

APPENDIX G

Invalidity of U.S. Patent No. 11,219,000 (“’000 Patent”) Obvious Combinations

1. Claim 1

Invalidity of U.S. Patent No. 11,219,000		
Claim Language		Disclosed Art
1[pre]	A method of transmitting uplink (UL) control information by a user equipment (UE), the method comprising:	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12.

Invalidity of U.S. Patent No. 11,219,000		
Claim Language		Disclosed Art
		3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.</i>, Lee at Abstract, [0007]-[0023]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i>, Ko at Abstract, 1:65-3:11.
1[a]	receiving, from a base station, UL control channel resource set configuration information for UL control information transmission;	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10.

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		International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.</i>, Lee at [0007]-[0008], [0020], [0192], [0239], [0265]-[0268], Fig. 2. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i>, Ko at 10:56-67, 17:47-54, 34:7-19.
1[b]	determining one of UL control channel resource sets contained in the received UL control channel resource set configuration information;	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayebe Nazar et al. (“Nayebe Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8.

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		U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.</i>, Lee at Abstract, [0007], [0085], [0092], [0098], [0105]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i>, Ko at 4:54-5:8.
1[c]	determining one of UL control channel resources contained in the determined UL control channel resource set; and	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5.

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		U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.,</i> Lee at [0092], [0095]-[0096], [0098], [0100], [0126]-[0127]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.,</i> Ko at 4:54-5:8, 7:5-15, 10:56-67.
1[d]	transmitting UL control information through the determined UL control channel resource,	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3.

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		U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.,</i> Lee at Abstract, [0126]-[0127].

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		U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i> , Ko at 4:54-5:8, 7:5-15, 10:56-67. 11:1-12.
1[e]	wherein the determining of the one of the UL control channel resource sets is performed based on a size of the UL control information, and	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14.

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		U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.</i>, Lee at [0098]-[0100], [0125]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i>, Ko at 34:24-55, 36:38-65.
1[f]	wherein the UL control channel resource set configuration information is received through UE specific radio resource control (RRC) signaling.	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12.

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		3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.</i>, Lee at [0187], [0189], [0232], [0239], [0265]-[0268]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i>, Ko at 6:11-24, Fig. 1.
2	The method according to claim 1, wherein the UL control channel resource sets are configured for each UL bandwidth part (BWP) configured for the UE.	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10.

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		International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.</i>, Lee at [0068], [0218]-[0219]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i>, Ko at 31:46-32:29, 33:3-22.
3	The method according to claim 2, wherein the each UL BWP is activated through downlink (DL) control information.	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9.

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		U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.</i>, Lee at [0095]-[0096], [0101]-[0112]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i>, Ko at 4:54-5:8, 10:56-67.
4[a]	The method according to claim 1, further comprising: receiving, from the base station, downlink (DL) control information containing information indicating the one of the UL control channel resources for the UL control information transmission,	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6. U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8.

Invalidity of U.S. Patent No. 11,219,000		
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		U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.</i>, Lee at [0092], [0095]-[0096], [0098], [0100], [0126]-[0127]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.</i>, Ko at 4:54-5:8, 10:56-67.
4[b]	wherein the one of the UL control channel resources is indicated from the base station through the DL control information.	U.S. Patent No. 10,305,664 to Ahn et al. (“Ahn”). <i>See</i> Exhibit G-1. U.S. Patent Publication No. 2016/0338041 to LI et al. (“LI”). <i>See</i> Exhibit G-2. U.S. Patent Publication No. 2017/0265176 to Marinier et al. (“Marinier”). <i>See</i> Exhibit G-3. U.S. Patent No. 9,485,060 to Nayeb Nazar et al. (“Nayeb Nazar”). <i>See</i> Exhibit G-4. U.S. Patent No. 10,805,941 to Shaheen et al. (“Shaheen”). <i>See</i> Exhibit G-5. U.S. Patent Publication No. 2020/0374866 (“Takeda I”). <i>See</i> Exhibit G-6.

