EXHIBIT E

Block Diagram

1. MODEM BASIC BLOCK DIAGRAM

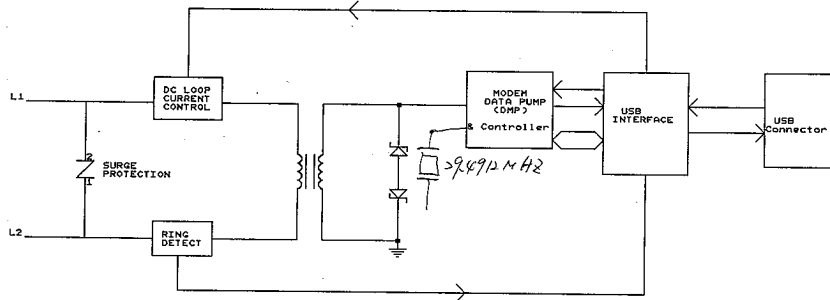FIGURE 1 : MODEM BLOCK DIAGRAM
DM-5614/USB

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5. MODEM UNIT

The Fucent USB Modem Device Family supports high speed analog data,
high speed fax. The modem consists of USB Controller and modem
data pump (MDP) hardware functions and host-controlled modem software.
Downloadable architecture allows updating of DMP
executable code. In V.90/K56flex data mode, the modem can receive data at speeds up to 56 kbps
from a digitally connected V.90 or K56flex compatible central site modem. The modem can send
data at speeds up to V.34 rates. In V.34 data mode, the modem operates at line speeds up to 33.6K bps
Error correction (V.42/MNP 2-4) and data compression (V.42 bis/MNP 5) maximize data transfer
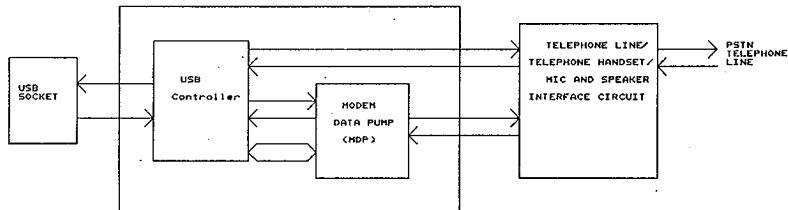integrity and boost average data throughput.

FIGURE 5 : MODEM CHIPS

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2. DC LOOP CURRENT CONTROL

The local loop consists of two wires, "TIP" and "RING", that connect the signal switching equipment to a telephone. DC flow in the local loop is recognized by the telephone switching system as an indication that a phone is in use.

In telephone company terminology, a phone (or modem) is "on-hook" when no local loop current is flowing and "off-hook" when local loop current is flowing. To meet these and the isolation specifications, a relay is typically implemented for on-hook/off-hook control of the modem.

VCC

DSP 1675
DATA PUMP

TIP

T1

RING

TRANSFORMER
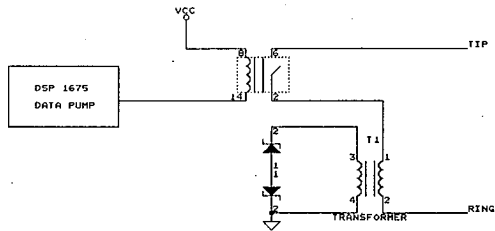
3. RING DETECT

The user interface to the telephone company's "TIP" and "RING" signals by
means of a RJ-11 jack (RJ-12). In many modem applications it is necessary to
automatically answer a call so that data may be transferred when the data
terminal equipment is unattended.The telephone system uses what is know as
a "ringing" voltage" to ring the bell in a telephone. Figure 3 shows a circuit
that can detect the AC ringing signal (typically 17-33HZ at 40-130 Vrms "on"
2 second, "off" 4 seconds) which is superimposed on the on-hook loop voltage
(nominal 48 volts DC). The circuit components include a high voltage cupling
capacitor (0.47u/250v), a protection diode (1N4002), a zener diode (27V), a current
limiting resistor and an optical coupler(4N35).

When an AC signal of ring is coming from "TIP" and "RING" edges, the status O
the pin-5 of "4N35" (the photo coupler) will be low (other wise they will be high).
The signal becomes low, the connects to the PCI BUS INTERFACE and bring about
an interrupt signal. the modem will count the number of the interrupt signal by
its ring senser. If the number is same with the number of so register setting,
the modem will have alow signal output and that let modem pick up the line
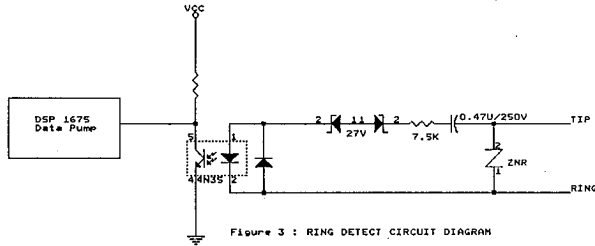and have handshak with the remote mode.

Figure 3 : RING DETECT CIRCUIT DIAGRAM

4. SURGE PROTECTION AND ISOLATION

This circuitry is utilized to protect the modem from damage caused by excessive voltage (such as lighten) that may appear on a telephone line. Part 68 of the FCC's regulations has an isolation requirement between the phone line ("TIP" and "RING") and the modem which is usually satisfied by implementing a transformer for coupling the incoming and outgoing AC analog signals.

As shown in Figure 4 , this transformer must not introduce signal distorion due to transformer saturation (caused by the flow of DC loop current through the winding).
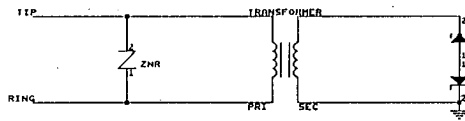

Figure 4 : SURGE PROTECTION CIRCUIT DIAGRAM