



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

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

Report No.: SZCR250300110201

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# FCC TEST REPORT PART 0

**Application No.:** SZCR2503001102WM  
**Applicant:** vivo Mobile Communication Co., Ltd.  
**Address of Applicant:** No.1, vivo Road, Chang'an, Dongguan, Guangdong, China  
**Manufacturer:** vivo Mobile Communication Co., Ltd.  
**Address of Manufacturer:** No.1, vivo Road, Chang'an, Dongguan, Guangdong, China  
**Product Name:** Mobile Phone  
**Model No.(EUT):** V2446  
**Trade Mark:** vivo  
**FCC ID:** 2AUCY-V2446  
**Date of Receipt:** 2025-03-17  
**Date of Test:** 2025-03-21 to 2025-03-23  
**Date of Issue:** 2025-04-08  
**Test conclusion:** **PASS**

Keny Xu

Keny Xu  
EMC Laboratory Manager



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### REVISION HISTORY

Revision Record			
Version	Description	Date	Remark
01		2025-04-08	

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



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## 1 General Information

### 1.1 General Description of EUT

Product Name:	Mobile Phone		
Model No.:	V2446		
Trade Mark:	vivo		
Product Phase:	production unit		
Device Type:	portable device		
Exposure Category:	uncontrolled environment / general population		
IMEI:	869584072004685; 869584072004024; 869584072004529; 869584072004008; 869584072004545; 869584072003661; 869584072003687; 869584072004867.		
Hardware Version:	MP_0.1		
Software Version:	PD2443IF_EX_A_15.0.1.31.W30		
Antenna Type:	Integrated Antenna		
Device Operating Configurations:			
Modulation Mode:	<b>GSM:</b> GMSK,8PSK; <b>WCDMA:</b> QPSK,16QAM <b>LTE:</b> QPSK,16QAM,64QAM <b>5G NR:</b> DFT-s-OFDM(PI/2 BPSK,QPSK,16QAM,64QAM,256QAM) CP-OFDM(QPSK,16QAM,64QAM,256QAM) <b>WIFI:</b> DSSS,OFDM; <b>BT:</b> GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	24	HSUPA UE Category:	7
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



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	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 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	2496~2690	2496~2690
	NR Band n66	1710~1780	2110~2180
	NR Band n77	3450~3550	3450~3550
		3700~3980	3700~3980
	NR Band n78	3450~3550	3450~3550
		3700~3800	3700~3800
	WIFI 2.4G	2412~2462	2412~2462
	WIFI 5G	5150~5250	5150~5250
		5250~5350	5250~5350
		5470~5725	5470~5725
		5725~5850	5725~5850
	BT	2402~2480	2402~2480
RF Cable:	<input checked="" type="checkbox"/> Provided by applicant <input type="checkbox"/> Provided by the laboratory		
Battery Information:	Model:	BA60	
	Normal Voltage:	3.85V	
	Rated capacity:	5050mAh	
	Manufacturer:	Sunwoda Electronic Co., Ltd.	



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### Note:

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## 1.2 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

## 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.

## 1.4 Time-Averaging for SAR

The RF exposure limit is defined based on time-averaged RF exposure. The product implements MediaTek TA-SAR feature which controls the instantaneous transmitting power for WWAN transmitter to ensure the product in compliance with RF exposure limit over a defined time window, for SAR (transmit frequency  $\leq 6\text{GHz}$ ). To control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement. TA-SAR cannot operate without SAR characterization at the device level, beforehand.

This report describes the procedures for the SAR char generation, and the parameters obtained from SAR characterization (referred to as SAR char, respectively) will be used as input for TA-SAR algorithm. Both SAR char will be entered via the MediaTek's NV suggestion to enable the TA-SAR Feature.

Nomenclature for Part 0 Report:

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



## 2 SAR CHAR ACTERIZATION

### 2.1 ECI and SAR Determination

This device uses ECI 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 ECI. 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 (ECI) conditions used in Table 1 represent different exposure scenarios.

