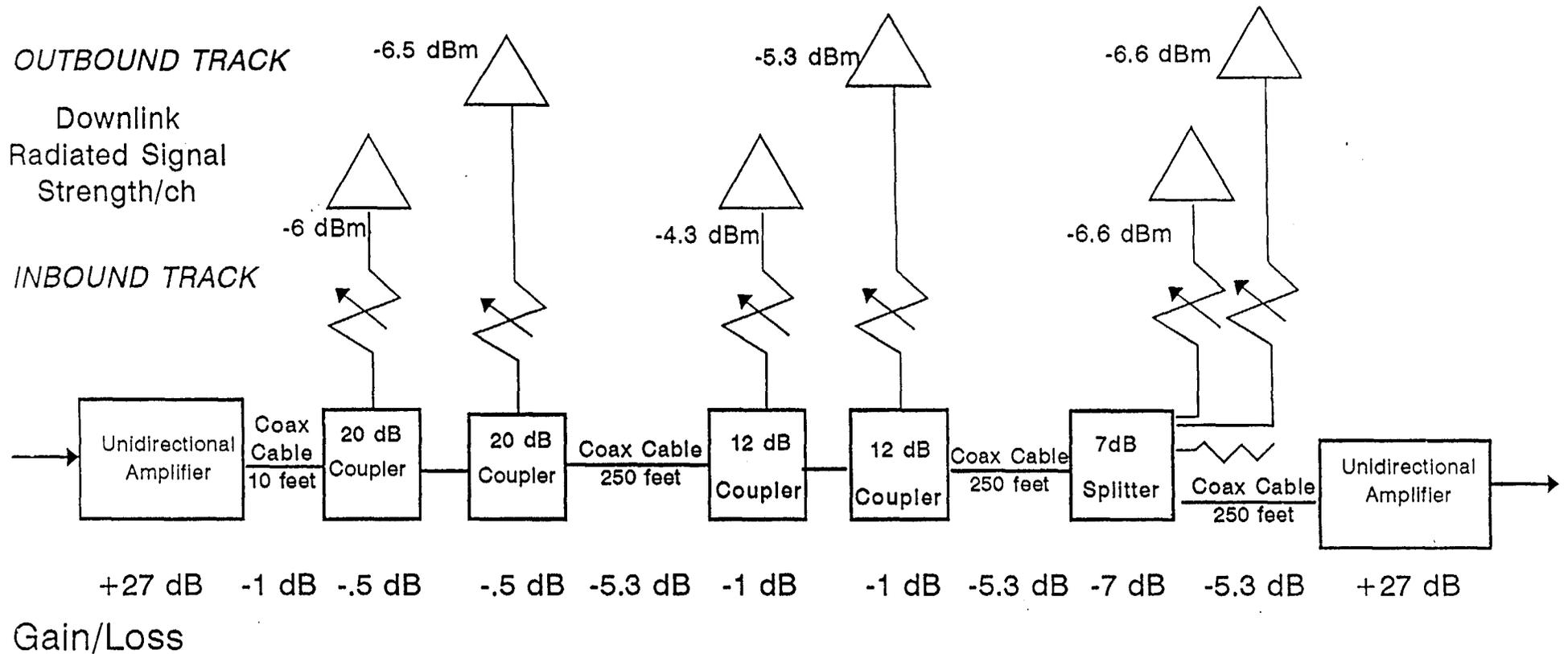


Distributed Antenna System



NOTES:

1. Assumes 1 watt composite power downlink amplifier.
2. 1/2" plenum rated 75 ohm coaxial cable.
3. Maximum number of channels equal 20.
4. Output of each downlink amplifier of +15 dBm/ch
5. Unity gain antennas are used.

