



Vehicle Millimeter-wave Radar Sensor

Date:
01//2026

Revision:
01

The Radar Sensor operate from 60GHz-64GHz. The device will be used, inter alia, to reduce the risk of pediatric vehicular heatstroke, protect vehicle occupants from injury through more advanced airbag deployment and seatbelt reminders, and enhance theft prevention systems.

High Level Features:

- Operating Voltage Range: 9VDC to 18VDC
- Detection distance: Up to 2 meters outside of vehicle
- 3 TX and 4 RX radio Antennas

The radar sensor shall utilize FMCW modulation transceiver, which shall allow compliance of the assembly with the FCC and European Union standards

The wireless functions of the passive entry system shall allow operation in the following frequency ranges:

FREQUENCY RANGE	FUNCTION
60-64GHz	FMCW modulated radar signal

The antennas are to be located more than 20cm from a vehicle occupant.

Radar sensor contain chip meet below spec:

Chip Grade	AEC-Q100 automotive
Device DC voltage	16VDC
Frequency (MHz)	60000-64000
Max output power (dBm)	14dBm EIRP
Channel number	1
Channel bandwidth (MHz)	4000

The sensor will be factory install only without access to end user.

FCC and ISSED Certification

Component	Manufacturer	Model	Operating Frequency (MHz)	FCC ID	IC ID
Lighthouse Top Module	Tesla	2007839	2400-2483.5, 6000-8500	2AEIM-2007839	20098-2007839

Lighthouse	Tesla	2087405	--	XMR2024AG555QGL XMR202401AF68E	10224A-024AG555QGL 10224A- 202401AF68E
Lighthouse ICR Module	Tesla	ICRLH	60000-640000	2AEIM-ICRLH	20098-ICRLH

* The in-cabin radar is restricted to factory installation.

The devices listed above comply with Part 15 of the FCC rules and Industry Canada's license-exempt RSS Standard(s) and EU Directive 2014/53/EU.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference; and
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Tesla could void your authority to operate the equipment.

Radio Frequency Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician to help.



CAUTION: This equipment and its antennas must not be co-located or operated with another antenna or transmitter.

Radiation Exposure Statement

The products comply with the FCC/ISED RF Exposure for Low Power Consumer Wireless Power Transfer. RF exposure limits are set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The farthest RF exposure demonstrated by compliance was at 20cm and farther from the user's body; set the device to low output power if such function is available.

TCU device has been tested and meets applicable limits for Radio Frequency(RF) exposure. TCU can be installed and is able to operate with a minimum distance of 1 inch (25mm) between the radiator and human body.

This device is not to be operated on aircraft except for the conditions listed on FCC CFR §15.255 (b).

IMPORTANT NOTE:

This module is intended for OEM integrator. This module is only FCC authorized for the specific rule parts listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

Additional testing and certification may be necessary when multiple modules are used.

OEM integrators that they must use the equivalent antennas or C2PC will be required.

The host manufacturer should reference KDB Publication 996369 D04 Module Integration Guide.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following "Contains TX FCC ID: 2AEIM-ICRLH".

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canada

CANICES-003 (B)/NMB-003(B)

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radioexempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé.

Déclaration d'exposition aux radiations

Le produit est conforme à l'exposition RF ISED pour le transfert de puissance sans fil de consommateurs de faible puissance. La limite d'exposition RF fixée pour un environnement non contrôlé est sans danger pour le fonctionnement prévu tel que décrit dans ce manuel. L'exposition RF supplémentaire que la conformité a été démontrée à 20cm et plus de séparation du corps de l'utilisateur ou de mettre l'appareil à la puissance de sortie inférieure si une telle fonction est disponible.

This device is not to be operated on aircraft except for the conditions listed on ISED RSS-210 Annex J.1.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.

Additional testing and certification may be necessary when multiple modules are used.

OEM integrators that they must use the equivalent antennas or C2PC will be required.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep greater than 20 cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. Operation is subject to the following two conditions: (1) this device may not cause harmful interference (2) this device must accept any interference received, including interference that may cause undesired operation.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following "Contains IC: 20098-ICRLH".

The Host Model Number (HMN) must be indicated at any location on the exterior of the end product or product packaging or product literature which shall be available with the end product or online.