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Assessment report

396135-3TRFWL

Date of issue: June 21, 2021

Applicant:

Texas Instruments Incorporated

Product:

Intelligent mmWave sensor antenna-on-package (AoP) Evaluation

Model

IWR6843AOPEVM

FCC ID:

TBD

Type of assessment:

MPE Exemption Report

Specifications:

- FCC 47 CFR Part 1 Subpart I, §§1.1307, 1.1310
- FCC 47 CFR Part 2 Subpart J, §2.1091
- KDB 447498 D01 General RF Exposure Guidance v06

Lab and test locations

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Review date	June 21, 2021
Reviewer signature	

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko USA's ISO/IEC 17025 accreditation.
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Table of Contents

Section 1 Evaluation summary

1.1 MPE exemption for stand-alone transmission

1.1.1 References, definition, and limits

FCC §2.1091(c)

(1) Mobile devices that operate in the Commercial Mobile Radio Services pursuant to part 20 of this chapter; the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Services pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Upper Microwave Flexible Use Service pursuant to part 30 of this chapter; the Maritime Services (ship earth station devices only) pursuant to part 80 of this chapter; the Specialized Mobile Radio Service, and the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter; the 76-81 GHz Band Radar Service pursuant to part 95 of this chapter; and the Citizens Broadband Radio Service pursuant to part 96 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if:

(i) They operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or

(ii) They operate at frequencies above 1.5 GHz and their ERP is 3 watts or more.

(2) Unlicensed personal communications service devices, unlicensed millimeter-wave devices, and unlicensed NII devices authorized under §§15.255(f), 15.257(g), 15.319(i), and 15.407(f) of this chapter are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their ERP is 3 watts or more or if they meet the definition of a portable device as specified in §2.1093(b) requiring evaluation under the provisions of that section.

(3) All other mobile and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in §§1.1307(c) and 1.1307(d) of this chapter.

1.1.2 EUT technical information

Operational frequency	61257.8500 MHz - 300 MHz bandwidth 60921.24310 MHz – 1300 MHz bandwidth 62837.3485 MHz – 4000 MHz bandwidth
Antenna type	Embedded antenna
Antenna gain	5.0 dBi
Number of antennas	1
Maximum transmitter conducted power	14.861 dBm (30.627 mW) – 300 MHz bandwidth -23.870 dBm (0.00410 mW) – 1300 MHz bandwidth -23.403 dBm (0.00456 mW) – 4000 MHz bandwidth
Maximum EIRP	19.861 dBm (96.85 mW) – 300 MHz bandwidth -18.870 dBm (0.012 mW) – 1300 MHz bandwidth -18.403 dBm (0.014 mW) – 4000 MHz bandwidth

1.1.3 MPE exemption calculations

300 MHz bandwidth

Fundamental transmit (prediction) frequency:	61257.85	MHz
Maximum measured conducted peak output power:	14.861	dBm
Cable and/or jumper loss:	0	dB
Maximum peak power at antenna input terminal:	14.861	dBm
Tx On time:	1.000	ms
Tx period time:	1.000	ms
Average factor:	100	%
num calculated average power at antenna input terminal:	30.627	mW
Single Antenna gain (typical):	5	dBi
Number of antennae:	1	
Total system gain:	5.00	dBi
MPE exemption limit:	**3.0**	**W**
Average EIRP at prediction frequency:	**96.850**	**mW**
	0.097	W
Margin of Compliance:	**14.91**	**dB**

1300 MHz bandwidth

Fundamental transmit (prediction) frequency:	60921.243	MHz
Maximum measured conducted peak output power:	-23.87	dBm
Cable and/or jumper loss:	0	dB
Maximum peak power at antenna input terminal:	-23.87	dBm
Tx On time:	1.000	ms
Tx period time:	1.000	ms
Average factor:	100	%
num calculated average power at antenna input terminal:	0.004	mW
Single Antenna gain (typical):	5	dBi
Number of antennae:	1	
Total system gain:	5.00	dBi
MPE exemption limit:	**3.0**	**W**
Average EIRP at prediction frequency:	**0.013**	**mW**
	0.000	W
Margin of Compliance:	**53.64**	**dB**

4000 MHz bandwidth

Fundamental transmit (prediction) frequency:	62837.349	MHz
Maximum measured conducted peak output power:	-23.403	dBm
Cable and/or jumper loss:	0	dB
Maximum peak power at antenna input terminal:	-23.403	dBm
Tx On time:	1.000	ms
Tx period time:	1.000	ms
Average factor:	100	%
num calculated average power at antenna input terminal:	0.005	mW
Single Antenna gain (typical):	5	dBi
Number of antennae:	1	
Total system gain:	5.00	dBi
MPE exemption limit:	**3.0**	**W**
Average EIRP at prediction frequency:	**0.014**	**mW**
	0.000	W
Margin of Compliance:	**53.17**	**dB**

1.1.4 Verdict

The calculation of EIRP is below the exemption limit; therefore, the product is compliant with the RF exposure exemption requirements.

End of test report