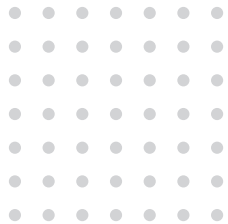


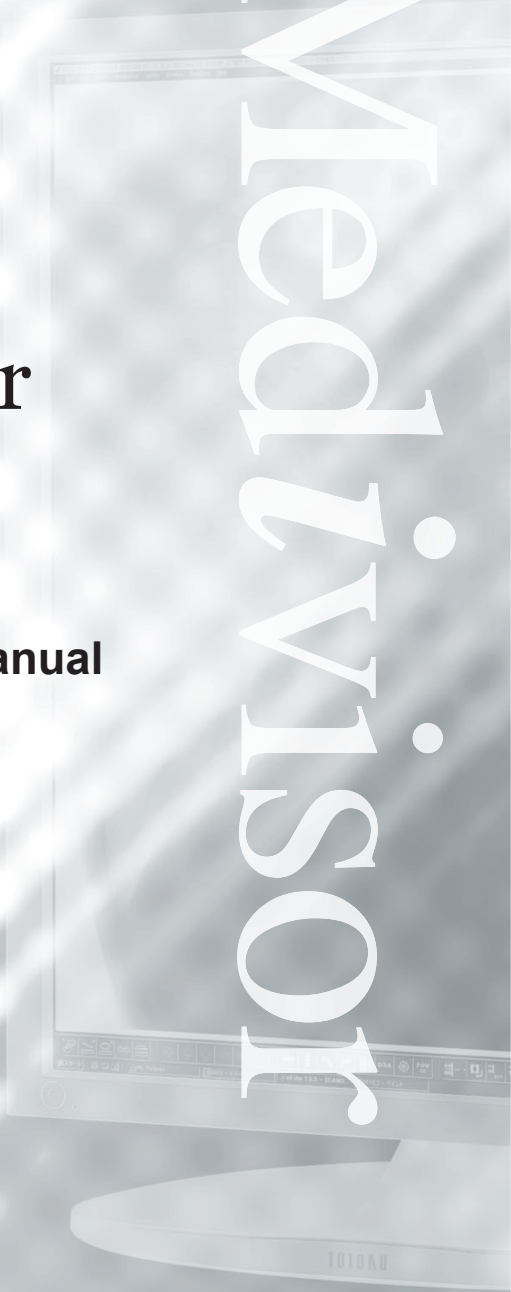
TOTOKU



# GSDF Checker

**User's Manual**

Medivisor



Thank you for purchasing GSDF Checker. Please read this manual before you start using GSDF Checker.

**Note:**

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**TOTOKU**

<http://www.totoku.com/dp/>

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— Make sure to read this Software License Agreement before use. —

## **Software License Agreement**

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Please read this Software License Agreement ("Agreement") thoroughly before using or installing this software. By installing this software, you are agreeing to be bound by the terms of this Agreement. If you do not agree to this Agreement, return the entire package with all of its contents along with the purchase receipt to the place of purchase for a full refund.

### **Article 1 – Definition**

1. Software identified above (hereinafter called "Software"), includes documents such as manual and specifications, etc, media, any software and such products delivered by TOTOKU from time to time under this Agreement.
2. Individual Contract means the agreement to be concluded in the form of purchase order, which shall set forth terms and conditions including, but not limited to, (a) identification of Products including model numbers (b) quantity (c) requested shipping date from Japanese port (d) price (e) payment (f) shipping instructions and shipping address.

### **Article 2 – Order of Precedence**

The terms and conditions of this Agreement shall govern Individual Agreement. In case that terms and conditions of Individual Agreement is inconsistent or conflict with the provisions of this Agreement, the provisions of this Agreement shall prevail.

### **Article 3. – Grant of License**

1. TOTOKU hereby grants to User and User accepts non-exclusive and non-transferable license to use, install and copy Software under this Agreement.
2. User shall use Software solely on its computer of the same number as the number of licenses. User shall not sublicense, rent or lease Software or use Software for third-party training, commercial time-sharing or service bureau use.
3. The aforesaid license granted is solely for User's operations on the designated system.

### **Article 4 – Limitations on License**

1. User shall not cause or permit to any third party the reverse engineering, discovering the source code, disassembly, modification, update, customization or recompilation of Software.
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3. TOTOKU shall retain all title, copyright and other proprietary rights in Software. User shall not acquire any right, express or implied, in Software, other than those specified in this Agreement.

