Theory of transmitter for QP-750

The QP750 transmitter is divided into four major blocks as shown in Figure 1.

- AF and Signaling
- RF Power Amplifier
- Antenna Switch and Harmonic Filter
- APC

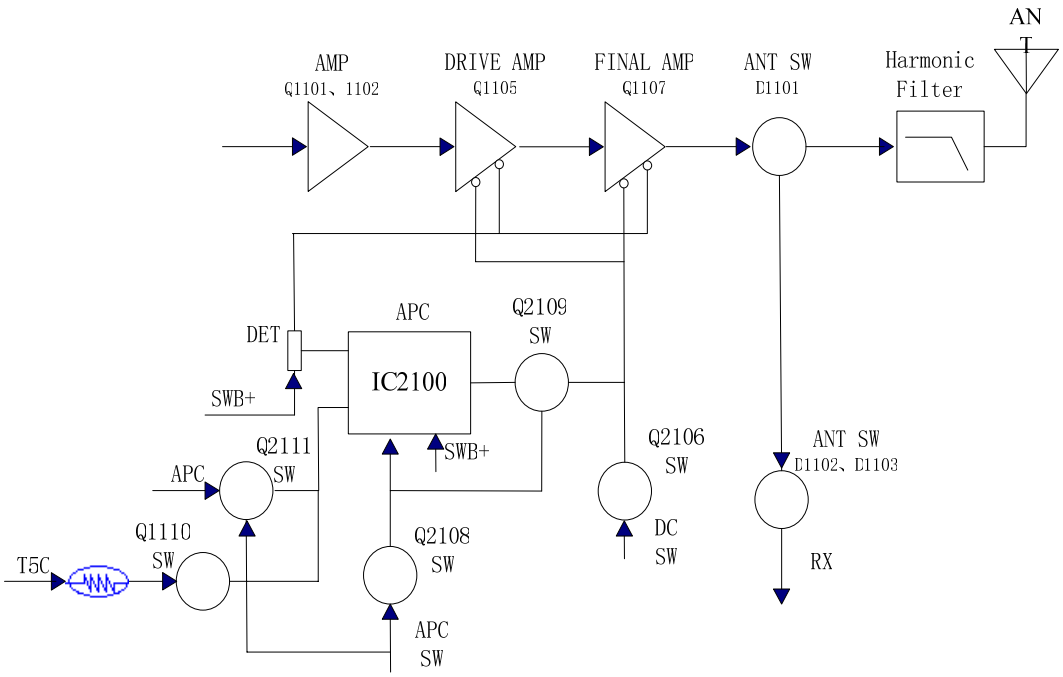

Figure 1.Transmitter Block Diagram

1 AF and Signaling

AF signal from the microphone is amplified and low-pass-filtered in IC1402 before it enters base band processing chip IC1408, which also enters CTC /CDC /DTMF /2Tone etc signaling generated by CPU. The IC1408 processed mixing signal enters VCO for direct FM modulation (see fig.4-4).

2 RF Power Amplifier

The transmit signal from VCO buffer amplifier (Q1310) is amplified by Q1101 and Q1102. The amplified signal is then amplified by the power amplifier Q1105 and Q1107 (including a two-stage FET amplifier) to create 5.0W RF power (see Fig. 4-2).

3 Antenna Switch and Harmonic Filter

Output signal from RF amplifier passes through a harmonic filter network and a transmit/receive switch circuit comprised of D1101，D1102 and D1103 before it reaches the antenna terminal. D1102 and D1103 is turned on (conductive) in transmit mode and off (isolated) in receive mode.

4 APC

The automatic power control (APC) circuit stabilizes the transmit output power by detecting the drain current of final stage amplifier FET. IC2100 (2/2) compares the preset reference voltage with the voltage obtained from final current. APC voltage is proportional to the difference between auto detect voltage and reference voltage output from IC2100 (1/2). The output voltage controls FET power.