

# LVS® 9580/9585 Operating Instructions

English



LVS-9580



LVS-9585

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## GS1 Solution Partner

### **Disclaimer**

The information and specifications described in this manual are subject to change without notice.

### **Latest Manual Version or Technical Support**

For the latest version of this manual, or for technical support, see your local Omron website. Your local Omron website can be located by visiting <https://automation.omron.com> and selecting your region from the Global Network panel on the right side of the screen.

## **Security Measures**

### **Anti-Virus Protection**

Install the latest commercial-quality antivirus software on the computer connected to the control system and maintain to keep the software up to date.

### **Security Measures to Prevent Unauthorized Access**

Take the following measures to prevent unauthorized access to our products:

- Install physical controls so that only authorized personnel can access control systems and equipment.
- Reduce connections to control systems and equipment via networks to prevent access from untrusted devices.
- Install firewalls to shut down unused communications ports and limit communications hosts and isolate control systems and equipment from the IT network.
- Use a virtual private network (VPN) for remote access to control systems and equipment.
- Adopt multifactor authentication to devices with remote access to control systems and equipment.
- Set strong passwords and change them frequently.
- Scan for viruses to ensure safety of USB drives or other external storage devices before connecting them to control systems and equipment.

### **Data Input and Output Protection**

Validate backups and ranges to cope with unintentional modification of input/output data to control systems and equipment.

- Check the scope of data.
- Check validity of backups and prepare data for restore in case of falsification or abnormalities.
- Safety design, such as emergency shutdown and fail-soft operation in case of data tampering or abnormalities.

### **Data Recovery**

Back up and update data periodically to prepare for data loss.

When using an intranet environment through a global address, connecting to an unauthorized terminal such as a SCADA, HMI or to an unauthorized server may result in network security issues such as spoofing and tampering.

You must take sufficient measures such as restricting access to the terminal, using a terminal equipped with a secure function, and locking the installation area by yourself.

When constructing an intranet, communication failure may occur due to cable disconnection or the influence of unauthorized network equipment. Take adequate measures, such as restricting physical access to network devices, by such means as locking the installation area.

When using a device equipped with the SD Memory Card function, there is a security risk that a third party may acquire, alter, or replace the files and data in the removable media by removing or unmounting the removable media. Please take sufficient measures, such as restricting physical access to the controller or taking appropriate management measures for removable media, by means of locking the installation area, entrance management, etc.

### **Software**

To prevent computer viruses, install antivirus software on the computer where you use this software. Make sure to keep the antivirus software updated.

Keep your computer's OS updated to avoid security risks caused by a vulnerability in the OS.

Always use the latest version of this software to add new features, increase operability, and enhance security. Manage usernames and passwords for this software carefully to protect them from unauthorized uses.

Set up a firewall (e.g., disabling unused communication ports, limiting communication hosts, etc.) on a network for a control system and devices to separate them from other IT networks.

Make sure to connect to the control system inside the firewall.

Use a virtual private network (VPN) for remote access to a control system and devices from this software.

# Table of Contents

<b>IMPORTANT INFORMATION .....</b>	<b>5</b>
<b>SAFETY INSTRUCTIONS .....</b>	<b>5</b>
<b>STATEMENT OF COMPLIANCE.....</b>	<b>5</b>
<b>ABOUT THE LVS-9580/9585 .....</b>	<b>6</b>
Quiet Zone .....	6
<b>HARDWARE OVERVIEW .....</b>	<b>7</b>
<b>LVS-95XX SOFTWARE STEPS .....</b>	<b>8</b>
Log In to LVS-95XX Software.....	8
Turn On the LVS-9580/9585 Camera .....	10
Calibrate the LVS-9580/9585 .....	11
Calibration Card Reference .....	11
<b>GRADING BARCODES (EXCLUDING DPM GRADING) .....</b>	<b>14</b>
<b>CLEANING INSTRUCTIONS .....</b>	<b>15</b>
<b>ENGINEERING SPECIFICATIONS .....</b>	<b>16</b>
<b>SUPPORTED SYMBOLOGIES AND STANDARDS .....</b>	<b>17</b>
Supported Symbolologies .....	17
Application Standards .....	19
<b>APPENDIX A – OPERATING THE LVS-9580/9585 DPM VERIFIER.....</b>	<b>20</b>
DPM Verification .....	20
DPM4.0/12/660/D .....	20
Grading .....	21
Grading a DPM Symbol.....	21
Remote Grading of a DPM Symbol .....	23
Grading with a Shiny Surface .....	23
Drawing a Blue Sector.....	23
Try Re-Grading .....	24
Structure .....	24
Reports .....	25
<b>APPENDIX B – OPERATING THE LVS-9585 VERIFIER .....</b>	<b>26</b>

Grading DPM Symbols with the LVS-9585 Verifier .....	26
Setup Screen .....	26
Calibration Screen.....	27
Grading Screen .....	27
Choose the Lighting Modes.....	28
Grading a DPM Symbol.....	29
The Zoom Feature.....	30
Remote Grading of a DPM Symbol .....	30

## Important Information

- The LVS-9580/9585 arrives site packaged in a specially designed shipping carton. DO NOT discard this shipping carton in case the system needs to be shipped or stored for any reason. Failure to use this carton when returning the product to Omron Microscan will void the warranty.
- This guide is intended to help the user understand the features and functionality of the LVS-9580/9585. Be sure to reference the following additional resources:
  - Refer to the “LVS-95XX Series Software Installation Guide” for steps on installing LVS-95XX Software. A hard copy version of the “LVS-95XX Series Software Installation Guide” is packaged with the system and an electronic version is located on the installation media.
  - Refer to the “LVS-95XX Series Barcode Quality Station Operations Manual” for comprehensive steps on operating LVS-95XX Software. This manual is located on the installation media packaged with the system.
- For questions or concerns about the performance of the LVS-9580/9585, please contact a local Omron Distributor or Omron Technical Support.

## Safety Instructions

The LVS-9580/9585 has been carefully designed to provide years of safe, reliable performance. However, as with all electrical equipment, there are some basic precautions to avoid personal injury or damage to the system:

- Before using the system, carefully read all the installation and operating instructions.
- Observe all warning instruction labels on the system.
- Never insert anything into the openings of the system.
- Do not use the system near water or spill liquid into it.
- All components used to create the system are CE approved. All circuits were designed to incorporate maximum safety. However, any equipment using electrical voltages may cause personal injury if improperly handled.
- Do not attempt to work on the system with the USB cable connected.
- To avoid damaging the system, unplug the USB cable before cleaning.
- If the system ever needs repair, consult Omron Microscan or an Omron Microscan Distributor.

## Korean Radio Regulations (KC Mark)



R-REM-MKO-XX-XX

The LVS-9580/9585 has been registered under Clause 3, Article 58-2 of the Radio Waves Act.

이 기기는 업무용(A급) 전자파적합기기로서 판

매자 또는 사용자는 이 점을 주의하시기 바라

며, 가정외의 지역에서 사용하는 것을 목적으로

## Statement of Compliance



Manufacturer: Omron Microscan Systems, Inc., 33930 Weyerhaeuser Way S, Suite 210, Federal Way, WA 98001, USA

Производитель: «Омрон Майкроскан Системс Инк., США, Федерал-Вэй, Вашингтон 98001, 33930 Weyerhaeuser Way S, Suite 210

Representative: Omron Electronics Limited Liability Company, 125040, Russian, Moscow, Ulitsa Pravdy, 26. OGRN 10677746976582

Представитель: Общество с ограниченной ответственностью "Омрон Электроникс", 125040, Российская Федерация, город Москва, улица Правды, дом 26, ОГРН 10677746976582

Date of Manufacture: The first two digits of the serial number are the two-digit year of manufacture, or the year of manufacture +20 for serial numbers starting with 3.

Дата изготовления: первые две цифры серийного номера являются двумя последними цифрами года изготовления + 20 для серийных номеров, начинающихся с 3.

## About the LVS-9580/9585

The LVS-9580/9585 is a portable, handheld barcode verifier designed for off-line verification of barcodes to ISO/IEC standards. The LVS-9580/9585 is a 5.0 megapixel camera-based system that grades linear (1D) and two-dimensional (2D) codes up to 3 inches (76 mm) wide and up to 2 inches (51 mm) tall (including the quiet zone). See the “Quiet Zone” section below for more information on quiet zones.

The LVS-9580/9585 verifies barcode labels located on a variety of surfaces including corrugated cardboard boxes, shipping containers, and on a static (non-moving) web. The LVS-9580/9585 grades barcodes in either picket fence or ladder orientation.

Picket Fence Orientation



Ladder Orientation



The LVS-9580/9585 is 21 CFR Part 11 Compliant-Ready.

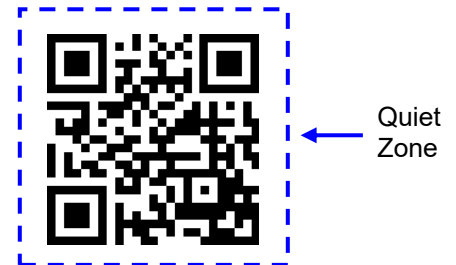
## Quiet Zone

The **quiet zone** is a clear space preceding the start character of a barcode symbol and follows the stop character. When reading/grading a barcode symbol, adequate space for the quiet zone must be allowed. The required quiet zone space for each barcode varies by symbology. An error message appears on the computer screen if not enough space has been allowed for the quiet zone.

