



# SAR TEST REPORT

No. I17Z61995-SEM02

For

**Oculus VR LLC**

**Virtual Reality System**

**Model name: MH-A32, MH-A64**

With

**Hardware Version: LRAM001A3-6**

**Software Version: LLALM01\_Post\_CS6\_0.1.115.1**

**FCC ID: 2AGOZMH-A**

**Issued Date: 2017-12-18**



**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

**Test Laboratory:**

CTTL, Telecommunication Technology Labs, CAICT

No. 51, Xueyuan Road, Haidian District, Beijing, P. R. China 100191.

Tel: +86(0)10-62304633-2512, Fax: +86(0)10-62304633-2504

Email: [cttl\\_terminals@caict.ac.cn](mailto:cttl_terminals@caict.ac.cn), website: [www.caict.ac.cn](http://www.caict.ac.cn)

## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Issue Date</b>	<b>Description</b>
I17Z61995-SEM02	Rev.0	2017-12-5	Initial creation of test report
I17Z61995-SEM02	Rev.1	2017-12-11	Update the manufacturer information and EUT information
I17Z61995-SEM02	Rev.2	2017-12-18	<ol style="list-style-type: none"><li>1. Update the version of ANSI C95.1 in section 5.1 on page 9</li><li>2. Update the frequency of 11n HT40 UNII-3 in section 10 on page 19</li><li>3. Update the picture of duty cycle in section 13 on page 23&amp;26</li></ol>

## TABLE OF CONTENT

<b>1 TEST LABORATORY .....</b>	<b>5</b>
1.1 TESTING LOCATION .....	5
1.2 TESTING ENVIRONMENT.....	5
1.3 PROJECT DATA .....	5
1.4 SIGNATURE.....	5
<b>2 STATEMENT OF COMPLIANCE .....</b>	<b>6</b>
<b>3 CLIENT INFORMATION .....</b>	<b>7</b>
3.1 APPLICANT INFORMATION .....	7
3.2 MANUFACTURER INFORMATION .....	7
<b>4 EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>8</b>
4.1 ABOUT EUT .....	8
4.2 INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....	8
<b>5 TEST METHODOLOGY .....</b>	<b>9</b>
5.1 APPLICABLE LIMIT REGULATIONS .....	9
5.2 APPLICABLE MEASUREMENT STANDARDS.....	9
<b>6 SPECIFIC ABSORPTION RATE (SAR).....</b>	<b>10</b>
6.1 INTRODUCTION.....	10
6.2 SAR DEFINITION .....	10
<b>7 TISSUE SIMULATING LIQUIDS .....</b>	<b>11</b>
7.1 TARGETS FOR TISSUE SIMULATING LIQUID .....	11
7.2 DIELECTRIC PERFORMANCE .....	11
<b>8 SYSTEM VERIFICATION .....</b>	<b>12</b>
8.1 SYSTEM SETUP.....	12
8.2 SYSTEM VERIFICATION.....	13
<b>9 MEASUREMENT PROCEDURES .....</b>	<b>14</b>
9.1 TESTS TO BE PERFORMED .....	14
9.2 GENERAL MEASUREMENT PROCEDURE.....	16
9.3 BLUETOOTH & WI-FI MEASUREMENT PROCEDURES FOR SAR .....	17
<b>10 CONDUCTED OUTPUT POWER.....</b>	<b>18</b>
10.1 WI-FI AND BT MEASUREMENT RESULT .....	18
<b>11 ANTENNA LOCATIONS .....</b>	<b>21</b>
<b>12 STANDALONE SAR TEST EXCLUSION CONSIDERATIONS .....</b>	<b>22</b>
<b>13 SAR TEST RESULT .....</b>	<b>23</b>
13.1 WLAN EVALUATION FOR 2.4G .....	23

