the fallback of EN-DC in Applicability of minimum requirements for TS 38.101-3 NTT DOCOMO, INC.</p> <p>R4-1816608 Draft CR on LTE RMC for TDD EN-DC UE RF Tests Qualcomm Incorporated</p> <p>R4-1816613 Draft CR for reducing AMPR for DC_(n)71AA without Dynamic Power Sharing" Motorola Mobility, T-Mobile"</p>	
2018-12	RAN#82	RP-182773	0033	1	F	Completion of configured maximum output power for intra-band contiguous EN-DC	15.4.0
2018-12	RAN#82	RP-182774	0034	1	F	Configured maximum output power for intra-band non-contiguous EN-DC	15.4.0

2019-03	RAN#83	RP-190403	0035		F	<p>CR to TS 38.101-3: Implementation of endorsed draft CRs from RAN4#90</p> <p>Endorced draft CRs from RAN4#90 R4-1900034, Editorial corrections for 38.101-3, Qualcomm Incorporated R4-1900460, Draft CR to TS38.101-3_corrections on MSD, ZTE Corporation R4-1900461, Draft CR to TS38.101-3_inter-band NR DC between FR1 and FR2, ZTE Corporation R4-1900524, Draft CR to TS 38.101-3 on inter-band CA & inter-band EN-DC configurations, ZTE Corporation R4-1900529, Draft CR to TS 38.101-3 on Single Uplink Allowed for EN-DC combinations of order 3 or higher, ZTE Corporation R4-1900726, Editorial corrections to delta Tib for EN-DC, Rohde & Schwarz R4-1901359, draft CR for correction for missing operating band for EN-DC, NTT DOCOMO INC. R4-1901428, draft CR to make editorial corrections in 38-101-3 Rel-15, Ericsson R4-1901848, Draft CR for 38.101-3: Addition of default power class, Sprint Corporation R4-1901850, Draft CR for 38.101-3: Intra-band P_{cmx} P_{EN-DC}_Total for non-DPS UEs, Sprint Corporation R4-1901851, Draft CR for 38.101-3: Intra-band P_{cmx} Editorial corrections, Sprint Corporation R4-1901874, Guardband for harmonic exception to reference sensitivity, Qualcomm Incorporated R4-1901878, Non-simultaneous Tx/Rx for TDD intra-band EN-DC, Qualcomm Incorporated R4-1901890, A-MPR for DC_(n)71AA without Dynamic Power Sharing, Motorola Mobility France S.A.S R4-1901926, Draft CR to 38.101-3 to clarify ACS2 wanted level, Qualcomm Incorporated R4-1901997, draft_CR TS 38.101-3 type 2 UE DC_(n)41 and DC₄₁_n41 NS04 AMPR correction, Skyworks Solutions Inc. R4-1902002, Draft CR to 38.101-3 on DC_{n41}-41 – B40 coexistence, Qualcomm Incorporated R4-1902154, Draft CR to TS38.101-3_clean up on inter-band CA between FR1 and FR2, ZTE Corporation R4-1902155, Draft CR for TS 38.101-3: Corrections to Table 7.3B.2.3.5.1-1 for reference sensitivity exceptions (two bands), MediaTek Inc. R4-1902156, draftCR corrections for TS 38.101-3, Huawei R4-1902157, CR on intraband ENDC channel configurations, Intel Corporation R4-1902160, Draft CR on some errors to TS 38.101-3, Huawei R4-1902161, CR to 38.101-3 to clarify non-simultaneous RXTX capability for co-bands, Qualcomm Incorporated R4-1902163, Draft CR to 38.101-3 to clarify DL carrier levels for bands in close frequency proximity, Qualcomm Incorporated R4-1902164, Draft CR to reflect agreed MSD analysis of DC_{25A}-n41A for TS 38.101-3, MediaTek Inc. R4-1902169, draft CR for inter-band EN-DC P_{cmx}, Huawei R4-1902172, Draft CR ACLR for NC intra-band EN-DC, Skyworks Solutions Inc. R4-1902176, Draft CR for 38.101-3 modification of requirements for intra-band non-contiguous EN-DC SEM, Huawei R4-1902179, draft CR for introduction of Tx IM for Inter-band EN-DC in TS38.101-3, NTT DOCOMO, INC. R4-1902182, Clarification for OOBE boundary for intra-band contiguous and non-contiguous EN-DC, vivo R4-1902195, draft_CR TS 38.101-3 Footnote correction in Table 7.3B.2.3.1-2, Skyworks Solutions Inc. R4-1902232, Draft CR on SUL band combinations to TS 38.101-3, Huawei R4-1902478, Addition of power class 2 EN-DC ACLR requirement, Nokia R4-1902481, draftCR on inter-band EN-DC Rx requirement for TS 38.101-3, Huawei R4-1902486, Draft CR for 38.101-3 modification of requirements for network signalled value NS₀₄, Huawei R4-1902496, Draft CR for TS 38.101-3: Switching time for intra-band EN-DC upon dual PA UE capability, Huawei R4-1902500, Draft CR for 38.101-3: adding MPR for intra-band ENDC, Skyworks Solutions Inc R4-1902660, Introduction of modified MPR for 38.101-3, Nokia</p>	15.5.0
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					Editorial changes after RAN#83 To align the annex numbering with other specifications (TS 38.101-x series), 'Modified MPR behavior' was moved to annex H.	