### **Article 5 – Management of Software**

1. Subject to the terms and conditions hereunder, User may copy Software for archival and backup purposes and agree to label all such copies with the copyright notice designated by TOTOKU. User shall manage the copy of Software with the duty of

care and diligence of a good manager and, upon TOTOKU's request, shall make a written report to TOTOKU in respect of Software copied.

2. At TOTOKU's written request, User shall furnish TOTOKU with a signed certification verifying that Software are being used pursuant to the provisions of this Agreement. TOTOKU reserves the right at any time to inspect Software at the business premises of User during the term of this Agreement to insure and maintain the quality and efficient management of Software. In case the aforesaid inspection reveals that User has underpaid fees to TOTOKU, User shall be invoiced for such underpaid fees with penalty.
3. User may change its computer where Software is to be installed in subject to prior written consent of TOTOKU.

#### **Article 6 – After Sales Service**

After sales service such as reply to inquiry, technical support, training and consulting service for Software shall be provided by TOTOKU or TOTOKU's distributor under the after sales agreement between User and TOTOKU or TOTOKU's distributor.

#### **Article 7 – Warranty**

##### 1. Program Warranty

- (1) TOTOKU warrants that Software will perform the functions described in its manual and/or specifications during the term of this Agreement unless (a) Software is modified, disassembled or customized by the parties other than TOTOKU (b) Software is operated in combinations other than as specified in its manual and/or specifications. In addition, TOTOKU shall make its best efforts to make Software free from program error. Provided, however, that TOTOKU shall not warrant that Software is error free and uninterrupted.
- (2) In the case of breach of the foregoing warranty, TOTOKU shall make its best efforts to correct the defect or program errors by providing updated or amended version of Software. In case TOTOKU cannot correct the defect or program errors, TOTOKU may, at its option, terminate this Agreement and any payment previously made to User by TOTOKU will be refunded, less the reasonable value received by User of the use of Software to the date of the aforesaid termination.

##### 2. Media Warranty

- (1) TOTOKU warrants that CD-ROM or other media for Software is free from defects in materials and workmanship under normal use for fourteen (14) days from the date of delivery.
- (2) In the case of breach of the foregoing warranty, TOTOKU shall replace or repair the defective media accordingly. Notwithstanding the aforesaid warranty, in case that any software made by the third party is included in Software, the provisions of the user software license agreement between User and the third party shall be applied in respect of such software.

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## **Article 8 – Intellectual Property Right**

1. User acknowledge that all patents, designs, copyrights, know how and other intellectual property rights used or embodied in connection with Software are the exclusive properties of TOTOKU, and shall not dispute them for any reason whatsoever. User shall not apply for or register any intellectual property right in connection with Software.
2. User hereby agree to advise TOTOKU immediately after User becomes aware that any intellectual property right in connection with Software is attacked or infringed upon by any third party. In the case of aforesaid attack or infringement, User shall cooperate with and aid TOTOKU for the defense proceedings at its own cost, and TOTOKU shall retain all rights to control the direction of any action thereof.
3. To the best knowledge of TOTOKU, Software will not infringe upon any intellectual property right of any third party. Notwithstanding the foregoing, in the case of any claim of infringement or alleged infringement of intellectual property rights brought by third parties in relation to Software, User shall advise, cooperate with and aid TOTOKU for the defense proceedings at its own cost, and TOTOKU shall retain all rights to control the direction of any action thereof.
4. In case that Software is held or believed by TOTOKU or any court of competent jurisdiction to infringe any intellectual property right of any third party, TOTOKU shall have the option, at its expense, to (a) modify Software to be non infringing; or (b) obtain a license for User to continue the deal of Software. If it is not commercially reasonable to perform either of the above options, then TOTOKU may terminate the license for the infringing Software and refund the license fees paid for Software to User, less the reasonable value received by User to the date of the aforesaid termination.

## **Article 9 – Confidential Information**

1. User shall not disclose to third parties any information, which is confidential and proprietary in nature of TOTOKU in respect of Software. Such confidential and proprietary information (hereinafter called as “Confidential Information”) includes, but not limited to trade secrets, know-how, inventions, patents, techniques, processes, programs, schematics, data. User agree that Confidential Information shall be kept confidential and shall not be disclosed to any other party without the written consent of TOTOKU.
2. User shall exercise the sole and proper control and supervision over any of their employees and hereby assumes full liability and responsibility of all obligations in connection with any party’s employees and any activity of such employees in connection with Confidential Information.