1D Barcode Quiet Zone



2D Barcode Quiet Zone



## Hardware Overview

The LVS-9580/9585 is comprised of the following hardware components:



LVS-9580/9585 with USB cable and software installation drive.

**Note:** The image below shows the device *approaching* the symbol to be verified. The four rubber feet at the corners of the verifier window must be placed on the surface where the symbol is printed or marked.

The position of the device shown at left more closely approximates the orientation required in an application setting.



**Important:** The label shown above is 4" x 4". The long linear symbol on the label would not fit in the field of view without using the Stitching Feature described in the LVS-95XX Series Operations Manual.

## LVS-95XX Software Steps

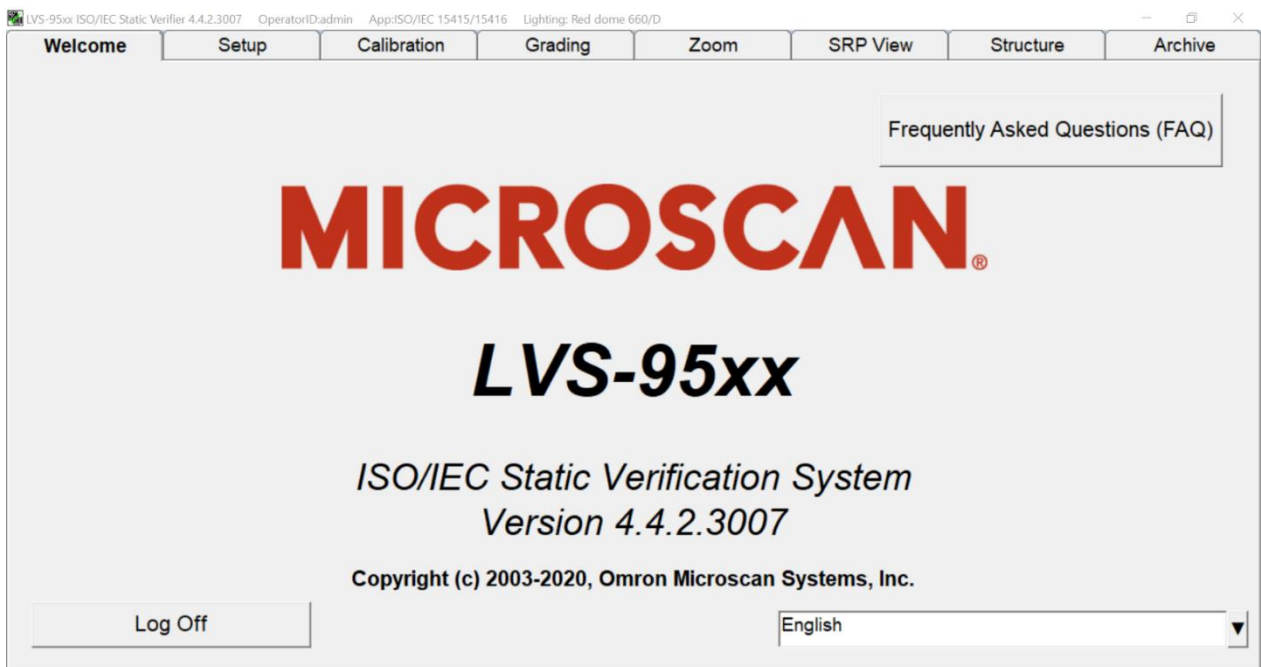
Refer to the sections below for steps on:

- Logging in to LVS-95XX Software
- Turning on the LVS-9580/9585 camera
- Calibrating the LVS-9580/9585

**Note:** Refer to the “LVS-95XX Series Software Installation Guide” for step-by-step instructions on installing LVS-95XX Software; a hard copy version of this guide is packaged with the system and an electronic version is located on the installation media.

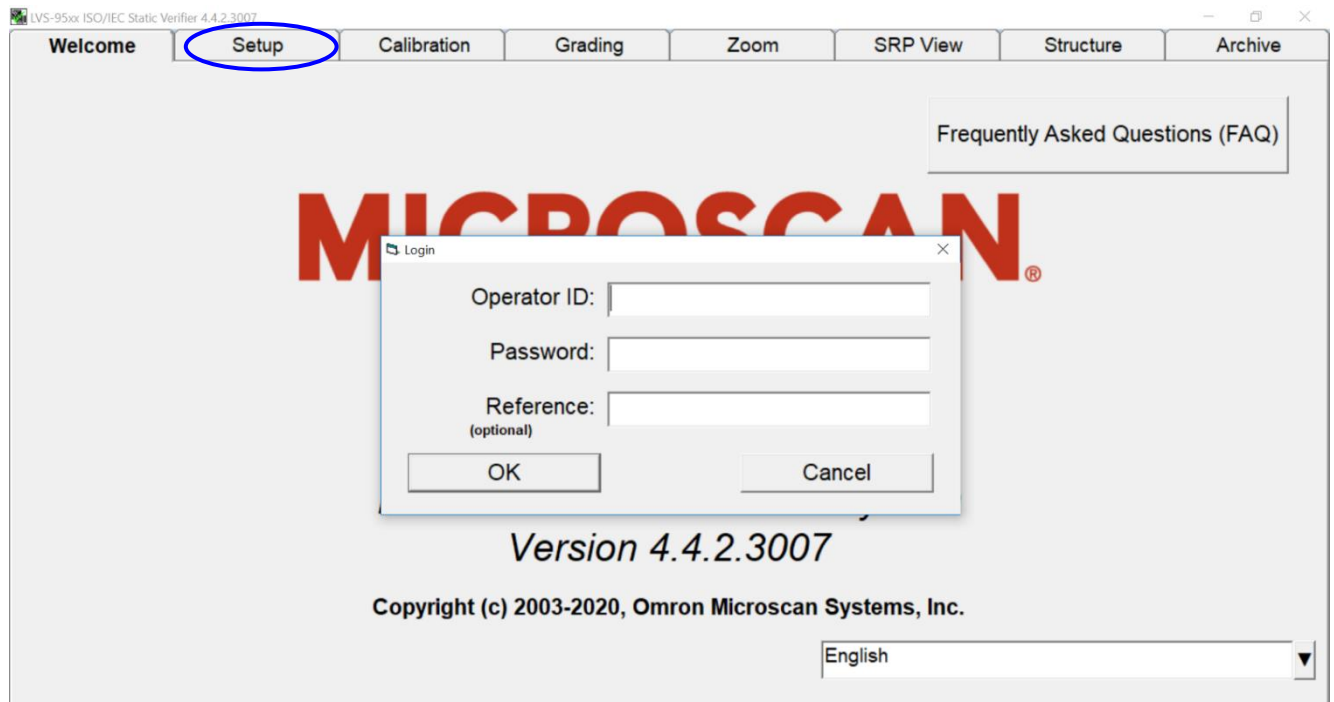
## Log In to LVS-95XX Software

1. Start LVS-95XX Software. The “Welcome” screen appears (see below).





2. Click the “Setup” tab. The “Login” box appears.



2. Enter **admin** (not case sensitive) in the **Operator ID** field and in the **Password** field.
3. Click “OK.” LVS-95XX Software will open.
4. Turn on the LVS-9580/9585 camera by following the steps in the next section entitled “Turn on the LVS-9580/9585 Camera.”

## Turn On the LVS-9580/9585 Camera

1. Click the “Setup” tab and select “9580/9585” in the “Camera” section (see below).

The screenshot shows the 'Setup' tab of the LVS-9580/9585 interface. The 'Camera' section is highlighted with a blue box, showing 'Off' selected and '9580' and '#2 (5MP)' as options. The 'Grading mode' section is also highlighted with a blue box, showing 'Automatic' selected and 'Manual' and 'Auto-sector' as options. A blue arrow points from the 'Auto-sector' option to the 'Optional features' section, specifically to the 'List of options (choose one):' dropdown, which is currently set to 'Single sector verification (normal)'. Another blue arrow points from the 'Additional camera' label to the '9580' option in the 'Camera' section. A third blue arrow points from the 'Select the "Auto-Sector" option' label to the 'Auto-sector' option in the 'Grading mode' section. The 'System Settings' section on the right includes fields for 'Current information' (Local Time, GMT, Time Zone) and 'System Settings' (Minimum passing score, Days before password expires, Minutes before auto logoff, Days before calibration needed, Allow non-ISO blemish to affect grade, QRCode quiet zone >1X, Automatically start program, Lock language when decoding, Reference, Additional reference, Company name on reports, Setup operators, Product lookup, and Distributor information).

**Note:** When using only the LVS-9580/9585 (with no other LVS-95XX barcode verifier, such as the LVS-9510), “9580/9585” will be the only camera listed in the “Camera” section. When using the LVS-9580/9585 with the LVS-9510 (5 MP), both cameras appear in the “Camera” section. Select “9580/9585.”

2. Select “Auto-Sector” in the “Grading Mode” section (see screenshot above). This allows LVS-95XX Software to locate a barcode within the field of view and automatically draw a sector around the barcode.
3. Next, calibrate the LVS-9580/9585 (if using for the first time). See the next section for calibration steps.

