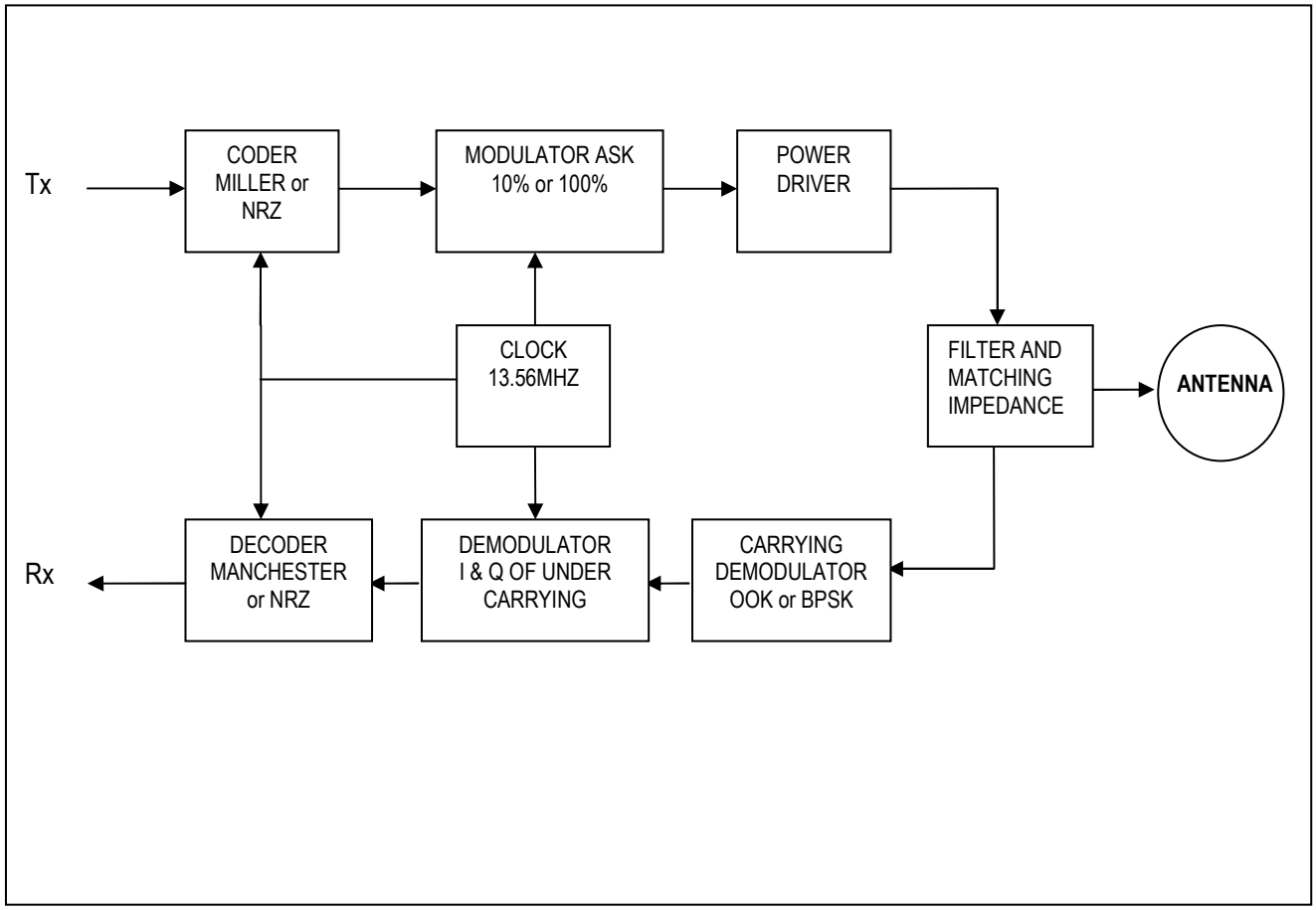
OPERATIONAL DESCRIPTION OF THE RADIO OF THE FBE420

1. SYNOPTIC



2. TYPE OF RADIO

➔The Contactless Card is radio equipment functioning in Half-Duplex mode, at fixed speed for the up and down line: 106Kbits.
➔He is intended for the data communication with the emission and the reception uninterrupted.
➔The carrier frequency is of 13.56MHz.
➔This radio is in conformity with the international standard ISO 14443.
➔The consumption is of 350mW and the frequency precision of carrying is of ±7KHz.

3. CLOCK

➔The clock is produced by crystal which oscillates at the frequency of 13.56MHz.
➔The precision of crystal is of 50ppm in the range of temperature of -20 with +60°C.

4. EMISSION

➔The TX signal coded Miller or NRZ is emitted by a screen length variable at the speed of carrier frequency Fc/128 (106Kbits) which modulates under carrier frequency in Fc/16 (847KHz) according to mode ASK (10 or 100%).
➔This signal is amplified and injected in the antenna through a filter of impedance matching.
➔The antenna is a loop of inductive current in order to create a magnetic field.
➔The magnetic field ranging is from 1.5A/m (functional distance from Contactless card reader) to 7.5A/m (maximum value in contact).

5. RECEPTION

➔The signal recovered on the antenna is at least of 30/H 1,2mVpic.
➔After elimination of the carrier frequency with 13.56MHz, the signal modulated OOK or BPSK crosses a demodulator I/Q (phase and squaring).
➔We recover then decoded reception signal (NRZ or Manchester).