13.2 WLAN EVALUATION FOR 5G.....	24
<b>14 MEASUREMENT UNCERTAINTY .....</b>	<b>27</b>
14.1 MEASUREMENT UNCERTAINTY FOR SAR TESTS (300MHz~3GHz) .....	27
14.2 MEASUREMENT UNCERTAINTY FOR SAR TESTS (3~6GHz) .....	28
<b>15 MAIN TEST INSTRUMENTS.....</b>	<b>29</b>
<b>ANNEX A GRAPH RESULTS.....</b>	<b>30</b>
<b>ANNEX B SYSTEM VERIFICATION RESULTS .....</b>	<b>32</b>
<b>ANNEX C SAR MEASUREMENT SETUP .....</b>	<b>36</b>
C.1 MEASUREMENT SET-UP .....	36
C.2 DASY6 E-FIELD PROBE SYSTEM.....	37
C.3 E-FIELD PROBE CALIBRATION .....	38
C.4 OTHER TEST EQUIPMENT.....	39
C.4.1 DATA ACQUISITION ELECTRONICS(DAE) .....	39
C.4.2 ROBOT .....	39
C.4.3 MEASUREMENT SERVER .....	40
C.4.4 DEVICE HOLDER FOR PHANTOM.....	40
C.4.5 PHANTOM .....	41
<b>ANNEX D EQUIVALENT MEDIA RECIPES.....</b>	<b>42</b>
<b>ANNEX E SYSTEM VALIDATION .....</b>	<b>43</b>
<b>ANNEX F PROBE CALIBRATION CERTIFICATE .....</b>	<b>44</b>
<b>ANNEX G DIPOLE CALIBRATION CERTIFICATE .....</b>	<b>82</b>
<b>ANNEX H ACCREDITATION CERTIFICATE .....</b>	<b>106</b>

## 1 Test Laboratory

### 1.1 Testing Location

Company Name:	CTTL(Shouxiang)
Address:	No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China100191

### 1.2 Testing Environment

Temperature:	18°C~25°C,
Relative humidity:	30%~ 70%
Ground system resistance:	< 0.5 $\Omega$
Ambient noise & Reflection:	< 0.012 W/kg

### 1.3 Project Data

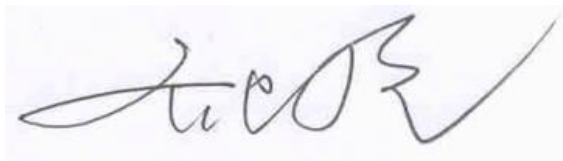
Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	December 1, 2017
Testing End Date:	December 1, 2017

### 1.4 Signature



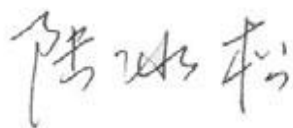
---

Lin Xiaojun  
(Prepared this test report)



---

Qi Dianyuan  
(Reviewed this test report)



---

Lu Bingsong  
Deputy Director of the laboratory  
(Approved this test report)

## 2 Statement of Compliance

The maximum results of SAR found during testing for Oculus VR LLC Virtual Reality System MH-A32, MH-A64 are as follows:

**Table 2.1: Highest Reported SAR (1g)**

Exposure Configuration	Technology Band	Highest Reported SAR 1g(W/kg)	Equipment Class
Head (Separation Distance 0mm)	WLAN 2.4 GHz	0.29	DTS
	WLAN 5 GHz	0.17	UNII

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1g tissue according to the §1.1310.

The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output.

The measurement together with the test system set-up is described in annex C of this test report. A detailed description of the equipment under test can be found in chapter 4 of this test report. The highest reported SAR value is obtained at the case of **(Table 2.1)**, and the values are: **0.29 W/kg(1g)**.



### 3 Client Information

#### 3.1 Applicant Information

Company Name:	Oculus VR LLC
Address/Post:	1 Hacker Way, Bldg 18 Menlo Park CA 94025-1456
Contact Person:	/
E-mail:	/
Telephone:	/
Fax:	/

#### 3.2 Manufacturer Information

Company Name:	Oculus VR LLC
Address/Post:	1 Hacker Way, Bldg 18 Menlo Park CA 94025-1456
Contact Person:	/
E-mail:	/
Telephone:	/
Fax:	/

## 4 Equipment Under Test (EUT) and Ancillary Equipment (AE)

### 4.1 About EUT

Description:	Virtual Reality System
Model name:	MH-A32, MH-A64
Operating mode(s):	BT, Wi-Fi
Tested Tx Frequency:	2412 – 2462 MHz (Wi-Fi 2.4G)
	5150-5250 MHz (U-NII-1)
	5250-5350 MHz (U-NII-2A)
	5470-5725 MHz (U-NII-2C)
	5725-5825 MHz (U-NII-3)
Type of Modulation	802.11b: DSSS-DBPSK, DQPSK, CCK
	802.11g/n: OFDM-BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM

### 4.2 Internal Identification of EUT used during the test

EUT ID*	SN	HW	SW Version
EUT1	1KWPH5202Z7416	LRAM001A3-6	LLALM01_Post_CS6_0.1.115.1

\*EUT ID: is used to identify the test sample in the lab internally.

Note: The RF specifications of two models are identical. The difference is below:  
Their memory is different.

	MH-A32	MH-A64
memory	32G	64G

There is not any change in design, circuitry or construction for this device, including RF parameters (antenna, software, firmware and hardware versions, power, frequency ranges, etc.).