**3GPP TSG RAN meeting #97-e RP-221937**

**Electronic Meeting, September 12-16, 2022**

## Status Report to TSG

**Agenda item:** 9.3.1.5

|  |  |
| --- | --- |
| **WI / SI Name** |  |
| included in this status report | Study Item: No | Core part: Yes | Performance part:Yes | Testing part:No |
| **Acronym** | NR\_SL\_enh2 |
| **Unique ID** | 940097 |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-221798 |
| **Target Completion Date****(indicate if changed)** | Study Item: mm/yyyy | Core part: 12/2023 | Performance part: 06/2024 | Testing part: mm/yyyy |
| **Overall Completion level** | Study Item: xx % | Core part: 20% | Performance Part: 0% | Testing part: xx % |

Note: Overall completion level percentage numbers should use one of the colors below:

* xx%: Normal progress, no RAN plenary action needed
* xx%: Progress behind schedule, may need RAN plenary intervention. If so, SR should clearly define requested action
* xx%: Progress critically behind, RAN plenary shall intervene. SR should define requested action

**Source:**

|  |  |
| --- | --- |
| **Leading WG** | RAN1 |
| **Rapporteur** | **Name** | Kevin Lin |
| **Company** | OPPO |
| **Email** | Kevin.Lin@oppo.com |

## 1 Work plan related evaluation

|  |  |
| --- | --- |
| **Do you want to modify the time budget for this WI/SI compared to what was endorsed at the last RAN meeting?** | No |

*If you answered No: Then please remove the Excel file from the zip file of this status report.*

*If you answered Yes: Then please fill out the attached Excel template to request a modification of the time budgets for your WI /SI. The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI. The basis are the endorsed time budgets of the last RAN meeting. Please highlight all changes of the values.
 One time unit (TU) corresponds to ~ 2 hours in the meeting.
 If this status report covers a WI with Core and Performance part, then please have one line for each in the attached Excel table.
 Note: If no Excel table is attached, then this means no time budget change.*

**Additional explanations/motivations for the time budget changes in the attached Excel table:**

## 2. Detailed progress in RAN WGs since last TSG meeting (for all involved WGs)

 NOTE: Agreements and Open issues impacted cross-TSG aspects shall be explicitly highlighted

## 2.1 RAN1

#### 2.1.1 Agreements

**NR sidelink CA operation**

* On hold until further checking in RAN#97

**NR Sidelink operation in FR1 unlicensed spectrum**

**Agreement**

The following evaluation scenario can be used for evaluating performance of SL-U designs, resource allocation schemes, and coexistence study with another RAT in a shared channel.

* Scenario 1 (commercial use cases) – recommended:
	+ Evaluation methodology baseline is NR-U from TR 38.889 with the following updates.
	+ Indoor layout
		- Option 1: a pairs topology for SL-U from R1-2205033 – recommended



* + - * a = 20m, b = 60m, c = 20m, d = 80 m
			* There are two operators to model two RATs at a time. The red one is SL-U UE, the blue one is Wi-Fi or NR-U.
			* For NR-U / Wi-Fi, the same number of UEs / Wi-Fi STA as the total number of SL-U devices are dropped in the area. The NR-U UE / Wi-Fi nodes are dropped uniformly per gNB/AP per 20 MHz.
				+ Companies should report if they used a different number of UEs / Wi-Fi STA as the total number of SL-U devices, as an additional evaluation scenario.
			* For evaluation of unicast traffic, the topology of SL-U is pair topology and the SL-U UEs are dropped uniformly at random in the area.
				+ Companies should report how SL-U UEs are paired
				+ 6 SL-U pairs and 4 NR-U UEs / Wi-Fi nodes per gNB/AP per 20 MHz
			* For evaluation of groupcast traffic, SL-U UEs are dropped uniformly at random in the area, SL-UEs form groupcast UE group based on TX-RX UE distancing, the distance is provided by each company.
				+ Companies should report how SL-U UEs form a group
				+ 12 SL-U UEs and 4 NR-U UEs / Wi-Fi nodes per gNB/AP per 20 MHz
			* For evaluation of broadcast traffic, SL-U UEs are dropped uniformly at random in the area.
				+ 12 SL-U UEs and 4 NR-U UEs / Wi-Fi nodes per gNB/AP per 20 MHz
		- Option 2: SL UE clusters (R1-2203146)

