

# Technical description HERMES 3.0 LFT2

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## 1. Introduction HERMES 3.0 LFT2

### 1.1 Intended usage

The Hermes 3.0 system is a Telematic Unit(TCU) for remote-, mobility- and emergency services. This unit is designed for automotive usage and contains the features: GSM, UMTS, LTE, WLAN, GNSS.

It provides different telematic services and is the interface between different types of Daimler car headunits and the public network. Therefore the car headunit generates a wireless connection with the Hermes box and over GSM/UMTS/LTE it provides access to public network.

Note: The Hermes 3.0 TCU can not be connected with customer devices, only the car headunit is able to connect with the Hermes 3.0 box.

### 1.2 System Description

The different calls can either be triggered via Airbag interface, buttons or Headunit.

E-Call:

- Emergency Call to a eCall center
- Before the call 2 SMS including the MSD are sent to backend. If fails, the backend does pull the MSD via inband
- An automatic eCall is triggered if the car stops by its own if driver does not react anymore

R-Call:

- Roadside/Workshop call to a Call center
- As soon the call is connected, the backend does pull the MSD via inband

I-Call:

- Information call to a Call center
- As soon call is connected, basic data is sent to backend via DTMF

Internal Communication to Headunit (in car communication):

The Hermes 3.0 acts as a modem for the headunit. It provides internal access and is routing data from external network to the headunit.

### 1.3 Technical Description

The NAD module of the Hermes 3.0 support for NAFTA market the following frequency bands:

GSM: B2, B5

UMTS: B2, B4, B5

LTE-FDD: B2, B4, B5, B7, B12, B13

The WLAN module of the Hermes 3.0 support for NAFTA market the following frequency bands:

2.4GHz Band: Channel 1-11

5GHz Band: Channel 36-48, 149-165

Channel list 802.11 2.4 GHz band with 20MHz bandwidth		
Channel number	Frequency	RF output power
1	2412 MHz	13.2 dBm
6	2437 MHz	13.1 dBm
11	2462 MHz	12.95 dBm

Channel list 802.11 5GHz band with 20 MHz bandwidth			
UNII Band	Channel number	Frequency	RF output power
I	36	5180 MHz	9.06 dBm
	40	5200 MHz	8.98 dBm
	44	5220 MHz	<9 dBm
	48	5240 MHz	8.86 dBm
III	149	5745 MHz	10.52 dBm
	153	5765 MHz	<10.6 dBm
	157	5785 MHz	10.55 dBm
	161	5805 MHz	<10.6 dBm
	165	5825 MHz	10.47 dBm
Channel list 802.11 5GHz band with 40 MHz bandwidth			
UNII Band	Channel number	Frequency	RF output power
I	38	5190 MHz	8.33 dBm
	46	5230 MHz	8.26 dBm
III	151	5755 MHz	10.03 dBm
	159	5795 MHz	10.05 dBm

## 1.4 Hermes 3.0 LFT2 product label

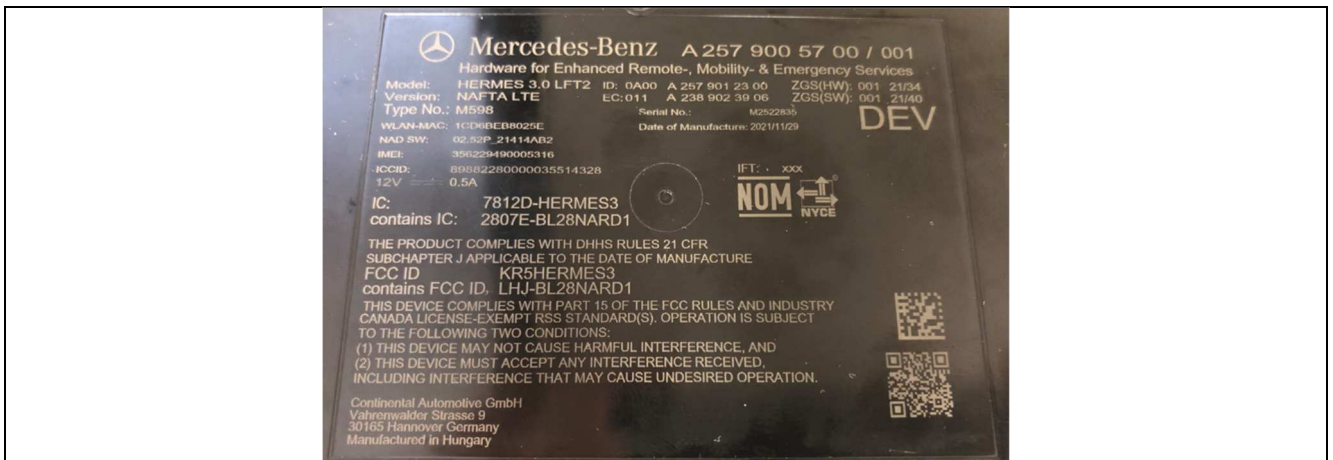
The Hermes 3.0 label is printed with the details for FCC and Canada:

FCC ID: KR5HERMES3

Contains FCC ID: LHJ-BL28NARD1

IC: 7812D-HERMES3

Contains IC: 2807E-BL28NARD1



## 1.5 Compliance information USA

The user manual or instruction manual for an intentional radiator shall caution the user that changes, or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

*Sample of this statement:*

### **Federal Communications Commission (FCC) Compliance Statement – United States**

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, and (2) the device must accept any interference received, including interference that may cause undesired operation.

