ARD9900

Fast Radio Modem

Digital Ready on HF !

1. Digital Voice
2. Digital Picture
3. Digital Data

No Modification!

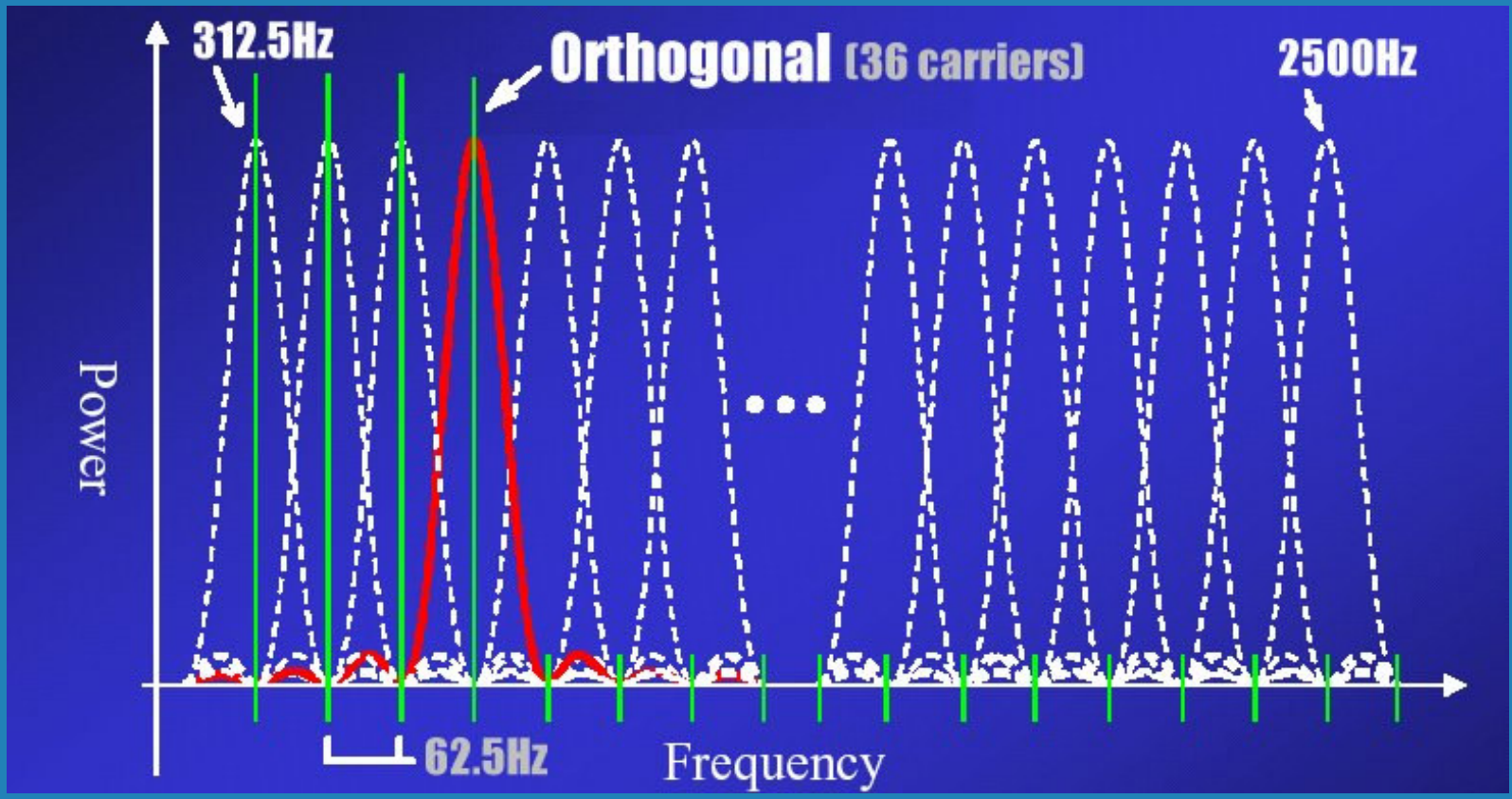
ARD9900 Front View

ARD9900 Rear View

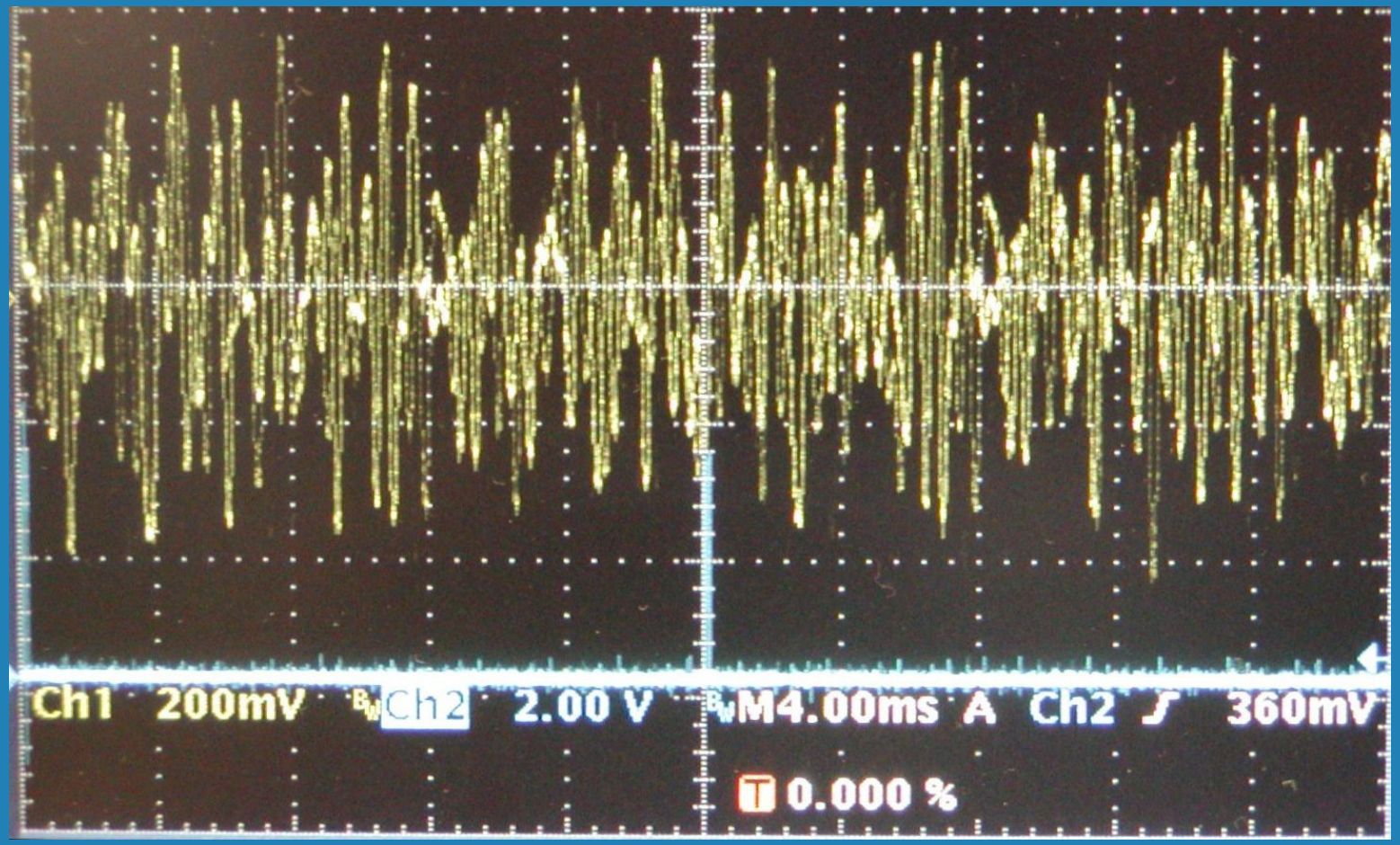
