TEST REPORT

Application No.:	SZCR2406002104AT
Applicant:	Baicells Technologies Co., Ltd.
Address of Applicant:	9-10F,1stBldg.,No.81BeiqingRoad,Haidian District,Beijing,China
Manufacturer:	Baicells Technologies Co., Ltd.
Address of Manufacturer:	9-10F,1stBldg.,No.81BeiqingRoad,Haidian District,Beijing,China
Equipment Under Test (EUT):	
EUT Name:	5G Outdoor CPE
Model No.:	EG8561A-NR6
Trade Mark:	Baicells
FCC ID:	2AG32EG8561ANR6
Standards:	47 CFR Part 2 47 CFR Part 22 47 CFR Part 24 47 CFR Part 27 47 CFR Part 96
Date of Receipt:	2024-06-05
Date of Test:	2024-06-07 to 2024-09-12
Date of Issue:	2024-09-12
Test Result :	**PASS ***

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

Authorized Signature:

Keny Xu
Laboratory Manager

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Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		*2024-09-12*		*Original*

Authorized for issue by:				
		Frank Chen		
		Frank Chen /Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		

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Contents

1 Test Summary

1.1 LTE Band 2/25/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.1& B.6& B.11	Pass
Peak-Average Ratio	§24.232(d)	Limit≤13 dB	Section 2 of Appendix B.1& B.6& B.11	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.1& B.6& B.11	Pass
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.1& B.6& B.11	Pass
Spurious Emission at Antenna Terminals	§2.1051, §24.238(a)	≤ -13 dBm/1 MHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Section 5 of Appendix B.1& B.6& B.11	Pass
Field Strength of Spurious Radiation	§2.1053, §24.238(a)	≤ -13 dBm/1 MHz.	Section 6 of Appendix B.1& B.6& B.11	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.1& B.6& B.11	Pass

1.2 LTE Band 4/ 66/ LTE CA_66B

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.2&B.9&B.15	Pass
Peak-Average Ratio	§27.50(d)(5)	Limit≤13 dB	Section 2 of Appendix B.2&B.9&B.15	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.2&B.9&B.15	Pass
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.2&B.9&B.15	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(h)	≤ -13 dBm/1 MHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Section 5 of Appendix B.2&B.9&B.15	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(h)	≤ -13 dBm/1 MHz.	Section 6 of Appendix B.2&B.9&B.15	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.2&B.9&B.15	Pass

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1.3 LTE Band 5/(824~849 MHz)/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.3& B.12	Pass
Peak-Average Ratio	§22.913(d)	Limit≤13 dB	Section 2 of Appendix B.3& B.12	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.3& B.12	Pass
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.3& B.12	Pass
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.3& B.12	Pass
Field Strength of Spurious Radiation	§2.1053, §22.917(a)	FCC: ≤ -13 dBm/100 kHz.	Section 6 of Appendix B.3& B.12	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §22.355	±2.5ppm.	Section 7 of Appendix B.3& B.12	Pass

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1.4 LTE Band 12

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.4	Pass
Peak-Average Ratio	---	Limit≤13 dB	Section 2 of Appendix B.4	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.4	Pass
Band Edges Compliance	§2.1051, §27.53(g)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B.4	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Section 6 of Appendix B.4	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	FCC: ≤ -13 dBm/100 kHz.	Section 7 of Appendix B.4	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/frequency block.	Section 8 of Appendix B.4	Pass

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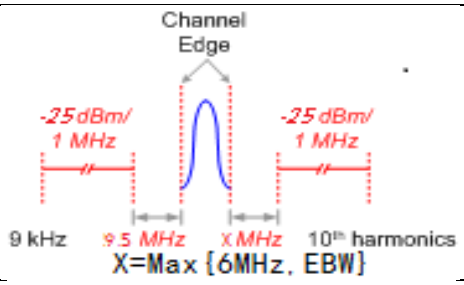
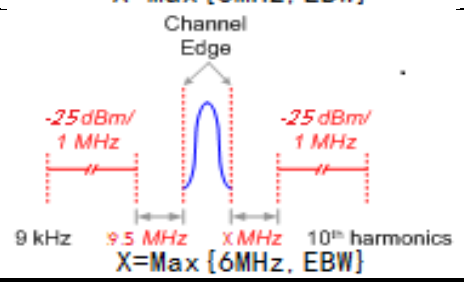
1.5 LTE Band 13

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.5	Pass
Peak-Average Ratio	---	Limit≤13 dB	Section 2 of Appendix B.5	Pass
Bandwidth	§2.1049,	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.5	Pass
Band Edges Compliance	§2.1051, §27.53(c)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B.5	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(c) §27.53(f)	≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges. 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. 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.	Section 6 of Appendix B.5	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(c) §27.53(f)	FCC: ≤ -13 dBm/100 kHz. 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.	Section 7 of Appendix B.5	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/frequency block.	Section 8 of Appendix B.5	Pass