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* + - * Indoor layout and UE dropping model with N = 3 or 6 clusters and each with M=5 UEs
			* Each cluster is a circle, with a central point and radius Rmax = 15 or 10m and Rmin = 5 or 1m
			* No overlapping among the N clusters
			* For coexistence, there are two operators to model two RATs at a time, where the red one is Wi-Fi AP or NR-U gNB. NR-U UE / Wi-Fi STA are dropped uniformly per gNB/AP.
			* Simulation bandwidth can be larger than 20MHz (e.g., 80MHz)
	+ Channel model follows NR InH Mixed Office model used in NR-U (TR38.889)
	+ Traffic model
		- Option 1: R17 sidelink commercial traffic model with periodic model 3 with packet size reduced by a factor of (high: 1; mid: 5; low: 10)
			* FFS whether/how the PDB requirement can be captured
		- Option 2: FTP model 3 with arrival rate satisfying one of the followings:
			* BO Low load: 10%~25%
			* BO Mid load: 35%~50%
			* BO High load: above 55%
		- Option 3: XR cloud gaming model in TR38.838
			* FFS whether/how the PDB requirement can be captured
		- It is up to each company to use either Option 1 or 2 or Option 3 or mixed of them
	+ Interference model:
		- Layout option 1: Explicit modelling of NR-U / WiFi transmissions (as per TR38.889)
		- Note, for the interference traffic model:
			* The same or equivalent traffic model setting as SL-U should be used as much as possible to achieve equal load (e.g., SL-U RAT offered load equal the interfering RAT’s offered load).
			* The same number of traffic flows should be used between SL-U and the interfering RAT (e.g., 10 UEs with 10 flows, and 5 STAs with 2 flows each, one for DL and one for UL)
				+ Companies should report if they used a different assumption, as an additional evaluation scenario.
	+ Performance metric: UPT, latency, and PRR which regards the packet whose delay exceeding the remaining PDB as transmission failure.
		- FFS: UE satisfaction/system capacity as section 7.2 in TR 38.838 for XR traffic evaluation
		- FFS for groupcast and broadcast
	+ Fair coexistence criterion between SL-U and the interfering RAT (e.g., according to NR-U TR38.889)

**Agreement**

* CW adjustment
	+ NR-U DL CW adjustment mechanism is used as the baseline for SL-U when SL-HARQ feedback is enabled in SCI for unicast
		- FFS any necessary update for SL-U operation
	+ FFS: how to determine CW size when SL-HARQ feedback is disabled in SCI
	+ FFS the case of groupcast option 1 (NACK-only) and groupcast option 2

**Agreement**

* Type 2A/2B/2C SL channel access procedures
	+ Type 2A channel access procedure is applicable to the following case:
		- Transmission(s) by a UE following transmission(s) by another UE for a gap ≥ 25μs in a shared channel occupancy
		- FFS any other transmission by a UE (e.g., other than COT sharing)
		- FFS whether Type 2A is used also for the case of short control signalling transmission
	+ Type 2B channel access procedure is applicable to the following case:
		- Transmission(s) by a UE following transmission(s) by another UE at least when the gap is 16μs in a shared channel occupancy
		- FFS the case when the gap is between 16 and 25us
		- FFS any other transmission by a UE (e.g., other than COT sharing)
	+ Type 2C channel access procedure is applicable to the following case:
		- Transmission(s) by a UE following transmission(s) by another UE for a gap ≤ 16μs in a shared channel occupancy and the duration of the corresponding transmission is at most 584us.
		- FFS any other transmission by a UE (e.g., other than COT sharing)
		- FFS whether Type 2C is used also for the case of short control signalling transmission
	+ FFS under which conditions (other than the gap) UEs can apply the Type 2A/2B/2C SL channel access procedures
	+ FFS under which conditions Type 2B or Type 2C is applied in case of a gap of 16 μs

**Agreement**

Multi-consecutive slots transmission (MCSt) is supported for Mode 1 and Mode 2 resource allocation in SL-U.