DECIBEL
PRODUCTS



Office Cell

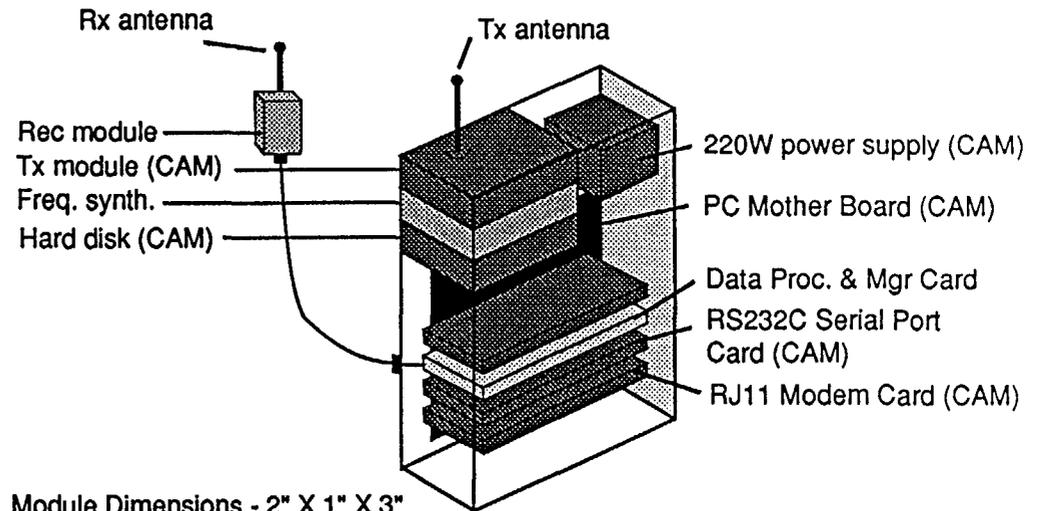
Operating Sequence

- 1) Receive timing, plus command and control form Polling channel
- 2) Receive Return Link data from in office STUs (Subscriber Transceiver Unit)
- 3) Send return link data to system controller over PSTN but change Polling link ID to this office cell ID
- 4) Receive data over PSTN for transmission on Data channel
- 5) Transmit data to in-office STUs
- 6) Receive data from in-office STUs over Data channel

Description of Operational Sequence

The Rec module demodulates the Polling, Data and Return Link channels. The Processor Manager extracts timing plus command and control from the Polling channel, IDs, instructions and ARQ from the Return Link. Office cell sends this office ID plus user ID over the phone line to the system controller. Then, data to be transmitted with transmission instructions are received over the phone line and held in memory until transmission time. Then the computer pulls that file and transmits that file at that assigned time and ARQ procedures. The pager case size Rec. module is linked to the cabinet using phone extension cables with RJ11 jackson both ends.

