

EXHIBIT B

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

"Description of Circuit Functions"

## 26928A Circuit Description

The following circuit description for model 26928A is based on the circuit diagram and block diagram of 26928A .

### Handset:

#### 1. Receiving Path

The receiving path is established by below sections.

##### Low Noise Amplifier (LNA)

RF signal is being filtered by the SAW Duplexer FL501, and input to the Tuning Amplifier Q555 before output to mixer.

##### Mixer and RXVCO

Mixer is composed of the Q512. The amplified RF signal is mixed with the Local Oscillator (LO) Q506, which is controlled by the RXVCO section of the Combo IC U1 (I/O pins 44 & 46). The 10.7MHz IF is trimmed through a Ceramic Filter CF501.

##### IF Amplifier

The composite IF is input and further amplified by the IF Amplifier section of U1 (input pin 40). The amplified IF is again trimmed through the 2<sup>nd</sup> Ceramic Filter F1. The filtered IF is input to the FM Demodulator section of U1 (input pin 33).

##### FM Demodulator and Expander

The 2<sup>nd</sup> composite IF is demodulated by the Quadrature tank coil T1. The recovered audio is then input to the Expander section of U1 for de-emphasis.

##### AF Amplifier

The de-emphasized signal is then trimmed and amplified through the AF Amp section of U1 (output pin 49/50) before being output to the Speaker.

#### 2. Transmitting Path

The transmitting path is established by below sections.

##### Microphone Amplifier and Compressor

Audio Frequency picked up by the handset microphone is amplified by internal Mic Amplifier section of U1 through input pin 13. The amplified AF signal is then input to

the compressor section of U1 for pre-emphasis, after which the signal is fed to the Modulator circuit (TXVCO).

#### Modulator and TXVCO

The Transmit LO is composed by Q509 which is controlled by the TXVCO section of U1, and the Frequency Doubler Q503. Both AF and Data signals are input to the TXVCO which will cause Frequency Modulation to progress.

#### RF power amplifier

The Frequency Modulated signal is amplified by the RF Amp Q510 and is propagated through the Antenna via the Duplexer.

### **Base Unit:**

#### **1. Receiving Path**

The receiving path is established by below sections.

#### Low Noise Amplifier (LNA)

RF signal is being filtered by the SAW Duplexer FL501, and input to the Tuning Amplifier Q555 before output to mixer.

#### Mixer and RXVCO

Mixer is composed of the Q512. The amplified RF signal is mixed with the Local Oscillator (LO) Q506, which is controlled by the RXVCO section of the Combo IC U1 (I/O pins 44 & 46). The 10.7MHz IF is trimmed through a Ceramic Filter CF501.

#### IF Amplifier

The composite IF is input and further amplified by the IF Amplifier section of U1 (input pin 40). The amplified IF is again trimmed through the 2<sup>nd</sup> Ceramic Filter F1. The filtered IF is input to the FM Demodulator section of U1 (input pin 33).

#### FM Demodulator and Expander

The 2<sup>nd</sup> composite IF is demodulated by the Quadrature tank coil T1. The recovered audio is then input to the Expander section of U1 for de-emphasis.

#### AF Amplifier

The de-emphasized signal is then trimmed and amplified through the AF Amp section of

U1 (output pin 49/50) before being output to the Line Interface circuitry.

## **2. Transmitting Path**

The transmitting path is established by below sections.

### AF Amplifier and Compressor

Audio Frequency from the Line Interface is amplified by internal Mic Amplifier section of U1 through input pin 13. The amplified AF signal is then input to the compressor section of U1 for pre-emphasis, after which the signal is fed to the Modulator circuit (TXVCO).

### Modulator and TXVCO

The Transmit LO is composed by Q509 which is controlled by the TXVCO section of U1, and the Frequency Doubler Q503. Both AF and Data signals are input to the TXVCO which will cause Frequency Modulation to progress.

### RF power amplifier

The Frequency Modulated signal is amplified by the RF Amp Q510 and is propagated through the Antenna via the Duplexer.

## **3. Telephone Line Interface**

The Telephone Line Interface is established by below sections.

### Audio Power Amplifier

IC2-C&IC2-D(LM324) are built as AF Power Amplifier for a higher AF level output requirement for the Line Interface.

### Line Isolation Transformer and Relay

T1 is utilized as Line Isolation Transformer. Both AF input and output are coupled to the Line Interface through this transformer. RL1 is a reed relay for line seizing, which is controlled Q3 through CPU (IC3) pin 24. This is also the circuit performing the Pulse Dialing process.

### Ring Detect Circuit

IC2 -A and IC2 -B are configured as a differential amplifier to pick up the ring signal, which is coupled through two 20M ohm resistors (R44 and R45) to isolate the circuit from the Telephone Line.