## **Article 10 – Limitation of Liability**

1. To the maximum extent permitted by applicable law, in no event shall TOTOKU or its distributor be liable for any special, incidental, indirect or consequential damages whatsoever including, without limitation, damages for loss of business profits, business interruption, loss of business information or any other pecuniary loss arising out of the use of or inability to use, Software or failure to provide after sales services, even if TOTOKU has been advised the possibility of such damages. In any case, TOTOKU’s entire liability under any provision of this Agreement or Individual Contract shall be limited to the amount paid by User for the purchase of Software.

2. Software is not fault-tolerant and is not designed, intended, or licensed for use in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, and life support or weapons systems, in which the failure of Software could lead directly to death, personal injury, or severe physical or environmental damage (hereinafter called as "High Risk Activities"). Without limiting the generality of the foregoing, TOTOKU specifically disclaim any express or implied warranty of fitness for High Risk Activities.

#### **Article 11 – Export Regulations**

User may take Software outside of its own country subject to the prior written consent of TOTOKU. In the case of foregoing, User shall, at its own cost and responsibility, comply with all relevant export laws and regulations of its own country (hereinafter called as "Export Laws") to assure that neither Software nor any related program thereof are (1) exported, directly or indirectly, in violation of Export Laws; or (2) are intended to be used for any purposes prohibited by Export Laws, including, without limitation, nuclear, chemical or biological weapons proliferation.

#### **Article 12 – Taxes**

User shall be solely responsible for and shall pay or reimburse TOTOKU for, all taxes, duties, assessments and other governmental charges which are now or hereafter imposed by governmental authority associated with the performance of TOTOKU's obligations under this Agreement.

#### **Article 13 – Duration**

1. This Agreement comes into force on the date first written and, unless sooner terminated, shall continue in effect for a period of one (1) year. Provided, however, that in case the parties hereto agreed to the terms and conditions in respect of the renewal or extension of this Agreement in writing prior to the expiration of the term hereof, this Agreement shall be renewed or extended for the term agreed upon.
2. In the event of expiration of this Agreement, the parties hereto shall have no claim against the other party for the loss of good will or future profit.

#### **Article 14 – Termination**

TOTOKU may, without prejudice to any other rights or remedies, terminate this Agreement or Individual Contract, if the User fails to perform any provision of this Agreement or Individual Contract.

#### **Article 15 – Effect of termination**

If this Agreement is expired or terminated under the terms and conditions herein, the parties hereto shall comply with the followings:

- (1) The license granted hereunder shall terminate.
- (2) User shall return to TOTOKU Software, together with all copies, in all forms and whether partial or complete, on all types of media and computer memory, and whether or not modified or merged into other material.
- (3) User shall delete or remove Software and any such source code from all workstation and/or terminal pursuant to TOTOKU's directions.

#### **Article 16 – Damages**

If TOTOKU was damaged or injured due to User's breach or default of any provision hereof or by the termination specified at the subparagraph from (1) to (5) in Article 14, TOTOKU may claim User damages thereof.

#### **Article 17 – Survival**

Article 8 (Intellectual Property Right) and 9 (Confidential Information) of this Agreement shall survive the termination or expiration hereof.

#### **Article 18. – Severability**

If any provision of this Agreement is held by a court of competent jurisdiction to be illegal or invalid, the remaining provisions hereof shall remain effect.

#### **Article 19 – Force Majeure**

Neither parties hereto shall be liable for any delay or failure to perform any of its obligations hereunder, other than the obligation to make any payment which is due, if such delay or failure is due to fire, flood, earthquake, epidemic, unusually severe weather, strike, act of God, or public enemy, public disorder, restriction by civil or military authority in their sovereign or contractual capacities, transportation failure or any other cause beyond the reasonable control of the parties.

#### **Article 20 – Assignment and Delegation**

Neither whole of this Agreement nor any part hereof shall be assignable or delegable by any party hereto without other parties' prior written consent, which shall not be unreasonably withheld. In the event of such assignment or delegation, the assigning or delegating party shall remain liable to the other parties and shall not be relieved of any obligation under this Agreement.

#### **Article 21 – Waiver**

Failure by any party to require performance by the other parties or to claim a breach of any provision of this Agreement shall in no manner be deemed to be a waiver of such provision or right on any other occasion.

