



SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

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 Rev.: 01
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TEST REPORT

Application No.: SZCR2404001136WM
Applicant: Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Applicant: NO.18 HaiBin Road, Wusha Village, Chang'an Town, DongGuan City, Guangdong Province, P.R. China
Manufacturer: Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Manufacturer: NO.18 HaiBin Road, Wusha Village, Chang'an Town, DongGuan City, Guangdong Province, P.R. China
EUT Description: Mobile Phone
Model No.: CPH2637
Trade Mark: OPPO
FCC ID: R9C-OP23282
Standards: 47 CFR Part 2
 47 CFR Part 22
 47 CFR Part 24
 47 CFR Part 27
 47 CFR Part 90
Date of Receipt: 2024/04/09
Date of Test: 2024/04/11 to 2024/04/23
Date of Issue: 2024/04/29

Test Result:	PASS *
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* 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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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2024/04/29		Original

Prepared By	 <hr/> (Jack Huang) / Test Engineer
Checked By	 <hr/> (Flora Wang) / Reviewer



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2 Test Summary

2.1 NR Band n5/ NR Band n26(824~849 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913(a)(5)	FCC: ERP ≤ 7 W	Section 1 of Appendix B.22&B.26	Pass
Peak-Average Ratio	§22.913(d)	Limit≤13 dB	Section 2 of Appendix B.22&B.26	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.22&B.26	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.22&B.26	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.22&B.26	Pass
Field Strength of Spurious Radiation	§2.1053, §22.917(a)	FCC: ≤ -13 dBm/100 kHz.	Section 6 of Appendix B.22&B.26	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §22.355	±2.5ppm.	Section 7 of Appendix B.22&B.26	Pass



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2.2 NR Band n7/ NR Band n38/ NR Band n41

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.23&B.27&B.28	Pass
Peak-Average Ratio	---	≤ 13 dB	Section 2 of Appendix B.23&B.27&B.28	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.23&B.27&B.28	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 defined 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 4 of Appendix B.23&B.27&B.28	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)		Section 5 of Appendix B.23&B.27&B.28	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(m)		Section 6 of Appendix B.23&B.27&B.28	Pass



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Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	Within authorized bands of operation/frequency block.	Section 7 of Appendix B.23&B.27&B.28	Pass



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2.3 NR Band n2

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.21	Pass
Peak-Average Ratio	§24.232(d)	Limit≤13 dB	Section 2 of Appendix B.21	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.21	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.21	Pass
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.21	Pass
Field Strength of Spurious Radiation	§2.1053, §24.238(a)	≤ -13 dBm/1 MHz.	Section 6 of Appendix B.21	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §24.235	Within authorized bands of operation/frequency block.	Section 7 of Appendix B.21	Pass



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2.4 NR Band n12

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.24	Pass
Peak-Average Ratio	---	Limit≤13 dB	Section 2 of Appendix B.24	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.24	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 4 of Appendix B.24	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10 th harmonics but outside authorized operating frequency ranges.	Section 5 of Appendix B.24	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	FCC: ≤ -13 dBm/100 kHz.	Section 6 of Appendix B.24	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.24	Pass



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2.5 NR Band n26(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.25	Pass
Peak-Average Ratio	---	Limit≤13 dB	Section 2 of Appendix B.25	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.25	Pass
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.25	Pass
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.25	Pass
Field Strength of Spurious Radiation	§2.1053, §90.691	< 43 + 10Log ₁₀ (P[Watts]) for all out-of-band emissions	Section 6 of Appendix B.25	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.25	Pass



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2.6 NR Band n66

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.29	Pass
Peak-Average Ratio	§27.50(d)(5)	Limit ≤ 13 dB	Section 2 of Appendix B.29	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix B.29	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.29	Pass
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.29	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(h)	≤ -13 dBm/1 MHz.	Section 6 of Appendix B.29	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	Within authorized bands of operation/frequency block.	Section 7 of Appendix B.29	Pass



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3 General Information

3.1 Client Information

Applicant:	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Applicant:	NO.18 HaiBin Road, Wusha Village, Chang'an Town, DongGuan City, Guangdong Province, P.R. China
Manufacturer:	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Manufacturer:	NO.18 HaiBin Road, Wusha Village, Chang'an Town, DongGuan City, Guangdong Province, P.R. China

3.2 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
Test engineer:	Ruby Huang, Xing Guo

3.3 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-1153 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



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3.4 General Description of EUT

