



SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

Report No.: SUCR250500048101

Rev.: 01

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TEST REPORT

Application No.: SUCR2505000481MO
Applicant: Quectel Wireless Solutions Co., Ltd.
Address of Applicant: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Manufacturer: Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
EUT Description: 5G Sub-6 GHz LGA Module
Model No.: RG650V-NA
Trade Mark: QUECTEL
FCC ID: XMR2024RG650VNA
Standards: 47 CFR Part 2
47 CFR Part 22
47 CFR Part 24
47 CFR Part 27
47 CFR Part 90
47 CFR Part 96
Date of Receipt: 2025/06/25
Date of Test: 2025/06/26 to 2025/07/10
Date of Issue: 2025/07/14

Test Result :	PASS *
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* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

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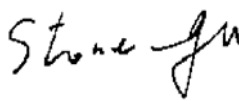
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1 Version

<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2025/07/14		Original

Prepared By		 <hr/> (Levi Li) / Test Engineer
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2 Test Summary

2.1 LTE Band 5/26(824~849 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913(a)(5)	ERP ≤ 7 W	Section 1 of Appendix B	Pass
Peak-Average Ratio	§22.913(d)	Limit ≤ 13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §22.917(a)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §22.917(a)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §22.917(a)	FCC: ≤ -13 dBm/100 kHz.	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §22.355	±2.5ppm.	Section 7 of Appendix B	Reference report SUCR240100001701

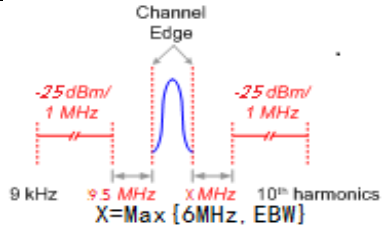
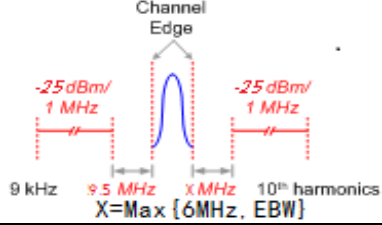
2.2 LTE Band 2 /25

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §24.232(c)	EIRP ≤ 2 W	Section 1 of Appendix B	Pass
Peak-Average Ratio	§24.232(d)	Limit≤13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §24.238(a)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §24.238(a)	≤ -13 dBm/1 MHz, from 9 kHz to 10 th harmonics but outside authorized operating frequency ranges.	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §24.238(a)	≤ -13 dBm/1 MHz.	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §24.235	Within authorized bands of operation/frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701

2.3 LTE Band 4 /66

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(d)(4)	EIRP ≤ 1 W	Section 1 of Appendix B	Pass
Peak-Average Ratio	§27.50(d)(5)	Limit≤13 dB	Section 2 of Appendix B.	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §27.53(h)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(h)	≤ -13 dBm/1 MHz, from 9 kHz to 10 th harmonics but outside authorized operating frequency ranges.	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(h)	≤ -13 dBm/1 MHz.	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701

2.4 LTE Band 7/38/41

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(h)(2)	EIRP ≤ 2W	Section 1 of Appendix B	Pass
Peak-Average Ratio	---	≤13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §27.53(m)(4)	For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)		Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(m)		Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701



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2.5 LTE Band 12/17

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §27.50(c)(10)	ERP ≤ 3 W.	Section 1 of Appendix B	Pass
Peak-Average Ratio	---	Limit ≤ 13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §27.53(g)	≤ 43+10log ₁₀ (P[Watts])	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	≤ 43+10log ₁₀ (P[Watts])	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	FCC: ≤ -13 dBm/100 kHz.	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701

2.6 LTE Band 13

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(b)(10)	ERP ≤ 3 W.	Section 1 of Appendix B	Pass
Peak-Average Ratio	---	Limit≤13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049,	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §27.53(c)	≤ 43+10log ₁₀ (P[Watts])	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(c) §27.53(f)	<p>≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.</p> <p>On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.</p> <p>For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.</p>	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(c) §27.53(f)	<p>FCC: ≤ -13 dBm/100 kHz.</p> <p>For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.</p>	Appendix C	Pass



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Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701
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2.7 LTE Band 14

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §90.542(a)	ERP ≤ 3 W.	Section 1 of Appendix B	Pass
Peak-Average Ratio	---	Limits ≤ 13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Emission Mask	§2.1051 §90.210(b)	Transmitters designed for operation under this part on frequencies other than listed in this section must meet the emission mask requirements of Emission Mask B. Equipment operating under this part on frequencies allocated to but shared with the Federal Government, must meet the applicable Federal Government technical standards (b) Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows: (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB..(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.	Section 4 of Appendix B	
Band Edges Compliance	§2.1051 §90.543(e)(2)(3)	(1) On all frequencies between 769-775 MHz and 799-805	Section 5 of	



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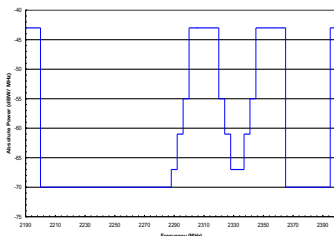
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		MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations.(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB.	Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §90.543(c) §90.543(f)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges. For operations in the 758–775 MHz and 788–805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to -70 dBW/ MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.	Section 6 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §90.543(c) §90.543(f)	FCC: ≤ -13 dBm/100 kHz. For operations in the 758–775 MHz and 788–805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to -70 dBW/ MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §90.213	Within authorized bands of operation/frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701

2.8 LTE Band 26(814~824 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Transmitter Conducted Power Output	§2.1046, §90.635(b)	< 100 W.	Section 1 of Appendix B	Pass
Peak-Average Ratio	---	Limit≤13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Emission Mask	§2.1051 § 90.691(a)	For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log ₁₀ (f/6.1) decibels or 50+10Log ₁₀ (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §90.691	< 43 + 10Log ₁₀ (P[Watts]) for all out-of-band emissions	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §90.691	< 43 + 10Log ₁₀ (P[Watts]) for all out-of-band emissions	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §90.213	Within authorized bands of operation/frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701

2.9 LTE Band 30

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(a)(3)	EIRP ≤ 50mW/1MHz EIRP ≤ 250mW/5MHz	Section 1 of Appendix B	Pass
Peak-Average Ratio	---	FCC: Limit≤13 dB	Section 2 of Appendix B	
Bandwidth	§2.1049,	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §27.53(a)(4)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(a)(4)	<p>Figure 1: Unwanted Emissions for Mobile, Portable, and Low Power Fixed Subscriber Equipment</p>  <p>For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:</p> <p>(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less</p>	Section 5 of Appendix B	Reference report SUCR240100001701

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		<p>than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;</p> <p>(ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz; (iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.</p>		
Field Strength of Spurious Radiation	§2.1053, §27.53(a)(4)	$\leq -40\text{dBm/MHz}$.	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	within the range of the operating frequency blocks	Section 7 of Appendix B	Reference report SUCR240100001701

2.10 LTE Band 42

3450-3550MHz:

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(k)(3)	EIRP ≤ 30dBm	Section 1 of Appendix B	Pass
Peak-Average Ratio	§27.50(k)(4)	Limit ≤ 13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §27.53(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Appendix C	
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/ frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701

2.11 LTE Band 43

3700-3800MHz:

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(j)(3)	EIRP ≤ 1W	Section 1 of Appendix B	Pass
Peak-Average Ratio	§27.50(j)(4)	≤13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §27.53(l)(2)	(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(l)(2)	not exceed -13 dBm/MHz.	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(l)(2)	not exceed -13 dBm/MHz	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701



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2.12 LTE Band 71

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §27.50(c)(10)	ERP ≤ 3 W	Section 1 of Appendix B	Pass
Peak-Average Ratio	---	Limit ≤ 13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Band Edges Compliance	§2.1051, §27.53(g)	≤ 43+10log10(P[Watts])	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	≤ 43+10log10(P[Watts])	Section 5 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	≤ -13 dBm/1 MHz.	Appendix C	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	within the authorized bands of operation.	Section 7 of Appendix B	Reference report SUCR240100001701

2.13 LTE Band 48

3550-3700MHz:

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §96.41	EIRP ≤ 23dBm/10MHz	Section 1 of Appendix B	Pass
Peak-Average Ratio	§96.41	FCC: Limit≤13 dB	Section 2 of Appendix B	Reference report SUCR240100001701
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B	
Adjacent Channel Leakage Ratio	§96.41	the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.	Section 6 of Appendix B	
Band Edges Compliance	§2.1051, §96.41	for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge.	Section 4 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §96.41	for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-	Section 5 of Appendix B	



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		<p>assigned channel edge, the conducted power of any End User Device emission shall not exceed -25 dBm/MHz.</p> <p>(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.</p>		
Field Strength of Spurious Radiation	§2.1053, §96.41	<p>for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed -25 dBm/MHz.</p> <p>(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.</p>	Appendix C	Pass
Frequency Stability	§2.1055, §96.41	Within authorized bands of operation/ frequency block.	Section 7 of Appendix B	Reference report SUCR240100001701

2.14 LTE CA_5B

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913(a)(5)	ERP ≤ 7 W	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Band Edges Compliance	§2.1051, §22.917(a)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §22.917(a)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Section 3 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §22.917(a)	FCC: ≤ -13 dBm/100 kHz.	Appendix C	Pass

2.15 LTE CA_2C

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §24.232(c)	EIRP ≤ 2 W	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Band Edges Compliance	§2.1051, §24.238(a)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §24.238(a)	≤ -13 dBm/1 MHz, from 9 kHz to 10 th harmonics but outside authorized operating frequency ranges.	Section 3 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §24.238(a)	≤ -13 dBm/1 MHz.	Appendix C	Pass

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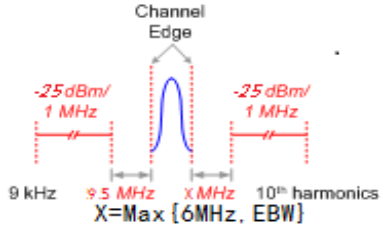
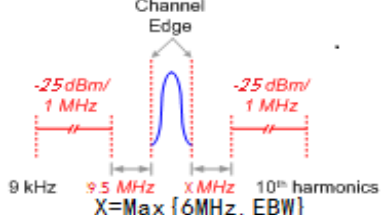
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2.16 LTE CA_66C/ CA_66B

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(d)(4)	EIRP \leq 1 W	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Band Edges Compliance	§2.1051, §27.53(h)	\leq -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(h)	\leq -13 dBm/1 MHz, from 9 kHz to 10 th harmonics but outside authorized operating frequency ranges.	Section 3 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(h)	\leq -13 dBm/1 MHz.	Appendix C	Pass