2019-06	RAN#84	RP-191240	0041	F	<p>CR to TS 38.101-3: Implementation of endorsed draft CRs from RAN4#90bis and RAN4#91</p> <p>Endorced draft CRs from RAN4#90Bis R4-1902829, Draft CR for 38.101-3 editorial correction for editorial correction for intra-band contiguous EN-DC uplink configuration when Rx requirements are measured, Huawei R4-1903074 Draft CR to 38.101-3 rel. 15 to fix missing SUO note Apple Inc. R4-1903090 Pcm_{ax} for Rel-15 intra-band EN-DC within FR1 wrong references - fixes InterDigital Communications R4-1903150 Draft CR to TS 38.101-3 Spurious emission and Tx IM for inter-band CA between FR1 and FR2 ZTE Corporation R4-1903302 Draft CR to TS 38.101-3 correction for the DC_3_n3 delta R IBNC table CHTTL R4-1903426 draft CR for 38.101-3: Reflect the agreed MSD for DC_5_n78 China Telecom R4-1903515 Removal of reference sensitivity exception due to close proximity of bands for EN-DC in NR FR1 clause Nokia R4-1903958 Completion of definitions of EN-DC configured power Ericsson R4-1904639 Draft CR to 38.101-3 on DC_n41-41 – B40 coexistence, Qualcomm Incorporated R4-1904934 Harmonization of reference sensitivity level for DC clause Nokia R4-1904935 Change description 4.2(e) in Applicability of minimum requirements for TS 38.101-3 vivo R4-1904945 Draft CR to TS38.101-3 adding some exclusion frequencies for SEM and spurious emission for EN-DC ZTE Corporation R4-1904946 Draft CR to TS 38.101-3 on some minor corrections ZTE Corporation R4-1904951 Draft CR for 38.101-3 intra-band EN-DC AMPR Huawei R4-1904953 Draft CR for 38.101-3: NS_04 A-MPR power class relationship clarification Sprint Corporation R4-1904959 Draft CR on UE to UE coexistence for TS 38.101-3 Huawei R4-1904988 Draft CR to 38.101-1. Clarify EN-DC category for requirements of carrier imbalance Qualcomm Incorporated R4-1904995 draft CR to 38.101-3 Configured output power for inter-band EN-DC including both FR1 and FR2 Intel Corporation R4-1905085 Draft CR for TR 38.101-3 NE-DC RF requirement Huawei R4-1904925 Draft CR for improving EN-DC configuration tables in TS38.101-3 CATT</p> <p>Endorced draft CRs from RAN4#91 R4-1905628 Draft CR to TS38.101-3_Frequency error for intra-band for EN-DC ZTE Corporation R4-1905629 Draft CR to TS 38.101-3_removal of the reference sensitivity exception for NR CA between FR1 and FR2 ZTE Corporation R4-1905767 draft CR to 38.101-3 Correction of DeltaTIB,c in configured output power for EN-DC Intel Corporation R4-1905774 Draft CR to TS38.101-3 Correction to intra-band and inter-band EN-DC Pcm_{ax} Intel Corporation R4-1905793 CR for TS 38.101-3 (Rel-15): Support of n257D-F for DC_1-42_n257 and DC_3-42_n257 SoftBank Corp. R4-1905799 Correction of LTE anchor condition to Spurious response for EN-DC Anritsu Corporation R4-1907057 Draft CR for 38.101-3: Further UE coexistence table clean-up Sprint Corporation R4-1907063 Draft CR for 38.101-3: Global replacement of LTE with E-UTRA Sprint Corporation R4-1907136 Draft CR to 38.101-3 rel. 15 to fix missing Exceptions for Out-of-band Blocking Apple R4-1907137 Draft CR to 38.101-3 rel. 15 to fix missing SUO note Apple R4-1907181 Draft CR for 38.101-3: Removal of unnecessary ACLR notes Sprint Corporation R4-1907422 Draft CR for TS 38.101-1 Correction of channel bandwidth set for NR CA Huawei R4-1907424 Draft CR for clarification of note for B42_n77 and</p>	15.6.0

						B42_n78 NTT DOCOMO, INC. R4-1907425 DraftCR TS 38.101-3 Corrections to Intra-band ENDC MPR text Skyworks Solutions Inc. R4-1907426 Definition of BCS support in inter-band EN-DC mode Qualcomm Incorporated R4-1907448 Correction to EN-DC spurious emissions ROHDE & SCHWARZ R4-1907476 draft CR for TS 38.101-3 intra-band EN-DC Pcmaw Huawei R4-1907482 Correction of RefSens exceptions due to UL harmonic interference for EN-DC in 38.101-3 vivo R4-1907483 [Rx]Draft CR for 38.101-3 defining Reference sensitivity for intra-band non-contiguous, Huawei R4-1907485 Corrections to MPR/A-MPR and additional requirements for intra-band EN-DC Ericsson R4-1907489 Draft CR to 38.101-3. Revise MSD for DC_20A-n8A Qualcomm Incorporated R4-1907492 Modification of reference sensitivity and general spurious emissions in 38.101-3 Qualcomm Incorporated R4-1907594 draft CR of modification on reference for inter-band EN-DC including FR2 for TS 38.101-3 NTT DOCOMO INC. R4-1907808 Draft CR to 38.101-3 NE-DC introduction InterDigital Communications	
2019-06	RAN#84	RP-191241	0036		B	CR to REL-16 TS 38.101-3: Implementation of endorsed draft CRs on NR combinations and dual Connectivity combinations	16.0.0
2019-06	RAN#84	RP-191241	0037		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#91 into TS 38.101-3	16.0.0
2019-06	RAN#84	RP-191241	0039		B	Introducing CR on new EN-DC LTE(xDL/1UL)+ NR(2DL/1UL) DC in rel-16	16.0.0
2019-06	RAN#84	RP-191252	0040	1	B	Introduction of band combinations and requirements for Band n87 (LTE/NR sharing)	16.0.0
2019-06	RAN#84	RP-191241	0042	1	B	Big CR for agreed DC band combo of 1 LTE band + 1 NR band	16.0.0
2019-06	RAN#84	RP-191241	0043		B	CR introduction completed band combinations 37.716-31-11 -> 38.101-3	16.0.0
2019-06	RAN#84	RP-191241	0044		B	CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into Rel16 TS 38.101-3	16.0.0
2019-09	RAN#85	RP-192049	0064		A	CR to TS 38.101-3: Implementation of endorsed draft CRs from RAN4#92 (Rel-16) - Mirror changes from R4-1910354 from RAN4#92	16.1.0
2019-09	RAN#85	RP-192028	0045	2	B	CR to correct 7.3B.2.3.2 and 7.3B.2.3.4 for EN-DC DC_7_n77 and DC_7_n78	16.1.0
2019-09	RAN#85	RP-192028	0046	2	F	Correction on EN-DC grouping in Rel-16 spec	16.1.0
2019-09	RAN#85	RP-192028	0047	1	F	CR to TS 38.101-3 correction for the UL RB allocations of the MSD table	16.1.0