EUT Description:	Mobile Phone		
Model No.:	CPH2637		
Trade Mark:	OPPO		
Hardware Version:	11		
Software Version:	ColorOS 14.0		
Power Supply:	DC 3.91V from internal rechargeable battery which can be charged by AC/DC adapter		
IMEI:	RF Conducted	867650070023290	
	RSE	IMEI1:867650070021567 IMEI2:867650070021575	
Antenna Type:	IFA Antenna		
Antenna Gain:	NR Band n2:	-1.5dBi (Ant0); -1.9dBi (Ant1); -9.3dBi (Ant4);	
	NR Band n5:	-5.5dBi (Ant0); -4.2dBi (Ant1);	
	NR Band n7:	0.1dBi (Ant0); -0.3dBi (Ant1); -2.1dBi (Ant4);	
	NR Band n12:	-4dBi (Ant0); -4dBi (Ant1);	
	NR Band n26:	-5.5dBi (Ant0); -4.2dBi (Ant1);	
	NR Band n38:	0.1dBi (Ant0); -0.2dBi (Ant1); -2.3dBi (Ant4);	
	NR Band n41:	0.1dBi (Ant0); -0.2dBi (Ant1); -2.1dBi (Ant4);	
	NR Band n66:	-0.9dBi (Ant0); -2.3dBi (Ant1); -6.6dBi (Ant4);	
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.		
RF Cable:	9kHz ~ 30MHz (0.3dB)	30MHz ~ 1000MHz (0.6dB)	1000MHz ~ 2000MHz (0.8dB)
	2000MHz ~ 4000MHz (1.1dB)	4000MHz ~ 6000MHz (1.8dB)	6000MHz ~ 12750MHz (2.6dB)
	Above 12750MHz (3.5dB)		
Remark:	<p>1. All antennas of Conduction Power & EIRP & RSE are tested, and only the worst data is presented.</p> <p>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.</p>		



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3.5 Test Mode

Test Mode	Test Modes Description
NR/TM1	NR system, DFT-s-QPSK modulation
NR/TM2	NR system, DFT-s-16QAM modulation
NR/TM3	NR system, DFT-s-64QAM modulation
NR/TM4	NR system, DFT-s-256QAM modulation
NR/TM5	NR system, CP-QPSK modulation
NR/TM6	NR system, CP-16QAM modulation
NR/TM7	NR system, CP-64QAM modulation
NR/TM8	NR system, CP-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	3.91
LTLV	-30	3.5
LTHV	-30	4.5
HTLV	50	3.5
HTHV	50	4.5

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

The EUT has been tested as an independent unit.



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3.8 Technical Specification

Characteristics	Description		
Radio System Type	<input checked="" type="checkbox"/> SA <input checked="" type="checkbox"/> NSA		
Supported Frequency Range	Band	TX	RX
	NR Band n2	1850 to 1910 MHz	1930 to 1990 MHz
	NR Band n5	824 to 849 MHz	869 to 894 MHz
	NR Band n7	2500 to 2570 MHz	2620 to 2690 MHz
	NR Band n12	699 to 716 MHz	729 to 746 MHz
	NR Band n26 (814 to 824 MHz)	814 to 824MHz	859 to 869 MHz
	NR Band n26 (824 to 849 MHz)	824 to 849 MHz	869 to 894 MHz
	NR Band n38	2570 to 2620 MHz	2570 to 2620 MHz
	NR Band n41	2496 to 2690 MHz	2496 to 2690 MHz
	NR Band n66	1710 to 1780 MHz	2110 to 2180 MHz
	NSA: DC_7A_n5A; DC_66A_n5A; DC_2A_n7A; DC_4A_n7A; DC_66A_n7A; DC_7A_n26A; DC_4A_n38A; DC_5A_n38A; DC_66A_n38A; DC_4A_n41A; DC_66A_n41A; DC_2A_n66A; DC_5A_n66A; DC_7A_n66A; DC_12A_n66A; Remark: NSA only test RSE, report only show worst mode.		
Supported Channel Bandwidth	NR Band n2	SCS 15kHz:	
		<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz <input checked="" type="checkbox"/> 15 MHz <input checked="" type="checkbox"/> 20 MHz
	NR Band n5	SCS 15kHz:	
		<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz <input checked="" type="checkbox"/> 15 MHz <input checked="" type="checkbox"/> 20 MHz
	NR Band n7	SCS 15kHz:	
		<input checked="" type="checkbox"/> 5 MHz <input checked="" type="checkbox"/> 10 MHz <input checked="" type="checkbox"/> 15 MHz <input checked="" type="checkbox"/> 20 MHz	<input checked="" type="checkbox"/> 25 MHz <input checked="" type="checkbox"/> 30 MHz <input checked="" type="checkbox"/> 40 MHz
	NR Band n12	SCS 15kHz:	
		<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz <input checked="" type="checkbox"/> 15 MHz
NR Band n26 (814 to 824 MHz)	SCS 15kHz:		
	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	
NR Band n26 (824 to 849 MHz)	SCS 15kHz:		
	<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz <input checked="" type="checkbox"/> 15 MHz <input checked="" type="checkbox"/> 20 MHz	
NR Band n38	SCS 30kHz:		