* FFS details

**Agreement**

* For UE-to-UE COT sharing, continue considering the following alternatives:
	+ Alt. 1: A responding SL UE can utilize a COT shared by a COT initiating UE when the responding SL UE is a target receiver of the at least COT initiating UE’s PSSCH data transmission in the COT.
		- When the responding UE uses the shared COT for its transmission has an equal or smaller CAPC value than the CAPC value indicated in a shared COT information
		- FFS any additional conditions
	+ Alt. 2: A responding SL UE can utilize a COT shared by a COT initiating UE when the responding SL UE is a target receiver of the COT initiating UE’s transmission in the COT.
		- When the responding UE uses the shared COT for its transmission has an equal or smaller CAPC value than the CAPC value indicated in a shared COT information
		- FFS how to determine a SL UE is a target receiverFFS: details of the channel type of the COT initiating UE’s transmission
		- FFS any additional conditions
	+ For Alt1 and Alt2: When a responding UE uses a shared COT for its transmission(s), the COT initiating UE is a target receiver of the responding UE’s transmission(s).
		- FFS: details of the channel type of the responding UE’s transmission(s)
* gNB relaying/forwarding a UE initiated COT to another UE is not supported in Rel-18
* FFS whether a Mode 1 UE can report a COT or related information to gNB for aiding Mode 1 RA

**Agreement**

For PSCCH and PSSCH in SL-U:

* Both R16/R17 NR SL contiguous RB-based and interlace RB-based transmissions similar to R16 NR-U are supported

**Agreement**

For PSCCH and PSSCH in SL-U:

* For interlace RB-based transmission
	+ Frequency domain resource allocation granularity is one sub-channel for PSSCH transmission
	+ 1 sub-channel equals K interlace
		- FFS: whether K is fixed as 1 or (pre-)configured
	+ Discuss whether one or both of the following alternatives are supported
		- Alt 1: 1 sub-channel is confined within 1 RB set
		- Alt 2: 1 sub-channel spans 1 or multiple RB set(s) belonging to a resource pool

**Agreement**

To meet OCB and PSD requirement for PSFCH transmission, at least RB-based interlace is supported at least for 15 kHz and 30 kHz SCS, FFS details.

**Agreement**

If RAN1 decides that LBT is performed for S-SSB transmission, in addition to the S-SSB occasions in R16/R17 NR SL design, support additional candidate S-SSB occasions

* FFS the number and locations of additional candidate S-SSB occasions
* FFS when a UE transmits S-SSB on such additional candidate S-SSB occasions, and the related Rx UE’s behavior

**Agreement**

Regarding PSFCH transmission, at least the followings alternatives can be further studied

* Alt 1: each PSFCH transmission occupies a common interlace and zero or one or more dedicated PRB(s)
* Alt 2: each PSFCH transmission occupies an interlace, and may or may not further apply code domain enhancement (e.g., OCC, PRB-level cyclic shifts)
* Alt 3: each PSFCH transmission occupies some dedicated PRBs and some common PRBs
* FFS details of above alternatives

**Agreement**

If RAN1 decides that LBT is performed for PSFCH transmission, for the time and frequency domain locations of PSFCH resources, at least the followings alternatives can be further studied

* Alt 1: PSFCH resources are (pre-)configured
* Alt 2: PSFCH resources are dynamically indicated
* Combination of above alternatives are not precluded
* FFS details of above alternatives

**Agreement**

For S-SSB and synchronization in SL-U:

* No changes on R16 NR SL S-PSS/S-SSS sequence generation
* Continue studying the 4 options from the previous agreement and whether/how temporary exemption of OCB requirement is applicable for S-SSB transmission, e.g., how to meet the minimum of 2 MHz requirement under 15 kHz SCS

**Agreement**

For PSCCH and PSSCH resource indication in time/frequency domain:

* For time domain: R16 NR SL TRIV is reused as baseline
* For frequency domain:
	+ further study sub-channel indexing and resource indication
* FFS: whether any enhancement needed on R16 NR SL TRIV/FRIV if new feature is introduced in SL-U, e.g., multi-slot consecutive transmission

**NR sidelink enhancement in FR2 licensed spectrum**

* On hold until further checking in RAN#97

**Co-channel coexistence for LTE sidelink and NR sidelink**

Working assumption

Co-channel coexistence between LTE SL and NR SL is supported for device type A. Device type A contains both LTE SL and NR SL modules. For device type A, the NR SL module may use the sensing and resource reservation information shared by the LTE SL module.

