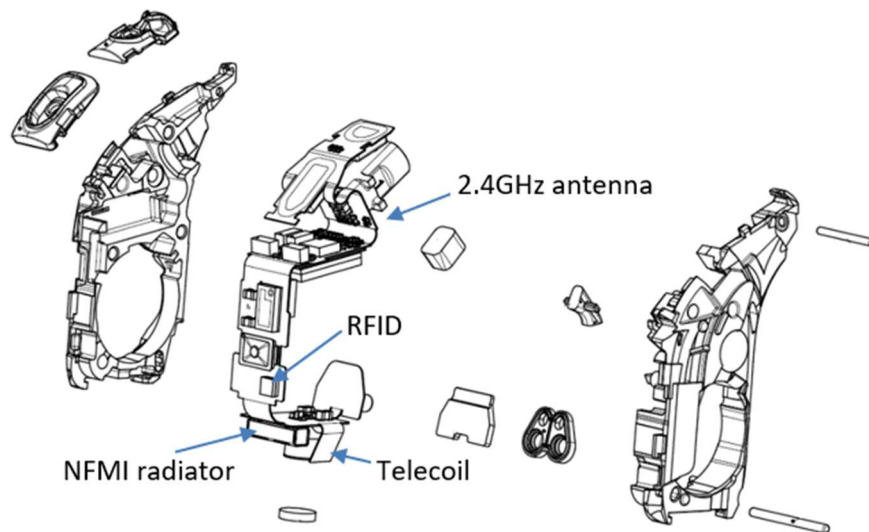


Radio Module Installation Guide

General information:

The radio module (VEAU5MNRR = HVIN (Canada)) contains two radio transceivers running at 3.84 MHz and 2.4 GHz respectively and both are implemented on a single hardware platform.

The radio module is implemented on the main PCB with connection to the integral inverted-F antenna (IFA), telecoil, microphones, speaker, and battery terminals. The radio module (main PCB) can be seen in Picture 1.



Picture 1 Radio Module rack assembly

The 3.84 MHz radio is a low power, short range inductive radio transceiver (NFMI – Near Field Magnetic Induction) working at a single channel at 3.84 MHz using MSK modulation with 320 kbit/s data rate and connected to a small coil radiator.

The 2.4 GHz radio is a Bluetooth Low Energy (BLE core 5.4) transceiver using GFSK modulation with 1 Mbit/s, 2 Mbit/s data rates, also capable of proprietary reception modes (xBLE) with higher data rates (2 Mbit/s, 4 Mbit/s) using 2FSK/4FSK modulation. The 2.4 GHz radio is using the PCB structure surrounding the microphone and speaker connector as antenna with a maximum gain of -3.9 dBi.

The 2.4 GHz integral antenna has a 1-5 mm distance to the skin of the ear and head and, cannot be removed or placed differently when used in a host product.

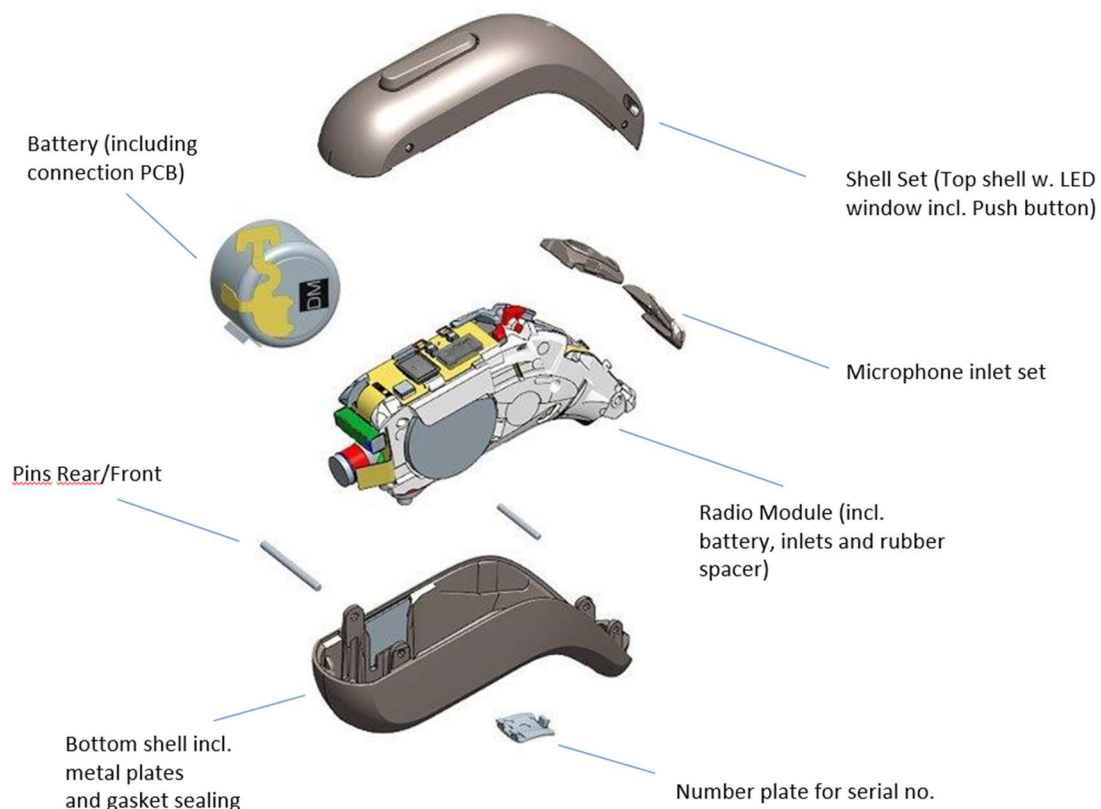
Additionally, a passive RFID tag operating at 865 MHz – 928 MHz with internal antenna is glued onto the PCB. The RFID tag has no electrical connections to the radio module.