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		<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz	<input checked="" type="checkbox"/> 30 MHz	
		<input checked="" type="checkbox"/> 40 MHz				
	NR Band n41	SCS 30kHz:				
		<input checked="" type="checkbox"/> 20 MHz	<input checked="" type="checkbox"/> 30 MHz	<input checked="" type="checkbox"/> 40 MHz	<input checked="" type="checkbox"/> 50 MHz	
		<input checked="" type="checkbox"/> 60 MHz	<input checked="" type="checkbox"/> 70 MHz	<input checked="" type="checkbox"/> 80 MHz	<input checked="" type="checkbox"/> 90 MHz	
		<input checked="" type="checkbox"/> 100 MHz				
	NR Band n66	SCS 15kHz				
		<input checked="" type="checkbox"/> 5 MHz	<input checked="" type="checkbox"/> 10 MHz	<input checked="" type="checkbox"/> 15 MHz	<input checked="" type="checkbox"/> 20 MHz	
		<input checked="" type="checkbox"/> 40 MHz				
	Designation of Emissions (Remark: the necessary bandwidth of which is the worst value from the measured occupied bandwidths for each type of channel bandwidth configuration.)	NR Band n2	DFT-s-QPSK	CP-16QAM		
SCS 15kHz:						
4M49G7D			4M48W7D			
8M92G7D			9M28W7D			
13M4G7D			14M1W7D			
17M9G7D			19M0W7D			
NR Band n5		SCS 15kHz:				
		4M49G7D	4M48W7D			
		8M92G7D	9M29W7D			
		13M4G7D	14M1W7D			
		17M9G7D	18M9W7D			
NR Band n7		SCS 15kHz:				
		4M48G7D	4M48W7D			
		8M91G7D	9M28W7D			
		13M4G7D	14M1W7D			
		17M9G7D	18M9W7D			
		22M9G7D	23M7W7D			
		28M6G7D	28M5W7D			
NR Band n12		SCS 15kHz:				
		4M48G7D	4M47W7D			
		8M92G7D	9M27W7D			
		13M4G7D	14M1W7D			
		SCS 15kHz:				



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NR Band n26 (814 to 824 MHz)	4M48G7D	4M48W7D
	8M90G7D	9M28W7D
NR Band n26 (824 to 849 MHz)	SCS 15kHz:	
	4M49G7D	4M48W7D
	8M91G7D	9M28W7D
	13M4G7D	14M1W7D
NR Band n38	SCS 30kHz:	
	8M58G7D	8M60W7D
	12M9G7D	13M6W7D
	17M9G7D	18M1W7D
	26M8G7D	27M6W7D
NR Band n41	SCS 30kHz:	
	17M9G7D	18M0W7D
	26M6G7D	27M6W7D
	36M0G7D	38M1W7D
	45M7G7D	47M5W7D
	58M0G7D	57M9W7D
	64M4G7D	67M4W7D
	77M0G7D	77M6W7D
NR Band n66	SCS 15kHz:	
	4M49G7D	4M47W7D
	8M92G7D	9M28W7D
	13M4G7D	14M1W7D
	17M9G7D	18M9W7D
	38MG7D	38M6W7D



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3.9 Test Frequencies

3.9.1 Reference test frequencies for NR operating band n2

3.9.1.1 Test frequencies for NR operating band n2 and SCS 15 kHz

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
5	Downlink	Low	1932.5	386500	15
		Mid	1960	392000	
		High	1987.5	397500	
	Uplink	Low	1852.5	370500	-
		Mid	1880	376000	
		High	1907.5	381500	
10	Downlink	Low	1935	387000	15
		Mid	1960	392000	
		High	1985	397000	
	Uplink	Low	1855	371000	-
		Mid	1880	376000	
		High	1905	381000	
15	Downlink	Low	1937.5	387500	15
		Mid	1960	392000	
		High	1982.5	396500	
	Uplink	Low	1857.5	371500	-
		Mid	1880	376000	
		High	1902.5	380500	
20	Downlink	Low	1940	388000	15
		Mid	1960	392000	
		High	1980	396000	
	Uplink	Low	1860	372000	-
		Mid	1880	376000	
		High	1900	380000	