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Claim Language		Disclosed Art
		U.S. Patent Publication No. 2020/0163085 to Takeda et al. (“Takeda II”). <i>See</i> Exhibit G-7. U.S. Patent Publication No. 2020/0252180 to Takeda et al. (“Takeda III”). <i>See</i> Exhibit G-8. U.S. Patent No. 10,736,085 to Yan et al. (“Yan”). <i>See</i> Exhibit G-9. U.S. Patent Publication No. 2019/0239214 to Yang et al. (“Yang”). <i>See</i> Exhibit G-10. International Patent Publication No. WO 2018/227538 to Zhang et al. (“Zhang”). <i>See</i> Exhibit G-11. 3GPP TSG-RAN WG1 #89, R1-1709802, Ericsson et al., “Way Forward on bandwidth part for efficient wideband operation in NR” (“R1-1709802”). <i>See</i> Exhibit G-12. 3GPP TSG RAN WG1 #90, R1-1713181, LG Electronics, “Consideration on resource allocation for NR-PUCCH” (“R1-1713181”). <i>See</i> Exhibit G-13. 3GPP TSG RAN WG1 #90, R1-1714079, Nokia, Nokia Shanghai Bell, “PUCCH resource allocation” (“R1-1714079”). <i>See</i> Exhibit G-14. U.S. Patent Publication No. 2017/0086219 to Lee et al. (“Lee”). <i>See, e.g.,</i> Lee at [0092], [0095]-[0096], [0098], [0100], [0126]-[0127]. U.S. Patent No. 11,133,971 to Ko et al. (“Ko”). <i>See, e.g.,</i> Ko at 4:54-5:8, 10:56-67.

2. Claim 5

Invalidity of U.S. Patent No. 11,219,000		
Claim Language		Disclosed Art
5[pre]	A method of receiving uplink (UL) control information by a base station, the method comprising:	<i>See</i> limitation 1[pre] above.
5[a]	transmitting, to a user equipment (UE), UL control channel resource set configuration information for UL control information; and	<i>See</i> limitation 1[a] above.
5[b]	receiving the UL control information through one of UL control channel resources in one of UL control channel resource sets contained in the transmitted UL control channel resource set configuration information,	<i>See</i> limitations 1[b], 1[c], and 1[d] above.
5[c]	wherein the one of the UL control channel resource sets for the	<i>See</i> limitation 1[e] above.

Invalidity of U.S. Patent No. 11,219,000		
Claim Language		Disclosed Art
	UL control information transmission is determined based on a size of the UL control information, and	
5[d]	wherein the UL control channel resource set configuration information is transmitted through UE specific radio resource control (RRC) signaling.	<i>See</i> limitation 1[f] above.
6	The method according to claim 5, wherein the UL control channel resource sets are configured for each UL bandwidth part (BWP) configured for the UE.	<i>See</i> limitation 2 above.
7	The method according to claim 6, wherein the each UL BWP is activated through downlink (DL) control information.	<i>See</i> limitation 3 above.
8[a]	The method according to claim 5, further comprising:	<i>See</i> limitation 4[a] above.

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Claim Language		Disclosed Art
	transmitting, to the user equipment, downlink (DL) control information containing information that indicates the one of the UL control channel resources for the UL control information transmission,	
8[b]	wherein the one of the UL control channel resources is indicated to the UE through the DL control information.	See limitation 4[b] above.

3. Claim 9

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Claim Language		Disclosed Art
9[pre]	A user equipment (UE) for transmitting uplink (UL) control information, comprising:	See limitation 1[pre] above.
9[a]	a receiver configured to receive, from a base station, UL control	See limitation 1[a] above.

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Claim Language		Disclosed Art
	channel resource set configuration information for UL control information transmission;	
9[b]	a controller configured to determine one of UL control channel resource sets contained in the received UL control channel resource set configuration information, and determine one of UL control channel resources configuring the determined one UL control channel resource set; and	<i>See limitations 1[b] and 1[c] above.</i>
9[c]	a transmitter configured to transmit the UL control information through the determined UL control channel resource,	<i>See limitation 1[d] above.</i>
9[d]	wherein the determining of the one of the UL control channel resource sets is	<i>See limitation 1[e] above.</i>

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Claim Language		Disclosed Art
	performed based on a size of the UL control information, and	
9[e]	wherein the UL control channel resource set configuration information is received through UE specific radio resource control (RRC) signaling.	<i>See</i> limitation 1[f] above.
10	The UE according to claim 9, wherein the UL control channel resource sets are configured for each UL bandwidth part (BWP) configured for the UE.	<i>See</i> limitation 2 above.
11	The UE according to claim 10, wherein the each UL BWP is activated through downlink (DL) control information.	<i>See</i> limitation 3 above.
12[a]	The UE according to claim 9, wherein the receiver receives, from the base station, DL control information containing information	<i>See</i> limitation 4[a] above.

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Claim Language		Disclosed Art
	that indicates the one of the UL control channel resources for the UL control information transmission,	
12[b]	wherein the one of the UL control channel resources is indicated from the base station through the DL control information.	<i>See</i> limitation 4[b] above.