



**FCC Part 1 Subpart I  
FCC Part 2 Subpart J**

**RF EXPOSURE REPORT**

**FOR**

**E-BAND AUTOMOTIVE RADAR SENSOR**

**MODEL NUMBER: R6E**

**FCC ID: 2AZKT710-60000W**

**REPORT NUMBER: R13824181-E2**

**ISSUE DATE: 2021-09-16**

**Prepared for  
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## REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2021-09-16	Initial Issue	Mike Antola

## TABLE OF CONTENTS

<b>REVISION HISTORY .....</b>	<b>2</b>
<b>TABLE OF CONTENTS .....</b>	<b>3</b>
<b>1. ATTESTATION OF TEST RESULTS .....</b>	<b>4</b>
<b>2. TEST METHODOLOGY .....</b>	<b>5</b>
<b>3. REFERENCES .....</b>	<b>5</b>
<b>4. FACILITIES AND ACCREDITATION .....</b>	<b>5</b>
<b>5. DECISION RULES AND MEASUREMENT UNCERTAINTY .....</b>	<b>6</b>
5.1. <i>METROLOGICAL TRACEABILITY .....</i>	<i>6</i>
5.2. <i>DECISION RULES.....</i>	<i>6</i>
5.3. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>6</i>
<b>6. MAXIMUM PERMISSIBLE EXPOSURE (LIMITS AND EQUATIONS) .....</b>	<b>7</b>
6.1. <i>FCC RULES .....</i>	<i>7</i>
6.2. <i>EQUATIONS.....</i>	<i>8</i>
<b>7. RF EXPOSURE RESULTS.....</b>	<b>9</b>
<b>END OF TEST REPORT .....</b>	<b>9</b>

# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Waymo  
100 Mayfield Ave  
Mountain View, CA 94043, USA

**EUT DESCRIPTION:** E-Band Automotive Radar Sensor

**MODEL:** R6E

**SERIAL NUMBER:** DV-0001691

**SAMPLE RECEIPT DATE:** 2021-06-01

**DATE TESTED:** 2021-09-09

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 1 SUBPART I & PART 2 SUBPART J	Complies

UL LLC. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC. will constitute fraud and shall nullify the document.

Approved & Released  
For UL LLC By:



Michael Heckrotte  
Principal Engineer  
Consumer Technology Division  
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Prepared By:



Mike Antola  
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## 2. TEST METHODOLOGY

All calculations were made in accordance with FCC Parts 1.1310, 2.1091, KDB 447498 D01 v06 and IEEE Std C95.3-2021.

## 3. REFERENCES

Output power and Antenna gain data is excerpted from UL Test report number R13824181-E1.

## 4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
<input type="checkbox"/>	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	703469
<input checked="" type="checkbox"/>	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

## 5. DECISION RULES AND MEASUREMENT UNCERTAINTY

### 5.1. METROLOGICAL TRACEABILITY

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

### 5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	$U_{Lab}$
Radiated RF power	2.89 dB

Uncertainty figures are valid to a confidence level of 95%.

## 6. MAXIMUM PERMISSIBLE EXPOSURE (LIMITS AND EQUATIONS)

### 6.1. FCC RULES

§95.3385 - Regardless of the power density levels permitted under this subpart, devices operating under the provisions of this subpart are subject to the radiofrequency radiation exposure requirements specified in §§1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

## 6.2. EQUATIONS

### POWER DENSITY

Power density is given by:

$$S = \text{EIRP} / (4 * \text{Pi} * \text{D}^2)$$

Where

S = Power density in mW/cm<sup>2</sup>

EIRP = Equivalent Isotropic Radiated Power in mW

D = Separation distance in cm

Power density in units of mW/cm<sup>2</sup> is converted to units of W/m<sup>2</sup> by multiplying by 10.

### DISTANCE

Distance is given by:

$$D = \text{SQRT} (\text{EIRP} / (4 * \text{Pi} * S))$$

Where

D = Separation distance in cm

EIRP = Equivalent Isotropic Radiated Power in mW

S = Power density in mW/cm<sup>2</sup>



## 7. RF EXPOSURE RESULTS

This report contains data provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

In the table(s) below, Power is entered in units of dBm and conversions to linear forms are used for the calculations.

From FCC §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm<sup>2</sup>

Average EIRP (dBm)	Average EIRP (W)	Separation Distance (cm)	Power Density (W/m <sup>2</sup> )	Power Density (mW/cm <sup>2</sup> )	FCC Limit (mW/cm <sup>2</sup> )
26.060	0.404	20	0.80	0.080	1

Reported fundamental EIRP is the highest average power from all four modes (LRES W6).

## END OF TEST REPORT