

RF Exposure Report

Report No.: MFBCKS-WTW-P22090987

FCC ID: 2A82RMARK3

Test Model: Mark 3

Received Date: Oct. 17, 2022

Date of Evaluation: Nov. 22, 2022

Issued Date: Dec. 12, 2022

Applicant: Arable Labs Inc.

Address: 51 Federal St., San Francisco, CA 94107, USA

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, TAIWAN

FCC Registration / 788550 / TW0003
Designation Number:



This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

Table of Contents

Release Control Record	3
1 Certificate of Conformity.....	4
2 RF Exposure.....	5
2.1 Limits for Maximum Permissible Exposure (MPE)	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
3 Calculation Result of Maximum Conducted Power.....	6

Release Control Record

Issue No.	Description	Date Issued
MFCKS-WTW-P22090987	Original Release	Dec. 12, 2022

1 Certificate of Conformity

Product: Arable Mark 3

Brand: Arable Labs

Test Model: Mark 3

Sample Status: Engineering Sample

Applicant: Arable Labs Inc.

Date of Evaluation: Nov. 22, 2022

FCC Rule Part: FCC Part 2 (Section 2.1091)

Standards: KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Vera Huang , **Date:** Dec. 12, 2022
Vera Huang / Specialist

Approved by : Jeremy Lin , **Date:** Dec. 12, 2022
Jeremy Lin / Project Engineer

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Band	Max ERP Power (dBm)	Max EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
GPRS 850	31.17	33.32	20	0.427	0.55
GPRS 1900	-	32.12	20	0.324	1.00
eMTC					
LTE Band 2	-	26.42	20	0.087	1.00
LTE Band 4	-	25.79	20	0.075	1.00
LTE Band 5	22.13	24.28	20	0.053	0.55
LTE Band 12	22.23	24.38	20	0.055	0.46
LTE Band 13	22.13	24.28	20	0.053	0.52
LTE Band 25	-	25.97	20	0.079	1.00
LTE Band 26	22.39	24.54	20	0.057	0.54
LTE Band 66	-	25.88	20	0.077	1.00
LTE Band 85	22.42	24.57	20	0.057	0.46
NB-IoT					
NB-IoT Band 2	-	26.69	20	0.093	1.00
NB-IoT Band 4	-	26.05	20	0.080	1.00
NB-IoT Band 5	22.41	24.56	20	0.057	0.55
NB-IoT Band 12	22.93	25.08	20	0.064	0.46
NB-IoT Band 13	22.91	25.06	20	0.064	0.52
NB-IoT Band 25	-	26.95	20	0.099	1.00
NB-IoT Band 66	-	26.28	20	0.085	1.00
NB-IoT Band 71	23.13	25.28	20	0.067	0.44
NB-IoT Band 85	22.77	24.92	20	0.062	0.46

Band	Max AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
BT LE	14.49	2.40	20	0.0097	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. $EIRP = ERP + 2.15dB$
3. Detail antenna specification please refer to antenna datasheet or an antenna gain measurement report.

Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

The simultaneous operation mode was determined by client.

$WWAN + BT LE = 0.427/0.55 + 0.0097/1 = 0.786$

Therefore the maximum calculations of above situations are less than the "1" limit.

---END---