2019-09	RAN#85	RP-192027	0049	1	F	[SUL] CR on SUL band combinations into Rel-16 TS 38.101-3	16.1.0
2019-09	RAN#85	RP-192028	0051		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#92 into TS 38.101-3	16.1.0
2019-09	RAN#85	RP-192033	0053		C	CR for 38.101-3: B41 n41 EN-DC allocation based A-MPR	16.1.0
2019-09	RAN#85	RP-192028	0054	1	F	CR 38.101-3 Rel 16 Addition of footnote 3 to DC_40A_n41A	16.1.0
2019-09	RAN#85	RP-192028	0056	1	F	CR for 38.101-3: Correction of n5 combinations protection for B26	16.1.0
2019-09	RAN#85	RP-192027	0057		B	CR on introducing NR intra-band CA for 3DL Bands and 1UL band for 38.101-3	16.1.0
2019-09	RAN#85	RP-192027	0058		B	CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into Rel16 TS 38.101-3	16.1.0
2019-09	RAN#85	RP-192028	0059		F	Big CR for EN-DC of LTE 1band + NR 1band	16.1.0
2019-09	RAN#85	RP-192028	0060		B	CR introduction completed band combinations 37.716-31-11 -> 38.101-3	16.1.0
2019-09	RAN#85	RP-192028	0061		B	CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	16.1.0
2019-09	RAN#85	RP-192035	0062		F	CR for 38.101-3 Pcmaw for EN-DC with 3CC uplink	16.1.0
2019-09	RAN#85	RP-192027	0065		B	CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into Rel16 TS 38.101-3	16.1.0
2019-09	RAN#85	RP-192028	0066		B	CR on introduction of completed EN-DC of x bands LTE and 2 band NR from RAN4#92 into TS 38.101-3	16.1.0
2019-12	RAN#86	RP-193032	0075		A	CR for 38.101-3 EN-DC RX Out-of-Band Blocking for shared bands and bands in close proximity	16.2.0
2019-12	RAN#86	RP-193032	0077		A	CR to 38.101-3 Missing Harmonic Mixing MSD for DC_3_n77/n78	16.2.0
2019-12	RAN#86	RP-193032	0079		A	CR for 38.101-3 EN-DC DL Synchronous Carriers	16.2.0
2019-12	RAN#86	RP-193032	0085		A	CR for 38.101-3: Correction to DC Config and dual UL interferer (Rel-16)	16.2.0
2019-12	RAN#86	RP-193032	0087		A	CR for 38.101-3: Correction to EN-DC and NE-DC Configurations (Rel-16)	16.2.0
2019-12	RAN#86	RP-193032	0090		A	CR to TS38.101-3: Correction on channel spacing for intra-band EN-DC carriers (section 5.4B.1)	16.2.0

2019-12	RAN#86	RP-193012	0091		B	CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into Rel16 TS 38.101-3	16.2.0
2019-12	RAN#86	RP-193012	0092		B	CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into Rel16 TS 38.101-3	16.2.0
2019-12	RAN#86	RP-193012	0093	1	B	CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into Rel16 TS 38.101-3	16.2.0
2019-12	RAN#86	RP-193021	0094		F	CR to remove square brackets for n90 in TS38.101-3	16.2.0
2019-12	RAN#86	RP-193019	0095	1	B	CR for adding solution for addressing SAR issue for EN-DC PC2 UE	16.2.0
2019-12	RAN#86	RP-193012	0097		B	Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3	16.2.0
2019-12	RAN#86	RP-193012	0099		F	CR to TS 38.101-3 on single UL allowed for inter-band CA configurations (Rel-16)	16.2.0
2019-12	RAN#86	RP-193012	0102		B	CR on introduction of completed EN-DC of 1 band LTE and 1 band NR	16.2.0
2019-12	RAN#86	RP-193032	0106		A	CR for TS 38.101-3: Removing MSD requirements for EN-DC combinations due to receiver even order harmonic mixing with UL 3rd harmonic	16.2.0
2019-12	RAN#86	RP-193032	0107		A	CR to TS 38.101-3: clarification for MPR statement	16.2.0
2019-12	RAN#86	RP-193032	0108		A	CR to TS 38.101-3 on inter-band CA, EN-DC, NE-DC and NR-DC configurations (Rel-16)	16.2.0
2019-12	RAN#86	RP-193012	0109		F	CR for TS 38.101-3: Removing MSD requirements for EN-DC combinations due to receiver even order harmonic mixing with UL 3rd harmonic	16.2.0
2019-12	RAN#86	RP-193033	0111		A	CR to TS 38.101-3: adding missing 90MHz channel BW support for n77, n78 related CA	16.2.0
2019-12	RAN#86	RP-193012	0112		B	Introducing CR on new EN-DC LTE(xDL/1UL)+ NR(2DL/1UL) DC in rel-16	16.2.0
2019-12	RAN#86	RP-193033	0114		F	Removal of brackets from MPR and MSD 38.101-3 REL16	16.2.0
2019-12	RAN#86	RP-193033	0120		A	Pcmax for EN-DC: applicability of NS values and removal of a duty-cycle capability	16.2.0
2019-12	RAN#86	RP-193012	0123	1	B	CR for TS 38.101-3: MSD due to cross band isolation	16.2.0
2019-12	RAN#86	RP-193033	0125		A	CR for TS 38.101-3: Additional out-of-band blocking exceptions for inter-band EN-DC	16.2.0
2019-12	RAN#86	RP-193012	0126		B	CR for 38.101-3 introduce SUL band combination DC_66A_n78(2A)_SUL_n78A-n86A	16.2.0
2019-12	RAN#86	RP-193033	0128		A	CR for 38.101-3: correct MSD exception for DC_2_n78(Rel-16)	16.2.0
2019-12	RAN#86	RP-193012	0129		B	CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	16.2.0
2019-12	RAN#86	RP-193012	0130		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#92bis and RAN4#93 into TS 38.101-3	16.2.0
2019-12	RAN#86	RP-193012	0131		B	CR introduction completed band combinations 37.716-31-11 -> 38.101-3	16.2.0
2019-12	RAN#86	RP-193012	0132		B	CR introduction completed band combinations 38.716-04-01 -> 38.101-3	16.2.0
2019-12	RAN#86	RP-193012	0133	1	F	CR to 38.101-3 to remove duplicate combinations	16.2.0
2019-12	RAN#86	RP-193012	0134		F	CR to 38.101-3 to add missing ?TIB and ?RIB values for DC_12-30_n66	16.2.0
2019-12	RAN#86	RP-193033	0136		A	Mirror CR for 38.101-3: Clarification of the notation for intra-band EN-DC combinations	16.2.0
2019-12	RAN#86	RP-193008	0140	2	B	CR to 38.101-3 on uplink power control for non synchronous NR-DC between FR1 and FR2	16.2.0
2019-12	RAN#86	RP-193032	0148		A	CR to TS 38.101-3 on inter-band EN-DC configurations including FR2 for five bands (Rel-16)	16.2.0
2019-12	RAN#86	RP-193033	0152	1	A	CR for 38.101-3 correction for intra-band EN-DC Pcmax	16.2.0
2019-12	RAN#86	RP-193033	0153	1	A	CR for 38.101-3 intra-band EN-DC MPR/AMPR	16.2.0
2019-12	RAN#86	RP-193032	0154		F	EN-DC grouping correction for FR1 only configurations REL-16	16.2.0