## Calibrate the LVS-9580/9585

### IMPORTANT:

The LVS-9580/9585 should be calibrated regularly. The entire calibration process takes less than 30 seconds to complete and ensures the LVS-9580/9585 is certified according to industry standards.

Always use a clean, damage-free calibration card. Omron recommends replacing the Calibrated Conformance Standard Test Card every two years. The card should be replaced sooner than two years if it becomes damaged or dirty.

Omron recommends cleaning the LVS-9580/9585 window prior to calibration. See the “Cleaning Instructions” section for more information.

1. To calibrate the LVS-9580/9585, click the “Calibration” tab.
2. Locate the Calibrated Conformance Standard Test Card (“test card”) that was packaged with the system and place the test card on a flat surface.

### Calibration Card Reference

Model	Calibration Card Type	Replacement P/N	Symbol Number on Card
LVS-9580 HD	Data Matrix	98-CAL042	Data Matrix Symbol 1
LVS-9585 HD			
LVS-9510 6.25"	GS1-128	98-CAL041	GS1-128
All Other LVS-95XX Products	EAN/UPC (Shown Below)	98-CAL040	UPC-A or EAN-13

### Example of a UPC/EAN test card:

CONFORMANCE CALIBRATION STANDARD  
ENHANCED TEST CARD  
FOR UPC/EAN SYMBOL VERIFIERS  
USING 6 MIL APERTURES

**EAN-13 MASTER GRADE**

5 012345 678901

DECODABILITY: 86.3 %  
CONTRAST: 82.7 %  
MODULATION: 84.2 %  
RMAX: 86.2 %

**UPC-A MASTER GRADE**

0 12345 67890 5

DECODABILITY: 84.8 %  
CONTRAST: 83.0 %  
MODULATION: 84.7 %  
RMAX: 86.6 %

**DEFECTS (VOID)**

22.7 %

**DECODABILITY (BAR)**

43.5 %

**CONTRAST**

48.0 %

**APPLIED IMAGE**

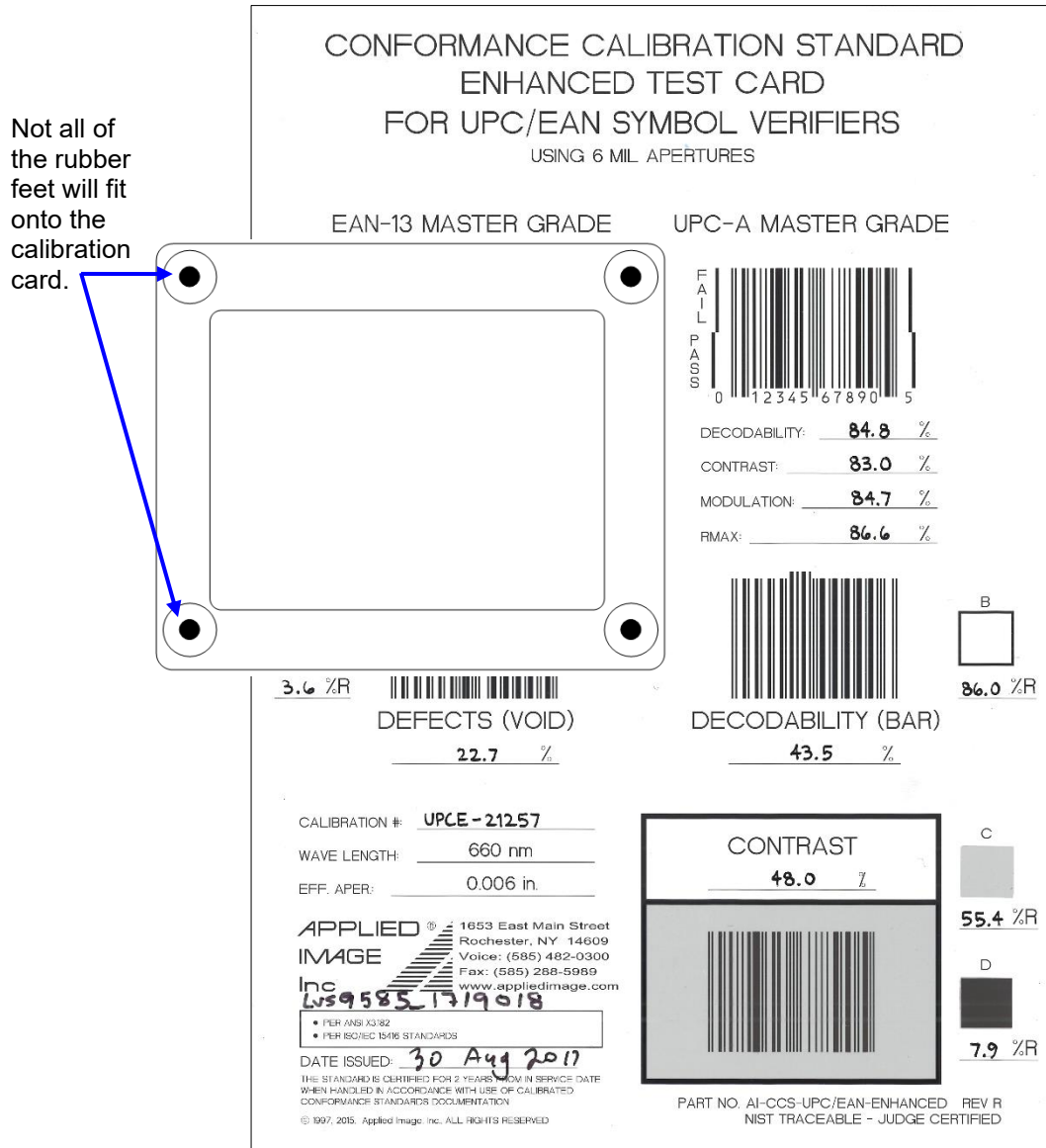
1053 East Main Street  
Burlington, NY 14609  
Voice: (585) 482-0300  
Fax: (585) 288-6688  
www.appliedimage.com

DATE ISSUED: 30 Aug 2017

PART NO. AI CCS UPC/EAN ENHANCED REV R  
NIST TRACEABLE - JUDGE CERTIFIED

Master Grade Barcodes

3. Firmly grip the LVS-9580/9585 handle. There is no need to pull the trigger at this time (pulling the trigger causes the LVS-9580/9585 to capture a live image; however, the image is automatically live while the system is in Calibration mode).
4. Place the LVS-9580/9585 window over one of the Master Grade barcodes making sure the four rubber feet surrounding the window rest firmly on a flat, stable surface. The rubber feet hold the test card in place and prevent movement of the test card. See example of Master Grade barcodes above. It is important to note that not all of the rubber feet will fit onto the calibration card.



5. On the “Calibration” tab, make sure the blue line travels through the middle of the PASS portion of the barcode as shown below.

#### LVS-9580 / LVS-9585 (UPC/EAN Calibration Card, 98-CAL-020)

Calibration label

	Goal	Actual
Decodability	86.8	88
Contrast	81.5	81
Modulation	85.0	86
Rmax	87.0	88

Calibration OK

Calibrate

Enter the **Decodability**, **Contrast**, **Modulation**, and **Rmax** values from the **UPC/EAN Calibration Card** in the **Goal** column shown at left.

#### LVS-9580 HD / LVS-9585 HD (Data Matrix Calibration Card, 98-CAL-022)

Calibration label

	Goal	Actual
Contrast	79.4	76
Rmax	83.2	80

Calibration OK

Calibrate

Place **Symbol # 1** of the **Data Matrix Calibration Card** within the field of view so that it is roughly equidistant from the borders of the blue sector box, as shown at left.

Be sure the **Contrast** and **Rmax** values under **Goal** match those printed on the Calibration Card. If they do not match, either you have the wrong card for the system or you must change the Goal values.

6. Click the **Calibrate** button.

- Successful calibration is indicated by a green “Calibration OK” message. Failed calibration is indicated by a red “Calibration Needed” message.



7. If calibration fails:

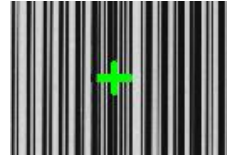
- Re-scan the Master Grade symbol and follow the above steps to calibrate. It may take two or three attempts before calibration is complete.
- If calibration continues to fail, contact Omron Microscan or an Omron Microscan representative for further instructions.

**IMPORTANT:** The calibration score will hardly ever match exactly; this is normal and acceptable as long as the scores are within  $\pm 3\%$  for Contrast,  $\pm 5\%$  for Modulation, and  $\pm 7.5\%$  for Decodability.

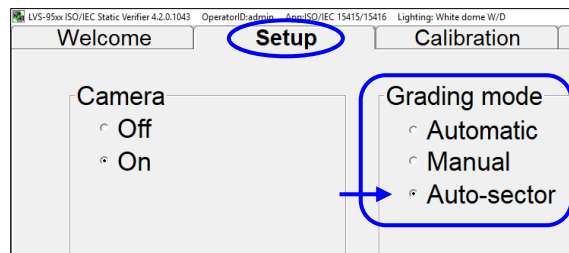
8. When calibration is complete, click the “Grading” tab to grade barcodes. See the next section for steps on grading barcodes.