#### **Article 22 – Arbitration**

All disputes, controversies or differences that may arise between the parties hereto, out of or in relation to or in connection with this Agreement or the breach hereof which have not been settled by mutual consultation, shall be finally settled by the arbitration. The arbitration shall be held in Tokyo, Japan in accordance with the Commercial Arbitration Rules of The Japan Commercial Arbitration Association. The award to be rendered shall be final and binding upon the parties hereto. Judgment upon such award may be entered in any court having jurisdiction thereof.

#### **Article 23 – Governing Law**

This Agreement shall be governed and construed in accordance with the laws of Japan.

#### **Article 24 – Entire Agreement**

This Agreement constitutes the entire and only agreement between the parties hereto and supersedes all previous negotiations, agreements and communications with respect hereto, and shall not be released, discharged, changed or modified in any manner, except by instruments signed by duly authorized officers or representatives of each of the parties hereto.



# 1 Introduction

## 1.1 About GSDF Checker

GSDF Checker is a software to verify conformance to the DICOM GSDF on TOTOKU ME/CCL Series i model displays that have previously been calibrated to the DICOM GSDF curve.

## 1.2 Package contents

This product package contains the following items. If anything is missing, please contact your dealer.

	Item	Qty.
1	Medivisor CD-ROM	1
2	Calibration Sensor DTP94	1
3	Counterweight	1

## 1.3 Operating environment

<b>Computer</b>	IBM PC/AT compatible machine	
<b>Operating system</b>	Microsoft Windows XP Professional SP1 or later Microsoft Windows 2000 Professional SP4	
<b>Language</b>	English Japanese	
<b>Supported calibration software</b>	Medivisor Color Ver. 1.7 Medivisor Grayscale Ver. 1.9	
<b>Supported TOTOKU display</b>	CCL250i ME251i ME353i	CCL350i ME351i
<b>Connectable displays</b>	8	

## 1.4 Reference document

User's manual for the calibration software

## 2 Installation

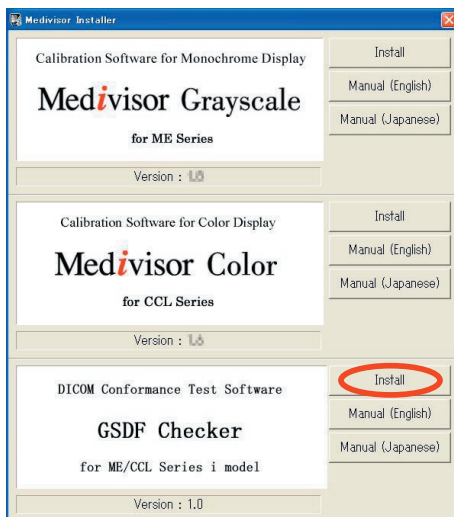
This chapter explains how to connect cables and install the hardware and software. Make sure to log in as a user with administrative privileges registered with a local computer before starting installation.

### 2.1 Connecting cables

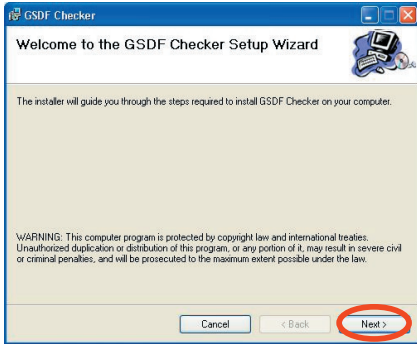
Connect the communication cable supplied with the display (see the user's manual for the calibration software).

### 2.2 Installing GSDF Checker

1. Insert the accompanying CD-ROM into the computer's CD drive, and the Installer starts up automatically. If not, run **launcher.exe** on the CD-ROM to start the installer and click "Install."



2. When the Setup Wizard appears, click "Next."

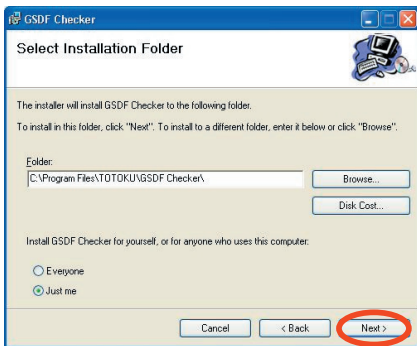



3. The License Agreement screen appears. To accept the agreement and proceed with installation, select "I Agree" and click "Next."