1.6 LTE Band 41/ LTE CA_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.7& B.13	Pass
Peak-Average Ratio	---	≤13 dB	Section 2 of Appendix B.7& B.13	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.7& B.13	Pass
Band Edges Compliance	§2.1051, §27.53(m4)	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 de□ned in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 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 5 of Appendix B.7& B.13	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)		Section 6 of Appendix B.7& B.13	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(m)		Section 7 of Appendix B.7& B.13	Pass

Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Within authorized bands of operation/frequency block.	Section 8 of Appendix B.7& B.13	Pass

1.7 LTE Band 48/ LTE CA_48C

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.8& B.14	Pass
Peak-Average Ratio	§96.41	FCC: Limit≤13 dB	Section 2 of Appendix B.8& B.14	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.8& B.14	Pass
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.8& B.14	Pass
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 5 of Appendix B.8& B.14	Pass
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 6 of Appendix B.8& B.14	Pass

		assigned channel edge, the conducted power of any End User Device emission shall not exceed −25 dBm/MHz. (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.		
Field Strength of Spurious Radiation	§2.1053, §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. (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.	Section 7 of Appendix B.8& B.14	Pass
Frequency Stability	§2.1055, §96.41	Within authorized bands of operation/ frequency block.	Section 8 of Appendix B.8& B.14	Pass

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1.8 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.10	Pass
Peak-Average Ratio	---	Limit≤13 dB	Section 2 of Appendix B.10	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 4 of Appendix B.10	Pass
Band Edges Compliance	§2.1051, §27.53(g)	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B.10	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	≤ -13 dBm/1 MHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Section 6 of Appendix B.10	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	≤ -13 dBm/1 MHz.	Section 7 of Appendix B.10	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	within the authorized bands of operation.	Section 8 of Appendix B.10	Pass

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2 General Information

2.1 Details of E.U.T.

Power supply:	POE POWER SUPPLY Model: RP025-2401000YG Input Power: AC 100-240V 50-60Hz 0.7A Max DC Output: 24V 1A			
Sample Type:	Fixed production			
Hardware Version:	VER.B			
Software Version:	BaiCE_BQ_1.2.x_NA			
Antenna Type:	Directional Antenna			
Antenna Gain*:	☒Provided by client			
	LTE Band 2:	4.48dBi(Ant0)	LTE Band 4:	4.86dBi(Ant0)
	LTE Band 5:	1.89dBi(Ant0)	LTE Band 12:	0.66dBi(Ant0)
	LTE Band 13:	0.86dBi(Ant0)	LTE Band 25:	4.48dBi(Ant0)
	LTE Band 41:	6.97dBi(Ant0)	LTE Band 48:	6.05dBi(Ant0)
	LTE Band 66:	5.13dBi(Ant0)	LTE Band 71:	0.89dBi(Ant0)
RF Cable:	0.8dB(Below 1GHz)	1.0dB(1.0~2.4GHz)	1.2dB(2.4~3.4GHz)	
	1.5dB(Above 3.4GHz)	/	/	

Note: *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information , SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

Remark:

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.

2.2 Technical Specification

Characteristics	Description				
Radio System Type	☒ 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 12	699 to 716 MHz	729 to 746 MHz		
	LTE Band 13	777 to 787 MHz	746 to 756 MHz		
	LTE Band 25	1850 to 1915MHz	1930 to 1995 MHz		
	LTE Band 41	2496 to 2690MHz	2496 to 2690MHz		
	LTE Band 48	3550 to 3700 MHz	3550 to 3700 MHz		
	LTE Band 66	1710 to 1780 MHz	2110 to 2180 MHz		
	LTE Band 71	663 to 698 MHz	617 to 652 MHz		
	LTE CA_2C	1850 to 1910 MHz	1930 to 1990 MHz		
	LTE CA_5B	824 to 849 MHz	869 to 894 MHz		
	LTE CA_41C	2496 to 2690MHz	2496 to 2690MHz		
	LTE CA_48C	3550 to 3700 MHz	3550 to 3700 MHz		
	LTE CA_66B	1710 to 1780 MHz	2110 to 2180 MHz		
	CA: UL CA_2C; UL CA_2A-4A; UL CA_2A-5A; UL CA_2A-12A; UL CA_2A-13A; UL CA_2A-66A; UL CA_4A-12A; UL CA_4A-13A; UL CA_5A-66A; UL CA_12A-66A; UL CA_13A-66A; UL CA_5B; UL CA_41C; UL CA_48C; UL CA_66B; ULCA intra-band Only test RSE, report only show worst mode				
Supported Channel Bandwidth	LTE Band 2	☒1.4 MHz	☒3 MHz	☒5 MHz	☒10 MHz
		☒15 MHz	☒20 MHz		
	LTE Band 4	☒1.4 MHz	☒3 MHz	☒5 MHz	☒10 MHz
		☒15 MHz	☒20 MHz		
	LTE Band 5	☒1.4 MHz	☒3 MHz	☒5 MHz	☒10 MHz
	LTE Band 12	☒1.4 MHz	☒3 MHz	☒5 MHz	☒10 MHz
	LTE Band 13	☒5 MHz	☒10 MHz		

