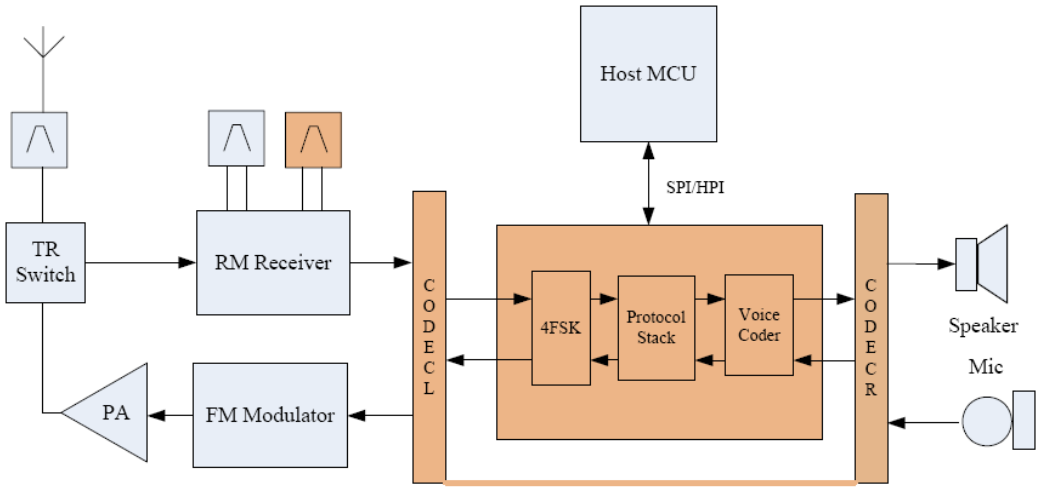
Theory of transmitter for QP-350-DU2

Figure 1-1 shows QP-350-DU2 Digital two-way radio block diagram.



Tx Baseband Processing

The microphone signals are amplified by the VGA (variable gain amplifier) of the codec, and converted into digital form by the external codec and store in the left input channel buffer of U801. The following steps are applied to the digitized signals:

1. VENC, the voice encoder, which compress the voice signals into 2400 bps encoded signals
2. ENCRYPT, optional encryption block with configurable key
3. FEC, channel coding block, which adds 1200 bps to form 3600 bps signals for protecting of bit error
4. PACKET, which adds header and control information to form 4800 bps signals
5. 4FSK modulator
6. DIGI_MOD_GAIN, a gain block with linear 16 bit gain, for adjusting the modulation index.

The resulting signals are split into left channel and right channel signal for two point modulation.

RF Power Amplifier

The modulated carrier signal output from VCO goes to the front-stage amplifier Q401,

driver-stage amplifier Q402 and final-stage amplifier Q403 respectively. Afterwards, the amplified RF signal enters the low-pass filter (LPF) circuit through diode D401, and then is transmitted via the antenna after ultroharmonics are removed.D402 and D501 COMPOSE THE Rx-TX switch circuit.