

## Annex B (normative):

## Conditions for RRM requirements applicability for operating bands

## B.1 Conditions for NR RRC\_IDLE state mobility

## B.1.1 Introduction

In Annex B.1, the following conditions are specified:

- UE conditions which shall apply for UE intra-frequency measurements procedures and requirements in clause 4,
- UE conditions which shall apply for UE inter-frequency measurements procedures and requirements in clause 4.

## B.1.2 Conditions for measurements on NR intra-frequency cells for cell re-selection

This clause defines the following conditions for NR intra-frequency measurements performed based on SSBs for cell re-selection: SSB\_RP and SSB  $\hat{E}_s/\text{lot}$ , applicable for a corresponding operating band.

The conditions are defined in Table B.1.2-1 for FR1 NR cells.

The conditions are defined in Table B.1.2-2 for FR2 NR cells.

Table B.1.2-1: Conditions for intra-frequency cell re-selection in FR1

Parameter	NR operating band groups <small>Note1</small>	Minimum SSB_RP		SSB Ês/lot
		dBm / SCS <sub>SSB</sub>		dB
		SCS <sub>SSB</sub> = 15 kHz	SCS <sub>SSB</sub> = 30 kHz	
Conditions	NR_FDD_FR1_A, NR_TDD_FR1_A	-124	-121	≥ -4
	NR_FDD_FR1_B	-123.5	-120.5	
	NR_TDD_FR1_C	-123	-120	
	NR_FDD_FR1_D, NR_TDD_FR1_D	-122.5	-119.5	
	NR_FDD_FR1_E, NR_TDD_FR1_E	-122	-119	
	NR_FDD_FR1_G	-121	-118	
	NR_FDD_FR1_H	-120.5	-117.5	
NOTE 1:NR operating band groups are defined in clause 3.5.2.				

Table B.1.2-2: Conditions for intra-frequency cell re-selection in FR2

Parameter	Angle of arrival	NR operating bands	Minimum SSB_RP <sup>Note 2, Note 3</sup>					SSB Ês/lot		
			dBm / SCS <sub>SSB</sub>							dB
			SCS <sub>SSB</sub> = 120 kHz				SCS <sub>SSB</sub> = 240 kHz			
			UE Power class				UE Power class			
			1	2	3	4	1, 2, 3, 4			
Conditions	Rx Beam Peak	n257	- 125.3+Y <sub>1</sub>	- 110.8	- 109.1	- 124.8+Y <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-4		
		n258	- 125.3+Y <sub>1</sub>	- 110.8	- 109.1	- 124.8+Y <sub>4</sub>				
		n260	- 122.3+Y <sub>1</sub>		- 106.5	- 122.8+Y <sub>4</sub>				
		n261	- 125.3+Y <sub>1</sub>	- 110.8	- 109.1	- 124.8+Y <sub>4</sub>				
	Spherical coverage <small>Note 1</small>	n257	- 117.3+Z <sub>1</sub>	- 99.8	-98.2	- 115.8+Z <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-4		
		n258	- 117.3+Z <sub>1</sub>	- 99.8	-98.2	- 115.8+Z <sub>4</sub>				
		n260	- 114.3+Z <sub>1</sub>		-93.9	- 110.8+Z <sub>4</sub>				
		n261	- 117.3+Z <sub>1</sub>	- 99.8	-98.2	- 115.8+Z <sub>4</sub>				
NOTE 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.										
NOTE 2: Values specified at the Reference point to give minimum SSB Ês/lot, with no applied noise.										
NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ΔMB <sub>P,n</sub> and Spherical coverage values are increased by ΔMB <sub>S,n</sub> , the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19].										

Editor's notes for Table B.1.2-2:

- The value of Y for Power classes 1 and 4 is FFS, where Y<sub>1</sub> and Y<sub>4</sub> are the rough/fine beam gain differences in Rx beam peak direction for Power classes 1 and 4 respectively
- The value of Z for Power classes 1 and 4 is FFS, where Z<sub>1</sub> and Z<sub>4</sub> are the rough/fine beam gain differences in spherical coverage directions for Power classes 1 and 4 respectively

### B.1.3 Conditions for measurements on NR inter-frequency cells for cell re-selection

This clause defines the following conditions for NR inter-frequency measurements performed based on SSBs for cell re-selection: SSB<sub>RP</sub> and SSB  $\hat{E}_s$ /lot, applicable for a corresponding operating band.

The conditions defined in Table B.1.2-1 for FR1 NR intra-frequency cell re-selection shall also apply for FR1 NR inter-frequency cells in this clause.

The conditions defined in Table B.1.2-2 for FR2 NR intra-frequency cell re-selection shall also apply for FR2 NR inter-frequency cells in this clause.

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## B.2 Conditions for UE measurements procedures and performance requirements in RRC\_CONNECTED state

### B.2.1 Introduction

#### B.2.1.1 General

In Annex B.2, the following conditions are specified:

- The conditions for RRC connection release with redirection to NR requirements in clause 6.2.3.2.1,
- The conditions for UE transmit timing adjustment in clause 7.1,
- UE conditions which shall apply for UE intra-frequency measurements procedures and requirements in clause 9,  
UE conditions which shall apply for UE inter-frequency measurements procedures and requirements in clause 9,
- UE conditions which shall apply for UE intra-frequency measurements performance requirements in clause 10,
- UE conditions which shall apply for UE inter-frequency measurements performance requirements in clause 10.

#### B.2.1.2 Derivation of Minimum SSB<sub>RP</sub> values for FR1

[FFS]

#### B.2.1.3 Derivation of Minimum SSB<sub>RP</sub> values for FR2

Editor's note:

- The Assumption for UE beams (fine or rough) in Annex A RRM test cases is defined based on power class 3, and unless otherwise stated also applies for other UE power classes

### B.2.1.3.1 Minimum SSB<sub>\_RP</sub> values for Rx Beam Peak angle of arrival

Minimum SSB<sub>\_RP</sub> values in Tables B.2.2-2 and B.2.3-2 are based on reference sensitivity for the Operating band and for the UE power class, taking a baseline of UE power class 3 in Band n260 with 50 MHz channel bandwidth.

$$\text{Minimum SSB}_{\_RP} = \text{Reference sensitivity}_{PC3, n260, 50MHz} + Y - 10\log_{10}(\text{PRB}_{\text{Refsens}} \times 12) - \text{SNR}_{\text{Refsens}} + \text{SSB } \hat{E}_s/\text{lot} + \Delta\text{MB}_{P,n}$$

where:

Reference sensitivity<sub>PC3, n260, 50MHz</sub> is the reference sensitivity value in dBm specified for power class 3 in Band n260 for 50 MHz Channel bandwidth in Table 7.3.2.3-1 of TS 38.101-2 [19];

Y is the gain difference between fine and rough beams, which is defined in Table B.2.1.3.1-1;

Table B.2.1.3.1-1: Gain difference Y between fine and rough beams, Rx beam peak direction

Value “Y” in dB, for each UE power class			
1	2	3	4
FFS	9.0	7.0	FFS

$\text{PRB}_{\text{Refsens}}$  is  $N_{\text{RB}}$  associated with subcarrier spacing 120 kHz for 50MHz in TS 38.101-2 [19] Table 5.3.2-1, and is 32;

12 is the number of subcarriers in a PRB;

$\text{SNR}_{\text{Refsens}}$  is the SNR used for simulation of Refsens and EIS spherical coverage, and is -1 dB;

$\text{SSB } \hat{E}_s/\text{lot}$  is the minimum value required by the UE to perform measurements, and is -6 dB for intra-frequency measurements and -4 dB for inter-frequency measurements. The only contribution to lot is the UE internal noise;

$\Delta\text{MB}_{P,n}$  is the UE multi-band relaxation factor value in dB specified in TS 38.101-2 [19] clause 6.2.1.

The calculated Minimum SSB<sub>\_RP</sub> value for the baseline of UE power class 3 in Band n260 is (-109.5+ $\Delta\text{MB}_{P,n}$ ) dBm/120kHz for intra-frequency measurements and (-107.5+ $\Delta\text{MB}_{P,n}$ ) dBm/120kHz for inter-frequency measurements.

The following methodology to define the Minimum SSB<sub>\_RP</sub> level for power class X (PC<sub>\_X</sub>) and operating band Y (Band<sub>\_Y</sub>) is used:

For Intra-frequency: Minimum SSB<sub>\_RP</sub> (PC<sub>\_X</sub>, Band<sub>\_Y</sub>) = -109.5 dBm/120kHz + Refsens<sub>PC<sub>\_X</sub>, Band<sub>\_Y</sub>, 50MHz</sub> – Refsens<sub>PC3, n260, 50MHz</sub> + Y<sub>PC<sub>\_X</sub> – Y<sub>PC3</sub></sub> +  $\Delta\text{MB}_{P,n}$ ,

For Inter-frequency: Minimum SSB\_RP (PC\_X, Band\_Y) = -107.5 dBm/120kHz + Refsens<sub>PC3, n260, 50MHz</sub> + Y<sub>PC\_X</sub> - Y<sub>PC3</sub> + ΔMB<sub>P,n</sub>.

#### B.2.1.3.2 Minimum SSB\_RP values for angle of arrival within Spherical coverage

Minimum SSB\_RP values in Tables B.2.2-2 and B.2.3-2 are based on EIS spherical coverage for the Operating band and for the UE power class, taking a baseline of UE power class 3 in Band n260 with 50 MHz channel bandwidth.

Minimum SSB\_RP = EIS spherical coverage<sub>PC3, n260, 50MHz</sub> + Z - 10Log<sub>10</sub>(PRB<sub>Refsens</sub> × 12) - SNR<sub>Refsens</sub> + SSB Ês/lot + ΔMB<sub>S,n</sub>,

where:

EIS spherical coverage<sub>PC3, n260, 50MHz</sub> is the EIS spherical coverage value in dBm specified for power class 3 in Band n260 for 50MHz Channel bandwidth in TS 38.101-2 [19] Table 7.3.4.3-1;

Z is the gain difference between fine and rough beams, and is defined in Table B.2.1.3.2-1;

Table B.2.1.3.2-1: Gain difference Z between fine and rough beams, Spherical coverage directions

Value “Z” in dB, for each UE power class			
1	2	3	4
FFS	9.0	7.0	FFS

PRB<sub>Refsens</sub> is N<sub>RB</sub> associated with subcarrier spacing 120 kHz for 50MHz in TS 38.101-2 [19] Table 5.3.2-1, and is 32;

12 is the number of subcarriers in a PRB;

SNR<sub>Refsens</sub> is the SNR used for simulation of Refsens and EIS spherical coverage, and is -1 dB;

SSB Ês/lot is the minimum value required by the UE to perform measurements, and is -6 dB for intra-frequency measurements and -4 dB for inter-frequency measurements. The only contribution to lot is the UE internal noise;

ΔMB<sub>S,n</sub> is the UE multi-band relaxation factor value in dB specified in TS 38.101-2 [19] clause 6.2.1.

The calculated Minimum SSB\_RP value for the baseline of UE power class 3 in Band n260 is (-96.9+ΔMB<sub>S,n</sub>) dBm/120kHz for intra-frequency measurements and is (-94.9+ΔMB<sub>S,n</sub>) dBm/120kHz for inter-frequency measurements.

The following methodology to define the Minimum SSB\_RP level for power class X (PC\_X) and operating band Y (Band\_Y) is used:

For Intra-frequency: Minimum SSB\_RP (PC\_X, Band\_Y) = -96.9 dBm/120kHz + EIS spherical coverage<sub>PC\_X, Band\_Y, 50MHz</sub> – EIS spherical coverage<sub>PC3, n260, 50MHz</sub> + Z<sub>PC\_X</sub> – Z<sub>PC3</sub> + ΔMB<sub>S,n</sub>

For Inter-frequency: Minimum SSB\_RP (PC\_X, Band\_Y) = -94.9 dBm/120kHz + EIS spherical coverage<sub>PC\_X, Band\_Y, 50MHz</sub> – EIS spherical coverage<sub>PC3, n260, 50MHz</sub> + Z<sub>PC\_X</sub> – Z<sub>PC3</sub> + ΔMB<sub>S,n</sub>

#### B.2.1.4 Gain to SS-RSRP measurement point for FR1

In FR1 conducted requirements are specified at the UE antenna connector, which is also the SS-RSRP measurement point.

