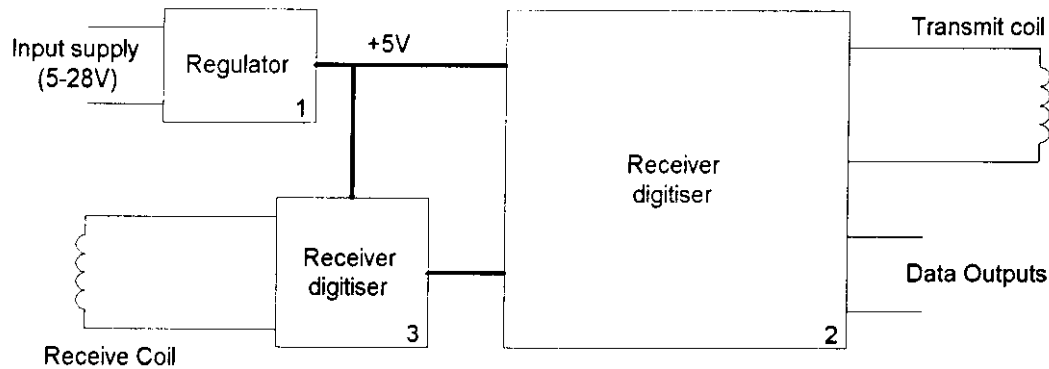


EXHIBIT "C"
TECHNICAL REPORT
PROXIMITY READER ECxA
FCC ID: JHD-CEN2

Proximity Reader Type ECxA Technical Description

The major components of the ECxA reader are shown in the block diagram



ECxA Block Diagram

The low drop regulator (1) is a LM2936 which produces 5V d.c. from an input voltage anywhere between 5V and 28V. (It also provides protection against the power supply being connected the wrong way round.)

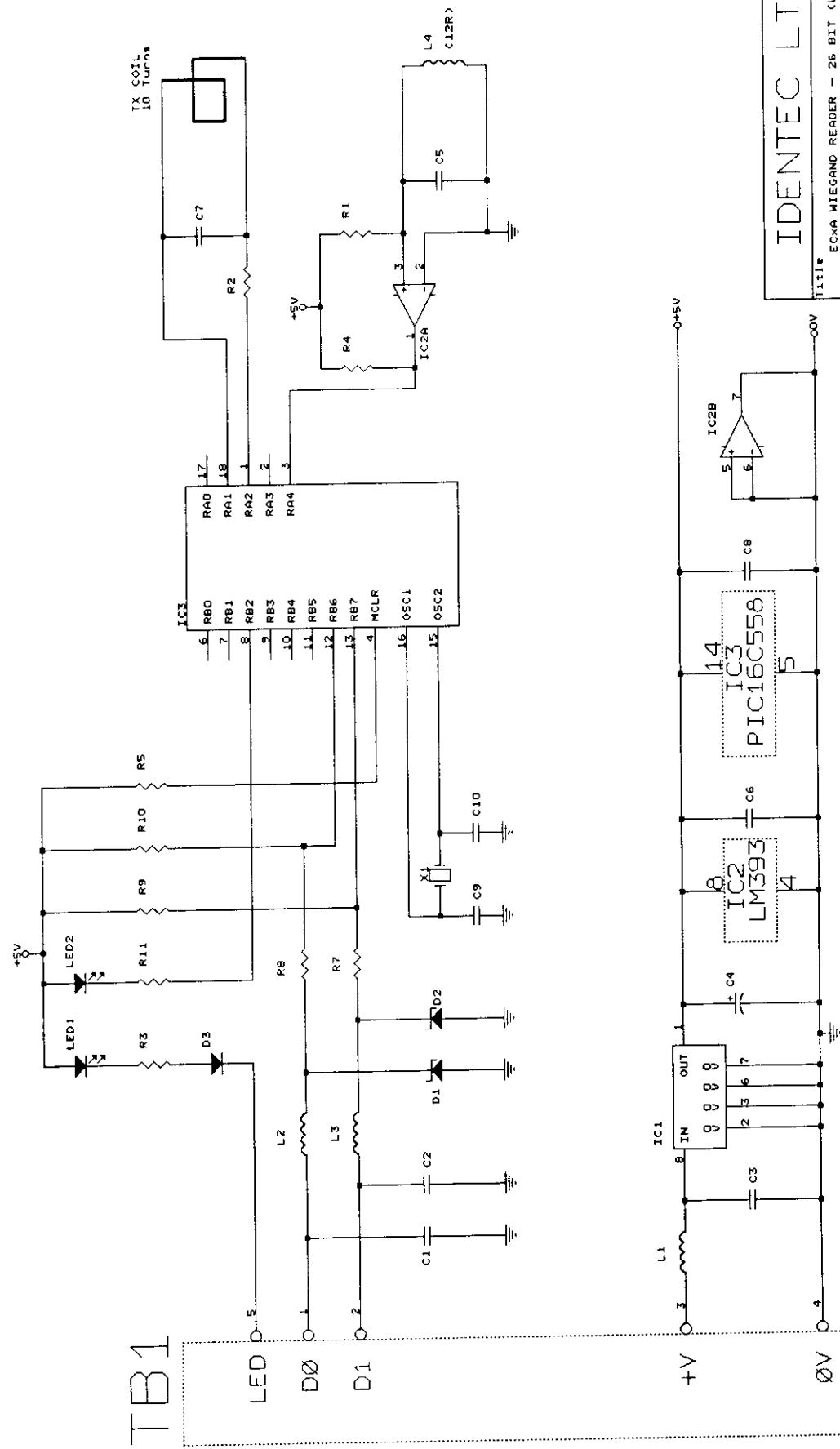
The processor (2) is a PIC16C558 which has a 4.9152MHz crystal attached. The processor handles all waveform generation and timing functions in firmware. The processor sends short transmissions and then listens to see whether any tags respond. If a tag responds, the next message from the reader is directed to that tag, until the tag has been identified. The transmissions from the reader are at 153.6kHz and are modulated at 4.8kbaud. The transmit coil, which is a tuned circuit is driven directly by the processor output pins, with no intermediate buffering. The transmit coil is etched into the printed circuit board design.

Tag responses are picked up by a separate receiver coil, which has a ferrite core and is tuned to the receiver frequency of 115.2kHz. The signal from the receive coil is converted to a digital form by the Receiver Digitiser (3) which is based on an LM393. The output of this is fed to the processor and decoded in wiegand or serial format.

When a tag is identified, its identity number is transmitted on two data lines through EMC protection components.

Variations in software permit output configuration changes without any circuit modifications.

eg: EC1A - 26 Bit Wiegand
 EC2A - "y" Bit Wiegand



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