

SZSAR-TRF-01 Rev. A/0 May15,2023

Report No.: SZCR241000395410

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# FCC TEST REPORT PART 0

SZCR2410003954WM **Application No.:** 

Realme Chongqing Mobile Telecommunications Corp., Ltd. Applicant:

No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China **Address of Applicant:** 

Realme Chongqing Mobile Telecommunications Corp., Ltd. Manufacturer:

No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China Address of Manufacturer:

**Product Name:** Mobile Phone Model No.(EUT): RMX5051 Trade Mark: realme

FCC ID: 2AUYFRMX5051

Date of Receipt: 2024-11-05

Date of Test: 2024-11-06 to 2024-12-09

Date of Issue: 2024-12-09

Test conclusion: **PASS** 

> Keny. Ku Keny Xu **EMC Laboratory Manager**



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# **REVISION HISTORY**

Revision Record					
Version Description Date Remark					
01		2024-12-09			

Authorized for issue by:		
	Sherlock Fans	
	Sherlock Fang/Project Engineer	
	Exic Fu	
	Eric Fu/Reviewer	





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#### **General Information**

#### 1.1 Details of Client

Applicant:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China
Manufacturer:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China

#### 1.2 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:	Charley Yi

### 1.3 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 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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# 1.4 General Description of EUT

Product Name:	Mobile Phone			
Model No.:	RMX5051			
Trade Mark:	realme			
Product Phase:	production unit			
Device Type:	portable device			
Exposure Category:	uncontrolled environme	nt / g	eneral population	
IMEI:	864347070019633; 864347070019591; 864347070010561; 864347070010468; 864347070019617; 864347070019930; 864347070019898; 864347070019932			
Hardware Version	11			
Software Version	realme UI 6.0			
Antenna Type:	Integrated			
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			
Device Class:	В			
GPRS Multi-slots Class:	12 EGPRS Multi-slots Class: 12			12
HSDPA UE Category:	24 HSUPA UE Category 7			7
DC-HSDPA UE Category:	24			
	4, tested with power lev	el 5(0	GSM850,GSM900)	
Power Class:	3, tested with power cor	ntrol '	"all 1"(WCDMA Band)	
	3, tested with power cor	ntrol '	"max power"(LTE Band)	
	Band		Tx(MHz)	Rx(MHz)
	GSM850		824~849	869~894
	GSM1900		1850~1910	1930~1990
Frequency Bands:	WCDMA Band II		1850~1910	1930~1990
Trequency Danus.	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 2110~21			



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			1	
	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 38		2570~2620	2570~2620
	LTE Band 41		2496~2690	2496~2690
	LTE Band 66		1710~1780	2110~2180
	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 n38		2570~2620	2570~2620
	NR Band n41 NR Band n66 WIFI 2.4G		2496~2690	2496~2690
			1710~1780	2110~2180
			2412~2462	2412~2462
			5150~5250	5150~5250
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		5250~5350	5250~5350
	WIFI 5G		5470~5725	5470~5725
			5725~5850	5725~5850
	ВТ		2402~2480	2402~2480
RF Cable:	☑Provided by applicant ☐I		☐Provided by the laboratory	
	Model: BLPE		_PB77 Li-ion polymer Battery	
Dattam Information 411	Normal Voltage:	3.92\	/	
Battery Information 1#:	Rated capacity:	pacity: 5860mAh		
	Manufacturer:	Dongguan NVT Technology Co., Ltd		
Note: *Since the above data and/or in	formation is provided b	v tho	client relevant reculte or	conclusions of this

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### 1.5 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
	Plimit	Power level that corresponds to the exposure design target (SAR_design_target) after accounting for all device design related uncertainties
WWAN	P <sub>max</sub>	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





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## 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	Head SAR per KDB Publication 648474 D04	
	<ul> <li>Receiver Active</li> </ul>		
Hotspot mode (DSI = 8)	<ul> <li>Device transmits in hotspot mode near body</li> </ul>	Hotspot SAR per KDB Publication 941225 D06	
	<ul> <li>Hotspot Mode Active</li> </ul>		
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	

**DSI** and Corresponding Exposure Scenarios





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# 2.2 SAR Design Target And Uncertainty

SAR\_design\_target is determined by ensuring that it is less than FCC SAR limit after accounting for total device designed related uncertainties specified by the manufacturer.

$$SAR\_design\_target < SAR_{regulatory\_limit} \ x \ 10 \frac{-total \ uncertainty}{10}$$

Uncertainty dB (k=2)	All Band
Total uncertainty	1.2

Exposure position	Frequency band	SAR_Regulatory_Limit W/kg(1g)	SAR_design_target W/kg(1g)
Head	WWAN	1.6	1.2
Body worn	WWAN	1.6	1.2
Hotspot	WWAN	1.6	1.2

Exposure position	Frequency band	SAR_Regulatory_Limit W/kg(10g)	SAR_design_target W/kg(10g)
Product specific 10gSAR	WWAN	4.0	3.0





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#### 2.3 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<sub>max</sub>, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit EFS settings and maximum tune up output power P<sub>max</sub> configured for this EUT for various transmit conditions (DSI: Device State Index).