## Grading Barcodes (Excluding DPM Grading)

1. Click the “Grading” tab.
2. Firmly grip the LVS-9580/9585 handle and press and hold the trigger (do not release the trigger).
3. Place the LVS-9580/9585 window over the barcode ensuring the four rubber feet surrounding the window rest on the substrate (media/label material). The rubber feet hold the substrate in place and minimize movement of the substrate.
4. The barcode image appears on the customer-supplied computer screen with a green plus symbol (+) located on the barcode image.



**Note:** If the green plus symbol (+) is not appearing on the barcode image, click the “Setup” tab and make sure “Auto-sector” is selected in the “Grading mode” section (see below).



5. Slowly move the LVS-9580/9585 as needed to place the green plus symbol over the center of the barcode image (make sure the rubber feet rest on the substrate). Then, release the trigger.

**Tip:** Positioning the green plus symbol over the center of the barcode image may take a few moments when first learning to use the LVS-9580/9585. Position the center of the LVS-9580/9585 window as close as possible to the center of the barcode image. Please note that when moving the system, the camera reads in a mirrored view. For example, when the camera is moved to the right, the image moves left. If the camera is moved up, the image moves down.

6. LVS-95XX Software analyzes the barcode and reports a grade score between 4.0 and 0.0 on the “Grading” tab.

4.0/05/660/D

0.0/05/660/D

Refer to the “Grading Tab” section in the “LVS-95XX Series Barcode Quality Station Operations Manual” for more information on grading barcodes; this manual is located on the installation media packaged with the system.

## Cleaning Instructions

The LVS-9580/9585 window may need to be cleaned daily, depending on use. Debris on the window may cause the LVS-9580/9585 to not grade accurately.

Locate the following supplies:

- Commercially available household glass cleaner, such as Windex®, Glassex®, or Mr. Muscle®.  
**Do not use an industrial-strength glass cleaner.**
- Soft, lint-free, non-abrasive towel or cloth

Dampen the cloth with the household glass cleaner and gently wipe the window. Inspect the window closely, looking for any label debris that may be stuck on the window. Do not scrape the window with a sharp object as this may damage the window. Any damage to the window will be detected during the calibration process.

### **IMPORTANT:**

DO NOT directly spray the window with glass cleaner; always spray a towel or cloth with household glass cleaner and then gently wipe the window.

DO NOT use an industrial-strength glass cleaner.

Please contact an Omron Distributor or Omron Technical Support with questions or concerns about the performance of the LVS-9580/9585.



# Engineering Specifications

## Physical Properties

Height	8.5"	215.9 mm
Width	4.75"	120.6 mm
Depth	5.5"	139.7 mm
Weight	<ul style="list-style-type: none"> <li>Unpackaged Weight = 1 lb. 8 oz. (0.68 kg)</li> <li>Shipping weight (includes all items packaged in shipping box, such as cables, manuals, etc.) = Approx. 3 pounds 5 oz. (1.51 kg)</li> </ul>	

## Imaging Device

- 5 megapixel camera
- Object Distance: Contact

## Field of View

- 3.0" (76.19 mm) horizontally
- 2.25" (57.15 mm) vertically
- 1.75" x 1.75" (44 mm x 44 mm) for DPM (direct part mark) software selection
- 1.3" x 1.0" (33 mm x 25 mm) for LVS-958X HD models

## Minimum Barcode X Dimension

- 1D = 4.0 mils (0.10 mm)
- 2D = 5.9 mils (0.15 mm)
- LVS-958X HD can verify a DPM Data Matrix symbol down to 2.0 mil (0.05 mm) and a standard Data Matrix down to 5.0 mil (0.127 mm).

## Minimum PC Requirements

(PC Supplied by Customer)

- Windows® 10<sup>1</sup>
- Intel® Core™ i3 Processor or equivalent
- 4 GB RAM
- One available USB 2.0 port

## Power Requirements

- USB-Powered 5VDC @ 400mA

## Light Source

- LVS-9580: Red 660 nm filter
- LVS-9585: Red dome (660 nm); White dome, 30° angle
- LED Safety: EN IEC 62368-1 (Risk Group 2)

## Communication

- USB 2.0 A/MINI-B cable 2.0 m (6.5 ft.)



## Operating Temperature

- -5° C (23° F) to 45° C (113° F)

## Storage Temperature

- -20° C (-4° F) to 60° C (140° F)

## Relative Humidity

- Operating: 20% to 80% (non-condensing)
- Storage: 20% to 95% (non-condensing)

## Calibration

- EAN/UPC Calibrated Conformance Test Card
- Data Matrix Calibration Conformance Test Card (HD models only)

## Safety Compliant

- RoHS/WEEE compliant
- CE

*Specifications and images subject to change.*



## Supported Symbolologies and Standards

### Supported Symbolologies

Symbolology	Supported Symbolology and Application Standards
Aztec	ISO/IEC 24778
Codabar	AIM BC3
Code 39	ISO/IEC 16388
Code 93	AIM BC5
Code-128	ISO/IEC 15417, ISO/IEC 15434
Data Matrix	ISO/IEC 16022; ISO/IEC 29158, ISO/IEC 15434, ISO/IEC 21471:2000, MIL-STD-130N1, MIL-STD-130N1 + UII, HIBC
Data Matrix Rectangular Extensions	ISO/IEC 21741
Direct Part Mark	ISO/IEC 29158
EAN-13	ISO/IEC 15420 & GS1 General Specifications
EAN-13 with 2- and 5-Digit Supplemental	ISO/IEC 15420 & GS1 General Specifications
EAN-13 with CC-A and CC-B	ISO/IEC 15420, ISO/IEC 24723 & GS1 General Specifications
EAN-8	ISO/IEC 15420 & GS1 General Specifications
EAN-8 with CC-A and CC-B	ISO/IEC 15420, ISO/IEC 24723 & GS1 General Specifications
GS1 Data Matrix	ISO/IEC 16022 and GS1 General Specifications
GS1 Databar	ISO/IEC 24724 & GS1 General Specifications
GS1 Databar Stacked	ISO/IEC 24724 & GS1 General Specifications
GS1 Databar Stacked with CC-A and CC-B	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications
GS1 Databar with CC-A and CC-B	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications
GS1 Databar Expanded	ISO/IEC 24724 & GS1 General Specifications
GS1 Databar Expanded CC-A and CC-B	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications
GS1 Databar Expanded Stacked	ISO/IEC 24724 & GS1 General Specifications
GS1 Databar Expanded Stacked CC-A	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications
GS1 Databar Expanded Stacked CC-B	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications
GS1 Databar Limited	ISO/IEC 24724 & GS1 General Specifications
GS1 Databar Limited with CC-A and CC-B	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications

<sup>1</sup> The LVS-95XX software is currently supported on Windows 10 Professional and Windows 10 Enterprise operating systems. When this documentation refers to Windows 10, it is meant to refer to either of these two editions Windows 10 and excludes all other editions.

<b>Symbology</b>	<b>Supported Symbology and Application Standards</b>
GS1 Databar Omnidirectional	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications
GS1 Databar Stacked Omnidirectional	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications
GS1 Databar Truncated	ISO/IEC 24724, ISO/IEC 24723 & GS1 General Specifications
GS1-128	ISO/IEC 15417 & GS1 General Specifications
GS1 Digital Link URI	ISO/IEC 16022, ISO/IEC 18004 & GS1 Digital Link Standard
GS1-128 with CC-A, CC-B, and CC-C	ISO/IEC 15417, ISO/IEC 24723 & GS1 General Specifications
GS1 QR Code	ISO/IEC 18004 & GS1 General Specifications
Han Xin	Draft AIM Specification
Interleaved 2 of 5	ISO/IEC 16390
ITF-14	ISO/IEC 16390 & GS1 General Specifications
Laetus Pharmacode	Laetus
MaxiCode	ISO/IEC 16023
Micro QR Code 2005	ISO/IEC 18004; ISO/IEC 29158, MIL-STD-130N1, MIL-STD-130N1 + UII
MicroPDF417	ISO/IEC 24728
PDF417	ISO/IEC 15438
PPN (Pharmacy Product Number)	IFA Coding System / PPN-Code Specification
QR Code 2005	ISO/IEC 18004; ISO/IEC 29158, MIL-STD-130N1, MIL-STD-130N1 + UII, HIBC
UPC-A	ISO/IEC 15420 & GS1 General Specifications
UPC-A with 2- and 5-Digit supplemental	ISO/IEC 15420 & GS1 General Specifications
UPC-A with CC-A and CC-B	ISO/IEC 15420, ISO/IEC 24723 & GS1 General Specifications
UPC-E	ISO/IEC 15420 & GS1 General Specifications
UPC-E with 2- and 5-Digit supplemental	ISO/IEC 15420 & GS1 General Specifications
UPC-E with CC-A and CC-B	ISO/IEC 15420, ISO/IEC 24723 & GS1 General Specifications
USPS-128	USPS Barcode Standards
USPS Intelligent Mail Barcodes and USPS Mailmark	USPS Barcode Standards

**Additional Notes**

- GS1 General Specifications can be obtained by contacting your local GS1 office.
  - ISO/IEC Symbology Standards can be obtained from this link: <https://www.iso.org/standards.html>.
  - AIM Symbology Standards can be obtained from this link: <https://www.aimglobal.org/aim-standards.html>.
- In addition to adherence to the symbology specifications, LVS-95XX systems comply with the following standards:

- ISO/IEC 15415 - Barcode print quality test specification - Two-dimensional symbols
- ISO/IEC 15416 - Barcode print quality test specification - Linear symbols
- ISO/IEC 15426-1 - Barcode verifier conformance specifications - Part 1: Linear symbols
- ISO/IEC 15426-2 - Barcode verifier conformance specification - Part 2: Two-dimensional symbols

## ***Application Standards***

An Application standard is a specific protocol established by a group or industry, such as the military, hospitals, FDA, etc. Currently, the LVS-95XX Series supports the following Application standards:

- |  |   |
|--|---|
| ▪ <i>AIAG / JAMA / JAPIA / ODETTE</i>    | ▪ <i>ISO/IEC 15415 and ISO/IEC 15416</i>                    |
| ▪ <i>ALDI</i>                            | ▪ <i>ISO/IEC 15415/15416 with ISO/IEC 15434 Data Syntax</i> |
| ▪ <i>Chinese Sensible (Han Xin) Code</i> | ▪ <i>Italian Pharmacode</i>                                 |
| ▪ <i>DHL</i>                             | ▪ <i>Japanese Codabar</i>                                   |
| ▪ <i>DPM (ISO/IEC 29158)</i>             | ▪ <i>Laetus Pharmacode</i>                                  |
| ▪ <i>DPM + HIBC</i>                      | ▪ <i>MIL-STD-130N1</i>                                      |
| ▪ <i>DPM + MIL-STD-130N1</i>             | ▪ <i>MIL-STD-130N1 + UII</i>                                |
| ▪ <i>DPM + MIL-STD-130N1 + UII</i>       | ▪ <i>Miniature Pharmacode</i>                               |
| ▪ <i>FPMAJ</i>                           | ▪ <i>Postal (IMB, Japan Post, Mailmark, PostNet)</i>        |
| ▪ <i>French CIP</i>                      | ▪ <i>Postmatrix Code (PMC) with size checking</i>           |
| ▪ <i>GS1 1D Report.doc<sup>2</sup></i>   | ▪ <i>Postmatrix Code (PMC) without size checking</i>        |
| ▪ <i>GS1 2D Report.doc<sup>1</sup></i>   | ▪ <i>PPN Code</i>   |
| ▪ <i>GS1 General Specifications</i>      | ▪ <i>PZN (German Pharmacode)</i>                            |
| ▪ <i>GS1 NTIN</i>                        | ▪ <i>USPS Code 128</i>                                      |
| ▪ <i>HDMA Guidelines</i>                 |   |
| ▪ <i>HIBC</i>                            |   |
| ▪ <i>IFAH</i>                            |   |

---

<sup>2</sup> GS1 1D Report.doc and GS1 2D Report.doc are the default custom reports. You can create your own custom report(s) by following the steps outlined in Appendix G: Special Features (refer to the section entitled “Custom Reports”).

## Appendix A – Operating the LVS-9580/9585 DPM Verifier

The **LVS-9580/9585 DPM Verifier** is a Direct Part Mark (DPM) verifier. The LVS-9580/9585 DPM Verifier can be used to verify the symbol quality and structure of a Data Matrix or QR Code symbol that is permanently affixed to a manufactured item. Correct application standards must be used to verify the structure of the data contained in the direct part mark. This list of available standards is located on the Setup Screen. The software is programmed to use the following application standards:

- DPM ISO/IEC 29158
- DPM + MIL-STD-130N1 w/Change 1
- DPM + UII + MIL-STD-130N1 w/Change 1
- GS1 TABLE 7 DPM (non-medical)
- GS1 TABLE 7 DPM (medical-ink)
- GS1 TABLE 7 DPM (medical, Direct A, connected)
- GS1 TABLE 7 DPM (medical, Direct B, not connected)

The LVS-9580/9585 DPM Verifier can be used as a print quality verifier (15415/15416, GS1) and can verify according to DPM verification standards (ISO/IEC 29158, MIL-STD-130N1, UII, and GS1) provided that those upgrades have been purchased.

The LVS-9580/9585 DPM Verifier can also operate in conjunction with the LVS-9510 Verifier. Both the LVS-9580/9585 DPM and LVS-9510 can be connected to the same computer, allowing you to switch between devices.

**Note:** The LVS-9510 does not support DPM verification.

### DPM Verification

DPM verification does not follow the same rules as traditional 1D and 2D verification. Differences:

- All dot peen symbols must now be read with the L-pattern placed squarely in the field of view.
- **Symbol Contrast** is no longer measured. SC (Symbol Contrast) has been replaced with a new parameter called **Cell Contrast** (CC). A cell contrast value of **30%** is now an **A Grade**.
- **Modulation** and **Reflectance Margin** are no longer measured. These two parameters are replaced with a new parameter called **Cell Modulation** (CM).
- The LVS-9580/9585 DPM Verifier can grade a direct part mark on most surfaces. The usable field of view is now limited to **1.75" (44 mm) x 1.75" (44 mm)**.
- The LVS-9580/9585 HD has a usable field of **1.3" (33 mm) x 1.0" (25 mm)** or **1.45" (36.8 mm) x 1.18" (30 mm)**.
- **Average Grade** (AG) is no longer reported. A parameter called **Distributed Damage Grade** (DDG) has taken its place. DDG indicates the average of the notional damage grade at the D Grade level.
- A parameter has been created called **Minimum Reflectance**. A Minimum Reflectance greater than or equal to **5%** is considered to be an **A Grade (4.0)**. If it is less than 5% then it is an F Grade (0.0).
- The final grade now reports additional information:

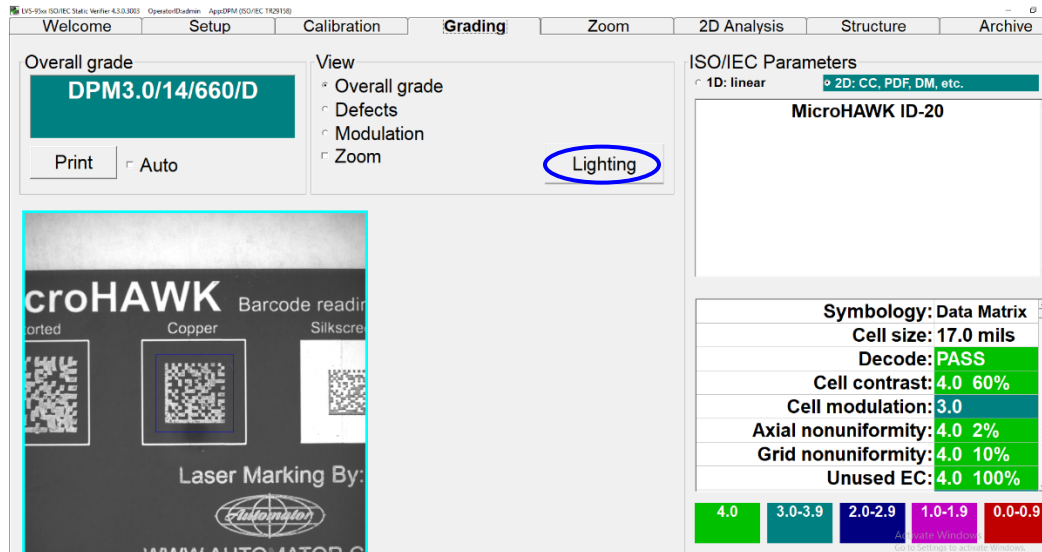
#### DPM4.0/12/660/D

- **DPM** = Indicates that the DPM rules have applied to the final grade.
- **4.0** = Indicates the final grade point average. This final grade will always be a whole number.
- 4.0 = A Grade, 3.0 = B Grade, 2.0 = C Grade, 1.0 = D Grade, 0.0 = F Grade.
- **12** = Aperture Size
- **660** = Color of the light. 660 = red.
- **D** = Angle of the light source. A D angle indicates a dome light.

## Grading

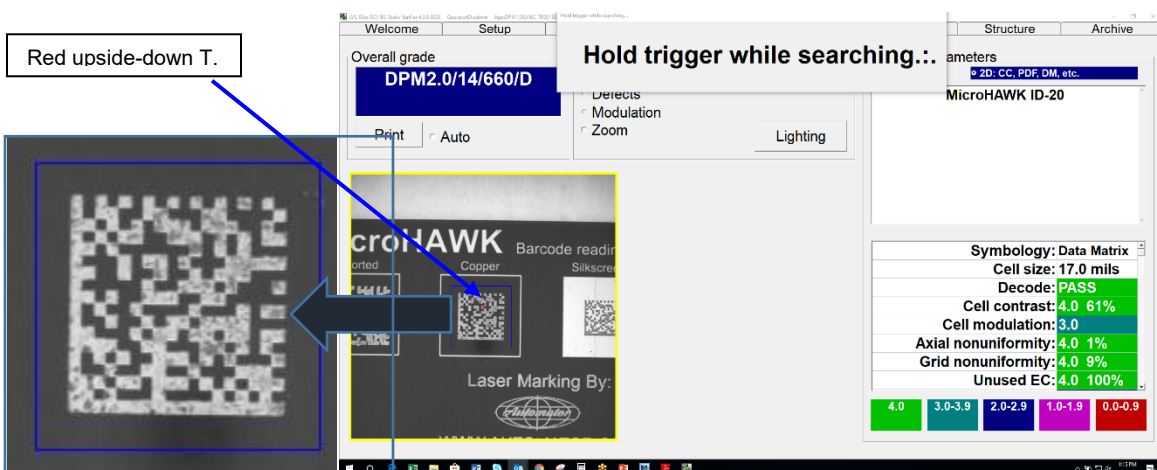
The **LVS-9580/9585 Grading Screen** shows 6 boxes on the right side of the viewing window. These will represent which lighting modes are being used to Grade the DPM code. The LVS-9580/9585 will only use Red Dome.