	LTE Band 25	☒1.4 MHz	☒3 MHz	☒5 MHz	☒10 MHz
		☒15 MHz	☒20 MHz		
	LTE Band 41	☒5 MHz	☒10 MHz	☒15 MHz	☒20 MHz
	LTE Band 48	☒5 MHz	☒10 MHz	☒15 MHz	☒20 MHz
	LTE Band 66	☒1.4 MHz	☒3 MHz	☒5 MHz	☒10 MHz
		☒15MHz	☒20MHz		
	LTE Band 71	☒5MHz	☒10MHz	☒15MHz	☒20MHz
	LTE CA_2C	☒10MHz+15MHz		☒10MHz+20MHz	
		☒15MHz+10MHz		☒15MHz+15MHz	
		☒15MHz+20MHz		☒20MHz+10MHz	
		☒20MHz+15MHz		☒20MHz+20MHz	
		☒20MHz+5MHz		☒5MHz+20MHz	
	LTE CA_5B	☒10MHz+10MHz		☒10MHz+5MHz	
		☒3MHz+5MHz		☒5MHz+10MHz	
		☒5MHz+3MHz		☒20MHz+10MHz	
	LTE Band CA_41C	☒10MHz+15MHz		☒10MHz+20MHz	
		☒15MHz+10MHz		☒15MHz+15MHz	
		☒15MHz+20MHz		☒20MHz+15MHz	
		☒20MHz+20MHz		☒20MHz+5MHz	
		☒5MHz+20MHz			
	LTE Band CA_48C	☒10MHz+20MHz		☒15MHz+20MHz	
		☒20MHz+10MHz		☒20MHz+15MHz	
		☒20MHz+20MHz		☒20MHz+5MHz	
		☒5MHz+20MHz			
	LTE Band CA_66B	☒10MHz+10MHz		☒10MHz+5MHz	
		☒15MHz+5MHz		☒5MHz+15MHz	
		☒5MHz+5MHz		☒5MHz+10MHz	
	Note: only the worst case was tested and the data displayed in this report.				

Characteristics	Description				
Designation of Emissions (Remark: the necessary bandwidth of which is the	E-UTRA:	QPSK	16QAM	64QAM	256QAM
	LTE Band 2	1M11G7D	1M11W7D	1M11W7D	1M11W7D
		2M70G7D	2M70W7D	2M70W7D	2M70W7D

worst value from the measured occupied bandwidths for each type of channel bandwidth configuration.)		4M48G7D	4M49W7D	4M48W7D	4M49W7D
		8M95G7D	8M95W7D	8M96W7D	8M96W7D
		13M5G7D	13M5W7D	13M5W7D	13M5W7D
		17M9G7D	18M0W7D	17M9W7D	17M9W7D
	LTE Band 4	1M11G7D	1M11W7D	1M11W7D	1M11W7D
		2M70G7D	2M70W7D	2M70W7D	2M70W7D
		4M48G7D	4M48W7D	4M48W7D	4M48W7D
		8M97G7D	8M97W7D	8M96W7D	8M96W7D
		13M5G7D	13M5W7D	13M5W7D	13M5W7D
		17M9G7D	18M0W7D	18M0W7D	18M0W7D
	LTE Band 5	1M11G7D	1M11W7D	1M11W7D	1M11W7D
		2M70G7D	2M70W7D	2M70W7D	2M70W7D
		4M48G7D	4M48W7D	4M48W7D	4M48W7D
		8M94G7D	8M94W7D	8M94W7D	8M94W7D
	LTE Band 12	1M11G7D	1M11W7D	1M11W7D	1M11W7D
		2M70G7D	2M70W7D	2M70W7D	2M70W7D
		4M48G7D	4M48W7D	4M49W7D	4M48W7D
		8M94G7D	8M96W7D	8M94W7D	8M96W7D
	LTE Band13	4M48G7D	4M49W7D	4M48W7D	4M49W7D
		8M92G7D	8M93W7D	8M92W7D	8M92W7D
	LTE Band 25	1M11G7D	1M11W7D	1M11W7D	1M11W7D
		2M70G7D	2M70W7D	2M70W7D	2M70W7D
		4M48G7D	4M48W7D	4M48W7D	4M49W7D
		8M95G7D	8M95W7D	8M94W7D	8M95W7D
		13M5G7D	13M5W7D	13M5W7D	13M5W7D
		17M9G7D	17M9W7D	17M9W7D	17M9W7D
	LTE Band 41	4M48G7D	4M48W7D	4M48W7D	4M48W7D
		8M97G7D	8M94W7D	8M95W7D	8M96W7D
		13M5G7D	13M5W7D	13M5W7D	13M5W7D
		17M9G7D	17M9W7D	17M9W7D	17M9W7D
	LTE Band 48	4M50G7D	4M51W7D	4M50W7D	4M51W7D
		9M02G7D	8M99W7D	9M02W7D	8M99W7D