**Conclusion**

For co-channel coexistence in Rel-18, RAN1 concludes that the TDM-based semi-static resource pool partitioning based on Rel-16/17 specifications is one possible solution to ensure co-channel coexistence between LTE-V UEs and NR-V UEs.

* + Note: The LTE and NR resource pools do not overlap in time with each other in the TDM-based semi-static resource pool partitioning.
	+ Note 2: Rel-16 in-device coexistence framework can ensure alignment between the slot boundary of the NR SL time slot and the subframe boundary of the LTE SL subframe
	+ FFS: potential enhancements for synchronization can be further investigated

**Agreement**

For co-channel coexistence in Rel-18, dynamic resource pool sharing is studied, with the following constraints:

* + NR SL resource pool is configured with 15 kHz SCS.
		- FFS support of NR SL resource pool configured with higher SCS, including other solutions to overcome the AGC issue caused by the differing SCSs between the NR SL and LTE SL resource pools
	+ For NR PSFCH (if configured), at least the following alternatives are studied:
		- Alt 1: Avoid PSFCH transmission in time slots that overlap with subframes used for LTE SL transmissions.
			* FFS: Avoiding PSFCH transmissions can be performed by the UE transmitting PSFCH and/or the UE transmitting PSSCH.
		- Alt 2: NR SL UEs use a periodically repeating set of PSFCH slots.
			* FFS: periodicities of the set.

#### 2.1.2 Remaining Open issues

* Study and specify support of sidelink on unlicensed spectrum for both mode 1 and mode 2 where Uu operation for mode 1 is limited to licensed spectrum only
* Study and specify enhanced sidelink operation on FR2 licensed spectrum (This part of the work is put on hold until further checking in RAN#97)
* Study and specify, if necessary, mechanism(s) for co-channel coexistence for LTE sidelink and NR sidelink including performance, necessity, feasibility, and potential specification impact if any

## 2.2 RAN2

#### 2.2.1 Agreements

- No scheduled meeting TU since the last RAN

#### 2.2.2 Remaining Open issues

* Mechanism to support NR sidelink CA operation based on LTE sidelink CA operation (This part of the work is put on hold until further checking in RAN#97)

## 2.3 RAN3

#### 2.3.1 Agreements

#### 2.3.2 Remaining Open issues

## 2.4 RAN4

#### 2.4.1 Agreements

- No scheduled meeting TU since the last RAN

#### 2.4.2 Remaining Open issues

* UE Tx and Rx RF requirement for supporting new features introduced in this WI, sidelink frequency bands for single-carrier operation and frequency band combinations for carrier aggregation operation
* UE RRM core requirement for the new features introduced in this WI
* UE demodulation performance requirements
* UE RRM performance requirements

## 2.5 RAN5

#### 2.5.1 Agreements

#### 2.5.2 Remaining Open issues

#### 2.5.3 Remaining Open issues with cross-WG dependencies

## 2.6 RAN6

#### 2.6.1 Agreements

#### 2.6.2 Remaining Open issues

## 3. Detailed progress in SA/CT WGs since last TSG meeting (for all involved WGs)

NOTE: This section only needs to be filled in for WI/SIs where there is a corresponding relevant WI/SI in SA/CT.

## 3.1 SAx/CTs

#### 3.1.1 Agreements with cross-TSG impacts

#### 3.1.2 Remaining Open issues with cross-TSG impacts

NOTE: This section should also flag any critical dependencies that need TSG attention.

## 4. References

NOTE: This can be e.g. a list of all related Tdocs in the affected WGs since last TSG, references to LSs, produced TRs/TSs, the work/study item description or status reports of previous TSGs.