2.17 LTE CA_7C/ CA_41C

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(h)(2)	EIRP ≤ 2W	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Band Edges Compliance	§2.1051, §27.53(m)(4)	For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)	 <p>The diagram shows a central signal peak labeled 'Channel Edge'. On either side, there are two red dashed boxes representing spurious emission limits. The left box is labeled '-25 dBm/ 1 MHz' and extends from 9 kHz to 9.5 MHz. The right box is also labeled '-25 dBm/ 1 MHz' and extends from X MHz to 10th harmonics. Below the diagram, it states 'X = Max {6MHz, EBW}'.</p>	Section 3 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(m)	 <p>The diagram is identical to the one above, showing the spurious emission limits for field strength of spurious radiation. It includes the 'Channel Edge' label, the '-25 dBm/ 1 MHz' limits, and the 'X = Max {6MHz, EBW}' formula.</p>	Appendix C	Pass

2.18 LTE CA_38C

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(h)(2)	$EIRP \leq 2W$	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Band Edges Compliance	§2.1051, §27.53(m)(4)	For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)		Section 4 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(m)		Appendix C	Pass



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2.19 LTE CA_12B

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §27.50(c)(10)	ERP ≤ 3 W.	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Band Edges Compliance	§2.1051, §27.53(g)	≤ 43+10log ₁₀ (P[Watts])	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	≤ 43+10log ₁₀ (P[Watts])	Section 3 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	FCC: ≤ -13 dBm/100 kHz.	Appendix C	Pass

2.20 LTE CA_42C

3450-3550MHz:

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(k)(3)	EIRP ≤ 30dBm	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Band Edges Compliance	§2.1051, §27.53(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Section 3 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Appendix C	Pass



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2.21 LTE CA_43C

3700-3800MHz:

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(j)(3)	EIRP ≤ 1W	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Band Edges Compliance	§2.1051, §27.53(l)(2)	(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(l)(2)	not exceed -13 dBm/MHz.	Section 3 of Appendix B	
Field Strength of Spurious Radiation	§2.1053, §27.53(l)(2)	not exceed -13 dBm/MHz	Appendix C	Pass

2.22 LTE CA_48C/ CA_48B

3550-3700MHz:

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §96.41	EIRP ≤ 23dBm/10MHz	Section 1 of Appendix B	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 2 of Appendix B	Reference report SUCR240100001701
Adjacent Channel Leakage Ratio	§96.41	the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.	Section 4 of Appendix B	
Band Edges Compliance	§2.1051, §96.41	for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge.	Section 3 of Appendix B	
Spurious Emission at Antenna Terminals	§2.1051, §96.41	for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed -25 dBm/MHz.	Section 3 of Appendix B	



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		<p>(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.</p>		
Field Strength of Spurious Radiation	§2.1053, §96.41	<p>for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed -25 dBm/MHz.</p> <p>(2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.</p>	Appendix C	Pass



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Remark:

This test report (Report No.: SUCR250500048101 issue on 2025/07/14) is based on the original test report (Report No.: SUCR240100001701 issue on 2024/06/10).

Review this report and original report, this report just changing the parts according to the declaration letter from client.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report only EIRP is updated and radiated spurious emissions is performed based on the worst case of the original report with report number SUCR240100001701 issue on 2024/06/10, other test data in this report are based on the previous report with report number SUCR240100001701 issue on 2024/06/10.

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3 General Information

3.1 Details of Client

Applicant:	Quectel Wireless Solutions Co., Ltd.
Address of Applicant:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Manufacturer:	Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

3.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone
Post code:	215000
Test engineer:	Levi Li, Tizzy Song

3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 6336.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

- **FCC –Designation Number: CN1312**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327

3.4 General Description of EUT

Hardware Version:	R1.1			
Software Version:	RG650VNA01ACR02A02G8G			
Power Supply:	3.8V			
IMEI:	RF Conducted 864659080003195			
HPUE Power Class:	Class 2: LTE Band 38; LTE Band 41; LTE Band 42; LTE Band 43;			
Antenna Type:	External Antenna			
Antenna Gain:	LTE Band 2:	1.6dBi	LTE Band 4:	1.2dBi
	LTE Band 5:	0.7dBi	LTE Band 7:	2.7dBi
	LTE Band 12:	0.5dBi	LTE Band 13:	0.2dBi
	LTE Band 14:	0.1dBi	LTE Band 17:	0.5dBi
	LTE Band 25:	1.7dBi	LTE Band 26:	0.7dBi
	LTE Band 30:	-5.7dBi	LTE Band 38:	2.4dB
	LTE Band 41:	2.7dBi	LTE Band 42:	-2.01dBi
	LTE Band 43:	-7.1dBi	LTE Band 48:	-6.12dBi
	LTE Band 66:	1.4dBi	LTE Band 71:	1.22dBi
	LTE CA_2C:	1.6dBi	LTE CA_7C:	2.7dBi
	LTE CA_12B:	0.5dBi	LTE CA_38C:	2.4dBi
	LTE CA_41C:	2.7dBi	LTE CA_42C:	-2.01dBi
	LTE CA_43C:	-7.1dBi	LTE CA_48C:	-6.12dBi
	LTE CA_66C:	1.4dBi	LTE CA_66B:	1.4dBi
	LTE CA_5B:	0.7dBi	LTE CA_48B:	-6.12dBi
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.			
	RF Cable:	0.8dB(Below 1GHz)	1.0dB(1.0~2.4GHz)	1.2dB(2.4~3.4GHz)
1.5dB(Above 3.4G)				
Remark: 1. All antennas of Conduction Power & EIRP & RSE are tested, and only the worst data is presented. 2. As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.				

3.5 Test Mode

Test Mode	Test Modes Description
LTE/TM1	LTE system, QPSK modulation
LTE/TM2	LTE system, 16QAM modulation
LTE/TM3	LTE system, 64QAM modulation
LTE/TM4	LTE system, 256QAM modulation

Remark: The test mode(s) are selected according to relevant radio technology specifications.

3.6 Test Environment

Environment Parameter	101.0 kPa Selected Values During Tests	
Relative Humidity	44-46 % RH Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	22~23	3.8
LTLV	-30	3.3
LTHV	-30	4.4
HTLV	70	3.3
HTHV	70	4.4

Remark:
 NV: Normal Voltage LV: Low Extreme Test Voltage HV: High Extreme Test Voltage
 NT: Normal Temperature LT: Low Extreme Test Temperature HT: High Extreme Test Temperature

3.7 Description of Support Units

Description	Manufacturer	Model No.
Router	Smavwave Technology Co.,Ltd	SRT 421
Computer	Lenovo	T14
Mouse	Lenovo	3D optical Mouse
Adaptor	Huawei	HW-050200C02
Mouse	Lenovo	3D optical Mouse
Bluetooth earphone	Lenovo	Thinplus BH3

3.8 Technical Specification

Characteristics	Description		
Radio System Type	<input checked="" type="checkbox"/> LTE		
Supported Frequency Range	Band	TX	RX
	LTE Band 2	1850 to 1910 MHz	1930 to 1990 MHz
	LTE Band 4	1710 to 1755 MHz	2110 to 2155 MHz
	LTE Band 5	824 to 849 MHz	869 to 894 MHz
	LTE Band 7	2500 to 2570 MHz	2620 to 2690 MHz
	LTE Band 12	699 to 716 MHz	729 to 746 MHz
	LTE Band 13	777 to 787 MHz	746 to 756 MHz
	LTE Band 14	788 to 798 MHz	758 to 768 MHz
	LTE Band 17	704 to 716 MHz	734 to 746 MHz
	LTE Band 25	1850 to 1915MHz	1930 to 1995 MHz
	LTE Band 26 (814 to 824 MHz)	814 to 824MHz	859 to 869 MHz
	LTE Band 26 (824 to 849 MHz)	824 to 849 MHz	869 to 894 MHz
	LTE Band 30	2305 to 2315 MHz	2350 to 2360 MHz
	LTE Band 38	2570 to 2620 MHz	2570 to 2620 MHz
	LTE Band 41	2496 to 2690MHz	2496 to 2690MHz
	LTE Band 42	3450 to 3550 MHz	3450 to 3550 MHz
	LTE Band 43	3700 to 3800 MHz	3700 to 3800 MHz
	LTE Band 48	3550 to 3700 MHz	3550 to 3700 MHz
	LTE Band 66	1710 to 1780 MHz	2110 to 2200 MHz
	LTE Band 71	663 to 698 MHz	617 to 652 MHz
LTE CA: 2C; 7C; 12B; 38C; 41C; 42C; 43C; 48C; 48B; 5B; 66B; 66C; 12A-25A; 12A-30A; 12A-66A; 13A-66A; 14A-30A; 14A-66A; 25A-26A; 2A-12A; 2A-13A; 2A-14A; 2A-17A; 2A-30A; 2A-4A; 2A-5A; 2A-66A; 2A-71A; 2A-7A; 30A-66A; 4A-12A; 4A-13A; 4A-17A; 4A-30A; 4A-5A; 4A-71A; 4A-7A; 5A-25A; 5A-30A; 5A-66A; 5A-7A; 7A-12A; 7A-13A; 7A-26A; 7A-66A; 2A-26A; 7A-71A; 25A-66A; 7A-25A; Remark: UL CA inter-band Only test RSE, report only show worst mode.			
Supported Channel Bandwidth	LTE Band 2	<input checked="" type="checkbox"/> 1.4 MHz <input checked="" type="checkbox"/> 3 MHz <input checked="" type="checkbox"/> 5 MHz <input checked="" type="checkbox"/> 10 MHz <input checked="" type="checkbox"/> 15 MHz <input checked="" type="checkbox"/> 20 MHz	