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3.9.2 Reference test frequencies for NR operating band n5

3.9.2.1 Test frequencies for NR operating band n5 and SCS 15 kHz

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
5	Downlink	Low	871.5	174300	15
		Mid	881.5	176300	
		High	891.5	178300	
	Uplink	Low	826.5	165300	-
		Mid	836.5	167300	
		High	846.5	169300	
10	Downlink	Low	874	174800	15
		Mid	881.5	176300	
		High	889	177800	
	Uplink	Low	829	165800	-
		Mid	836.5	167300	
		High	844	168800	
15	Downlink	Low	876.5	175300	15
		Mid	881.5	176300	
		High	886.5	177300	
	Uplink	Low	831.5	166300	-
		Mid	836.5	167300	
		High	841.5	168300	
20	Downlink	Low	879	175800	15
		Mid	881.5	176300	
		High	884	176800	
	Uplink	Low	834	166800	-
		Mid	836.5	167300	
		High	839	167800	



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3.9.3 Reference test frequencies for NR operating band n7

3.9.3.1 Test frequencies for NR operating band n7 and SCS 15 kHz

Bandwidth [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
5	Downlink	Low	2622.5	524500	15
		Mid	2655	531000	
		High	2687.5	537500	
	Uplink	Low	2502.5	500500	--
		Mid	2535	507000	
		High	2567.5	513500	
10	Downlink	Low	2625	525000	15
		Mid	2655	531000	
		High	2685	537000	
	Uplink	Low	2505	501000	--
		Mid	2535	507000	
		High	2565	513000	
15	Downlink	Low	2627.5	525500	15
		Mid	2655	531000	
		High	2682.5	536500	
	Uplink	Low	2507.5	501500	--
		Mid	2535	507000	
		High	2562.5	512500	
20	Downlink	Low	2630	526000	15
		Mid	2655	531000	
		High	2680	536000	
	Uplink	Low	2510	502000	--
		Mid	2535	507000	
		High	2560	512000	
25	Downlink	Low	2632.5	526500	15
		Mid	2655	531000	
		High	2677.5	535500	
	Uplink	Low	2512.5	502500	--
		Mid	2535	507000	
		High	2557.5	511500	
30	Downlink	Low	2635	52700	15
		Mid	2655	531000	
		High	2675	535000	
	Uplink	Low	2515	503000	--
		Mid	2535	507000	
		High	2555	511000	
40	Downlink	Low	2640	528000	15
		Mid	2655	531000	
		High	2670	534000	
	Uplink	Low	2520	504000	--
		Mid	2535	507000	
		High	2550	510000	


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3.9.4 Reference test frequencies for NR operating band n12

3.9.4.1 Test frequencies for NR operating band n12 and SCS 15 kHz

Bandwidth [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
5	Downlink	Low	731.5	146300	15
		Mid	737.5	147500	
		High	743.5	148700	
	Uplink	Low	701.5	140300	--
		Mid	707.5	141500	
		High	713.5	142700	
10	Downlink	Low	734	146800	15
		Mid	737.5	147500	
		High	741	148200	
	Uplink	Low	704	140800	--
		Mid	707.5	141500	
		High	711	142200	
15	Downlink	Low	736.5	147300	15
		Mid	737.5	147500	
		High	738.5	147700	
	Uplink	Low	706.5	141300	--
		Mid	707.5	141500	
		High	708.5	141700	





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3.9.5 Reference test frequencies for NR operating band n26

3.9.5.1 Test frequencies for NR operating band n26 and SCS 15 kHz

814-824:

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
5	Downlink	Low	861.5	172300	15
		Mid	864	172800	
		High	866.5	173300	
	Uplink	Low	816.5	163300	-
		Mid	819	163800	
		High	821.5	164300	
10	Downlink	Low	/	/	15
		Mid	864	172800	
		High	/	/	
	Uplink	Low	/	/	-
		Mid	819	163800	
		High	/	/	

824-849:

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
5	Downlink	Low	871.5	174300	15
		Mid	881.5	176300	
		High	891.5	178300	
	Uplink	Low	826.5	165300	-
		Mid	836.5	167300	
		High	846.5	169300	
10	Downlink	Low	874	174800	15
		Mid	881.5	176300	
		High	889	177800	
	Uplink	Low	829	165800	-
		Mid	836.5	167300	
		High	844	168800	
15	Downlink	Low	876.5	175300	15
		Mid	881.5	176300	
		High	886.5	177300	
	Uplink	Low	831.5	166300	-
		Mid	836.5	167300	
		High	841.5	168300	
20	Downlink	Low	879	175800	15
		Mid	881.5	176300	
		High	884	176800	
	Uplink	Low	834	166800	-
		Mid	836.5	167300	
		High	839	167800	



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3.9.6 Reference test frequencies for NR operating band n38

3.9.6.1 Test frequencies for NR operating band n38 and SCS 30 kHz

Bandwidth [MHz]	Range	Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]	
10	Downlink & Uplink	Low	2575	515000	30
		Mid	2595	519000	
		High	2615	523000	
15	Downlink & Uplink	Low	2577.5	515500	30
		Mid	2595	519000	
		High	2612.5	522500	
20	Downlink & Uplink	Low	2580	516000	30
		Mid	2595	519000	
		High	2610	522000	
30	Downlink & Uplink	Low	2585	517000	30
		Mid	2595	519000	
		High	2605	521000	
40	Downlink & Uplink	Low	2590	518000	30
		Mid	2595	519000	
		High	2600	520000	





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3.9.7 Reference test frequencies for NR operating band n41

3.9.7.1 Test frequencies for NR operating band n41 and SCS 30 kHz

CBW [MHz]	Range	Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
20	Downlink & Uplink	Low	2506.02	30
		Mid	2592.99	
		High	2670	
30	Downlink & Uplink	Low	2511	30
		Mid	2592.99	
		High	2675	
40	Downlink & Uplink	Low	2516.01	30
		Mid	2592.99	
		High	2670	
50	Downlink & Uplink	Low	2521.02	30
		Mid	2592.99	
		High	2664.99	
60	Downlink & Uplink	Low	2526	30
		Mid	2592.99	
		High	2659.98	
70	Downlink & Uplink	Low	2531	30
		Mid	2592.29	
		High	2655	
80	Downlink & Uplink	Low	2536.02	30
		Mid	2592.99	
		High	2649.99	
90	Downlink & Uplink	Low	2541	30
		Mid	2592.99	
		High	2644.98	
100	Downlink & Uplink	Low	2546.01	30
		Mid	2592.99	
		High	2640	



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3.9.8 Reference test frequencies for NR operating band n66

3.9.8.1 Test frequencies for NR operating band n66 and SCS 15 kHz

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
5	Downlink	Low	2112.5	422500	15
		Mid	2145	429000	
		High	2177.5	435500	
	Uplink	Low	1712.5	342500	-
		Mid	1745	349000	
		High	1777.5	355500	
10	Downlink	Low	2115	423000	15
		Mid	2145	429000	
		High	2175	435000	
	Uplink	Low	1715	343000	-
		Mid	1745	349000	
		High	1775	355000	
15	Downlink	Low	2117.5	423500	15
		Mid	2145	429000	
		High	2172.5	434500	
	Uplink	Low	1717.5	343500	-
		Mid	1745	349000	
		High	1772.5	354500	
20	Downlink	Low	2120	424000	15
		Mid	2145	429000	
		High	2170	434000	
	Uplink	Low	1720	344000	-
		Mid	1745	349000	
		High	1770	354000	
40	Downlink	Low	2130	426000	15
		Mid	2145	429000	
		High	2160	432000	
	Uplink	Low	1730	346000	-
		Mid	1745	349000	
		High	1760	352000	



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

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

EIRP=ERP+2.15dB



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4.3 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 \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



4.4 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 peak or peak hold power.

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 x RBW
5. Detector = RMS
6. Number of sweep points \geq 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



4.5 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 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



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4.6 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



4.7 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.

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

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

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.