#### B.2.1.5 Gain to SS-RSRP measurement point for FR2

##### B.2.1.5.1 Gain to SS-RSRP measurement point for Rx Beam Peak angle of arrival

In clause 5.1.1 of TS 38.215 [4] SS-RSRP is defined to be measured based on the combined signal from antenna elements corresponding to a given receiver branch. The reference point for requirement parameters from the UE perspective is the input of the UE antenna array. The gain “G” relates the combined signal from antenna elements corresponding to a given receiver branch to the reference point for requirement parameters.

The gain “G” affects absolute signal level values reported by the UE.

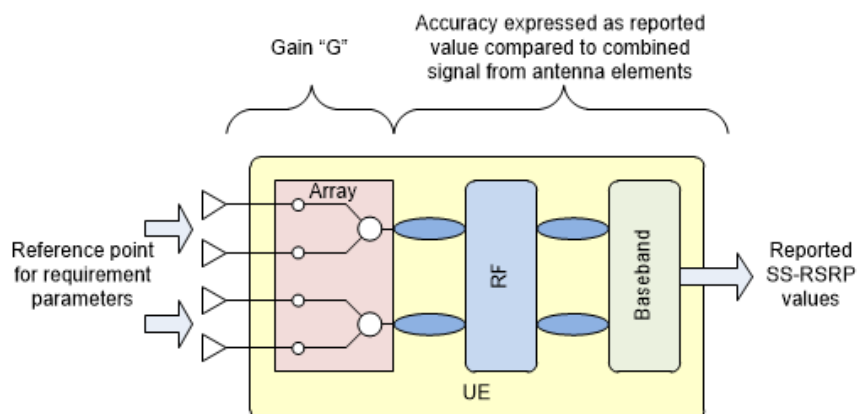


Figure B.2.1.5.1-1: Gain and Reference point for requirement parameters

The gain range for each power class is specified in Table B.2.1.5.1-1.

Table B.2.1.5.1-1: UE gain G, Rx beam peak direction

	UE Power class			
	1	2	3	4
Minimum, dBi	FFS	FFS	-10	FFS
Maximum, dBi	FFS	FFS	+20	FFS

Gain range in spherical coverage directions may be lower than in Rx beam peak direction, according to the difference between the EIS spherical coverage value specified in TS 38.101-2 [19] clause 7.3.4 and the Reference sensitivity level specified in TS 38.101-2 [19] clause 7.3.2.

#### B.2.1.5.2 Gain to SS-RSRP measurement point for different frequency

In any specific direction, the UE gain  $G$  may be different depending on frequencies. The gain “ $G_{\text{inter}}$ ” affects relative signal level values reported by the UE when measuring between different frequencies and is specified in Table B.2.1.5.2-1 for each power class.

Table B.2.1.5.2-1: UE gain difference between inter-frequencies  $G_{\text{inter}}$

	UE Power class			
	1	2	3	4
Maximum difference, dB	FFS	FFS	3	FFS

#### B.2.1.5.3 Alignment of Rough beam to Rx beam Peak

The definition of Rx Beam Peak in TS 38.101-2 [19] clause 7.3.2 is based on Throughput at Reference sensitivity power level, and assumes use of Fine beams. In many RRM scenarios the UE can use Rough beams, but the largest Rough beam gain direction may not be aligned to the Fine beam Peak direction.

When the Rx Beam Peak is selected and defined based on Fine Beams, the rough beam gain in that direction may be lower than the largest rough beam gain in another direction within Spherical Coverage. The term “ $D$ ” is the maximum allowed rough beam gain reduction, and is specified in Table B.2.1.5.3-1 for each power class.

Table B.2.1.5.3-1: Rough Beam gain reduction “ $D$ ” in Rx Beam Peak direction

	UE Power class			
	1	2	3	4
Maximum gain reduction, dB	FFS	FFS	5.5	FFS

#### B.2.2 Conditions for NR intra-frequency measurements

This clause defines the following conditions for NR intra-frequency measurements and corresponding procedures performed based on SSBs: SSB<sub>RP</sub> and SSB  $\hat{E}_s/\text{lot}$ , applicable for a corresponding operating band.

The conditions are defined in Table B.2.2-1 for FR1 NR cells.

The conditions are defined in Table B.2.2-2 for FR2 NR cells.

Table B.2.2-1: Conditions for intra-frequency measurements in FR1

Parameter	NR operating band groups <small>Note1</small>	Minimum SSB_RP		SSB Ês/lot
		dBm / SCS <sub>SSB</sub>		dB
		SCS <sub>SSB</sub> = 15 kHz	SCS <sub>SSB</sub> = 30 kHz	
Conditions	NR_FDD_FR1_A, NR_TDD_FR1_A, NR_SDL_FR1_A	-127	-124	≥ -6
	NR_FDD_FR1_B	-126.5	-123.5	
	NR_TDD_FR1_C	-126	-123	
	NR_FDD_FR1_D, NR_TDD_FR1_D	-125.5	-122.5	
	NR_FDD_FR1_E, NR_TDD_FR1_E	-125	-122	
	NR_FDD_FR1_G	-124	-121	
	NR_FDD_FR1_H	-123.5	-120.5	
NOTE 1: NR operating band groups are defined in clause 3.5.2.				



Table B.2.2-2: Conditions for intra-frequency measurements in FR2

Parameter	Angle of arrival	NR operating bands	Minimum SSB_RP <sup>Note 2, Note 3</sup>					SSB Ês/lot
			dBm / SCS <sub>SSB</sub>					dB
			SCS <sub>SSB</sub> = 120 kHz				SCS <sub>SSB</sub> = 240 kHz	
			UE power class				UE power class	
			1	2	3	4	1, 2, 3, 4	
Conditions	Rx Beam Peak	n257	- 128.3+Y <sub>1</sub>	-113.8	-112.1	- 127.8+Y <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-6
		n258	- 128.3+Y <sub>1</sub>	-113.8	-112.1	- 127.8+Y <sub>4</sub>		
		n260	- 125.3+Y <sub>1</sub>		- 109.5	- 125.8+Y <sub>4</sub>		
		n261	- 128.3+Y <sub>1</sub>	-113.8	-112.1	- 127.8+Y <sub>4</sub>		
	Spherical coverage <sup>Note 1</sup>	n257	- 120.3+Z <sub>1</sub>	- 102.8	-101.2	- 118.8+Z <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-6
		n258	- 120.3+Z <sub>1</sub>	- 102.8	-101.2	- 118.8+Z <sub>4</sub>		
		n260	- 117.3+Z <sub>1</sub>		-96.9	- 113.8+Z <sub>4</sub>		
		n261	- 120.3+Z <sub>1</sub>	- 102.8	-101.2	- 118.8+Z <sub>4</sub>		

Note 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.

Note 2: Values specified at the Reference point to give minimum SSB Ês/lot, with no applied noise.

Note 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ΔMB<sub>P,n</sub> and Spherical coverage values are increased by ΔMB<sub>S,n</sub>, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19].

Editor's notes for Table B.2.2-2:

- The value of Y for power classes 1 and 4 is FFS, where Y<sub>1</sub> and Y<sub>4</sub> are the rough/fine beam gain differences in Rx beam peak direction for power classes 1 and 4 respectively

- The value of  $Z$  for power classes 1 and 4 is FFS, where  $Z_1$  and  $Z_4$  are the rough/fine beam gain differences in spherical coverage directions for power classes 1 and 4 respectively

### B.2.3 Conditions for NR inter-frequency measurements

This clause defines the following conditions for NR inter-frequency measurements and corresponding procedures performed based on SSBs: SSB<sub>RP</sub> and SSB  $\hat{E}_s/\text{lot}$ , applicable for a corresponding operating band.

The conditions are defined in Table B.2.3-1 for FR1 NR cells.

The conditions are defined in Table B.2.3-2 for FR2 NR cells.

Table B.2.3-1: Conditions for inter-frequency measurements in FR1

Parameter	NR operating band groups <small>Note1</small>	Minimum SSB <sub>RP</sub>		SSB Ês/lot
		dBm / SCS <sub>SSB</sub>		dB
		SCS <sub>SSB</sub> = 15 kHz	SCS <sub>SSB</sub> = 30 kHz	
Conditions	NR_FDD_FR1_A, NR_TDD_FR1_A, NR_SDL_FR1_A	-125	-122	≥ -4
	NR_FDD_FR1_B	-124.5	-121.5	
	NR_TDD_FR1_C	-124	-121	
	NR_FDD_FR1_D, NR_TDD_FR1_D	-124.5	-120.5	
	NR_FDD_FR1_E, NR_TDD_FR1_E	-123	-120	
	NR_FDD_FR1_G	-122	-119	
	NR_FDD_FR1_H	-121.5	-118.5	
NOTE 1: NR operating band groups are defined in clause 3.5.2.				

Table B.2.3-2: Conditions for inter-frequency measurements in FR2

Parameter	Angle of arrival	NR operating bands	Minimum SSB_RP <sup>Note 2, Note 3</sup>					SSB Ês/lot
			dBm / SCS <sub>SSB</sub>					dB
			SCS <sub>SSB</sub> = 120 kHz				SCS <sub>SSB</sub> = 240 kHz	
			UE power class				UE power class	
			1	2	3	4	1, 2, 3, 4	
Conditions	Rx Beam Peak	n257	- 126.3+Y <sub>1</sub>	-111.8	-110.1	- 125.8+Y <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-4
		n258	- 126.3+Y <sub>1</sub>	-111.8	-110.1	- 125.8+Y <sub>4</sub>		
		n260	- 123.3+Y <sub>1</sub>		- 107.5	- 123.8+Y <sub>4</sub>		
		n261	- 126.3+Y <sub>1</sub>	-111.8	-110.1	- 125.8+Y <sub>4</sub>		
	Spherical coverage <small>Note 1</small>	n257	- 118.3+Z <sub>1</sub>	- 100.8	-99.2	- 116.8+Z <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-4
		n258	- 118.3+Z <sub>1</sub>	- 100.8	-99.2	- 116.8+Z <sub>4</sub>		
		n260	- 115.3+Z <sub>1</sub>		-94.9	-111.8+Z <sub>4</sub>		
		n261	- 118.3+Z <sub>1</sub>	- 100.8	-99.2	- 116.8+Z <sub>4</sub>		

NOTE 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.

NOTE 2: Values specified at the Reference point to give minimum SSB Ês/lot, with no applied noise.

NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ΔMB<sub>P,n</sub> and Spherical coverage values are increased by ΔMB<sub>S,n</sub>, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19].

Editor's notes for Table B.2.3-2:

- The value of Y for power classes 1 and 4 is FFS, where Y<sub>1</sub> and Y<sub>4</sub> are the rough/fine beam gain differences in Rx beam peak direction for power classes 1 and 4 respectively

- The value of Z for power classes 1 and 4 is FFS, where  $Z_1$ , and  $Z_4$  are the rough/fine beam gain differences in spherical coverage directions for power classes 1 and 4 respectively

#### B.2.4 Conditions for NR L1-RSRP reporting

##### B.2.4.1 Conditions for SSB based L1-RSRP reporting

This clause defines the following conditions for NR L1-RSRP measurement reporting and corresponding procedures performed based on SSBs: SSB\_RP and SSB  $\hat{E}_s/\text{lot}$ , applicable for a corresponding operating band.

The conditions are defined in Table B.2.4.1-1 for FR1 NR cells.

The conditions are defined in Table B.2.4.1-2 for FR2 NR cells.

