

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

Report No.: SZCR240400130709

: 1 of 14

FCC TEST REPORT PART 0

Application No.: SZCR2404001307WM

Applicant: vivo Mobile Communication Co., Ltd. Manufacturer: vivo Mobile Communication Co., Ltd.

Product Name: Mobile Phone

Model No.(EUT): V2348 **Trade Mark:** vivo

FCC ID: 2AUCY-V2348 Date of Receipt: 2024/04/30

Date of Test: 2024/05/01 to 2024/05/06

Date of Issue: 2024/05/07

Test conclusion: PASS

Authorized Signature:

Keny Xu Laboratory Manager



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Report No.: SZCR240400130709

: 2 of 14 Page

REVISION HISTORY

Report Number	Revision	Description	Issue Date
SZCR240400130709	01	Original	2024/05/07

Prepared By	Vito Wang Vito Wang
Checked By	Roman Pan



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

Report No.: SZCR240400130709

Page : 3 of 14

CONTENTS

1 G	GENERAL INFORMATION	4
1.1	DETAILS OF CLIENT	
1.2	TEST LOCATION	4
1.3	TEST FACILITY	5
1.4		6
1.5	TIME-AVERAGING FOR SAR	g
2 S	SAR CHARACTERIZATION	10
2.1	DSI AND SAR DETERMINATION	
2.2	SAR DESIGN TARGET AND UNCERTAINTY	11
2.3	SAR CHAR	



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Report No.: SZCR240400130709

: 4 of 14 Page

1 General Information

1.1 Details of Client

Applicant:	vivo Mobile Communication Co., Ltd.
Address:	No.1, vivo Road, Chang'an, Dongguan, Guangdong, China
Manufacturer:	vivo Mobile Communication Co., Ltd.
Address:	No.1, vivo Road, Chang'an, Dongguan, Guangdong, 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



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Report No.: SZCR240400130709

Page : 5 of 14

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

• 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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Report No.: SZCR240400130709

: 6 of 14 Page

1.4 General Description of EUT

Product Name:	Mobile phone		
Model No.:	V2348		
Trade Mark:	vivo		
Product Phase:	Identical Prototype		
Device Type:	portable device		
Exposure Category:	uncontrolled environme	nt / general population	
IMEI:	861380079982884, 861	380079983247	
Hardware Version:	MP_0.1		
Software Version:	PD2363JF_EX_A_14.0	5.5.W30	
Antenna Type:	IFA Antenna		
Device Operating Configurations:			
Modulation Mode:	GSM:GMSK,8PSK; WCDMA:QPSK,16QAM LTE:QPSK,16QAM,64QAM,256QAM 5G NR:DFT-s-OFDM(PI/2 BPSK,QPSK,16QAM,64QAM,256QAM) CP-OFDM(QPSK,16QAM,64QAM,256QAM) WIFI:DSSS,OFDM,OFDMA; BT:GFSK, π/4DQPSK,8DPSK NFC: ASK		
Device Class:	В		
GPRS Multi-slots Class:	33	EGPRS Multi-slots Class:	33
HSDPA UE Category:	24 HSUPA UE Category: 6		
	4, tested with power lev	el 5(GSM850)	
Power Class:	1, tested with power lev	el 0(GSM1900)	
FUWEI CIASS.	3, tested with power control "all 1"(WCDMA Band)		
	3, tested with power cor	ntrol "all 1"(WCDMA Band)	
	•	ntrol "all 1"(WCDMA Band) ntrol "max power"(LTE Band)
	•	,) Rx(MHz)
	3, tested with power cor	ntrol "max power"(LTE Band	•
	3, tested with power cor	ntrol "max power"(LTE Band	Rx(MHz)
	3, tested with power cor Band GSM850	Tx(MHz) 824~849	Rx(MHz) 869~894
Frequency Bands:	3, tested with power cor Band GSM850 GSM1900	Tx(MHz) 824~849 1850~1910	Rx(MHz) 869~894 1930~1990
	3, tested with power cor Band GSM850 GSM1900 WCDMA Band II	Tx(MHz) 824~849 1850~1910 1850~1910	Rx(MHz) 869~894 1930~1990 1930~1990
	3, tested with power cor Band GSM850 GSM1900 WCDMA Band II WCDMA Band IV	Tx(MHz) 824~849 1850~1910 1710~1755	Rx(MHz) 869~894 1930~1990 1930~1990 2110~2155
	3, tested with power cor Band GSM850 GSM1900 WCDMA Band II WCDMA Band IV WCDMA Band V	Tx(MHz) 824~849 1850~1910 1850~1910 1710~1755 824~849	Rx(MHz) 869~894 1930~1990 1930~1990 2110~2155 869~894



