

Supplementary instructions

Regulations for radar level measuring instruments with radio approvals

VEGAPULS Air 23, 41, 42



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Contents

1	About this document	3
1.1	Function	3
2	Certificates and approvals	4
2.1	Europe	4
2.2	USA	5
2.3	Canada	6
2.4	Brazil	8
2.5	Australia	8
2.6	New Zealand	8

1 About this document

1.1 Function

This manual is an additional document to the respective operating instructions manual of VEGAPULS Air 23, 41, 42 radar level measuring instruments.

It contains regulations for the use of the instruments according to the radio approvals.

Therefore, read them before setup and keep them as a product component in the immediate vicinity of the instrument and accessible at all times.

2 Certificates and approvals

2.1 Europe

Standards fulfilled

The instrument was tested according to the latest issue of the following harmonized standards:

- EN 302372 - Tank Level Probing Radar
- EN 302729 - Level Probing Radar

Scope

In the countries of the EU, the use inside and outside closed vessels is therefore permitted.

In the countries of the CEPT the use is permitted, provided that the corresponding rules of the radio regulation ECC Recommendation 70-03 have been implemented.

Receiver test

For the receiver test, which covers the influence of an interfering signal on the device, the performance criterion has at least the following performance level according to ETSI TS 103 361 [6]:

- Performance criterion: Variation of the measured value during distance measurement under interference conditions
- Performance level: $\Delta d \leq \pm 50$ mm

Operating conditions

For operation inside of closed vessels, points a to f in annex E of EN 302372 must be fulfilled.

For operation outside of closed vessels, the following conditions must be fulfilled:

- The instrument must be stationary mounted and the antenna directed vertically downward
- The mounting location must be at least 4 km away from radio astronomy stations, unless special permission was granted by the responsible national approval authority
- When installed within 4 to 40 km of a radio astronomy station, the instrument must not be mounted higher than 15 m above the ground

Radio astronomy stations

The following table shows the geographic position of the radio astronomy stations in Europe:

Country	Name of the Station	Geographic	
		Latitude	Longitude
Finland	Metsähovi	60°13'04" N	24°23'37" E
France	Plateau de Bure	44°38'01" N	05°54'26" E
Germany	Effelsberg	50°31'32" N	06°53'00" E
Italy	Sardinia	39°29'50" N	09°14'40" E
Spain	Yebes	40°31'27" N	03°05'22" W
	Pico Veleta	37°03'58" N	03°23'34" W
Sweden	Onsala	57°23'45" N	11°55'35" E

2.2 USA

Fulfilled standards

FCC § 15.19 Labelling requirements

This device complies with part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

FCC § 15.21 Information to user

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

FCC § 15.105 statement

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

FCC § 15.256 statement

This device is approved for unrestricted use only inside closed, stationary vessels made of metal, reinforced fiberglass or concrete.

For operation outside of closed vessels, the following conditions must be fulfilled:

- This device shall be installed and maintained to ensure a vertically downward orientation of the transmit antenna's main beam. Furthermore, the use of any mechanism that does not allow the main beam of the transmitter to be mounted vertically downward is prohibited
- This device shall be installed only at fixed locations. The LPR device shall not operate while being moved or while inside a moving container
- Hand-held applications are prohibited
- Marketing to residential consumers is prohibited

RF Exposure Requirements

To comply with FCC RF exposure compliance requirements, the device must be installed to provide a separation distance of at least 20 cm from all persons.

2.3 Canada**Fulfilled standards/Normes respectées**

This device complies with part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

Le présent appareil est conforme aux CNR d'Industrie 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'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Canada Class B statement

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

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

RF Exposure Requirements

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Déclaration d'exposition aux radiations

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Operating conditions/Conditions d'exploitation

This device has been approved for both closed containers and open environments with the following limitations:

- Closed Containers: For installations utilizing a tilt during installation: This device is limited to installation in a completely enclosed container made of metal, reinforced fiberglass or concrete to prevent RF emissions, which can otherwise interfere with aeronautical navigation
- Open Air Environment: For operation outside of closed vessels, the following condition must be fulfilled: This device shall be installed and maintained to ensure a vertically downward orientation of the transmit antenna's main beam. Furthermore, the use of any mechanism that does not allow the main beam of the transmitter to be mounted vertically downward is prohibited
- The installation of the LPR/TLPR device shall be done by trained installers, in strict compliance with the manufacturer's instructions.

