

**Car roof top Antenna with integrated
Bluetooth transceiver
DDA02 / DDAECE02**



AUDI Part Numbers:

4N0 035 503 AP, 4N0 035 503 AR,

4N0 035 503 AQ, 4N0 035 503 AS

(With different color codes for each number.)

Continental Part Numbers:

**52512490, 52520087, 52512808, 52520088,
52520089, 52520090, 52520091, 52520092,
52520093, 52520094, 52520095, 52520096
52520097, 52520098, 52520100, 52520101,
52520102, 52520103, 52520104, 52520105,
52520107, 52520108, 52520109, 52520110,
52520111, 52520150, 52520151, 52520152,
52520159, 52520219, 52520220, 52520221,
52520222, 52520223, 52520224, 52520225,
52520283, 52520284, 52520285, 52520286,
52520287, 52520288, 52520304, 52520305,
52512495, 52512491, 52520112, 52520113,
52520114, 52520115, 52520116, 52520117,
52520118, 52520119, 52520120, 52520121,
52520122, 52520123, 52520124, 52520126,
52520127, 52520128, 52520129, 52520130,
52520131, 52520133, 52520134, 52520135,
52520136, 52520137, 52520153, 52520154,**

**52520155, 52520160, 52520226, 52520227,
52520228, 52520229, 52520230, 52520231,
52520232, 52520289, 52520290, 52520291,
52520292, 52520293, 52520294, 52520306,
52520307, 52512496**

(list may be enlarged depending on color code)

Contents

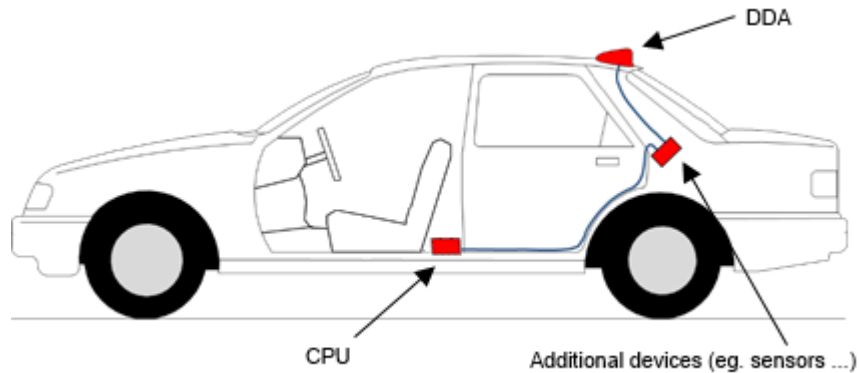
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1. Introduction

The DDA is an automotive roof top antenna module with integrated Bluetooth transceiver for special usage. The Bluetooth circuit and electronics is designed to tunnel a not public described data stream via Bluetooth generic protocol. The device rejects any communication requests from Bluetooth devices not supporting the nonpublic payload format. The device is fully integrated to the electronics of the car. The device will be integrated in the car only by the car-manufacturer or in case of replacement by a professional garage. The end-user does not have to do any installations or adjustments. There will be no aftermarket modules available since the device needs to have a full range of ECUs available to communicate with.

The DDA is connected with the CAN-Bus of the car to communicate with the rest of the ECUs. Additionally it has an antenna with integrated LNA circuits for reception of GNSS (GPS, GALILEO, GLONASS, BEIDOU) and SDARS as well as an antenna for cell phone communication (2G, 3G and 4G) with frequency diplexer for 868 MHz ISM-Band. The availability of the separate ISM path is given for versions without SDARS only. The Bluetooth transmitter is the only system with digital IO. The other functions are analog circuits like in well known roof top car antennas.

2. Installation Options



Example for a principle setup in a car.

The DDA is designed for in-car use only. It is designed according the detailed specification of the OEM (car-manufacturer). It **MUST** be well integrated into the automotive environment (T_{ambient} max. 95 °C) and needs to be installed by the OEM or in case of replacement by a professional garage.