Scenario	Description	SAR Test Cases
Head (ECI = 2)	•Device positioned next to head	Head SAR per KDB Publication 648474 D04
	•Receiver Active	
Hotspot mode (ECI = 10)	•Device transmits in hotspot mode near body	Hotspot SAR per KDB Publication 941225 D06
	•Hotspot Mode Active	
Phablet (ECI = 5)	•Device is held with hand •Sensor Mode Active	Phablet SAR per KDB Publication 648474 D04 & KDB 616217 D04
Body-worn (ECI = 4)	•Device is held with hand •Sensor Mode does not Active	Phablet SAR per KDB Publication 648474 D04 & KDB 616217 D04
Body-worn (ECI = 4)	•Device being used with a body-worn accessory •Sensor Mode does not Active	Body-worn SAR per KDB Publication 648474 D04& KDB 616217 D04

Table 1: ECI and Corresponding Exposure Scenarios

## 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.

$$\text{SAR\_design\_target} < \text{SAR}_{\text{regulatory\_limit}} \times 10^{\frac{-\text{total uncertainty}}{10}}$$

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	0.9
Body worn	WWAN	1.6	0.9
Hotspot	WWAN	1.6	0.7
Exposure position	Frequency band	SAR_Regulatory_Limit W/kg(10g)	SAR_design_target W/kg(10g)
Limbs	WWAN	4.0	2.65

## 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  $P_{limit}$ . Below table shows  $P_{limit}$  EFS settings and maximum tune up output power  $P_{max}$  configured for this EUT for various transmit conditions.

**$P_{limit}$  for supported technologies and bands**

Band	Mode	Antenna	$P_{max}^*$ (Average)	$P_{limit}$ (Average)			
				Head	Body Worn & Limbs Sensor off	Limbs Sensor on	Hotspot
				ECI 2	ECI 4	ECI 5	ECI 10
GSM 850	GPRS 1TS	ANT 13#	23.5	21.5	23.5	23.5	23.5
	GPRS 2TS		24.5	21.0	24.5	24.5	24.5
	GPRS 2TS	ANT 31#	24.5	24.5	24.5	24.5	24.5
GSM 1900	GPRS 2TS	ANT 13#	22.0	17.5	22.0	20.0	18.0
	GPRS 2TS	ANT 31#	22.0	22.0	20.0	20.0	20.0
WCDMA B2	RCM	ANT 13#	23.5	16.5	23.5	20.5	18.5
	RCM	ANT 31#	23.5	23.5	21.0	21.0	21.0
WCDMA B4	RCM	ANT 13#	23.5	18.0	23.5	20.5	18.5
	RCM	ANT 31#	23.5	23.5	21.0	21.0	21.0
WCDMA B5	RCM	ANT 13#	24.0	22.5	24.0	24.0	24.0
	RCM	ANT 31#	24.0	24.0	24.0	24.0	24.0
LTE Band2	QPSK	ANT 13#	23.8	16.8	23.8	20.8	18.8
	QPSK	ANT 31#	23.8	23.8	21.3	21.3	21.3
	QPSK	ANT 11#	23.5	23.0	23.5	23.0	22.5
LTE Band4	QPSK	ANT 13#	23.8	18.3	23.8	20.8	19.3
	QPSK	ANT 31#	23.8	23.8	21.3	21.3	21.3
	QPSK	ANT 11#	23.5	21.5	23.5	20.5	18.5
LTE Band5	QPSK	ANT 13#	24.0	22.5	24.0	24.0	24.0
	QPSK	ANT 31#	24.0	24.0	24.0	24.0	24.0
LTE Band7	QPSK	ANT 13#	23.5	17.5	23.5	18.5	17.0
	QPSK	ANT 31#	23.5	23.5	21.5	21.5	21.5
	QPSK	ANT 11#	23.5	19.0	23.5	19.0	16.5
LTE Band12	QPSK	ANT 13#	24.0	24.0	24.0	24.0	24.0
	QPSK	ANT 31#	24.0	24.0	24.0	24.0	24.0
LTE Band13	QPSK	ANT 13#	24.0	24.0	24.0	24.0	24.0