- This device shall be installed only at fixed locations. The LPR device shall not operate while being moved or while inside a moving container
- Hand-held applications are prohibited.
- Marketing to residential consumers is prohibited.
- The use of this device is on a "no-interference, no-protection" basis. That is, the user shall accept operations of high-powered radar in the same frequency band which may interfere with or damage this device
- However, devices found to interfere with primary licensing operations will be required to be removed at the user's expense
- The installer/user of this device shall ensure that it is at least 10 km from the Dominion Astrophysical Radio Observatory (DRAO) near Penticton, British Columbia. The coordinates of the DRAO are latitude 49°19'15" N and longitude 119°37'12" W. For devices not meeting this 10 km separation (e.g., those in the Okanagan Valley, British Columbia,) the installer/user must coordinate with, and obtain the written concurrence of, the Director of the DRAO before the equipment can be installed or operated. The Director of the DRAO may be contacted at 250-497-2300 (tel.) or 250-497-2355 (fax). (Alternatively, the Manager, Regulatory Standards, Industry Canada, may be contacted.)

Cet appareil est homologué pour une utilisation dans les cuves fermées et les environnements ouverts avec les restrictions suivantes:

- Cuves fermées : Pour les installations impliquant une inclinaison lors de l'installation : cet appareil ne doit être installé que dans une cuve totalement fermée en métal ou en béton, pour empêcher les émissions RF susceptibles d'interférer avec la navigation aéronautique
- Environnement ouvert : Pour l'utilisation hors des cuves fermées, la condition suivante doit être remplie : L'appareil doit être installé et entretenu de manière à garantir une orientation verticale vers le bas du faisceau principal de l'antenne émettrice. De plus, l'utilisation de tout mécanisme ne permettant pas l'orientation verticale vers le bas du faisceau principal de l'émetteur est interdite
- L'installation d'un dispositif LPR ou TLPR doit être effectuée par des installateurs qualifiés, en pleine conformité avec les instructions du fabricant
- Cet appareil ne doit être installé qu'à des emplacements fixes. L'appareil LPR ne doit pas être utilisé pendant qu'il est en train d'être déplacé ou se trouve dans un conteneur en mouvement
- Les applications portables sont interdites
- La vente à des particuliers est interdite
- Ce dispositif ne peut être exploité qu'en régime de non-brouillage et de non-protection, c'est-à-dire que l'utilisateur doit accepter que des radars de haute puissance de la même bande de fréquences puissent brouiller ce dispositif ou même l'endommager
- D'autre part, les capteurs de niveau qui perturbent une exploitation autorisée par licence de fonctionnement principal doivent être enlevés aux frais de leur utilisateur
- La personne qui installe/utilise ce capteur de niveau doit s'assurer qu'il se trouve à au moins 10 km de l'Observatoire fédéral de

radioastrophysique (OFR) de Penticton en Colombie-Britannique. Les coordonnées de l'OFR sont : latitude N 49° 19' 15", longitude O 119° 37' 12". La personne qui installe/utilise un dispositif ne pouvant respecter cette distance de 10 km (p. ex. dans la vallée de l'Okanagan [Colombie-Britannique]) doit se concerter avec le directeur de l'OFR afin d'obtenir de sa part une autorisation écrite avant que l'équipement ne puisse être installé ou mis en marche. Le directeur de l'OFR peut être contacté au 250-497-2300 (tél.) ou au 250-497-2355 (fax). (Le Directeur des Normes réglementaires d'Industrie Canada peut également être contacté).

2.4 Brazil

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para maiores informações, consulte o site da ANATEL - www.anatel.gov.br.

2.5 Australia

Operating conditions

The transmitter must be operated in a position such that emissions are directed towards:

- (i) the ground; or
- (ii) the floor or a wall of a building or similar structure.

The transmitter must not be operated within a nominated distance of a specified Australian radio-astronomy site. Nominated distance of a specified Australian radio-astronomy site means the following:

- (a) in relation to the Parkes Observatory located at latitude 32° 59' 54.25" south, longitude 148° 15' 48.65" east – 10 kilometres of the Parkes Observatory;
- (b) in relation to the Paul Wild Observatory located at latitude 30° 18' 46.40" south, longitude 149° 33' 0.44" east – 10 kilometres of the Paul Wild Observatory;
- (c) in relation to the Canberra Deep Space Communications Complex located at latitude 35° 23' 48.39" south, longitude 148° 58' 44.35" east – 3 kilometres of the Canberra Deep Space Communications Complex.