	LTE Band 4	<input checked="" type="checkbox"/> 1.4 MHz	<input checked="" type="checkbox"/> 3 MHz	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz
	LTE Band 5	<input checked="" type="checkbox"/> 1.4 MHz	<input checked="" type="checkbox"/> 3 MHz	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz		
	LTE Band 7	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz		
	LTE Band 12	<input checked="" type="checkbox"/> 1.4 MHz	<input checked="" type="checkbox"/> 3 MHz	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz		
	LTE Band 13	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz				
	LTE Band 14	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz				
	LTE Band 17	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz				
	LTE Band 25	<input checked="" type="checkbox"/> 1.4 MHz	<input checked="" type="checkbox"/> 3 MHz	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz
	LTE Band 26(814-824)	<input checked="" type="checkbox"/> 1.4 MHz	<input checked="" type="checkbox"/> 3 MHz	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz		
	LTE Band 26(824-849)	<input checked="" type="checkbox"/> 1.4 MHz	<input checked="" type="checkbox"/> 3 MHz	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	
	LTE Band 30	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz				
	LTE Band 38	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz		
	LTE Band 41	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz		
	LTE Band 42	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz		
	LTE Band 43	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz		
	LTE Band 48	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz		
	LTE Band 66	<input checked="" type="checkbox"/> 1.4 MHz	<input checked="" type="checkbox"/> 3 MHz	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15MHz	<input checked="" type="checkbox"/> 20MHz
	LTE Band 71	<input checked="" type="checkbox"/> 5MHz	<input checked="" type="checkbox"/> 10MHz	<input checked="" type="checkbox"/> 15MHz	<input checked="" type="checkbox"/> 20MHz		
	LTE Band CA_2C	<input checked="" type="checkbox"/> 5MHz+20MHz	<input checked="" type="checkbox"/> 10MHz+15MHz				
		<input checked="" type="checkbox"/> 10MHz+20MHz	<input checked="" type="checkbox"/> 15MHz+10MHz				
		<input checked="" type="checkbox"/> 15MHz+15MHz	<input checked="" type="checkbox"/> 15MHz+20MHz				
		<input checked="" type="checkbox"/> 20MHz+5MHz	<input checked="" type="checkbox"/> 20MHz+10MHz				
	LTE Band CA_5B	<input checked="" type="checkbox"/> 20MHz+15MHz	<input checked="" type="checkbox"/> 20MHz+20MHz				
		<input checked="" type="checkbox"/> 3MHz+5MHz	<input checked="" type="checkbox"/> 5MHz+3MHz				
		<input checked="" type="checkbox"/> 5MHz+10MHz	<input checked="" type="checkbox"/> 10MHz+5MHz				
	LTE Band CA_38C	<input checked="" type="checkbox"/> 10MHz+10MHz					
		<input checked="" type="checkbox"/> 15MHz+15MHz	<input checked="" type="checkbox"/> 20MHz+20MHz				
LTE Band CA_41C	<input checked="" type="checkbox"/> 5MHz+20MHz	<input checked="" type="checkbox"/> 10MHz+15MHz					
	<input checked="" type="checkbox"/> 10MHz+20MHz	<input checked="" type="checkbox"/> 15MHz+10MHz					
	<input checked="" type="checkbox"/> 15MHz+15MHz	<input checked="" type="checkbox"/> 15MHz+20MHz					

		<input checked="" type="checkbox"/> 20MHz+5MHz	<input checked="" type="checkbox"/> 20MHz+10MHz
		<input checked="" type="checkbox"/> 20MHz+15MHz	<input checked="" type="checkbox"/> 20MHz+20MHz
	LTE Band CA_42C	<input checked="" type="checkbox"/> 5MHz+20MHz	<input checked="" type="checkbox"/> 10MHz+20MHz
		<input checked="" type="checkbox"/> 15MHz+20MHz	<input checked="" type="checkbox"/> 20MHz+5MHz
		<input checked="" type="checkbox"/> 20MHz+10MHz	<input checked="" type="checkbox"/> 20MHz+15MHz
		<input checked="" type="checkbox"/> 20MHz+20MHz	
	LTE Band CA_43C	<input checked="" type="checkbox"/> 5MHz+20MHz	<input checked="" type="checkbox"/> 10MHz+15MHz
		<input checked="" type="checkbox"/> 10MHz+20MHz	<input checked="" type="checkbox"/> 15MHz+10MHz
		<input checked="" type="checkbox"/> 15MHz+15MHz	<input checked="" type="checkbox"/> 15MHz+20MHz
		<input checked="" type="checkbox"/> 20MHz+5MHz	<input checked="" type="checkbox"/> 20MHz+10MHz
		<input checked="" type="checkbox"/> 20MHz+15MHz	<input checked="" type="checkbox"/> 20MHz+20MHz
	LTE Band CA_48B	<input checked="" type="checkbox"/> 10MHz+10MHz	
	LTE Band CA_48C	<input checked="" type="checkbox"/> 5MHz+20MHz	<input checked="" type="checkbox"/> 10MHz+20MHz
		<input checked="" type="checkbox"/> 15MHz+20MHz	<input checked="" type="checkbox"/> 20MHz+5MHz
		<input checked="" type="checkbox"/> 20MHz+10MHz	<input checked="" type="checkbox"/> 20MHz+15MHz
		<input checked="" type="checkbox"/> 20MHz+20MHz	
	LTE Band CA_66B	<input checked="" type="checkbox"/> 5MHz+5MHz	<input checked="" type="checkbox"/> 5MHz+10MHz
		<input checked="" type="checkbox"/> 5MHz+15MHz	<input checked="" type="checkbox"/> 10MHz+5MHz
		<input checked="" type="checkbox"/> 10MHz+10MHz	<input checked="" type="checkbox"/> 15MHz+5MHz
	LTE Band CA_66C	<input checked="" type="checkbox"/> 5MHz+20MHz	<input checked="" type="checkbox"/> 10MHz+15MHz
		<input checked="" type="checkbox"/> 10MHz+20MHz	<input checked="" type="checkbox"/> 15MHz+10MHz
		<input checked="" type="checkbox"/> 15MHz+15MHz	<input checked="" type="checkbox"/> 15MHz+20MHz
		<input checked="" type="checkbox"/> 20MHz+5MHz	<input checked="" type="checkbox"/> 20MHz+10MHz
		<input checked="" type="checkbox"/> 20MHz+15MHz	<input checked="" type="checkbox"/> 20MHz+20MHz
LTE Band CA_7C	<input checked="" type="checkbox"/> 10MHz+20MHz	<input checked="" type="checkbox"/> 15MHz+10MHz	
	<input checked="" type="checkbox"/> 15MHz+15MHz	<input checked="" type="checkbox"/> 15MHz+20MHz	
	<input checked="" type="checkbox"/> 20MHz+10MHz	<input checked="" type="checkbox"/> 20MHz+15MHz	
	<input checked="" type="checkbox"/> 20MHz+20MHz		
LTE Band CA_12B	<input checked="" type="checkbox"/> 5MHz+5MHz	<input checked="" type="checkbox"/> 5MHz+20MHz	



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3.9 Test Frequencies

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 2	1.4MHz	TX	Channel 18607	Channel 18900	Channel 19193
			1850.7 MHz	1880 MHz	1909.3 MHz
	1.4MHz	RX	Channel 607	Channel 900	Channel 1193
			1930.7 MHz	1960 MHz	1989.3 MHz
	3MHz	TX	Channel 18615	Channel 18900	Channel 19185
			1851.5 MHz	1880 MHz	1908.5 MHz
	3MHz	RX	Channel 615	Channel 900	Channel 1185
			1931.5 MHz	1960 MHz	1988.5 MHz
	5MHz	TX	Channel 18625	Channel 18900	Channel 19175
			1852.5 MHz	1880 MHz	1907.5 MHz
	5MHz	RX	Channel 625	Channel 900	Channel 1175
			1932.5 MHz	1960 MHz	1987.5 MHz
	10MHz	TX	Channel 18650	Channel 18900	Channel 19150
			1855 MHz	1880 MHz	1905 MHz
	10MHz	RX	Channel 650	Channel 900	Channel 1150
			1935 MHz	1960 MHz	1985 MHz
15MHz	TX	Channel 18675	Channel 18900	Channel 19125	
		1857.5 MHz	1880 MHz	1902.5 MHz	
15MHz	RX	Channel 675	Channel 900	Channel 1125	
		1937.5 MHz	1960 MHz	1982.5 MHz	
20MHz	TX	Channel 18700	Channel 18900	Channel 19100	
		1860 MHz	1880 MHz	1900 MHz	
20MHz	RX	Channel 700	Channel 900	Channel 1100	
		1940 MHz	1960 MHz	1980 MHz	

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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 4	1.4MHz	TX	Channel 19957 1710.7 MHz	Channel 20175 1732.5 MHz	Channel 20393 1754.3 MHz
		RX	Channel 1975 2112.5 MHz	Channel 2175 2132.5MHz	Channel 2375 2152.5 MHz
	3MHz	TX	Channel 19965 1711.5 MHz	Channel 20175 1732.5 MHz	Channel 20385 1753.5 MHz
		RX	Channel 2000 2115 MHz	Channel 2175 2132.5MHz	Channel 2350 2150 MHz
	5MHz	TX	Channel 19975 1712.5 MHz	Channel 20175 1732.5 MHz	Channel 20375 1752.5 MHz
		RX	Channel 1975 2112.5 MHz	Channel 2175 2132.5MHz	Channel 2375 2152.5 MHz
	10MHz	TX	Channel 20000 1715 MHz	Channel 20175 1732.5 MHz	Channel 20350 1750 MHz
		RX	Channel 2000 2115 MHz	Channel 2175 2132.5MHz	Channel 2350 2150 MHz
	15MHz	TX	Channel 20025 1717.5 MHz	Channel 20175 1732.5 MHz	Channel 20325 1747.5 MHz
		RX	Channel 2025 2117.5 MHz	Channel 2175 2132.5MHz	Channel 2325 2147.5 MHz
	20MHz	TX	Channel 20050 1720 MHz	Channel 20175 1732.5 MHz	Channel 20300 1745 MHz
		RX	Channel 2050 2120 MHz	Channel 2175 2132.5MHz	Channel 2300 2145 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 5	1.4MHz	TX	Channel 20407 824.7 MHz	Channel 20525 836.5 MHz	Channel 20643 848.3 MHz
		RX	Channel 2407 869.7 MHz	Channel 2525 881.5 MHz	Channel 2643 893.3 MHz
	3MHz	TX	Channel 20415 825.5 MHz	Channel 20525 836.5 MHz	Channel 20635 847.5 MHz
		RX	Channel 2415 870.5 MHz	Channel 2525 881.5 MHz	Channel 2635 892.5 MHz
	5MHz	TX	Channel 20425 826.5 MHz	Channel 20525 836.5 MHz	Channel 20625 846.5 MHz
		RX	Channel 2425 871.5 MHz	Channel 2525 881.5 MHz	Channel 2625 891.5 MHz
	10MHz	TX	Channel 20450 829 MHz	Channel 20525 836.5 MHz	Channel 20600 844 MHz
		RX	Channel 2450 874 MHz	Channel 2525 881.5 MHz	Channel 2600 889 MHz