Table B.2.4.1-1: Conditions for SSB based L1-RSRP measurements in FR1

Parameter	NR operating band groups <small>Note1</small>	Minimum SSB_RP		SSB Ês/lot
		dBm / SCS <sub>SSB</sub>		dB
		SCS <sub>SSB</sub> = 15 kHz	SCS <sub>SSB</sub> = 30 kHz	
Conditions	NR_FDD_FR1_A, NR_TDD_FR1_A, NR_SDL_FR1_A	-124	-121	≥ -3
	NR_FDD_FR1_B	-123.5	-120.5	
	NR_TDD_FR1_C	-123	-120	
	NR_FDD_FR1_D, NR_TDD_FR1_D	-122.5	-119.5	
	NR_FDD_FR1_E, NR_TDD_FR1_E	-122	-119	
	NR_FDD_FR1_G	-121	-118	
	NR_FDD_FR1_H	-120.5	-117.5	
NOTE 1: NR operating band groups are defined in clause 3.5.2.				

Table B.2.4.1-2: Conditions for SSB based L1-RSRP measurements in FR2

Parameter	Angle of arrival	NR operating bands	Minimum SSB_RP <sup>Note 2, Note 3</sup>				SSB Ês/lot
			dBm / SCS <sub>SSB</sub>				dB
			SCS <sub>SSB</sub> = 120 kHz			SCS <sub>SSB</sub> = 240 kHz	
			UE power class			UE power class	
			1	2	3	4	

Conditions	Rx Beam Peak	n257	- 125.3+Y <sub>1</sub>	- 110.8	-109.1	- 124.8+Y <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-3
		n258	- 125.3+Y <sub>1</sub>	- 110.8	-109.1	- 124.8+Y <sub>4</sub>		
		n260	- 122.3+Y <sub>1</sub>		- 106.5	- 122.8+Y <sub>4</sub>		
		n261	- 125.3+Y <sub>1</sub>	- 110.8	-109.1	- 124.8+Y <sub>4</sub>		
	Spherical coverage Note 1	n257	- 117.3+Z <sub>1</sub>	-99.8	-98.2	- 115.8+Z <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-3
		n258	- 117.3+Z <sub>1</sub>	-99.8	-98.2	- 115.8+Z <sub>4</sub>		
		n260	- 114.3+Z <sub>1</sub>		-93.9	- 110.8+Z <sub>4</sub>		
		n261	- 117.3+Z <sub>1</sub>	-99.8	-98.2	- 115.8+Z <sub>4</sub>		

NOTE 1:Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.

NOTE 2: Values specified at the Reference point to give minimum SSB Ês/lot, with no applied noise.

NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ΔMB<sub>P,n</sub> and Spherical coverage values are increased by ΔMB<sub>S,n</sub>, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19].

Editor's notes for Table B.2.4.1-2:

- The value of Y for power classes 1 and 4 is FFS, where Y<sub>1</sub> and Y<sub>4</sub> are the rough/fine beam gain differences in Rx beam peak direction for power classes 1 and 4 respectively
- The value of Z for power classes 1 and 4 is FFS, where Z<sub>1</sub> and Z<sub>4</sub> are the rough/fine beam gain differences in spherical coverage directions for power classes 1 and 4 respectively

#### B.2.4.2 Conditions for CSI-RS based L1-RSRP reporting

This clause defines the following conditions for NR L1-RSRP measurement reporting and corresponding procedures performed based on CSI-RS: CSI-RS\_RP and CSI-RS Ês/lot, applicable for a corresponding operating band.

The conditions are defined in Table B.2.4.2-1 for FR1 NR cells.

The conditions are defined in Table B.2.4.2-2 for FR2 NR cells.

Table B.2.4.2-1: Conditions for CSI-RS based L1-RSRP measurements in FR1

Parameter	NR operating band groups Note1	Minimum CSI-RS_RP			CSI-RS Ês/lot
		dBm / SCS <sub>CSI-RS</sub>			dB
		SCS <sub>CSI-RS</sub> = 15 kHz	SCS <sub>CSI-RS</sub> = 30 kHz	SCS <sub>CSI-RS</sub> = 60 kHz	
Conditions	NR_FDD_FR1_A, NR_TDD_FR1_A, NR_SDL_FR1_A	-124	-121	-118	≥ -3
	NR_FDD_FR1_B	-123.5	-120.5	-117.5	
	NR_TDD_FR1_C	-123	-120	-117	
	NR_FDD_FR1_D, NR_TDD_FR1_D	-122.5	-119.5	-116.5	
	NR_FDD_FR1_E, NR_TDD_FR1_E	-122	-119	-116	
	NR_FDD_FR1_G	-121	-118	-115	
	NR_FDD_FR1_H	-120.5	-117.5	-114.5	
NOTE 1:NR operating band groups are defined in clause 3.5.2.					

Table B.2.4.2-2: Conditions for CSI-RS based L1-RSRP measurements in FR2

Parameter	Angle of arrival	NR operating bands	Minimum CSI-RS_RP <sup>Note 2, Note 3</sup>					CSI-RS Ês/lot		
			dBm / SCS <sub>CSI-RS</sub>							dB
			SCS <sub>CSI-RS</sub> = 60 kHz				SCS <sub>CSI-RS</sub> = 120 kHz			
			UE power class				UE power class			
			1	2	3	4	1, 2, 3, 4			
Conditions	Rx Beam Peak	n257	- 128.3+Y <sub>1</sub>	-113.8	-112.1	- 127.8+Y <sub>4</sub>	(Value for SCS <sub>CSI-RS</sub> = 60 kHz) +3dB	≥-3		
		n258	- 128.3+Y <sub>1</sub>	-113.8	-112.1	- 127.8+Y <sub>4</sub>				
		n260	- 125.3+Y <sub>1</sub>		- 109.5	- 125.8+Y <sub>4</sub>				
		n261	- 128.3+Y <sub>1</sub>	-113.8	-112.1	- 127.8+Y <sub>4</sub>				
		n257	- 120.3+Z <sub>1</sub>	- 102.8	-101.2	- 118.8+Z <sub>4</sub>		≥-3		

	Spherical coverage Note 1	n258	- 120.3+Z <sub>1</sub>	- 102.8	-101.2	- 118.8+Z <sub>4</sub>	(Value for SCS <sub>CSI-RS</sub> = 60 kHz) +3dB	
		n260	- 117.3+Z <sub>1</sub>		-96.9	- 113.8+Z <sub>4</sub>		
		n261	- 120.3+Z <sub>1</sub>	- 102.8	-101.2	- 118.8+Z <sub>4</sub>		
NOTE 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.								
NOTE 2: Values specified at the Reference point to give minimum CSI-RS Ês/lot, with no applied noise.								
NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ΔMB <sub>P,n</sub> and Spherical coverage values are increased by ΔMB <sub>S,n</sub> , the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19].								

Editor's notes for Table B.2.4.2-2:

- The value of Y for power classes 1 and 4 is FFS, where Y<sub>1</sub> and Y<sub>4</sub> are the rough/fine beam gain differences in Rx beam peak direction for power classes 1 and 4 respectively
- The value of Z for power classes 1 and 4 is FFS, where Z<sub>1</sub> and Z<sub>4</sub> are the rough/fine beam gain differences in spherical coverage directions for power classes 1 and 4 respectively

#### B.2.5 Conditions for RRC connection release with redirection to NR

This clause defines the following conditions for RRC connection release with redirection to NR: SSB\_RP and SSB  $\hat{E}_s$ /lot, applicable for a corresponding operating band.

The conditions are defined in Table B.2.5-1 for FR1 NR cells.

The conditions are defined in Table B.2.5-2 for FR2 NR cells.

Table B.2.5-1: Conditions for for RRC connection release with redirection to NR in FR1

Parameter	NR operating band groups Note1	Minimum SSB_RP		SSB Ês/lot
		dBm / SCS <sub>SSB</sub>		dB
		SCS <sub>SSB</sub> = 15 kHz	SCS <sub>SSB</sub> = 30 kHz	
Conditions	NR_FDD_FR1_A, NR_TDD_FR1_A	-125	-122	≥ -4
	NR_FDD_FR1_B	-124.5	-121.5	
	NR_TDD_FR1_C	-124	-121	
	NR_FDD_FR1_D, NR_TDD_FR1_D	-124.5	-120.5	
	NR_FDD_FR1_E, NR_TDD_FR1_E	-123	-120	
	NR_FDD_FR1_G	-122	-119	
	NR_FDD_FR1_H	-121.5	-118.5	
NOTE 1:NR operating band groups are defined in clause 3.5.2.				



Table B.2.5-2: Conditions for RRC connection release with redirection to NR in FR2

Parameter	Angle of arrival	NR operating bands	Minimum SSB_RP <sup>Note 2, Note 3</sup>				SSB Ês/lot	
			dBm / SCS <sub>SSB</sub>				dB	
			SCS <sub>SSB</sub> = 120 kHz			SCS <sub>SSB</sub> = 240 kHz		
			UE power class			UE power class		
			1	2	3	4		1, 2, 3, 4
Conditions	Rx Beam Peak	n257	- 126.3+Y <sub>1</sub>	-111.8	-110.1	- 125.8+Y <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-4
		n258	- 126.3+Y <sub>1</sub>	-111.8	-110.1	- 125.8+Y <sub>4</sub>		
		n260	- 123.3+Y <sub>1</sub>		- 107.5	- 123.8+Y <sub>4</sub>		
		n261	- 126.3+Y <sub>1</sub>	-111.8	-110.1	- 125.8+Y <sub>4</sub>		
	Spherical coverage <small>Note 1</small>	n257	- 118.3+Z <sub>1</sub>	- 100.8	-99.2	- 116.8+Z <sub>4</sub>	(Value for SCS <sub>SSB</sub> = 120 kHz) +3dB	≥-4
		n258	- 118.3+Z <sub>1</sub>	- 100.8	-99.2	- 116.8+Z <sub>4</sub>		
		n260	- 115.3+Z <sub>1</sub>		- 94.9	-111.8+Z <sub>4</sub>		
		n261	- 118.3+Z <sub>1</sub>	- 100.8	-99.2	- 116.8+Z <sub>4</sub>		

NOTE 1:Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.

NOTE 2: Values specified at the Reference point to give minimum SSB Ês/lot, with no applied noise.

NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ΔMB<sub>P,n</sub> and Spherical coverage values are increased by ΔMB<sub>S,n</sub>, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19].

Editor's notes for Table B.2.5.2-2:

- The value of Y for power classes 1 and 4 is FFS, where  $Y_1$  and  $Y_4$  are the rough/fine beam gain differences in Rx beam peak direction for power classes 1 and 4 respectively
- The value of Z for power classes 1 and 4 is FFS, where  $Z_1$  and  $Z_4$  are the rough/fine beam gain differences in spherical coverage directions for power classes 1 and 4 respectively

B.2.6 Void

B.2.6.1 Void

Table B.2.6.1-1: Void

Table B.2.6.1-2: Void

B.2.6.2 Void

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## B.3 RRM Requirements Exceptions

### B.3.1 Introduction

Annex B.3 covers exceptions for side conditions based on receiver sensitivity for CA, DC, and SUL.

### B.3.2 Receiver sensitivity relaxation for CA

#### B.3.2.1 Receiver sensitivity relaxation for UE supporting CA in FR1

For a UE supporting inter-band carrier aggregation configuration with uplink in NR band, if there is a relaxation of receiver sensitivity  $\Delta R_{IB,c} > 0$  dB as defined in clause 7.3A.3 of TS 38.101-1 [18], the relevant side conditions specifying received power levels (SSB\_RP and Io) shall be increased by the amount  $\Delta = \Delta R_{IB,c}$  defined for the corresponding downlink NR bands.

For a UE supporting CA configuration in FR1, the requirement in this clause applies for both SC and CA operation.