**RAN1#110**

1. R1-2205744 Channel access mechanism for sidelink operation in unlicensed spectrum FUTUREWEI
2. R1-2205839 On Channel Access Mechanism and Evaluation Methodology for SL-U Nokia, Nokia Shanghai Bell
3. R1-2205850 Discussion on channel access mechanism for sidelink on unlicensed spectrum LG Electronics
4. R1-2205886 Channel access mechanism and resource allocation for sidelink operation over unlicensed spectrum Huawei, HiSilicon
5. R1-2205991 Discussion on channel access mechanism for sidelink on unlicensed spectrum Spreadtrum Communications
6. R1-2206041 Channel access mechanism for sidelink on unlicensed spectrum vivo
7. R1-2206097 Discussion on channel access mechanism for SL-U ZTE,Sanechips
8. R1-2206119 Discussion on channel access mechanism for SL-unlicensed Sony
9. R1-2206171 Discussion on channel access mechanism for SL-U Fujitsu
10. R1-2206290 Access mechanisms and resource allocation for NR sidelink in unlicensed channel OPPO
11. R1-2206400 Discussion on channel access mechanism for sidelink on unlicensed spectrum CATT, GOHIGH
12. R1-2206438 NR Sidelink Unlicensed Channel Access Mechanisms Fraunhofer HHI, Fraunhofer IIS
13. R1-2206448 Channel access mechanism for sidelink on FR1 unlicensed spectrum Lenovo
14. R1-2206469 Channel Access of Sidelink on Unlicensed Spetrum NEC
15. R1-2206585 Channel Access Mechanisms for SL Operating in Unlicensed Spectrum Intel Corporation
16. R1-2206644 Discussion on channel access mechanism for sidelink-unlicensed Xiaomi
17. R1-2206669 Discussion of channel access mechanism for sidelink in unlicensed spectrum Transsion Holdings
18. R1-2206691 Discussion on channel access mechanism for sidelink on unlicensed spectrum China Telecom
19. R1-2206826 On channel access mehanism for sidelink on FR1 unlicensed spectrum Samsung
20. R1-2206860 On Channel Access Mechanism for SL-U ITL
21. R1-2206913 Discussion on channel access mechanism for sidelink on unlicensed spectrum CMCC
22. R1-2207015 Discussion on channel access mechanism MediaTek Inc.
23. R1-2207110 Discussion of Channel Access Mechanisms Johns Hopkins University APL
24. R1-2207128 SL Channel access in unlicensed spectrum InterDigital, Inc.
25. R1-2207136 On Evaluation Methodology for SL-U CableLabs
26. R1-2207233 Channel Access Mechanism for Sidelink on Unlicensed Spectrum Qualcomm Incorporated
27. R1-2207279 Discussion on Channel access mechanism for NR sidelink evolution Sharp
28. R1-2207298 Sidelink channel access on unlicensed spectrum Panasonic
29. R1-2207337 Channel access mechanism for sidelink on FR1 unlicensed band Apple
30. R1-2207408 Discussion on channel access mechanism in SL-U NTT DOCOMO, INC.
31. R1-2207504 Discussion on sidelink on unlicensed spectrum ASUSTeK
32. R1-2207511 Discussions on channel access mechanism for sidelink on unlicensed spectrum ROBERT BOSCH GmbH
33. R1-2207566 Channel access mechanism for SL-U Ericsson
34. R1-2207599 Discussion on channel access mechanism for SL on unlicensed spectrum WILUS Inc.
35. R1-2207709 Discussion on channel access mechanism for SL-U ZTE,Sanechips
36. R1-2207743 On Evaluation Methodology for SL-U CableLabs, Broadcom, Charter Communications
37. R1-2205745 Physical channel design for sidelink operation in unlicensed spectrum FUTUREWEI
38. R1-2205840 On Physical Channel Design Framework for SL-U Nokia, Nokia Shanghai Bell
39. R1-2205851 Discussion on physical channel design framework for sidelink on unlicensed spectrum LG Electronics
40. R1-2205887 Physical channel design for sidelink operation over unlicensed spectrum Huawei, HiSilicon
41. R1-2205992 Discussion on Physical channel design for sidelink on unlicensed spectrum Spreadtrum Communications
42. R1-2206042 Physical channel design framework for sidelink on unlicensed spectrum vivo
43. R1-2206098 Discussion on physical layer structures and procedures for SL-U ZTE,Sanechips
44. R1-2206120 Discussion on physical channel design framework for SL-unlicensed Sony
45. R1-2206291 Physical channel designs of NR sidelink in unlicensed channel OPPO
46. R1-2206401 Discussion on physical channel design framework for sidelink on unlicensed spectrum CATT, GOHIGH
47. R1-2206439 NR Sidelink Unlicensed Physical Channel Design Fraunhofer HHI, Fraunhofer IIS
48. R1-2206449 Physical layer design framework for sidelink on FR1 unlicensed spectrum Lenovo
49. R1-2206470 Discussion on physical channel design framework NEC
50. R1-2206586 Physical Channel Design for SL Operating in Unlicensed Spectrum Intel Corporation