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4.8 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 $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

Time Period and Procedure:

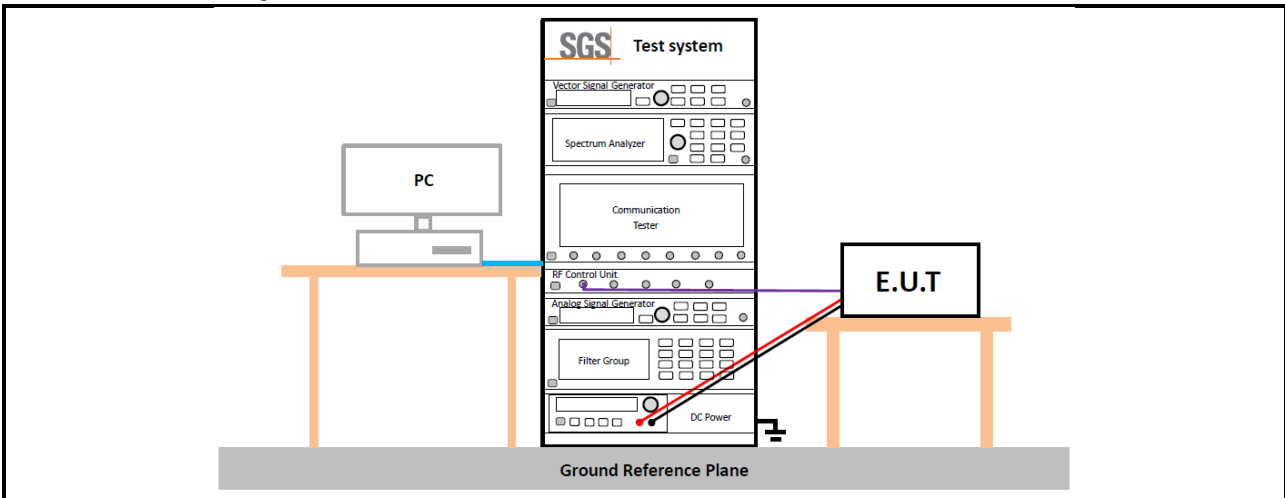
1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute 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



