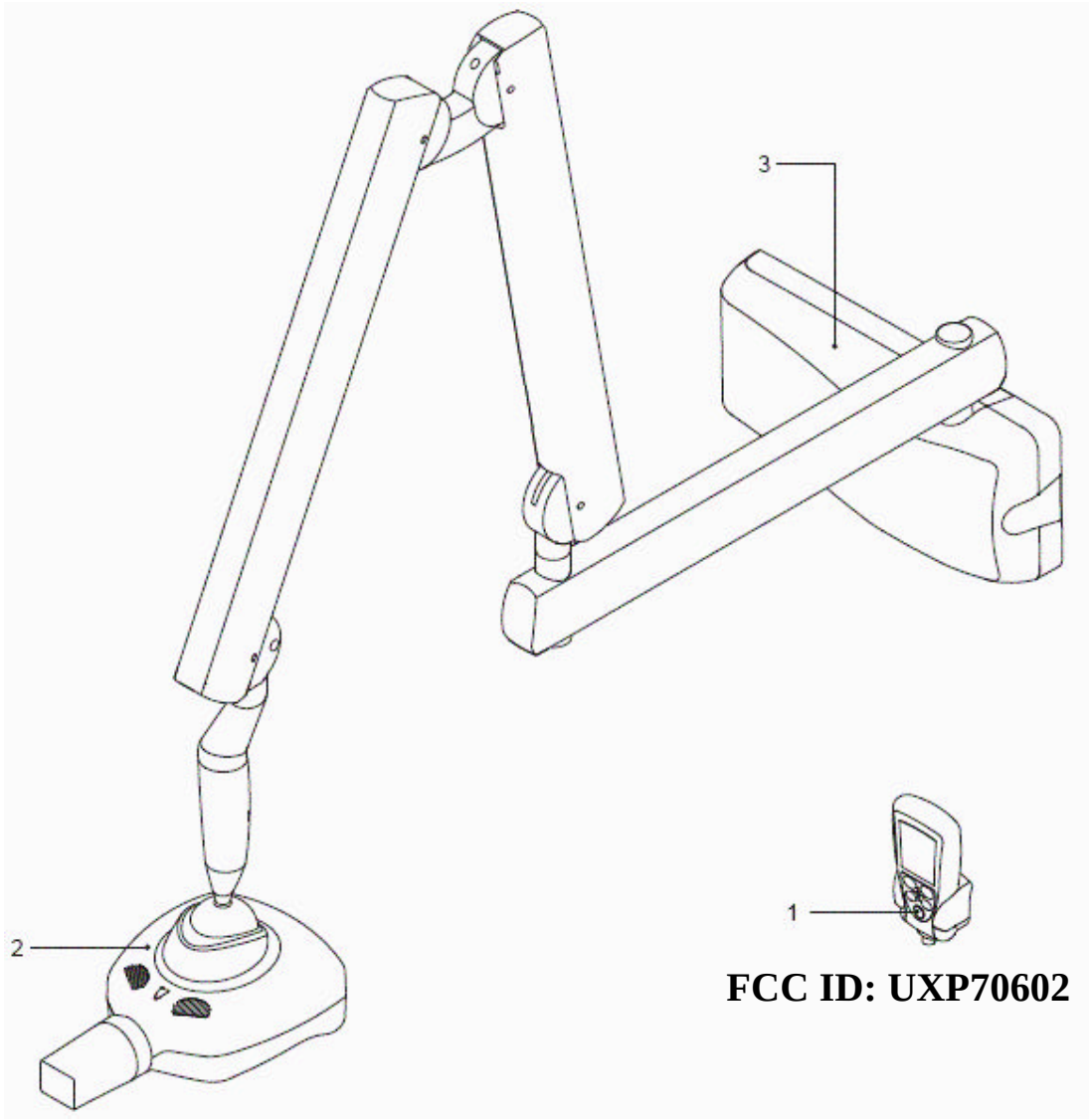
MyRay RX DC



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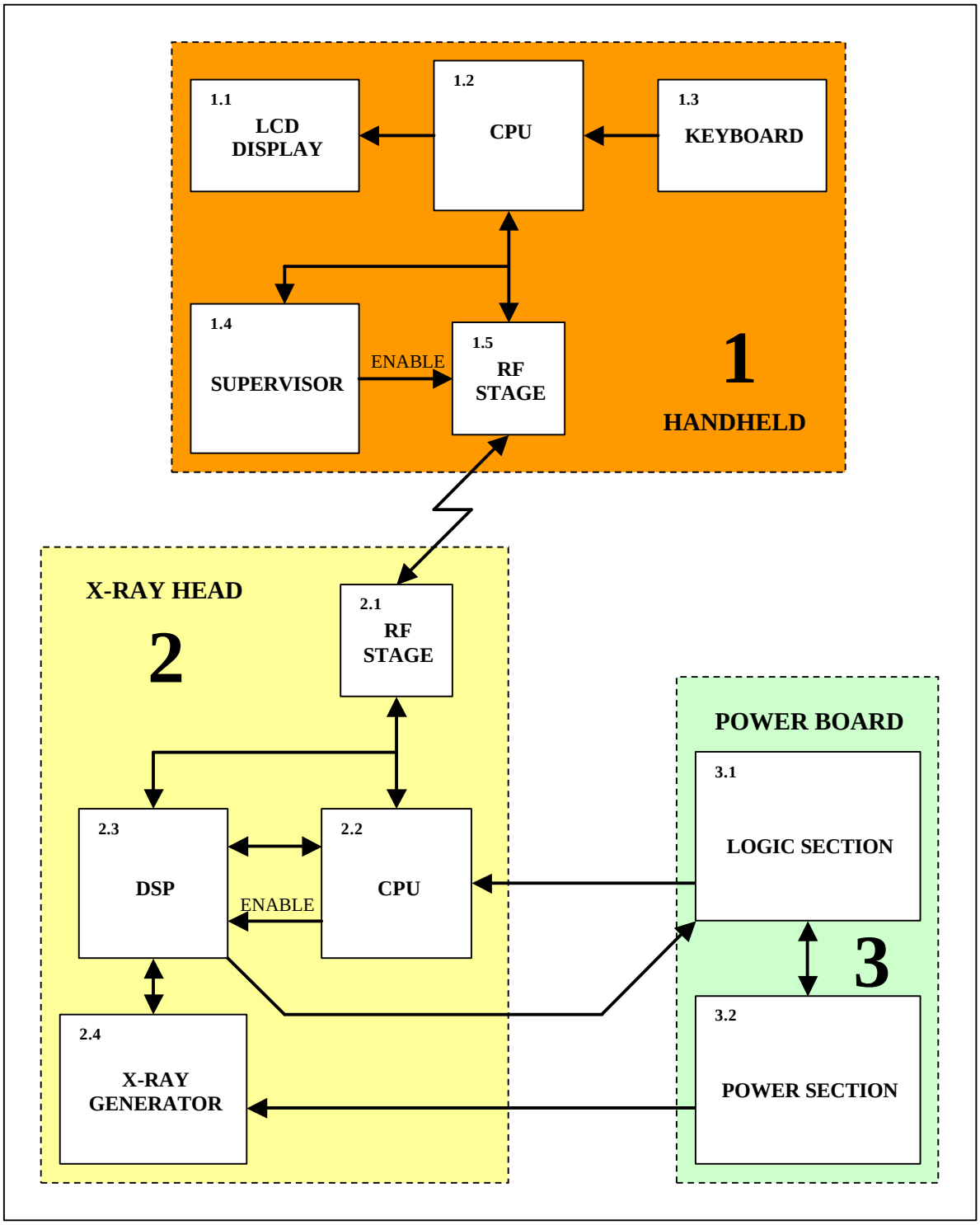
Block Diagram



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1. Handheld

It provides exposition parameters and status monitoring remote control by means of a 5 buttons keyboard and a LCD display. It communicates with the X-ray head via a 2.4GHz IEEE 802.15.4 link and a proprietary communication protocol.

1.1. LCD display

It displays system status and exposition parameters information.

1.2. CPU

Remote control main processing unit. It provides keyboard and LCD display control and interfaces directly with the 2.4GHz transceiver.

1.3. Keyboard

Input device for parameters changing and menu navigation. Only 4 buttons for settings control and 1 dedicated button to activate X-ray emission.

1.4. Supervisor

Auxiliary processing unit. It monitors the communication from CPU to RF stage and the dedicated X-ray emission button. Disables the RF stage if main processing unit fails.

1.5. RF stage

It provides PHY and MAC layers of IEEE 802.15.4 communication link implemented with a true single-chip 2.4 GHz IEEE 802.15.4 compliant RF transceiver designed for low-power and low-voltage wireless applications.