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Report No.: SZCR240400130709

: 7 of 14 Page

	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	2110~2120
	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 (Class 2/3)	2496~2690	2496~2690
	NR Band n66	1710~1780	2110~2120
	ND David 177	3450~3550	3450~3550
	NR Band n77	3700~3980	3700~3980
	ND Dand n70	3450~3550	3450~3550
	NR Band n78	3700~3800	3700~3800
	WIFI 2.4G	2412~2462	2412~2462
		5150~5350	5150~5350
	WIEL 50	5470~5600	5470~5600
	WIFI 5G	5650~5725	5650~5725
		5725~5850	5725~5850
	ВТ	2402~2480	2402~2480
	NFC	13.56	13.56
RF Cable:	⊠Provided by applicant	☐Provided by the laborat	cory
	Model:	BA49	
D	Normal Voltage:	3.86V	
Battery Information:	Rated capacity:		
	Manufacturer:	Dongguan NVT Technology Co.,Ltd.	

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: 8 of 14 Page

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Report No.: SZCR240400130709

Doc No./Rev.: SGS-W-TRF-101 v00

Page : 9 of 14

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 Reports

Technology	Term	Description
WWAN	Plimit	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



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Report No.: SZCR240400130709

Doc No./Rev.: SGS-W-TRF-101 v00

Page : 10 of 14

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 = 2)	Device positioned next to head	Head SAR per KDB Publication 648474 D04	
	 Receiver Active 		
Hotspot mode (DSI = 6)	 Device transmits in hotspot mode near body 	Hotspot SAR per KDB Publication 941225 D06	
	 Hotspot Mode Active 		
Phablet Grip (DSI= 4)	Device is held with hand and grip sensor is triggered	Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04	
Phablet (DSI = 7)	 Device is held with hand and grip sensor is not triggered Distance grip sensor not triggered 	Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04	
Body-worn (DSI = 7)	 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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Shenzhen Branch

Report No.: SZCR240400130709

: 11 of 14 Page

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.

$$SAR_design_target < SAR_{regulatory_limit} \times 10 \frac{-total \ uncertainty}{10}$$

Uncertainty dB (k=2)	All Band
Total uncertainty	1.49

Exposure position	Frequency band	SAR_Regulatory_Limit W/kg(1g)	SAR_design_target W/kg(1g)
Head	WWAN	1.6	0.6
Body worn	WWAN	1.6	0.6
Hotspot	WWAN	1.6	0.6

Exposure position	Frequency band	SAR_Regulatory_Limit W/kg(10g)	SAR_design_target W/kg(10g)
Product specific 10gSAR	WWAN	4.0	2.0



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Report No.: SZCR240400130709

Doc No./Rev.: SGS-W-TRF-101 v00

Page : 12 of 14

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_{max}, 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_{max} configured for this EUT for various transmit conditions (DSI: Device State Index).