#### Plimit for supported technologies and bands (actual EFS settings)

				P <sub>limit</sub> (average)			
					Body Worn/		
Band	Mode	Antenna	P <sub>max*</sub>	Head	Product specific	Hotspot	
				DSI5(State5)	10gSAR DSI3(State3)	DSI8(State8)	
GSM 850	GPRS 2TS	1#	25.0	25.0	25.0	25.0	
GSM 1900	GPRS 2TS	5#	22.0	22.0	22.0	22.0	
WCDMA_B2	RMC	4#	23.0	20.0	22.5	22.5	
	RMC	5#	23.0	23.0	23.0	23.0	
WCDMA_B4	RMC	4#	24.2	21.2	23.2	23.2	
	RMC	5#	24.2	24.2	22.7	22.7	
WCDMA_B5	RMC	0#	24.2	24.2	24.2	24.2	
	RMC	1#	24.2	24.2	24.2	24.2	
LTE_B2	QPSK	4#	23.0	21.0	22.5	22.5	
	QPSK	5#	23.0	23.0	23.0	23.0	
	QPSK	4#	24.2	20.2	23.2	23.2	
LTE_B4	QPSK	5#	24.2	24.2	24.2	24.2	
	QPSK	0#	24.2	24.2	24.2	24.2	
LTE_B5	QPSK	0#	24.2	24.2	24.2	24.2	
	QPSK	1#	24.2	24.2	24.2	24.2	
LTE_B7	QPSK	4#	23.2	20.7	20.7	20.7	
	QPSK	5#	23.2	23.2	21.2	21.2	
	QPSK	0#	23.2	23.2	21.2	21.2	
LTE_B12	QPSK	0#	24.2	24.2	24.2	24.2	
	QPSK	1#	24.2	24.2	24.2	24.2	
LTE D12	QPSK	0#	23.5	23.5	23.5	23.5	
LTE_B13	QPSK	1#	23.5	23.5	23.5	23.5	
LTE_B17	QPSK	0#	24.2	24.2	24.2	24.2	
	QPSK	1#	24.2	24.2	24.2	24.2	
LTE_B26	QPSK	0#	24.2	24.2	24.2	24.2	



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	QPSK	1#	24.2	24.2	24.2	24.2
LTE_B66	QPSK	4#	24.2	20.2	23.7	23.7
	QPSK	5#	24.2	24.2	24.2	24.2
	QPSK	0#	24.2	24.2	24.2	24.2
LTE_B71	QPSK	0#	23.5	23.5	23.5	23.5
	QPSK	1#	23.5	23.5	23.5	23.5
LTE_B38	QPSK	4#	22.2	22.2	19.7	19.7
	QPSK	5#	22.2	22.2	21.7	21.7
	QPSK	0#	22.2	22.2	20.2	20.2
LTE_B41	QPSK	4#	22.2	22.2	19.7	19.7
	QPSK	5#	22.2	22.2	21.7	21.7
	QPSK	0#	22.2	22.2	20.2	20.2
NR5G_N2	QPSK	4#	23.0	19.5	22.5	22.5
	QPSK	5#	23.0	23.0	23.0	23.0
NR5G_N5	QPSK	0#	24.7	24.7	24.7	24.7
	QPSK	1#	24.7	24.7	24.7	24.7
NR5G_N7	QPSK	4#	23.2	20.7	20.7	20.7
	QPSK	5#	23.2	23.2	21.2	21.2
	QPSK	0#	23.2	23.2	19.2	19.2
NR5G_N26	QPSK	0#	24.7	24.7	24.7	24.7
	QPSK	1#	24.7	24.7	24.7	24.7
NR5G_N38	QPSK	4#	24.7	21.2	20.2	20.2
	QPSK	0#	24.7	21.2	21.7	21.7
NR5G_N41	QPSK	4#	24.7	21.2	20.2	20.2
	QPSK	0#	24.7	21.2	21.7	21.7
NR5G_N66	QPSK	4#	24.7	21.2	24.2	24.2
	QPSK	5#	24.7	24.7	23.7	23.7
NR5G_N71	QPSK	0#	24.5	24.5	24.5	24.5
	QPSK	1#	24.5	24.5	24.5	24.5

#### Note:

- 1) \*P<sub>max</sub> is used for RF tune up procedure. The maximum allowed output power is equal to P<sub>max</sub> + Total uncertainty.
- 2) The max allowed output power is the Plimit + Total uncertainty, and if Plimit is higher than Pmax, the device output power will be P<sub>max</sub> instead.
- 3) Note that WLAN operations are not enabled with Smart Transmit.

# - End of Report -