4.9 Test Setups

4.9.1 Test Setup 1



4.9.2 Test Setup 2

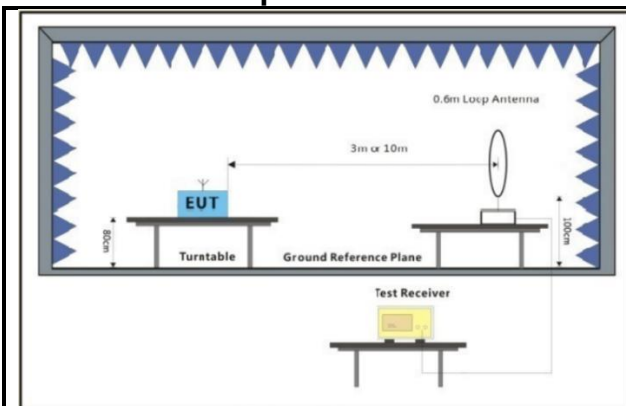


Figure 1. Below 30MHz

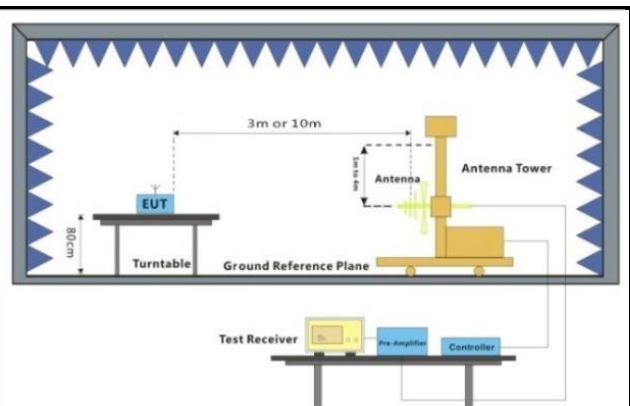


Figure 2. 30MHz to 1GHz

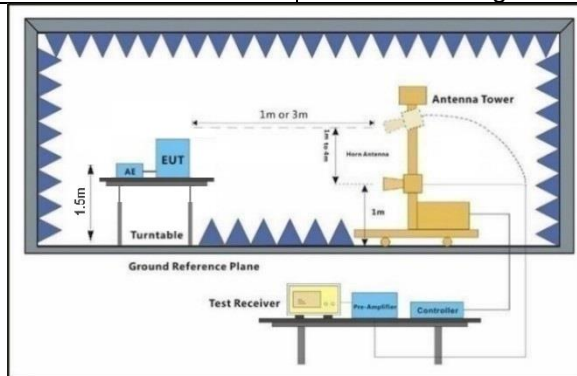


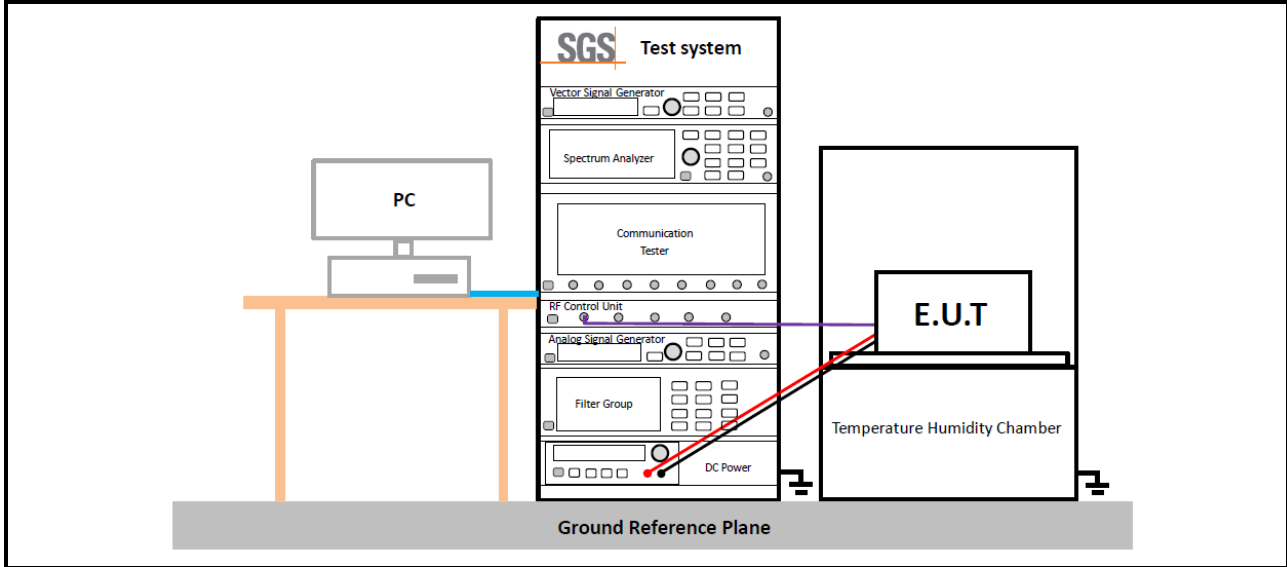
Figure 3. above 1GHz



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4.9.3 Test Setup 3



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4.10 Test 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	NR/TM1; NR/TM2; NR/TM3; NR/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	NR/TM4; NR/TM8;
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	NR/TM1; NR/TM2; NR/TM3; NR/TM4; NR/TM5; NR/TM6; NR/TM7; NR/TM8;
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	NR/TM1; NR/TM2; NR/TM3; NR/TM4; NR/TM5; NR/TM6; NR/TM7; NR/TM8;
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	NR/TM1; NR/TM5;
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	NR/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	NR/TM1 Remark: All bandwidth and modulation of NR 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	NR/TM1; NR/TM5; The report only show the bandwidth with the worst case.



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5 Main Test Instruments

RF Test System NR1					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
Signal Generator	Rohde & Schwarz	SMR 20	SZ-WRG-M-016	2023/09/14	2024/09/13
MXG Vector Signal Generator	Keysight	N5182B	SZ-WRG-M-015	2024/01/30	2025/01/29
Spectrum Analyzer	Keysight	N9020A	SZ-WRG-M-026	2024/01/30	2025/01/29
Signal & Spectrum Analyzer	Rohde & Schwarz	FSV	SZ-WRG-M-048	2024/01/30	2025/01/29
5G Wireless Test Platform	Star Point	SP9500	SZ-WRG-M-085	2024/01/30	2025/01/29
INSULATION TESTER	FLUKE	1508	SZ-WRG-M-060	2023/12/22	2024/12/21
DC power supply	HYELEC	HY3005B	SZ-WRG-M-024	2023/09/14	2024/09/13
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SZ-WRG-M-075	2023/05/25	2024/05/24
Humi/ Temp Indicator	Shanghai Meteorological Industry Factory	HTC-1	SZ-WRG-M-077	2023/05/25	2024/05/24
Test Software	Tonscend	TS1120 V2.4.1	N/A	NCR	NCR