#### B.3.2.2 Receiver sensitivity relaxation for UE configured with CA in FR1

##### B.3.2.2.1 Inter-band carrier aggregation

For a UE configured with inter-band carrier aggregation with active uplink in NR band, if there is a relaxation of receiver sensitivity  $\Delta R_{IB,c} > 0$  dB as defined in clause 7.3A.3 of TS 38.101-1 [18], the relevant side conditions specifying received power levels (SSB\_RP and Io) shall be increased by the amount  $\Delta = \Delta R_{IB,c}$  defined for the corresponding downlink NR bands.

If the relaxation  $\Delta$  specified in this clause applies, then the relaxation specified in clause B.3.2.1 should not be applied.

##### B.3.2.2.2 Reference sensitivity exceptions due to UL harmonic interference for CA

In this clause, requirements exceptions are described for the UE configured with a band in FR1 when it is impacted by UL harmonic interference from another band in FR1 of the same CA configuration.

A relevant side condition (SSB\_RP and Io) in a requirement shall be increased by the amount  $\Delta=L_2-L_1$ , where  $L_1$  is the reference sensitivity level specified in clause 7.3.2 of TS 38.101-1 [18], and  $L_2$  is the reference sensitivity level based on the requirements in clause 7.3A.4 of TS 38.101-1 [18], when the following conditions are fulfilled,

- corresponding downlink component carriers on different NR bands are configured with CA and active,
- the uplink is configured in the NR low operating band and is active,
- the uplink configuration is as specified in clause 7.3A.4 of TS 38.101-1 [18], and
- the exception requirements specified in clause 7.3A.4 of TS 38.101-1 [18] apply.

If the relaxation  $\Delta$  specified in this clause applies, then the relaxation specified in clause B.3.2.1 should not be applied.

#### B.3.2.2.3 Reference sensitivity exceptions due to intermodulation interference due to 2UL CA

In this clause, requirements exceptions are described for the UE with an inter-band carrier aggregation with uplink assigned to two NR bands.

A relevant side condition (SSB\_RP and Io) in a requirement shall be increased by the amount  $\Delta=L_2-L_1$ , where  $L_1$  is the reference sensitivity level specified in clause 7.3.2 of TS 38.101-1 [18], and  $L_2$  is the reference sensitivity level based on the requirements in clause 7.3A.5 of TS 38.101-1 [18], when the following conditions are fulfilled,

- corresponding downlink component carriers on different bands are configured with CA and active,
- uplinks are assigned to two NR bands,
- the exception requirements specified in clause 7.3A.5 of TS 38.101-1 [18] apply.

If the relaxation  $\Delta$  specified in this clause applies, then the relaxation specified in clause B.3.2.1 should not be applied.

#### B.3.2.3 Receiver sensitivity relaxation for UE supporting CA in FR2

#### B.3.2.4 Receiver sensitivity relaxation for UE configured with CA in FR2

##### B.3.2.4.1 Intra-band contiguous carrier aggregation

For a UE configured with intra-band contiguous carrier aggregation in NR band in FR2, if there is a relaxation of receiver sensitivity  $\Delta R_{IB} > 0$  dB as defined in clause 7.3A.2.1 of TS 38.101-2 [19] depending on the aggregated channel bandwidth, the relevant side conditions specifying received power levels (SSB\_RP and Io) shall be increased by the amount  $\Delta = \Delta R_{IB}$  defined for the corresponding downlink NR bands.

#### B.3.2.4.2 Intra-band non-contiguous carrier aggregation

For a UE configured with intra-band non-contiguous carrier aggregation in NR band in FR2, if there is a relaxation of receiver sensitivity  $\Delta R_{IB} > 0$  dB as defined in clause 7.3A.2.1 of TS 38.101-2 [19] depending on the aggregated channel bandwidth, the relevant side conditions specifying received power levels (SSB\_RP and Io) shall be increased by the amount  $\Delta = \Delta R_{IB}$  defined for the corresponding downlink NR bands.

#### B.3.3 Receiver sensitivity relaxation for DC

##### B.3.3.1 Receiver sensitivity relaxation for EN-DC

Editor's note: TBD

##### B.3.3.2 Receiver sensitivity relaxation for NE-DC

Editor's note: TBD

#### B.3.4 Receiver sensitivity relaxation for SUL

##### B.3.4.1 Receiver sensitivity relaxation for UE supporting SUL in FR1

For a UE supporting a SUL configuration in FR1, if there is a relaxation of receiver sensitivity  $\Delta R_{IB,c} > 0$  dB as defined in clause 7.3C.3 of TS 38.101-1 [18], the relevant side conditions specifying received power levels (SSB\_RP and Io) shall be increased by the amount  $\Delta = \Delta R_{IB,c}$  defined for the corresponding downlink NR bands.

For a UE supporting a SUL configuration in FR1, the requirement in this clause applies for both SC and SUL operation.

##### B.3.4.2 Receiver sensitivity relaxation for UE configured with SUL in FR1

###### B.3.4.2.1 Reference sensitivity exceptions due to UL harmonic interference for SUL

In this clause, requirements exceptions are described for the UE with a band in FR1 when it is impacted by UL harmonic interference from another band in FR1 of the same SUL configuration.

A relevant side condition (SSB\_RP and Io) in a requirement shall be increased by the amount  $\Delta = L2 - L1$ , where L1 is the reference sensitivity level specified in clause 7.3.2 of TS 38.101-1 [18], and L2 is the reference sensitivity level based on the requirements in clause 7.3C.2 of TS 38.101-1 [18], when the following conditions are fulfilled,

- a downlink component carrier is configured in NR band and is active,
- the uplink is configured in the NR low operating band and is active,
- the uplink configuration is as specified in clause 7.3C.2 of TS 38.101-1 [18], and
- the exception requirements specified in clause 7.3C.2 of TS 38.101-1 [18] apply.

If the relaxation  $\Delta$  specified in this clause applies, then the relaxation specified in clause B.3.4.1 should not be applied.



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Annex C (informative):  
Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Ca t	Subject/Comment	New version
2017-05	RAN4 #83	R4-1706324				Specification skeleton	0.0.1
2017-09						Email approved	0.1.0
2017-09	RAN4-NR AH #3	R4-1709413				Capture TPs approved in the meeting	0.2.0
2017-10	RAN4 #84-Bis	R4-1711985				Capture TPs approved in the meeting	0.3.0
2017-12	RAN4 #85	R4-1714546				Capture TPs approved in RAN4#85	0.4.0
2017-12	RAN# 78	RP-172407				v1.0.0 submitted for plenary approval	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	0032		B	CR to TS38.133	15.1.0
2018-06	RAN# 80	RP-181075	0037		B	CR to TS 38.133: Implementation of endorsed draft CRs from RAN4 #86bis and RAN4 #87	15.2.0
2018-09	RAN# 81	RP-181896	0043		B	CR to TS 38.133: Implementation of endorsed draft CRs from RAN4-AH-1807 and RAN4 #88	15.3.0
2018-12	RAN# 82	RP-182763	0057	3	B	CR to TS 38.133: Implementation of endorsed draft CRs from RAN4-88bis and RAN4-89	15.4.0
2019-03	RAN# 83	RP-190569	0064	1	B	CR to TS 38.133: Implementation of endorsed draft CRs from RAN4#90	15.5.0
2019-06	RAN# 84	RP-191240	0072	1	F	CR to TS 38.133: Implementation of endorsed draft CRs from RAN4#90bis and RAN4#91	15.6.0
2019-09	RAN# 85	RP-192022	0084		F	CR to TS 38.133: Implementation of endorsed draft CRs from RAN4#92 (Rel-15)	15.7.0
2019-12	RAN# 86	RP-193039	0089		F	Correction to the starting point of the DRX cycle length interval	15.8.0
2019-12	RAN# 86	RP-193042	0090		F	CR to 38.133 R15 Add the missing units to DRX cycle values	15.8.0
2019-12	RAN# 86	RP-192997	0092	1	F	Specification of UE antenna gain range	15.8.0

2019-12	RAN# 86	RP-192992	0094		F	Add RRM Test case setup for 1 AoA in Rx beam peak and 1 in non Rx beam peak	15.8.0
2019-12	RAN# 86	RP-192997	0096		F	Update of Parameters, Test case A.7.7.1.1 FR2 Intra-frequency SS-RSRP accuracy	15.8.0
2019-12	RAN# 86	RP-192997	0098		F	Update of Parameters, Test case A.5.7.1.1 FR2 Intra-frequency SS-RSRP accuracy	15.8.0
2019-12	RAN# 86	RP-192997	0100		F	Update of Parameters, Test case A.7.7.1.2 FR2 Inter-frequency SS-RSRP accuracy	15.8.0
2019-12	RAN# 86	RP-192997	0102		F	Update of Parameters, Test case A.5.7.1.2 FR2 Inter-frequency SS-RSRP accuracy	15.8.0
2019-12	RAN# 86	RP-192992	0104		F	Correction to Random access test case in FR1 for PSCell in EN-DC	15.8.0
2019-12	RAN# 86	RP-193040	0106		F	CR on handover 38.133	15.8.0
2019-12	RAN# 86	RP-192994	0108		F	CR on the BWP switch test cases EN-DC FR1 (clause A.4.5.6)	15.8.0
2019-12	RAN# 86	RP-192994	0109		F	CR on the BWP switch test cases EN-DC FR2 (clause A.5.5.6)	15.8.0
2019-12	RAN# 86	RP-192994	0110		F	CR on the BWP switch test cases SA FR1 (clause A.6.5.6)	15.8.0
2019-12	RAN# 86	RP-192994	0111		F	CR on the BWP switch test cases SA FR2 (clause A.7.5.6)	15.8.0
2019-12	RAN# 86	RP-193042	0116		F	CR to TS38.133 on correction for BWP switching with SCS changing (Clause 8.2.1.2.7, 8.2.2.2.5 and 8.6.2)	15.8.0
2019-12	RAN# 86	RP-193040	0120		F	CR on handover RRM requirement (clause 6.1.1.5) (R15)	15.8.0
2019-12	RAN# 86	RP-192994	0122		F	CR on test cases for EN-DC FR2 inter-frequency measurement (clause A.5.6.2) (R15)	15.8.0
2019-12	RAN# 86	RP-192994	0126		F	CR on test cases for Redirection from NR in FR2 to NR in FR2 (clause A.7.3.2.3) (R15)	15.8.0
2019-12	RAN# 86	RP-192994	0128		F	CR on test cases for FR2 handover (clause A.7.3.1) (R15)	15.8.0
2019-12	RAN# 86	RP-193042	0130		F	CR to 38.133 on TCI state switching (Clause 8.10) (R15)	15.8.0
2019-12	RAN# 86	RP-192994	0136		F	CR on TC with monitoring PDCCH not in first 3 OFDM symbols R15	15.8.0
2019-12	RAN# 86	RP-193042	0144		F	Editorial correction for SCell activation and deactivation delay	15.8.0
2019-12	RAN# 86	RP-193040	0147		F	CR on inter-RAT measurement in TS38.133 (clause 9.4.2, 9.4.3)	15.8.0
2019-12	RAN# 86	RP-193041	0155		F	CR on NR MTTD and MRTD definition for R15	15.8.0