2019-12	RAN#86					Change history corrected	16.2.1
2020-03	RAN#87	RP-200388	0159	1	F	CR on SAR solution for TDD&TDD EN-DC PC2 UE	16.3.0
2020-03	RAN#87	RP-200396	0164		A	Mirror CR for 38.101-3: Correction of MOP tolerance for B41/n41 EN-DC	16.3.0
2020-03	RAN#87	RP-200380	0165	1	F	CR for 38.101-3: Remove delta Tib and delta Rib for FR1+FR2 CA	16.3.0
2020-03	RAN#87	RP-200380	0166		F	CR for 38.101-3: DC_25-41_n41 correction	16.3.0
2020-03	RAN#87	RP-200396	0172		A	CR to TS 38.101-3: corrections on ACS for intra-band contiguous EN-DC	16.3.0
2020-03	RAN#87	RP-200396	0174		A	CR to TS 38.101-3: editorial corrections on Rx requirements for intra-band contiguous EN-DC	16.3.0
2020-03	RAN#87	RP-200380	0175	1	F	CR to TS 38.101-3: Updated the MSD values for ENDC 3-n41	16.3.0
2020-03	RAN#87	RP-200396	0177		A	CR to TS 38.101-3: Correct the intra-band ENDC channel spacing	16.3.0
2020-03	RAN#87	RP-200380	0178		B	CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into Rel16 TS 38.101-3	16.3.0
2020-03	RAN#87	RP-200380	0179		B	CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into Rel16 TS 38.101-3	16.3.0

2020-03	RAN#87	RP-200380	0180		B	CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into Rel16 TS 38.101-3	16.3.0
2020-03	RAN#87	RP-200380	0181		F	Correction to remedy missing implementation of approved CR0093r1	16.3.0
2020-03	RAN#87	RP-200396	0182		F	CR for TS38.101-3, Correction of IE RF-Parameters name of maxUplinkDutyCycle	16.3.0
2020-03	RAN#87	RP-200384	0184		B	UE co-existence requirements for band n28 into 38.101-3	16.3.0
2020-03	RAN#87	RP-200380	0186		F	CR for 38.101-3: Correction of MOP tolerance for DC 39 n41	16.3.0
2020-03	RAN#87	RP-200380	0187		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#94-e into TS 38.101-3	16.3.0
2020-03	RAN#87	RP-200380	0190		B	CR on introduction of completed EN-DC of 1 band LTE and 1 band NR	16.3.0
2020-03	RAN#87	RP-200396	0193		A	CR to TS 38.101-3: editorial correction for output power dynamics for intra-band EN-DC	16.3.0
2020-03	RAN#87	RP-200380	0195		B	CR to TS 38.101-3: adding 90MHz channel BW support for Rel.16 CA_n78A-n257 configurations	16.3.0
2020-03	RAN#87	RP-200380	0196		B	Introducing CR on new EN-DC LTE (x bands DL/1UL)+NR(2 bands DL/1UL) band combinations in rel-16	16.3.0
2020-03	RAN#87	RP-200396	0199		A	CR on correction of 38.101-3 NEDC Ppowerclass (Rel-16)	16.3.0
2020-03	RAN#87	RP-200380	0200		D	CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	16.3.0
2020-03	RAN#87	RP-200380	0206		B	CR to add 3 LTE bands and 1 NR band EN-DC combinations	16.3.0
2020-03	RAN#87	RP-200380	0207		B	CR to add NR Inter-band CA for 4 bands in TS 38.101-3	16.3.0
2020-03	RAN#87	RP-200380	0208	1	F	Editorial corrections	16.3.0
2020-03	RAN#87	RP-200396	0211		F	CR to 38.101-3 R16 to remove FDM ULSUP combinations	16.3.0
2020-03	RAN#87	RP-200396	0213	1	A	CR for inter-band ENDC Tx requirement	16.3.0
2020-03	RAN#87	RP-200380	0215	1	F	CR to 38.101-3 on EN-DC band combination with SUL	16.3.0
2020-03	RAN#87	RP-200378	0217		A	EN-DC configuration table corrections	16.3.0
2020-03	RAN#87	RP-200380	0218		B	CR for introduce new EN-DC of LTE 2,3,4 band + NR FR1 1UL1DL band + NR FR2 1UL1DL band for TS 38.101-3	16.3.0

2020-06	RAN#88	RP-200880	0223	3	B	CR to TS 38.101-3: Switching time mask between two uplink carriers in EN-DC	16.4.0
2020-06	RAN#88	RP-200960	0228		F	CR for TS38.101-3, Aligned IE RF-Parameters name of maxUplinkDutyCycle with RAN2	16.4.0
2020-06	RAN#88	RP-200959	0229		B	Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3	16.4.0
2020-06	RAN#88	RP-200959	0232		A	CR Coexistence cleanup for 38101-3 Rel16	16.4.0
2020-06	RAN#88	RP-200985	0234		A	CR to TS 38.101-3 R16: corrections on ACS for intra-band contiguous EN-DC	16.4.0
2020-06	RAN#88	RP-200985	0240		A	CR for TS 38.101-3: MSD due to UL harmonic	16.4.0
2020-06	RAN#88	RP-200959	0241		F	CR for TS 38.101-3: Adding missing MSD due to UL harmonic for DC_28_n50	16.4.0
2020-06	RAN#88	RP-200985	0245		A	MOP for interband EN-DC including both FR1 and FR2 REL16	16.4.0
2020-06	RAN#88	RP-200985	0248		A	CR to 38.101-3 MSD due to UL harmonics and intermodulation interference R16	16.4.0
2020-06	RAN#88	RP-200985	0251		A	Mirror CR for 38.101-3: Corrections for Ppowerclass and referenced sections	16.4.0
2020-06	RAN#88	RP-200959	0252		B	Introducing CR on new EN-DC LTE(xDL/1UL)+ NR(2DL/1UL) DC in Rel-16	16.4.0
2020-06	RAN#88	RP-200959	0255		B	Big CR on introduction of completed EN-DC of 1 band LTE and 1 band NR	16.4.0
2020-06	RAN#88	RP-200985	0259		A	CR to TS 38.101-3 on configured output power relaxation due to EN-DC (Rel-16)	16.4.0
2020-06	RAN#88	RP-200985	0261		A	CR to TS 38.101-3 on REFSSENS relaxation due to EN-DC (Rel-16)	16.4.0
2020-06	RAN#88	RP-200959	0264		F	Correction to EN-DC coexistence requirements	16.4.0
2020-06	RAN#88	RP-200985	0267		A	CR to TS 38.101-3: Clean up the MSD test point for ENDC(three band)	16.4.0
2020-06	RAN#88	RP-200959	0268		B	CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into Rel16 TS 38.101-3	16.4.0
2020-06	RAN#88	RP-200959	0269		B	CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into Rel16 TS 38.101-3	16.4.0
2020-06	RAN#88	RP-200959	0274		B	CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	16.4.0
2020-06	RAN#88	RP-200959	0275		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#94bis-e and RAN4#95-e into TS 38.101-3	16.4.0
2020-06	RAN#88	RP-200959	0276		B	CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into Rel16 TS 38.101-3	16.4.0
2020-06	RAN#88	RP-200959	0277		B	CR introduction completed band combinations 37.716-31-11 -	16.4.0
2020-06	RAN#88	RP-200959	0279		F	CR Rel-16 for editorial corrections TS 38.101-3	16.4.0
