

TEST REPORT

EUT Description	5G DIGITAL MOBILE PHONE
Brand Name	VERTU
Model Name	VTL-202502
FCC ID	2BGHD-VTL202502
IC ID	32468-VTL202502
Date of Test Start/End	2026-03-13 / 2026-05-15

Applicant	Chengdu Xiaochen Technology Co., Ltd
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Manufacturers	Same as Application
Address	Same as Application
Factory	Same as Application
Address	Same as Application

Reference Standards	47 CFR Part 2	RSS-132 Issue 4
	47 CFR Part 22	RSS-133 Issue 7
	47 CFR Part 24	RSS-139 Issue 4
	47 CFR Part 27	RSS-192 Issue 5
	47 CFR Part 90	RSS-195 Issue 3
	RSS-Gen Issue 5	RSS-199 Issue 4
	RSS-130 Issue 2	(see section 1)

Test Report identification	RL20260313003EE
	Rev. 00
Revision Control	This test report revision replaces any previous test report revision. (see Document Changes)

Test Result: *Pass**

*The EUT complied with the test item(s) of the above standard (s), refer to the test summary for details.

Authorized for issue by:

Jim Chen

Jim Chen / Project Engineer



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Document Changes

Status	Date of issue	Revision	Description of the performed changes
Active	2025-08-26	Rev. 00	None (original version).



2 Test Summary

2.1 GSM850/UMTS Band 5/LTE Band 5/26(824~849 MHz)

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



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2.2 GSM 1900/UMTS Band 2 /LTE Band 2/25

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



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2.3 UMTS Band 4 /LTE Band 4 /66

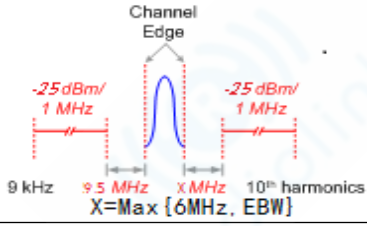
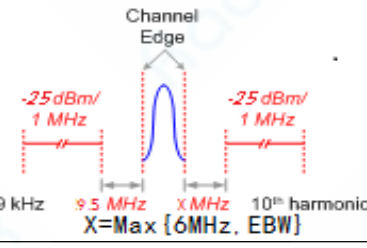
Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(d)(4)	$EIRP \leq 1\text{ W}$	Refer to the Appendixs	Pass
Peak-Average Ratio	§27.50(d)(5)	Limit $\leq 13\text{ dB}$		Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.		Pass
Band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



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2.4 LTE Band 7/38/41/CA_7C/ CA_41C

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

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2.5 LTE Band 12/17

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046 §27.50(c)(10)	ERP ≤ 3 W.	Refer to the Appendix	Pass
Peak-Average Ratio	---	Limit≤13 dB		Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.		Pass
Band Edges Compliance	§2.1051, §27.53(g)	≤ 43+10log10(P[Watts])		Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	≤ 43+10log10(P[Watts])		Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	FCC: ≤ -13 dBm/100 kHz.		Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	Within authorized bands of operation/frequency block.		Pass



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2.6 LTE Band 26(814~824 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Transmitter Conducted Power Output	§2.1046, §90.635(b)	< 100 W.	Refer to the Appendixs	Pass
Peak-Average Ratio	---	Limit≤13 dB		Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.		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 $50+10\log_{10}(P)$ 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.		Pass
Spurious Emission at Antenna Terminals	§2.1051, §90.691	< $43 + 10\log_{10}(P[\text{Watts}])$ for all out-of-band emissions		Pass
Field Strength of Spurious Radiation	§2.1053, §90.691	< $43 + 10\log_{10}(P[\text{Watts}])$ for all out-of-band emissions		Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(2) §90.213	Within authorized bands of operation/frequency block.		Pass



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2.7 LTE Band 40

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Output Power Data	§27.50(a)	EIRP≤ 250mW/5MHz(LTE Band 40)	Refer to the Appendixs	PASS
Peak-Average Ratio	§27.50(a)	≤13dB		PASS
Modulation Characteristics	§2.1047	Digital modulation		PASS
Bandwidth	§2.1049(h)	OBW: No limit EBW: No limit		PASS
Band Edge Compliance	§27.53(a)	Refer to clause 6.4 for LTE Band40		PASS
Spurious emissions at antenna terminals	§27.53(a)	Refer to clause 6.5 for LTE Band40		PASS
Field strength of spurious radiation	§27.53(a)	Refer to clause 6.6 for LTE Band40		PASS
Frequency stability	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	≤ ±2.5ppm.		PASS



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2.8 LTE Band 42

3450-3550MHz:

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



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2.9 GSM850/UMTS Band 5/LTE Band 5/26(824~849 MHz)

Test Item	ISED Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	RSS-Gen, §6.12; RSS-132, §5.4	ERP ≤ 3 W	Refer to the Appendixs	Pass
Peak-Average Ratio	RSS-132, §5.4	Limit≤13 dB		Pass
Bandwidth	RSS-Gen, §6.7	OBW: No limit. EBW: No limit.		Pass
Band Edges Compliance	RSS-Gen, §6.13; RSS-132, §5.5	≤ -13 dBm/1%*OBW, in 1 MHz bands immediately outside and adjacent to the sub-bands.		Pass
Spurious Emission at Antenna Terminals	RSS-Gen, §6.13; RSS-132, §5.5	≤ -13 dBm/100 kHz, from max(min(lowest internal frequency, 30 MHz), 9 kHz) to min(10 * highest fundamental frequency, 40 GHz), after first 1.0 MHz immediately outside and adjacent to each of the sub-bands.		Pass
Field Strength of Spurious Radiation	RSS-Gen, §6.13; RSS-132, §5.5	≤ -13 dBm/100 kHz, from max(min(lowest internal frequency, 30 MHz), 9 kHz) to min(10 * highest fundamental frequency, 40 GHz), after first 1.0 MHz immediately outside and adjacent to each of the sub-bands.		Pass
Frequency Stability	RSS-Gen, §6.11 RSS-132, §5.3	Within authorized bands of operation/frequency block.		Pass



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2.10 GSM1900/UMTS Band 2 /LTE Band 2 /25