2019-12	RAN# 86	RP-193039	0158		F	CR for SCell activation delay in FR2	15.8.0
2019-12	RAN# 86	RP-193040	0160		F	CR for scheduling restriction due to L1-RSRP measurement	15.8.0
2019-12	RAN# 86	RP-192993	0166	1	F	CR on SSB setting for new gap and SMTC setting (Clause A.3.10)	15.8.0
2019-12	RAN# 86	RP-192995	0168		F	CR on TS38.133 for EN-DC SS-SINR tests with PSCell in FR1 (Clause A.4.7.3)	15.8.0
2019-12	RAN# 86	RP-192995	0170		F	CR on TS38.133 for SA SS-SINR tests with PCell in FR1 (Clause A.6.7.3)	15.8.0
2019-12	RAN# 86	RP-192993	0184		F	CR on cell-reselection test cases for NR SA FR2 R15	15.8.0
2019-12	RAN# 86	RP-192995	0186		F	endorsed CR on intra-frequency measurement and reporting for EN-DC FR2 R15	15.8.0
2019-12	RAN# 86	RP-192996	0188		F	endorsed CR on intra-frequency measurement and reporting for NR SA FR2 R15	15.8.0
2019-12	RAN# 86	RP-192996	0190		F	endorsed CR on RLM scheduling restrictions for EN-DC FR2 R15	15.8.0
2019-12	RAN# 86	RP-192996	0192		F	endorsed CR on RLM scheduling restrictions for NR SA FR2 R15	15.8.0
2019-12	RAN# 86	RP-192992	0200	1	F	Correction to PRACH configuration index in test cases	15.8.0
2019-12	RAN# 86	RP-193039	0208		F	Correction on the TCI state switching (clause 8.10)	15.8.0
2019-12	RAN# 86	RP-193039	0214	1	F	CR for 38133 editorial for clause 8.1,8.8,8.9,8.10,8.11 in Rel-15	15.8.0
2019-12	RAN# 86	RP-193039	0215	1	F	CR for 38133 editorial for clause 8.5 in Rel-15	15.8.0
2019-12	RAN# 86	RP-193039	0216	1	F	CR for 38133 editorial for clause 9.3 in Rel-15	15.8.0
2019-12	RAN# 86	RP-193040	0217	1	F	CR on 38133 for removal the duplicated reference in clause 2	15.8.0
2019-12	RAN# 86	RP-193040	0218	1	F	CR on 38133 for clause 11 in Rel-15	15.8.0
2019-12	RAN# 86	RP-192994	0224	2	F	CR on TC of UE transmit timing (A.4.4.1.1, A.5.4.1.1, A.6.4.1.1, A.7.4.1.1) Rel-15	15.8.0
2019-12	RAN# 86	RP-193042	0229	1	F	Update on requirements related to inter-band EN-DC and NE-DC synchronous requirements	15.8.0
2019-12	RAN# 86	RP-192995	0232	1	F	Editorial corrections to measurement accuracy tests	15.8.0

2019-12	RAN# 86	RP-192992	023 4		F	Corrections to SS-RSRQ and SS-SINR OTA tests with SA	15.8.0
2019-12	RAN# 86	RP-192992	023 6		F	Corrections to SS-RSRQ and SS-SINR OTA tests with EN-DC	15.8.0
2019-12	RAN# 86	RP-193042	023 8	1	F	Editorial corrections to clause 9.2	15.8.0
2019-12	RAN# 86	RP-192992	024 1		F	Corrections to band applicability of measurement accuracy tests	15.8.0
2019-12	RAN# 86	RP-192996	024 3	1	F	Introduction of bandwidth limited OCNG for OTA testing	15.8.0
2019-12	RAN# 86	RP-192992	024 7	1	F	Corrections to test cases for SA FR2 inter-frequency measurement (clause A.7.6.2)	15.8.0
2019-12	RAN# 86	RP-193041	024 9		F	CR to 38.133 NR reporting criteria	15.8.0
2019-12	RAN# 86	RP-192993	026 3	1	F	CR on correcting CSI-RS based BFD and link recovery tests for EN-DC in FR1	15.8.0
2019-12	RAN# 86	RP-192993	026 5	1	F	CR on correcting CSI-RS based BFD and link recovery tests for SA in FR1	15.8.0
2019-12	RAN# 86	RP-192993	026 7	1	F	CR on correcting CSI-RS based BFD and link recovery tests for EN-DC in FR2	15.8.0
2019-12	RAN# 86	RP-192993	026 9	1	F	CR on correcting CSI-RS based BFD and link recovery tests for SA in FR2	15.8.0
2019-12	RAN# 86	RP-193040	027 5	1	F	CR on delay uncertainty of RRC Release with redirection requirements in TS 38.133	15.8.0
2019-12	RAN# 86	RP-193040	027 7	1	F	CR on known condition of PSCell addition requirement in NE-DC	15.8.0
2019-12	RAN# 86	RP-193041	027 9	1	F	CR on known condition of PSCell addition requirement in NR DC	15.8.0
2019-12	RAN# 86	RP-193041	028 1	1	F	CR on RRC Re-establishment requirements in TS 38.133	15.8.0
2019-12	RAN# 86	RP-193041	028 3	2	F	CR on scope of interruption requirements of EN-DC in TS 38.133	15.8.0
2019-12	RAN# 86	RP-193041	028 5	1	F	CR on scope of MTTD requirements in TS 38.133	15.8.0
2019-12	RAN# 86	RP-192994	028 7	1	F	CR on SSB-based RLM test case for EN-DC FR1	15.8.0
2019-12	RAN# 86	RP-192994	028 9	1	F	CR on SSB-based RLM test case for NR SA FR1	15.8.0
2019-12	RAN# 86	RP-193042	029 1	1	F	Editorial CR on clause 8.2	15.8.0
2019-12	RAN# 86	RP-193041	029 5	1	F	CR on NR inter-frequency identification	15.8.0
2019-12	RAN# 86	RP-193041	029 7	1	F	CR on NR intra-frequency measurements	15.8.0

2019-12	RAN# 86	RP-193039	0311	1	F	Correction on CSSF within measurement gap (clause 9.1.5.2)	15.8.0
2019-12	RAN# 86	RP-193041	0313		F	CR on RLM scheduling restriction (clause 8.1.7)	15.8.0
2019-12	RAN# 86	RP-193041	0315	1	F	CR on SCell activation requirements (clause 8.3.2)	15.8.0
2019-12	RAN# 86	RP-193042	0317		F	CR to add QCL definition (clause 3.6)	15.8.0
2019-12	RAN# 86	RP-192993	0319		F	CR on power offset in TRS RMC (A.3.17)	15.8.0
2019-12	RAN# 86	RP-192995	0321		F	CR to introduce new PDCCH RMC (A.3.1.3.2)	15.8.0
2019-12	RAN# 86	RP-192997	0323		F	Maintenance CR for measurement accuracy (clause 10.1)	15.8.0
2019-12	RAN# 86	RP-192996	0325		F	FR1 CSI-RS RLM test OOS/IS non-DRX for EN-DC (clause A.4.5.1)	15.8.0
2019-12	RAN# 86	RP-192996	0327	1	F	FR2 CSI-RS RLM test OOS/IS non-DRX for EN-DC (clause A.4.5.1)	15.8.0
2019-12	RAN# 86	RP-192996	0329		F	FR1 CSI-RS RLM test OOS/IS non-DRX for SA (clause A.6.5.1)	15.8.0
2019-12	RAN# 86	RP-192996	0331	1	F	FR2 CSI-RS RLM test OOS/IS non-DRX for SA (clause A.6.5.1)	15.8.0
2019-12	RAN# 86	RP-192997	0333	1	F	L1-RSRP delay test FR1 EN-DC (clause A.4.6.3)	15.8.0
2019-12	RAN# 86	RP-192997	0335		F	L1-RSRP delay test FR2 EN-DC (clause A.5.6.3)	15.8.0
2019-12	RAN# 86	RP-192997	0337	1	F	L1-RSRP delay test FR1 SA (clause A.6.6.4)	15.8.0
2019-12	RAN# 86	RP-192997	0339		F	L1-RSRP delay test FR2 SA (clause A.7.6.3)	15.8.0
2019-12	RAN# 86	RP-192996	0343		F	L1-RSRP accuracy test FR2 EN-DC (clause A.5.7.4)	15.8.0
2019-12	RAN# 86	RP-192996	0345		F	L1-RSRP accuracy test FR2 SA (clause A.7.7.4)	15.8.0
2019-12	RAN# 86	RP-193039	0357		F	CR 38.133 (8.3.2) Amendment of requirements depending on T_SMTTC_Max	15.8.0
2019-12	RAN# 86	RP-193039	0359		F	CR 38.133 (8.3.3) Correction of SCell deactivation delay	15.8.0
2019-12	RAN# 86	RP-192992	0361		F	CR 38.133 (A.7.5.7) TCs for PSCell addition and release delay	15.8.0
2019-12	RAN# 86	RP-192995	0365		F	CR to TS 38.133: New common clause with OTA related definitions for FR2 testing (Rel-15)	15.8.0

2019-12	RAN# 86	RP-192995	0367		F	CR to TS 38.133: Configuration of NR FR1 cell in NR FR1-FR2 tests (Rel-15)	15.8.0
2019-12	RAN# 86	RP-192995	0369		F	CR to TS 38.133: Clarifications to Antenna Configurations for FR2 (Rel-15)	15.8.0
2019-12	RAN# 86	RP-192995	0371		F	CR to TS 38.133: Corrections to CORESET RMCs (Rel-15)	15.8.0
2019-12	RAN# 86	RP-192995	0373		F	CR to TS 38.133: Corrections to FR2 test configurations (Rel-15)	15.8.0
2019-12	RAN# 86	RP-193042	0375	1	F	Editorial updates (clause 9.4)	15.8.0
2019-12	RAN# 86	RP-193039	0377	1	F	Correction in interruption requirements (clause 8.2)	15.8.0
2019-12	RAN# 86	RP-193042	0379	1	F	Editorial updates (Annex B)	15.8.0
2019-12	RAN# 86	RP-193040	0381		F	CR on 38.133 for MRTD and MTTD in intra-band EN-DC	15.8.0
2019-12	RAN# 86	RP-192992	0384	1	F	CR for MAC-CE based TCI State switch for ENDC (Clause A.5.5.8)	15.8.0
2019-12	RAN# 86	RP-192993	0385	1	B	CR for MAC-CE based TCI State switch for NR SA (Clause A.7.5.7)	15.8.0
2019-12	RAN# 86	RP-192993	0386	1	B	CR for RRC based TCI State switch for NR SA (Clause A.7.5.7)	15.8.0
2019-12	RAN# 86	RP-192993	0387	1	F	CR for RRC based TCI State switch for EN-DC (Clause A.5.5.8)	15.8.0
2019-12	RAN# 86	RP-192992	0388	1	F	CR for FR1 handover test cases (Clause A.6.3.1.1, A.6.3.1.2, A.6.3.1.3)	15.8.0
2019-12	RAN# 86	RP-193041	0389	1	F	CR on MTTD for intra-band EN-DC	15.8.0
2019-12	RAN# 86	RP-193040	0397		F	CR on corrections on NR intra frequency measurement reporting requirements (Clause 9.2.4)	15.8.0
2020-03	RAN# 87	RP-200400	0404	1	F	[CR] handover requirements 38.133 R15	15.9.0
2020-03	RAN# 87	RP-200400	0411	1	F	[CR] SCell activation delay 38.133 R15	15.9.0
2020-03	RAN# 87	RP-200400	0416		F	Corrections to RRM Test case A.7.1.1.2	15.9.0
2020-03	RAN# 87	RP-200400	0418		F	Correction to Active UL BWP for SA intra-frequency event triggered reporting with per-UE gaps	15.9.0
2020-03	RAN# 87	RP-200400	0420		F	Correction to FR1-E-UTRA Inter-RAT cell re-selection test cases	15.9.0
2020-03	RAN# 87	RP-200400	0422		F	Removal of Time offset between PCell and PSCell in SA RRM Test cases	15.9.0