ARD9900 Video Memory

OFDM Modem

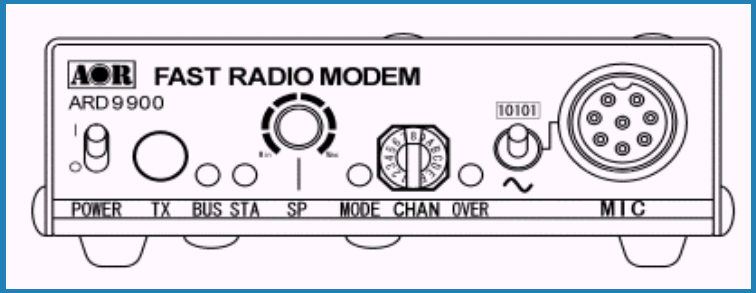
Spectrum



OFDM WaveForm

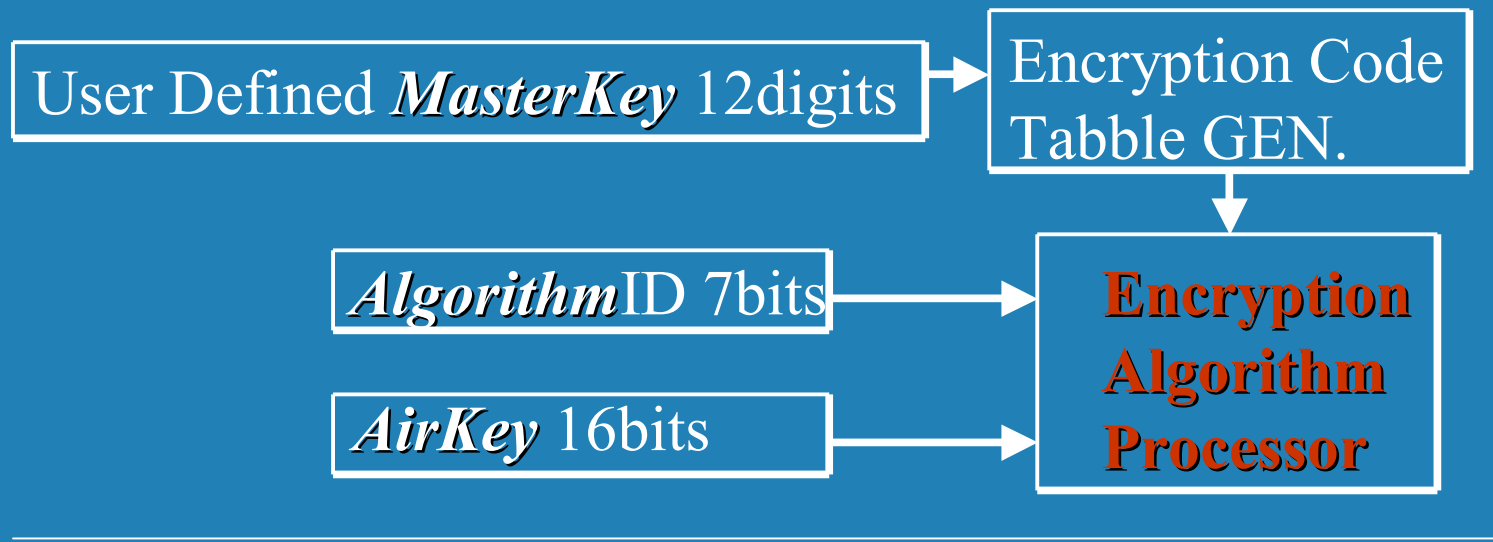


Digital Voice

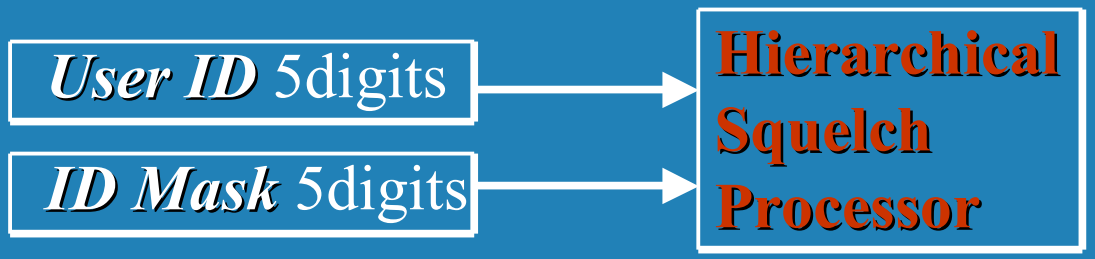


- Totally Encrypted (2^{71} code based key)
- Amazing Voice Quality (AMBE2020)
- Easy interface with TX/RX (MIC/SP)
- Keep High quality in Heavy Fading channel
- Wide range AFC for SSB Operation
- Easy cross operation Analog - Digital
- Auto Detection of Digital Voice

