KDB 447498 D03
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

Sequoia

Model:
SQ1P

Trade Name: Molekule

Issued to

Molekule Inc.
1301 Folsom St. San Francisco California 94103 United States

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan. (R.O.C.)
Issue Date: September 30, 2020

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 24, 2020	Initial Issue	ALL	Mita Wu
01	September 30, 2020	See the following note Rev.(01)	P.4, P.5, P.11, P.34, P.45, P.47, P.77-P.78	Mita Wu

Rev.(01)
1. Added Chain 2 Power and revised Antenna Gain.

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1. TEST RESULT CERTIFICATION

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091	No non-compliance noted
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

Approved by:

Kevin Tsai
Deputy Manager
Compliance Certification Services Inc.

2. LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

3. EUT SPECIFICATION

EUT	Sequoia
Model	SQ1P
Model Discrepancy	N/A
Frequency band (Operating)	☐ Bluetooth: 2402MHz-2480MHz ☒ 802.11b/g/n HT20: 2412MHz ~ 2462 MHz ☐ 802.11n HT40: 2422MHz ~ 2452MHz ☐ 802.11a/n HT20: 5180MHz ~ 5240MHz / 5745MHz ~ 5825MHz ☐ 802.11n HT40: 5190MHz ~ 5230MHz / 5755MHz ~ 5795MHz ☐ 802.11ac VHT80: 5210MHz / 5775MHz ☐ Others
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna Specification	PCB Antenna IEEE 802.11 b / g / n20 mode: Chain 1: 5.1 dBi Chain 2: 6.4 dBi Chain 1 Gain : 5.10 dBi (Numeric gain: 3.24) Chain 2 Gain : 6.40 dBi (Numeric gain: 4.37)
Maximum Measurement Average Power	Chain 1: 2.4GHz IEEE 802.11b Mode: 20.55 dBm (113.501 mW) IEEE 802.11g Mode: 16.92 dBm (49.204 mW) IEEE 802.11n HT 20 Mode: 17.76 dBm (59.704 mW) Chain 2: 2.4GHz IEEE 802.11b Mode: 18.40 dBm (69.183 mW) IEEE 802.11g Mode: 17.36 dBm (54.450 mW) IEEE 802.11n HT 20 Mode: 18.22 dBm (66.374 mW)

Maximum tune up power	Chain 1: 2.4GHz IEEE 802.11b Mode: 20.55 dBm (113.501 mW) IEEE 802.11g Mode: 16.92 dBm (49.204 mW) IEEE 802.11n HT 20 Mode: 17.76 dBm (59.704 mW) Chain 2: 2.4GHz IEEE 802.11b Mode: 18.40 dBm (69.183 mW) IEEE 802.11g Mode: 17.36 dBm (54.450 mW) IEEE 802.11n HT 20 Mode: 18.22 dBm (66.374 mW)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

4. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ **Equation 1**

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

5. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using d = 20 cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

Chain 1

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
6	2437	113.501	5.1	20	0.1152	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
6	2437	49.204	5.1	20	0.0499	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
6	2437	59.704	5.1	20	0.0606	1

Chain 2

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
1	2412	69.183	6.4	20	0.0881	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
6	2437	54.45	6.4	20	0.0693	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
6	2437	66.374	6.4	20	0.0845	1

--End of Report--