		13M6G7D	13M5W7D	13M5W7D	13M5W7D
		18M2G7D	18M1W7D	18M0W7D	18M1W7D
	LTE Band 66	1M11G7D	1M11W7D	1M11W7D	1M11W7D
		2M70G7D	2M71W7D	2M71W7D	2M70W7D
		4M48G7D	4M48W7D	4M48W7D	4M48W7D
		8M96G7D	8M96W7D	8M94W7D	8M96W7D
		13M5G7D	13M5W7D	13M5W7D	13M5W7D
		18M0G7D	18M0W7D	17M9W7D	17M9W7D
	LTE Band 71	4M49G7D	4M49W7D	4M49W7D	4M49W7D
		8M95G7D	8M95W7D	8M95W7D	8M94W7D
		13M5G7D	13M5W7D	13M5W7D	13M5W7D
		17M9G7D	17M9W7D	17M9W7D	17M8W7D
	LTE Band CA_2C	50RB+75RB:			
		23M2G7D	23M2G7D	23M2G7D	23M2G7D
		50RB+100RB:			
		27M7G7D	27M7G7D	27M7G7D	27M7G7D
		75RB+50RB:			
		23M2G7D	23M2G7D	23M2G7D	23M2G7D
		75RB+75RB:			
		28M3G7D	28M3G7D	28M3G7D	28M3G7D
		75RB+100RB:			
		32M6G7D	32M6G7D	32M6G7D	32M6G7D
		100RB+50RB:			
		27M8G7D	27M8G7D	27M8G7D	27M8G7D
		100RB+75RB:			
		32M6G7D	32M6G7D	32M6G7D	32M6G7D
		100RB+100RB:			
		37M8G7D	37M8G7D	37M8G7D	37M8G7D
		100RB+25RB:			
		23M0G7D	23M0G7D	23M0G7D	23M0G7D
		25RB+100RB:			
		22M9G7D	22M9G7D	22M9G7D	22M9G7D

	LTE Band CA_5B	50RB+50RB:			
		18M8G7D	18M8W7D	18M8W7D	18M8W7D
		50RB+25RB:			
		13M9G7D	13M9W7D	13M9W7D	13M9W7D
		15RB+25RB:			
		7M52G7D	7M49W7D	7M49W7D	7M49W7D
		25RB+50RB:			
		13M9G7D	13M9W7D	13M9W7D	13M9W7D
		25RB+15RB:			
		7M52G7D	7M51W7D	7M52W7D	7M49W7D
	LTE Band CA_41C	50RB+75RB:			
		23M1G7D	23M1G7D	23M1G7D	23M1G7D
		50RB+100RB:			
		27M7G7D	27M7G7D	27M7G7D	27M7G7D
		75RB+50RB:			
		23M1G7D	23M1G7D	23M1G7D	23M1G7D
		75RB+75RB:			
		28M3G7D	28M2W7D	28M3W7D	28M2W7D
		75RB+100RB:			
		32M5G7D	32M5W7D	32M5W7D	32M5W7D
		100RB+75RB:			
		32M5G7D	32M5W9D	32M6W7D	32M6W7D
		100RB+100RB:			
		37M7G7D	37M7W7D	37M7W7D	37M7W7D
		100RB+25RB:			
		22M9G7D	22M9W7D	22M9W7D	22M9W7D
		25RB+100RB:			
		22M9G7D	22M8W7D	22M7W7D	22M8W7D
	LTE Band CA_48C	50RB+100RB:			
		27M8G7D	27M7W7D	27M6W7D	27M6W7D
		75RB+100RB:			
		32M7G7D	32M6W7D	32M5W7D	32M5W7D

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		100RB+50RB:			
		27M8G7D	27M8W7D	27M7W7D	27M8W7D
		100RB+75RB:			
		32M7G7D	32M7W7D	32M5W7D	32M6W7D
		100RB+100RB:			
		37M9G7D	37M7W7D	37M7W7D	37M7W7D
		100RB+25RB:			
		23M0G7D	23M0W7D	22M9W7D	23M0W7D
		25RB+100RB:			
		23M0G7D	22M9W7D	22M8W7D	22M8W7D
	LTE Band CA_66B	50RB+50RB:			
		18M9G7D	18M9W7D	18M9W7D	18M9W7D
		50RB+25RB:			
		13M9G7D	13M9W7D	13M9W7D	13M9W7D
		75RB+25RB:			
		18M4G7D	18M4W7D	18M4W7D	18M4W7D
		25RB+75RB:			
		18M4G7D	18M3W7D	18M3W7D	18M3W7D
		25RB+25RB:			
		9M27G7D	9M29W7D	9M29W7D	9M29W7D
		25RB+50RB:			
		13M9G7D	13M9W7D	13M9W7D	13M9W7D