There is also a button on this screen titled **Lighting**. This is not authorized for use with the LVS-9580/9585.



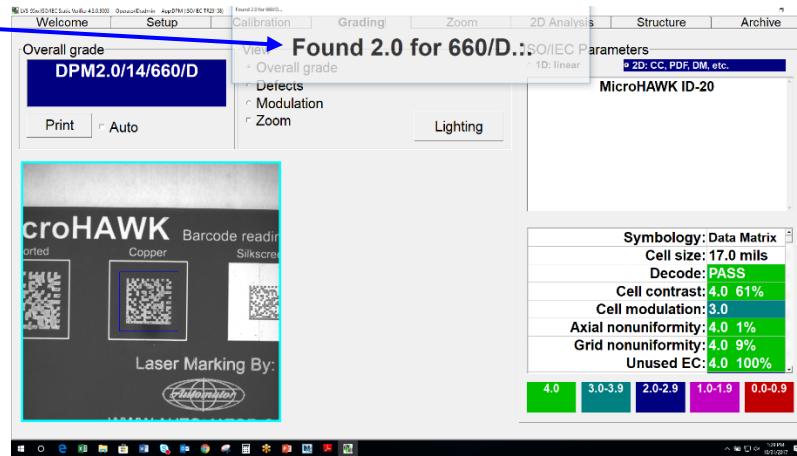
## Grading a DPM Symbol

On the **Grading Screen** hold down the trigger switch. The target DPM indicator (an upside-down red letter 'T') then appears in the viewing window. A pop-up window appears at the top of the screen which says "Hold trigger while searching". Position the target DPM indicator so that it is in contact with the DPM symbol being graded. (Note: Positioning the target DPM indicator near the bottom of the symbol as show below is preferred for reflective metal parts to avoid the camera reflection interfering with the grading results.) Be sure the symbol is square to the field of view. Then hold the LVS-9580/9585 steady. (The software does not grade the code until there is no motion detected.) After the symbol is found, the blue box will outline the symbol.

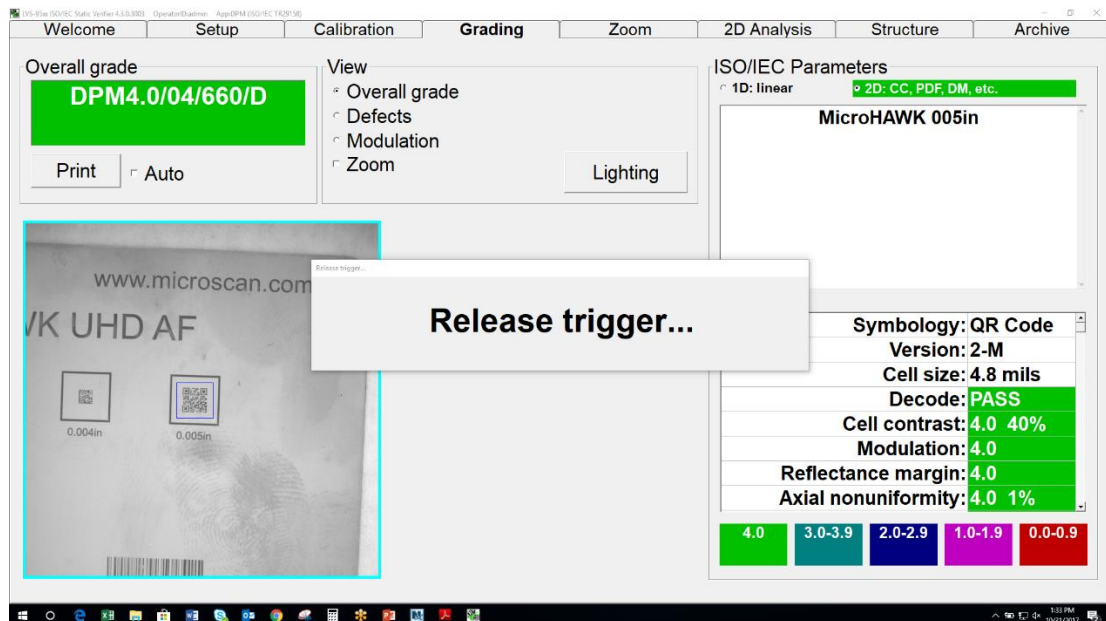


Once the software has found the DPM symbol, it will report what grade has been detected. There is a pop-up window at the top of the screen that reports the best grade found. It will not stop looking for a better grade until either an A Grade has been reached or the user releases the trigger.

Best DPM Grade being reported.



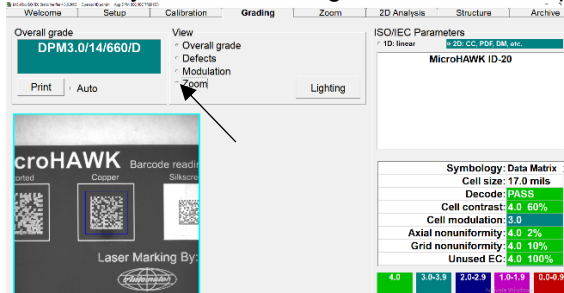
If an A Grade is found, a pop-up window advises the user to “Release trigger”.



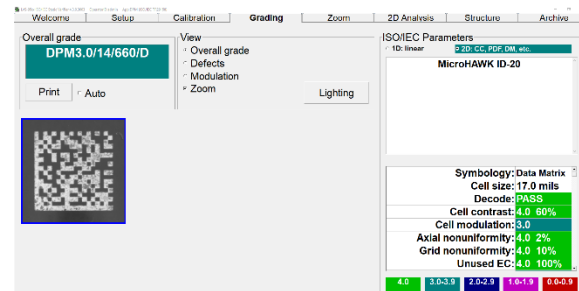
The software will continue to change exposure (brightness) in an attempt to decode the symbol. The software will not stop looking or attempting to find the best grade until the trigger is released. If a symbol is not found after 20 seconds then the DPM mark should be re-oriented within the field of view and another attempt to grade should be made.

## The Zoom Feature

A user can select the “Zoom” button located within the View Box. Then, after the grading process is done, the DPM symbol will be magnified. This will help in viewing small codes.



Before Zoom Is Applied



Zoomed-In Image

## Remote Grading of a DPM Symbol

A user can push CTRL + SHFT and the software will interpret this as a trigger switch command. This is useful when the optional stand is used.

## Grading with a Shiny Surface

Some direct part marks are created on a shiny metallic surface. When this occurs, the image of the camera can be seen in the center of the field of view. The operator needs to move the direct part mark away from the center of the screen so that the dark circle does not interfere with the grading process.

## Drawing a Blue Sector

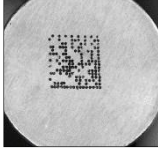
This feature is not allowed when grading a DPM symbol.

## Try Re-Grading

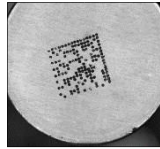
When a direct part mark fails to read, position the symbol in a different part of the field of view. The software is sensitive to motion and may capture a slightly blurred image, which will cause the software not to grade it correctly. The optional accessory stand, part # 98-9000125-01, can be used to hold the LVS-9580/9585 in a fixed position.

### Keep the “L” pattern square to the field of view.

For most dot peen DPM symbols, the cells are formed by dots and are not connected to each other. This will prompt the software to enhance the image by “connecting the dots”. However, the operator must keep the L-pattern square to the field of view in order for the software to grade the symbol correctly.



**Correct:**  
DPM symbol  
is square to  
the FOV



**Incorrect:**  
DPM symbol  
is not square  
to the FOV

## Structure


This system is designed to check the **Data Structure** for compliance to industry standards for MIL-STD-130N1, UII, and GS1. The embedded data is listed along with a description of what it stands for and reports the value used to determine what the embedded data is. The Data Structure Analysis can be printed.

Data Structure Analysis			Print
Embedded data	Description	Value	
D>			
<RS>			
06			
<GS>			
17	U.S. DoD CAGE Code	(17V)	
<230>	Latch to C40		
V4E5U8	Value for (17V)	4E5U8	
<GS>			
1P	Item Identification Code assigned by Supplier	(1P)	
TEL-206-623-4949	Value for (1P)	TEL-206-623-4949	
<GS>			
S	Traceability Number for an Entity	(S)	
WWW.UID2GO.COM	Value for (S)	WWW.UID2GO.COM	
<254>	Unlatch		
<RS>			
<EOT>			



## Reports

All results measured by the software are available in a printed report. These reports are also archived for future examination. An image of the direct part mark is attached to the printed report.

