Regulatory Notices

Telematic Control Unit,
used in automotive industry

Model: TCAM2

Brand: VOLVO

Version: 1.1 – English
Date: 2023-04-13

RED (Europe):

Declaration of Conformity (DoC) to RED regulation 2014/53/EU

Hereby, Harman Becker Automotive Systems GmbH declares that the radio equipment type TCAM2 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity will be available on the Harman official Address: http://www.harman.com/compliance

CE

Frequency band(s) in which the radio equipment operates:

RF Interface	Transmission Frequency Bands (MHz)	Reception Frequency Bands (MHz)
GSM900	880-915	925-960
GSM1800	1710-1785	1805-1880
WCDMA band I	1920-1980	2110-2170
WCDMA band III	1710-1785	1805-1880
WCDMA band VIII	880-915	925-960
LTE FDD band 1	1920-1980	2110-2170
LTE FDD band 3	1710-1785	1805-1880
LTE FDD band 7	2500-2570	2620-2690
LTE FDD band 8	880-915	925-960
LTE FDD band 20	832-862	791-821
LTE FDD band 28	703-748	758-803
LTE FDD band 32 (Rx)	-	1452-1496
LTE TDD band 34	2010-2025	2010-2025
LTE TDD band 38	2570-2620	2570-2620
LTE TDD band 40	2300-2400	2300-2400
LTE TDD band 42	3400-3600	3400-3600
5G NR n1	1920-1980	2110-2170
5G NR n3	1710-1785	1805-1880
5G NR n7	2500-2570	2620-2690
5G NR n8	880-915	925-960
5G NR n20	832-862	791-821
5G NR n28	703-748	758-803
5G NR n38	2570-2620	2570-2620
5G NR n41	2496-2690 (restricted to 2570-2620 MHz)	2496-2690 (restricted to 2570-2620 MHz)
5G NR n77	3300-4200 (restricted to 3400-3800MHz)	3300-4200 (restricted to 3400-3800MHz)
5G NR n78	3300-3800 (restricted to 3400-3800MHz)	3300-3800 (restricted to 3400-3800MHz)
Blueteooth LE	2400-2483.5	2400-2483.5
GNSS (Rx)	-	1559-1610
ISM (Rx)	-	433.05 -434.79

Maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates.

Bluetooth LE RF Transmitter Output Power : <5dBm

NAD Module RF Transmitter Output Power:

GSM:
Class 4 (+33 dBm± 2 dB) for EGSM 900
Class 1 (+30 dBm± 2 dB) for GSM 1800
Class E2 (+27 dBm± 3 dB) for GSM 900 8-PSK
Class E2 (+26 dBm + 3/– 4 dB) for GSM 1800 8-PSK

UMTS: Class 3 (+24 dBm + 1/– 3 dB)
LTE: Class 3 (+23 dBm± 2 dB)
5G: Class 3 (+23 dBm+2/-3 dB)*

* For most bands. Some exceptions exist, per 3GPP standard

Manufacturer

Harman Becker Automotive Systems GmbH
Becker-Goering-Strasse 16
76307 Karlsbad,
Germany

FCC/ISED statements (North America and Canada)

FCC ID: T8GTCAM2

Contains FCC ID: T8GSAN9200

IC: 6434A-TCAM2

Contains IC: 6434A-SAN9200

License-exempted frequency bands:

This device complies with part 15 of the FCC Rules.

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.

L'équipement est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence.
L'exploitation est autorisée aux deux conditions suivantes:

1. *L'appareil ne doit pas produire de brouillage;*
2. *L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement*

Modification statement:
The party responsible for the compliance has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

Le responsable de l'homologation de ce produit n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.

Wireless notice:

This device complies with FCC/ISED radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the ISED radio frequency (RF) Exposure rules. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The closer distance between the Cellular internal antennas and the head of the closest passenger will be 86.5 mm and the minimum distance between the BTLE internal antenna and the head of the closest passenger will be 118.0 mm.

The device has been tested placed at the centre of the flat phantom with its back side facing the flat phantom surface simulating the normal use conditions at a conservative testing distance of 40 mm according to manufacturer request.

Le présent appareil est conforme à l'exposition aux radiations FCC / ISED définies pour un environnement non contrôlé et répond aux directives d'exposition de la fréquence de la FCC radiofréquence (RF) et RSS -

102 de la fréquence radio (RF) ISED règles d'exposition. L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.

La distance la plus courte entre les antennes internes cellulaires et la tête du passager le plus proche sera de 86,5 mm et la distance minimale entre l'antenne interne BTLE et la tête du passager le plus proche sera de 118,0 mm.

Le dispositif a été testé au centre du fantôme plat, sa face arrière faisant face à la surface du fantôme plat, simulant les conditions d'utilisation normales à une distance d'essai prudente de 40 mm, conformément à la demande du fabricant.

Compliance of host devices based on modular approval

The module has been evaluated in mobile stand-alone conditions: "The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

Since the module is intended for use in a portable device () and co-located with other transmitter (Bluetooth), additional testing is performed to satisfy the SAR requirements of FCC Part 2.1093 (RF Co-location and SAR).

Le module a été évalué dans des conditions d'autonomie mobile : "L'antenne utilisée pour cet émetteur doit être installée de manière à assurer une distance de séparation d'au moins 20 cm de toutes les personnes et ne doit pas être installée ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.

Étant donné que le module est destiné à être utilisé dans un appareil portable () et qu'il est situé au même endroit qu'un autre émetteur (Bluetooth), des tests supplémentaires sont effectués pour satisfaire aux exigences SAR de la partie 2.1093 de la FCC (Co-localisation RF et SAR).

CAN ICES-3 (B) / NMB-3 (B)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe B est conforme à la norme canadienne ICES-003.

FCC Class B digital device notice

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 for help.