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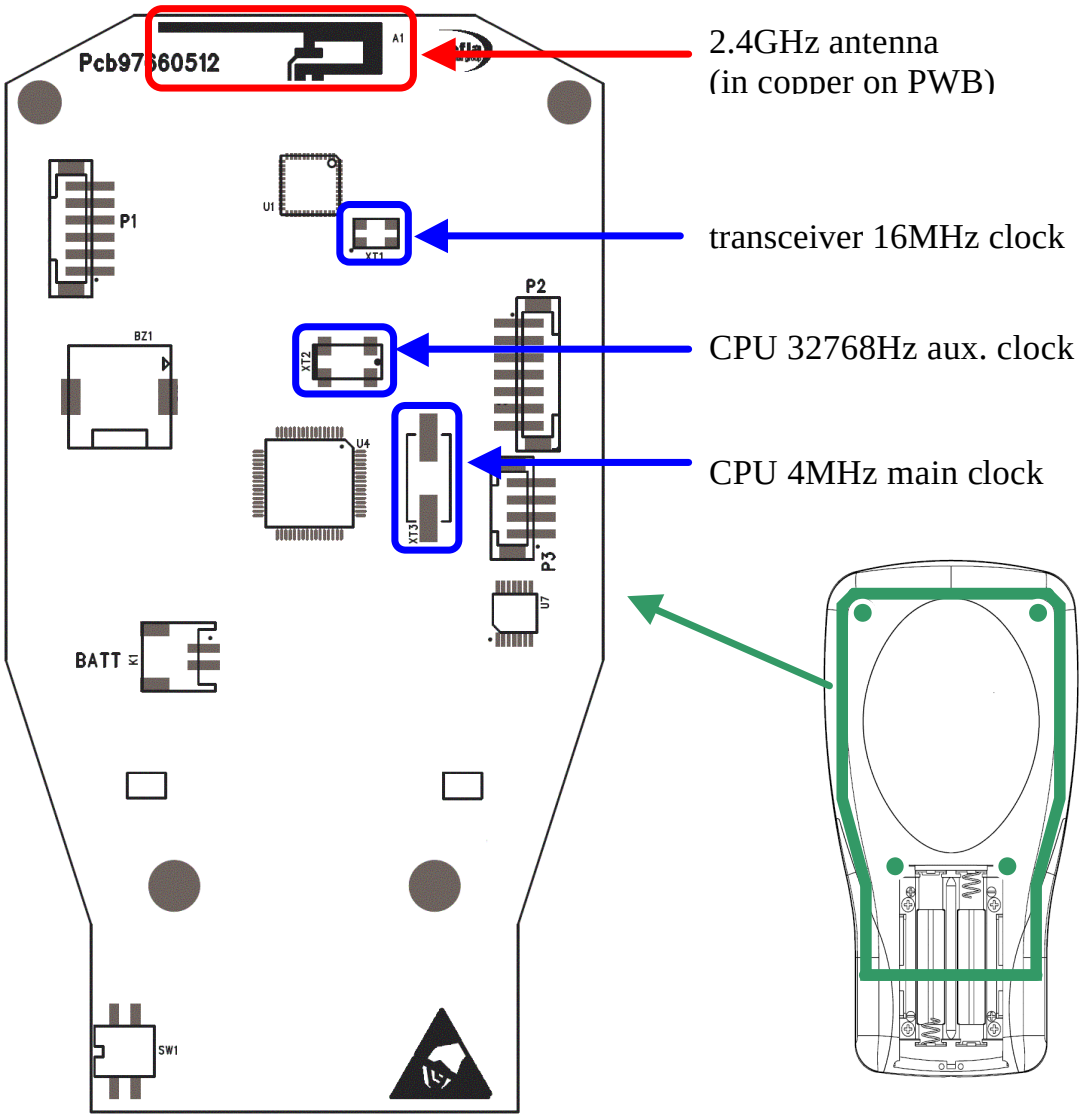

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2. X-ray head

It includes the X-ray tube head and the main control board which communicates with the remote control handheld.

2.1. RF stage

It provides PHY and MAC layers of IEEE 802.15.4 communication link implemented with a true single-chip 2.4 GHz IEEE 802.15.4 compliant RF transceiver.

2.2. CPU

System main processing unit. Establishes the 2.4GHz communication link with the remote control interfacing directly with the RF transceiver. In addition it provides supervisory functions of the DSP and disables X-ray emission if DSP fails.

2.3. DSP

Receives exposition parameters from CPU and manages all X-ray emission control functions. It also monitors packets incoming from the RF stage to the CPU and inhibits X-ray emission in the event of an exposition command is sent from CPU without remote control acknowledge.

2.4. X-ray generator

Comprises the X-ray tube and the second stage of the high-voltage generator.