2.3 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
		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
		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
		RX	Channel 625	Channel 900	Channel1175
			1932.5 MHz	1960 MHz	1987.5 MHz
	10MHz	TX	Channel 18650	Channel 18900	Channel 19150
			1855 MHz	1880 MHz	1905 MHz
		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
		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
		RX	Channel 700	Channel 900	Channel 1100
			1940 MHz	1960 MHz	1980 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 4	1.4MHz	TX	Channel 19957	Channel 20175	Channel 20393
			1710.7 MHz	1732.5 MHz	1754.3 MHz
		RX	Channel 1975	Channel 2175	Channel 2375
			2112.5 MHz	2132.5MHz	2152.5 MHz
	3MHz	TX	Channel 19965	Channel 20175	Channel 20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz
		RX	Channel 2000	Channel 2175	Channel 2350
			2115 MHz	2132.5MHz	2150 MHz
	5MHz	TX	Channel 19975	Channel 20175	Channel 20375
			1712.5 MHz	1732.5 MHz	1752.5 MHz
		RX	Channel 1975	Channel 2175	Channel 2375
			2112.5 MHz	2132.5MHz	2152.5 MHz
			Channel 20000	Channel 20175	Channel 20350

			1715 MHz	1732.5 MHz	1750 MHz
		RX	Channel 2000	Channel 2175	Channel 2350
			2115 MHz	2132.5MHz	2150 MHz
	15MHz	TX	Channel 20025	Channel 20175	Channel 20325
			1717.5 MHz	1732.5 MHz	1747.5 MHz
		RX	Channel 2025	Channel 2175	Channel 2325
			2117.5 MHz	2132.5MHz	2147.5 MHz
	20MHz	TX	Channel 20050	Channel 20175	Channel 20300
			1720 MHz	1732.5 MHz	1745 MHz
		RX	Channel 2050	Channel 2175	Channel 2300
			2120 MHz	2132.5MHz	2145 MHz

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

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

	10MHz	TX	Channel 23060	Channel 23095	Channel 23130
			704 MHz	707.5 MHz	711 MHz
		RX	Channel 5060	Channel 5095	Channel 5130
			734 MHz	737.5 MHz	741 MHz

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

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 25	1.4MHz	TX	Channel 26047	Channel 26365	Channel 26683
			1850.7 MHz	1882.5 MHz	1914.3 MHz
		RX	Channel 8047	Channel 8365	Channel 8683
			1930.7 MHz	1962.5 MHz	1994.3 MHz
	3MHz	TX	Channel 26055	Channel 26365	Channel 26675
			1851.5 MHz	1882.5 MHz	1913.5 MHz
		RX	Channel 8055	Channel 8365	Channel 8675
			1931.5 MHz	1962.5 MHz	1993.5 MHz
	5MHz	TX	Channel 26065	Channel 26365	Channel 26665
			1852.5 MHz	1882.5 MHz	1912.5 MHz
		RX	Channel 8065	Channel 8365	Channel 8665
			1932.5 MHz	1962.5 MHz	1992.5 MHz
	10MHz	TX	Channel 26090	Channel 26365	Channel 26640
			1855 MHz	1882.5 MHz	1910 MHz
		RX	Channel 8090	Channel 8365	Channel 8640
			1935 MHz	1962.5 MHz	1990 MHz
	15MHz	TX	Channel 26115	Channel 26365	Channel 26615
			1857.5 MHz	1882.5 MHz	1907.5 MHz
		RX	Channel 8115	Channel 8365	Channel 8615
			1937.5 MHz	1962.5 MHz	1987.5 MHz
	20MHz	TX	Channel 26140	Channel 26365	Channel 26590
			1860 MHz	1882.5 MHz	1905 MHz
		RX	Channel 8140	Channel 8365	Channel 8590
			1940 MHz	1962.5 MHz	1985 MHz
Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 41			Channel 39675	Channel40620	Channel 41565

(2496-2690)			2498.5 MHz	2593 MHz	2687.5 MHz
	10MHz	TX / RX	Channel 39700	Channel40620	Channel 41540
			2501 MHz	2593 MHz	2685 MHz
	15MHz	TX / RX	Channel 39725	Channel40620	Channel 41515
			2503.5 MHz	2593 MHz	2682.5 MHz
	20MHz	TX / RX	Channel 39750	Channel40620	Channel 41490
			2506 MHz	2593 MHz	2680 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 48	5MHz	TX/RX	Channel 55265	Channel55990	Channel 56715
			3552.5 MHz	3625.0 MHz	3697.5 MHz
	10MHz	TX/RX	Channel 55290	Channel55990	Channel 56690
			3555.0 MHz	3625.0 MHz	3695.0 MHz
	15MHz	TX/RX	Channel 55315	Channel55990	Channel 56665
			3557.5 MHz	3625.0 MHz	3692.5 MHz
	20MHz	TX/RX	Channel 55340	Channel55990	Channel 56640
			3560.0 MHz	3625.0 MHz	3690.0 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band66	1.4MHz	TX	Channel 131979	Channel 132322	Channel 132665
			1710.7 MHz	1745 MHz	1779.3 MHz
		RX	Channel 66443	Channel 66786	Channel 67329
			2110.7 MHz	2145MHz	2199.3 MHz
	3MHz	TX	Channel 131987	Channel 132322	Channel 132657
			1711.5 MHz	1745 MHz	1778.5MHz
		RX	Channel 66451	Channel 66786	Channel 67321
			2111.5 MHz	2145MHz	2198.5MHz
	5MHz	TX	Channel 131997	Channel 132322	Channel 132647
			1712.5 MHz	1745 MHz	1777.5 MHz
		RX	Channel 66461	Channel 66786	Channel 67311
			2112.5 MHz	2145MHz	2197.5 MHz
	10MHz	TX	Channel 132022	Channel 132322	Channel 132622
			1715 MHz	1745 MHz	1775 MHz
		RX	Channel 66486	Channel 66786	Channel 67286
			2115 MHz	2145MHz	2195 MHz
	15MHz	TX	Channel 132047	Channel 132322	Channel 132597
			1717.5 MHz	1745 MHz	1772.5 MHz
		RX	Channel 66511	Channel 66786	Channel 67261
			2117.5 MHz	2145MHz	2192.5 MHz
	20MHz	TX	Channel 132072	Channel 132322	Channel 132572
			1720 MHz	1745 MHz	1770 MHz
		RX	Channel 66536	Channel 66786	Channel 67236