Test Item	ISED Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	RSS-Gen, §6.12; RSS-133, §5.5	$EIRP \leq 2\text{ W}$	Refer to the Appendixs	Pass
Peak-Average Ratio	RSS-133, §5.5	Limit $\leq 13\text{ dB}$		Pass
Bandwidth	RSS-133, §5.2	OBW: No limit. EBW: No limit.		Pass
Band Edges Compliance	RSS-133, §5.6	$\leq -13\text{ dBm}/1\% \cdot \text{EBW}$, in 1 MHz bands immediately outside and adjacent to the frequency block.		Pass
Spurious Emission at Antenna Terminals	RSS-133, §5.6	$\leq -13\text{ dBm}/1\text{ MHz}$, from 9 kHz to 10 th harmonics but outside authorized operating frequency ranges.		Pass
Field Strength of Spurious Radiation	RSS-133, §5.6	$\leq -13\text{ dBm}/1\text{ MHz}$.		Pass
Frequency Stability	RSS-133, §5.4	Within authorized bands of operation/frequency block.		Pass



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2.11 UMTS Band 4 /LTE Band 4 /66

Test Item	ISED Rule No.	Requirements		Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	RSS-139, §5.5	30 dBm e.i.r.p./channel bandwidth		Refer to the Appendix	Pass
Peak-Average Ratio	RSS-139, §5.5	Limit≤13 dB			Pass
Bandwidth	RSS-Gen, §6.7	OBW: No limit. EBW: No limit.			Pass
Band Edges Compliance	RSS-139, §5.6	Offset from the edge of the frequency block or frequency block group	Unwanted emission limits		Pass
		1 MHz	-13 dBm/(1% of OB*)		
		>1 MHz	-13 dBm/MHz		
		*OB is the occupied bandwidth.			
Spurious Emission at Antenna Terminals	RSS-139, §5.6	Offset from the edge of the frequency block or frequency block group	Unwanted emission limits	Pass	
		1 MHz	-13 dBm/(1% of OB*)		
		>1 MHz	-13 dBm/MHz		
		*OB is the occupied bandwidth.			
Field Strength of Spurious Radiation	RSS-139, §5.6	≤ -13 dBm/1 MHz.		Pass	
Frequency Stability	RSS-139, §5.4	Within authorized bands of operation/frequency block.		Pass	

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2.12 LTE Band 40

Test Item	ISED Rule No..	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Output Power Data	RSS-195 Issue3; RSS-Gen	EIRP $\leq$ 250mW/5MHz(LTE Band 40)	Refer to the Appendixs	PASS
Peak-Average Ratio	RSS-195 Issue3; RSS-Gen	$\leq$ 13dB		PASS
Modulation Characteristics	RSS-Gen	Digital modulation		PASS
Bandwidth	RSS-195 Issue3; RSS-Gen	OBW shall fit within the assigned WCS sub-blocks (e.g., 2305–2320 / 2345–2360 MHz)		PASS
Band Edge Compliance	RSS-195 Issue3; RSS-Gen	Refer to clause 6.4 for LTE Band40		PASS
Spurious emissions at antenna terminals	RSS-195 Issue3; RSS-Gen	Refer to clause 6.5 for LTE Band40		PASS
Field strength of spurious radiation	RSS-Gen	Refer to clause 6.6 for LTE Band40		PASS
Frequency stability	RSS-195 Issue3; RSS-Gen	$\leq \pm 2.5$ ppm.		PASS



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2.13 LTE Band 42

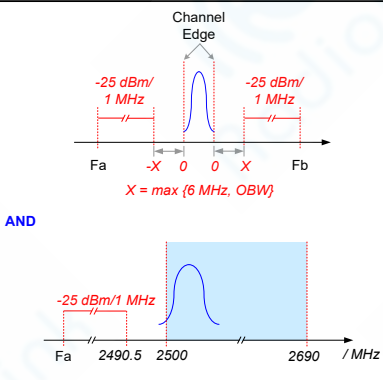
Test Item	ISED Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	RSS-Gen, §6.12; RSS-192 §5.5	Subscriber equipment other than fixed subscriber equipment:30 dBm e.i.r.p./channel bandwidth	Refer to the Appendixs	Pass
Peak-Average Ratio	RSS-Gen, §5.5	Limit≤13 dB		Pass
Bandwidth	RSS-Gen, §6.7	OBW: No limit. EBW: No limit.		Pass
Band Edges Compliance	RSS-Gen, §6.13; RSS-192 §5.6.3	Subscriber equipment shall have the TRP or conducted power (per antenna), where applicable, of unwanted emission not exceeding the following: a.the limits in table 6 b.a limit of -30 dBm/MHz in the frequency range greater than (B+5) MHz from the edge of the frequency band		Pass
Spurious Emission at Antenna Terminals	RSS-Gen, §6.13; RSS-192 §5.6.3	Subscriber equipment shall have the TRP or conducted power (per antenna), where applicable, of unwanted emission not exceeding the following: a.the limits in table 6 b.a limit of -30 dBm/MHz in the frequency range greater than (B+5) MHz from the edge of the frequency band		Pass
Field Strength of Spurious Radiation	RSS-Gen, §6.13; RSS-192 §5.6.3	Subscriber equipment shall have the TRP or conducted power (per antenna), where applicable, of unwanted emission not exceeding the following: a.the limits in table 6 b.a limit of -30 dBm/MHz in the frequency range greater than (B+5) MHz from the edge of the frequency band		Pass
Frequency Stability	RSS-192 §5.4	Within authorized bands of operation/frequency block.		Pass



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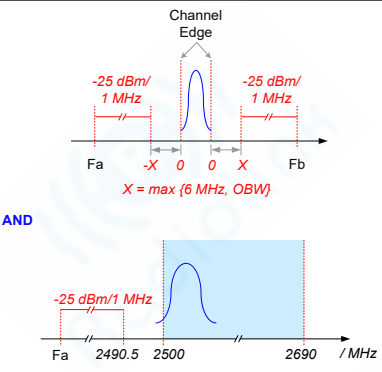
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2.14 LTE Band 7/38/41/CA_7C/ CA_41C