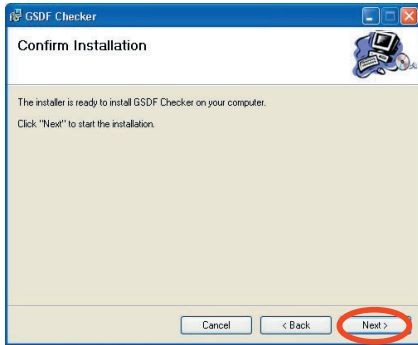
**Important**  
You must accept the agreement to complete installation of GSDF Checker.

4. When the Select Installation Folder screen appears, select a destination folder. Further down the screen is the setting as to where the shortcut to this software should be created. To share it with all users of the destination computer, select "Everyone." To use it by yourself, select "Just me" and click "Next."

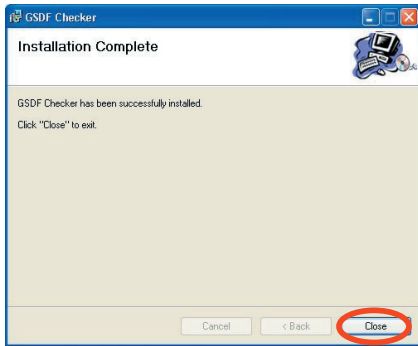


 By default, the destination is C:\Program Files\TOTOKU\GSDF Checker\.

5. When the Confirmation Installation screen appears, click "Next" to start installation.

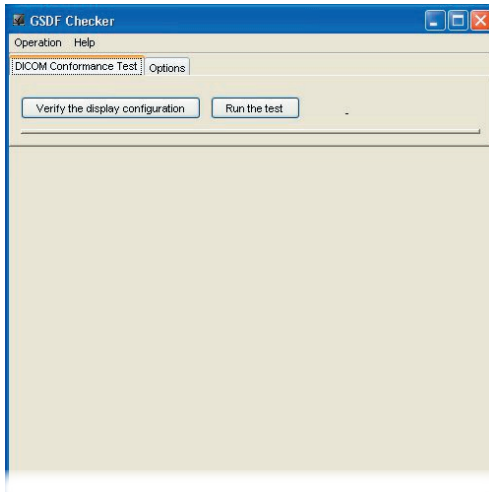


6. When the Installation Complete screen appears, click "Close" to complete installation. Remove the CD-ROM from the CD drive.

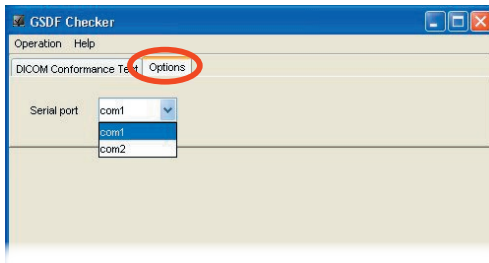


### 3 Operation Method

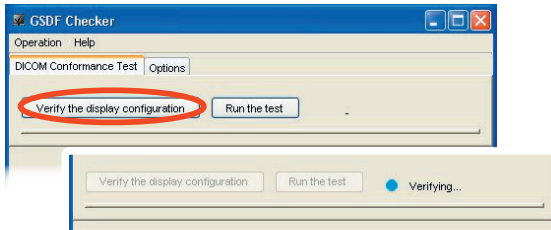
1. Select **TOTOKU>GSDF Checker>GSDF Checker** from the **Start** menu.



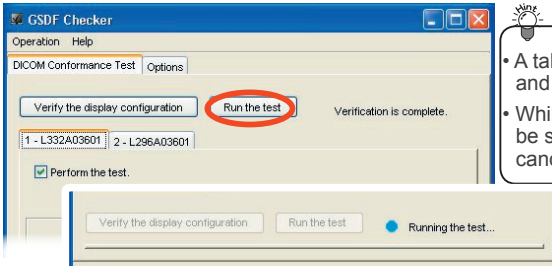
2. Open the **Options** tab, select a serial port to which the display is connected, and click "Next."



