FS29639A Circuit Description

The following circuit description is for model FS29639A and which base on the circuit diagram and block diagram.

1. RECEIVING PATH (HANDSET)

The receiving path is established by the SAW duplexer, and input to tuning amplifier Q4 before output to COMBO U1 1st mixer.

a. Mixer

Mixer is included in COMBO U1. Local Oscillator (LO) is controlled through external coil L6. The first IF (10.7MHz) is filtered by ceramic filter CF2.

b. IF amplifier

IF amplifier is built in U1. Amplifier IF is filtered again by a ceramic filter CF1, then input to FM demodulator also inside COMBO.

c. FM demodulator and expander

The IF demodulated by quadrate coil COMBO, then the recovered audio is input to the expander for de-emphasis, before output to the handset speaker though audio amplifier.

2. TRANSMITTING PATH (HANDSET)

The transmitting path is established by below sections.

a. Microphone amplifier and compressor

Audio frequency picked 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).

b. Modulator and Tx VCO

The transmit VCO is internal at U1 and controlled by external coil L6. Both audio and data signal input to the transmit VCO will cause a frequency modulation progress.

c. RF power amplifier

FM signal is amplifier by Q1 and fit to the antenna through SAW duplexer.

1. **RECEIVING PATH (BASE)**

The receiving path is established by below sections.

a. Low Noise Amplifier (LNA)

FM signal is filtered by the SAW duplexer, and input to tuning amplifier Q27 before output to COMBO U2 1st mixer.

b. Mixer

Mixer is included in COMBO U2. Local Oscillator (LO) is controlled through external coil L6. The first IF (10.7MHz) is filtered by a ceramic filter CF1.

c. IF amplifier

IF amplifier is built in U2. Amplified IF is filtered again by a ceramic filter CF2, then input to FM demodulator also inside COMBO

d. FM demodulator and expander

The IF demodulated by quadrate coil COMBO, then the recovered audio is input to the expander for de-emphasis, before output to the final AF amplifier for line interfacing

2. TRANSMITTING PATH

The transmitting path is established by below sections.

a. Mic amplifier and compressor

Audio frequency input from the line interface is amplified by internal mic amplifier of U2, then input to compressor for pre-emphasis, before input to the modulator. (Tx VCO)

b. Modulator and Tx VCO

The transmit VCO is internal at U2 and controlled by external coil L6. Both audio and data signal input to the transmit VCO will cause a frequency modulation progress.

c. RF power amplifier

FM signal is amplifier by Q26 and fit to the antenna through SAW duplexer.

3. TELEPHONE INTERFACE

The telephone line interface circuit is established by below sections.

a. Audio power amplifier

TEA1062 of a speech IC is as power amplifiers.

b. Line control

Q2 & Q10 is the opening for line seizure, which is controlled by Q3.

c. Ring detect circuit

U3 is used as a differential amplifier for accurately detecting the ring signal, which is connected by one 100nF capacitor C130 from the telephone line.
U1 is used as ringer circuit with line DC powered, the speaker rings when there is an incoming call even no DC power supply connected.

4. INTERCOM CIRCUIT

The intercom circuit is established by below sections
Q15 is used as a switch for Tx which is controlled by the "int" signal.
Q16 is used as a switch for Rx which is also controlled by the "int" signal, Q14 is a pre-amplifier of Rx audio signal.

FS29639A DIGITAL SECURITY CODING SYSTEM

The handset and base unit of model FS29639A will exchange a randomly generated 16-bit (total of 65536) discrete digital security code every time the "del/handshaking" buttons of both base and handset are respectively pressed for seconds at the same time.

Frequency Table

	Tx (Base)	Tx (Handset)
Ch 1	46.610	49.670
Ch 2	46.630	49.845
Ch 3	46.670	49.860
Ch 4	46.710	49.770
Ch 5	46.730	49.875
Ch 6	46.770	49.830
Ch 7	46.830	49.890
Ch 8	46.870	49.930
Ch 9	46.930	49.990
Ch 10	46.970	49.970