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			2120 MHz	2145MHz	2190 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band71	5MHz	TX	Channel 133147	Channel 133297	Channel 133447
			665.5 MHz	680.5 MHz	695.5 MHz
		RX	Channel 68611	Channel 68761	Channel 68911
			619.5 MHz	634.5 MHz	649.5 MHz
	10MHz	TX	Channel 133172	Channel 133297	Channel 133422
			668 MHz	680.5 MHz	693 MHz
		RX	Channel 68636	Channel 68761	Channel 68886
			622 MHz	634.5 MHz	647 MHz
	15MHz	TX	Channel 133197	Channel 133297	Channel 133397
			670.5 MHz	680.5 MHz	690.5 MHz
		RX	Channel 68661	Channel 68761	Channel 68861
			624.5 MHz	634.5 MHz	644.5 MHz
	20MHz	TX	Channel 133222	Channel 133297	Channel 133372
			673 MHz	680.5 MHz	688 MHz
		RX	Channel 68686	Channel 68761	Channel 68836
			627 MHz	634.5 MHz	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 4.3.1.2.9A-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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Table 4.3.1.2.16A-1: Test frequencies for CA_48C

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	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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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.

2.4 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.	

2.5 Test Environment

Environment Parameter	101 kPa Selected Values During Tests	
Relative Humidity	50-55 % RH Ambient	
Value	Temperature(℃)	Voltage(V)
NTNV	22~23	24
LTLV	-30	22.8
LTHV	-30	25.2
HTLV	50	22.8
HTHV	50	25.2
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

2.6 Description of Support Units

The EUT has been tested as an independent unit.

2.7 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China
Post code:	518057

2.8 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

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

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

- **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch has been recognized as an accredited testing laboratory.

Designation Number: CN1336.

Test Firm Registration Number: 787754

3 Description of Tests

3.1 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

3.2 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 (dBm) = Conducted Power (dBm) + antenna gain (dBd)

EIRP(dBm) = Conducted Power (dBm) + antenna gain (dBi)

EIRP=ERP+2.15dB

3.3 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 ≥ 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

3.4 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 ≥ 1% of the emission bandwidth
4. VBW ≥ 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x 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

3.5 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 emissinos, 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

3.6 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

3.7 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 (dBμV/m) = Measured amplitude level (dBμV) + (Cable Loss (dB) + Antenna Factor (dB/m) – AMP(dB))

EIRP (dBm) = E (dBμV/m) + 20 log D − 104.8; 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 (dBμV/m) = Measured amplitude level (dBμV) + (Cable Loss (dB) + Antenna Factor (dB/m) – AMP(dB))

EIRP (dBm) = E (dBμV/m) + 20 log D − 104.8; 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*LOG(3/1) = 9.54 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 1GHz 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.

3.8 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 ±0.00025% (±2.5 ppm) of the center frequency.

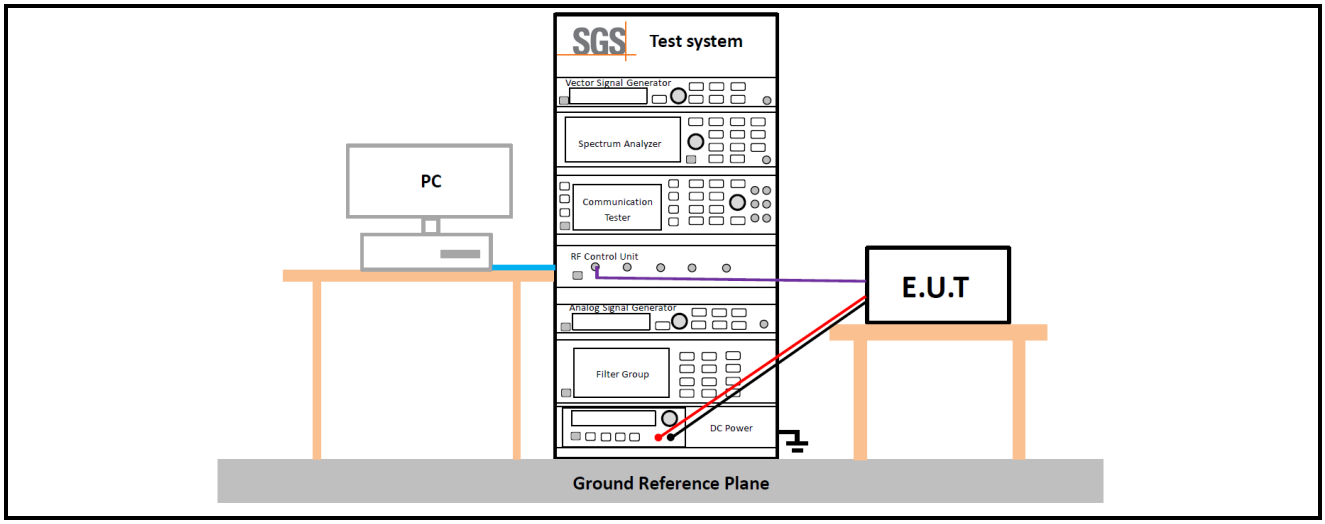
Time Period and Procedure:

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 0°C to +40°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

3.9 Test Setups

3.9.1 Test Setup 1



3.9.2 Test Setup 2

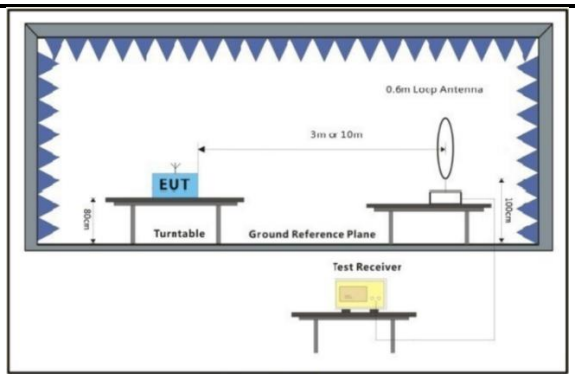


Figure 1. Below 30MHz

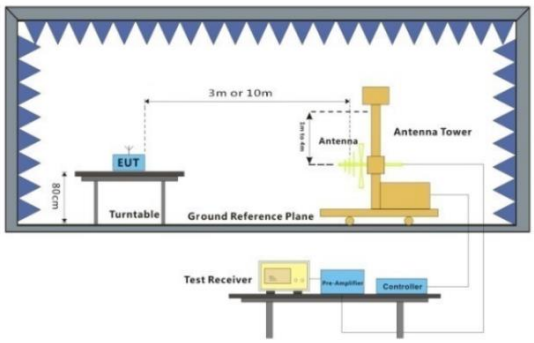


Figure 2. 30MHz to 1GHz

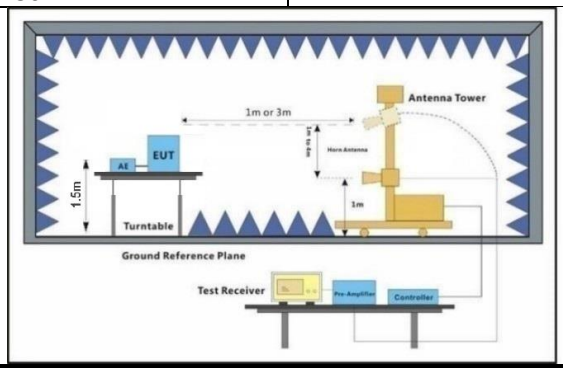
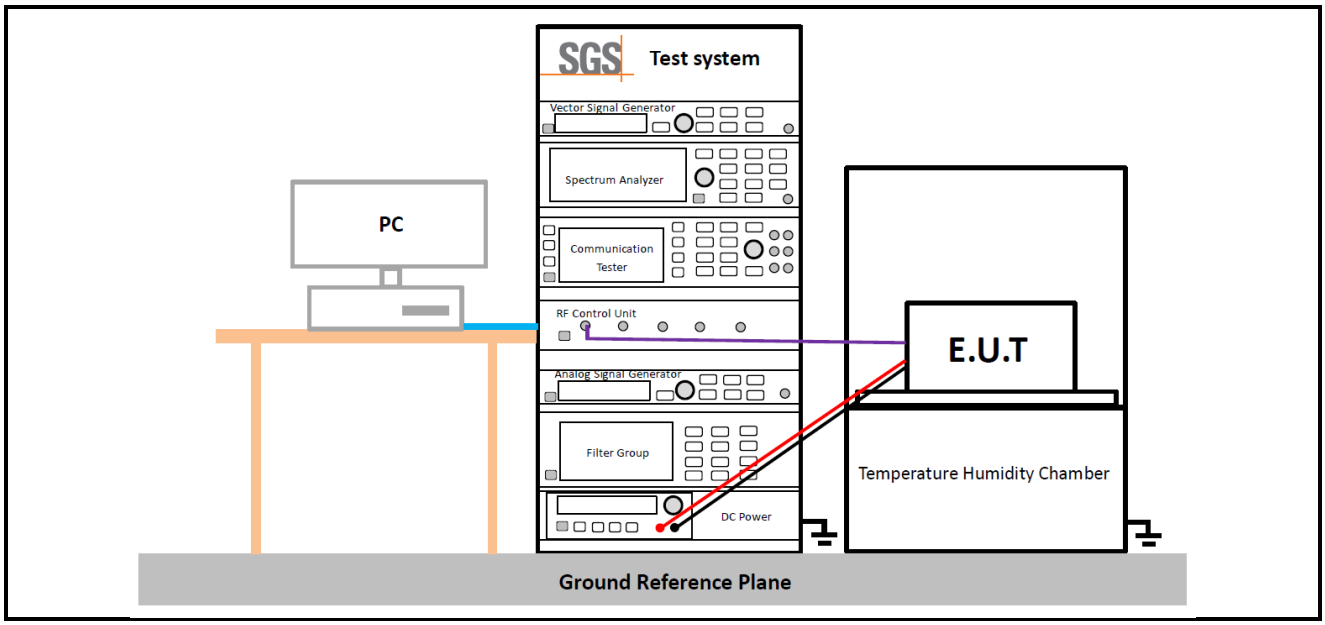


