Appendix L: LVS® 95XX Data Matrix Calibrated Conformance Standard Test Card

P/N 84-9310008-02 Rev F

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://www.ia.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.

IMPORTANT NOTE – PLEASE READ

The Data Matrix Calibrated Conformance Standard Test Card (CCSTC) has changed from 7 symbols to 12 symbols. This new Test Card now supports X-Dimensions as low as 7.9 mils (0.200 mm). Not all LVS-95XX systems can grade symbols this small. Please check the CCSTC Data Matrix Resolution Limit Table below to confirm the resolution limits of your verifier. Also, this Data Matrix Conformance Test Card is now used to calibrate all LVS-95XX-HD verification systems.

Data Matrix Conformance Calibration Standard Test Cards

The Data Matrix Conformance Calibration Standard Test Cards (CCSTCs) contain 12 Data Matrix Primary Reference Test Symbols that have specific parameter measurements for ANU, GNU, UEC, FPD, CU, Rmax, and Rmin. The 2D Primary Reference Test Symbols are JUDGE-CERTIFIED and NIST traceable as specified in ISO-15426-2:2015 and ISO-15415 for Reflectivity and Linear Dimensions.

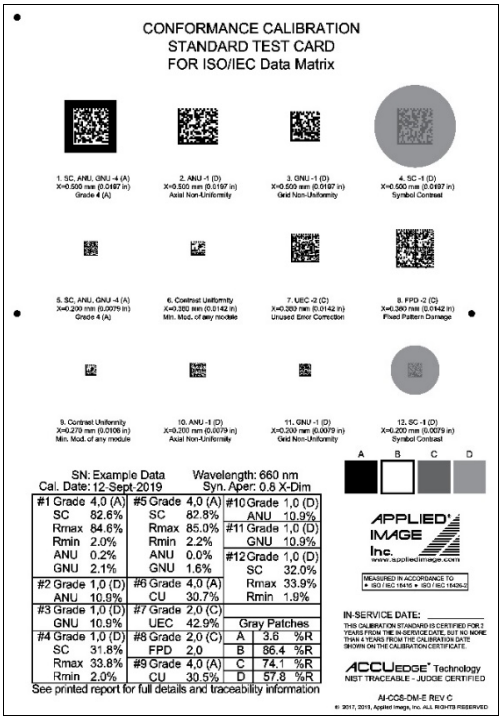
Most of the 95XX Verifiers were designed to be calibrated using a 1D CCSTC. Once calibrated with a 1D CCSTC, a Data Matrix Conformance Calibration Standard Test Card can be used to validate these systems' performance grading 2D symbols. This is not a calibration step, but a confirmation that the calibrated device produces the correct grades on a reference 2D symbol.

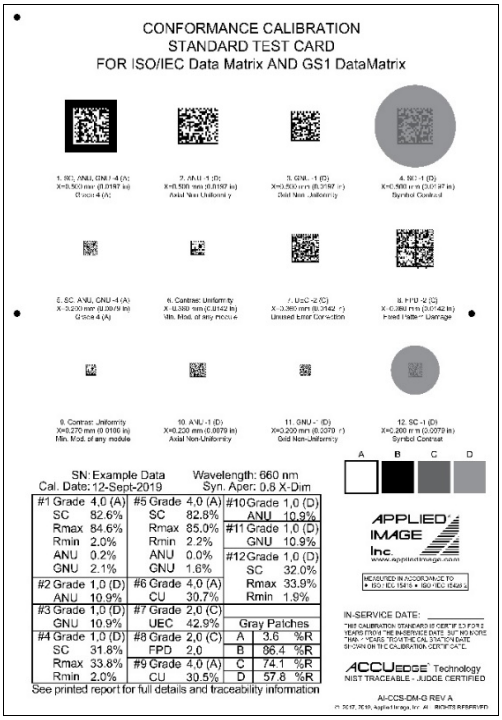
The exceptions to this rule are the 9585-DPM-HD and 9580-DPM-HD models, which require the use of a Data Matrix CCSTC for calibration.

There are two Data Matrix Test Cards (see images below). One card is a Version E and the other is a Version G, as indicated at the bottom right of the Calibration Test Card. Version E uses ISO/IEC Standards. Version G uses GS1 Standards for Symbol 1 through Symbol 4.

For non-"HD" verifiers, purchase of a Data Matrix Calibrated Conformance Test Card is optional.

IMPORTANT: Please read the document entitled "Read Me First" included with the Data Matrix test card as it provides detailed instructions about the test card.





***Note:** If you have purchased an LVS-958X-DPM-HD Verification system (1.35” / 34.29 mm FOV), one of the above cards will be provided with the unit to use as a calibration card. Symbol 1 on the calibration card will be used to calibrate the system.

LVS-95XX Product Limitations

The 2D CCSTCs have certain symbols that are too small to be graded by some models of the LVS-95XX Barcode Verifiers. Please follow the table below to understand which symbols are valid when using your specific LVS-95XX Verification System. The sections marked in light red indicate limitations.

LVS-95XX CCSTC RESOLUTION LIMIT TABLE		
LVS PRODUCT	Required Calibration Test Card	Data Matrix Calibration Card 98-CAL022 Test Symbols Grading Limits
9510-5-1.75	98-CAL020 (dated) 98-CAL020-01 (undated)	ALL Symbols 1 through 12
9510-5-3.0	98-CAL020 (dated) 98-CAL020-01 (undated)	ALL Symbols 1 through 12
9510-5-4.0	98-CAL020 (dated) 98-CAL020-01 (undated)	Symbols 1, 2, 3, 4, 6, 7, 8, 9 only
9510-5-4.5	98-CAL020 (dated) 98-CAL020-01 (undated)	Symbols 1, 2, 3, 4, 6, 7, 8, 9 only
9510-5-6.250	98-CAL021 (dated) 98-CAL021-01 (undated)	Symbols 1, 2, 3, 4, 6, 7, 8, only
9580-5-3.0	98-CAL020 (dated) 98-CAL020-01 (undated)	ALL Symbols 1 through 12
9585-3.0	98-CAL020 (dated) 98-CAL020-01 (undated)	ALL Symbols 1 through 12
9585-DPM-HD	98-CAL022 (dated) 98-CAL022-01 (undated)	ALL Symbols 1 through 12
9570-5-5.4	98-CAL020 (dated) 98-CAL020-01 (undated)	Symbols 1, 2, 3, 4, 6, 7, 8, only

Purchasing a Data Matrix CCSTC

Contact your Omron sales representative or distributor to purchase a Data Matrix CCSTC.

Data Matrix CCSTC Part Numbers		
Part Number	Description	Note
98-CAL022	ISO/IEC Data Matrix CCSTC	Dated when shipped from Omron factory
98-CAL022-01	ISO/IEC Data Matrix CCSTC	Undated. In-service date must be filled in by customer or reseller.
98-CAL023	GS1 Data Matrix CCSTC	Dated when shipped from Omron factory
98-CAO023-01	GS1 Data Matrix CCSTC	Undated. In-service date must be filled in by customer or reseller.

Replacing a Conformance Calibration Standard Test Card

CCSTCs can typically be used for two years from the date they are put into service. The typical two year usage period assumes the cards are protected from light, dirt, grease and physical damage while not in use.

Cards that are not put into use and are stored in their original shipping envelopes before being put into service will generally still have 2 years of useful life, but in any case should not be used more than 4 years past the “Date Processed.”