3. Open the **DICOM Conformance Test** tab and click "Verify the display configuration."

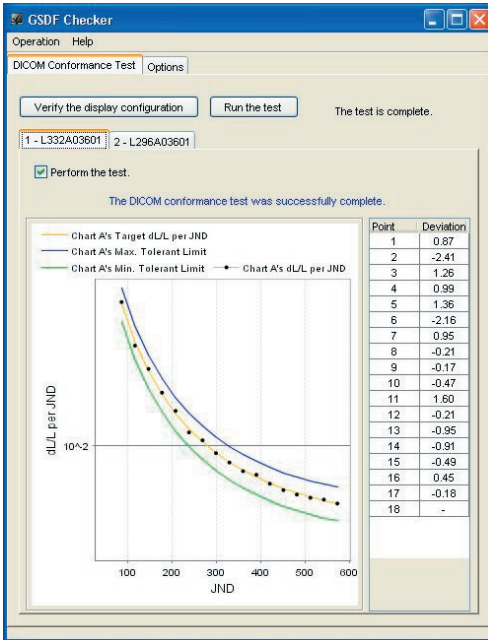


- When the display configuration is verified, a message to that effect appears and the tabs for each connected display appear. Each tab contains a check box for "Perform the test" and it is checked by default. If necessary, uncheck it for the display whose conformance test does not need to be checked. Click "Run the test" to test conformance to DICOM GSDF.



- A tab name consists of a display ID and a serial number.
- While testing, the software cannot be shut down or the test cannot be cancelled.

- When the conformance test is complete, a message to that effect appears and the test results for all displays for which "Perform the test." is checked are displayed. When the results fall outside the specified range, a "The DICOM Conformance Test failed." message appears. In this case, calibrate the display to DICOM GSDF using the calibration software's auto adjustment function. For other error messages and their solutions, see the table below.



The followings are the seven possible error messages and their solutions. Follow the instructions provided before performing the conformance test again.

<b>Error Message</b>	<b>Solution</b>
The test was terminated because the display is not calibrated to the DICOM GSDF.	The DICOM conformance test cannot be carried out on displays that are not calibrated to the DICOM GSDF. Calibrate the display to the DICOM GSDF using the calibration software's auto adjustment function.
The test was terminated because the display's luminance is not stable.	It becomes harder to maintain luminance stability as time passes since the last calibration or when the backlight gets deteriorated. Calibrate the display to the DICOM GSDF using the calibration software's auto adjustment function.
The test was terminated because the display is manually adjusted.	The DICOM conformance test cannot be carried out on displays that have been manually calibrated. Calibrate the display to the DICOM GSDF using the calibration software's auto adjustment function.
The test was terminated because the display is not aged long enough.	It takes at least 60 minutes for luminance to stabilize after the display is turned on. Wait at least 60 minutes prior to the test to allow luminance to stabilize.
The test was terminated because the display's internal temperature is outside the valid range.	The display's current internal temperature is way off compared with that at the time of the last calibration. Calibrate the display to the DICOM GSDF using the calibration software's auto adjustment function.
The test was terminated because the internally-adjusted values are outside the adjustable range.	There is an internal error occurring for some reason and the conformance test cannot be carried out. Calibrate the display to the DICOM GSDF using the calibration software's auto adjustment function.
The test was terminated because incorrect parameters were detected in the display.	

## 4 Uninstallation

To uninstall GSDF Checker, select **Control Panel>Add/Remove Programs** from the **Start** menu and remove GSDF Checker. After uninstallation, the GSDF Checker folder may remain in the directory where GSDF Checker was installed and the location below. Delete the folder manually using Windows Explorer.

**C:\Documents and Settings\All Users\Application Dats\TOTOKU\GSDF Checker**

## 5 Appendix

### **GSDF (Grayscale Standard Display Function):**

In the human visual perception system, the smallest perceptible luminance difference is called JND (just-noticeable difference), and the mathematically defined mapping of an input JND index to luminance values is the GSDF curve.

### **DICOM conformance test:**

The evaluation method of display performance of medical imaging systems, according to AAPM TG18, is to find out the percentage change per one JND in actual luminance ( $\Delta L_m/L_m$ ) from minimum to maximum luminance ( $L_{min}$  to  $L_{max}$ ), and mathematically evaluate the deviation from that of DICOM GSDF's ( $\Delta L_s/L_s$ ). The AAPM TG18 standard specifies that the deviation on primary displays shall be within  $\pm 10\%$ .



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TOTOKU

GSDF Checker User's Manual

December 2005 Edition

PZZ11-1244

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#### **Notes for the User's Manual**

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- The content of this manual is subject to change without notice.
- Although this manual has been prepared carefully, please let us know if you find any errors, omissions, or ambiguous explanations.

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