Test Item	ISED Rule No.	Requirements		Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	RSS-199, §5.5	EIRP ≤ 2W		Refer to the Appendixs	Pass
Peak-Average Ratio	RSS-199, §5.4	≤13 dB			Pass
Bandwidth	RSS-199, §5.6	OBW: No limit. EBW: No limit.			Pass
Band Edges Compliance	RSS-199, §5.6	Table 5: Unwanted emission limits for subscriber equipment other than fixed subscriber equipment		Refer to the Appendixs	Pass
		Offset from the edge of the frequency block or frequency block group (MHz)	Unwanted emission limits		
		0-1	-10 dBm/(2% of OB*)		
		1-5	-10 dBm/MHz		
		5-X**	-13 dBm/MHz		
		≥ X	-25 dBm/MHz		
		*OB is the occupied bandwidth ** X is 6 MHz or the equipment occupied bandwidth, whichever is greater			
Spurious Emission at Antenna Terminals	RSS-199, §5.6	 Channel Edge -25 dBm/1 MHz -X 0 X Fa Fb X = max {6 MHz, OBW} AND -25 dBm/1 MHz Fa 2490.5 2500 2690 / MHz Fa = max(min(lowest internal frequency, 30 MHz), 9 kHz). Fb = min(10 * highest fundamental frequency, 40 GHz).		Pass	

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Test Item	ISED Rule No.	Requirements	Test Result	Verdict
Field Strength of Spurious Radiation	RSS-199, §5.6	 Channel Edge -25 dBm/1 MHz -25 dBm/1 MHz Fa -X 0 0 X Fb X = max (6 MHz, 0.025 GHz) AND -25 dBm/1 MHz Fa 2490.5 2500 2690 / MHz Fa = max(min(lowest internal frequency, 30 MHz), 9 kHz). Fb = min(10 * highest fundamental frequency, 40 GHz).		Pass
Frequency Stability	RSS-199, §5.4	Within authorized bands of operation/frequency block.		Pass

2.15 LTE Band 12/17

Test Item	ISED Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	RSS-130,§4.6.3	ERP ≤ 3 W	Refer to the Appendixs	Pass
Peak-Average Ratio	RSS-130,§4.6.1	Limit ≤ 13 dB		Pass
Bandwidth	RSS-Gen,§6.7	OBW: No limit. EBW: No limit.		Pass
Band Edges Compliance	RSS-130,§4.7	$\leq 43+10\log_{10}(P[\text{Watts}])$		Pass
Spurious Emission at Antenna Terminals	RSS-130,§4.7	$\leq 43+10\log_{10}(P[\text{Watts}])$		Pass
Field Strength of Spurious Radiation	RSS-130,§4.7	≤ -13 dBm/100 kHz.		Pass
Frequency Stability	RSS-130,§4.5	Within authorized bands of operation/frequency block.		Pass



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4 General Information

4.1 General Description of EUT

EUT Description:	5G DIGITAL MOBILE PHONE	
Model No.:	VTL-202502	
Trade Mark:	VERTU	
Hardware Version:	P10	
Software Version:	15.0.2_6.01.01.01	
Power Supply:	DC 3.83V from internal rechargeable battery which can be charge by AC/DC adapter	
Modulation Type:	GSM:GMSK/8PSK/QPSK/16QAM/32QAM	
	WCDMA:QPSK(HPSK) /QPSK/16QAM/32QAM	
	LTE:QPSK/16QAM/32QAM/BPSK	
Antenna Type:	PIFA Antenna	
Antenna Gain:	GSM850:	-2.5dBi(Ant1);
	GSM1900:	-1.8dBi(Ant9);
	WCDMA Band II:	-1.5dBi(Ant9);
	WCDMA Band IV:	-1.5dBi(Ant9);
	WCDMA Band V:	-2.5dBi(Ant1);
	LTE Band 2:	-1.5dBi(Ant9);
	LTE Band 4:	-1.7dBi(Ant9);
	LTE Band 5:	-2.5dBi(Ant1);
	LTE Band 7:	-2.2dBi(Ant9); -5dBi(Ant1)
	LTE Band 12:	-4.1dBi(Ant1);
	LTE Band 17:	-4.1dBi(Ant1);
	LTE Band 25:	-1.5dBi(Ant9);
	LTE Band 26a(814-824):	-2.5dBi(Ant1);
	LTE Band 26b(824-849):	-2.5dBi(Ant1);
	LTE Band 26c(814-849 BW UL_15MHz):	-2.5dBi(Ant1);
	LTE Band 38:	-2.2dBi(Ant9); -2.8dBi(Ant3)
	LTE Band 40:	-2.2dBi(Ant9); -5dBi(Ant1)
	LTE Band 41:	-2.2dBi(Ant9); -2.8dBi(Ant3)
	LTE Band 41a:	-2.2dBi(Ant9); -2.8dBi(Ant3)
	LTE Band 42:	-0.6dBi(Ant10); -5.8dBi(Ant8)
	LTE Band 42a:	-0.6dBi(Ant10); -5.8dBi(Ant8)
	LTE Band 66:	-1.7dBi(Ant9); -2.2dBi(Ant3)
	LTE CA_7C:	-2.2dBi(Ant9); -5dBi(Ant1)
	LTE CA_41C:	-2.2dBi(Ant9); -2.8dBi(Ant3)

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	LTE CA_41C(2500-2690):	-2.2dBi(Ant9); -2.8dBi(Ant3)	
	Note:The antenna gain are derived from the gain information report provided by the manufacturer.		
RF Cable:	9kHz ~ 1000MHz (0.2dB)	1000MHz ~ 2000MHz (0.5dB)	2000MHz ~ 3000MHz (1dB)
	3000MHz ~ 5000MHz (1.5dB)	5000MHz ~ 6000MHz (2dB)	6000MHz ~ 18000MHz (3dB)
	Above 18000MHz(4dB)		
Note: 1. Conduction Power & EIRP of all antennas are tested, and only the worst data is presented 2. As above information is provided and confirmed by the applicant. Radiolink Testing(Shenzhen)Co., Ltd is not liable to the accuracy, suitability, reliability or/and integrity of the information.			

4.2 Test Mode

Test Mode	Test Modes Description
GSM/TM1	GSM system, GSM/GPRS, GMSK modulation
GSM/TM2	GSM system, EGPRS, 8PSK modulation
UMTS/TM1	UMTS system, WCDMA, QPSK modulation
LTE/TM1	LTE system, QPSK modulation
LTE/TM2	LTE system, 16QAM modulation
LTE/TM3	LTE system, 64QAM modulation
Remark: The test mode(s) are selected according to relevant radio technology specifications.	

