MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of Avaya MultiVantage G3CSI (ProLogix) Digital Switching System with Software Release R011x.7585.7.0.2, and Software Patch # 6153

References: (a) DOD Directive 4630.5, “Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS),” 11 January 2002

(b) CJCSI 6212.01C, “Interoperability and Supportability of National Security Systems and Information Technology Systems,” 20 November 2003

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for system interoperability test certification. Additional references are provided in enclosure 1.

2. The Avaya MultiVantage G3CSI (ProLogix) Digital Switching System with Software Release R011x.7585.7.0.2 and Software Patch # 6153, hereinafter referred to as the system under test (SUT), met all of its critical interoperability requirements, and is certified as interoperable for joint use within the Defense Switched Network (DSN). The identified test discrepancies shown in reference (c) that remained open after software patches were applied and regression testing was completed have an overall minor operational impact. The SUT was tested and met the critical interoperability requirements for the following DSN switch types: Private Branch Exchange (PBX) 1 and PBX 2. This certification expires upon changes that could affect interoperability, but no later than three years from the date of this memorandum.

3. This finding is based on interoperability testing of the Avaya MultiVantage G3CSI (ProLogix) Digital Switching System with Software Release R011x.7585.7.0.2 conducted by JITC and certified on 8 December 2003 as seen in reference (c), and regression testing of Software Patch # 6153 conducted 8 through 12 December 2003 at the JITC facility at Ft. Huachuca, AZ. The test results and tested network and systems configurations can be found in enclosure 2 of reference (c). System interoperability should be verified before deployment in an operational environment that varies significantly from the test environment.
4. The interoperability summary of the SUT is indicated in table 1. The interoperability status and criticality are listed in table 2, Exchange Requirements (ERs) and Functional Requirements (FRs) for the DSN are listed in table 3, and description of Software Patch # 6153 is shown in table 4. The Avaya switch product line offers a Remote Switch Unit capability referred to as the Survivable Remote Processor Expansion Port Network. This product line also offers a Voice over Internet Protocol capability. Preliminary testing was performed on these capabilities, but neither is covered by this certification. Network Management (NM) capabilities of the SUT platform were tested in accordance with the DISA NS53 requirements as set forth in references (d) and (e). These references require that a switch provide NM capabilities via either Ethernet, serial (EIA-232), or serial (X.25 or BX.25 variant). The SUT meets the NM requirements through the use of either serial (EIA-232) or Ethernet connection as shown in reference (c). This interoperability test status is based upon evaluation of:

a. The following network interfaces as specified in reference (f), DSN, Public Switched Telecommunications Network or Commercial Network Gateway.

b. The interface and signaling requirements for trunk/line interfaces, and interoperability ERs and FRs derived from references (g) and (h).

c. The overall system interoperability performance derived from test procedures listed in reference (i).


<table>
<thead>
<tr>
<th>Network</th>
<th>Critical</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| DSN                            | Yes      | Certified | - VoIP not certified
|                                |          |         | - Certified as PBX1 and PBX2
|                                |          |         | - RSU not certified
|                                |          |         | - E1 CAS and CDC certified (DISN-E only)
|                                |          |         | - The identified test discrepancies shown in enclosure 2 of reference (c) that remained open have an overall minor operational impact.
| Commercial Network Gateway     | No       | Certified |                                                                 |

Legend:
- CAS - Channel Associated Signaling
- CDC - Common Data Channel
- DSN - Defense Switched Network
- E1 - European Basic Rate (2.048 Mbps)
- Mbps - Megabits per second
- PBX1 - Private Branch Exchange 1
- PBX2 - Private Branch Exchange 2
- RSU - Remote Switching Unit
- VoIP - Voice over Internet Protocol
## Table 2. Interoperability Status

### Trunk Interfaces

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Critical Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF</td>
<td>No Certified</td>
<td>Met all ERs and FRs.</td>
</tr>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1</td>
<td>No Certified</td>
<td>Met all ERs and FRs.</td>
</tr>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DP</td>
<td>No Certified</td>
<td>Met all ERs and FRs.</td>
</tr>
<tr>
<td>PCM-30 E1 CAS HDB3 MFR1</td>
<td>No Certified</td>
<td>Met all ERs and FRs.</td>
</tr>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) ISDN PRI</td>
<td>Yes Certified</td>
<td>Met all critical ERs and FRs. Full compliance to the ANSI T1.619a requirement not met. Operational impact is minor.</td>
</tr>
<tr>
<td>Analog E&amp;M Signaling Type I</td>
<td>No Certified</td>
<td>Met all ERs and FRs.</td>
</tr>
</tbody>
</table>