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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 7	5MHz	TX	Channel 20775 2502.5 MHz	Channel 21100 2535 MHz	Channel 21425 2567.5 MHz
		RX	Channel 2775 2622.5 MHz	Channel 3100 2655 MHz	Channel 5825 2687.5 MHz
	10MHz	TX	Channel 20800 2505 MHz	Channel 21100 2535 MHz	Channel 21400 2565 MHz
		RX	Channel 2800 2625 MHz	Channel 3100 2655 MHz	Channel 3400 2685 MHz
	15MHz	TX	Channel 20825 2507.5 MHz	Channel 21100 2535 MHz	Channel 21375 2562.5 MHz
		RX	Channel 2825 2627.5 MHz	Channel 3100 2655 MHz	Channel 3375 2682.5 MHz
	20MHz	TX	Channel 20850 2510 MHz	Channel 21100 2535 MHz	Channel 21350 2560 MHz
		RX	Channel 2850 2630 MHz	Channel 3100 2655 MHz	Channel 3350 2680 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 12	1.4MHz	TX	Channel 23017 699.7 MHz	Channel 23095 707.5 MHz	Channel 23173 715.3 MHz
		RX	Channel 5017 729.7 MHz	Channel 5095 737.5 MHz	Channel 5173 745.3 MHz
	3MHz	TX	Channel 23025 700.5 MHz	Channel 23095 707.5 MHz	Channel 23165 714.5 MHz
		RX	Channel 5025 730.5 MHz	Channel 5095 737.5 MHz	Channel 5165 744.5 MHz
	5MHz	TX	Channel 23035 701.5 MHz	Channel 23095 707.5 MHz	Channel 23155 713.5 MHz
		RX	Channel 5035 731.5 MHz	Channel 5095 737.5 MHz	Channel 5155 743.5 MHz
	10MHz	TX	Channel 23060 704 MHz	Channel 23095 707.5 MHz	Channel 23130 711 MHz
		RX	Channel 5060 734 MHz	Channel 5095 737.5 MHz	Channel 5130 741 MHz

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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 13	5MHz	TX	Channel 23025 779.5 MHz	Channel 23230 782 MHz	Channel 23255 784.5 MHz
		RX	Channel 5205 748.5 MHz	Channel 5230 751 MHz	Channel 5255 753.5 MHz
	10MHz	TX	Channel 23230 782 MHz	Channel 23230 782 MHz	Channel 23230 782 MHz
		RX	Channel 5230 751 MHz	Channel 5230 751 MHz	Channel 5230 751 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 14	5MHz	TX	Channel 23305 790.5 MHz	Channel 23330 793 MHz	Channel 23355 795.5 MHz
		RX	Channel 5305 760.5 MHz	Channel 5330 763 MHz	Channel 5355 765.5 MHz
	10MHz	TX	Channel 23330 793MHz	Channel 23330 793 MHz	Channel 23330 793 MHz
		RX	Channel 5330 763MHz	Channel 5330 763 MHz	Channel 5330 763 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 17	5MHz	TX	Channel 23755 706.5 MHz	Channel 23790 710 MHz	Channel 23825 713.5 MHz
		RX	Channel 5755 736.5 MHz	Channel 5790 740 MHz	Channel 5825 743.5 MHz
	10MHz	TX	Channel 23780 709 MHz	Channel 23790 710 MHz	Channel 23800 711 MHz
		RX	Channel 5780 739 MHz	Channel 5790 740 MHz	Channel 5800 741 MHz



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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 25	1.4MHz	TX	Channel 26047 1850.7 MHz	Channel 26365 1882.5 MHz	Channel 26683 1914.3 MHz
		RX	Channel 8047 1930.7 MHz	Channel 8365 1962.5 MHz	Channel 8683 1994.3 MHz
	3MHz	TX	Channel 26055 1851.5 MHz	Channel 26365 1882.5 MHz	Channel 26675 1913.5 MHz
		RX	Channel 8055 1931.5 MHz	Channel 8365 1962.5 MHz	Channel 8675 1993.5 MHz
	5MHz	TX	Channel 26065 1852.5 MHz	Channel 26365 1882.5 MHz	Channel 26665 1912.5 MHz
		RX	Channel 8065 1932.5 MHz	Channel 8365 1962.5 MHz	Channel 8665 1992.5 MHz
	10MHz	TX	Channel 26090 1855 MHz	Channel 26365 1882.5 MHz	Channel 26640 1910 MHz
		RX	Channel 8090 1935 MHz	Channel 8365 1962.5 MHz	Channel 8640 1990 MHz
	15MHz	TX	Channel 26115 1857.5 MHz	Channel 26365 1882.5 MHz	Channel 26615 1907.5 MHz
		RX	Channel 8115 1937.5 MHz	Channel 8365 1962.5 MHz	Channel 8615 1987.5 MHz
	20MHz	TX	Channel 26140 1860 MHz	Channel 26365 1882.5 MHz	Channel 26590 1905 MHz
		RX	Channel 8140 1940 MHz	Channel 8365 1962.5 MHz	Channel 8590 1985 MHz



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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 26 (814-824)	1.4MHz	TX	Channel 26697 814.7 MHz	Channel 26740 819 MHz	Channel 26783 823.3 MHz
		RX	Channel 8697 859.7 MHz	Channel 8740 864MHz	Channel 8783 868.3 MHz
	3MHz	TX	Channel 26705 815.5 MHz	Channel 26740 819 MHz	Channel 26775 822.5 MHz
		RX	Channel 8705 860.5 MHz	Channel 8740 864MHz	Channel 8775 867.5 MHz
	5MHz	TX	Channel 26715 816.5 MHz	Channel 26740 819 MHz	Channel 26765 821.5 MHz
		RX	Channel 8715 861.5 MHz	Channel 8740 864MHz	Channel 8755 866.5 MHz
	10MHz	TX	Channel 26740 819 MHz	Channel 26740 819 MHz	Channel 26740 819 MHz
		RX	Channel 8740 864MHz	Channel 8740 864MHz	Channel 8740 864MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band26 (824-849)	1.4MHz	TX	Channel 26797 824.7 MHz	Channel 26915 836.5 MHz	Channel 27033 848.3 MHz
		RX	Channel 8697 859.7 MHz	Channel 8915 881.5 MHz	Channel 9033 893.3 MHz
	3MHz	TX	Channel 26805 825.5 MHz	Channel 26915 836.5 MHz	Channel 27025 847.5 MHz
		RX	Channel 8805 860.5 MHz	Channel 8915 881.5 MHz	Channel 9025 892.5 MHz
	5MHz	TX	Channel 26815 826.5 MHz	Channel 26915 836.5 MHz	Channel 27015 846.5 MHz
		RX	Channel 8815 871.5 MHz	Channel 8915 881.5 MHz	Channel 9015 891.5 MHz
	10MHz	TX	Channel 26840 829 MHz	Channel 26915 836.5 MHz	Channel 26990 844 MHz
		RX	Channel 8840 874 MHz	Channel 8915 881.5 MHz	Channel 8990 889 MHz
	15MHz	TX	Channel 26865 831.5 MHz	Channel 26915 836.5 MHz	Channel 26965 841.5 MHz
		RX	Channel 8865 876.5 MHz	Channel 8915 881.5 MHz	Channel 8965 886.5 MHz

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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 30	5MHz	TX	Channel 27685 2307.5 MHz	Channel27710 2310MHz	Channel 27735 2312.5 MHz
		RX	Channel 9795 2352.5MHz	Channel 9820 2355 MHz	Channel 9845 2357.5MHz
	10MHz	TX	Channel 27710 2310 MHz	Channel27710 2310MHz	Channel27710 2310MHz
		RX	Channel 9820 2355 MHz	Channel 9820 2355 MHz	Channel 9820 2355 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 38	5MHz	TX/RX	Channel 37775 2572.5 MHz	Channel38000 2595 MHz	Channel 38225 2617.5 MHz
			10MHz	TX/RX	Channel 37800 2575 MHz
	15MHz	TX/RX			Channel 37825 2577.5 MHz
			20MHz	TX/RX	Channel 37850 2580 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 41 (2496-2690)	5MHz	TX / RX	Channel 39675 2498.5 MHz	Channel40620 2593 MHz	Channel 41565 2687.5 MHz
			10MHz	TX / RX	Channel 39700 2501 MHz
	15MHz	TX / RX			Channel 39725 2503.5 MHz
			20MHz	TX / RX	Channel 39750 2506 MHz

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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 42 (3450-3550)	5MHz	TX	Channel 42115	Channel 42590	Channel 43065
			3452.5 MHz	3500 MHz	3547.5 MHz
		RX	Channel 42115	Channel 42590	Channel 43065
			3452.5 MHz	3500 MHz	3547.5 MHz
	10MHz	TX	Channel 42140	Channel 42590	Channel 43040
			3455 MHz	3500 MHz	3545 MHz
		RX	Channel 42140	Channel 42590	Channel 43040
			3455 MHz	3500 MHz	3545 MHz
	15MHz	TX	Channel 42165	Channel 42590	Channel 43015
			3457.5 MHz	3500 MHz	3542.5 MHz
		RX	Channel 42165	Channel 42590	Channel 43015
			3457.5 MHz	3500 MHz	3542.5 MHz
20MHz	TX	Channel 42190	Channel 42590	Channel 42990	
		3460 MHz	3500 MHz	3540 MHz	
	RX	Channel 42190	Channel 42590	Channel 42990	
		3460 MHz	3500 MHz	3540 MHz	

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 43 (3700-3800)	5MHz	TX/RX	Channel 44615	Channel 45090	Channel 45565
			3702.5 MHz	3750.0 MHz	3797.5 MHz
	10MHz	TX/RX	Channel 44640	Channel 45090	Channel 45540
			3705.0 MHz	3750.0 MHz	3795.0 MHz
	15MHz	TX/RX	Channel 44665	Channel 45090	Channel 45515
			3707.5 MHz	3750.0 MHz	3792.5 MHz
	20MHz	TX/RX	Channel 44690	Channel 45090	Channel 45490
			3710 MHz	3750.0 MHz	3790.0 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 48	5MHz	TX/RX	Channel 55265	Channel 55990	Channel 56715
			3552.5 MHz	3625.0 MHz	3697.5 MHz
	10MHz	TX/RX	Channel 55290	Channel 55990	Channel 56690
			3555.0 MHz	3625.0 MHz	3695.0 MHz
	15MHz	TX/RX	Channel 55315	Channel 55990	Channel 56665
			3557.5 MHz	3625.0 MHz	3692.5 MHz
	20MHz	TX/RX	Channel 55340	Channel 55990	Channel 56640
			3560.0 MHz	3625.0 MHz	3690.0 MHz