4.3 Test Environment

Environment Parameter	101 kPa Selected Values During Tests	
Relative Humidity	44-46 % RH Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	22~23	3.83
LTLV	-30	3.4
LTHV	-30	4.3
HTLV	50	3.4
HTHV	50	4.3
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		

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4.4 Test Channel

Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GSM850	TX	Channel 128	Channel 190	Channel 251
		824.2MHz	836.6 MHz	848.8 MHz
	RX	Channel 128	Channel 190	Channel 251
		869.2 MHz	881.6 MHz	893.8 MHz

Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GSM1900	TX	Channel 512	Channel 661	Channel 810
		1850.2MHz	1880.0 MHz	1909.8 MHz
	RX	Channel 512	Channel 661	Channel 810
		1930.2 MHz	1960.0 MHz	1989.8 MHz

Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA Band II	TX	Channel 9262	Channel 9400	Channel 9538
		1852.4 MHz	1880.0 MHz	1907.6 MHz
	RX	Channel 9662	Channel 9800	Channel 9938
		1932.4 MHz	1960.0 MHz	1987.6 MHz

Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA Band IV	TX	Channel 1312	Channel 1413	Channel 1513
		1712.4MHz	1732.6 MHz	1752.6 MHz
	RX	Channel 1537	Channel 1638	Channel 1738
		2112.4 MHz	2132.6 MHz	2152.6 MHz

Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA Band V	TX	Channel 4132	Channel 4182	Channel 4233
		826.4MHz	836.4 MHz	846.6 MHz
	RX	Channel 4357	Channel 4407	Channel 4458
		871.4 MHz	881.4 MHz	891.6 MHz

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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	Channel 1175
			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



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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 4	1.4MHz	TX	Channel 19957	Channel 20175	Channel 20393
			1710.7 MHz	1732.5 MHz	1754.3 MHz
		RX	Channel 1957	Channel 2175	Channel 2393
			2110.7 MHz	2132.5MHz	2154.3 MHz
	3MHz	TX	Channel 19965	Channel 20175	Channel 20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz
		RX	Channel 1965	Channel 2175	Channel 2385
			2111.5 MHz	2132.5MHz	2153.5 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
	10MHz	TX	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	Channel	Channel

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			20415	20525	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



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

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			23060	23095	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 17	5MHz	TX	Channel 23755	Channel 23790	Channel 23825
			706.5 MHz	710 MHz	713.5 MHz
		RX	Channel 5755	Channel 5790	Channel 5825
			736.5 MHz	740 MHz	743.5 MHz
	10MHz	TX	Channel 23780	Channel 23790	Channel 23800
			709 MHz	710 MHz	711 MHz
		RX	Channel 5780	Channel 5790	Channel 5800
			739 MHz	740 MHz	741 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

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	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 Band26 (824-849)	1.4MHz	TX	Channel 26797	Channel 26915	Channel 27033
			824.7 MHz	836.5 MHz	848.3 MHz
		RX	Channel 8797	Channel 8915	Channel 9033
			869.7 MHz	881.5 MHz	893.3 MHz
	3MHz	TX	Channel 26805	Channel 26915	Channel 27025
			825.5 MHz	836.5 MHz	847.5 MHz
		RX	Channel 8805	Channel 8915	Channel 9025
			860.5 MHz	881.5 MHz	892.5 MHz
	5MHz	TX	Channel 26815	Channel 26915	Channel 27015
			826.5 MHz	836.5 MHz	846.5 MHz
		RX	Channel 8815	Channel 8915	Channel 9015
			871.5 MHz	881.5 MHz	891.5 MHz
	10MHz	TX	Channel 26840	Channel 26915	Channel 26990
			829 MHz	836.5 MHz	844 MHz
		RX	Channel 8840	Channel 8915	Channel 8990
			874 MHz	881.5 MHz	889 MHz
	15MHz	TX	Channel 26865	Channel 26915	Channel 26965
			831.5 MHz	836.5 MHz	841.5 MHz
		RX	Channel 8865	Channel 8915	Channel 8965
			876.5 MHz	881.5 MHz	886.5 MHz

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Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 38	5MHz	TX/RX	Channel 37775	Channel38000	Channel 38225
			2572.5 MHz	2595 MHz	2617.5 MHz
	10MHz	TX/RX	Channel 37800	Channel38000	Channel 38200
			2575 MHz	2595 MHz	2615 MHz
	15MHz	TX/RX	Channel 37825	Channel38000	Channel 38175
			2577.5 MHz	2595 MHz	2612.5 MHz
	20MHz	TX/RX	Channel 37850	Channel38000	Channel 38150
			2580 MHz	2595 MHz	2610 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 41 (2500-2690)	5MHz	TX / RX	Channel 39715	Channel40640	Channel 41565
			2502.5 MHz	2595 MHz	2687.5 MHz
	10MHz	TX / RX	Channel 39740	Channel40640	Channel 41540
			2505 MHz	2595 MHz	2685 MHz
	15MHz	TX / RX	Channel 39765	Channel40640	Channel 41515
			2507.5 MHz	2595 MHz	2682.5 MHz
	20MHz	TX / RX	Channel 39790	Channel40640	Channel 41490
			2510 MHz	2595 MHz	2680 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 42 (3450~3600)	5MHz	TX	Channel 42115	Channel 42840	Channel 43565
			3452.5 MHz	3525 MHz	3597.5 MHz
		RX	Channel 42115	Channel 42840	Channel 43565
			3452.5 MHz	3525 MHz	3597.5 MHz
	10MHz	TX	Channel 42140	Channel 42840	Channel 43540
			3455 MHz	3525 MHz	3595 MHz
		RX	Channel 42140	Channel 42840	Channel 43540
			3455 MHz	3525 MHz	3595 MHz
	15MHz	TX	Channel 42165	Channel 42840	Channel 43515
			3457.5 MHz	3525 MHz	3592.5 MHz
		RX	Channel 42165	Channel 42840	Channel 43515
			3457.5 MHz	3525 MHz	3592.5 MHz

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	20MHz	TX	Channel 42190	Channel 42840	Channel 43490
			3460 MHz	3525 MHz	3590 MHz
		RX	Channel 42190	Channel 42840	Channel 43490
			3460 MHz	3525 MHz	3590 MHz

Test Mode	Bandwidth	TX / RX	RF Channel		
			Low (L)	Middle (M)	High (H)
LTE Band 66	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
			2120 MHz	2145MHz	2190 MHz

