



# SAR Exemption Evaluation Report

Product Name : VR Motion Controller

Model No. : C1710

FCC ID : 2ATRW-C1710

Applicant : Qingdao Pico Technology Co., Ltd.

Address : 4 Floor, 3 Building, Qingdao Research Institute of  
Beihang University, No. 393 Songling Road,  
Laoshan District, Qingdao, China

Date of Receipt : Apr. 21, 2021

Issued Date : Jul. 07, 2021

Report No. : 2140670R-RF-US-P20V01

Report Version : V1.0

The test results presented in this report relate only to the object tested.

The measurement result is considered in conformance with the requirement if it is within the prescribed limit,  
It is not necessary to account the uncertainty associated with the measurement result.

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# Test Report Certification

Issued Date : Jul. 07, 2021

Report No. : 2140670R-RF-US-P20V01



Product Name : VR Motion Controller  
Trademark : Pico  
Applicant : Qingdao Pico Technology Co., Ltd.  
Address : 4 Floor, 3 Building, Qingdao Research Institute of Beihang University, No. 393 Songling Road, Laoshan District, Qingdao, China  
Manufacturer : Qingdao Pico Technology Co., Ltd.  
Address : 4 Floor, 3 Building, Qingdao Research Institute of Beihang University, No. 393 Songling Road, Laoshan District, Qingdao, China  
Model No. : C1710  
FCC ID : 2ATRW-C1710  
EUT Voltage : 3 Vdc  
Applicable Standard : KDB 447498 D01v06  
Test Result : Complied  
Performed Location : DEKRA Testing & Certification (Suzhou) Co., Ltd.  
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China  
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098  
FCC Designation Number: CN1199

Documented By :



(Project Engineer: Scott Shen)

Approved By :



(Supervisor: Jack Zhang)

## 1. RF Exposure Evaluation

### 1.1.Limits

According to **KDB 447498 D01 General RF Exposure Guidance v06**

#### 4.3.1 Standalone SAR test exclusion considerations

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq$$

3.0 for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

2) At 100 MHz to 6 GHz and for test separation distances  $> 50$  mm, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B:

- a)  $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)] \text{ mW}$ , at 100 MHz to 1500 MHz
- b)  $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10] \text{ mW}$  at  $> 1500$  MHz and  $\leq 6$  GHz

3) The 1-g and 10-g SAR test exclusion thresholds for below 100 MHz at test separation distances  $\leq 50$  mm are determined by:

- a) The power threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by  $[1 + \log(100/f(\text{MHz}))]$  for test separation distances  $> 50$  mm and  $< 200$  mm
- b) The power threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by  $\frac{1}{2}$  for test separation distances  $\leq 50$  mm
- c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable. Note: when the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.

## 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

## 1.3. Test Result of RF Exposure Evaluation

Product	:	VR Motion Controller
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

### Antenna Information

Antenna model	N/A								
Antenna Delivery	<input checked="" type="checkbox"/>	1*TX+1*RX		<input type="checkbox"/>	2*TX+2*RX		<input type="checkbox"/>	3*TX+3*RX	
Antenna technology	<input checked="" type="checkbox"/>	SISO							
	<input type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic					
			<input type="checkbox"/>	CDD					
			<input type="checkbox"/>	Beam-forming					
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole					
	<input checked="" type="checkbox"/>	Internal	<input checked="" type="checkbox"/>	FPC					
			<input type="checkbox"/>	PCB					
			<input type="checkbox"/>	Ceramic Chip Antenna					
Antenna Gain	2.64 dBi for left Controller								
	2.48 dBi for right Controller								

Based on The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm and the formula below:

$$\text{SAR test exclusion thresholds} = \sqrt{f(\text{GHz})} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

The tune-up tolerance is 0.5 dB, the maximum conducted power we used to calculate RF exposure is 6.91dBm.

Wireless Configuration	Exposure Condition	Pmax	Pmax	Distance	Frequency (GHz)	Calculation Result	Stand-alone Test exclusion threshold	SAR Test
		(dBm)	(mw)	(mm)				
BT	Body	6.91	4.91	5	2.48	1.55	3.00	No

Conclusion: 2.4GHz SAR was not required.

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