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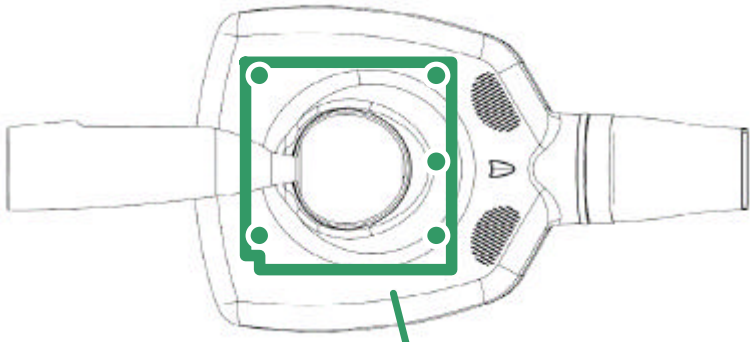
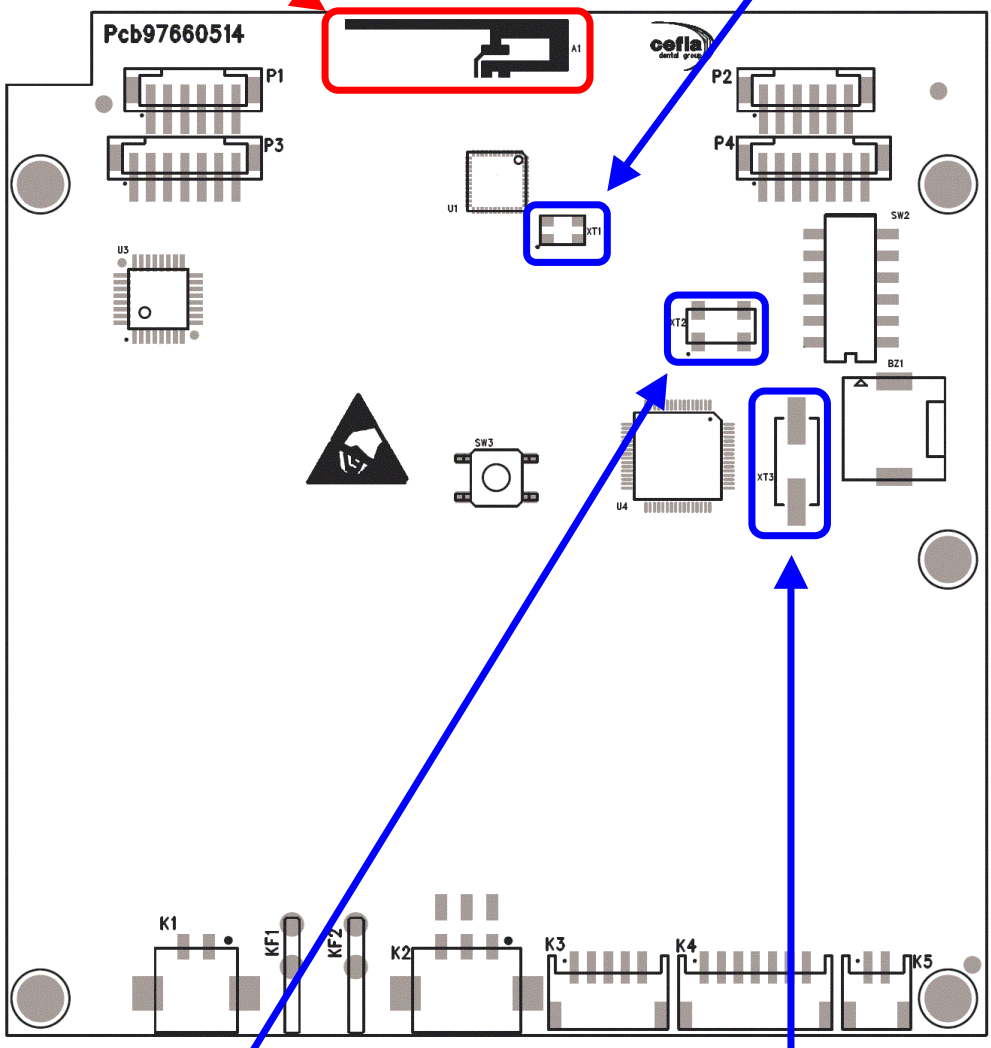


2.4GHz antenna (in copper on PWB)

transceiver 16MHz clock



CPU 32768Hz aux. clock

CPU 4MHz main clock

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3. Power board

It provides power supply to all units and includes the first stage of the high-voltage generator.

3.1. Logic section

Provides power supply to head main control board and sends commands to power section drivers.

3.2. Power section

It includes the first stage of the high-voltage generator and the high power transistor drivers.

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