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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 66	1.4MHz	TX	Channel 131979 1710.7 MHz	Channel 132322 1745 MHz	Channel 132665 1779.3 MHz
		RX	Channel 66443 2110.7 MHz	Channel 66786 2145MHz	Channel 67329 2199.3 MHz
	3MHz	TX	Channel 131987 1711.5 MHz	Channel 132322 1745 MHz	Channel 132657 1778.5MHz
		RX	Channel 66451 2111.5 MHz	Channel 66786 2145MHz	Channel 67321 2198.5MHz
	5MHz	TX	Channel 131997 1712.5 MHz	Channel 132322 1745 MHz	Channel 132647 1777.5 MHz
		RX	Channel 66461 2112.5 MHz	Channel 66786 2145MHz	Channel 67311 2197.5 MHz
	10MHz	TX	Channel 132022 1715 MHz	Channel 132322 1745 MHz	Channel 132622 1775 MHz
		RX	Channel 66486 2115 MHz	Channel 66786 2145MHz	Channel 67286 2195 MHz
	15MHz	TX	Channel 132047 1717.5 MHz	Channel 132322 1745 MHz	Channel 132597 1772.5 MHz
		RX	Channel 66511 2117.5 MHz	Channel 66786 2145MHz	Channel 67261 2192.5 MHz
	20MHz	TX	Channel 132072 1720 MHz	Channel 132322 1745 MHz	Channel 132572 1770 MHz
		RX	Channel 66536 2120 MHz	Channel 66786 2145MHz	Channel 67236 2190 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 71	5MHz	TX	Channel 133147 665.5 MHz	Channel 133297 680.5 MHz	Channel 133447 695.5 MHz
		RX	Channel 68611 619.5 MHz	Channel 68761 634.5 MHz	Channel 68911 649.5 MHz
	10MHz	TX	Channel 133172 668 MHz	Channel 133297 680.5 MHz	Channel 133422 693 MHz
		RX	Channel 68636 622 MHz	Channel 68761 634.5 MHz	Channel 68886 647 MHz
	15MHz	TX	Channel 133197 670.5 MHz	Channel 133297 680.5 MHz	Channel 133397 690.5 MHz
		RX	Channel 68661 624.5 MHz	Channel 68761 634.5 MHz	Channel 68861 644.5 MHz
	20MHz	TX	Channel 133222 673 MHz	Channel 133297 680.5 MHz	Channel 133372 688 MHz
		RX	Channel 68686 627 MHz	Channel 68761 634.5 MHz	Channel 68836 642 MHz

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Table 4.3.1.1.2A-2: Test frequencies for CA_2C

Range	CC-Combo / N _{RB,agg} [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]	BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]
Low	25+100	25	18633	1853.3	633	1933.3	100	18750	1865	750	1945
		100	18700	1860	700	1940	25	18817	1871.7	817	1951.7
	50+75	50	18653	1855.3	653	1935.3	75	18773	1867.3	773	1947.3
		75	18675	1857.5	675	1937.5	50	18795	1869.5	795	1949.5
	50+100	50	18655	1855.5	655	1935.5	100	18799	1869.9	799	1949.9
		100	18700	1860	700	1940	50	18844	1874.4	844	1954.4
	75+75	75	18675	1857.5	675	1937.5	75	18825	1872.5	825	1952.5
	75+100	75	18678	1857.8	678	1937.8	100	18849	1874.9	849	1954.9
		100	18700	1860	700	1940	75	18871	1877.1	871	1957.1
	100+100	100	18700	1860	700	1940	100	18898	1879.8	898	1959.8
Mid	25+100	25	18808	1870.8	808	1950.8	100	18925	1882.5	925	1962.5
		100	18875	1877.5	875	1957.5	25	18992	1889.2	992	1969.2
	50+75	50	18829	1872.9	829	1952.9	75	18949	1884.9	949	1964.9
		75	18851	1875.1	851	1955.1	50	18971	1887.1	971	1967.1
	50+100	50	18806	1870.6	806	1950.6	100	18950	1885	950	1965
		100	18851	1875.1	851	1955.1	50	18995	1889.5	995	1969.5
	75+75	75	18825	1872.5	825	1952.5	75	18975	1887.5	975	1967.5
	75+100	75	18803	1870.3	803	1950.3	100	18974	1887.4	974	1967.4
		100	18826	1872.6	826	1952.6	75	18997	1889.7	997	1969.7
	100+100	100	18801	1870.1	801	1950.1	100	18999	1889.9	999	1969.9
High	25+100	25	18983	1888.3	983	1968.3	100	19100	1900	1100	1980
		100	19050	1895	1050	1975	25	19167	1906.7	1167	1986.7
	50+75	50	19005	1890.5	1005	1970.5	75	19125	1902.5	1125	1982.5
		75	19027	1892.7	1027	1972.7	50	19147	1904.7	1147	1984.7
	50+100	50	18956	1885.6	956	1965.6	100	19100	1900	1100	1980
		100	19001	1890.1	1001	1970.1	50	19145	1904.5	1145	1984.5
	75+75	75	18975	1887.5	975	1967.5	75	19125	1902.5	1125	1982.5
	75+100	75	18929	1882.9	929	1962.9	100	19100	1900	1100	1980
		100	18951	1885.1	951	1965.1	75	19122	1902.2	1122	1982.2
	100+100	100	18902	1880.2	902	1960.2	100	19100	1900	1100	1980

Note 1: Carriers in increasing frequency order.

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Table 4.3.1.1.5A-1: Test frequencies for CA_5B

Range	CC-Combo / N _{RB,agg} [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]	BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]
Low	15+25	15	20416	825.6	2416	870.6	25	20455	829.5	2455	874.5
		25	20425	826.5	2425	871.5	15	20464	830.4	2464	875.4
	25+50	25	20428	826.8	2428	871.8	50	20500	834	2500	879
	50+25	50	20450	829	2450	874	25	20522	836.2	2522	881.2
	50+50	50	20450	829	2450	874	50	20549	838.9	2549	883.9
Mid	15+25	15	20501	834.1	2501	879.1	25	20540	838.0	2540	883.0
		25	20510	835.0	2510	880.0	15	20549	838.9	2549	883.9
	25+50	25	20478	831.8	2478	876.8	50	20550	839	2550	884
	50+25	50	20500	834	2500	879	25	20572	841.2	2572	886.2
	50+50	50	20476	831.6	2476	876.6	50	20575	841.5	2575	886.5
High	15+25	15	20586	842.6	2586	887.6	25	20625	846.5	2625	891.5
		25	20595	843.5	2595	888.5	15	20634	847.4	2634	892.4
	25+50	25	20528	836.8	2528	881.8	50	20600	844	2600	889
	50+25	50	20550	839	2550	884	25	20622	846.2	2622	891.2
	50+50	50	20501	834.1	2501	879.1	50	20600	844	2600	889

Note 1: Carriers in increasing frequency order.

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Table 4.3.1.1.7A-1: Test frequencies for CA_7C

Range	CC-Combo / N _{RB_agg} [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]	BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]
Low	50+100	50	20805	2505.5	2805	2625.5	100	20949	2519.9	2949	2639.9
		100	20850	2510	2850	2630	50	20994	2524.4	2994	2644.4
	75+50	75	20825	2507.5	2825	2627.5	50	20945	2519.5	2945	2639.5
	75+75	75	20825	2507.5	2825	2627.5	75	20975	2522.5	2975	2642.5
		75+100	75	20828	2507.8	2828	2627.8	100	20999	2524.9	2999
	100+100	100	20850	2510	2850	2630	75	21021	2527.1	3021	2647.1
Mid	50+100	50	21006	2525.6	3006	2645.6	100	21150	2540	3150	2660
		100	21051	2530.1	3051	2650.1	50	21195	2544.5	3195	2664.5
	75+50	75	21051	2530.1	3051	2650.1	50	21171	2542.1	3171	2662.1
	75+75	75	21025	2527.5	3025	2647.5	75	21175	2542.5	3175	2662.5
	75+100	75	21003	2525.3	3003	2645.3	100	21174	2542.4	3174	2662.4
		100	21026	2527.6	3026	2647.6	75	21197	2544.7	3197	2664.7
100+100	100	21001	2525.1	3001	2645.1	100	21199	2544.9	3199	2664.9	
High	50+100	50	21206	2545.6	3206	2665.6	100	21350	2560	3350	2680
		100	21251	2550.1	3251	2670.1	50	21395	2564.5	3395	2684.5
	75+50	75	21277	2552.7	3277	2672.7	50	21397	2564.7	3397	2684.7
	75+75	75	21225	2547.5	3225	2667.5	75	21375	2562.5	3375	2682.5
	75+100	75	21179	2542.9	3179	2662.9	100	21350	2560	3350	2680
		100	21201	2545.1	3201	2665.1	75	21372	2562.2	3372	2682.2
100+100	100	21152	2540.2	3152	2660.2	100	21350	2560	3350	2680	

Note 1: Carriers in increasing frequency order.

Table 4.3.1.1.12A-1: Test frequencies for CA_12B

Range	CC-Combo / N _{RB_agg} [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]	BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]
Low	25+25	25	23035	701.5	5035	731.5	25	23083	706.3	5083	736.3
	25+50	25	23038	701.8	5038	731.8	50	23110	709	5110	739
Mid	25+25	25	23071	705.1	5071	735.1	25	23119	709.9	5119	739.9
	25+50	25	23048	702.8	5048	732.8	50	23120	710	5120	740
High	25+25	25	23107	708.7	5107	738.7	25	23155	713.5	5155	743.5
	25+50	25	23058	703.8	5058	733.8	50	23130	711	5130	741

Note 1: Carriers in increasing frequency order.

Table 4.3.1.2.6A-1: Test frequencies for CA_38C

Range	CC-Combo / N _{RB_agg} [RB]	CC1 Note1			CC2 Note1		
		BW [RB]	N _{UL/DL}	f _{UL/DL} [MHz]	BW [RB]	N _{UL/DL}	f _{UL/DL} [MHz]
Low	75+75	75	37825	2577.5	75	37975	2592.5
	100+100	100	37850	2580	100	38048	2599.8
Mid	75+75	75	37925	2587.5	75	38075	2602.5
	100+100	100	37901	2585.1	100	38099	2604.9
High	75+75	75	38025	2597.5	75	38175	2612.5
	100+100	100	37952	2590.2	100	38150	2610

Note 1: Carriers in increasing frequency order.

