CIRCUIT DESCRIPTION

GENERAL INFORMATION FILE: UB310Z

1. Tuning Range (MHz)

88.0000	-	107.9000
108.0000	-	136.9750
137.0000	-	174.0000
406.0000	-	470.0000
475.7500	-	511.7500
806.0000	-	823.9375
851.0000	-	868.9375
896.1125	-	956.0000

2. Frequency Range of the Local Oscillators

1st Local Oscillation Frequencies:

425.3 MHz - 575.3 MHz
786.7 MHz - 892.5 MHz

2nd Local Oscillation Frequency: 391.455 - 391.6375 MHz

3rd Local Oscillation Frequency: 10.4 MHz
(Exclusion 88 - 107.9 MHz and 475.75 - 511.75 MHz Band)

3. Intermediate Frequencies

1st IF: 380.7 MHz 2nd IF: 10.85 MHz 3rd IF: 450 kHz
(Exclusion 88 - 107.9 MHz and 475.75 - 511.75 MHz Band)

1st IF: 380.7 MHz 2nd IF: 10.7 MHz
(Only 88 - 107.9 MHz and 475.75 - 511.75 MHz Band)

CIRCUIT DESCRIPTION

1. ANT. Filter and RF Amp Stage

Incoming RF signals pass by specified filter(FM_RADIO_F~800_F). Filtered signals are amplified by wide band amplifier Q2 and Q3.

2. First Mixer and PLL Circuit Stage

Amplified RF signals are converted to the first IF signals respectively at the first Mixer stage.(First IF = around 380.7MHz). This first local oscillator signal(Fvco1 or Fvco2) is delivered from PLL synthesizer(IC7). The VCO frequency(Fvco1 or Fvco2) is divided down by a programmable counter which is preset from memory and compared to reference frequency. Any frequency or phase difference produces a correction signal to change the VCO tuning voltage. This tuning voltage then forces the VCO to oscillate at the frequency required for the counter to produce a output that is in phase with change the frequency. Thus, changing the modules of the counter will change the frequency of the VCO.

3. Second Mixer and FM demodulator
(88 - 107.9 MHz and 475.75 - 511.75 MHz Band) Stage

The first IF signal of each tuning range is mixed down with either the second local oscillator(VCO3) around 391.55MHz to obtain the common second IF signal of 10.85MHz. Second local signal(Fvco3) is delivered from a PLL synthesizer(IC7).
In case of 88 - 107.9 MHz or 475.75 - 511.75 MHz Bands selected are the
first IF signal of each tuning range is mixed down with either the second local oscillator(VCO3) around 391.4MHz to obtain the common second IF signal of 10.7MHz. The second IF signal is FM demodulated at IC5. The demodulated audio signal is delivered to audio AMP(IC3).

4. Third Mixer and FM/AM demodulator Stage

The second IF signal of 10.85MHz is converted to the third IF signal of 450KHz at the inside of FM detector IC.(IC2). Also AM signal that divided from third IF signal is delivered to AM demodulated IC (IC4). The demodulated audio signal is delivered to audio AMP(IC3).

The frequency program is entered from a decimal keyboard into a microprocessor where it is multiplexed to driver the display and decoded to enter the proper binary code in memory to control the synthesizer.