### Line Interfaces

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Critical Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPC ISDN BRI ST and U Interface Q.931</td>
<td>Yes Certified</td>
<td>Met all critical ERs and FRs. ISDN Supplemental Services and full compliance of DSN Announcements not met. Operational impact is minor.</td>
</tr>
<tr>
<td>TPC 2-Wire Analog</td>
<td>Yes Certified</td>
<td>Met all critical ERs and FRs. Full compliance of DSN Announcements not met. Operational impact is minor.</td>
</tr>
<tr>
<td>TPC 2-Wire Digital (Proprietary)</td>
<td>No Certified</td>
<td>Met all ERs and FRs except for full compliance of DSN Announcements. Operational impact is minor.</td>
</tr>
</tbody>
</table>

### Defense Switched Network

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Critical Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP</td>
<td>No Certified</td>
<td>Met all ERs and FRs.</td>
</tr>
<tr>
<td>TPC EIA232 Asynchronous @ 9.6 kbps</td>
<td>No Certified</td>
<td>Met all ERs and FRs.</td>
</tr>
</tbody>
</table>

### Network Management Interfaces

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Critical Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP</td>
<td>No Certified</td>
<td>Met all ERs and FRs.</td>
</tr>
</tbody>
</table>

### Commercial Network Gateway

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Critical Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same Interfaces and Signaling as DSN</td>
<td>No Certified</td>
<td>See note 5.</td>
</tr>
</tbody>
</table>

### Notes:

1. The Avaya MultiVantage G3CSI will not allow calls between unlike DSN service domains when resources are available. The Avaya MultiVantage G3CSI meets the minimum requirements defined in reference (j). The operational impact is minor.
2. ISDN Supplemental Services are currently not used in the DSN. The operational impact is none.
3. Met all DSN announcement requirements except for Isolation Code Announcement. The Avaya MultiVantage G3CSI provides this announcement only for precedence calls above ROUTINE.
4. ROUTINE precedence calls receive a fast busy signal.
5. NM is not a requirement for PBX1 or PBX2. NM functions were tested though and met all ERs and FRs.
6. The certification of interoperability with commercial networks was verified based on the review of the vendor's letter of compliance to requirements identified as the “L” and “V” items listed in appendix E of the GSTP and specified in tables 2-1 through 2-15 of the GSCR.
Table 3. Exchange and Functional Requirements

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trunk Interfaces</strong></td>
<td></td>
</tr>
</tbody>
</table>
| PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF | - MLPP  
- Hotline Services  
- System Interface  
  - Non-secure Voice and Data  
  - Secure Voice and Data (STU-III and STE)  
  - NX56 kbps and NX64 kbps Synchronous Data  
  - Non-secure and Secure FAX  
  - VTC  
  - Alarms |
| PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1 | - Integrated Services Digital Network (ISDN PRI only)  
- Attendant Services¹  
- System Administration, Measurements, and Service Standards  
- Y2K (Rollover, Valid and Invalid Dates)  
- Screening, Zone Restriction, and DSN Access Restriction |
| PCM-24 T1 B8ZS/ESF ISDN PRI | - Automated Message Accounting  
- Network Integration  
- Common Data Channel (T1 and E1 CAS only)  
- ANSI T1.619a (T1 ISDN PRI) |
| Analog E&M Signaling Type I |                                   |
| **Line Interfaces**    |                                   |
| TPC ISDN BRI ST and U Interface Q.931 | - MLPP  
- Hotline Services  
- ANSI T1.619a  
- ISDN Supplemental Services  
- Call Treatments  
- DSN Announcements  
- Attendant Services¹  
- EKTS  
- VTC  
- NX56 kbps and NX64 kbps Synchronous Data  
- Non-secure Voice and Data  
- Secure Voice and Data (STE) |
| TPC 2-Wire Analog | - MLPP  
- Hotline Services  
- DSN Announcements  
- Traffic Measurements  
- Attendant Services¹  
- Call Treatments  
- Non-secure Voice and Data  
- Non-secure and Secure FAX  
- Secure Voice and Data (STU-III and STE) |
| TPC 2-Wire Digital and Analog (Proprietary) | - MLPP  
- Hotline Services  
- DSN Announcements  
- Traffic Measurements  
- Attendant Services¹  
- Call Treatments  
- Non-secure Voice |

¹ Additional requirements specified for ISDN PRI only.
Table 3. Exchange and Functional Requirements (continued)