2020-06	RAN#88	RP-200959	0280		F	CR for 38.101-3: to clean up for SUL band combinations	16.4.0
2020-06	RAN#88	RP-200985	0238	1	A	CR for TS 38.101-3: Missing MSD due to cross band isolation	16.4.0
2020-06	RAN#88	RP-200985	0243	1	F	FR1+FR2 CA interband CA BCS support REL16	16.4.0
2020-06	RAN#88	RP-201045	0282	1	B	Addition of UE coexistence between US DC combinations and NR Band n77	16.4.0
2020-06	RAN#88	RP-200965	0249	1	B	CR for 38.101-3: Introduction of Power Class 1.5	16.4.0
2020-06	RAN#88	RP-200985	0236	1	A	CR to TS 38.101-3: editorial corrections on wide band Intermodulation for intra-band contiguous EN-DC in FR1	16.4.0
2020-06	RAN#88	RP-200988	0296		F	CR to remove TBD in 38.101-3	16.4.0
2020-06	RAN#88	RP-201055	0281	2	B	CR to 38.101-3 MSD due to UL harmonics and intermodulation interference R16	16.4.0
2020-06	RAN#88	RP-200958	0287	2	B	CR for TS 38.101-3: NR V2X con-current operation	16.4.0
2020-06	RAN#88	RP-200985	0272	1	A	Removal of the Annex modifiedMPR-Behaviour from the NSA specification	16.4.0
2020-09	RAN#89	RP-201507	0300		F	CR for missing note for DC_39A_n41A for non-simultaneous RX/TX operation	16.5.0
2020-09	RAN#89	RP-201507	0301		F	CR for correcting DC_48_n5 UE spurious coexistence in 38.101-3	16.5.0
2020-09	RAN#89	RP-201507	0303		F	CR for missing IMD MSD in 38.101-3 for DC_3A-28A_n41A, DC_28A-41A_n77A	16.5.0
2020-09	RAN#89	RP-201512	0307		A	CR for missing IMD MSD in 38.101-3 for DC_1A-41A_n78A, DC_7A-28A_n78A	16.5.0
2020-09	RAN#89	RP-201512	0309		A	Correction to in-band emissions for intra-band contiguous EN-DC	16.5.0
2020-09	RAN#89	RP-201507	0313		F	Coexistence cleanup for 38101-3 Rel16	16.5.0
2020-09	RAN#89	RP-201506	0314		D	CR Editorial cleanup of band combination tables for 38101-3 Rel16	16.5.0
2020-09	RAN#89	RP-201512	0317		A	CR to 38.101-3 MSD due to UL harmonics and intermodulation interference R16	16.5.0
2020-09	RAN#89	RP-201507	0319		F	CR to correct protected band of intra-band EN-DC	16.5.0
2020-09	RAN#89	RP-201512	0323		A	CR for TS 38.101-3: FR1 inter-band EN-DC out-of-band blocking UL configuration	16.5.0
2020-09	RAN#89	RP-201504	0324	3	B	CR to TS 38.101-3: PC2 band 3+band n78 ENDC	16.5.0
2020-09	RAN#89	RP-201512	0326		A	Corrections of Japan-related EN-DC co-ex tables for REL-15 combo	16.5.0

2020-09	RAN#89	RP-201492	0329	1	F	Correction on 5G V2X con-current UE RF requirements in rel-16	16.5.0
2020-09	RAN#89	RP-201492	0330	1	F	CR on TS38.101-3 for NR V2X	16.5.0
2020-09	RAN#89	RP-201749	0334	3	B	CR to TS 38.101-3: PC2 band 3+band n41 ENDC	16.5.0
2020-09	RAN#89	RP-201506	0335		F	CR to TS 38.101-3: Clean up the MSD test point for ENDC(three band)	16.5.0
2020-09	RAN#89	RP-201504	0344		F	Correction of delta Powerclass for Inter-band EN-DC	16.5.0
2020-09	RAN#89	RP-201506	0347	1	F	CR for 38.101-3 to remove PHS system, 860~890 and 1400~1427 protection for EN-DC band combination with band n1, n8 and n50	16.5.0
2020-09	RAN#89	RP-201507	0349		F	CR on inter-band ENDC Pcmx	16.5.0
2020-09	RAN#89	RP-201495	0350	1	B	CR to 38.101-3 on time masks for ULSUP in R16	16.5.0
2020-09	RAN#89	RP-201512	0351	1	F	CR to 38.101-3 - Correction to cross band isolation MSD tables and DC_42_n79	16.5.0
2020-09	RAN#89	RP-201494	0352	1	F	CR for 38.101-3 Switching time mask for inter-band EN-DC UEs only supporting single switched UL	16.5.0
2020-09	RAN#89	RP-201507	0353		F	CR for TS 38.101-3 introduce new power class for EN-DC	16.5.0
2020-12	RAN#90	RP-202509	0362	1	F	Correction on Additional ILs and MSD levels for DC_20_n38 UE	16.6.0
2020-12	RAN#90	RP-202427	0363	1	F	Correction on 5G V2X inter-band con-current UE RF requirements in TS38.101-3	16.6.0
2020-12	RAN#90	RP-202427	0364	1	F	CR for TS 38.101-3, Time mask for TDM operation between NR V2X and LTE V2X in ITS band	16.6.0
2020-12	RAN#90	RP-202509	0367		F	CR to 38.101-3 (Rel-16) error corrections to configurations for CA and DC	16.6.0
2020-12	RAN#90	RP-202427	0368	1	F	General corrections for V2X sections in 38.101-3	16.6.0
2020-12	RAN#90	RP-202485	0370		A	UL output power for spurious response and general Rx	16.6.0
2020-12	RAN#90	RP-202430	0382		F	CR to TS 38.101-3 on intra-band contiguous EN-DC BW class (Rel-16)	16.6.0
2020-12	RAN#90	RP-202509	0383	1	F	CR to TS 38.101-3 on simplification for inter-band CA configuration between FR1 and FR2	16.6.0
2020-12	RAN#90	RP-202485	0385		A	CR to TS 38.101-3: Some corrections on the ENDC	16.6.0
2020-12	RAN#90	RP-202442	0386	1	F	CR to 38.101-3: Add requirement on the inter-band EN-DC with no DL interruption	16.6.0
2020-12	RAN#90	RP-202485	0388		F	CR to TS 38.101-3: corrections on ACS for intra-band contiguous EN-DC	16.6.0
2020-12	RAN#90	RP-202429	0391		F	Correction of delta Powerclass for Inter-band EN-DC	16.6.0
2020-12	RAN#90	RP-202509	0392	1	F	CR on NR power class under EN-DC	16.6.0
2020-12	RAN#90	RP-202428	0396		F	CR to TS 38.101-3 corrections on inter-band EN-DC configurations including FR1 and FR2	16.6.0
2020-12	RAN#90	RP-202509	0398		F	CR to correct MSD of DC_1A-41A_n77A	16.6.0
2020-12	RAN#90	RP-202414	0402	2	B	CR to add NR-U EN-DC combinations	16.6.0
2020-12	RAN#90	RP-202485	0410	1	A	CR to TS38.101-3[R16] Applicability of 2Rx requirements	16.6.0
2020-12	RAN#90	RP-202485	0412		A	CR 38101-3 R16 Band 10 protection and DC_42_n79 correction	16.6.0
2020-12	RAN#90	RP-202428	0413	1	F	CR for editorial corrections 38.101-3	16.6.0
2020-12	RAN#90	RP-202485	0414	1	F	Correction to PCMAX for contiguous intra-band EN-DC	16.6.0
2020-12	RAN#90	RP-202485	0420		A	CR for 38.101-3 Correction on EN-DC synchronous carriers (R16)	16.6.0
2020-12	RAN#90	RP-202485	0424	1	F	CR for TS 38.101-3: correction of spurious emission band UE co-existence (R16)	16.6.0