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Table 4.3.1.1.7A-1: Test frequencies for CA_7C

Range	CC-Combo / N _{RB,agg} [RB]	CC1 Note1					CC2 Note1				
		BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]	BW [RB]	N _{UL}	f _{UL} [MHz]	N _{DL}	f _{DL} [MHz]
Low	50+100	50	20805	2505.5	2805	2625.5	100	20949	2519.9	2949	2639.9
		100	20850	2510	2850	2630	50	20994	2524.4	2994	2644.4
	75+50	75	20825	2507.5	2825	2627.5	50	20945	2519.5	2945	2639.5
	75+75	75	20825	2507.5	2825	2627.5	75	20975	2522.5	2975	2642.5
	75+100	75	20828	2507.8	2828	2627.8	100	20999	2524.9	2999	2644.9
		100	20850	2510	2850	2630	75	21021	2527.1	3021	2647.1
	100+100	100	20850	2510	2850	2630	100	21048	2529.8	3048	2649.8
Mid	50+100	50	21006	2525.6	3006	2645.6	100	21150	2540	3150	2660
		100	21051	2530.1	3051	2650.1	50	21195	2544.5	3195	2664.5
	75+50	75	21051	2530.1	3051	2650.1	50	21171	2542.1	3171	2662.1
	75+75	75	21025	2527.5	3025	2647.5	75	21175	2542.5	3175	2662.5
	75+100	75	21003	2525.3	3003	2645.3	100	21174	2542.4	3174	2662.4
		100	21026	2527.6	3026	2647.6	75	21197	2544.7	3197	2664.7
	100+100	100	21001	2525.1	3001	2645.1	100	21199	2544.9	3199	2664.9
High	50+100	50	21206	2545.6	3206	2665.6	100	21350	2560	3350	2680
		100	21251	2550.1	3251	2670.1	50	21395	2564.5	3395	2684.5
	75+50	75	21277	2552.7	3277	2672.7	50	21397	2564.7	3397	2684.7
	75+75	75	21225	2547.5	3225	2667.5	75	21375	2562.5	3375	2682.5
	75+100	75	21179	2542.9	3179	2662.9	100	21350	2560	3350	2680
		100	21201	2545.1	3201	2665.1	75	21372	2562.2	3372	2682.2
	100+100	100	21152	2540.2	3152	2660.2	100	21350	2560	3350	2680

Note 1: Carriers in increasing frequency order.

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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	39728	2503.8	100	39899	2520.9
	75+100	75	39728	2503.8	100	39899	2520.9
		100	39750	2506	75	39921	2523.1
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	40523	2583.3	100	40694	2600.4
	75+100	75	40523	2583.3	100	40694	2600.4
		100	40546	2585.6	75	40717	2602.7
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	41319	2662.9	100	41490	2680
	75+100	75	41319	2662.9	100	41490	2680
		100	41341	2665.1	75	41512	2682.2
High	100+100	100	41292	2660.2	100	41490	2680
		100	41292	2660.2	100	41490	2680

Note 1: Carriers in increasing frequency order.

Note 2: This test frequency is applicable only for intra-band contiguous CA which requires channel spacing to be less than nominal channel spacing.

4.5 Operating Bands and Applicable FCC Rule Parts&ISED Standards

Band	Frequency	FCC Rule Part	ISED RSS Standard
GSM / GERAN			
GSM 850	824–894 MHz	Part 22 (Subpart H)	RSS-132 + RSS-Gen
GSM 1900	1850–1990 MHz	Part 24 (Subpart E)	RSS-133 + RSS-Gen
WCDMA / UTRA FDD			
WCDMA II	1850–1990 MHz	Part 24 (Subpart E)	RSS-133 + RSS-Gen
WCDMA IV	1710–1755 / 2110–2155 MHz	Part 27 (AWS-1)	RSS-139 + RSS-Gen
WCDMA V	824–894 MHz	Part 22 (Subpart H)	RSS-132 + RSS-Gen
LTE / E-UTRA			
LTE B2	1850–1990 MHz	Part 24 (Subpart E)	RSS-133 + RSS-Gen

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Band	Frequency	FCC Rule Part	ISED RSS Standard
LTE B4	1710–1755 / 2110–2155 MHz	Part 27 (AWS-1)	RSS-139 + RSS-Gen
LTE B5	824–894 MHz	Part 22 (Subpart H)	RSS-132 + RSS-Gen
LTE B7	2500–2690 MHz	Part 27 (BRS/EBS)	RSS-199 + RSS-Gen
LTE B12	699–756 MHz	Part 27 (700 MHz Lower)	RSS-130 + RSS-Gen
LTE B17	704–716 / 734–746 MHz	Part 27 (700 MHz BC)	RSS-130 + RSS-Gen
LTE B25	1850–1995 MHz	Part 24 (Subpart E)	RSS-133 + RSS-Gen
LTE B26	814–894 MHz	Part 22 (Subpart H)	RSS-132 + RSS-Gen
LTE B38	2570–2620 MHz	Part 27 (BRS/EBS)	RSS-199 + RSS-Gen
LTE B40 (WCS)	2305–2320 / 2345–2360 MHz	Part 27 (WCS)	RSS-195 Issue 3 + RSS-Gen
LTE B40 (Other)	2300–2305 / 2360–2400 MHz	Part 27	RSS-139 + RSS-Gen
LTE B41	2496–2690 MHz	Part 27 (BRS/EBS)	RSS-199 + RSS-Gen
LTE B42	3450–3900 MHz	Part 27 (Subpart O)	RSS-192 Issue 5 + RSS-Gen
LTE B66	1710–1780 / 2110–2200 MHz	Part 27 (AWS-3)	RSS-139 + RSS-Gen

4.6 Description of Support Units

The EUT has been tested as an independent unit.

4.7 Measurement Uncertainty

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

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	$\pm 0.41\text{dB}$
2	RF power density, conducted	$\pm 1.96\text{dB}$
3	Spurious emissions, conducted	$\pm 0.41\text{dB}$
4	Radio Frequency	$\pm 7.10 \times 10^{-8}$
5	Duty Cycle	$\pm 0.49\%$
6	Occupied Bandwidth	$\pm 0.2\%$
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.

4.8 Test Location

All tests were performed at:

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No tests were sub-contracted.

