

- Description of circuitry:

SR-436 RF Section:

(i) Receiver path: The signal enters the device at the antenna port into an impedance matching circuit and a band-pass filter comprising of L802, C811, C807, C808, L804, F801, C810, C809, L803, C805 and C806. This has a band pass filter of 83MHz centered on 2441.5MHz. Then via a T/R switching circuit comprising of U801 and C802 into a low noise amplifier whose active component is Q601. The signal then goes into U602. The U602 contains two amplifiers and a mixer. The signal is filtered once again with a filter with pass band $2450 \pm 50\text{MHz}$ (F602) after the two amplifiers in U602. Mixer in U602 down converts the 2403 –2480 MHz signal down to the first IF frequency of 315 MHz. It is then filtered by SAW filter (F603). It then goes into U601 which is a second IF chip. Here it is down converted to 10.7MHz, amplified, filtered (F601) and limited. The received signal strength indicator (RSSI) is obtained from here. The 10.7MHz signal then goes into base-band board via pin 2 of J801.

(ii) Transmit path: A 10.7 MHz signal is provided by the base-band board at pin 3 of J801. It is filtered by F501, which is a 10.7MHz filter. The 10.7MHz signal then passes to U501, which up converts the signal to 315 MHz. It is filtered by F502 (SAW filter) and LC filters (L503, C509, L526, C549 and C554). The signal is up again converted from 315 MHz to 2403 –2480 MHz by U502. It is further filtered by F503 which is a band pass filter centered on $2441.5\text{MHz} \pm 41.5\text{MHz}$. U503 amplifies the signal, it passed through a band-pass filter (F504) before being amplified by U504 and Q501. The signal passes through the T/R switch and filter mentioned in the receive section to the antenna port. For the base station, its average RF power is 214 mW and its peak RF power is 500mW. For the portable handset, its average RF power is 54mW and its peak RF power is 500mW.

(iii) Other sub circuits: A 16.384MHz is provided by the base-band board at pin 7 of J801 to U701. U701 is the heart of a frequency synthesizer, which provides the control of the dual oscillators. The first one oscillator is used in the up and down conversion of the signal from 10.7MHz to 315 MHz. The second one oscillator is also used in the up and down conversion of the signal from 315 MHz to 2403 –2480 MHz. The exact frequency used is controlled by the base-band board at pin 17, pin 18 and pin 19 of J801.

(iv) Antenna: On the base station a 5-dBi antenna is used and this is attached to the antenna port via a reverse thread TNC connector. On the handset a 5-dBi and a 2-dBi antennas are used and those are attached to the antenna port via a non-standard connector.