Table 4.3.1.2.9A-1: Test frequencies for CA_41C

Range	CC-Combo / N _{RB_agg} [RB]	CC1 Note1			CC2 Note1		
		BW [RB]	N _{UL/DL}	f _{UL/DL} [MHz]	BW [RB]	N _{UL/DL}	f _{UL/DL} [MHz]
Low	25+100	25	39683	2499.3	100	39800	2511
		100	39750	2506	25	39867	2517.7
	50+75	50	39703	2501.3	75	39823	2513.3
		75	39725	2503.5	50	39845	2515.5
	50+100	50	39705	2501.5	100	39849	2515.9
		100	39750	2506	50	39894	2520.4
	75+75	75	39725	2503.5	75	39875	2518.5
	75+100	75	39728	2503.8	100	39899	2520.9
		100	39750	2506	75	39921	2523.1
	100+100	100	39750	2506	100	39948	2525.8
Mid	25+100	25	40528	2583.8	100	40645	2595.5
		100	40595	2590.5	25	40712	2602.2
	50+75	50	40549	2585.9	75	40669	2597.9
		75	40571	2588.1	50	40691	2600.1
	50+100	50	40526	2583.6	100	40670	2598.0
		100	40571	2588.1	50	40715	2602.5
	75+75	75	40545	2585.5	75	40695	2600.5
	75+100	75	40523	2583.3	100	40694	2600.4
		100	40546	2585.6	75	40717	2602.7
	100+100	100	40521	2583.1	100	40719	2602.9
High	25+100	25	41373	2668.3	100	41490	2680
		100	41440	2675	25	41557	2686.7
	50+75	50	41395	2670.5	75	41515	2682.5
		75	41417	2672.7	50	41537	2684.7
	50+100	50	41346	2665.6	100	41490	2680
		100	41391	2670.1	50	41535	2684.5
	75+75	75	41365	2667.5	75	41515	2682.5
	75+100	75	41319	2662.9	100	41490	2680
		100	41341	2665.1	75	41512	2682.2
	100+100	100	41292	2660.2	100	41490	2680

Note 1: Carriers in increasing frequency order.

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LTE CA_42C(3450-3550):

Range	CC-Combo / NRB_agg [RB]	CC1 Note1			CC2 Note1		
		BW [RB]	NUL/DL	fUL/DL [MHz]	BW [RB]	NUL/DL	fUL/DL [MHz]
Low	25+100	25	42123	3453.3	100	42240	3465
		100	42190	3460	25	42307	3471.7
	50+100	50	42145	3455.5	100	42289	3469.9
		100	42190	3460	50	42334	3474.4
	75+100	75	42168	3457.8	100	42339	3474.9
		100	42190	3460	75	42361	3477.1
	100+100	100	42190	3460	100	42388	3479.8
	Mid	25+100	25	42498	3490.8	100	42615
100			42565	3497.5	25	42682	3509.2
50+100		50	42496	3490.6	100	42640	3505
		100	42541	3495.1	50	42685	3509.5
75+100		75	42493	3490.3	100	42664	3507.4
		100	42516	3492.6	75	42687	3509.7
100+100		100	42491	3490.1	100	42689	3509.9
High		25+100	25	42873	3528.3	100	42990
	100		42940	3535	25	43057	3546.7
	50+100	50	42846	3525.6	100	42990	3540
		100	42891	3530.1	50	43035	3544.5
	75+100	75	42819	3522.9	100	42990	3540
		100	42841	3525.1	75	43012	3542.2
	100+100	100	42792	3520.2	100	42990	3540

Note 1: Carriers in increasing frequency order.

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LTE CA_43C(3700-3800):

Range	CC-Combo / NRB_agg [RB]	CC1 Note1			CC2 Note1		
		BW [RB]	NUL/DL	fUL/DL [MHz]	BW [RB]	NUL/DL	fUL/DL [MHz]
Low	25+100	25	44623	3703.3	100	44740	3715
		100	44690	3710	25	44807	3721.7
	50+100	50	44645	3705.5	100	44789	3719.9
		100	44690	3710	50	44834	3724.4
	75+100	75	44668	3707.8	100	44839	3724.9
		100	44690	3710	75	44861	3727.1
100+100	100	44690	3710	100	44888	3729.8	
Mid	25+100	25	44998	3740.8	100	45115	3752.5
		100	45065	3747.5	25	45182	3759.2
	50+100	50	44996	3740.6	100	45140	3755
		100	45041	3745.1	50	45185	3759.5
	75+100	75	44993	3740.3	100	45164	3757.4
		100	45016	3742.6	75	45187	3759.7
100+100	100	44991	3740.1	100	45189	3759.9	
High	25+100	25	45373	3778.3	100	45490	3790
		100	45440	3785	25	45557	3796.7
	50+100	50	45346	3775.6	100	45490	3790
		100	45391	3780.1	50	45535	3794.5
	75+100	75	45319	3772.9	100	45490	3790
		100	45341	3775.1	75	45512	3792.2
100+100	100	45292	3770.2	100	45490	3790	

Note 1: Carriers in increasing frequency order.



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LTE CA_48C(3550-3700):

Range	CC-Combo / NRB_agg [RB]	CC1 Note1			CC2 Note1		
		BW [RB]	NUL/DL	fUL/DL [MHz]	BW [RB]	NUL/DL	fUL/DL [MHz]
Low	25+100	25	55273	3553.3	100	55390	3565
		100	55340	3560	25	55457	3571.7
	50+100	50	55295	3555.5	100	55439	3569.9
		100	55340	3560	50	55484	3574.4
	75+100	75	55318	3557.8	100	55489	3574.9
		100	55340	3560	75	55511	3577.1
100+100	100	55340	3560	100	55538	3579.8	
Mid	25+100	25	55898	3615.8	100	56015	3627.5
		100	55965	3622.5	25	56082	3634.2
	50+100	50	55896	3615.6	100	56040	3630
		100	55941	3620.1	50	56085	3634.5
	75+100	75	55893	3615.3	100	56064	3632.4
		100	55916	3617.6	75	56087	3634.7
100+100	100	55891	3615.1	100	56089	3634.9	
High	25+100	25	56523	3678.3	100	56640	3690
		100	56590	3685	25	56707	3696.7
	50+100	50	56496	3675.6	100	56640	3690
		100	56541	3680.1	50	56685	3694.5
	75+100	75	56469	3672.9	100	56640	3690
		100	56491	3675.1	75	56662	3692.2
100+100	100	56442	3670.2	100	56640	3690	

Note 1: Carriers in increasing frequency order.



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LTE CA_48B(3550-3700):

CC-Combo / NRB_agg [RB]	Range	PCC		SCC	
		NUL/DL	fUL/DL [MHz]	NUL/DL	fUL/DL [MHz]
10+10	Low	55290	3555	55389	3564.9
	Mid	55740	3600	55839	3609.9
	High	56091	3635.1	56190	3645

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Table 4.3.1.1.66A-1: Test frequencies for CA_66B

Range	CC-Combo / N _{RB_agg} [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]	BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]
Low	25+25	25	131997	1712.5	66461	2112.5	25	132045	1717.3	66509	2117.3
	25+50	25	132000	1712.8	66464	2112.8	50	132072	1720	66536	2120
		50	132022	1715	66486	2115	25	132094	1722.2	66558	2122.2
	25+75	25	132002	1713	66466	2113	75	132095	1722.3	66559	2122.3
		75	132047	1717.5	66511	2117.5	25	132140	1726.8	66604	2126.8
50+50	50	132022	1715	66486	2115	50	132121	1724.9	66585	2124.9	
Mid	25+25	25	132398	1752.6	66862	2152.6	25	132446	1757.4	66910	2157.4
	25+50	25	132375	1750.3	66839	2150.3	50	132447	1757.5	66911	2157.5
		50	132397	1752.5	66861	2152.5	25	132469	1759.7	66933	2159.7
	25+75	25	132353	1748.1	66817	2148.1	75	132446	1757.4	66910	2157.4
		75	132398	1752.6	66862	2152.6	25	132491	1761.9	66955	2161.9
50+50	50	132373	1750.1	66837	2150.1	50	132472	1760	66936	2160	
High ²	25+25	25	132647	1777.5	67111	2177.5	25	NA	NA	67159	2182.3
	25+50	25	132647	1777.5	67111	2177.5	50	NA	NA	67183	2184.7
		50	132622	1775	67086	2175	25	NA	NA	67158	2182.2
	25+75	25	132647	1777.5	67111	2177.5	75	NA	NA	67204	2186.8
		75	132597	1772.5	67061	2172.5	25	NA	NA	67154	2181.8
50+50	50	132622	1775	67086	2175	50	NA	NA	67185	2184.9	
High ³	25+25	25	132599	1772.7	67063	2172.7	25	132647	1777.5	67111	2177.5
	25+50	25	132550	1767.8	67014	2167.8	50	132622	1775	67086	2175
		50	132572	1770	67036	2170	25	132644	1777.2	67108	2177.2
	25+75	25	132504	1763.2	66968	2163.2	75	132597	1772.5	67061	2172.5
		75	132549	1767.7	67013	2167.7	25	132642	1777	67106	2177
50+50	50	132523	1765.1	66987	2165.1	50	132622	1775	67086	2175	

Note 1: Carriers in increasing frequency order.
Note 2: Applicable for intra-band contiguous CA without UL CA.
Note 3: Applicable for intra-band contiguous CA with UL CA.