Modified PC Mini Tower



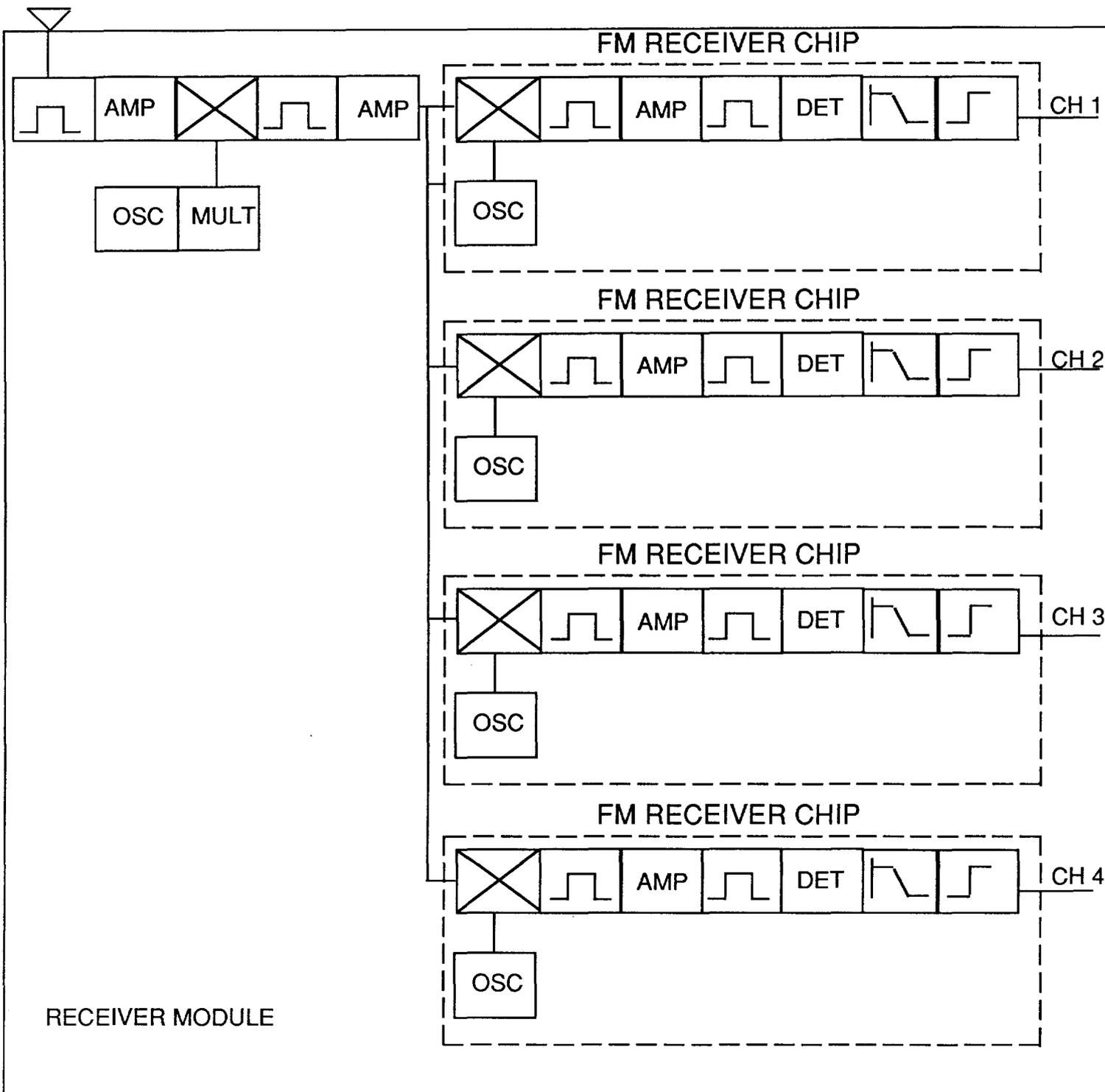
Rec. Module Dimensions - 2" X 1" X 3"
 Cabinet Dimensions - 13" X 8" X 16"
 (CAM) - Commercial Available Module