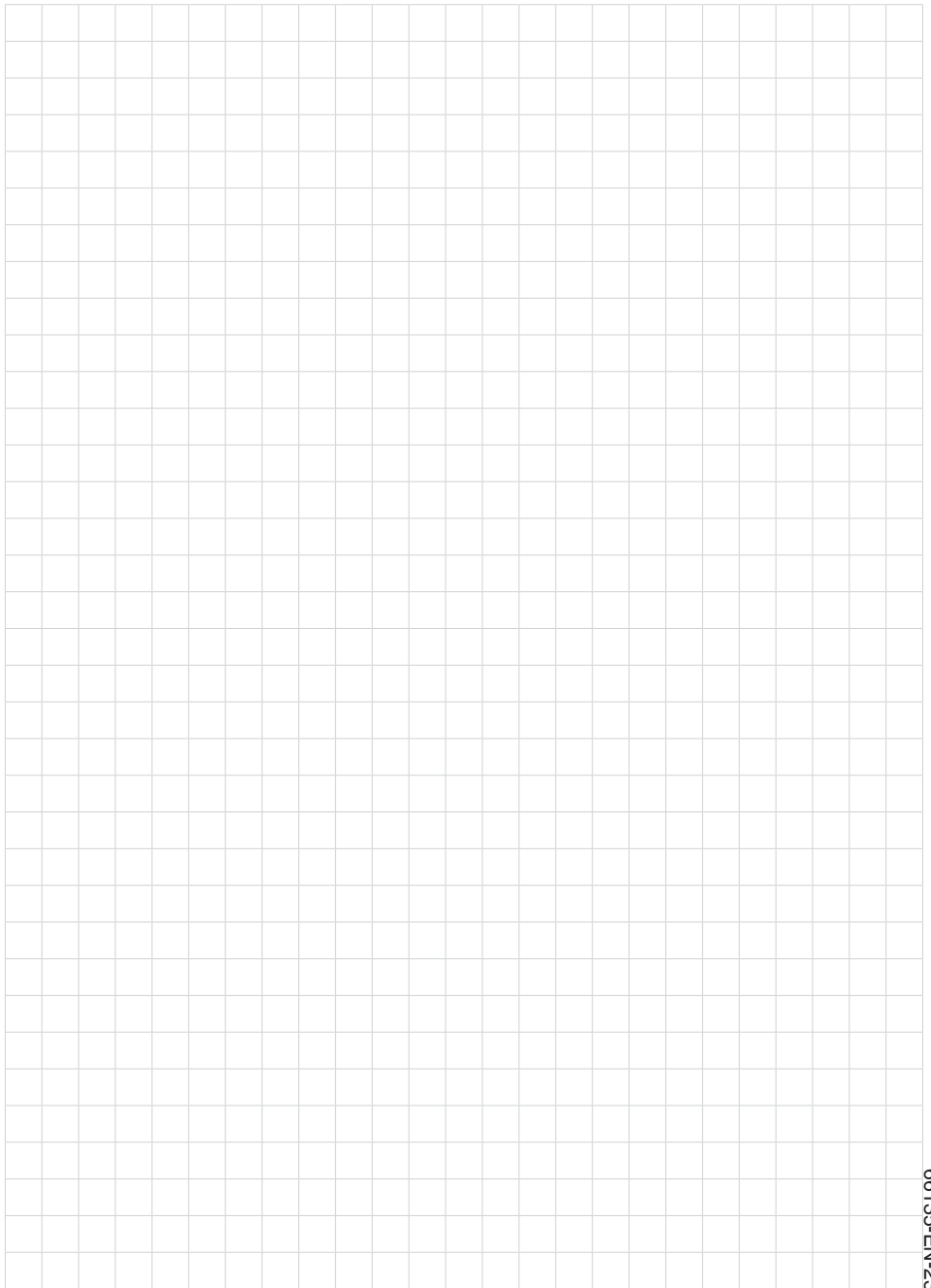
2.6 New Zealand

Operating conditions

The points a to f in annex E of EN 302372 must be fulfilled.

- a) TLPR are required to be installed at a permanent fixed position at a closed (not open) metallic tank or reinforced concrete tank, or similar enclosure structure made of comparable attenuating material;
- b) flanges and attachments of the TLPR equipment shall provide the necessary microwave sealing by design;
- c) sight glasses shall be coated with a microwave proof coating when necessary (i.e. electrically conductive coating);

- d) manholes or connection flanges at the tank shall be closed to ensure a low-level leakage of the signal into the air outside the tank;
- e) whenever possible, mounting of the TLPR equipment shall be on top of the tank structure with the orientation of the antenna to point in a downward direction;
- f) installation and maintenance of the TLPR equipment shall be performed by professionally trained individuals only.





Printing date:

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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

Subject to change without prior notice

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