FCC TEST REPORT PART 0

Application No.:	SZCR2411004229WM
Applicant:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address of Applicant:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China
Manufacturer:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address of Manufacturer:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China
Product Name:	Mobile Phone
Model No.(EUT):	RMX5070
Trade Mark:	realme
FCC ID:	2AUYFRMX5070
Date of Receipt:	2024-12-05
Date of Test:	2024-12-06 to 2024-12-27
Date of Issue:	2025-01-16
Test conclusion:	**PASS**

Keny Xu
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2025-01-16		Original

Authorized for issue by:				
		Darren Yuan **Darren Yuan/Project Engineer**		
		Eric Fu **Eric Fu/Reviewer**		

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1 General Information

1.1 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:	Claire Shen

1.2 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 EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI (Member No. 1937)**

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. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.
Designation Number: CN1336. Test Firm Registration Number: 787754.

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

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.
CAB identifier: CN0006.
IC#: 4620C.

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1.3 General Description of EUT

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	Mobile Phone		
Model No.(EUT):	RMX5070		
Trade Mark:	realme		
Product Phase:	Production Unit		
Hardware Version:	11		
Software Version:	realme UI 6.0		
IMEI:	863964070019933/863964070019925		
Device Operating Configurations :			
Modulation Mode:	**GSM:** GMSK, 8PSK; **WCDMA:** QPSK,16QAM; **LTE:** QPSK,16QAM,64QAM; **5G NR:** DFT-s-OFDM (QPSK, 16QAM, 64QAM, 256QAM), CP-OFDM (QPSK, 16QAM, 64QAM, 256QAM) **WIFI:** DSSS, OFDM, OFDMA; **BT:** GFSK, π/4DQPSK,8DPSK NFC: ASK		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	24	HSUPA UE Category	6
DC-HSDPA UE Category:	24		
Power Class	4,tested with power level 5(GSM850)		
	1,tested with power level 0(GSM1900)		
	3, tested with power control “all 1”(WCDMA Band)		
	3, tested with power control Max Power(LTE Band)		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824 - 849	869 - 894
	GSM1900	1850 - 1910	1930 - 1990
	WCDMA Band II	1850 - 1910	1930 - 1990
	WCDMA Band IV	1710 - 1755	2110 - 2155
	WCDMA Band V	824 - 849	869 - 894
	LTE Band 2	1850 - 1910	1930 - 1990
	LTE Band 4	1710 - 1755	2110 - 2155
	LTE Band 5	824 - 849	869 - 894
	LTE Band 7	2500 - 2570	2620 - 2690
	LTE Band 12	699 - 716	729 - 746
	LTE Band 13	777 - 787	746 - 756
	LTE Band 17	704 - 716	734 - 746
	LTE Band 26	814 – 849	859 – 894
	LTE Band 66	1710 – 1780	2110 – 2200
	LTE Band 71	663-698	617-652
	LTE Band 38	2570 - 2620	2570 - 2620
	LTE Band 41	2496 - 2690	2496 - 2690

	NR Band n2	1850 - 1910	1930 - 1990
	NR Band n5	824 - 849	869 - 894
	NR Band n7	2500 - 2570	2620 - 2690
	NR Band n26	814 - 849	859 - 894
	NR Band n66	1710 - 1780	2110 - 2200
	NR Band n38	2570 - 2620	2570 - 2620
	NR Band n41	2496 - 2690	2496 - 2690
	NR Band n71	663 – 698	617 – 652
	Bluetooth	2400 - 2483.5	2400 - 2483.5
	Wi-Fi 2.4G	2402 - 2462	2402 - 2462
	Wi-Fi 5G	5150 - 5250	5150 - 5250
		5250 - 5350	5250 - 5350
		5470 - 5725	5470 - 5725
		5725 - 5850	5725 - 5850
	NFC	13.56MHz	13.56MHz
RF Cable:	☒ Provided by the applicant ☐ Provided by the laboratory		
Battery Information:	Model:	BLPC07	
	Normal Voltage:	3.92V	
	Rated capacity:	5860mAh	
	Manufacturer:	Dongguan NVT Technology Co., Ltd	

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

1.4 Time-Averaging for SAR

The equipment under test (EUT) is a portable handset, it contains the Qualcomm modem supporting 2G/3G/4G/5G NR/BT/WLAN/NFC bands, but only 2G/3G/4G/5G NR are enabled with Qualcomm Smart Transmit feature to control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is in compliance with the FCC requirement. we verification the applicable cases in part2.