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Range	CC-Combo / N _{RB_agg} [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]	BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]
Low	50+75	50	132025	1715.3	66489	2115.3	75	132145	1727.3	66609	2127.3
		75	132047	1717.5	66511	2117.5	50	132167	1729.5	66631	2129.5
	50+100	50	132027	1715.5	66491	2115.5	100	132171	1729.9	66635	2129.9
		100	132072	1720	66536	2120	50	132216	1734.4	66680	2134.4
	75+75	75	132047	1717.5	66511	2117.5	75	132197	1732.5	66661	2132.5
		75	132050	1717.8	66514	2117.8	100	132221	1734.9	66685	2134.9
	75+100	100	132072	1720	66536	2120	75	132243	1737.1	66707	2137.1
		100	132072	1720	66536	2120	25	132189	1731.7	66653	2131.7
100+25	25	132005	1713.3	66469	2113.3	100	132122	1725.0	66586	2125.0	
	100	132072	1720	66536	2120	100	132270	1739.8	66734	2139.8	
Mid	50+75	50	132351	1747.9	66815	2147.9	75	132471	1759.9	66935	2159.9
		75	132373	1750.1	66837	2150.1	50	132493	1762.1	66957	2162.1
	50+100	50	132328	1745.6	66792	2145.6	100	132472	1760	66936	2160
		100	132373	1750.1	66837	2150.1	50	132517	1764.5	66981	2164.5
	75+75	75	132347	1747.5	66811	2147.5	75	132497	1762.5	66961	2162.5
		75	132325	1745.3	66789	2145.3	100	132496	1762.4	66960	2162.4
	75+100	100	132348	1747.6	66812	2147.6	75	132519	1764.7	66983	2164.7
		100	132397	1752.5	66861	2152.5	25	132514	1764.2	66978	2164.2
	100+25	25	132330	1745.8	66794	2145.8	100	132447	1757.5	66911	2157.5
		100	132323	1745.1	66787	2145.1	100	132521	1764.9	66985	2164.9
High ²	50+75	50	132622	1775	67086	2175	75	NA	NA	67206	2187
		75	132597	1772.5	67061	2172.5	50	NA	NA	67181	2184.5
	50+100	50	132622	1775	67086	2175	100	NA	NA	67230	2189.4
		100	132572	1770	67036	2170	50	NA	NA	67180	2184.4
	75+75	75	132597	1772.5	67061	2172.5	75	NA	NA	67211	2187.5
		75	132597	1772.5	67061	2172.5	100	NA	NA	67232	2189.6
	75+100	100	132572	1770	67036	2170	75	NA	NA	67207	2187.1
		100	132572	1770	67036	2170	25	NA	NA	67153	2181.7
	100+25	25	132647	1777.5	67111	2177.5	100	NA	NA	67228	2189.2
		100	132572	1770	67036	2170	100	NA	NA	67234	2189.8
High ³	50+75	50	132477	1760.5	66941	2160.5	75	132597	1772.5	67061	2172.5
		75	132499	1762.7	66963	2162.7	50	132619	1774.7	67083	2174.7
	50+100	50	132428	1755.6	66892	2155.6	100	132572	1770	67036	2170
		100	132473	1760.1	66937	2160.1	50	132617	1774.5	67081	2174.5
	75+75	75	132447	1757.5	66911	2157.5	75	132597	1772.5	67061	2172.5
		75	132401	1752.9	66885	2152.9	100	132572	1770	67036	2170
	75+100	100	132423	1755.1	66887	2155.1	75	132594	1772.2	67058	2172.2
		100	132522	1765	66986	2165	25	132639	1776.7	67103	2176.7
	100+25	25	132455	1758.3	66919	2158.3	100	132572	1770.0	67036	2170.0
		100	132374	1750.2	66838	2150.2	100	132572	1770	67036	2170

Note 1: Carriers in increasing frequency order.

Note 2: Applicable for intra-band contiguous CA without UL CA.

Note 3: Applicable for intra-band contiguous CA with UL CA.

LTE CA_66C:

4 Description of Tests

4.1 Conducted Output Power

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.2.1

The transmitter output was connected to a calibrated coaxial cable, attenuator and power meter, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The power output at the transmitter antenna port was determined by adding the value of the cable insertion loss to the power reading. The tests were performed at three frequencies (low channel, middle channel and high channel) and on the highest power levels, which can be setup on the transmitters.

Remark: Reference test setup 1



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4.2 Effective (Isotropic) Radiated Power of Transmitter

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.8.4

Calculate power in dBm by the following formula:

$ERP \text{ (dBm)} = \text{Conducted Power (dBm)} + \text{antenna gain (dBd)}$

$EIRP \text{ (dBm)} = \text{Conducted Power (dBm)} + \text{antenna gain (dBi)}$

$EIRP = ERP + 2.15 \text{ dB}$



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4.3 EIRP Power Density

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.3

Test Settings

1. Set instrument center frequency to OBW center frequency.
2. Set span to at least 1.5 times the OBW.
3. Set the RBW to the specified reference bandwidth (often 1 MHz).
4. Set VBW $\geq 3 \times$ RBW.
5. Detector = RMS (power averaging).
6. Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
7. Sweep time = auto couple.
8. Employ trace averaging (RMS) mode over a minimum of 100 traces.
9. Use the peak marker function to determine the maximum amplitude level within the reference bandwidth (PSD).

4.4 Occupied Bandwidth

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 4.2 & 4.3

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel). The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

Remark: Reference test setup 1

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW \geq 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

4.5 Band Edge at Antenna Terminals

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to rms.

Remark: Reference test setup 1

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. $RBW \geq 1\%$ of the emission bandwidth
4. $VBW \geq 3 \times RBW$
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span}/RBW$
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

4.6 Spurious And Harmonic Emissions at Antenna Terminal

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyzer, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel). The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Remark: Reference test setup 1

Test Settings

1. Start frequency was set to 9kHz and stop frequency was set to at least 10* the fundamental frequency (Separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

4.7 Peak-Average Ratio

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.7.2

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

Remark: Reference test setup 1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

4.8 Field Strength of Spurious Radiation

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.8

Below 1GHz test procedure as below:

- 1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.
- 2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
- 3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
- 4). Test the EUT in the lowest channel, the middle channel ,the Highest channel.
- 5). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
- 6). Repeat above procedures until all frequencies measured was complete.

$$E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + (\text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)} - \text{AMP(dB)})$$

$$\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20 \log D - 104.8; \text{ where D is the measurement distance in meters}$$

Above 1GHz test procedure as below:

- 1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber
- 2) Calculate power in dBm by the following formula:

$$E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + (\text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)} - \text{AMP(dB)})$$

$$\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20 \log D - 104.8; \text{ where D is the measurement distance in meters}$$
- 3). Test the EUT in the lowest channel, the middle channel the Highest channel
- 4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
- 5). Repeat above procedures until all frequencies measured was complete

Remark1: Reference test setup 2

Remark2: The emission below 18G were measured at a 3m test distance, while emissions above 18GHz were measured at a 1m test distance. At a measurement distance of 1 meter the limit line was increased by $20 \cdot \text{LOG}(3/1) = 9.54 \text{ dB}$.

Remark: Reference test setup 2

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier (dB)

Level = Reading Level + AF + Factor -95.26

Margin = Limit – Level

2) Scan from 9kHz to 40GHz, The disturbance between 9KHz to 30MHz and 18GHz to 40GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) All modes have been tested, but only the worst case data displayed in this report.

4.9 Frequency Stability / Temperature Variation

Measurement Procedure:

Frequency stability testing is performed in accordance with the guidelines of FCC KDB 971168 D01 V03r01; Section 9

. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

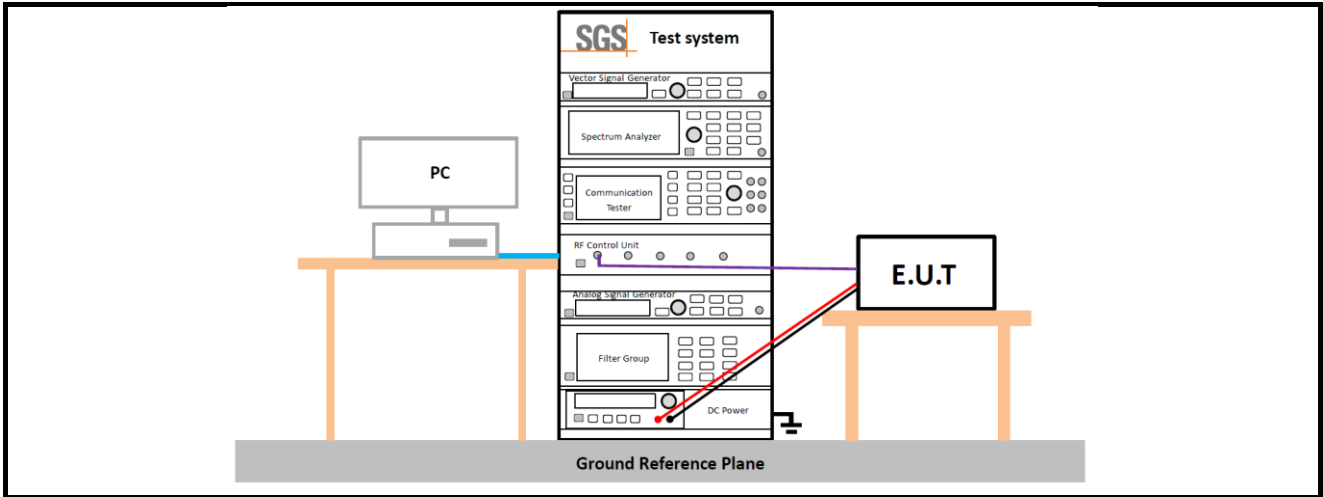
Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

