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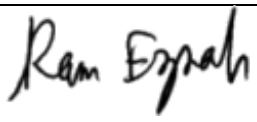
SAR Exclusion Evaluation Report

Applicant	Orcam Technologies Ltd.
Applicant Address	3 Kiryat HaMada St., Jerusalem 9777603, Israel
Product	Portable Pen Scanner
FCC ID	2AAWI-READ2WAY
IC	26513- READ2WAY
HVIN	Orcam Read 5G: HW01 Orcam Learn 5G: FW01
FVIN	Orcam Readv5G: HW01 Orcam Learn 5G: FW01
PMN	Orcam Read 5G Orcam Learn 5G
Standard(s)	FCC: 47CFR15, Part 15, Subpart E, Section 15.407 ISED: RSS-247, Issue 3, August 2023
Test Report No.	Ra271290.02

Prepared by:	Ram Ezrah	
Reviewed by:	Netanel Yakobov	
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Date:	12 Dec. 2023	

1 EUT Information

Model No.	Orcam Read 5G Orcam Learn 5G
Assigned frequency range	5150–5250 MHz
Operating frequency range	5180-5240 MHz
Max. output power (conducted)	7.21 dBm
Antenna type	RP-SMA
Antenna gain	4.3 dBi
Modulation bandwidth	17.8 MHz
Duty Cycle	10%
Separation distance	5 mm

2 SAR Exclusion calculation

KDB 447498 D01 General RF Exposure Guidance v06:

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:

[(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)] · [$\sqrt{f_{(GHz)}}$] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR,[30] where

- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

2.5.1 Exemption Limits for Routine Evaluation — SAR Evaluation:

Table 1: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance[4,5]

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

RSS-102 Section 2.5 Exemption Limits for Routine Evaluation — RF Exposure Evaluation

All transmitters are exempt from routine SAR and RF exposure evaluations provided that they comply with the requirements of sections 2.5.1 or 2.5.2. If the equipment under test (EUT) meets the requirements of sections 2.5.1 or 2.5.2, applicants are only required to submit a properly signed declaration of compliance (see Annex C). The information contained in the RF exposure technical brief may be limited to the value(s) of the maximum output power, the information that demonstrates how the maximum output power of the transmitter was derived and the rationale for the separation distances applied (see Table 1), which must be based on the most conservative exposure condition for the applicable module or host platform test procedure requirements.

Section 2.5.2 Exemption Limits for Routine Evaluation — RF Exposure Evaluation:

- below 20 MHz[6] and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2}\ f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

2.1 Calculations

BW (MHz)	Operation Frequency (MHz)	Power Reading (dBm)
20.0	5,180	7.18
	5,210	7.21
	5,240	7.14

Radio	Frequency (GHz)	Max. Output Power (dBm)	Gain (dBi)	EIRP (max. power + gain) (dBm)	Applying duty cycle correction factor (dBm)*	Adjusted power (mW)	Limit for 1-g SAR	Limit for 10-g SAR	SAR Test
Wi-Fi	5.18-5.24	7.21	4.3	11.51	1.51	1.42	3.0	7.5	No

* Subtracting 10 * Log (1/ Duty Cycle %) from either the EIRP or power declared by the client, whichever is the highest, to establish the worst case. See customer declaration on following page

3 Conclusion

5.2 GHz SAR for FCC or ISED is not required.

ORCAM

Date: 10/12/2023

DECLARATION

I hereby declare that E.U.T – (Equipment under test)

OrCam Read 5G **OrCam Learn 5G**

Maximum duty cycle is 10% while using WIFI for firmware update.
Current ratio of transmitted to received packets is 2.5%.

Thank you.

Signature:

Printed Name: Dmitry Babukh

Title: Hardware Engineer

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End of Report