The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in Part 1 report. The validation of the time-averaging algorithm and compliance under the dynamic (time- varying) transmission scenario for WWAN technologies are reported in Part 2 report.

Nomenclature for Part 0 Report:

Technology	Term	Description
WWAN	P_{limit}	Power level that corresponds to the exposure design target (*SAR_design_target)* after accounting for all device design related uncertainties
	P_{max}	Maximum tune up output power
	SAR_design_target	Target SAR level < FCC SAR limit after accounting for all device design related uncertainties
	SAR Char	Table containing *Plimit* for all technologies and bands

2 SAR CHARACTERIZATION

2.1 DSI and SAR Determination

This device uses different Device State Index (DSI) to configure different time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the smartphone, the worst-case SAR was determined by measurements for the relevant exposure conditions for that DSI. Detailed descriptions of the detection mechanisms are included in the operational description.

When 1g SAR and 10g SAR exposure comparison is needed, the worst-case was determined from SAR normalized to 1g or 10g SAR limit.

The device state index (DSI) conditions used in Table 1 represent different exposure scenarios.

Scenario	Description	SAR Test Cases
Head (DSI = 5)	▪ Device positioned next to head ▪ Receiver Active	*Head SAR per KDB Publication 648474 D04*
Hotspot mode (DSI = 8)	▪ Device transmits in hotspot mode near body ▪ Hotspot Mode Active	*Hotspot SAR per KDB Publication 941225 D06*
Phablet (DSI = 3)	▪ Device is held with hand	*Phablet SAR per KDB Publication 648474 D04*
Body-worn (DSI = 3)	▪ Device being used with a body-worn accessory	*Body-worn SAR per KDB Publication 648474 D04*

Table 1： DSI and Corresponding Exposure Scenarios

2.2 SAR Char

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target, below the predefined time-averaged power limit, for each characterized technology and band. Smart Transmit allows the device to transmit at higher power instantaneously, as high as P_{max}, when needed, but enforces power limiting to maintain time-averaged transmit power to P_{limit}. Below table shows P_{limit} EFS settings and maximum tune up output power P_{max} configured for this EUT for various transmit conditions (DSI: Device State Index).

P_{limit} for supported technologies and bands (actual EFS settings)

Band	Mode	Antenna	P_{max}*	Uncertainty	SAR_design_target:	P_{limit} (average)		
						Head	Body Worn	Hotspot
						DSI 5 (State5)	DSI 3 (State3)	DSI 8 (State8)
GSM 850	GPRS 4TS	0#	22.5	1.5	0.85	22.5	22.5	19.5
	GPRS 4TS	1#	22.0	1.5	0.85	22.0	22.0	19.0
GSM 1900	GPRS 4TS	1#	20.0	1.5	0.85	17.5	18.0	13.0
	GPRS 4TS	3#	21.0	1.5	0.85	21.0	21.0	16.0
WCDMA_B2	RMC	1#	23.0	1.0	0.95	15.5	18.8	13.8
	RMC	3#	24.0	1.0	0.95	24.0	22.7	17.7
WCDMA_B4	RMC	1#	23.0	1.0	0.95	21.5	21.0	16.0
	RMC	3#	24.0	1.0	0.95	24.0	22.3	17.3
WCDMA_B5	RMC	0#	24.0	1.0	0.95	24.0	24.0	21.0
	RMC	1#	22.5	1.0	0.95	22.5	22.5	19.5
LTE_B2	QPSK	1#	23.5	1.0	0.95	17.0	20.5	15.5
	QPSK	3#	23.5	1.0	0.95	23.5	23.5	18.5
	QPSK	4#	23.5	1.0	0.95	21.7	21.7	16.7
LTE_B4	QPSK	1#	23.5	1.0	0.95	23.5	22.3	17.3
	QPSK	3#	23.5	1.0	0.95	23.5	22.5	17.5
	QPSK	4#	23.5	1.0	0.95	22.5	22.0	17.0
LTE_B5	QPSK	0#	24.0	1.0	0.95	24.0	24.0	21.0
	QPSK	1#	24.0	1.0	0.95	19.5	22.0	21.0
LTE_B7	QPSK	1#	23.2	1.0	0.95	18.7	21.2	16.2
	QPSK	3#	23.2	1.0	0.95	23.2	21.5	16.5
	QPSK	5#	23.0	1.0	0.95	18.5	21.0	16.0