2020-12	RAN#90	RP-202485	0425	1	F	Adding delta TIB requirement for DC_2-7-7-13_n66	16.6.0
2020-12	RAN#90	RP-202462	0359		B	Introducing CR on new EN-DC LTE(xDL/1UL)+ NR(2DL/1UL) DC in Rel-17	17.0.0
2020-12	RAN#90	RP-202468	0366		B	CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3	17.0.0
2020-12	RAN#90	RP-202454	0371		B	Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band	17.0.0
2020-12	RAN#90	RP-202471	0373		B	CR on introduction of completed NR CA/DC combs with 4DL/2UL including FR2	17.0.0
2020-12	RAN#90	RP-202461	0374		B	CR introduction completed band combinations for Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL)	17.0.0
2020-12	RAN#90	RP-202465	0375		B	CR introduction completed band combinations for Dual Connectivity (DC) of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL)	17.0.0
2020-12	RAN#90	RP-202457	0376		B	Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)	17.0.0
2020-12	RAN#90	RP-202472	0377		B	CR on Introduction of completed SUL band combinations into TS 38.101-3	17.0.0
2020-12	RAN#90	RP-202460	0387		B	CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	17.0.0
2020-12	RAN#90	RP-202458	0395		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#96e and RAN4#97e into TS 38.101-3	17.0.0
2020-12	RAN#90	RP-202459	0400		B	CR introduction completed band combinations LTE 3DL and one NR band -	17.0.0
2020-12	RAN#90	RP-202470	0401		B	CR introduction completed band combinations NR Inter-band 4	17.0.0

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2020-12	RAN#90	RP-202450	0365	1	B	CR for TS 38.101-3, Introduce new band combination of V2X_39A-n47A, V2X_n39A-47A, V2X_40A-n47A and V2X_n40A-47A	17.0.0
2020-12	RAN#90	RP-202467	0426		B	CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3	17.0.0
2020-12	RAN#90	RP-202469	0427		B	CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3	17.0.0
2020-12	RAN#90	RP-202464	0428		B	CR to reflect the completed DC combinations for 3 bands DL with 3 bands UL into TS 38.101-3	17.0.0
2020-12	RAN#90	RP-202463	0429		B	CR to reflect the completed Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL)	17.0.0
2021-03	RAN#91	RP-210086	0432		B	Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band	17.1.0
2021-03	RAN#91	RP-210091	0436		A	CR to TS 38.101-3 on correction to hanging paragraph in the spec (Rel-17)	17.1.0
2021-03	RAN#91	RP-210177	0438		B	Introduction CR on new NR DC LTE(xDL/1UL)+ NR(2DL/1UL) band combinations in Rel-17	17.1.0
2021-03	RAN#91	RP-210094	0441	1	B	CR for TS 38.101-3, Introduce new band combination of V2X_41A-n47A and V2X_n41A-47A	17.1.0
2021-03	RAN#91	RP-210179	0442		B	CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3	17.1.0
2021-03	RAN#91	RP-210072	0445		A	CR for TS 38.101-3, General corrections for NR V2X	17.1.0
2021-03	RAN#91	RP-210094	0446		F	Revision of inter-band V2X con-currency table for V2X_39_n47 and V2X_40_n47	17.1.0
2021-03	RAN#91	RP-210082	0448		A	CR for TS 38.101-3: Correction on 1Tx-2Tx switching between two uplink carriers (Rel-17)	17.1.0
2021-03	RAN#91	RP-210175	0453		B	CR introduction completed band combinations for Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL)	17.1.0
2021-03	RAN#91	RP-210184	0454	1	B	CR on introduction of completed NR CA/DC combs with 4DL/2UL including FR2	17.1.0
2021-03	RAN#91	RP-210171	0455		B	Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)	17.1.0
2021-03	RAN#91	RP-210082	0457		A	Clarification on timing difference for Tx switching in EN-DC R17	17.1.0
2021-03	RAN#91	RP-210088	0459		A	CR to TS 38.101-3 clarification on the single uplink allowance for DC_3A_n3A	17.1.0
2021-03	RAN#91		0460		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#96e and RAN4#97e into TS 38.101-3	17.1.0
2021-03	RAN#91	RP-210089	0468		A	CR for 38.101-3 to add the missing Tib Rib for DC_2-7-7-66_n78/ DC_2-7-66-66_n78/ DC_2-7-7-66-66_n78 (Rel-17)	17.1.0
2021-03	RAN#91	RP-210173	0471		B	CR introduction completed band combinations LTE 3DL and one NR band -	17.1.0
2021-03	RAN#91	RP-210180	0472		B	CR introduction completed band combinations NR Inter-band 4 bands CA -	17.1.0
2021-03	RAN#91	RP-210174	0473		B	CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	17.1.0
2021-03	RAN#91	RP-210117	0476		A	CR for 38.101-3 to introduce a new MSD due to the counter intermodulation interference(Rel-17)	17.1.0
2021-03	RAN#91	RP-210075	0478		A	CR for 38.101-3: Correction for CA_n66A-n260A	17.1.0
2021-03	RAN#91	RP-210086	0480		A	CR to TS38.101-3: Correction on duty cycle signalling terminology for PC2 inter-band ENDC	17.1.0
2021-03	RAN#91	RP-210117	0492	1	F	CR for bug fixing of band combination tables for 38101-3 Rel17	17.1.0
2021-03	RAN#91	RP-210181	0497		B	CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3	17.1.0
2021-03	RAN#91	RP-210182	0498		B	CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into TS 38.101-3	17.1.0
2021-03	RAN#91	RP-210183	0499		B	CR to reflect the completed Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL) into TS38.101-3	17.1.0
2021-03	RAN#91	RP-210176	0500		B	CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3	17.1.0
2021-03	RAN#91	RP-210091	0501		A	TS 38.101-3: Addition of missing lower order fallbacks R16	17.1.0
2021-03	RAN#91	RP-210117	0504		A	CR for 38.101-3: clarification of intra-band EN-DC BCS applicability	17.1.0
2021-03	RAN#91	RP-210853	0507	2	A	Correcting FR1-FR2 BCS ambiguity – Interpretation B	17.1.0
2021-06	RAN#92-e	RP-211084	0519	-	A	Corrections to EN-DC spurious emission tables	17.2.0
2021-06	RAN#92-e	RP-211079	0521	-	A	CR correction to DC_7A-20A_n3A MSD test point R17 CATA Not implemented as the CR is empty	17.2.0
2021-06	RAN#92-e	RP-211114	0522	-	B	Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band	17.2.0
