

# SAR exemption exhibit

## Certification

**Applicant Name:**

JUUL Labs, Inc

**Date of Issue:**

May 16, 2019

**Address:**560 20th Street  
San Francisco, CA 94107, U.S.A.**Location:**EMCE Engineering  
1726 Ringwood Avenue San Jose, California USA**Report No.:** EMCE-R-1904-F002-3**FCC ID:** 2ASULC1**APPLICANT:** JUUL Labs, Inc**Model:** JBB001**EUT Type:** Electronic Nicotine Delivery System**Frequency Range:** 2402 MHz -2480 MHz

The measurements shown in this report were made in accordance with the procedures specified in §2.947.

I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.



**Steve.In**  
**Test Engineer**  
**Certification Division**



**Billy Kim**  
**Technical Manager**  
**Certification Division**

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## Version

TEST REPORT NO.	DATE	DESCRIPTION
EMCE-R-1904-F002	April 10, 2019	First Approval Report
EMCE-R-1904-F002-1	May 8, 2019	Edited calculation formula
EMCE-R-1904-F002-2	May 14, 2019	Revised the antenna gain and calculation formula
EMCE-R-1904-F002-3	May 16, 2019	Revised the SAR exclusion threshold limit

## EXPOSURE EVALUATION OF PORTABLE DEVICE

The RF exposure from portable device (47 CFR §2.1091), as defined by FCC, must be evaluated with respect to FCC-adopted limits for SAR.

When no other RF exposure testing or reporting are required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for SAR test exclusion.

### SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

Note. The operating frequency of the device is between two frequencies located in Table, linear interpolation shall be applied for the applicable separation distance.

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\sqrt{f(\text{GHz})}} \right] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR.}$$

## EVALUATION RESULTS

Freq.(MHz)	Averaged output power (dBm)	Averaged output power (mW)	Exclusion Power Thresholds limit (mW)	1-g SAR Exclusion thresholds level
2402	2.86	1.93	10.087	0.598
2440	3.06	2.02	10.018	0.631
2480	2.81	1.91	9.948	0.601

$$\frac{(\text{max. power of channel, including tuneup tolerance, mW})}{(\text{min. test separation distance, mm})} \times \left[ \sqrt{f(\text{GHz})} \right] \leq 3.0 \text{ for 1-g SAR}$$

$$= \frac{2.02 \text{ mW}}{5 \text{ mm}} \times \left[ \sqrt{2.440 \text{ GHz}} \right] = 0.631 \leq 3.0$$

The worst case Exclusion Thresholds is < limit and 3.0 for separation distance 5mm.

## Conclusion

The result after calculation is less than or equal to 3, the limit for 1-g SAR, therefore this device is exempt from SAR evaluation.