LTE_B12	QPSK	0#	24.0	1.0	0.95	24.0	24.0	21.0
	QPSK	1#	24.0	1.0	0.95	24.0	24.0	21.0
LTE_B13	QPSK	0#	24.0	1.0	0.95	24.0	24.0	21.0
	QPSK	1#	24.0	1.0	0.95	24.0	24.0	21.0
LTE_B17	QPSK	0#	24.0	1.0	0.95	24.0	24.0	21.0
	QPSK	1#	24.0	1.0	0.95	24.0	24.0	21.0
LTE_B26	QPSK	0#	24.0	1.0	0.95	24.0	24.0	21.0
	QPSK	1#	24.0	1.0	0.95	24.0	24.0	21.0
LTE_B66	QPSK	1#	24.0	1.0	0.95	21.0	22.3	17.3
	QPSK	3#	24.0	1.0	0.95	24.0	22.5	17.5
	QPSK	4#	24.0	1.0	0.95	23.0	22.1	17.1
LTE_B71	QPSK	0#	24.0	1.0	0.95	24.0	24.0	21.0
	QPSK	1#	24.0	1.0	0.95	24.0	24.0	21.0
LTE_B38	QPSK	1#	21.5	1.0	0.95	18.7	21.5	16.5
	QPSK	3#	21.5	1.0	0.95	21.5	21.5	18.5
LTE_B41 PC3	QPSK	1#	22.0	1.0	0.95	20.0	21.5	16.5
	QPSK	3#	22.0	1.0	0.95	22.0	21.5	16.5
NR5G_N2	QPSK	1#	24.0	1.2	0.91	17.5	19.3	14.3
	QPSK	3#	24.0	1.2	0.91	24.0	22.7	17.7
	QPSK	4#	24.0	1.2	0.91	21.5	21.3	16.3
NR5G_N5	QPSK	0#	23.5	1.2	0.91	23.5	23.5	20.5
	QPSK	1#	23.5	1.2	0.91	23.5	23.5	20.5
NR5G_N7	QPSK	1#	23.0	1.2	0.91	18.0	22.0	17.0
	QPSK	3#	23.0	1.2	0.91	23.0	21.0	16.0
NR5G_N26	QPSK	0#	23.5	1.2	0.91	23.5	23.5	20.5
	QPSK	1#	23.5	1.2	0.91	23.5	23.5	20.5
NR5G_N66	QPSK	1#	24.0	1.2	0.91	22.0	21.7	16.7
	QPSK	3#	24.0	1.2	0.91	24.0	22.5	17.5
	QPSK	4#	24.0	1.2	0.91	22.0	21.0	16.0
NR5G_N71	QPSK	0#	24.0	1.2	0.91	24.0	24.0	24.0
	QPSK	1#	24.0	1.2	0.91	24.0	24.0	24.0
NR5G_N38	QPSK	1#	23.5	1.2	0.91	19.5	22.2	17.2

	QPSK	3#	23.5	1.2	0.91	23.5	20.8	15.8
NR5G_N41 PC3	QPSK	1#	24.0	1.2	0.91	19.5	22.0	17.0
	QPSK	3#	24.0	1.2	0.91	24.0	22.0	17.0

Note:
1) *P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to P_{max} + Total uncertainty.
2) The max allowed output power is the P_{limit} + Total uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.
3) Note that WLAN operations are not enabled with Smart Transmit.
4) The following table is duty cycle and factor used for calculating time average power.

Mode	Duty Cycle	Time Average calculation Factor
GSM 1TX/CS	12.5%	-9.0
GSM 2TX	25.0%	-6.0
GSM 3TX	37.5%	-4.3
GSM 4TX	50.0%	-3.0
WCDMA / LTE FDD	100.0%	0.0
LTE TDD	63.3%	-2.0
LTE TDD HPUE	43.3%	-3.6
NR FDD/TDD	100.0%	0.0

- End of Report -