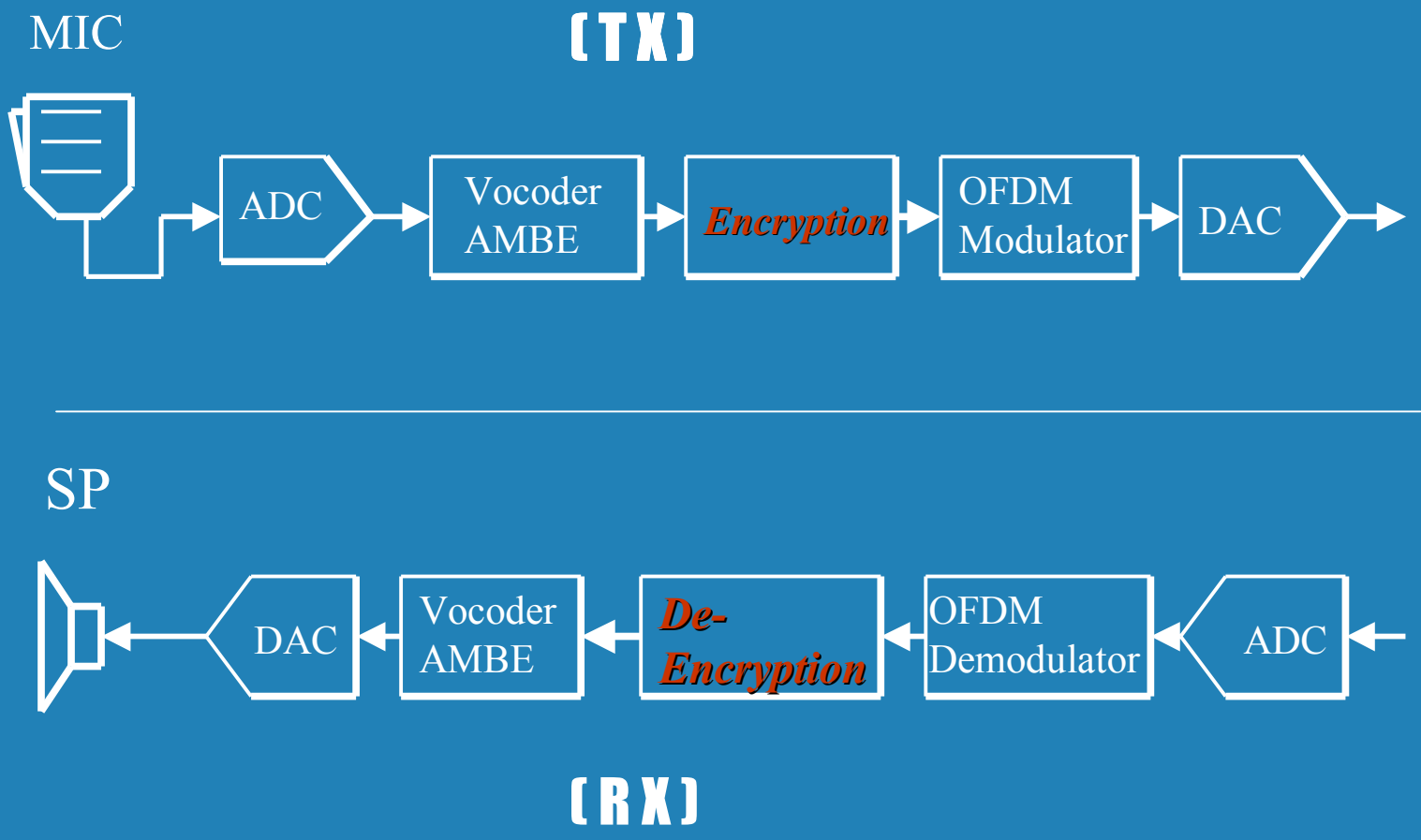
Encryption



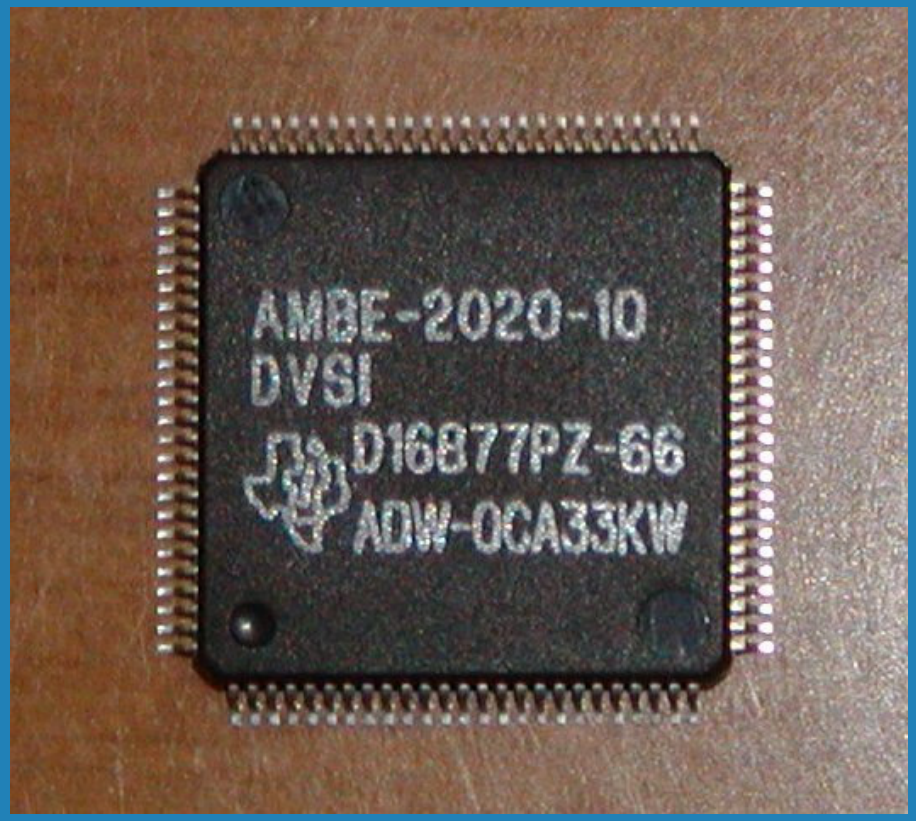
Digital Code Squelch



Voice Process



AMBE2020 Vocoder



