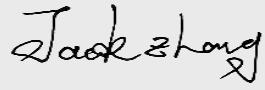


Test report No:  
2390782R-RF-US-P20V02

## FCC &amp; ISED EXPOSURE TEST REPORT

Product Name	Mobile Computer
Trademark	Elo
Model and /or type reference	EMC-M51
FCC ID	RBWEMCM51
IC	10757B-EMCM51
Applicant's name / address	Elo Touch Solutions, Inc 670 N. McCarthy Blvd., Suite 100, Milpitas, CA 95035, USA.
Test method requested, standard	FCC 47CFR §2.1093 RSS-102: Issue 6, 2023
Verdict Summary	IN COMPLIANCE
Documented By (name / position & signature)	Tim Cao / Project Manager 
Approved by (name / position & signature)	Jack Zhang / Manager 
Date of issue	2024-11-06
Report Version	V1.0
Report template No	Template_FCC-MPE-RF-V1.0

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## COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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## GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Mar. 20, 2024
Date (start test)	Jun. 01, 2024
Date (finish test)	Jun. 30, 2024

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

## ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

## POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

## ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
$U_N$	: Nominal voltage
$T_x$	: Transmitter
$R_x$	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

## DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2390782R-RF-US-P20V02	V1.0	Initial issue of report.	2024-11-06

## REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with FCC 47CFR §2.1093, RSS-102 Issue 6.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results relate only to the samples tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
  - Chapter 1.1 General Description of the Item(s);
  - Chapter 1.2 Antenna Informaion;

## 1 GENERAL INFORMATION

### 1.1 General Description of the Item(s)

Product Name.....	Mobile Computer
Model No. ....	EMC-M51
Trademark. ....	Elo
FCC ID .....	RBWEMCM51
IC .....	10757B-EMCM51
Hardware Version .....	V1.06
Software Version .....	MT912NoGms_EQ000_2774.F53FD5F.FD20B6E.6EAD44F_240130_100_V01_T23
Manufacturer .....	Elo Touch Solutions, Inc
Manufacturer Address.....	670 N. McCarthy Blvd., Suite 100, Milpitas, CA 95035, USA.
Factory .....	ShuoGe Intelligent Technology Co.,Ltd.
Factory address .....	Room 308-310, Building 1, No.2 8th Road, Baiyang Street, Qiantang New Area, Hangzhou City, Zhejiang Province, P.R. China(310018)
Operating temperature.....	-20 ~ +50°C

Note: This report is based on 2390782R-RF-US-P20V01. The customer stated that the new EUT has removed the WCDMA and LTE and NR modules and the rest are identical. We verified the worst channel test on the new EUT and the test results did not get worse. Therefore, this report reuses the test data of 2390782R-RF-US-P20V01.

Wireless Specification.....	NFC
Operating frequency range(s).....	13.56 MHz
Type of modulation .....	ASK
Number of channel.....	1

Note: The NFC function only supports individual transmission. Doesn't work at the same time with other wireless features.

Rated power supply .....	Voltage and Frequency	
	<input type="checkbox"/>	AC: 220 - 240 V, 50/60 Hz
	<input type="checkbox"/>	AC: 100 - 240 V, 50/60 Hz
	<input checked="" type="checkbox"/>	Battery: 3.8 Vdc
	<input checked="" type="checkbox"/>	Adapter:
Adapter Model .....	UES45LCP-SPC	
	Input: 100-240 V ~ 50/60 Hz, 1.3 A Output: 5.0 V / 3.0 A, 15.0 W; 9.0 V / 3.0 A, 27.0 W; 12.0 V / 3.0 A, 36.0 W; 15.0 V / 3.0 A, 45.0 W; 20.0 V / 2.25 A, 45.0 W Max;	
Mounting position.....	<input type="checkbox"/>	Tabletop equipment

	<input type="checkbox"/>	Wall/Ceiling mounted equipment
	<input type="checkbox"/>	Floor standing equipment
	<input checked="" type="checkbox"/>	Hand-held/Portable equipment
	<input type="checkbox"/>	Other:

## 1.2 Antenna Information

Antenna Delivery .....	<input checked="" type="checkbox"/>	1TX + 1RX		
	<input type="checkbox"/>	2TX + 2RX		
	<input type="checkbox"/>	Others:.....		
Antenna technology .....	<input checked="" type="checkbox"/>	SISO		
	<input type="checkbox"/>	MIMO	<input type="checkbox"/>	CDD
Antenna Type .....	<input type="checkbox"/>		<input type="checkbox"/>	Beam-forming
	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole
	<input type="checkbox"/>		<input type="checkbox"/>	Sectorized
	<input checked="" type="checkbox"/>		<input type="checkbox"/>	Ceramic Chip
	<input type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA
	<input checked="" type="checkbox"/>		<input type="checkbox"/>	LOOP
	<input type="checkbox"/>		<input type="checkbox"/>	Others:
Antenna Gain.....	N/A			

Note: The general description of the Item(s), antenna information in clause 1 are provided and confirmed by the client.

## 2. RF Exposure Evaluation

### 2.1. Limits: KDB 447498 D01 and RSS-102 Issue 6

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	

According to RSS 102 Issue 6: From RSS-102 Issue 6, Section 6.3 Exemption

No SAR Evaluation Required if power is below the following threshold:

Frequency (MHz)	≤ 5 mm (mW)	10 mm (mW)	15 mm (mW)	20 mm (mW)	25 mm (mW)	30 mm (mW)	35 mm (mW)	40 mm (mW)	45 mm (mW)	> 50 mm (mW)
≤ 300	45	116	139	163	189	216	246	280	319	362
450	32	71	87	104	124	147	175	208	248	296
835	21	32	41	54	72	96	129	172	228	298
1900	6	10	18	33	57	92	138	194	257	323
2450	3	7	16	32	56	89	128	170	209	245
3500	2	6	15	29	50	72	94	114	134	158
5800	1	5	13	23	32	41	54	74	102	128

## Simultaneous Transmission SAR Test Exemption with Respect to Multiple Exemption Criteria

Either SAR-based or MPE-based exemption may be considered for test exemption for fixed, mobile, or portable device exposure conditions; therefore, the contributions from each exemption in conjunction with the measured SAR (Evaluated<sub>k</sub> term) shall be used to determine exemption for simultaneous transmission according to Formula (C.1) [repeated from § 1.1307(b)(3)(ii)(B)].

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1 \quad (C.1)$$

- a. number of fixed, mobile, or portable RF sources claiming exemption using the § 1.1307(b)(3)(i)(B) formula for P<sub>th</sub>, including existing exempt transmitters and those being added.
- b. number of fixed, mobile, or portable RF sources claiming exemption using the applicable § 1.1307(b)(3)(i)(C) Table 1 formula for Threshold ERP, including existing exempt transmitters and those being added.
- c. number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance.

P<sub>i</sub> the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

P<sub>th,i</sub>. the exemption threshold power (P<sub>th</sub>) according to the § 1.1307(b)(3)(i)(B) formula for fixed, mobile, or portable RF source i. ERP<sub>j</sub>. the available maximum time-averaged power or the ERP, whichever is greater, of fixed, mobile, or portable RF source j. ERP<sub>th,j</sub>. exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least  $\lambda/2\pi$ , according to the applicable § 1.1307(b)(3)(i)(C) Table 1 formula at the location in question.

Evaluated<sub>k</sub> . the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation.

### Exposure

Limit<sub>k</sub>. either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable sources, as applicable

The sum of the ratios of the applicable terms for SAR-based, MPE-based and measured SAR or MPE shall be less than 1, to determine simultaneous transmission exposure compliance.

## 2.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

## 2.3. Test Result of RF Exposure Evaluation

Mode	Exposure Condition	Pmax (dBm)	Pmax (mW)	Distance (mm)	f(MHz)	FCC Pth (mW)
NFC	Body	-59.32	1.20E-06	5	13.56	39

Mode	Exposure Condition	Pmax (dBm)	Pmax (mW)	Distance (mm)	f(MHz)	ISED Pth (mW)
NFC	Body	-59.32	1.20E-06	5	13.56	45

Maximum TX Power is -59.32dBm  $\approx$  1.20E-06 mW

Since the FCC and ISED thresholds do not control 100MHz, the linear calculation shows that the 13.56MHz threshold will be much higher than the 150MHz and 300MHz thresholds, so the FCC and ISED thresholds use a stricter minimum frequency threshold.

Conclusion: No SAR evaluation required since maximum Transmitter Pout is below FCC IC threshold.

The End