**REPORT DOCUMENTATION PAGE**

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<th>2. REPORT DATE</th>
<th>3. REPORT TYPE AND DATES COVERED</th>
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<td></td>
<td>22 April 1999</td>
<td>Pamphlets</td>
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<th>4. TITLE AND SUBTITLE</th>
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<tr>
<td>RD-681/UHN and RD-674A/UHN Recorder Reproducers</td>
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<th>6. AUTHOR(S)</th>
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<tr>
<td>Matthew T. Durkin</td>
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<td>Naval Air Warfare Center Aircraft Division</td>
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<tr>
<td>22347 Cedar Point Road, Unit #6</td>
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<tr>
<td>Patuxent River, Maryland 20670-1161</td>
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11. SUPPLEMENTARY NOTES

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13. ABSTRACT (Maximum 200 words)

The RD-674A/UHN and RD-681/UHN Recorder-Reproducers are Commercial-off-the-Shelf (COTS) equipments that have been mechanically modified to allow the equipment to pass MIL-S-901D shock tests. All components in the recorders are readily available on the commercial market. The recorders contain a 586 microprocessor that operates at 133 MHz. They also contain 16 bit A/D and D/A converters for signal sampling and reproduction. Both of these components are found in the Military Critical Technologies List (MCTL) Section 5.5 Table 5.5-1 Microelectronics Militarily Critical Technology Parameters.

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<td>RD-681UHN</td>
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<td>Recorder-Reproducer</td>
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**DTIC QUALITY INSPECTED**

19991004 303
**RD-681/UNH RECORDER-REPRODUCER**

**WHY HAVE A VOICE RECORDER?**

**DESCRIPTION**

Voice recorders provide a precise and verbatim log of internal and external radio communications. This information can be invaluable for:

- Immediate playback transmissions during combat or emergency situations to determine exact message received or transmitted.
- Determining if proper operational & radio telephone procedures are being followed.
- Conducting incident or accident analysis.
- Providing court-acceptable records.

* The RD-681/UNH is a commercial-off-the-shelf (COTS), PC-based, state-of-the-art, voice recording system that automatically records when voice signals are present at any one of 32 input channels. It operates in the Windows environment & can record 32 audio channels (expandable to 80). A major advantage of the RD-674A/UNH is that audio recording need not be interrupted to provide simultaneous & synchronized playback of four channels of audio. This allows recording to continue while the operator plays back previously recorded transmissions. Voice data is digitized by the processor & stored on rewritable magneto-optical disks. Each disk can record up to 230 hours of voice transmissions. Commands & operator input may be given to the computer via touch screen or keyboard. The system can be housed in a standard EIA cabinet with a 19-inch-rack configuration. Since the system does not contain a magnetic hard disk drive, communications security is obtained when the magneto-optical disks containing the recorded data are ejected. To ensure the rigid quality control standards are maintained, each RD-681/UNH is subjected to a total system end-to-end test.
**FEATURES**

- Meets communications security requirements for shipping.
- Signal recognition circuitry records only voice signals.
- Current IRIG-B/HAVEQUICK time format & time-of-day synchronization.
- Multi-channel voice data archiving, including automatic switching of recording drives in the event of drive or disk failure or when the recording disk is full.
- Remote & internal alarm to warn that the disk is in danger of becoming full or warn of media error.
- CD-ROM Computer-based training.
- Journal of all magneto-optical disks with data & all recorded audio time tagged for easy retrieval.
- Flat panel display:
  - Will not implode on impact, making it safer for an operator in a shipboard environment.
  - Less EMI susceptible than CRT displays.
  - Bright & viewable off axis.
- Password protected to prevent unauthorized removal or erasure of magneto-optical disks.
- System self-test diagnostics.
- Operator Help Menu.

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### SPECIFICATIONS

**Nomenclature:** RD-681/UNH Recorder-Reproducer  
**NSN:** 5835-01-461-8184  
**Ric:** 00039040  
**Operating Sys:** Windows 95  
**Display:**  
  Type: Color  
  **TFT:** 10" (diagonal)  
**Keyboard:** 80 key IBM- Compatible  
**Drives:**  
  Operating: 2.6 GB magneto-optical  
  1 Priority: 2.6 GB magneto-optical  
  2 Archive: 2.6 GB magneto-optical  
  1 Current: 2.6 GB magneto-optical  
**Storage/disk:** 230 hours at 1:4 comp.  
**Compression:** 1:4 ADPCM/1:5 ADPCM  
**Playback:** 40 ms  
  Access time: Simultaneous 1-32 channels  
  Monitor: Channel, date or time  
  Search by: Up to 4 channels real-time  
  Multi-channel: Internal/external  
**Alarm:**  
  Dry contacts  
**Impedance:**  
  Input: 25 Kohms  
  Output: As low as 50 ohms  
**Isolation:** >80 dB between channels  
**Outputs:**  
  Audio: 0.5 W  
  Headphones: 8-600 ohms  
  Line: 0 dBm  
**Power:**  
  Voltage: 90 to 130/180 to 250  
  Frequency: 47 to 63 Hz  
  Consumption: 300 W  
**Temperature:**  
  Operating: 0 to 45 degrees C  
  Shipping: -40 to 60 degrees C  
  Storage: 0 to 60 degrees C  
**Relative Humidity:** 20 - 80% non-condensing  
**Weight:** 50 lbs.  
**Height:** 10.5"  
**Width:** 19.125"  
**Depth:** 17.5" w/o handles  
  19.375" with handles