4.9 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:
. A2LA (Certificate No. 7572.01)
Radiolink Testing (Shenzhen) Co., Ltd, Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 7572.01.

4.10 Deviation from Standards

None

4.11 Abnormalities from Standard Conditions

None



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5 Equipment List

Transmitter unwanted emissions in the spurious domain/ Receiver spurious emissions					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
3m Anechoic Chamber	TDK	966	RL01-01	2024/11/22	2027/11/21
Horn Antenna(1GHz-18GHz)	Schwarzbeck	BBHA 9120D	RL03-01	2025/3/28	2028/3/27
BiConiLog Antenna(30MHz-3GHz)	Schwarzbeck	VULB9163	RL03-02	2025/4/7	2028/4/6
Active Loop Antenna(9kHz-30MHz)	Schwarzbeck	FMZB 1519B	RL03-03	2025/3/28	2028/3/27
Horn Antenna(15GHz-40GHz)	Schwarzbeck	BBHA 9170	RL03-04	2025/3/28	2028/3/27
Horn Antenna(15GHz-40GHz)	Schwarzbeck	BBHA 9170	RL03-05	2025/3/28	2028/3/27
MXE EMI Receiver(3Hz-8.4GHz)	KEYSIGHT	N9038A	RL04-01	2025/3/31	2026/3/30
MXE EMI Receiver(3Hz-8.4GHz)	KEYSIGHT	N9038A	RL04-01	2026/4/03	2027/4/02
EXA Signal Analyzer(10Hz-44GHz)	KEYSIGHT	N9010B	RL04-03	2025/3/31	2026/3/30
EXA Signal Analyzer(10Hz-44GHz)	KEYSIGHT	N9010B	RL04-03	2026/4/3	2027/4/2
Pre-Amplifier(500MHz-18GHz)	Tonscend	TPA-011845	RL06-02	2025/3/31	2026/3/30
Pre-Amplifier(500MHz-18GHz)	Tonscend	TPA-011845	RL06-02	2026/4/3	2027/4/2
Pre-Amplifier(18GHz-26GHz)	Tonscend	TPA-182645	RL06-03	2025/3/31	2026/3/30
Pre-Amplifier(18GHz-26GHz)	Tonscend	TPA-182645	RL06-03	2026/4/3	2027/4/2
Pre-Amplifier(26GHz-40GHz)	Tonscend	TPA-184045	RL06-04	2025/3/31	2026/3/30
Pre-Amplifier(26GHz-40GHz)	Tonscend	TPA-184045	RL06-04	2026/4/3	2027/4/2
Pre-Amplifier(0.4GHz-8GHz)	TST PASS	LNA04080G30	RL06-05	2025/4/11	2026/4/10
Pre-Amplifier(0.4GHz-8GHz)	TST PASS	LNA04080G30	RL06-05	2026/4/3	2027/4/2
Attenuation Clamp(150kHz-1000MHz)	Teseq	KEMA 801A	RL07-09	2025/4/3	2026/4/2
Attenuation Clamp(150kHz-1000MHz)	Teseq	KEMA 801A	RL07-09	2026/4/13	2027/4/12
AC Power Source	Preen	KDF-11002G	RL08-03	2025/3/31	2026/3/30
AC Power Source	Preen	KDF-11002G	RL08-03	2026/4/3	2027/4/2
Intelligent Line Power Conditioner	Preen	APS-11040GG	RL08-04	2025/3/31	2026/3/30



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Intelligent Line Power Conditioner	Preen	APS-11040GG	RL08-04	2026/4/3	2027/4/2
Coaxial Cable(9kHz-30MHz)	Radiolink	N/A	RL20-01	N/A	N/A
Coaxial Cable(30MHz-1000MHz)	Radiolink	N/A	RL20-02	N/A	N/A
Coaxial Cable(1GHz-18GHz)	Radiolink	N/A	RL20-03	N/A	N/A
Coaxial Cable(18GHz-40GHz)	Radiolink	N/A	RL20-04	N/A	N/A
Coaxial Cable(9kHz-30MHz)	Radiolink	N/A	RL20-05	N/A	N/A
Measurement Software	AUDIX	e3 230303 emcrt, V9 (C) AUDIX	N/A	N/A	N/A



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RF Conducted Test					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EXA Signal Analyzer(10Hz-44GHz)	KEYSIGHT	N9010B	RL04-03	2025/3/31	2026/3/30
EXA Signal Analyzer(10Hz-44GHz)	KEYSIGHT	N9010B	RL04-03	2026/4/3	2027/4/2
MXG Vector Signal Generator(100kHz-6GHz)	N5182A	N5182A	RL05-05	2025/3/31	2026/3/30
MXG Vector Signal Generator(100kHz-6GHz)	N5182A	N5182A	RL05-05	2026/4/3	2027/4/2
DC Regulated Power Supply	Radiolink	N/A	RL13-01	2025/4/3	2026/04/02
DC Regulated Power Supply	Radiolink	N/A	RL13-01	2026/04/03	2027/04/02
Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	RL14-01	2025/4/3	2026/04/02
Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	RL14-01	2026/04/03	2027/04/02
SIGNAL GENERATOR(10MHz-20GHz)	SMP22	SMP22	RL05-06	2025/3/31	2026/3/30
SIGNAL GENERATOR(10MHz-20GHz)	SMP22	SMP22	RL05-06	2026/4/3	2027/4/2
Wideband Radio Communication Tester	CMW 500	CMW 500	RL05-07	2025/3/31	2026/3/30
Wideband Radio Communication Tester	CMW 500	CMW 500	RL05-07	2026/4/3	2027/4/2
Measurement Software	TST	TSTPASS V2.0	N/A	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Electronic Hygrothermograph	deli	8838	RL02-02	2025/3/29	2026/3/28
Electronic Hygrothermograph	deli	8838	RL02-02	2026/5/7	2027/5/6
Electronic Hygrothermograph	deli	8838	RL02-03	2025/3/29	2026/3/28
Electronic Hygrothermograph	deli	8838	RL02-03	2026/4/23	2027/4/22
Electronic Hygrothermograph	deli	8838	RL02-04	2025/3/29	2026/3/28
Electronic Hygrothermograph	deli	8838	RL02-04	2026/4/23	2027/4/22

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Electronic Hygrothermograph	deli	8838	RL02-05	2025/3/29	2026/3/28
Electronic Hygrothermograph	deli	8838	RL02-05	2026/4/8	2027/4/07
Barometer	Shanghai Mengte Instrument	DYM3	RL02-01	2025/3/31	2026/3/30
Barometer	Shanghai Mengte Instrument	DYM3	RL02-01	2026/4/8	2027/4/7



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6 Description of Tests

6.1 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



6.2 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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6.3 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 $\geq 3 \times$ 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



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6.4 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. $RBW \geq 1\%$ of the emission bandwidth
4. $VBW \geq 3 \times RBW$
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span}/RBW$
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize



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6.5 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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6.6 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



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6.7 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 Y 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 Y 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 $20 \cdot \log(3/1) = 9.54 \text{ dB}$.