51. R1-2206645 Discussion on physical channel design for sidelink-unlicensed Xiaomi
52. R1-2206661 Discussion on Physical channel design framework for sidelink on unlicensed spectrum Hyundai Motor Company
53. R1-2206670 Discussion of physical channel design for sidelink in unlicensed spectrum Transsion Holdings
54. R1-2206827 On physical channel design framework for sidelink on FR1 unlicensed spectrum Samsung
55. R1-2206861 On Physical Channel Design framework for SL-U ITL
56. R1-2206914 Discussion on physical channel design framework for sidelink on unlicensed spectrum CMCC
57. R1-2207016 Discussion on physical channel design framework MediaTek Inc.
58. R1-2207064 Physical channel design for sidelink on unlicensed spectrum EURECOM
59. R1-2207111 Discussion on Design of Short Synchronization Signals Johns Hopkins University APL
60. R1-2207129 SL U physical layer design framework InterDigital, Inc.
61. R1-2207234 Physical Channel Design for Sidelink on Unlicensed Spectrum Qualcomm Incorporated
62. R1-2207280 Discussion on physical channel design framework for NR sidelink evolution on unlicensed spectrum Sharp
63. R1-2207299 Physical channel design for sidelink on unlicensed spectrum Panasonic
64. R1-2207338 Physical Channel Design Framework for Sidelink on FR1 Unlicensed Spectrum Apple
65. R1-2207409 Discussion on channel design framework in SL-U NTT DOCOMO, INC.
66. R1-2207567 PHY channel design framework for SL-U Ericsson
67. R1-2207600 Discussion on PHY channel design framework for SL on unlicensed spectrum WILUS Inc.
68. R1-2205841 On Co-channel Coexistence for LTE Sidelink and NR Sidelink Nokia, Nokia Shanghai Bell
69. R1-2205852 Discussion on co-channel coexistence for LTE sidelink and NR sidelink LG Electronics
70. R1-2205888 Co-channel coexistence for LTE sidelink and NR sidelink Huawei, HiSilicon
71. R1-2205993 Discussion on Co-channel coexistence for LTE sidelink and NR sidelink Spreadtrum Communications
72. R1-2206043 Co-channel coexistence for LTE sidelink and NR sidelink vivo
73. R1-2206065 Discussion on co-channel coexistence for LTE sidelink and NR sidelink TOYOTA Info Technology Center
74. R1-2206099 Study on co-channel coexistence for LTE sidelink and NR sidelink ZTE,Sanechips
75. R1-2206121 Discussion on co-channel coexistence for LTE sidelink Sony
76. R1-2206292 Discussion on co-channel coexistence for LTE and NR V2X OPPO
77. R1-2206402 Discussion on co-channel coexistence for LTE sidelink and NR sidelink CATT, GOHIGH
78. R1-2206440 Discussion on Co-Channel Coexistence for LTE and NR Sidelink Fraunhofer HHI, Fraunhofer IIS
79. R1-2206450 Discussion on co-channel coexistence for LTE sidelink and NR sidelink Lenovo
80. R1-2206471 Co-existence between LTE and NR sidelink NEC
81. R1-2206587 Considerations for LTE Sidelink and NR Sidelink Co-channel Coexistence Intel Corporation
82. R1-2206646 Discussion on co-channel coexistence for LTE and NR sidelink Xiaomi
83. R1-2206660 Discussion on Sidelink Co-channel Coexistence Panasonic
84. R1-2206671 Discussion of co-channel coexistence for LTE sidelink and NR sidelink Transsion Holdings
85. R1-2206681 Considerations on co-channel coexistence for LTE SL and NR SL CAICT
86. R1-2206692 Discussion on co-channel coexistence for LTE sidelink and NR sidelink China Telecom
87. R1-2206828 On co-channel coexistence for LTE sidelink and NR sidelink Samsung
88. R1-2206915 Discussion on co-channel coexistence for LTE sidelink and NR sidelink CMCC
89. R1-2206956 Discussion on co-channel coexistence for LTE sidelink and NR sidelink ETRI
90. R1-2207010 Co-channel coexistence for NR sidelink and LTE sidelink MediaTek Inc.
91. R1-2207147 Co-channel coexistence for LTE sidelink and NR sidelink InterDigital, Inc.
92. R1-2207154 On sidelink co-channel coexistence issues Mitsubishi Electric RCE
93. R1-2207235 Co-channel Coexistence Between LTE SL and NR SL Qualcomm Incorporated
94. R1-2207281 Discussion on co-channel coexistence for LTE sidelink and NR sidelink Sharp
95. R1-2207339 Co-channel Coexistence for LTE Sidelink and NR Sidelink Apple
96. R1-2207410 Discussion on co-channel coexistence of LTE-SL and NR-SL NTT DOCOMO, INC.
97. R1-2207509 Discussions on LTE and NR sidelink co-channel coexistence ROBERT BOSCH GmbH
98. R1-2207565 Co-channel coexistence between LTE sidelink and NR sidelink Ericsson
99. R1-2207601 Discussion on co-channel coexistence for LTE sidelink and NR sidelink WILUS Inc.
100. R1-2207625 Discussion on Co-channel coexistence for LTE sidelink and NR sidelink Continental Automotive GmbH

