Description of the Circuit Functions
The following is a description of the RainWise Inc. wireless rain gauge.
Please refer to the drawing "Wireless Rain Gauge".

The electronic components consist of a microprocessor operating at
32.768kHz, a Holtek HT12E encoder chip operating at approximately
3.0kHz and a LINX Technology Inc. TXM-315-LC SAW type transmitter
operating at 315mHz.

The microprocessor monitors the tipping bucket type of rain gauge. For
every tip of the bucket, the microprocessor pulls the TE line of the
ENCODER low which activates the transmitter. The transmitter outputs for
four seconds the pulse recognition code described below. A 10-dB "T" pad
resistor network is placed between the output of the transmitter and the
antenna. The receiving unit detects the pulse recognition code using a
Holtek HT12D or similar decoder. The decoder output causes a digital
counter to increase. Therefore, the pulse recognition code increases a
counter for each tip of the rain gage bucket. For rain gages calibrated in
inches, the counter increases by .01 inches. For metric calibrated rain gages,
the increment is 1 millimeter.

Driven by the Encoder, the transmitter continuously outputs a pulse
recognition code of 13 bits. There is an off time approximately equal to the
time for the code to be output. The 13-bit code consists of 7 bits, which have
an approximate on time of 1.0 millisecond, and an off time of 2.0
milliseconds. Bits 8 and 9 have an on time of approximately 2.0
milliseconds and an off time of 1.0 millisecond. The last four bits of the
recognition code have an approximate on time of 1.0 millisecond and an off
time of 2.0 milliseconds. The 13-bit code is sent every 71 milliseconds.