Microscan Systems, Inc. LVS-95xx Verification Report																																																																																											
Overall: DPM4.0/04/660/D																																																																																											
Operator signature _____																																																																																											
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## Appendix B – Operating the LVS-9585 Verifier

### ***Grading DPM Symbols with the LVS-9585 Verifier***

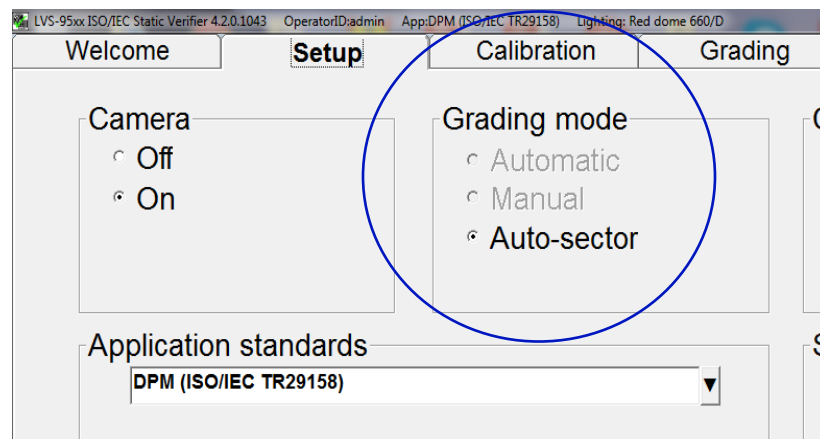
The **LVS-9585 DPM Verifier** is different from the LVS-9580/9585 DPM Verifier due to the addition of 9 different lighting modes:

- RED Dome
- WHITE Dome
- RED 30 degree N + S+ E + W
- RED 30 degree N + S
- RED 30 degree E + W
- RED 30 degree N
- RED 30 degree S
- RED 30 degree E
- RED 30 degree W

These lighting modes are only available when using DPM Application Standards. They are not used for traditional 1D and 2D verification.

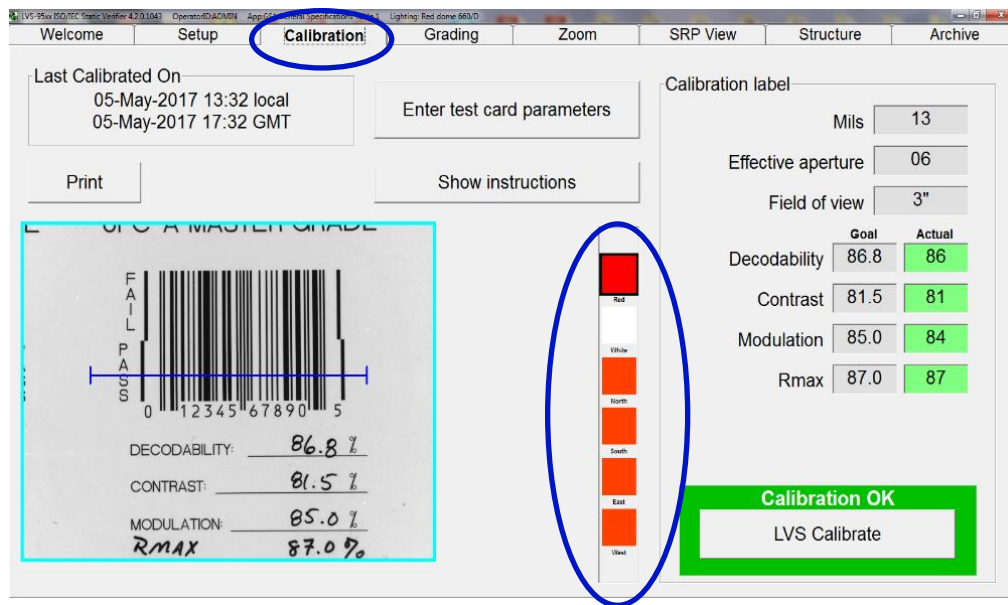
### ***Setup Screen***

After choosing any of the DPM Application Standards, Automatic and Manual are grayed out within the **Grading mode** section. **Auto-sector** is the only choice.



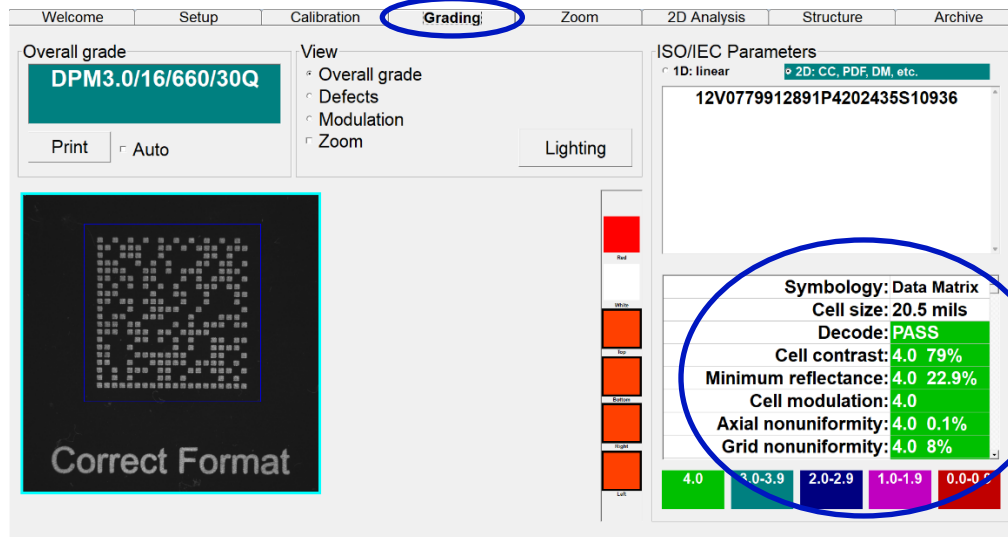
## Calibration Screen

Follow the calibration procedure described on page 11. The **Calibration Screen** shows 6 lighting mode boxes on the right side of the viewing screen. During calibration, the Red and White box activates when that light mode is being calibrated. The individual N, S, E, and W light boxes do not activate during the calibration process. Clicking on the Red or White box confirms proper calibration for that lighting mode.



## Grading Screen

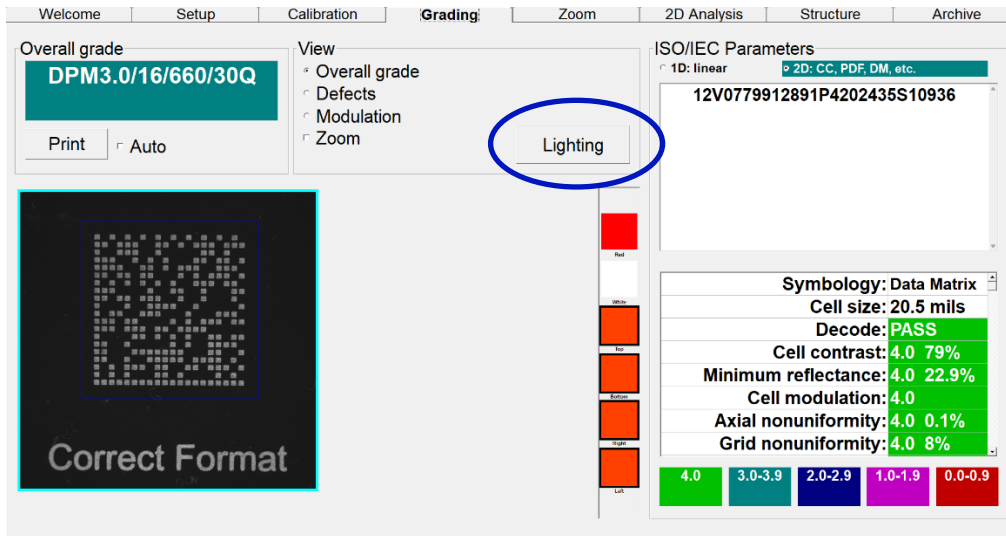
The **LVS-9585 Grading Screen** shows 6 boxes on the right side of the viewing window. These will represent which lighting modes are being used to grade the DPM code.



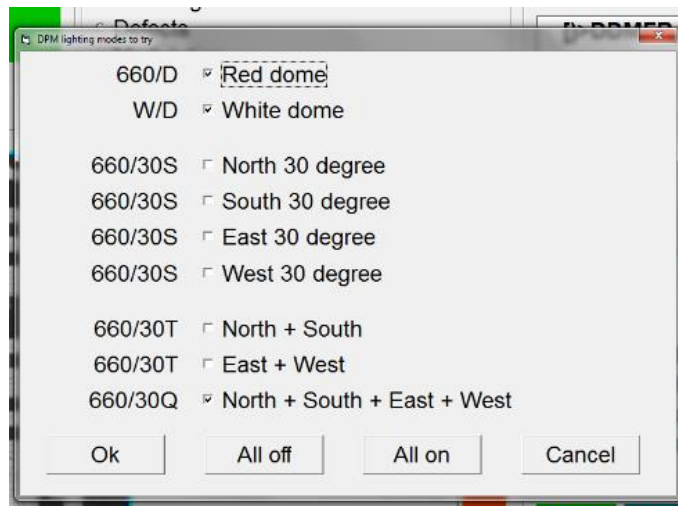
## Choose the Lighting Modes

To choose the lighting modes:

1. Select the **Lighting** button on the **Grading Screen**.



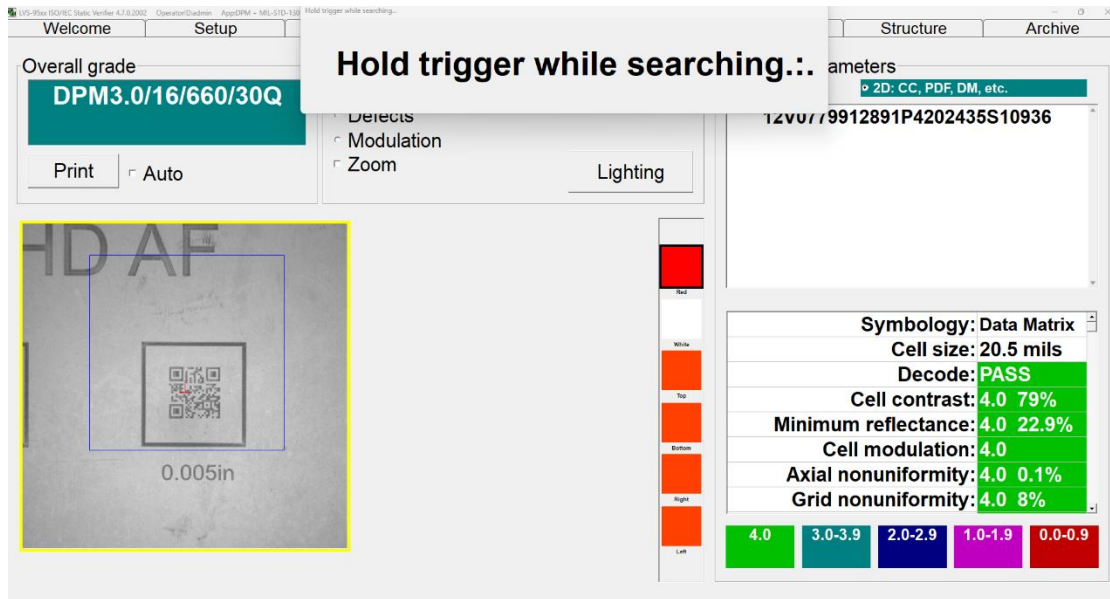
2. Select the lighting mode. The default lighting modes are Red dome and 30 degree N + S + E + W. The operator may choose to add or subtract any of the lighting modes listed. The software uses the selection as the new default.



## Grading a DPM Symbol

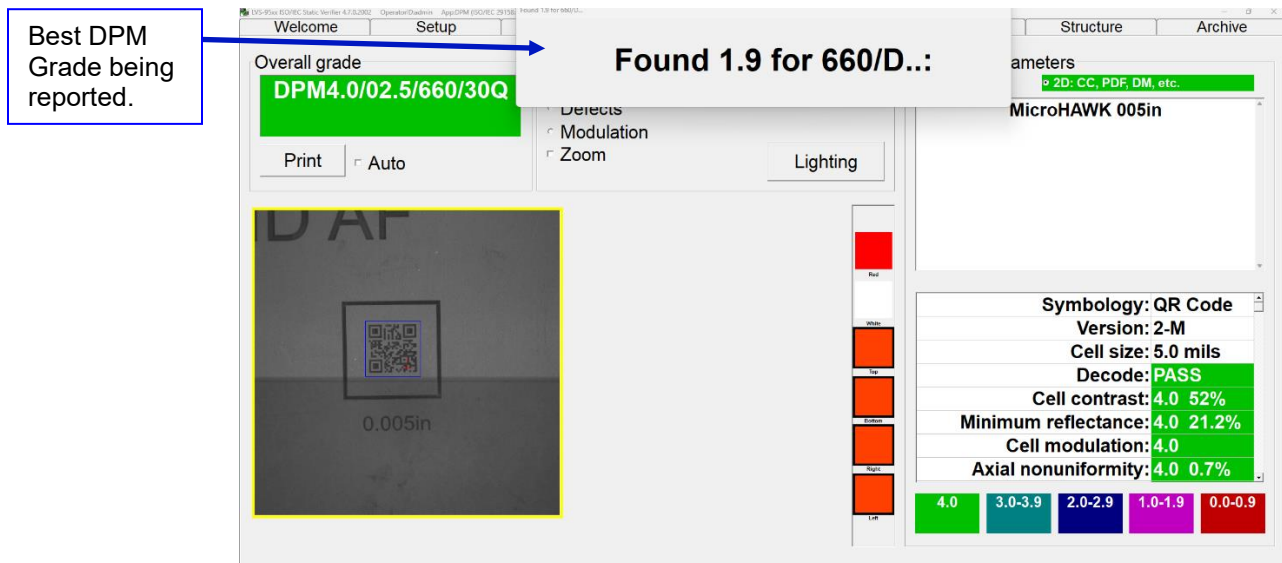
To grade a DPM symbol:

1. While viewing the **Grading Screen**, hold the verifier trigger switch in. The target DPM symbol then appears in the viewing window. A pop-up window appears at the top of the screen which says “Hold trigger while searching.”

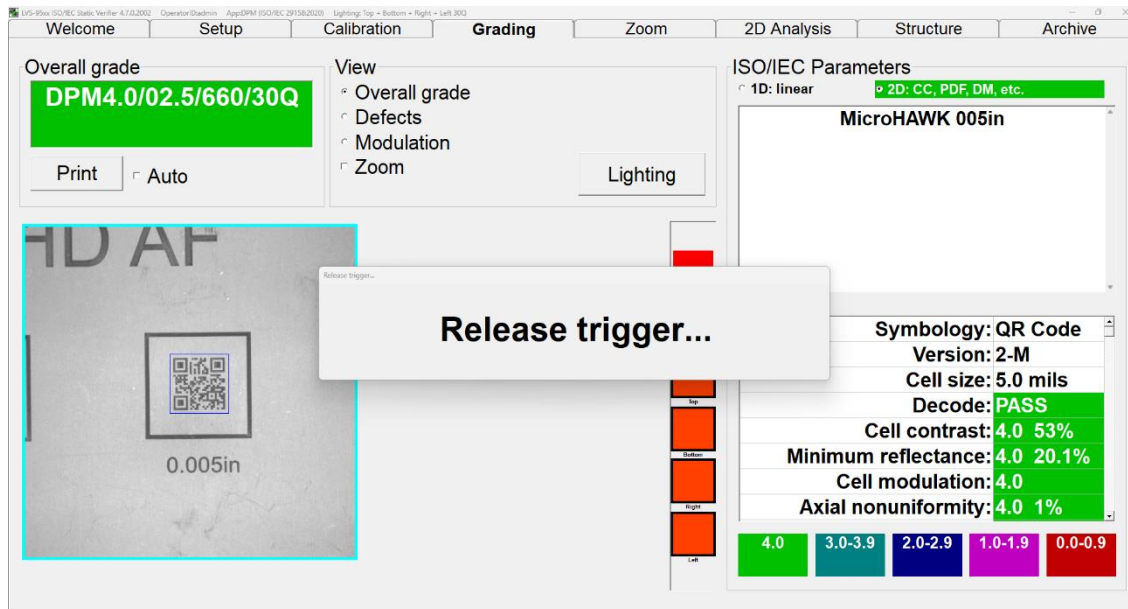


2. Position the DPM symbol so that it is square to the field of view and resting on the upside-down red 'T'. Then hold the LVS-9585 steady. (The software does not grade the code until there is no motion detected.)

Once the software has found the DPM symbol, the screen will report what grade has been detected. There is a pop-up window at the top of the screen that reports the best grade found. It will not stop looking for a better grade until either an A Grade has been reached or you release the trigger.



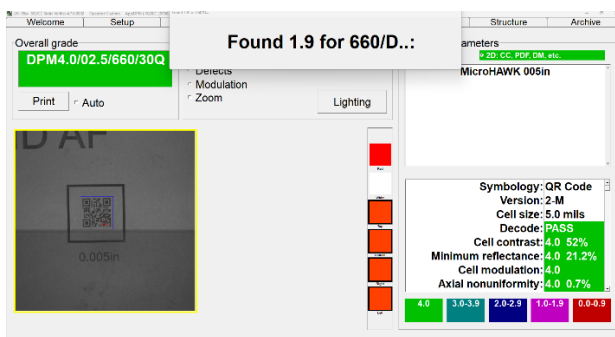
3. If an A Grade is found, a pop-up window advises you to “Release trigger”.



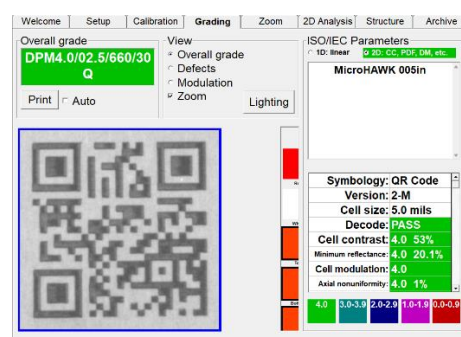
4. If the “Found” or “Adjusting” message is not shown after 20 seconds, reorient the mark within the field of view and grade it again.

## The Zoom Feature

A user can select the “Zoom” button located within the View Box. Then, after the grading process is done, the DPM symbol will be magnified. This will help in viewing small codes.



Before Zoom Is Applied



Zoomed-In Image

## Remote Grading of a DPM Symbol

To grade a DPM symbol remotely, push CTRL + SHFT. The software will interpret this as a trigger switch command. This is useful when the optional stand is used.