

EXHIBIT B

[FCC Ref. 2.1033(b)(4)]

"Description of Circuit Functions"

2-6990 Circuit Description :

The following circuit description for THOMSON model 2-6990 is base on the circuit diagram and block diagram of 2-6990.

2-6990 Handset :

1. Receiving Path

The receiving path is established by below sections.

- **Low Noise Amplifier (LNA)**
FM signal filtering by the duplexer, and input to tuning amplifier Q555. Then filtering once more by band pass filter DF502, and input to 2nd tuning amplifier Q512 before output to mixer.
- **Mixer**
Mixer is included Q520, and local oscillator Q506 & 504, which is controlled by the PLL U501. The IF (10.7MHz) is filtering by a ceramic filter CF501, the filtered IF will input to IF amplifier.
- **IF amplifier**
IF amplifier is built with Q515 & Q8. Amplified IF is filtering again by a ceramic filter CF1, the filtered IF will input to FM demodulator.
- **FM demodulator and expandor**
The IF is demodulate by quadrate coil T1, then the recovered audio is input to the expandor for de-emphasis, before output to the handset speaker though audio amplifier.

2. Transmitting Path

The transmitting path is established by below sections.

- **Mic amplifier and compressor**
Audio pick up by handset microphone is amplified by internal mic amplifier of U1, then input to compressor for pre-emphasis, before input to the modulator (Tx VCO).

- Modulator and Tx VCO

The transmit VCO is constructed by Q509 & Q503, which is controlled by PLL of U501. Both audio and data signal input to the transmit VCO will cause a frequency modulation progress.

- RF power amplifier

FM signal is amplified by Q510 and fit to the antenna through duplexer.

2-6990 Base Unit :

1. Receiving Path

The receiving path is established by below sections.

- Low Noise Amplifier (LNA)

FM signal filtering by the duplexer, and input to tuning amplifier Q555. Then filtering once more by band pass filter DF502, and input to 2nd tuning amplifier Q512 before output to mixer.

- Mixer

Mixer is included Q520, and local oscillator Q506 & 504, which is controlled by the PLL U501. The IF (10.7MHz) is filtering by a ceramic filter CF501, the filtered IF will input to IF amplifier.

- IF amplifier

IF amplifier is built with Q515 & Q2. Amplified IF is filtering again by a ceramic filter CF1, the filtered IF will input to FM demodulator.

- FM demodulator and expander

The IF is demodulate by quadrature coil T1, then the recovered audio is input to the expander for de-emphasis, before output to the handset speaker through audio amplifier.

2. Transmitting Path

The transmitting path is established by below sections.

- Mic amplifier and compressor
Audio input from line interface is amplified by internal mic amplifier of U2, then input to compressor for pre-emphasis, before input to the modulator (Tx VCO).
- Modulator and Tx VCO
The transmit VCO is constructed by Q509 & Q503, which is controlled by PLL of U501. Both audio and data signal input to the transmit VCO will cause a frequency modulation progress.
- RF power amplifier
FM signal is amplified by Q510 and fit to the antenna through duplexer.

3. Telephone line interface

The telephone line interface circuit is established by below sections.

- Audio power amplifier
Q7 & Q9 are built as a push-pull power amplifier, according to high current output requirement for line interface.
- Line relay & isolation transformer
T4 is the line isolation transformer, both audio input and output is through this transformer. RL1 is the reed relay for line seize, which is controlled Q13.
- Ring detect circuit
IC2 is used as a differential amplifier for pick up the ring signal, which is input through two 20M ohm resistor (R77 and R78) as an isolation from the line.

2-6990 digital security coding system :

The handset and base unit of 2-6990 will exchange a random generated 16 bits digital security code, when every time the handset put on the charging cradle of base unit. This is to FCC Part 15.214(d) requirement.