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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6.8 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:

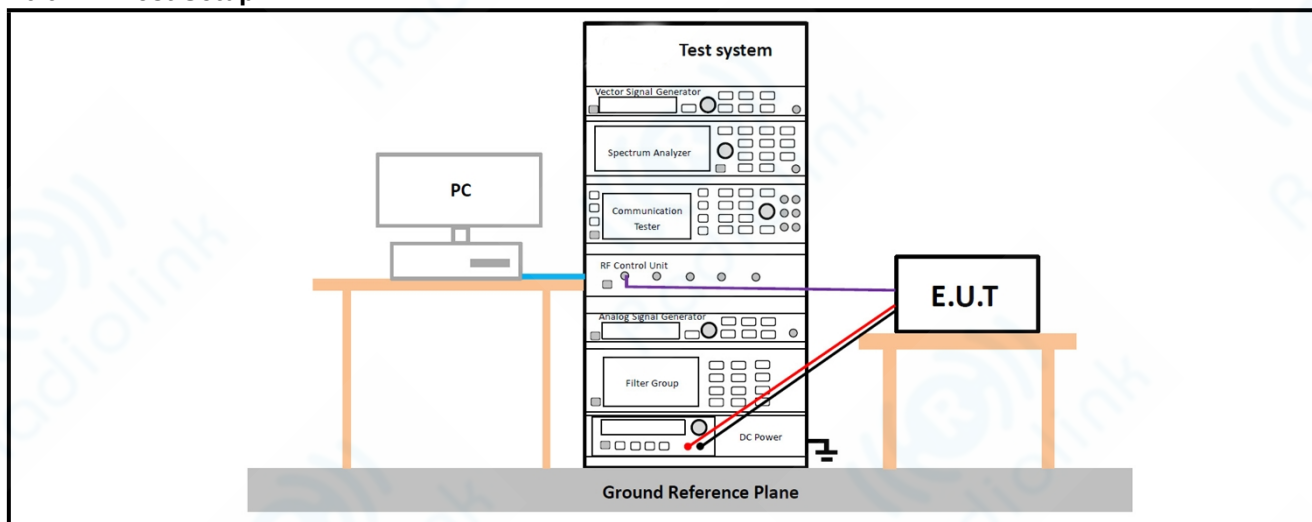
1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute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