8KHz Sampling Voice

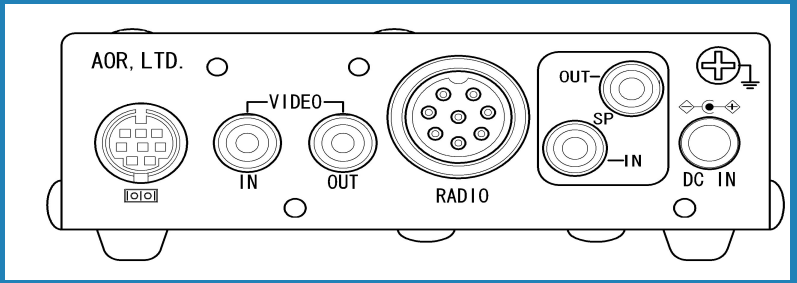
↓

2400bps

+

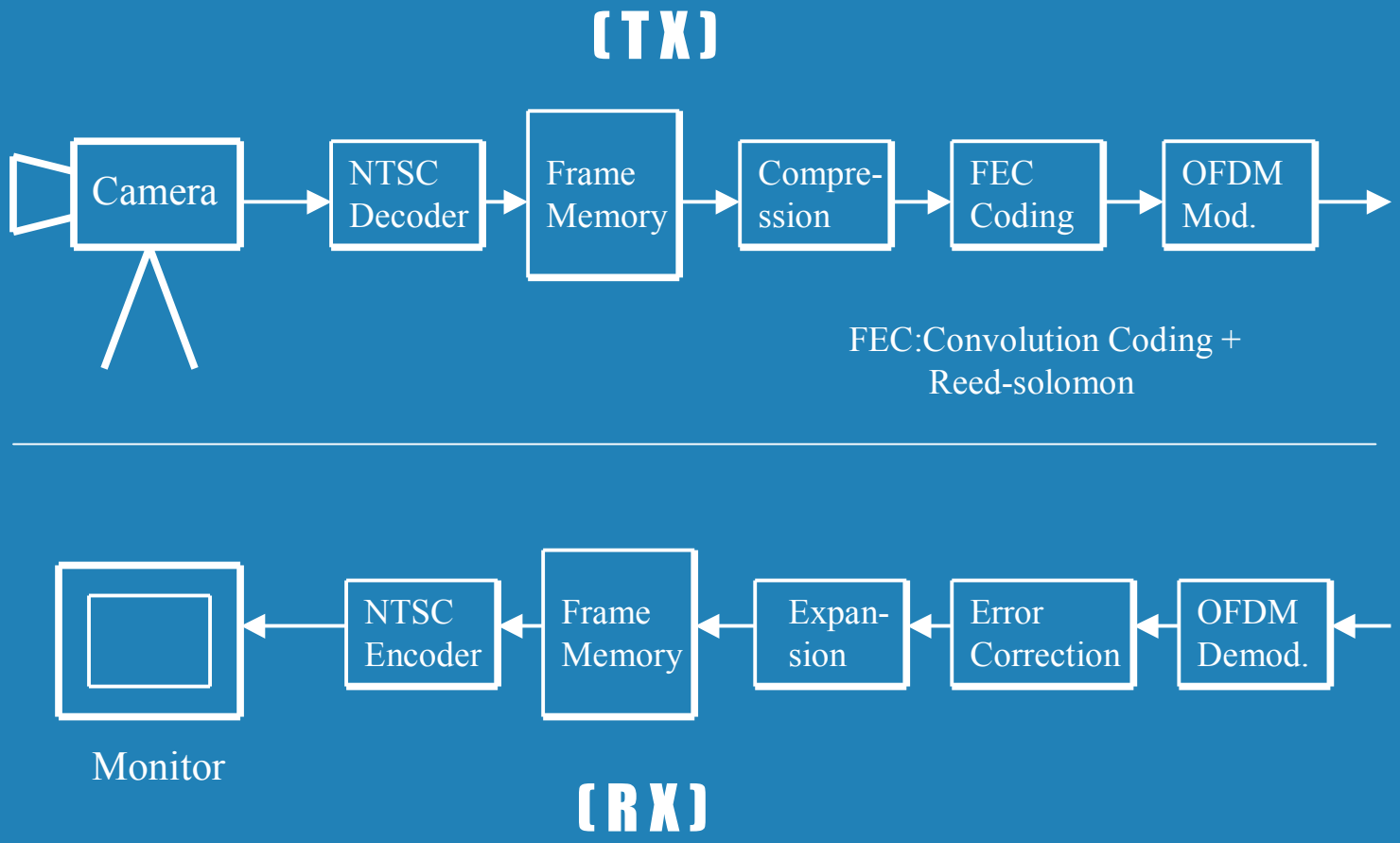
1200bps FEC

Digital Picture



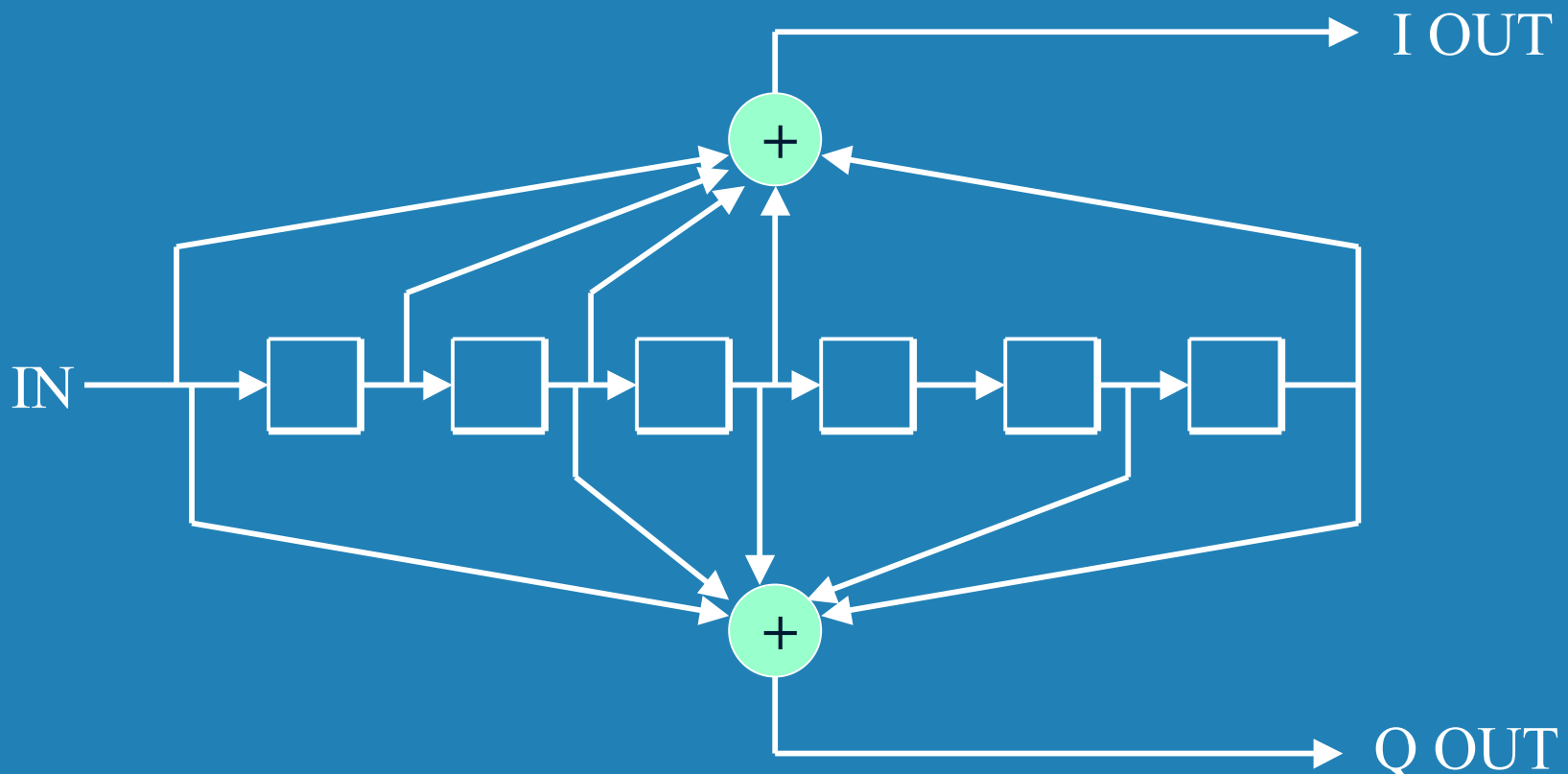
- Totally **Encrypted**
- **Video Capture** from the NTSC video
- **NTSC** video **Output** for the Monitor
- Powerful Error control (**FEC**)
  (Convolution coding + Reed-Solomon)
- Flexible **PC interface**(Up/Down load etc)
- **368x240** pels Modified JPEG compression
- **Auto** Detection of Digital Picture