### **Caution – FCC Warning:**

Changes or modifications not expressly approved by the party, responsible for compliance, could void the user's authority to operate the equipment.

### **RF Exposure Requirements**

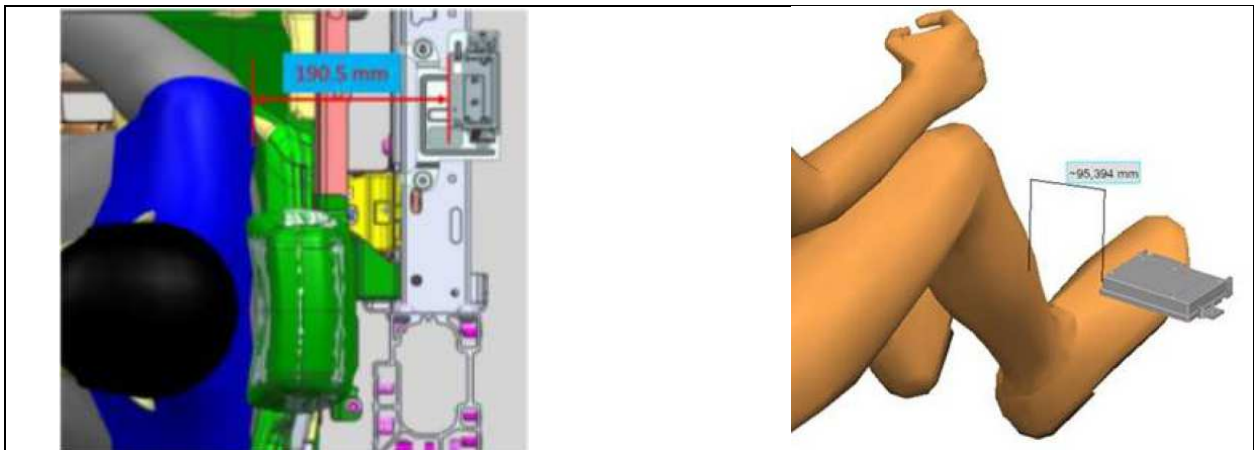
The maximum reported\* SAR values for Body-worn configuration for transmitting systems are shown in a table below. The device conforms to the requirements of the standards when the maximum reported SAR value is less than or equal to the limit. The SAR limit specified in FCC 47 CFR part 2 (2.1093) for Body-worn SAR<sub>1g</sub> is 1.6 W/kg.

The minimum antenna distance is for WLAN 90mm and for GSM / UMTS / LTE 190mm.

System	Highest Reported* SAR <sub>1g</sub> (W/kg) in Body-Worn Condition, 0mm	Result
GPRS 850	0.083	PASS
GPRS 1900	0.054	PASS
WCDMA 2	0.086	PASS
WCDMA 4	0.133	PASS
WCDMA 5	0.072	PASS
LTE 2	0.058	PASS
LTE 4	0.110	PASS
LTE 5	0.064	PASS
LTE 12	0.161	PASS
LTE 13	0.073	PASS

\* Reported SAR Values are scaled to upper limit of power tuning tolerance.

Following picture left show the minimum distance of 190mm between car-antenna and passenger, the right picture shows the minimum distance of 95mm between Hermes 3.0 WLAN antenna and passenger.



## 1.6 Compliance information Canada

The user manual or instruction manual shall contain the following or equivalent statements in a conspicuous position:

This digital apparatus complies with DHHS rules 21 CFR. Subchapter J applicable of the date of manufacture. This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s).

Operation is subject to the following two conditions:

- (1) This device may not cause interference
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS(s) d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes:

- (1) Cet appareil ne doit pas causer d'interférences
- (2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil.

For information only and not to be included in the operating instructions:

Since there are some countries that are based on the approval requirements of the USA / Canada, the general inclusion of the conformity information from above makes sense. The devices have the following approval IDs in the USA / Canada:

FCC ID: KR5HERMES3

Contains FCC ID: LHJ-BL28NARD1

IC: 7812D-HERMES3

Contains IC: 2807E-BL28NARD1

These approval IDs can be found on the device label.

The compliance information for FCC and Canada are printed inside the owner manual and could be download at following webpage:

<https://www.mbusa.com/en/owners/manuals>