2020-03	RAN# 87	RP-200400	0424		F	Correction to SRS periodicity and Offset for UL transit timing with DRx config	15.9.0
2020-03	RAN# 87	RP-200400	0426		F	Update of Test Requirements, FR2 Intra-frequency SS-RSRP accuracy Test cases	15.9.0
2020-03	RAN# 87	RP-200400	0428		F	Update of Test requirements, FR2 Inter-frequency SS-RSRP accuracy Test cases	15.9.0
2020-03	RAN# 87	RP-200484	0438	2	F	CR on test cases for SA FR2 inter-frequency measurement R15 (section A.7.6.2)	15.9.0
2020-03	RAN# 87	RP-200400	0444	1	F	Editorial corrections for 38.133 Perf Part R15	15.9.0
2020-03	RAN# 87	RP-200400	0446		F	Editorial corrections for 38.133 Core Part R15	15.9.0
2020-03	RAN# 87	RP-200400	0453		F	Editorial correction for active TCI state switching delay	15.9.0
2020-03	RAN# 87	RP-200400	0461	1	F	Corrections for BWP switch delay R15	15.9.0
2020-03	RAN# 87	RP-200400	0463		F	CR for reference correction on L1-RSRP measurement period (section 9.5.3)	15.9.0
2020-03	RAN# 87	RP-200400	0465		F	CR for measurement restriction in FR2 across CCs (section 8.1.2.3, 8.1.3.3, 8.5.2.3, 8.5.3.3, 8.5.5.3, 8.5.6.3, 9.5.5.1, 9.5.5.2)	15.9.0
2020-03	RAN# 87	RP-200400	0467		F	CR for SSB based candidate beam detection (section 8.5.5.2)	15.9.0
2020-03	RAN# 87	RP-200400	0487		F	CR to TS 38.133: Corrections to FR1-FR2 event triggered test cases Annex A.5 (Rel-15)	15.9.0
2020-03	RAN# 87	RP-200400	0489		F	CR to TS 38.133: Corrections to FR1-FR2 event triggered test cases Annex A.7 (Rel-15)	15.9.0
2020-03	RAN# 87	RP-200400	0491		F	CR to TS 38.133: Clarifications to AoA setup and AoA cell assignment Annex A.5 (Rel-15)	15.9.0
2020-03	RAN# 87	RP-200400	0493		F	CR to TS 38.133: Clarifications to AoA setup Annex A.8 (Rel-15)	15.9.0
2020-03	RAN# 87	RP-200400	0495		F	CR to TS 38.133: Addition of TC A.4.7.2.2 (Rel-15)	15.9.0
2020-03	RAN# 87	RP-200400	0499		F	Editorial correction of EN-DC FR1 L1-RSRP measurement for beam reporting	15.9.0
2020-03	RAN# 87	RP-200400	0501		F	Editorial correction of NR SA FR1 L1-RSRP measurement for beam reporting	15.9.0
2020-03	RAN# 87	RP-200400	0508		F	CR on removing one-shot timing adjustment requirements	15.9.0
2020-03	RAN# 87	RP-200400	0515	1	F	Correction to BWP switching delay	15.9.0

2020-03	RAN# 87	RP-200400	0517	1	F	Correction to inter-RAT measurement on LTE serving carrier	15.9.0
2020-03	RAN# 87	RP-200400	0519	1	F	Correction to configurations for TRS	15.9.0
2020-03	RAN# 87	RP-200400	0521		F	Correction to FR1 SA inter-RAT measurement TCs  NOTE The CR is not implemented because the changes in this CR were already implemented in the latest version of the specification.	15.9.0
2020-03	RAN# 87	RP-200400	0523		F	Correction to interruption TCs  NOTE The CR is not implemented because some parts of changes in the CR were already implemented in the latest version of the specification.	15.9.0
2020-03	RAN# 87	RP-200400	0527		F	Correction to RF channels configuration	15.9.0
2020-03	RAN# 87	RP-200400	0529		F	Correction to RRC release with redirection TCs	15.9.0
2020-03	RAN# 87	RP-200400	0531		F	Correction to UL reconfiguration delay TCs	15.9.0
2020-03	RAN# 87	RP-200400	0537		F	CR on SSB RLM test cases EN-DC R15	15.9.0
2020-03	RAN# 87	RP-200400	0539		F	CR on SSB RLM test cases SA R15	15.9.0
2020-03	RAN# 87	RP-200400	0541		F	CR on cell reselection test cases for FR2 SA R15	15.9.0
2020-03	RAN# 87	RP-200400	0543		F	OCNG pattern for TDM-ed SSB R15	15.9.0
2020-03	RAN# 87	RP-200400	0563		F	NR editorial correction	15.9.0
2020-03	RAN# 87	RP-200400	0579	1	F	CR 38.133 (8.11) Corrections to PSCell change delay requirements	15.9.0
2020-03	RAN# 87	RP-200400	0586		F	PRACH configurations in FR1 SSB based RLM tests	15.9.0
2020-03	RAN# 87	RP-200400	0588		F	PRACH configurations in FR1 SSB based BFR tests	15.9.0
2020-06	RAN# 88	RP-200987	0594	1	F	[CR] Editorial corrections for 38.133 R15 Core Part	15.10.0

2020-06	RAN# 88	RP-200987	0597	1	F	[CR] Editorial corrections for 38.133 R15 Perf Part	15.10.0
2020-06	RAN# 88	RP-200987	0601	1	F	CR to Intra-frequency handover from FR1 to FR1	15.10.0
2020-06	RAN# 88	RP-200987	0605		F	CR to A.6.1.2.1 Cell reselection to higher priority E-UTRAN	15.10.0
2020-06	RAN# 88	RP-200987	0607		F	Correction to General test parameters in A.6.6.1.2	15.10.0
2020-06	RAN# 88	RP-200987	0619	1	F	CR on CSSF correction for R15 TS38.133	15.10.0
2020-06	RAN# 88	RP-200987	0628	1	F	CR on Active TCI State Switching requirements - Rel15	15.10.0
2020-06	RAN# 88	RP-200988	0633	2	F	Rapporteur CR for TS38.133	15.10.0
2020-06	RAN# 88	RP-200987	0650		F	Add UE Beam assumption for RRM Test cases in A.7.3, A.7.4, A.7.7	15.10.0
2020-06	RAN# 88	RP-200987	0652		F	Add UE Beam assumption for RRM Test cases in A.5.3, A.5.4, A.5.7	15.10.0
2020-06	RAN# 88	RP-200987	0654		F	Update of FR2 RLM Test cases with 2 Angles of Arrival	15.10.0
2020-06	RAN# 88	RP-200987	0656		F	Update of Tx Timing Test cases	15.10.0
2020-06	RAN# 88	RP-200987	0658		F	Update of FR2 RLM and BFD-LR Test cases	15.10.0
2020-06	RAN# 88	RP-200987	0660		F	Update of FR2 SS-RSRP Test cases	15.10.0
2020-06	RAN# 88	RP-200987	0662	1	F	CR on TCI state switch	15.10.0
2020-06	RAN# 88	RP-200987	0664		F	CR on PDSCH RMC	15.10.0
2020-06	RAN# 88	RP-200987	0679		F	Correction of CFRA RSRP threshold	15.10.0
2020-06	RAN# 88	RP-200987	0695	1	F	CR on SMTC period for beam management requirements	15.10.0
2020-06	RAN# 88	RP-200987	0697		F	CR for CSI-RS based L1-RSRP measurement period	15.10.0
2020-06	RAN# 88	RP-200987	0699		F	CR on RACH test cases with CSI-RS resource R15	15.10.0
2020-06	RAN# 88	RP-200987	0703		F	CR on TS38.133 for modification of the layer 3 and layer 1 measurement sharing factor when both SSB and RSSI symbol to be measured are considered	15.10.0

2020-06	RAN# 88	RP-200987	0705		F	CR on TS38.133 for modification on number of cells and number of SSB to be measured for FR2 intra-frequency measurement	15.10.0
2020-06	RAN# 88	RP-200987	0707	1	F	[CR] TCI state switch delay 38.133 R15	15.10.0
2020-06	RAN# 88	RP-200987	0714		F	Correction of NR SA FR2 inter-freq measurement reporting	15.10.0
2020-06	RAN# 88	RP-200987	0726		F	CR: Correction of L1-RSRP measurement period	15.10.0
2020-06	RAN# 88	RP-200987	0728	1	F	CR to TS 38.133: Correction to CSI-RS configurations in A.3.14 (Rel-15)	15.10.0
2020-06	RAN# 88	RP-200987	0730		F	CR to TS 38.133: Correction to SMTC configuration in measurement accuracy tests (Rel-15)	15.10.0
2020-06	RAN# 88	RP-200987	0732		F	CR to TS 38.133: Clarifications to AoA setup Annex A.5 (Rel-15)	15.10.0
2020-06	RAN# 88	RP-200987	0734		F	CR to TS 38.133: Clarifications to AoA setup Annex A.7 (Rel-15)	15.10.0
2020-06	RAN# 88	RP-200987	0737	1	F	Applicability of QCL	15.10.0
2020-06	RAN# 88	RP-200987	0747	1	F	CR on Psharingfactor	15.10.0
2020-06	RAN# 88	RP-200987	0749	1	F	CR on E-UTRAN Serving Cell Parameters	15.10.0
2020-06	RAN# 88	RP-200987	0751	1	F	CR on Modified parameters for BFD TCs with 4Rx antenna	15.10.0
2020-06	RAN# 88	RP-200987	0753	1	F	CR on BFD TCs	15.10.0
2020-06	RAN# 88	RP-200987	0755	1	F	CR on UL carrier RRC reconfiguration Delay TC	15.10.0
2020-06	RAN# 88	RP-200987	0757	1	F	CR to FR1 SCell activation delay test cases	15.10.0
2020-06	RAN# 88	RP-200987	0759	1	F	CR to inter-frequency measurement TCs	15.10.0
2020-06	RAN# 88	RP-200987	0761	1	F	CR to interruption TCs	15.10.0
2020-06	RAN# 88	RP-200987	0776		F	CR on interruption due to Active BWP switch	15.10.0
2020-06	RAN# 88	RP-200987	0780		F	CR on UE transmit timing	15.10.0
2020-06	RAN# 88	RP-200987	0782		F	Editorial CR on TS 38.133 Rel-15	15.10.0
2020-06	RAN# 88	RP-200987	0784		F	CR on RRC Connection Release with Redirection test cases	15.10.0



2020-06	RAN# 88	RP-200987	0786		F	CR on RRC Re-establishment test cases	15.10.0
2020-06	RAN# 88	RP-200987	0788		F	CR on Timing advance test cases for EN-DC	15.10.0
2020-06	RAN# 88	RP-200987	0790		F	CR on Timing test cases for NR SA	15.10.0
2020-06	RAN# 88	RP-200987	0798		F	Correction on TCI state switching R15	15.10.0
2020-06	RAN# 88	RP-200987	0800		F	Accuracy of carrier aggregation in NR R15	15.10.0
2020-06	RAN# 88	RP-200987	0812		F	CR 38.133 (8.10.5) Corrections to RRC-based TCI state change	15.10.0
2020-06	RAN# 88	RP-200987	0815	2	F	CR 38.133 (8.3.2) Corrections to SCell Activation delay requirements	15.10.0
2020-06	RAN# 88	RP-200987	0820		F	CR on FR2 measurement requirements outside gaps R15	15.10.0
2020-06	RAN# 88	RP-200987	0822		F	CR on inter-RAT RSTD requirements for NE-DC in 38.133 R15	15.10.0
2020-06	RAN# 88	RP-200987	0824	1	F	CR on SCell activation requirements R15	15.10.0
2020-06	RAN# 88	RP-200987	0826		F	CR on SSB based L1-RSRP measurement R15	15.10.0
2020-06	RAN# 88	RP-200987	0828		F	CR on L1-RSRP delay tests for FR2 R15	15.10.0
2020-06	RAN# 88	RP-200987	0830		F	CR to L1-RSRP accuracy TC for FR2 EN-DC R15	15.10.0
2020-06	RAN# 88	RP-200987	0832		F	CR to L1-RSRP accuracy TC for FR2 SA R15	15.10.0
2020-06	RAN# 88	RP-200987	0834		F	CR to TCI state switch TC R15	15.10.0
2020-06	RAN# 88	RP-200987	0866		F	Clarification on RLM	15.10.0
2020-09	RAN# 89	RP-201512	0888		F	CR to Redirection from NR in FR1 to E-UTRAN	15.11.0
2020-09	RAN# 89	RP-201512	0890		F	CR to timing advance adjustment accuracy in FR1	15.11.0
2020-09	RAN# 89	RP-201512	0894		F	CR to SS-RSRQ Intra-Frequency and Inter-frequency FR1 measurement accuracy	15.11.0
2020-09	RAN# 89	RP-201512	0896		F	Update to FR2 240kHz SSB Configurations	15.11.0
2020-09	RAN# 89	RP-201512	0898		F	Update of FR2 Random Access Test cases	15.11.0
2020-09	RAN# 89	RP-201512	0900		F	Update to FR2 event-triggered reporting RRM Test cases in A.5.6 and A.7.6	15.11.0

