Transmitter

The FM transmitter system works with a reliable and stable crystal based PLL RF signal generator. The aud signal is directly feed into the PLL RF signal generator after appropriate level shift to ensure the modulation range will be +/-60kHz modulated signal for a 1kHz 2Vpp sinusoidal input signal. The output of the PLL RF signal generator is therefore a 49.86MHz FM signal ready to be transmitted. Before the RF signal is being transmitted to the space through a quarter-wave antenna, the RF signal is first amplified by a 2-stage RF amplifier in order to generate a 4dBm output when the battery level drops to 3.3V. Actually the system has build-in low battery detector, such that when the battery level is low, the power will be cut off from the system to enter power down mode. By doing so will ensure the system has enough power to maintain the carrier frequency of the FM signal to be 49.86MHz. The amplified RF signal is then filtered with EMI filter and connected to the antenna through an antenna matching network.