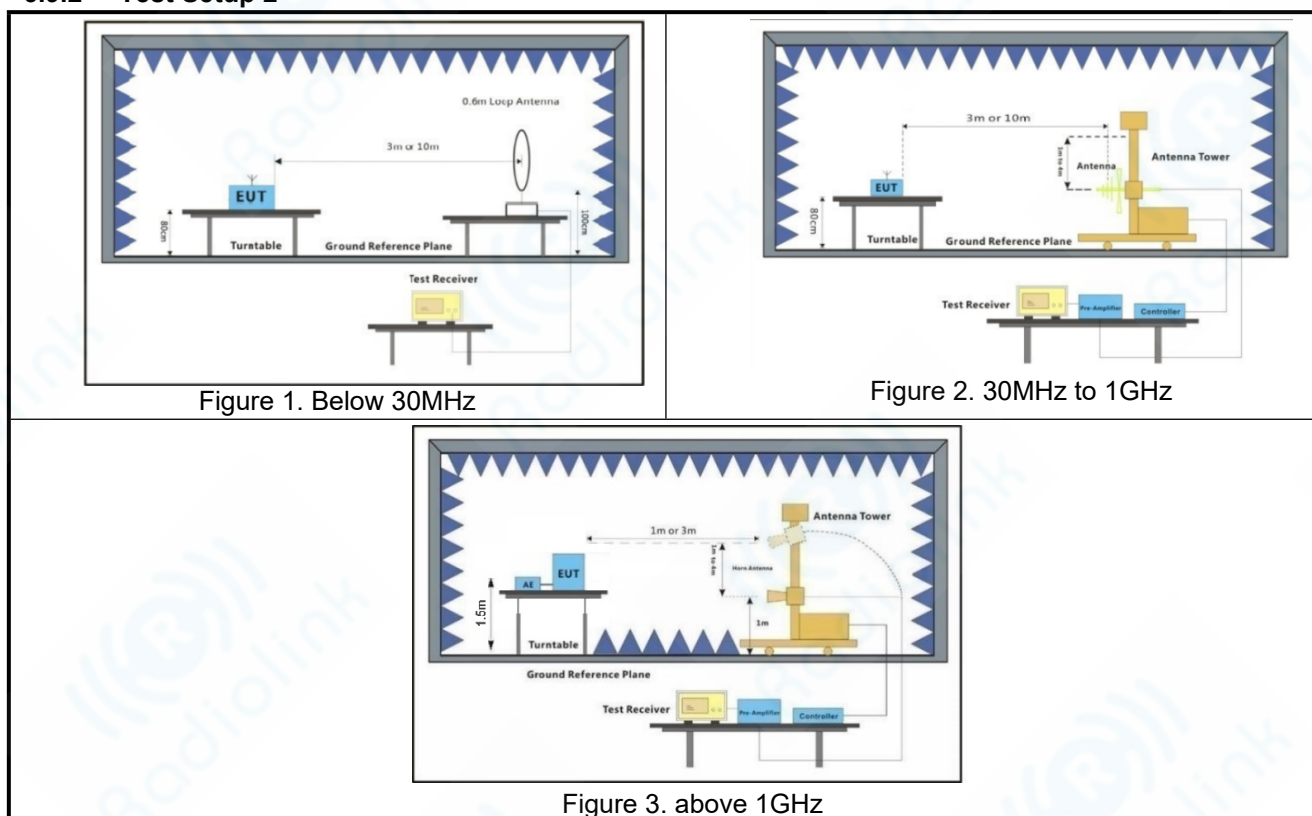


6.9 Test Setups

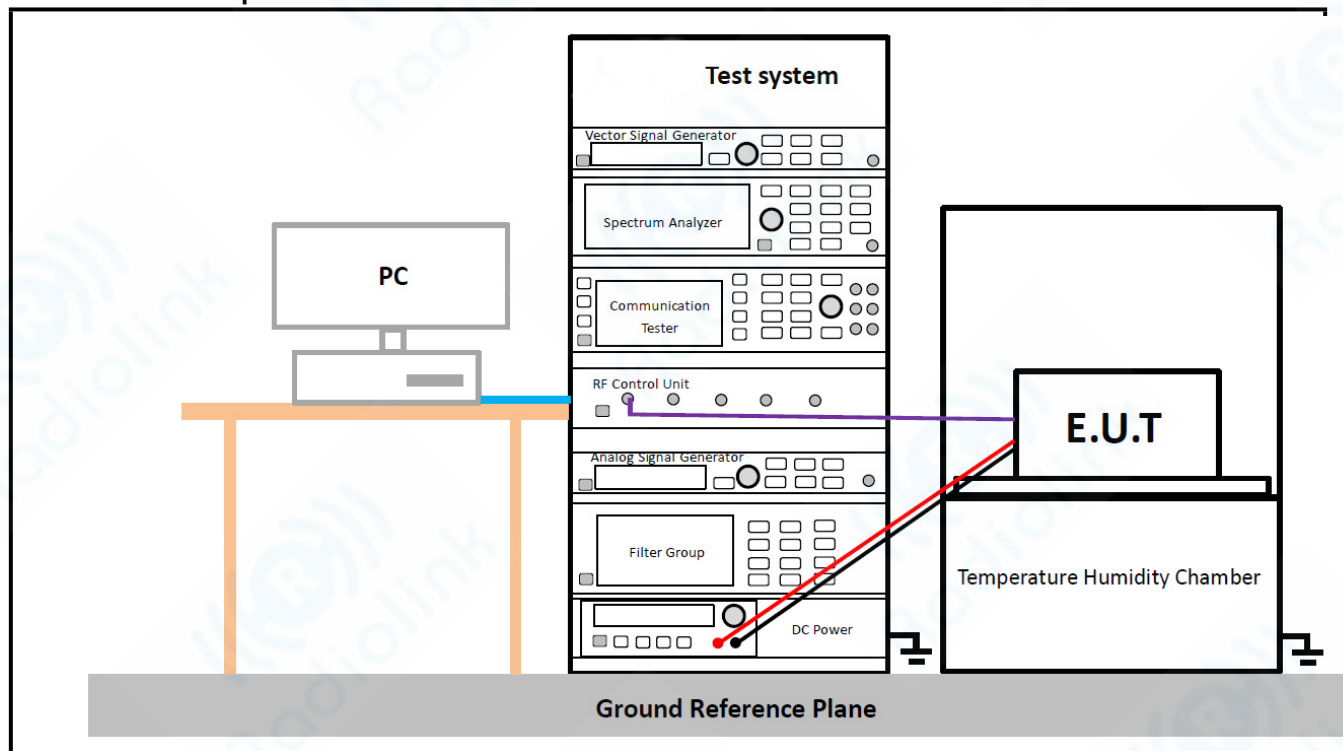
6.9.1 Test Setup 1



6.9.2 Test Setup 2



6.9.3 Test Setup 3



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6.10 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	GSM/TM1;GSM/TM2;UMTS/TM1; LTE/TM1;LTE/TM2; LTE/TM3
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	GSM/TM1;GSM/TM2;UMTS/TM1; LTE/TM1;LTE/TM2; LTE/TM3
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	GSM/TM1;GSM/TM2;UMTS/TM1; LTE/TM1;LTE/TM2;
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	GSM/TM1;GSM/TM2;UMTS/TM1; LTE/TM1;LTE/TM2;
Adjacent Channel Leakage Ratio	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1

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RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	LTE/TM1;LTE/TM2; LTE/TM3
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	GSM/TM1;GSM/TM2;UMTS/TM1; 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	GSM/TM1;GSM/TM2;UMTS/TM1; 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	GSM/TM1; UMTS/TM1; LTE/TM1 Remark: All bandwidth and modulation of GSM/ UMTS/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	GSM/TM1;UMTS/TM1;LTE/TM1 The report only show the bandwidth with the worst case.

7 Appendixes

SZCR2507002868WM Appendix	Setup Photo
Appendix B GSM 850	GSM 850
Appendix B GSM 1900	GSM 1900
Appendix B WCDMA 2	WCDMA Band 2
Appendix B WCDMA 4	WCDMA Band 4
Appendix B WCDMA 5	WCDMA Band 5
Appendix B LTE Band 2	LTE Band 2
Appendix B LTE Band 4	LTE Band 4
Appendix B LTE Band 5	LTE Band 5
Appendix B LTE Band 7	LTE Band 7
Appendix B LTE Band 12	LTE Band 12
Appendix B LTE Band 17	LTE Band 17
Appendix B LTE Band 25	LTE Band 25
Appendix B LTE Band 26a(814-824)	LTE Band 26a(814-824)
Appendix B LTE Band 26b(824-849)	LTE Band 26b(824-849)
Appendix B LTE Band 26c(814-849 Bandwidth UL_15MHz)	LTE Band 26c(814-849 Bandwidth UL_15MHz)
Appendix B LTE Band 38	LTE Band 38
Appendix B LTE Band 40	LTE Band 40
Appendix B LTE Band 41	LTE Band 41
Appendix B LTE Band 41a	LTE Band 41a
Appendix B LTE Band 42	LTE Band 42
Appendix B LTE Band 42a	LTE Band 42a
Appendix B LTE Band 66	LTE Band 66
Appendix B LTE CA_7C	LTE CA_7C
Appendix B LTE CA_41C	LTE CA_41C
Appendix B LTE CA_41C(2500-2690)	LTE CA_41C(2500-2690)
Appendix C Field Strength of Spurious Radition-234G	GSM&WCDMA<E RSE

- End of the Report -

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