2021-06	RAN#92-e	RP-211122	0523	-	B	CR for TS 38.101-3, Introduce new band combination of V2X_n78A-47A	17.2.0
2021-06	RAN#92-e	RP-211122	0524	-	B	CR for TS 38.101-3, Introduce new band combination of	17.2.0

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2021-06	RAN#92-e	RP-211114	0526	-	B	CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211086	0531	-	A	CR to TS 38.101-3[R17]: Addition of UE co-existence requirements for band 40 and n40.	17.2.0
2021-06	RAN#92-e	RP-211077	0536	-	A	CR for TS 38.101-3: Cleanup for spurious emissions for UE co-existence table	17.2.0
2021-06	RAN#92-e	RP-211077	0538	-	A	CR to TS 38.101-3 on delta TIB and RIB corrections (Rel-17)	17.2.0
2021-06	RAN#92-e	RP-211078	0545	-	A	CR to 38.101-3 for missing MSD due to cross band and MSD due to receiver harmonic mixing for combos with n46	17.2.0
2021-06	RAN#92-e	RP-211120	0551	-	B	Introduction CR on new NR DC LTE(xDL/1UL, x=1,2,3,4)+ NR(2DL/1UL) band combinations in Rel-17	17.2.0
2021-06	RAN#92-e	RP-211078	0552	-	A	CR for updating the note of mandatory simultaneous Rx/Tx capability for FR1 EN-DC combinations	17.2.0
2021-06	RAN#92-e	RP-211078	0554	-	A	CR for updating the note of mandatory simultaneous Rx/Tx capability for FR2 included and FR1+FR2 EN-DC and NR-CA combinations	17.2.0
2021-06	RAN#92-e	RP-211101	0555	-	A	CR for TS 38.101-3, Time mask for NR V2X and LTE V2X switching in ITS band	17.2.0
2021-06	RAN#92-e	RP-211086	0563	-	A	CR for clarification on interBandContiguousMRDC in TS 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211114	0567	1	F	CR for TS 38.101-3: MSD test configurations modifications for US EN-DC combinations with Band n77	17.2.0
2021-06	RAN#92-e	RP-211086	0569		F	CR for 38.101-3 to correct some errors in Delta TIB and Delta RIB table	17.2.0
2021-06	RAN#92-e	RP-211119	0571	-	A	CR for 38.101-3 to introduce the missing MSD requirements	17.2.0
2021-06	RAN#92-e	RP-211088	0574		A	CR to TS38.101-3: Correction on TIB,c description for FR1-FR2 CA	17.2.0
2021-06		RP-211115	0575		B	CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0576		B	CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into Rel16 TS 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0577		B	CR to reflect the completed Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL)	17.2.0
2021-06	RAN#92-e	RP-211119	0580	-	A	CR for missing delta T & delta R of EN-DC with intra-band non-contiguous LTE CA combos in Rel.16	17.2.0
2021-06	RAN#92-e	RP-211120	0581		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#99-e and RAN4#98-bis-e into TS 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0582	-	B	CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0583	-	B	Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)	17.2.0
2021-06	RAN#92-e	RP-211110	0588	-	A	Notational amendment and correction to PCMAX for EN-DC	17.2.0
2021-06	RAN#92-e	RP-211115	0590		B	CR to add EN-DC PC2 band combinations with more than 3 bands	17.2.0
2021-06	RAN#92-e	RP-211114	0592	1	F	CR for corrections 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211115	0593		F	CR for corrections 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0594		F	CR for corrections 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0595		F	CR for corrections 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0597		F	CR for corrections 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0598		F	CR for corrections 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211078	0600	-	A	CR for 38.101-3 missing ENDC coexistence - Mirror	17.2.0
2021-06	RAN#92-e	RP-211114	0607		A	Mirror CR to Rel-16 CR R4-2111086	17.2.0
2021-06	RAN#92-e	RP-211080	0608	-	F	CR for 38.101-3-h10: Corrections to intra-band non-contiguous EN-DC REFSSENS	17.2.0
2021-06	RAN#92-e	RP-211114	0609		B	CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3	17.2.0
2021-06	RAN#92-e	RP-211120	0610		B	CR to add 3 LTE bands and 1 NR band DC combinations	17.2.0
2021-09	RAN#93-e	RP-211904	0611		B	CR for TS 38.101-3, Introduce new band combination of V2X_3A_n47A	17.3.0
2021-09	RAN#93-e	RP-211915	0612		B	CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3	17.3.0
2021-09	RAN#93-e	RP-211921	0613		A	CR to 38.101-3 on handling of fallbacks for FR2 CA	17.3.0
2021-09	RAN#93-e	RP-211900	0614		B	CR on introduction of completed NR CA/DC combs with 4DL/2UL including FR2	17.3.0
2021-09	RAN#93-e	RP-211901	0617		B	Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band	17.3.0
2021-09	RAN#93-e	RP-211899	0618		B	Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)	17.3.0
2021-09	RAN#93-e	RP-211900	0619		B	CR on Introduction of completed 5 bands inter-band CA into TS 38.101-3	17.3.0
2021-09	RAN#93-e	RP-211899	0620		B	Introduction CR on new NR DC LTE(xDL/1UL, x=1,2,3,4)+ NR(2DL/1UL) band combinations in Rel-17	17.3.0
2021-09	RAN#93-e	RP-211900	0621		B	Big CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3	17.3.0

2021-09	RAN#93-e	RP-211900	0622		B	CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3	17.3.0
2021-09	RAN#93-e	RP-211899	0623		B	CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into Rel16 TS 38.101-3	17.3.0
2021-09	RAN#93-e	RP-211899	0624		B	CR to reflect the completed Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL)	17.3.0
2021-09	RAN#93-e	RP-211899	0625		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN#100-e into TS 38.101-3	17.3.0
2021-09	RAN#93-e	RP-211899	0627		B	CR to add 3 LTE bands and 1 NR band DC combinations	17.3.0
2021-09	RAN#93-e	RP-211900	0628		B	CR to add NR Inter-band CA for 4 bands in TS 38.101-3	17.3.0
2021-09	RAN#93-e	RP-211901	0629		B	CR to add EN-DC PC2 band combinations with more than 2 bands	17.3.0
