

## Radio Model - Quick Installation Guide

**Radio Model Name:** PA\_AU5\_MBTE\_M

### PA AU5 MBTE M Radio Model – 3D overview



The PA AU5 MiniBTE M radio model (PA\_AU5\_MBTE\_M) contains two radio transceivers running at 3.84 MHz and 2.4 GHz and both implemented on a single hardware platform.

Additionally, a full featured RFID tag (IC2) capable of receiving signals at 865 MHz – 928 MHz. The RFID tag has no electrical/galvanic connections related to the rest of the PCB in PA AU5 MiniBTE M and are passive.

The radio model is implemented in an engine module mounted on the main PCB with connection to the antennas, telecoil, the microphones, the internal speaker and the battery terminals. The radio model can be seen in 3D overview to the left.

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 antenna.

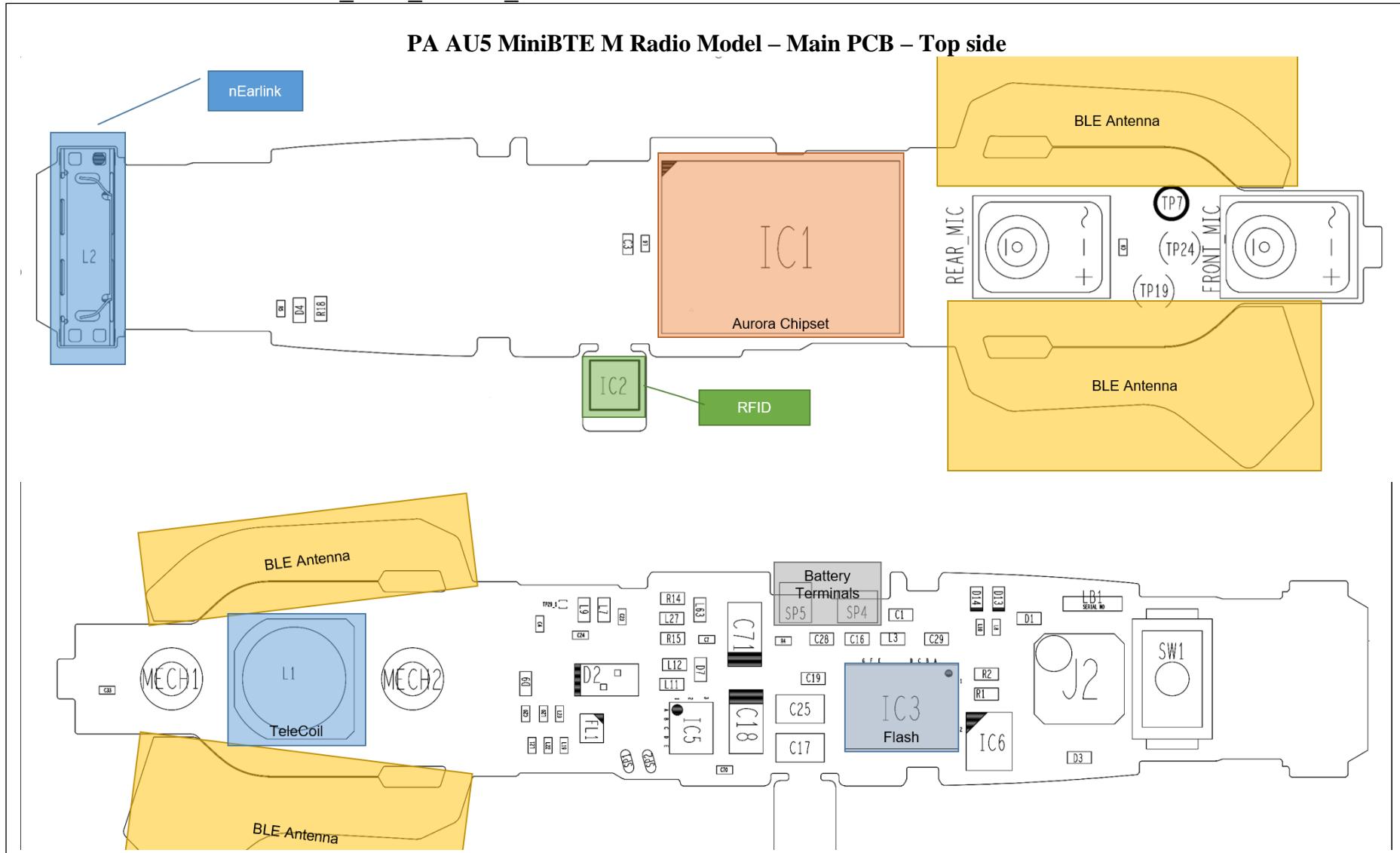
The 2.4 GHz radio is a Bluetooth Low Energy (BLE core 5.0) transceiver using GFSK/2FSK modulation with 1 Mbit/s, 2 Mbit/s data rate also capable of proprietary reception modes (xBLE) with higher data rates (2 Mbit/s, 4 Mbit/s) using 2FSK/4FSK modulation. The 2.4 GHz radio is connected to a short wire antenna with a proprietary antenna connector.

Below the main flex PCB of the PA AU5 MiniBTE M radio model with the most important electrical and electro-mechanical components can be seen:

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## PA AU5 MiniBTE M Radio Model – Main PCB – Top side



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See previous page PCB radio module drawing for placement of the antenna and IC's relevant for radio:

1. Bottom side: IC1 – Aurora chipset (DSP)
2. Bottom side: IC2 – Passive RFID
3. Top side: IC3 – Flash memory
4. Bottom side: L2 – nEarlink coil antenna
5. Bottom side: L1 - Telecoil “coil antenna”
6. Top side: SP4,5 – Battery terminals
7. Top/bottom side: PCB antenna 1 – BLE antenna



The PA AU5 MiniBTE M radio model requires only a single cell Zn-Air battery (also incl. the wire antenna for the Bluetooth radio part) to be attached and plastic shells, defining the industrial design of a hearing aid end-product and holding everything together, in order to be operational.

The most important parts inside the Engine module are a Digital-Signal-Processor (DSP), a radio Front-End (FE) chip for the 3.84 MHz radio part and an RF chip for the Bluetooth radio part – all mounted on a small rigid PCB again mounted on the main flex PCB. The PA AU5 MiniBTE M radio model also includes all voltage regulators and buffered data programming inputs on board. The DSP is the main processor controlling the functionality of both radios in the Aurora5 miniRITE T R radio model.

The PA AU5 MiniBTE M radio model is intended to be installed in Oticon, Bernafon, Sonic, Philips and affiliated private labels wireless hearing aid devices of the

## Radio Model - Regulatory Label Information for USA & Canada

**Radio Model Name:** PA\_AU5\_MBTE\_M

**Contains:**    **FCC ID:**    2ACAHAU5MBTEM  
                  **IC:**            11936A-AU5MBTEM

### **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.*

## Radio Model - Regulatory Label Information for Japan

**Radio Model Name:** PA\_AU5\_MBTE\_M

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

**Regulatory label:**

Cosmic12 miniBTE M:  
202-LSJ082

NB: The regulatory label for Japan is also included in the IFU for Japan.

This device is granted pursuant to the Japanese Radio Law (電波法) and the Japanese Telecommunications Business Law (電気通信事業法) under the grant ID n° 認証番号: xxxx-xxxx

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 6.5x11x28 mm.