3. Specification

3.1. General Specification

Model Number	DDA02 / DDAECE02
Antenna/Cradle Connectors	FAKRA (male) DIN 72594-1/ISO 20860-1
DC Connector	MQS-Type
Impedance	50 Ohm
Power Requirements	Digital part :DC 6 V - 17 V; 100 mA SDARS: 5V ±10 %; 150 mA phantom feed GNSS: 5V ±10 %; 30 mA phantom feed Phone/ISM: no DC feed

3.2. Cell phone

Radiator terrestrial omnidirectional

Band	Frequency	Service Supported
	[MHz]	
Band 5, 8, 12, 13, 14, 17, 19, 20,	698 – 960	GSM/WCDMA/LTE
Band 1, 2, 3, 4, 10,33, 34, 35, 36, 37, 39	1710 – 2170	GSM/WCDMA/LTE
Band 7, 38, 40	2496 – 2690	GSM/WCDMA/LTE

Supported Bands

Max Peak Gain 6 dBi

3.3. Remote heating

Radiator terrestrial omnidirectional

Band	Frequency	Service Supported
	[MHz]	
ISM Band	867.5 – 869,5	Remote Heating

Supported Bands

Max Peak Gain -6 dBi

3.4. Navigation

Radiator satellite pointing omnidirectional

Band	Frequency	Service Supported
	[MHz]	
L1	1559,052 – 1605,375	GNSS

Supported Bands

Max Gain of LNA 33 dB

3.5. Satellite Radio

Radiator satellite pointing omnidirectional

Band	Frequency	Service Supported
	[MHz]	
S band	2320 – 2345	SDARS

Supported Bands

Max Gain of LNA 31 dB

3.6. Bluetooth LE

4. Radiator terrestrial omnidirectional

Band	Frequency	Service Supported
	[MHz]	
ISM-Band	2402 – 2480	BTLE

Supported Bands

Max Gain of antenna = 6 dBi

Max conducted power= 1dBm

Max radiated power = 7dBm

Each DDA is individually tested and factory set to ensure FCC compliance and cannot be adjusted without factory reprogramming or disabling the hardware.

5. Safety and Recommendations



WARNING: The DDA unit is designed for in-car use only. It **MUST** be well integrated into the automotive environment (T_{ambient} max. 95 °C) and needs to be installed by the OEM (car-manufacturer) or in case of replacement by a professional garage.

AVERTISSEMENT: L'unité DDA est conçue pour une utilisation dans une voiture uniquement. Il **DOIT** être bien intégré dans l'environnement automobile (T_{ambient} max. 95 °C) et doit être installé par le constructeur (constructeur) ou en cas de remplacement par un garage professionnel.



WARNING: The fuse used in the vehicle for electrical protection of the control unit must comply with MBN 8820-3 (2013-05) and an amperage of 5 amperes!

AVERTISSEMENT: le fusible utilisé dans le véhicule pour la protection électrique de l'unité de commande doit être conforme à la norme MBN 8820-3 (2013-05) et à une ampérage de 5 ampères!



RF SAFETY WARNING: Any antenna used with this device must be located at least 8 inches (20,3 cm) from all persons. The FCC requires that a cell phone with cradle attached may only be used with the in-car mounted cradle. It is not allowed to use a cell phone with an attached cradle near to the ear.

AVERTISSEMENT DE SÉCURITÉ RF: Toute antenne utilisée avec cet appareil doit être située au moins 8 pouces (20,3 cm) de toutes les personnes. La FCC exige qu'un téléphone portable avec un socle fixé ne puisse être utilisé qu'avec le socle monté dans la voiture. Il n'est pas autorisé d'utiliser un téléphone portable doté d'un berceau près de l'oreille.



WARNING: The Device must be installed no higher than 10 meters above ground.
L'appareil ne doit pas être installé à plus de 10 mètres du sol.

AVERTISSEMENT: Changes or modifications not expressly approved by Continental Advanced Antenna GmbH could void the authority to operate this equipment.

6. Legal

Radiofrequency radiation exposure Information:

This equipment complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment.

NOTICE:

This device complies with Part 15 of the FCC Rules and contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS standard(s).

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.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

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

NOTICE:

Changes or modifications made to this equipment not expressly approved by (manufacturer name) may void the FCC authorization to operate this equipment.

This device is granted pursuant to the Japanese Radio Law. This device should not be modified (otherwise the granted designation number will become invalid)