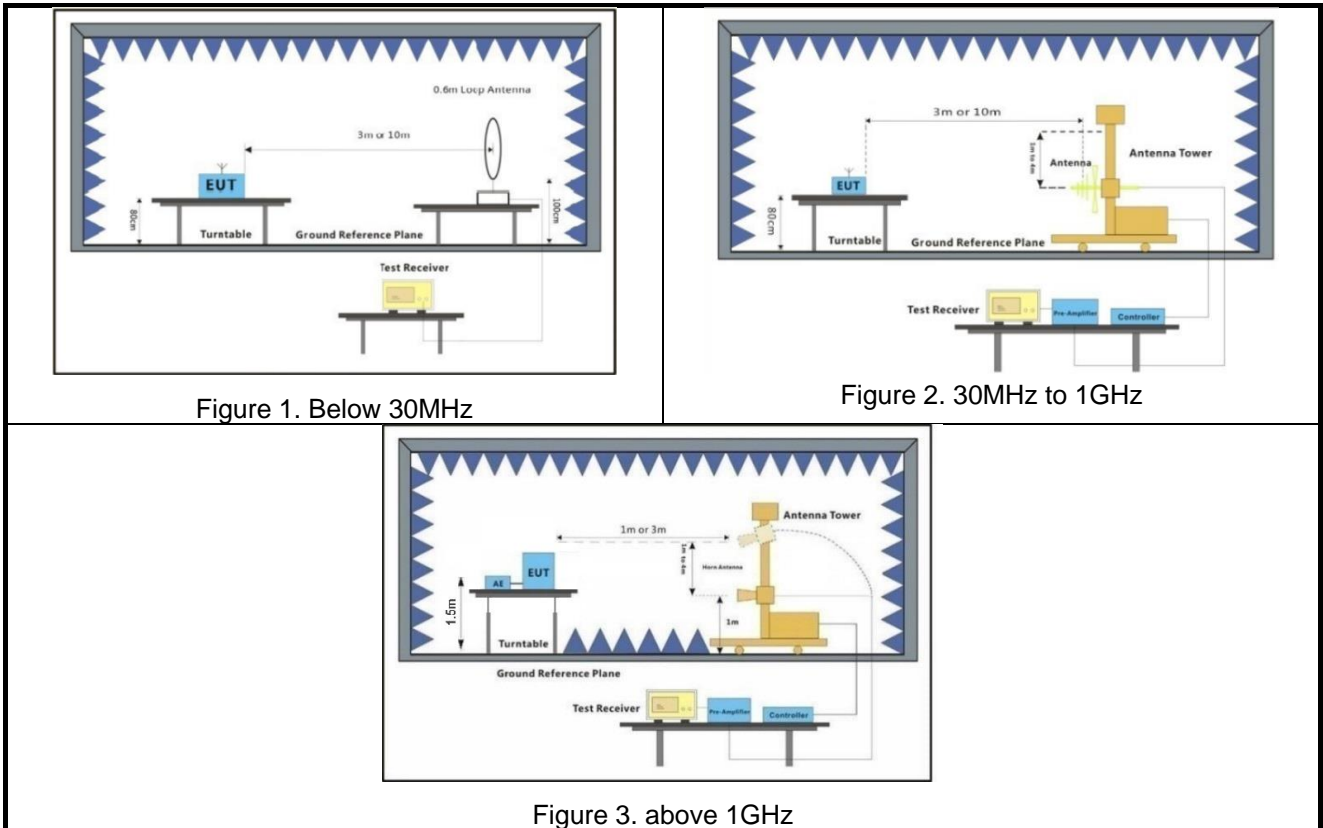
Remark: Reference test setup 3

4.10 Test Setups

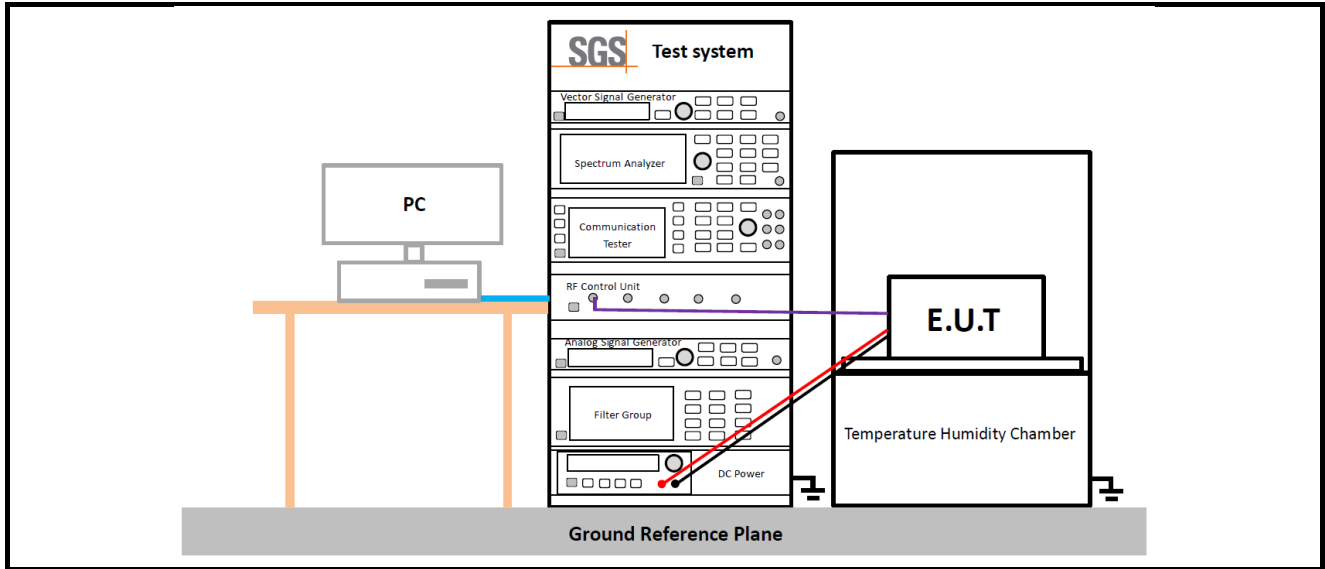
4.10.1 Test Setup 1



4.10.2 Test Setup 2



4.10.3 Test Setup 3



4.11 Test Conditions

Transmit Output Power Data - Average Power, Spectral Density	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	LTE/TM1;LTE/TM2;LTE/TM3;LTE/TM4;
Peak-to-Average Ratio	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	LTE/TM1;LTE/TM2;LTE/TM3;LTE/TM4;
Bandwidth - Occupied Bandwidth	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	LTE/TM1;LTE/TM2;LTE/TM3;LTE/TM4;
Bandwidth - Emission Bandwidth	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	LTE/TM1;LTE/TM2;LTE/TM3;LTE/TM4;
Band Edges Compliance	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, H (L= low channel, H= high channel)
Test Mode	LTE/TM1;
Spurious Emission at Antenna Terminals	
Test Case	Test Conditions

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Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	LTE/TM1;
Field Strength of Spurious Radiation	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 2
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	LTE/TM1; Remark: All bandwidth and modulation of LTE have been pre tested, and only the worst results are reflected in the report.
Frequency Stability	
Test Case	Test Conditions
Test Environment	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage (2) VL, VN and VH of Rated Voltage at Ambient Climate.
Test Setup	Test Setup 3
RF Channels (TX)	M (M= middle channel)
Test Mode	LTE/TM1; The report only show the bandwidth with the worst case.

5 Main Test Instruments

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
RF Conducted Test						
1	Shielding Room	Brilliant-emc	N/A	SUWI-04-08-01	11/9/2022	11/8/2025
2	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	2025/5/8	2026/5/7
9	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-15	11/21/2024	11/20/2025
7	MXG Vector signal genitor	KEYSIGHT	N5182B	SUWI-01-38-01	1/15/2025	1/14/2026
8	Signal Generator	ROHDE&SCHWARZ	SMW200A	SUWI-01-07-08	3/27/2025	3/26/2026
10	MXG Vector Signal Generator	ROHDE&SCHWARZ	SMR20	SUWI-01-33-01	3/17/2025	3/16/2026
3	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-13	2025/5/8	2026/5/7
11	Wideband Radio Communication Test Ststion	Anritsu	MT8000A	SUWI-01-34-02	11/19/2024	11/18/2025
12	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	11/19/2024	11/18/2025
5	Power meter	Anritsu	ML2495A	SUWI-01-31-01	11/19/2024	11/18/2025
6	Pulse power sensor	Anritsu	MA2411B	SUWI-01-32-01	11/19/2024	11/18/2025
4	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/15/2025	1/14/2026
13	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2/13/2025	2/12/2026
14	Temperature Chamber	GIANT FORCE	ICT-017-40-SP-SD	SUWI-01-13-02	2025/5/8	2026/5/7
15	Measurement Software	TST	TST 272 V2.0	SUWI-03-55-03	NCR	NCR
RF Radiated Test						
1	Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-01	6/3/2023	6/2/2026
4	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	1/20/2025	1/19/2026
5	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-09	11/21/2024	11/20/2025
6	Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	1/15/2025	1/14/2026
8	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	VULB 9168	SUWI-01-11-04	8/22/2024	8/21/2026
9	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	BBHA 9120D	SUWI-01-11-02	5/7/2025	5/6/2027

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10	Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9170	SUWI-01-11-03	5/7/2025	5/6/2027
11	Active Loop Antenna	SCHWRZBECK MESS- ELEKTRONIK	FMZB 1519B	SUWI-01-21-01	5/7/2025	5/6/2027
12	Amplifier	Tonscend	TAP9K3G40	SUWI-01-14-01	1/16/2025	1/15/2026
13	Amplifier	Tonscend	TAP01018050	SUWI-01-14-02	1/16/2025	1/15/2026
14	Amplifier	Tonscend	TAP18040048	SUWI-01-14-03	1/20/2025	1/19/2026
15	Wideband Radio Communication Tester	Anritsu	MT8820C	SUWI-01-26-01	2025/5/8	2026/5/7
16	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	11/19/2024	11/18/2025
17	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-09	2025/5/8	2026/5/7
18	Radio Communication Analyzer	StarPoint	SP9500E	SUWI-01-28-02	11/19/2024	11/18/2025
3	Signal Generator	ROHDE&SCHWARZ	SMB100A	SUWI-01-08-01	2025/5/8	2026/5/7
7	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/15/2025	1/14/2026
2	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-05	2/13/2025	2/12/2026
19	Measurement Software	Tonscend	JS32-RSE 4.0.0.1	SUWI-02-09-06	NCR	NCR

Remark: NCR=No Calibration Requirement.

6 Measurement Uncertainty

For a 95% confidence level ($k = 2$), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	$\pm 0.54\text{dB}$
2	RF power density, conducted	$\pm 1.03\text{dB}$
3	Spurious emissions, conducted	$\pm 0.54\text{dB}$
4	Radio Frequency	$\pm 1.0\%$
5	Duty Cycle	$\pm 0.37\%$
6	Occupied Bandwidth	$\pm 1.0\%$
7	Radiated Emission	$\pm 3.13\text{dB}$ (9k -30MHz)
		$\pm 4.88\text{dB}$ (30M -1GHz)
		$\pm 4.75\text{dB}$ (1GHz to 18GHz)
		$\pm 4.77\text{dB}$ (Above 18GHz)
Remark: The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results – compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit; – non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.		



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7 Appendixes

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Appendix B.2	LTE CA_2C
Appendix B.3	LTE Band 4
Appendix B.4	LTE Band 5
Appendix B.5	LTE Band 5B
Appendix B.6	LTE Band 7
Appendix B.7	LTE CA_7C
Appendix B.8	LTE Band 12
Appendix B.9	LTE CA_12B
Appendix B.10	LTE Band 13
Appendix B.11	LTE Band 14
Appendix B.12	LTE Band 17
Appendix B.13	LTE Band 25
Appendix B.14	LTE Band 26(814-824)
Appendix B.15	LTE Band 26(824-849)
Appendix B.16	LTE Band 30
Appendix B.17	LTE Band 38
Appendix B.18	LTE CA_38C
Appendix B.19	LTE Band 41
Appendix B.20	LTE CA_41C
Appendix B.21	LTE Band 42
Appendix B.22	LTE CA_42C
Appendix B.23	LTE Band 43
Appendix B.24	LTE CA_43C
Appendix B.25	LTE Band 48
Appendix B.26	LTE CA_48B
Appendix B.27	LTE CA_48C
Appendix B.28	LTE Band 66
Appendix B.29	LTE CA_66B



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Appendix B.30	LTE CA_66C
Appendix B.31	LTE Band 71
Appendix C.1	Field Strength of Spurious Radiation for LTE
Appendix C.2	Field Strength of Spurious Radiation for LTE CA

---End of Report---