Plimit for supported technologies and bands (actual EFS settings)

Band				P _{limit} (average)					
				Head	Body Worn		Hotspot Limbs		
	A 1	Mada	_	DSI 2			DSI 6	DSI 4	
	Antenna	Mode	P _{max*}	All	DSI 4	DSI 7	All	All	
				WWAN	Ant11/12/13/21/23/31/41	Ant14	WWAN	WWAN	
				Ant			Ant	Ant	
	31#	GPRS 2TS	25.0	25.0	25.0	/	/	25.0	
GSM 850		GPRS 4TS	24.5	/	/	/	24.2	/	
	11#	GPRS 4TS	24.5	21.2	22.3	/	21.2	25.3	
	41#	GPRS 2TS	22.3	22.3	22.3	/	/	22.3	
GSM 1900		GPRS 3TS	22.0	/	/	/	21.0	/	
	14#	GPRS 2TS	22.0	18.0	/	22.0	22.0	22.0	
WCDMA DO	41#	RMC	23.0	23.0	20.5	/	19.0	20.5	
WCDMA_B2	14#	RMC	22.6	17.1	/	22.6	21.6	22.6	
WCDMA D4	41#	RMC	24.0	24.0	21.5	/	20.5	21.5	
WCDMA_B4	14#	RMC	23.6	16.6	/	23.6	20.6	22.1	
WCDMA DE	31#	RMC	24.0	24.0	24.0	/	23.5	24.0	
WCDMA_B5	11#	RMC	24.0	21.0	23.0	/	21.0	23.0	
	41#	QPSK	23.0	23.0	21.0	/	20.0	21.0	
LTE_B2	14#	QPSK	22.6	17.1	/	22.6	22.1	22.6	
_	12#	QPSK	22.8	19.8	22.3	/	20.8	22.3	
	41#	QPSK	24.0	24.0	21.5	/	20.5	21.5	
LTE D4	14#	QPSK	23.6	16.6	/	23.6	20.1	21.1	
LTE_B4	12#	QPSK	23.8	21.3	21.8	/	20.3	21.8	
	24#	QPSK	23.3	20.3	23.3	/	21.8	23.3	
LTE DE	31#	QPSK	24.0	24.0	24.0	/	23.5	24.0	
LTE_B5	11#	QPSK	24.0	21.5	22.5	/	21.0	22.5	
	41#	QPSK	24.0	24.0	20.5	/	19.5	20.5	
LTE D7	14#	QPSK	23.6	15.1	/	22.1	19.6	21.1	
LTE_B7	12#	QPSK	23.8	18.8	20.8	/	19.3	20.8	
	24#	QPSK	23.0	16.0	19.5	/	18.0	19.5	
LTE D40	31#	QPSK	23.5	23.5	23.5	/	23.5	23.5	
LTE_B12	11#	QPSK	23.5	23.5	23.5	/	22.0	23.5	
LTE DAG	31#	QPSK	23.5	23.5	23.5	/	23.5	23.5	
LTE_B13	11#	QPSK	23.5	22.5	23.0	/	22.0	23.0	
LTE DAZ	31#	QPSK	23.5	23.5	23.5	/	23.5	23.5	
LTE_B17	11#	QPSK	23.5	23.0	23.0	/	22.0	23.0	
LTE_B26	31#	QPSK	24.0	24.0	24.0	/	23.0	24.0	
	11#	QPSK	24.0	24.0	23.0	/	21.5	23.0	
	41#	QPSK	22.0	22.0	20.5	/	19.5	20.5	
LTE_B38	14#	QPSK	21.6	15.6	/	21.6	20.1	20.6	
_	12#	QPSK	21.8	16.8	21.8	/	20.3	21.8	



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Report No.: SZCR240400130709