 10.01.2022 minor adaptations for RAN #95e

 04.10.2021 minor adaptations for RAN #94e

 08.08.2021 minor adaptations for RAN #93e

 17.05.2021 minor adaptations for RAN #92e

 28.01.2021 minor adaptations for RAN #91e

 09.11.2020 minor adaptations for RAN #90e

 31.08.2020 minor adaptations for RAN #89e

 20.04.2020 minor adaptations for RAN #88e

 18.02.2020 minor adaptations for RAN #87e

 14.11.2019 minor adaptations for RAN #86

 18.08.2019 minor adaptations for RAN #85

 12.05.2019 minor adaptations for RAN #84

 27.02.2019 minor adaptations for RAN #83

 21.11.2018 completion levels with colours added (for RAN #82)

v04.81 31.07.2018 simplification of template and addition of cross-TSG aspects (for RAN #81)

v04.80 21.05.2018 minor adaptations for RAN #80

v04.79 26.02.2018 minor adaptations for RAN #79

v04.78 18.11.2017 minor adaptations for RAN #78

v04.77 06.08.2017 minor adaptations for RAN #77

v04.76 15.05.2017 minor adaptations for RAN #76

v04.75 31.01.2017 minor adaptations for RAN #75

v04.74 28.10.2016 minor adaptations for RAN #74

v04.73 01.09.2016 adaptations for RAN #73 (time units in extra Excel table, RAN6 reporting included)

v04.72 26.05.2016 adaptations for RAN #72 (introduction of NR & GERAN TUs)

v04.71 10.02.2016 minor adaptations for RAN #71

v04.70 30.10.2015 minor adaptations for RAN #70

v04.69 12.08.2015 minor adaptations for RAN #69

v04.68 21.05.2015 minor adaptations for RAN #68

v04.67 01.02.2015 minor adaptations for RAN #67

v04.66 16.11.2014 minor adaptations for RAN #66

v04.65 16.08.2014 minor adaptations for RAN #65

v04.64 22.05.2014 minor adaptations for RAN #64

v04.63 24.01.2014 restructuring for RAN #63 to cover Core & Perf. in one doc file

v03.62 11.11.2013 section 1.2.3 adapted for RAN #62

v03 11.08.2013 section 1.2.3 added on time budget

v02 07.05.2010 history added, some spelling corrections

v01 13.11.2009 First version of the template