

GENERAL TECHNICAL SPECIFICATION OF THE RECEIVER

Center frequency of the receiver	:	355 ± 0.1 MHz
12 dB SINAD (S/N and Distortion) sensitivity	:	- 90 dBm
Receiver Band width	:	± 1 MHz (3 dB) : ± 2 MHz (6 dB)
Receiver RF Emissions	:	Well within FCC limits
Immunity from extraneous RF interference	:	None from 350 MHz, 700 MHz – 900 MHz Signal at + 10 dBm radiated at 1 meter from the receiver.
Total DC power consumption	:	300 mW continuous (25 mA at 12 V)

Theory of operation:

As can be seen from the functional block diagram of the receiver, the radio part comprises of a regenerative part, detector part and audio part. The regenerative part of the Super-Regenerative-Receiver (SRR) works most efficiently for low level radio signals, without requiring elaborate front end rf amplifiers and filters. The regenerative part provides just enough gain for the received signal via positive feed back in the first stage. The gain of this stage is inversely proportional to the level of the signal received. During the dormant state (no signal) the SRR sustains oscillations just above the noise level. As soon as a low level (just above the noise) signal with in a band width of 2 MHz is received, it is amplified in this first stage.

The second stage is a class C type amplifier and detector. Here the signal gets further amplified and detected to produce the envelope of the signal. After the rf components are filtered out the audio signals are amplified in the audio stage. The dc clamping circuit produces 0 – 5 V pulses corresponding to the audio signals generated in the audio stage. The data pulses are then used in the Programmable IC to appropriately control the display devices.