Technical Specifications

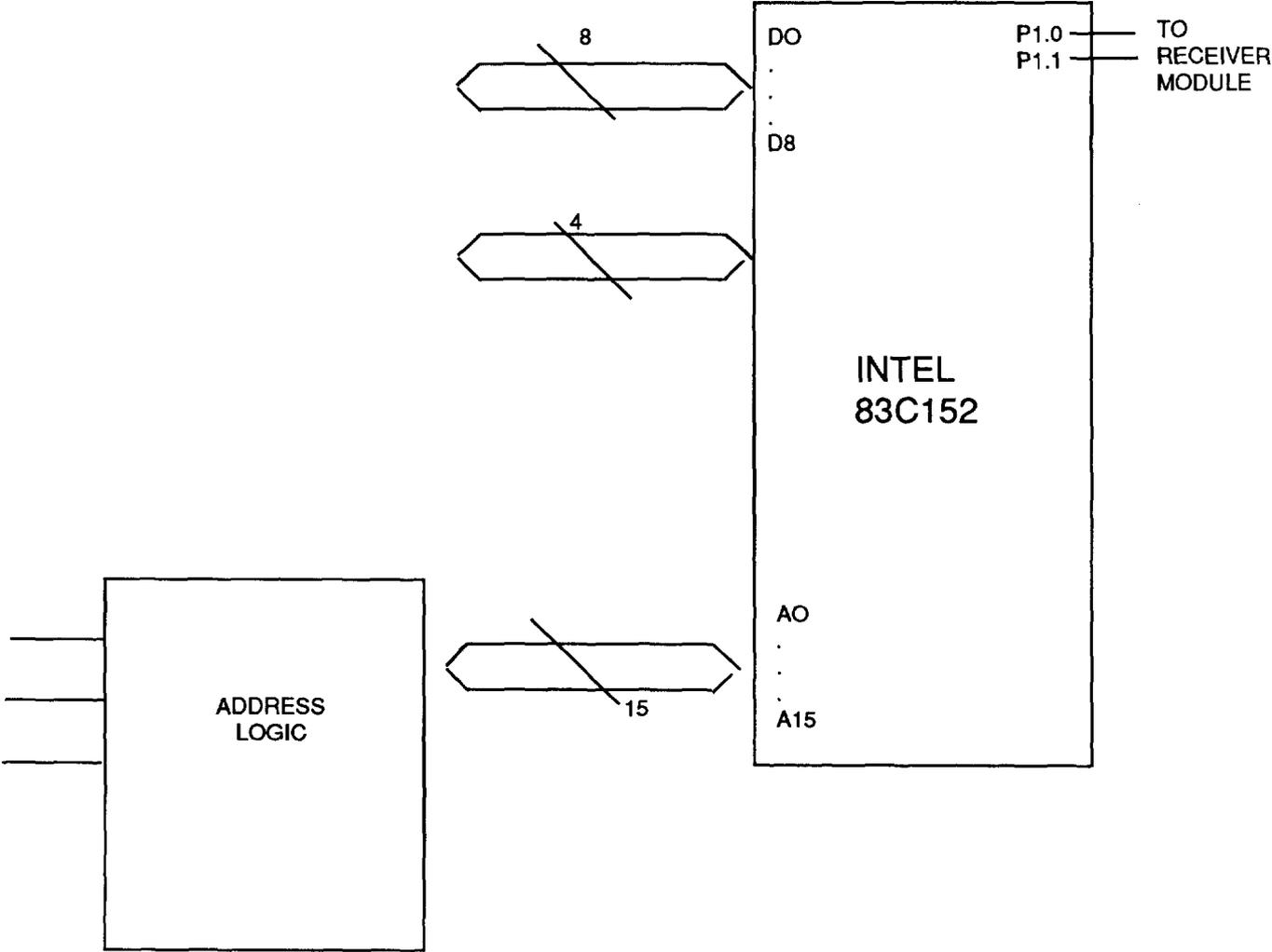
Rx Channels	3+	Selectable 8 Fixed 2channels
Bandwidth	25 kHz	Channel bandwidth
Frequency	930.0125 MHz + n25 kHz	Channel center frequency
	n = {0,1,2...9}	n = channel number
RF Power	10w ERP	Effective Radiated Power
Receive Specs	2,400 bps	Match POCSAG 1200
Rec. Module	2" X 1" X 3" (pager case)	RF board of pager
Tx Module	10 watts, one channel	Pager transmitter

Receiver Module

(Functional Block Diagram)



Data Processor and Manager Card



Personal Transceiver Subsystem

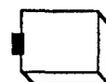
(Subscriber Transceiver Unit + Power Module + End User Product)

Operating Functions

- STU receives Polling and Data channel signals
- STU transmits Return Link channel plus Data channel signals
- Power Module unit boosts RF modem output to 10 watts ERP

Operational Sequence

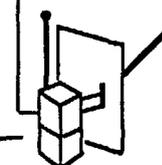
When paged by the polling channel, the STU receives, decodes and then the Power Module outputs a 10-watt RF signal on the Return Link that tells its ID, best receiving station ID and instructions on delivery of that data. The STU then receives the data on a Data channel and sends back ARQ over the Return Link at 10w. To transmit data back, access is acquired through the Return Link, and data is transmitted over one of the Data channels.