Figure 3. above 1GHz

3.9.3 Test Setup 3



3.10Test Conditions

Transmit Output Power Data - Average Power, Total	
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
Adjacent Channel Leakage 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
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**
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.

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4 Main Test Instruments

RF conducted test					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy/mm/dd)**	**Cal.Due date (yyyy/mm/dd)**
Shielding Room	SAEMC	MSR733	SEM001-09	2022-05-14	2025-05-13
MXA Signal Analyzer	KEYSIGHT	N9020B	SEM004-17	2024-03-20	2025-03-14
Mobile Communications DC Source	Agilent	66319D	SEM011-12	2024-05-06	2025-05-05
Manual Step Attenuator	KEYSIGHT	8494B	SEM021-05	2024-04-06	2025-04-05
Manual Step Attenuator	KEYSIGHT	8496B	SEM021-06	2024-04-06	2025-04-05
Power Sensor	KEYSIGHT	U2021XA	SEM009-15	2024-04-06	2025-04-05
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2024-03-28	2025-03-27
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2024-04-06	2025-04-05
Coaxial Cable	SGS	N/A	SEM031-01	2024-07-07	2025-07-06

RE in Chamber					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy/mm/dd)**	**Cal.Due date (yyyy/mm/dd)**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2022-04-02	2025-04-01
EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2024-04-06	2025-04-05
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2023-09-17	2025-09-16
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2022-07-24	2024-07-23
				2024-07-22	2026-07-21
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2022-08-10	2024-08-09
				2024-08-08	2026-08-07
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	SEM003-32	2021-09-26	2024-09-25
Amplifier	HP	8447D	SEM005-02	2023-09-15	2024-09-14

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(0.1-1300MHz)					
Microwave System Amplifier(0.5-26.5GHz)	Agilent	83017A	SEM005-25	2023-09-21	2024-09-20
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2024-03-21	2025-03-20
Substitution Antenna	Schwarzbeck	VULB9168	SEM003-18	2022-08-07	2025-08-06
Substitution Antenna	Rohde&Schwarz	HF907	SEM003-06	2022-08-07	2024-08-06
				2024-08-05	2026-08-04
Signal Generator(9kHz-40GHz)	N5173B	MY53270267	Agilent	2023-07-11	2024-07-10
				2024-07-09	2025-07-08
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-06	2023-07-07	2024-07-06
				2024-07-05	2025-07-04

General used equipment					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy/mm/dd)**	**Cal.Due date (yyyy/mm/dd)**
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2023-09-04	2024-09-03
				2024-09-02	2025-09-01
Humidity/ Temperature Indicator	Anymetre	TH101B	SEM002-09	2023-09-04	2024-09-03
				2024-09-02	2025-09-01
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2024-03-20	2025-03-19

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5 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	Radio Frequency	± 5.4 x 10-8
2	Duty cycle	± 0.3%
3	Occupied Bandwidth	± 3%
4	RF conducted power	± 0.8dB
5	RF power density	± 0.4dB
6	Conducted Spurious emissions	± 2.7dB
7	Radiated Spurious emission test	± 3.1dB (Below 1GHz) ± 4.4dB (Above 1GHz)
8	Temperature test	± 1°C
9	Humidity test	± 3%
10	Supply voltages	± 1.5%
11	Time	± 3%

Remark:
The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (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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6 Appendixes

Appendix A.1	WWAN Setup Photos
Appendix B.1	LTE Band 2
Appendix B.2	LTE Band 4
Appendix B.3	LTE Band 5
Appendix B.4	LTE Band 12
Appendix B.5	LTE Band 13
Appendix B.6	LTE Band 25
Appendix B.7	LTE Band 41
Appendix B.8	LTE Band 48
Appendix B.9	LTE Band 66
Appendix B.10	LTE Band 71
Appendix B.11	LTE CA_2C
Appendix B.12	LTE CA_5B
Appendix B.13	LTE CA_41C
Appendix B.14	LTE CA_48C
Appendix B.15	LTE CA_66B

---End of Report---

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