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![NAWC Logo]

**Matt Durkin**  
Shipboard Exterior Communications Integration Branch  
Naval Air Warfare Center Aircraft Division Patuxent River, Code 4.5.8.3.1  
Building 5225, Villa Road Unit 11, St. Inigoes, MD 20684-0010  
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DSN: 342-3512 ext. 8751  
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EMAIL: matt_durkin@jflc.webflf.navy.mil
The RD-674A/UNH was developed to replace the RD-379/390 recorder & RP-214 reproducer, which are no longer manufactured or supported by industry sources & are obsolete, unreliable, & costly to maintain. The RD-674A/UNH is a commercial-off-the-shelf (COTS), PC-based, state-of-the-art, voice recording system that automatically records when voice signals are present at any one of 32 input channels. It operates in the Windows environment & can record 32 audio channels (expandable to 80). A major advantage of the RD-674A/UNH is that audio recording need not be interrupted to provide simultaneous & synchronized playback of four channels of audio. This allows recording to continue while the operator plays back previously recorded transmissions. Voice data is digitized by the processor & stored on rewritable magneto-optical disks. Each disk can record up to 230 hours of voice transmissions. Commands & operator input may be given to the computer via a touch screen or a keyboard. The system can be housed in a standard EIA cabinet with a 19-inch-rack configuration. Since the system does not contain a magnetic hard disk drive, communications security is assured when the magneto-optical disks containing the recorded data are ejected. To ensure rigid quality control standards are maintained, each RD-674A/UNH is subjected to a total system end-to-end test & is shock & vibration qualified in accordance with MIL-S-901 Grade B & MIL-STD-167. Class D Ship Alterations (SHIPALTS) have been approved for CG 49, DDG 51 & FFG-class ships & are pending for AOE 6, AGF 3/11, CV 65/67, CVN 65/68, LCC 19, LHA 1, LHD 1, LPD 4, LSD 36/49, & MCM 1-class ships.
**FEAT URES**

- Meets communications security requirements for shipping.
- Signal recognition circuitry records only voice signals.
- Current IRIG-B/HAVEQUICK time format & time-of-day synchronization.
- Multi-channel voice data archiving, including automatic switching of recording drives in the event of drive or disk failure or when the recording disk is full.
- Remote & internal alarm to warn that the disk is in danger of becoming full or warn of media error.
- CD-ROM Computer-based training.
- A disk storage drawer to store up to 81 magneto-optical disks.
- Navy Center-approved uninterruptible power supply (UPS), providing power conditioning & up to one hour of standby power.
- Journal of all magneto-optical disks with data & all recorded audio time tagged for easy retrieval.
- Flat panel display:
  - Will not implode on impact, making it safer for an operator in a shipboard environment.
  - Less EMI susceptible than CRT displays.
  - Bright & viewable off axis.
- Password protected to prevent unauthorized removal or erasure of magneto-optical disks.
- System self-test diagnostics.
- Operator Help Menu.

**SPECIFICATIONS**

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- **Operating Sys:** Windows 95
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  - Type: Color
  - **TFT:** 10" (diagonal)
  - **Keyboard:** 80 key IBM-Compatible
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  - 1 Priority: 2.6 GB magneto-optical
  - 2 Archive: 2.6 GB magneto-optical
  - 1 Current: 2.6 GB magneto-optical
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- **Compression:** 1:4 ADPCM/1:5 ADPCM
- **Playback:**
  - **Access time:** 40 ms
  - **Monitor:** Simultaneous 1-32 channels
  - **Search by:** Channel, date or time
  - **Multi-channel:** Up to 4 channels real-time
  - **Shock:** MIL-S-901 Grade B
  - **Vibration:** MIL-STD-167
  - **Alarm:** Internal/external
  - **Impedance:** Dry contacts
  - **Input:** 25 Kohms
  - **Output:** As low as 50 ohms
  - **Isolation:** >80 dB between channels
- **Outputs:**
  - **Audio:** 0.5 W
  - **Headphones:** 8-600 ohms
  - **Line:** 0 dBm
- **Power:**
  - **Voltage:** 90 to 130/180 to 250
  - **Frequency:** 47 to 63 Hz
  - **Consumption:** 300 W
- **Temperature:**
  - **Operating:** -40 to 60 degrees C
  - **Shipping:** 0 to 60 degrees C
  - **Storage:** 0 to 60 degrees C
- **Relative Humidity:** 20 - 80% non-condensing
- **Weight:** 396 lbs.
- **Height:** 60"
- **Width:** 21.31"
- **Depth:** 28.6"

---

**Matt Durkin**

Shipboard Exterior Communications Integration Branch
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