Page : 13 of 14

	24#	QPSK	21.0	15.0	19.0	/	18.0	19.0
LTE_B41	41#	QPSK	22.0	22.0	20.5	/	19.0	20.5
	14#	QPSK	21.6	15.6	/	21.6	20.1	20.6
	12#	QPSK	21.8	17.3	21.8	/	20.8	21.8
	24#	QPSK	21.0	15.0	19.0	/	18.0	19.0
LTE_B66	41#	QPSK	23.5	23.5	21.5	/	20.5	21.5
	14#	QPSK	23.1	16.1	/	23.1	19.1	20.6
	12#	QPSK	23.3	20.8	21.3	/	19.8	21.3
	24#	QPSK	23.3	20.3	23.3	/	21.8	23.3
NR5G_N2	41#	QPSK	23.0	23.0	21.0	/	20.5	21.0
	14#	QPSK	22.6	16.6	/	21.6	20.6	21.6
	12#	QPSK	22.8	19.3	22.3	/	21.3	22.3
NR5G_N5	31#	QPSK	24.0	24.0	24.0	/	23.5	24.0
	11#	QPSK	24.0	21.5	23.0	/	21.5	23.0
	41#	QPSK	23.5	23.5	20.0	1	19.5	20.0
NR5G_N7	14#	QPSK	23.1	15.1	/	22.1	19.1	20.1
	12#	QPSK	23.3	17.8	20.3	/	19.3	20.3
	24#	QPSK	23.3	16.3	20.3	/	18.8	20.3
	31#	QPSK	23.7	23.7	23.7	1	23.7	23.7
NR5G_N26	11#	QPSK	23.7	23.7	23.7	/	23.7	23.7
	41#	QPSK	23.5	23.5	21.5	/	20.5	21.5
	14#	QPSK	23.1	16.1	/	23.1	20.6	21.
NR5G_N66	12#	QPSK	23.3	19.8	21.8	/	20.3	21.8
	24#	QPSK	23.3	20.3	23.3	/	21.8	23.3
	41#	QPSK	24.0	24.0	20.0	/	19.0	20.0
NR5G_N38	14#	QPSK	23.5	14.0	/	21.5	19.5	20.0
	12#	QPSK	24.0	17.0	21.0	/	19.5	21.0
	24#	QPSK	23.0	14.5	18.5	/	17.0	18.5
	41#	QPSK	25.5	25.5	20.5	1	19.5	20.5
NR5G_N41	14#	QPSK	24.5	14.0	/	21.0	20.0	20.0
PC2	12#	QPSK	25.0	16.0	20.5	/	19.0	20.5
	24#	QPSK	24.5	14.5	18.5	1	17.0	18.5
	41#	QPSK	23.0	23.0	20.5	1	19.5	20.
NR5G_N41	14#	QPSK	22.0	14.0	/	21.0	20.0	20.0
PC3	12#	QPSK	22.5	16.0	20.5	/	19.0	20.
	24#	QPSK	22.0	14.5	18.5	1	17.0	18.5
NR5G_N77	14#	QPSK	23.5	13.0	/	20.0	15.5	17.0
	23#	QPSK	23.5	13.5	20.5	/	19.0	20.
	13#	QPSK	23.5	17.0	19.0	1	17.5	19.0
	21#	QPSK	23.0	16.5	19.0	/	17.5	19.0
NR5G_N78 PC2	14#	QPSK	26.0	13.0	/	20.0	15.5	17.0
	23#	QPSK	25.5	14.0	19.0	/	18.5	19.0
	13#	QPSK	26.0	16.5	18.0	/	16.5	18.0
	21#	QPSK	25.5	17.0	19.5	1	18.0	19.
	14#	QPSK	23.0	13.0	/	20.0	15.5	17.0
NR5G_N78 PC3	23#	QPSK	22.5	14.0	19.0	/	18.5	19.0
	13#	QPSK			18.0	1		
	13#	QPSK	23.0 22.5	16.5 17.0	19.5	/	16.5 18.0	18.0 19.5

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 Plimit + Total uncertainty, and if Plimit is higher than Pmax, the device output power will be P_{max} instead.



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Report No.: SZCR240400130709

: 14 of 14 Page

3) Note that WLAN operations are not enabled with Smart Transmit.





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