Digital Video Process



Convolution Coding

Decoding : *Viterbi*



Reed-Solomon Coding

(44,36) $GF(2^8)$

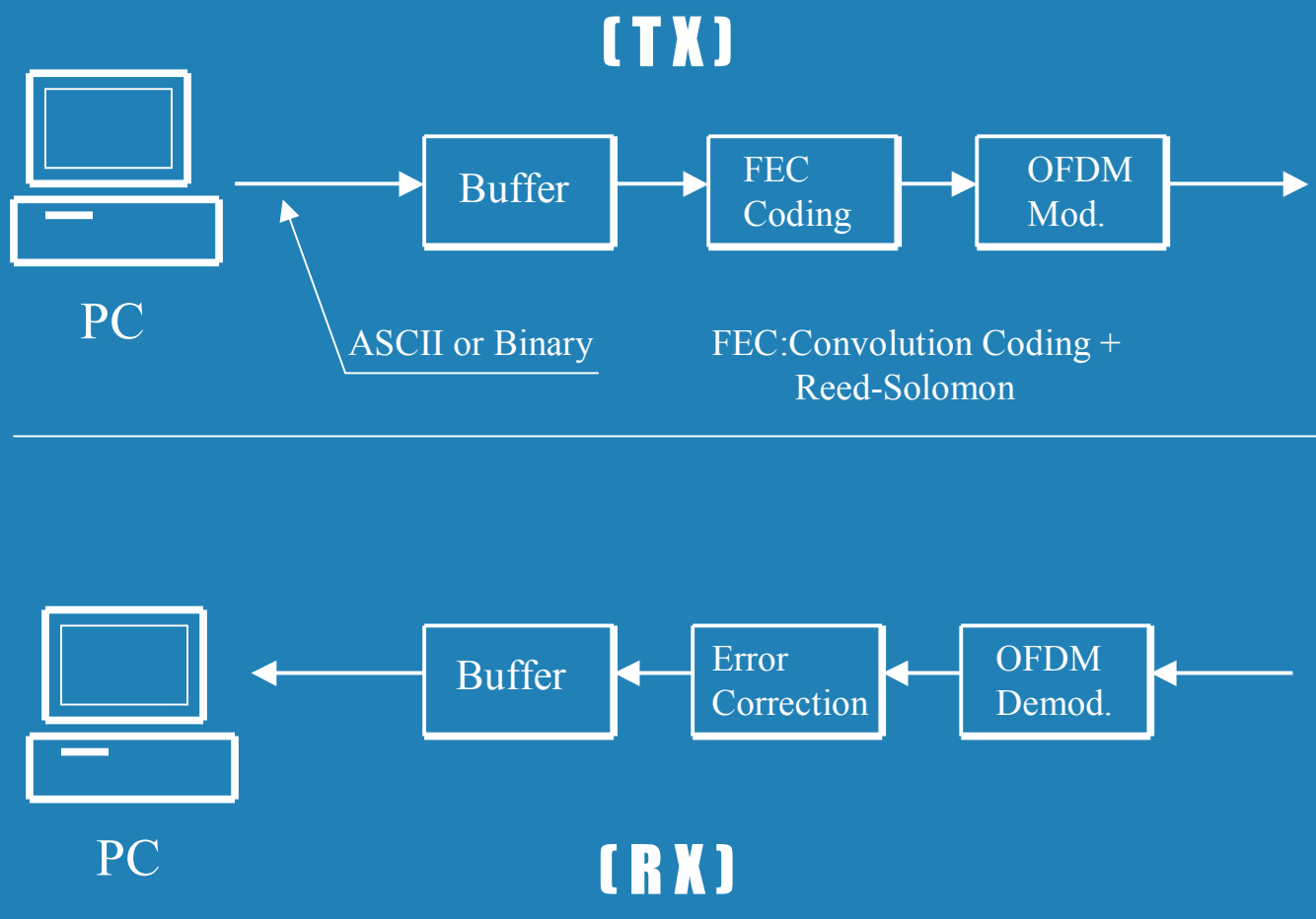
Generator Poly

$$G(x)=x^8+\alpha^{176}x^7+\alpha^{240}x^6+\alpha^{211}x^5+\alpha^{253}x^4 + \alpha^{220}x^3+\alpha^{3}x^2+\alpha^{203}x+\alpha^{36}$$

Digital Data

- Totally Encrypted
- Transmission of ASCII or Binary packet
- 2Kbyte maximum packet size
- FEC:Vitabi and Reed-solomon
- 1,472bps through-put on HF channel
- Auto Detection Data mode

Data Process



MODEM Parameters

- 36 carriers DQPSK (Spacing 62.5Hz)
- 280Hz ～ 2530Hz
- 50baud/3,600bps
- AFC ±125Hz
- 1sec 3 tones Header , 20msec OFDM frame
- 4msec Guard Interval