Functional description of the C4 m CB Hearing aid

The hearing aid is an advanced device, which can help hearing impaired persons to a better hearing.
The device has two built in microphones (MIC1 and MIC2) which pick up the surrounding sound and send this to an A/D converter (Fontend IC), which convert the received analog audio signal into a digital signal.
This digital audio signal is fed to the audio processor (Backend IC). The audio processor applies gain, compression and filtering to the received signal, according to the users hearing loss, and sends the processed audio to the output transducer, which is placed in the Hearing aid.

The user settings are saved in a memory chip, which is connected to the audio processor (512kbit Memory). This memory can also be used for logging different user situations.

The hearing aid has a built in radio (RF IC Roadrunner), through which the mode and volume of the hearing aid can controlled. The radio can also receive an audio stream from an external unit, which can be sent to the output transducer. The radio is used communicate with the hearing aid during the fitting session, where the hearing aid is custom adjusted to each individual user. The radio use a ferrite rod inductive antenna and it transmitted a FSK (center frequency 10.6MHz / Deviation +/- 200kHz) the 10.6 MHz are derived from a crystal.
Transmission range is 20-30 cm.
The radio can also be used to exchange information and between two hearing aids.
To achieve a good frequency reference in both the radio and the audio processor the radio has a built in oscillator with an external crystal.