



**FCC Part 1 Subpart I  
FCC Part 2 Subpart J  
RSS-102 Issue 5**

**RF EXPOSURE REPORT**

**FOR**

**Valve 1007**

**MODEL NUMBER: 1007**

**FCC ID:2AES41007**

**IC:20207-1007**

**REPORT NUMBER: 12561382-S1V5**

**ISSUE DATE: 3/5/2019**

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	11/27/2018	Original issue	
V2	12/12/2018	Added simultaneous transmission analysis Updated sample name	Dave Weaver
V3	1/8/2019	Removed antenna location diagrams	Dave Weaver
V4	3/4/2019	Corrected DUT description	Dave Weaver
V5	3/5/2019	Updated DUT description	Dave Weaver

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Valve Corporation  
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**DUT DESCRIPTION:** Valve 1007


**MODEL:** 1007

**SERIAL NUMBER:** N/A

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 1 SUBPART I & PART 2 SUBPART J	Pass
RSS-102 Issue 5	

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

Approved & Released For  
UL Verification Services Inc. By:



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Dave Weaver  
Operations Leader  
UL Verification Services Inc.

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## 2. TEST METHODOLOGY

All calculations were made in accordance with FCC KDB 447498 D01 v06 and RSS-102 Issue 5

## 3. REFERENCES

Output power is excerpted from the applicable test reports or client declarations.

## 4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

## 5. DEVICE UNDER TEST

### 5.1. DESCRIPTION

The DUT is a head worn Virtual Reality device. It features two 2.4 GHz antennas mounted in front of the eyes. Measurements using the CAD drawings of the DUT mounted on a standard head show the closest antenna to user separation distances to be 59 mm for the right antenna and 61 mm for the left antenna. For the sake of conservativeness the actual distance used in the SAR exclusion evaluation was 40 mm. Simultaneous transmission is supported.

### 5.2. WIRELESS TECHNOLOGIES AND OUTPUT POWER

Wireless technologies	Frequency bands	Antenna	Maximum Output Power
Bluetooth	2.4 GHz	Right	5.6 mW
Proprietary	2.4 GHz	Right	5.6 mW
Bluetooth	2.4 GHz	Left	5.6 mW
Proprietary	2.4 GHz	Left	5.6 mW

## 6. FCC - STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

From KDB 447498, for transmission frequencies 100 MHz to 6 GHz and test separation distances  $\leq 50$  mm, the 10-g SAR test exclusion thresholds are determined by the following:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  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;
- For a separation distance of less than 5mm, 5mm is used.

The result is rounded to one decimal place for comparison with the 3.0 threshold.

The table below shows that at the maximum power for all bands and technologies and for a separation distance of 40 mm, SAR test exclusion applies.

The device was assessed against the 1g SAR limits.

RF Air interface	RF Exposure Conditions	Antenna	Frequency (GHz)	Max. tune-up tolerance	Min. test separation distance (mm)	SAR test exclusion Result*
				(mW)		
Bluetooth	Head	Left	2.480	6	40	0.2
Bluetooth	Head	Right	2.480	6	40	0.2
Valve Proprietary	Head	Left	2.480	6	40	0.2
Valve Proprietary	Head	Right	2.480	6	40	0.2

### **Conclusion:**

\*: The computed value is  $\leq 3.0$ ; therefore, this qualifies for SAR test exclusion.

## 7. ISED - STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

SAR test exemption from routine evaluation was determined in accordance with RSS-102 §2.5.1

If the higher of the conducted power or E.I.R.P is less than the 1 g SAR test exemption limit then SAR testing is not required. Where required the test exemption limit was derived via linear interpolation of the values provided in Table 1 of RSS-102

RF Air interface	RF Exposure Conditions	Frequency (MHz)	Antenna Location	Max. tune-up tolerance Power (mW)	Antenna Gain (dBi)	E.I.R.P (mW)	Min. test separation distance (mm)	1-g SAR Test Exemption Limit (mW)
Bluetooth	Head	2480	Left	5.3	6.0	21.1	40	173
Bluetooth	Head	2480	Right	5.3	4.2	13.9	40	173
Valve proprietary	Head	2480	Left	5.3	6.0	21.1	40	173
Valve proprietary	Head	2480	Right	5.3	4.2	13.9	40	173

### **Conclusion:**

SAR testing is excluded

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## 8. SIMULTANEOUS TRANSMISSION ANALYSIS

### 8.1. SIMULTANEOUS TRANSMISSION SAR TEST EXCLUSION

KDB 447498 D01 General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Separation Ratio (SPLSR). As the DUT satisfies the Sum of SAR requirements SPLSR was not evaluated.

#### 8.1.1. SUM OF SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit.

When an antenna qualifies for standalone SAR test exclusion and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to the following to determine the simultaneous transmission SAR test exclusion criteria:

- 1)  $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/x}] \text{ W/kg}$ , for *test separation distances*  $\leq 50 \text{ mm}$ ;  
where  $x = 7.5$  for 1-g SAR and  $x = 18.75$  for 10-g SAR.
- 2)  $0.4 \text{ W/kg}$  for 1-g SAR and  $1.0 \text{ W/kg}$  for 10-g SAR, when the *test separation distance* is  $> 50 \text{ mm}$ .

The estimated standalone SAR for either of the Bluetooth or Valve proprietary transmitters is

$$(6 \text{ mW} / 40 \text{ mm}) \cdot (\sqrt{2.48 \text{ GHz} / 7.5}) = 0.027$$

The Sum of the SAR for each antenna is  $0.027 + 0.027 = 0.054 \text{ W/kg}$ .

As this is less than the SAR 1g limit of  $1.6 \text{ W/kg}$  the DUT qualifies for simultaneous transmission SAR test exclusion.

## END OF REPORT