2020-09	RAN# 89	RP-201512	0902		F	Update to FR2 SS-RSRP RRM Test cases in A.5.7 and A.7.7	15.11.0
2020-09	RAN# 89	RP-201512	0904		F	CR to EN-DC timing advance adjustment accuracy in FR2	15.11.0
2020-09	RAN# 89	RP-201512	0906		F	CR to configuration of CSI-RS for tracking	15.11.0
2020-09	RAN# 89	RP-201512	0908	1	F	Update of RRC-based Active BWP Switch test cases	15.11.0
2020-09	RAN# 89	RP-201512	0910		F	Update to FR2 Annex B RRM side conditions	15.11.0
2020-09	RAN# 89	RP-201512	0912		F	Add UE Beam assumption for RRM Test cases in A.5.5	15.11.0
2020-09	RAN# 89	RP-201512	0921		F	Add UE Beam assumption for RRM Test cases in A.7.5 Rel-15	15.11.0
2020-09	RAN# 89	RP-201512	0932		F	CR for TS38.133 Rel-15, Correction for RRM core requirements	15.11.0
2020-09	RAN# 89	RP-201512	0934	1	F	CR for TS38.133 Rel-15, Correction for test cases of BWP switching	15.11.0
2020-09	RAN# 89	RP-201512	0945	1	F	CR on TS38.133 for handover test cases	15.11.0
2020-09	RAN# 89	RP-201512	0947		F	CR on TS38.133 for introducing the PDSCH RMC configuration in cell re-selection test cases	15.11.0
2020-09	RAN# 89	RP-201512	0955	1	F	CR on FR2 measurement capability for R15	15.11.0
2020-09	RAN# 89	RP-201512	0962		F	CR on Inter-RAT RSTD measurements (section 9.4.4)	15.11.0
2020-09	RAN# 89	RP-201512	0964	1	F	CR on active BWP switch in R15	15.11.0
2020-09	RAN# 89	RP-201512	0985		F	CR for SCell activation delay in FR2 in R15	15.11.0
2020-09	RAN# 89	RP-201512	0987	1	F	CR on TCI state switch delay in R15	15.11.0
2020-09	RAN# 89	RP-201512	1002	1	F	Fine/rough beam assumption for idle mode and measurement procedure test case	15.11.0
2020-09	RAN# 89	RP-201512	1022		F	Clarification of SNR values in RLM Test cases	15.11.0
2020-09	RAN# 89	RP-201512	1024		F	CR to TS 38.133: Corrections to CSI-RS configurations in A.3.14 (Rel-15)	15.11.0
2020-09	RAN# 89	RP-201512	1026		F	CR to TS 38.133: Corrections to event triggered test cases (Rel-15)	15.11.0
2020-09	RAN# 89	RP-201512	1028		F	CR to TS 38.133: Corrections to inter-RAT test cases (Rel-15)	15.11.0

2020-09	RAN# 89	RP-201512	1030		F	CR to TS 38.133: Corrections to AoA setup information in some test cases (Rel-15)	15.11.0
2020-09	RAN# 89	RP-201512	1032	1	F	CR on maintaining handover tests in Rel-15	15.11.0
2020-09	RAN# 89	RP-201512	1047	1	F	CR on reporting criteria for EN-DC in 38.133 R15	15.11.0
2020-09	RAN# 89	RP-201512	1049	1	F	CR on test cases for Active TCI state switch delay R15	15.11.0
2020-09	RAN# 89	RP-201512	1051	1	F	Addition of new default configurations for RMC scheduling	15.11.0
2020-09	RAN# 89	RP-201512	1053	1	F	Correction to beam failure detection and link recovery test cases	15.11.0
2020-09	RAN# 89	RP-201512	1055	1	F	Correction to BWP switching delay test cases	15.11.0
2020-09	RAN# 89	RP-201512	1057		F	Correction to FR1 intra-frequency measurement with gap test cases	15.11.0
2020-09	RAN# 89	RP-201512	1059	1	F	Correction to inter-RAT HO test cases	15.11.0
2020-09	RAN# 89	RP-201512	1069		F	CR on correction to CSSF within gap R15	15.11.0
2020-09	RAN# 89	RP-201512	1071	1	F	CR on SCell activation requirements R15	15.11.0
2020-09	RAN# 89	RP-201512	1073	1	F	CR on BWP switching delay requirements R15	15.11.0
2020-09	RAN# 89	RP-201512	1074	1	F	CR on UL BWP configuration for RRM test cases R15	15.11.0
2020-09	RAN# 89	RP-201512	1076	1	F	CR to add UE beam assumption for TC in A.5.6 R15	15.11.0
2020-09	RAN# 89	RP-201512	1096	1	F	CR to 38.133: Correction to RRC basd BWP switch delay requirements	15.11.0
2020-09	RAN# 89	RP-201512	1098	1	F	CR to 38.133: Correction to interruption requirements for per-FR gap in FR2	15.11.0
2020-09	RAN# 89	RP-201512	1110		F	[CR] Replacing x in references with correct numbers (Core R15 Cat F)	15.11.0
2020-09	RAN# 89	RP-201512	1112		F	[CR] Replacing x in references with correct numbers (Perf R15 Cat F)	15.11.0
2020-12	RAN# 90	RP-202487	1118	1	F	RB allocation and Noc level in RLM Test cases	15.12.0
2020-12	RAN# 90	RP-202487	1120		F	Update FR2 event-triggered reporting Test cases in A.5.6, A.7.6	15.12.0
2020-12	RAN# 90	RP-202487	1122		F	240kHz SSB SCS Configuration for FR2 SS-RSRP Test cases	15.12.0
2020-12	RAN# 90	RP-202487	1124	1	F	Correct UE beam assumption for Test Cases in A.5.6	15.12.0

2020-12	RAN# 90	RP-202487	1126	1	F	Aggregation level of CORESET for RMC scheduling	15.12.0
2020-12	RAN# 90	RP-202487	1128		F	Clarify FR1 NSA SS-SINR measurement TCs	15.12.0
2020-12	RAN# 90	RP-202487	1130		F	FR1 Inter-frequency Event triggered Reporting tests in DRX	15.12.0
2020-12	RAN# 90	RP-202487	1132		F	E-UTRAN	15.12.0
2020-12	RAN# 90	RP-202486	1145	1	F	CR on CSI-RS BW condition for BFD/CBD R15	15.12.0
2020-12	RAN# 90	RP-202486	1147	1	F	CR on AP-CSI-RS based L1-RSRP measurement R15	15.12.0
2020-12	RAN# 90	RP-202487	1159		F	CR on TS38.133 for cell activation and deactivation test case	15.12.0
2020-12	RAN# 90	RP-202487	1161	4	F	CR on TS38.133 for cell reselection test case	15.12.0
2020-12	RAN# 90	RP-202487	1163	1	F	Correction of active BWP switch test case	15.12.0
2020-12	RAN# 90	RP-202487	1167		F	CR for TS38.133 Rel-15, Correction for RRM core and test cases	15.12.0
2020-12	RAN# 90	RP-202486	1195		F	CR on carrier frequency range of PCell/PSCell for the maximum number of RLM-RS resources	15.12.0
2020-12	RAN# 90	RP-202486	1201	1	F	CR on MO merge in R15	15.12.0
2020-12	RAN# 90	RP-202487	1208	1	F	Correction on beamFailureInstanceMaxCount for test case of availability restriction during FR2 BFR in R15	15.12.0
2020-12	RAN# 90	RP-202487	1215		F	Correction of RRM tests	15.12.0
2020-12	RAN# 90	RP-202487	1224		F	Correction to types of requirements in annex A	15.12.0
2020-12	RAN# 90	RP-202487	1226	1	F	Corrections to frequency range in interfrequency measurement procedures tests	15.12.0
2020-12	RAN# 90	RP-202487	1229		F	Correction on TBD values in FR1+FR2 interfrequency RSRP accuracy tests	15.12.0
2020-12	RAN# 90	RP-202486	1231		F	Addition of symbol definitions	15.12.0
2020-12	RAN# 90	RP-202487	1235	1	F	Square bracket removal in 38.133 section A.1 to A.5	15.12.0
2020-12	RAN# 90	RP-202487	1237	1	F	Square bracket removal in 38.133 section A.6 to A.8	15.12.0

2020-12	RAN# 90	RP-202486	1251	1	F	CR to TS 38.133 on DCI based BWP switch requirements applicability	15.12.0
2020-12	RAN# 90	RP-202487	1258	1	F	Correction to CSI-RS RMC configuration R15	15.12.0
2020-12	RAN# 90	RP-202487	1260	1	F	Correction to cell reselection test cases R15	15.12.0
2020-12	RAN# 90	RP-202487	1262	1	F	Correction to inter-RAT handover test cases R15	15.12.0
2020-12	RAN# 90	RP-202487	1264	1	F	Correction to NR measurement under LTE SA test cases R15	15.12.0
2020-12	RAN# 90	RP-202487	1266	1	F	Correction to inter-RAT SFTD measurement test cases R15	15.12.0
2020-12	RAN# 90	RP-202487	1270		F	CR on maintaining BFD/CBD measurements test cases R15	15.12.0
2020-12	RAN# 90	RP-202486	1295	1	F	CR on RRC-based BWP switch requirements	15.12.0
2020-12	RAN# 90	RP-202487	1297	1	F	CR on RRC-based active TCI state switch test case Rel-15	15.12.0
2020-12	RAN# 90	RP-202486	1310		F	[CR] Specify RRC processing delay in TCI state switching delay	15.12.0
2020-12	RAN# 90	RP-202487	1312	1	F	[CR] NR Perf Maintenance R15 Cat F	15.12.0
2020-12	RAN# 90	RP-202486	1316	1	F	CR on SCell activation requirements R15	15.12.0
2020-12	RAN# 90	RP-202487	1318		F	CR on FR2 unknown SCell activation test cases R15	15.12.0
2020-12	RAN# 90	RP-202487	1320		F	CR on BWP in L1-RSRP delay and accuracy test cases R15	15.12.0
2020-12	RAN# 90	RP-202486	1335	1	F	Introducing reference to the source of the Lmax and NRLM.	15.12.0
2020-12	RAN# 90	RP-202487	1341	1	F	CR to TS 38.133: Corrections to inter-RAT FR1 test cases (Rel-15)	15.12.0
2020-12	RAN# 90	RP-202487	1343	1	F	CR to TS 38.133: Corrections to inter-RAT FR2 test cases (Rel-15)	15.12.0
2020-12	RAN# 90	RP-202487	1349		F	CR 38.133 Corrections to test cases for TCI state switching	15.12.0
2020-12	RAN# 90	RP-202487	1363	1	F	Removal of annex B.2.6 on one shot timing adjustment in 38.133	15.12.0
2020-12	RAN# 90	RP-202487	1365	1	F	Correction to NR FR1 DL active BWP switch of Cell with non-DRX in SA (A.6.5.6.2.1)	15.12.0
2020-12	RAN# 90	RP-202486	1371	2	F	CR to 38.133 on Active BWP switch and Active TCI State Switching requirements - Rel15	15.12.0