RF modem module insert
(STU) Subscriber Transceiver Unit

Power Module
(10 w ERP)

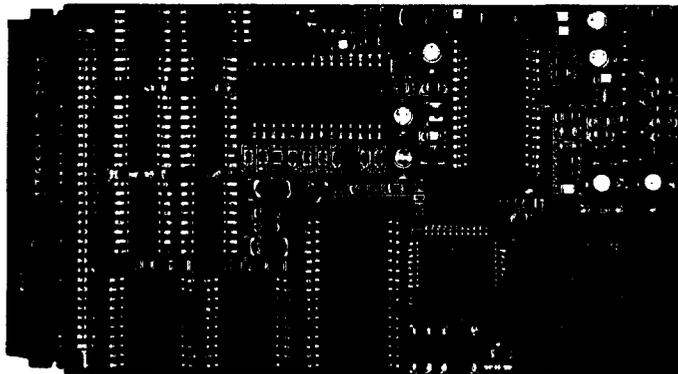
110v AC



Product Specifications

- RF modem module
 - (1" X 2.5" X 0.25") STU
 - Match pager receiver specs.
 - 100 mw transmitter
 - 10-watt ERP
 - 110 AC wall socket input
 - RF amplifier + power supply
 - charger feedback option
- Power Module Unit

PCMCIA "Pager Card" Prototype (Forerunner of PCMCIA Transceiver Card)



Physical Characteristics

Card Type:	PCMCIA Type II
Interface:	PCMCIA Memory Card or I/O
Antenna:	<ul style="list-style-type: none">• Flush mount (battery could be incorporated into external handle; AAA preferred, AA probably too large)• Some manufacturers may require custom design and location.• Contact platform manufacturers on EMI and RFE compatability. This is consistent with other PCMCIA card product manufacturers.
Switch:	Power On-Off
Indicator:	Blinking LED <ul style="list-style-type: none">• Message waiting indicator• Low battery indicator when voltage drops to design unit
Display:	None
Lable:	PCMCIA STU release/paragraph 3.1.7 lable

PCMCIA "Pager Card" Prototype (Continued)

Power Source

- Battery:
- 700 hours out of portable (350 hours lower limit)
 - Internal see PCMCIA STD release 1.0 paragraph 3.1.6 battery location
 - Consider re-chargeable options when card is inserted in platform
 - Use portable power source when card is inserted in PCMCIA slot
 - Insert and remove with portable power active

Product Features

Data Rate: 2,400 BPS; product evolution should anticipate upgrade to 4,800 or 9,600 BPS as 2nd generation product

Format: POCSAG (2400 BPS)

Address: Minimum of 4 POCSAG addresses. Minimum of 16 addresses including the 2 POCSAG function bits.

Memory: 32K bytes minimum

Internal Clock: Time and date stamp of all received messages or last packet received.

Electrical Requirements/
RF Requirements

Commensurate with Motorola Bravo pager
Commensurate with Motorola Bravo pager

Portable Unit

(PDMCIA Card Driver Software)

Display Features: PCMCIA pager card should rely on software in the portable unit to manage the information in RAM

- Message waiting indicator
- Number of messages, type of message, time and date stamp of message arrival
- Low battery indicator for PCMCIA card when voltage not within operational limit
- Battery charging indicator (min./max.)
- PCMCIA card in-range indicator

PCMCIA Transceiver Card

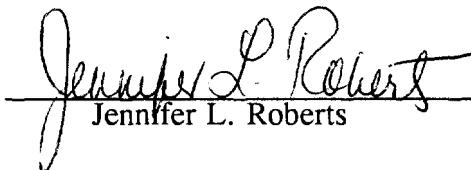
Receiver: See PCMCIA receiver card

Transmitter:

Power Out:	100 mw to 500 mw
Frequency:	930 MHz
Modulation:	Constant Amplitude
Bandwidth:	FCC masking specification for 25 kHz bandwidth

CERTIFICATE OF SERVICE

I, Jennifer L. Roberts, do hereby certify on this 16th day of June, 1992, that I have served a copy of the foregoing **REPLY COMMENTS OF PAGEMART, INC.** via first class mail, postage prepaid, or via hand delivery to the parties on the service list below.


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