2021-09	RAN#93-e	RP-211899	0630		B	Big CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	17.3.0
2021-09	RAN#93-e	RP-211891	0632		A	CR for 38.101-3 to introduce the missing MSD requirements	17.3.0
2021-09	RAN#93-e	RP-211908	0633		B	CR for 38.101-3 to specify the MSD requirements for ENDC combinations	17.3.0
2021-09	RAN#93-e	RP-211896	0634		B	CR for 38.101-3: Introduction of BCS4 and BCS5	17.3.0
2021-09	RAN#93-e	RP-211900	0635		F	CR for TS 38.101-1: Correcting frequency setup for 2UL interband reference sensitivity	17.3.0
2021-09	RAN#93-e	RP-211923	0638		A	Big CR for TS 38.101-3 Maintenance part1 (Rel-17)	17.3.0
2021-09	RAN#93-e	RP-211900	0639		F	Big CR for TS 38.101-3 Maintenance part1 (Rel-17)	17.3.0
2021-09	RAN#93-e	RP-211905	0640		B	CR for updating the note of mandatory simultaneous Rx/Tx capability for Rel.17 FR1 EN-DC combinations	17.3.0
2021-09	RAN#93-e	RP-211905	0641		B	CR for updating the note of mandatory simultaneous Rx/Tx capability for Rel.17 FR1+FR2 NR CA and EN-DC combinations	17.3.0
2021-12	RAN#94-e	RP-212830	0643		B	Big CR on introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3	17.4.0
2021-12	RAN#94-e	RP-212828	0644		B	Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)	17.4.0
2021-12	RAN#94-e	RP-212828	0645		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN#101-e into TS 38.101-3	17.4.0
2021-12	RAN#94-e	RP-212831	0646		B	CR on introduction of completed NR CA/DC combs with 4DL/2UL including FR2	17.4.0
2021-12	RAN#94-e	RP-212828	0647		B	CR introduction completed band combinations for Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL)	17.4.0
2021-12	RAN#94-e	RP-212828	0649	1	F	CR for TS 38.101-3: MSD test configurations modification for US inter-band EN-DC combinations with n77	17.4.0
2021-12	RAN#94-e	RP-212829	0650		B	Introduction CR on new NR DC LTE(xDL/1UL, x=1,2,3,4)+ NR(2DL/1UL) band combinations in Rel-17	17.4.0
2021-12	RAN#94-e	RP-212832	0651		B	Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band	17.4.0
2021-12	RAN#94-e	RP-212830	0652		B	Big CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3	17.4.0
2021-12	RAN#94-e	RP-212830	0653		B	Big CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3	17.4.0
2021-12	RAN#94-e	RP-212829	0654		B	CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into Rel16 TS 38.101-3	17.4.0
2021-12	RAN#94-e	RP-212829	0655		B	CR to reflect the completed Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL)	17.4.0
2021-12	RAN#94-e	RP-212828	0657		B	CR to add 3 LTE bands and 1 NR band DC combinations	17.4.0
2021-12	RAN#94-e	RP-212832	0659		B	CR to add EN-DC PC2 band combinations with more than 2 bands	17.4.0
2021-12	RAN#94-e	RP-212828	0660		B	Big CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	17.4.0
2021-12	RAN#94-e	RP-212828	0661	1	D	CR for 38.101-3 Correction to Inter-band EN-DC within FR1	17.4.0
2021-12	RAN#94-e	RP-212824	0665		F	CR to TS 38.101-3 on DC configuration regrouping cleanup	17.4.0
2021-12	RAN#94-e	RP-212827	0666		F	CR for 38.101-3 to correct the editorial errors for general paragraph	17.4.0
2021-12	RAN#94-e	RP-212847	0667		F	CR TS 38.101-3: Addition of missing R16 band combinations	17.4.0
2021-12	RAN#94-e	RP-212827	0668		B	Improved wording for BCS4 and BCS5	17.4.0
2021-12	RAN#94-e	RP-212845	0671		F	Big CR for TS 38.101-3 Maintenance (Rel-17)	17.4.0
2022-03	RAN#95	RP-220354	0676	1	F	CR for TS 38.101-3 Rel-17: Corrections on UE co-existence	17.5.0
2022-03	RAN#95	RP-220333	0677	1	F	CR 38.101-3: Rel-17 Correction of bugs in combinations tables	17.5.0
2022-03	RAN#95	RP-220359	0678		B	CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3	17.5.0
2022-03	RAN#95	RP-220359	0679		B	Big CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3	17.5.0
2022-03	RAN#95	RP-220354	0681		B	Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)	17.5.0
2022-03	RAN#95	RP-220356	0683		B	Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band	17.5.0

2022-03	RAN#95	RP-220355	0684		B	Introduction CR on new NR DC LTE(xDL/1UL)+ NR(2DL/1UL) band combinations in Rel-17	17.5.0
2022-03	RAN#95	RP-220359	0685		B	Big CR on introduction of completed NR CA/DC combs with 4DL/2UL including FR2	17.5.0
2022-03	RAN#95	RP-220354	0686		B	Big CR introduction completed band combinations for Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL)	17.5.0
2022-03	RAN#95	RP-220359	0688		B	Big CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3	17.5.0
2022-03	RAN#95	RP-220355	0689		B	Big CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into TS 38.101-3	17.5.0
2022-03	RAN#95	RP-220355	0690		B	Big CR to reflect the completed DC of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL) into TS 38.101-3	17.5.0
2022-03	RAN#95	RP-220354	0691		B	CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#101bis-e and RAN4#102-e into TS 38.101-3	17.5.0
2022-03	RAN#95	RP-220359	0692		B	CR on Introduction of completed 5 bands inter-band CA into TS 38.101-3	17.5.0
2022-03	RAN#95	RP-220356	0693		B	CR for 38.101-3 to introduce MSD requirements for missing bandwidths.	17.5.0
2022-03	RAN#95	RP-220354	0694		B	Big CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3	17.5.0
2022-03	RAN#95	RP-220354	0695		B	Big CR 38.101-3 new combinations LTE 3DL and one NR band	17.5.0
2022-03	RAN#95	RP-220359	0696		B	Big CR 38.101-3 new combinations NR CA Inter-band 4DL/1UL	17.5.0
2022-03	RAN#95	RP-220356	0697		B	Big CR 38.101-3 EN-DC PC2	17.5.0
2022-03	RAN#95	RP-220337	0702		F	Big CR for TS 38.101-3 Maintenance (Rel-17)	17.5.0
2022-03	RAN#95	RP-220355	0703		B	CR on Introduction of completed Dual Connectivity (DC) of x bands (x=1,2) LTE inter-band CA (xDL1UL) and 4 bands NR inter-band CA (4DL1UL) into TS 38.101-3	17.5.0