2021-03	RAN# 91	RP-210116	1404	1	F	CR on correcting SSB and RACH configuration in CSI-RS based beam failure detection and link recovery tests	15.13.0
2021-03	RAN# 91	RP-210116	1416	1	F	[CR] RRM test case maintenance R15 Cat F	15.13.0
2021-03	RAN# 91	RP-210116	1422	1	F	Update FR2 Reference channels and OCNG for FR2 RRM Test cases	15.13.0
2021-03	RAN# 91	RP-210116	1425		F	CR to FR1 SA SS-SINR measurement TCs	15.13.0
2021-03	RAN# 91	RP-210116	1428		F	CR on E-UTRA carrier for EN-DC event triggered reporting tests	15.13.0
2021-03	RAN# 91	RP-210116	1431		F	Add missing FR2 Test case setups and Beam assumptions	15.13.0
2021-03	RAN# 91	RP-210116	1494		F	Correction to cell reselection test case	15.13.0
2021-03	RAN# 91	RP-210116	1503		F	Update of DRX configuration in FR1 Event-triggered Test cases	15.13.0
2021-03	RAN# 91	RP-210116	1512		F	Correction on PRACH configuration for FR2 Non-Contention based Random Access in R15	15.13.0
2021-03	RAN# 91	RP-210116	1515	1	F	Correction on PRACH configuration for Beam Failure Detection and Link Recovery Test in R15	15.13.0
2021-03	RAN# 91	RP-210116	1518		F	Correction on PRACH RMC for FR1 CSI-RS based Non-Contention based Random Access for BFR in R15	15.13.0
2021-03	RAN# 91	RP-210117	1537	2	F	CR on Scell activation delay maintenance (R15)	15.13.0
2021-03	RAN# 91	RP-210116	1545		F	CR for test requirements correction of SA event triggered reporting tests for FR1 inter-frequency measurements with SSB time index detection when DRX is used	15.13.0
2021-03	RAN# 91	RP-210117	1548	1	F	CR on R15 remaining issues	15.13.0
2021-03	RAN# 91	RP-210116	1563	1	F	Correction on the power of the first preamble for random access in EN-DC and SA in R15	15.13.0
2021-03	RAN# 91	RP-210116	1566	2	F	Correction on the time for Scell activation and CSI-report in R15	15.13.0
2021-03	RAN# 91	RP-210116	1569	1	F	Correction on the Noc level in TS38.133 in R15	15.13.0
2021-03	RAN# 91	RP-210117	1605	1	F	CR on the filter for beam failure indications in 38.133	15.13.0

2021-03	RAN# 91	RP-210116	1614		F	Correction to Aperiodic CSI-RS configurations R15	15.13.0
2021-03	RAN# 91	RP-210116	1617		F	Correction to radio link monitoring test cases R15	15.13.0
2021-03	RAN# 91	RP-210116	1620	2	F	Correction to beam failure recovery test cases R15	15.13.0
2021-03	RAN# 91	RP-210116	1623	1	F	Correction to L1-RSRP reporting delay test cases R15	15.13.0
2021-03	RAN# 91	RP-210122	1634	2	F	CR on maintaining Antenna configurations in TS38.133 R15	15.13.0
2021-03	RAN# 91	RP-210122	1637	1	F	CR on test requirements for measurement performance tests R15	15.13.0
2021-03	RAN# 91	RP-210116	1653	1	F	Correction on test cases of inter-frequency Measurements R15	15.13.0
2021-03	RAN# 91	RP-210116	1712	1	F	CR to TS 38.133: Redundant and incorrect TCI state in tests with TRS (Rel-15)	15.13.0
2021-03	RAN# 91	RP-210116	1715	1	F	CR to TS 38.133: Corrections to TC A.4.5.7.1 (Rel-15)	15.13.0
2021-03	RAN# 91	RP-210116	1749		F	CR on test cases for inter-RAT measurement r15	15.13.0
2021-03	RAN# 91	RP-210117	1752	2	F	CR on SCell activation delay, cell identification requirements on deactivated SCell and inter-RAT ECID requirements for NE-DC R15	15.13.0
2021-03	RAN# 91	RP-210116	1755	1	F	CR on SCell activation TCs R15	15.13.0
2021-03	RAN# 91	RP-210116	1779	2	F	Cat-F CR to addition of TRS Configurations in Rel-15 Test Cases	15.13.0
2021-06	RAN# 92	RP-211080	1810	1	F	CR to Interruptions during measurements on deactivated NR SCC	15.14.0
2021-06	RAN# 92	RP-211083	1813		F	CR to CSI-RS based L1-RSRP measurement on resource set with repetition off TCs	15.14.0
2021-06	RAN# 92	RP-211084	1816		F	CR to the notation of SMTc in the general test parameters of Re-establishment TCs	15.14.0
2021-06	RAN# 92	RP-211084	1819		F	CR to BWP configuration for interruption test case.	15.14.0
2021-06	RAN# 92	RP-211080	1825	1	F	Update of DRX configuration in Event-triggered Test cases	15.14.0
2021-06	RAN# 92	RP-211081	1831	1	F	Update RRM Test cases where 66RBs gives insufficient dB range	15.14.0
2021-06	RAN# 92	RP-211081	1834	1	F	Update Reference channels and OCNG for FR2 240kHz SSB SCS RRM Test cases	15.14.0
2021-06	RAN# 92	RP-211081	1837	1	F	Cat-F CR to Cell Reselection Tests with Async Cells in Rel-15	15.14.0

2021-06	RAN# 92	RP-211081	1842	1	F	Cat-F CR to FR2 CORESET and Search Space RMC in Rel-15	15.14.0
2021-06	RAN# 92	RP-211085	1845		F	Cat-F CR to PDSCH RMC in Rel-15	15.14.0
2021-06	RAN# 92	RP-211085	1848		F	Cat-F CR to TRS Configuration in Rel-15 Test Case	15.14.0
2021-06	RAN# 92	RP-211081	1855	1	F	Maintenance CR for test cases - R15	15.14.0
2021-06	RAN# 92	RP-211085	1862		F	CR on BFD and link recovery test cases	15.14.0
2021-06	RAN# 92	RP-211080	1885	1	F	Maintenance on CSSF for EN-DC and deactivated SCell measurement R15	15.14.0
2021-06	RAN# 92	RP-211080	1896	1	F	Core requirement maintenance on signal characteristics (R15)	15.14.0
2021-06	RAN# 92	RP-211081	1928	1	F	Correction on the SS-RSRP difference value for SS-RSRP measurement TC in R15	15.14.0
2021-06	RAN# 92	RP-211081	1931	1	F	Correction on the CSI-reporting period for SCell activation delay in R15	15.14.0
2021-06	RAN# 92	RP-211080	1938	1	F	CR on scheduling restriction of UE during intra-frequency measurements on FR2 in R15	15.14.0
2021-06	RAN# 92	RP-211087	1981		F	CR to TS 38.133: Correction of TDD Configuration for several TCs (Rel-15)	15.14.0
2021-06	RAN# 92	RP-211081	1984	1	F	CR to TS 38.133: Correction of OCNB pattern for several TCs (Rel-15)	15.14.0
2021-06	RAN# 92	RP-211087	1987		F	CR to TS 38.133: Correction of IRAT TCs (Rel-15)	15.14.0
2021-06	RAN# 92	RP-211087	1990		F	CR to TS 38.133: Corrections to SS-RSRP/RSRQ/SINR accuracy TCs (Rel 15)	15.14.0
2021-06	RAN# 92	RP-211080	1993	1	F	CR to TS 38.133: Several corrections to TCs (Rel 15)	15.14.0
2021-06	RAN# 92	RP-211087	2031		F	CR on measurement on deactivated SCell and interruption to NR serving cells for measurements on deactivated NR SCell	15.14.0
2021-06	RAN# 92	RP-211088	2056		F	Correction to CSI-RS reference configuration_R15	15.14.0
2021-06	RAN# 92	RP-211089	2063		F	Correction to TRS reference configuration_R15	15.14.0
2021-06	RAN# 92	RP-211081	2066	1	F	Correction to FR1 test cases using DLBWP.0.2_R15	15.14.0
2021-06	RAN# 92	RP-211089	2070		F	Correction to reference configurations related to DLBWP.0.2_R15	15.14.0



2021-06	RAN# 92	RP-211089	2072		F	Correction to interruption during measurement on deactivated SCell test cases_R15	15.14.0
2021-06	RAN# 92	RP-211089	2074		F	Correction of test parameters for SA inter-frequency event triggered reporting TCs	15.14.0
2021-06	RAN# 92	RP-211080	2103	1	F	CR on Rel-15 SCell activation, SMTC determination and UL timing 38133	15.14.0
2021-06	RAN# 92	RP-211090	2109		F	CR on NR-DC PSCell addition and release delay in Rel15	15.14.0
2021-06	RAN# 92	RP-211081	2112	1	F	Maintenance CR for RRM test cases in Rel15	15.14.0
2021-06	RAN# 92	RP-211081	2137	1	F	Correction to AoA setup in FR2	15.14.0
2021-09	RAN# 93	RP-211922	2197		F	Big CR to TS 38.133: NR_newRAT-Core maintenance (Rel-15)	15.15.0
2021-09	RAN# 93	RP-211925	2200		F	Big CR to TS 38.133: NR_newRAT-Perf maintenance Part 1 (Rel-15)	15.15.0
2021-09	RAN# 93	RP-211925	2203		F	Big CR to TS 38.133: NR_newRAT-Perf maintenance Part 2 (Rel-15)	15.15.0
2021-09	RAN# 93	RP-211925	2206		F	Big CR to TS 38.133: NR_newRAT-Perf maintenance Part 3 (Rel-15)	15.15.0
2021-12	RAN# 94	RP-212854	2237		F	Big CR to TS 38.133: NR_newRAT-Core maintenance (Rel-15)	15.16.0
2021-12	RAN# 94	RP-212855	2240		F	Big CR to TS 38.133: NR_newRAT-Perf maintenance (Rel-15)	15.16.0
2022-03	RAN# 95	RP-220337	2270		F	Big CR to TS 38.133: NR_newRAT-Core maintenance (Rel-15)	15.17.0
2022-03	RAN# 95	RP-220337	2273	1	F	Big CR to TS 38.133: NR_newRAT-Perf maintenance (Rel-15)	15.17.0
2022-06	RAN# 96	RP-221660	2311	1	F	CR to maintain test case of PSCell addition and release delay (A4.5.7)_R15	15.18.0
2022-06	RAN# 96	RP-221655	2404		F	Big CR for TS 38.133 Core Maintenance Part-1 (Rel-15)	15.18.0
2022-06	RAN# 96	RP-221655	2407		F	Big CR for TS 38.133 Core Maintenance Part-2 (Rel-15)	15.18.0
2022-06	RAN# 96	RP-221660	2410		F	Big CR for TS 38.133 Perf Maintenance Part-1 (Rel-15)	15.18.0
2022-06	RAN# 96	RP-221660	2413		F	Big CR for TS 38.133 Perf Maintenance Part-2 (Rel-15)	15.18.0
2022-09	RAN# 97	RP-222023	2568		F	Big CR for 38.133 maintenance part1 (Rel-15)	15.19.0
2022-12	RAN# 98-e	RP-223290	2662		F	CR on NR RRM maintenance R15	15.20.0

2022-12	RAN# 98-e	RP-223293	2674	1	F	CR to CSI-RS, RLM and BWP switching in annex	15.20.0
2022-12	RAN# 98-e	RP-223293	2677	1	F	Update on Scell activation and deactivation and Control Channel RMC for RLM FR2 (Rel-15)	15.20.0
2022-12	RAN# 98-e	RP-223292	2680		F	Update to L1-RSRP test scenarios (Rel-15)	15.20.0
2022-12	RAN# 98-e	RP-223293	2693	1	F	R15 Cat-F CR testcase correction from R15 TS 38.133	15.20.0
2022-12	RAN# 98-e	RP-223292	2700		F	CR on test case correction for timing advance	15.20.0
2022-12	RAN# 98-e	RP-223293	2709	1	F	CR on TC for known PSCell addition in R15	15.20.0
2022-12	RAN# 98-e	RP-223292	2712		F	CR on TC for inter-RAT NR Cell reselection in R15	15.20.0
2022-12	RAN# 98-e	RP-223293	2747	2	F	Correction on Aperiodic CSI-RS RMCs and RLM in-sync test cases for R15	15.20.0