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	QPSK	ANT 31#	24.0	24.0	24.0	24.0	24.0
LTE Band17	QPSK	ANT 13#	24.0	24.0	24.0	24.0	24.0
	QPSK	ANT 31#	24.0	24.0	24.0	24.0	24.0
LTE Band26	QPSK	ANT 13#	24.0	22.5	24.0	24.0	24.0
	QPSK	ANT 31#	24.0	24.0	24.0	24.0	24.0
LTE Band38	QPSK	ANT 13#	22.0	16.5	22.0	18.5	16.5
	QPSK	ANT 31#	22.0	22.0	22.0	22.0	22.0
	QPSK	ANT 11#	22.0	18.5	22.0	19.0	16.5
LTE Band41	QPSK	ANT 13#	22.0	16.5	22.0	18.5	16.5
	QPSK	ANT 31#	22.0	22.0	22.0	22.0	22.0
	QPSK	ANT 11#	22.0	18.5	22.0	19.0	16.5
LTE Band66	QPSK	ANT 13#	21.8	16.3	21.8	18.8	17.3
	QPSK	ANT 31#	21.8	21.8	19.3	19.3	19.3
	QPSK	ANT 11#	21.5	19.5	21.5	18.5	16.5
NR n2	ANT 13#	ANT 13#	23.5	16.5	23.5	20.5	18.0
	ANT 31#	ANT 31#	23.5	23.5	20.5	20.5	20.5
	ANT 11#	ANT 11#	23.5	23.5	23.5	23.0	22.5
NR n5	ANT 13#	ANT 13#	24.0	21.0	24.0	24.0	24.0
	ANT 31#	ANT 31#	24.0	24.0	24.0	24.0	24.0
NR n7	ANT 13#	ANT 13#	23.5	17.0	23.5	18.5	17.0
	ANT 31#	ANT 31#	23.5	23.5	21.5	21.5	21.5
	ANT 11#	ANT 11#	23.5	18.5	23.5	18.0	15.5
NR n26	ANT 13#	ANT 13#	24.0	21.0	24.0	24.0	24.0
	ANT 31#	ANT 31#	24.0	24.0	24.0	24.0	24.0
NR n38	ANT 13#	ANT 13#	23.5	17.0	23.5	18.5	16.5
	ANT 31#	ANT 31#	23.5	23.5	21.5	21.5	21.5
	ANT 11#	ANT 11#	23.5	18.0	22.5	18.0	16.0
NR n41 (PC2)	ANT 13#	ANT 13#	25.0	17.0	25.0	19.5	17.5
	ANT 31#	ANT 31#	25.0	25.0	22.5	22.5	22.5
	ANT 11#	ANT 11#	25.0	19.5	25.0	19.5	17.0
NR n41 (PC3)	ANT 13#	ANT 13#	24.0	17.0	24.0	19.5	17.0
	ANT 31#	ANT 31#	24.0	24.0	22.5	22.5	22.5
	ANT 11#	ANT 11#	24.0	19.5	24.0	19.5	17.0
NR n66	ANT 13#	ANT 13#	23.5	18.0	23.5	20.5	19.0
	ANT 31#	ANT 31#	23.5	23.5	21.0	21.0	21.0



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

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

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	ANT 11#	ANT 11#	23.5	21.5	23.5	20.0	18.0
NR n77	ANT11#	ANT11#	23.0	20.0	23.0	17.5	15.5
	ANT12#	ANT12#	23.0	17.5	19.5	19.5	17.5
	ANT 23#	ANT 23#	20.0	18.0	19.0	19.0	18.0
	ANT 21#	ANT 21#	20.0	15.0	19.5	19.5	17.5
NR n78 (PC2)	ANT11#	ANT11#	25.5	20.0	23.0	18.0	16.5
	ANT12#	ANT12#	25.5	17.5	20.0	20.0	18.0
	ANT 23#	ANT 23#	22.5	18.5	22.0	22.0	20.0
	ANT 21#	ANT 21#	22.5	15.5	21.0	21.0	19.0
NR n78 (PC3)	ANT11#	ANT11#	23.0	20.0	23.0	18.0	16.5
	ANT12#	ANT12#	23.0	17.5	18.5	18.5	18.0
	ANT 23#	ANT 23#	20.0	18.5	20.0	20.0	20.0
	ANT 21#	ANT 21#	20.0	15.5	19.5	19.5	18.5

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 P<sub>limit</sub> + Total uncertainty, and if P<sub>limit</sub> is higher than P<sub>max</sub>, the device output power will be P<sub>max</sub> 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	12.5%	-9.0
GSM 2TX	25.0%	-6.0
GSM 3TX	37.5%	-4.3
GSM 4TX	50.0%	-3.0
LTE FDD	100.0%	0.0
LTE TDD	63.3%	-2.0
LTE TDD HPUE	43.3%	-3.5
NR FDD	100.0%	0.0
NR TDD	100.0%	0.0
NR TDD HPUE	100.0%	0.0

**- End of Report -**



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