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RF Test System NR2					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
Radio Communication Test Station	Anritsu	MT8000A	SZ-WRG-M-013	2023/09/14	2024/09/13
Spectrum Analyzer	Keysight	N9020A	SZ-WRG-M-004	2023/09/14	2024/09/13
MXG Vector Signal Generator	Keysight	N5182B	SZ-WRG-M-015	2024/01/30	2025/01/29
Signal Generator	Rohde & Schwarz	SMR 20	SZ-WRG-M-034	2023/09/14	2024/09/13
INSULATION TESTER	FLUKE	1508	SZ-WRG-M-060	2023/12/22	2024/12/21
DC power supply	HYELEC	HY3005B	SZ-WRG-M-024	2023/09/14	2024/09/13
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SZ-WRG-M-075	2023/05/25	2024/05/24
Humi/ Temp Indicator	Shanghai Meteorological Industry Factory	HTC-1	SZ-WRG-M-077	2023/05/25	2024/05/24
Test Software	Tonscend	TS1120 V2.4.1	N/A	NCR	NCR



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Radiated spurious emissions					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
EMI TEST RECEIVER	Rohde & Schwarz	ESR	SZ-WRG-M-047	2024/01/30	2025/01/29
Signal & Spectrum Analyzer	Rohde & Schwarz	FSV	SZ-WRG-M-048	2024/01/30	2025/01/29
Low Noise Amplifier 9K-3GHz	Tonscend	TAP9K3G32	SEM005-23	2024/03/05	2025/03/04
Low Noise Amplifier 30M-8GHz	Tonscend	TAP30M8G30	SZ-WRG-M-050	2024/01/30	2025/01/29
Low Noise Amplifier 1G-18GHz	Tonscend	TAP01018050	SZ-WRG-M-051	2024/01/30	2025/01/29
Low Noise Amplifier 18G-40GHz	Tonscend	TAP18040048	SZ-WRG-M-052	2024/01/30	2025/01/29
Active Loop Antenna 9kHz-30MHz	SCHWARZBECK	FMZB 1519B	SZ-WRG-M-053	2023/12/25	2024/12/24
TRILOG Breitband Antenne 30MHz-1GHz	SCHWARZBECK	VULB 9168	SZ-WRG-M-054	2023/12/25	2024/12/24
Double Ridge Horn Antenna 1GHz-18GHz	SCHWARZBECK	BBHA 9120 D	SZ-WRG-M-055	2023/12/21	2024/12/20
SHF-EHF Horn 15GHz-40GHz	SCHWARZBECK	BBHA 9170	SZ-WRG-M-056	2023/12/25	2024/12/24
RSE Test Software	Tonscend	JS32-RSE V4.0.0	SZ-WRG-S-058	NCR	NCR
RE Test Software	Tonscend	JS32-RE V4.0.0	SZ-WRG-S-059	NCR	NCR
Chamber	CRTSGSSAC966	N/A	SZ-WRG-C-063	2022/01/05	2025/01/04
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	HTC-1	SZ-WRG-M-078	2023/05/25	2024/05/24
Spectrum Analyzer	Keysight	N9020A	SZ-WRG-M-002	2023/09/14	2024/09/13
Radio Communication Tester	STARPOINT	SP9500E	SZ-WRG-M-057	2023/12/21	2024/12/20

Remark: NCR=No Calibration Requirement



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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	Radio Frequency	$\pm 9.84\text{Hz}$
2	Duty cycle	$\pm 0.185\%$
3	Occupied Bandwidth	$\pm 0.20\%$
4	RF conducted power	$\pm 0.42\text{dB}$
5	RF power density	$\pm 1.97\text{dB}$
6	Conducted Spurious emissions	$\pm 0.42\text{dB}$
7	Radiated Spurious emission test(UE)	$\pm 4.8\text{dB}$ (30MHz-1GHz)
		$\pm 4.68\text{dB}$ (1GHz-6GHz)
		$\pm 4.52\text{dB}$ (6GHz-18GHz)
		$\pm 5.26\text{dB}$ (18GHz-40GHz)

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.



7 Appendixes

Appendix A.1	WWAN Setup Photos
Appendix B.21	NR Band n2
Appendix B.22	NR Band n5
Appendix B.23	NR Band n7
Appendix B.24	NR Band n12
Appendix B.25	NR Band n26(814-824)
Appendix B.26	NR Band n26(824-849)
Appendix B.27	NR Band n38
Appendix B.28	NR Band n41
Appendix B.29	NR Band n66

---End of Report---