<table>
<thead>
<tr>
<th>Defense Switched Network (continued)</th>
<th>Network Management Interfaces</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 5 TPC IEEE 802.3 10BaseT</td>
<td>- Automated Message Accounting</td>
<td></td>
</tr>
<tr>
<td>Ethernet, TCP/IP</td>
<td>- Traffic Measurements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Man Machine Language</td>
<td></td>
</tr>
<tr>
<td>TPC EIA232 Asynchronous @</td>
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<td>9.6 kbps</td>
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</tr>
<tr>
<td>Same Interfaces and Signaling as DSN</td>
<td>See note 2.</td>
</tr>
</tbody>
</table>

Legend:
- 10BaseT - Ethernet Based Operation, Twisted Pair
- ANSI - American National Standards Institute
- BRI - Basic Rate Interface
- CAS - Channel Associated Signaling
- CAT - Category
- DP - Dial Pulse
- DSN - Defense Switched Network
- E1 - European Basic Rate (2.048 Mbps)
- E&M - Ear and Mouth
- EKTS - Electronic Key Telephone Service
- ESF - Extended Superframe
- FAX - Facsimile
- GSCR - Generic Switching Center Requirements
- GSTP - Generic Switch Test Plan
- HDI3 - High Density Bi-Polar Three
- IEIEEE - Institute of Electrical and Electronic Engineers, Inc.
- ISDN - Integrated Services Digital Network
- kbps - kilobits per second
- Mbps - Megabits per second
- MFR1 - Multi-Frequency R1
- MLPP - Multi-Level Precedence and Preemption
- NX66 - Data format is restricted to multiples of 64 kbps
- PCM-24 - Pulse Code Modulation 24 Channels
- PCM-30 - Pulse Code Modulation 30 Channels
- PRI - Primary Rate Interface
- SF - Superframe
- ST - ISDN BRI Four-Wire Interface
- STE - Secure Terminal Equipment
- STU-III - Secure Telephone Unit-III
- SUT - System Under Test
- T1 - Digital Transmission Link level 1 (1.544 Mbps)
- TPC - Twisted Pair Copper
- U - ISDN BRI Two-Wire Interface
- VTC - Video Teleconferencing
- Y2K - Year 2000

Notes:
1. SUT meets all the GSCR exchange requirements for attendant services with the following console: Lucent Attendant Console Model 302C.
2. The certification/compliance of interoperability to commercial networks was satisfied based on the review of the vendor’s letter of compliance to requirements identified as the “L” and “V” items listed in appendix E of the GSTP and specified in tables 2-1 through 2-15 of the GSCR.

Table 4. Software Patch # 6153 Description

<table>
<thead>
<tr>
<th>Software Patch #</th>
<th>Patch Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6153</td>
<td>1. Deletion of the MLPP ANSI T1.619a information elements on a non-DSN ISDN PRI Trunkgroup (DSN Term=No). 2. Allows for Remote Access with PIN from DSN to local commercial extensions.</td>
</tr>
</tbody>
</table>

- ANSI - American National Standards Institute
- DSN - Defense Switched Network
- ISDN - Integrated Services Digital Network
- Mbps - Megabits per second
- MLPP - Multi-Level Precedence and Preemption
- PIN - Personal Identification Number
- PRI - Primary Rate Interface
- T1 - Digital Transmission Link level 1 (1.544 Mbps)

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses unclassified (NIPRNET) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNET at https://stp.fhu.disa.mil/. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNET), or http://199.208.204.125/
JITC, Memo, Networks and Transport Division (JTE), Special Interoperability Test Certification of Avaya MultiVantage G3CSI (ProLogix) Digital Switching System with Software Release R011x.7585.7.0.2 with Software Patch # 6153


6. The JITC point of contact is Mr. John Gese, DSN 879-5164, commercial (520) 538-5164, FAX DSN 879-4347, or e-mail to gesej@fhu.disa.mil.

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Networks and Transport Division

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ADDITIONAL REFERENCES

(c) Joint Interoperability Test Command Memorandum, Networks, Transmission and Integration Division (JTE), “Joint Interoperability Test Certification of Avaya MultiVantage G3CSI (ProLogix) Digital Switching System with Software Release R011x.7585.7.0.2,” 8 December 2003


(e) Defense Information Systems Agency (DISA) NS53, Memorandum, “DSN Network Management Requirements for End Offices,” 2 August 2001

(f) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, “Policy for Department of Defense Voice Services,” 23 September 2001


(i) Joint Interoperability Test Command, “Defense Switched Network Generic Switch Test Plan (GSTP),” 17 June 1999