The radio module integration only requires a single cell battery, an external connected speaker and outer plastic shells that defines the industrial design of the hearing aid end-

products in order to be operational.

The radio module is tested in a reference host (End product) with all I/O, sensors, acoustic interfaces externally mounted around the module. The reference host represent the worst-case configuration and conditions for the module integrated as a hearing instrument.

There are no conditions that limit the initial modular approval when integrated as a hearing instrument, including RF exposure considerations. The worst-case host configuration is tested in all operating modes. The production performs full operational tests on all manufactured products.



Picture 2 Reference host configuration

The worst-case host configuration is tested in all operating modes and an FCC part 15B and ICES-003 is demonstrating the compliance of the host type.

No changes are applied to the module design for the three defined variations in host designs to accommodate brand differentiations. The Top level BOM list (Separate exhibit) lists the three possible host configurations with this rack assembly covered by the LMA of the module. The guidance for host assembly is shown in picture 2 above and is equal to the work instruction used in the SBO Hearing A/S production sites. No future hosts are planned and in case a future host will be created it is limited by the rack assembly and the mechanical adaption available for this rack. Therefore, future hosts will only require a Class 1 Permissive Change (C1PC).

No testing or certification is required for host designs, as they are all equal in assembly to the worst-case reference tested host. The difference in host design are only visual appearance differences not related to the HW design.

The radio module is intended to be integrated only in the SBO Hearing A/S manufactured products for the main brands Oticon, Bernafon, Philips and affiliated private labels wireless hearing instrument devices of the miniRITE wearing style and are not intended to be used differently than granted in the LMA certificate. SBO Hearing A/S is the one legal manufacturing company in the Demant group. Demant is listed on the Danish national stock exchange.

The integral antenna has a 1-5 mm distance to the skin behind the ear. The antenna cannot be removed or placed differently in the miniRITE host products.

The miniRITE hearing aids are all label exempted and thus the product label is placed on the packaging label and in the Instruction for Use (IFU).

The production performs operation tests on all manufactured products that for the RF tests includes conducted test and adjustment of the transmitter power, power ramp in different operating modes and receiver sensitivity tests. The radio module is tested and screened separately in the wafer factory also a subsidiary of the Demant group where the chips making up the module are manufactured.

Regulatory Label Information for USA & Canada for the hearing instruments

Radio Model Name (HVIN): VEAU5MNRR

Contains: FCC ID: 2ACAHU5MNRR
 IC: 11936A-AU5MNRR

NOTICE:

This device complies with Part 15, Part 15.223, Part 15.247 of the FCC Rules and with RSS-210 and RSS-247 of Industry Canada.

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 made to this equipment not expressly approved by SBO Hearing A/S may void the FCC authorization to operate this equipment.

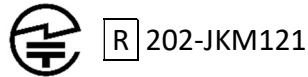
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

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.

Regulatory Label Information for Japan

Description: Radio module with 2.4 GHz low power transceiver to be integrated into various hearing instruments and associated devices.

Regulatory label:



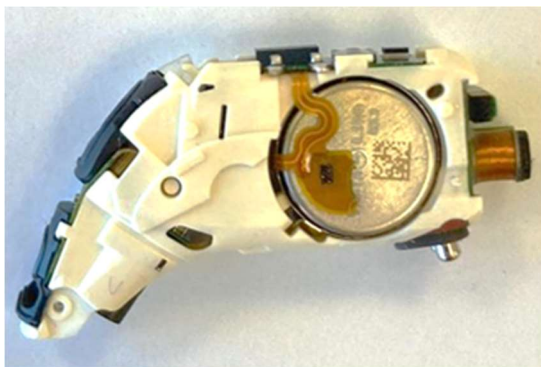
This device is granted pursuant to the Japanese Radio Law (電波法)

本製品は、電波法に基づく特定無線設備の技術基準適合証明などを受けております。

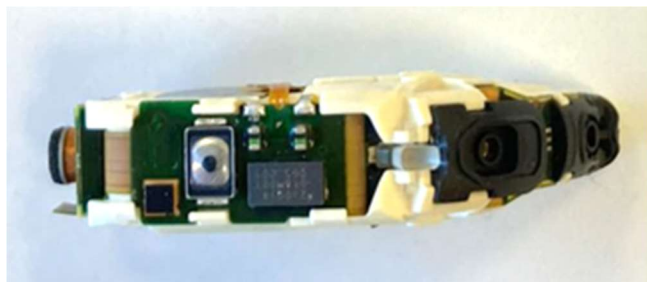
This device should not be modified (otherwise the granted designation number will become invalid)

本製品の改造は禁止されています。（適合証明番号などが無効となります。）

NB: The regulatory label is not shown on the radio module itself or any end products with it, since they are too small for the label to be readable without any optical aids or magnification. Below the radio module is shown, indicating a size of about 7x23x22 mm.



Picture 3 Radio module from the side



Picture 4 Radio module from the top side (button side)



Picture 5 Radio module from bottom side