



ISO/IEC 29158 based Data Matrix Bar Code Verifiers Compliance Test Procedure Using Applied Image Data Matrix Conformance Card to Test Compliance

REV C

This procedure utilizes seven test symbols on the Applied Image Conformance Calibration Standard Enhanced Test Card for ISO IEC Datamatrix and GS1 Datamatrix card (Part No. AI-CCS-DM-E or AI-CCS-DM-G). This procedure can be used with ISO/IEC 29158:2011 or ISO/IEC 29158:2020.

For each symbol, fill in Columns 3, 4 and 5 based on the target values marked on the card. Calibrate your verifier, then follow the procedure outlined below.

For each verification, attach a copy of the printed report to this test procedure.

Record the Serial Number for the TruCheck verifier: _____

Record the Software Version used: _____
(this can be found by selecting Help -> About in the TruCheck software)

Record the Serial Number for the Applied Image Standard Test Card: _____

Record the Cal Date for the Applied Image Standard Test Card: _____

Record the lighting option that is selected and used on this conformance test: _____

For all tests, the Grading Standard and Report Options setting should be set to ISO 29158 (AIM-DPM) and all other standard selections should be unchecked. Check the box for Data Matrix and set the Aperture to Auto 80%. Set the Application Standard to Pass Grade and select N/A from the drop-down box.



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Column 1: Symbol Number	Column 2: Parameter Name	Column 3: Target Value as Marked on Card	Column 4; Target Values Rounded to nearest whole number	Column 5: Calculated Limits based on Tolerances in ISO/IEC 15426-2	Column 6: Measured Value	Column 7: Within Limits? ☒ YES ☒ NO
Verify symbol 1 on the card and enter the measured values for each parameter into Column 6. Confirm that each parameter value listed below falls within the limits calculated in column 5. If so, check YES in Column 7. However, (Minimum Reflectance (MR) is not reported when using /90 lighting, so you should enter N/A in Column 6 and 7 for MR when using 90 degree light.. Note that for a very high density verifier with a field of view that is too small for Symbol #1, you can substitute symbol #5 instead but you should not use Symbol #5 on a standard resolution (Not HD) verifier.						
1	Grade	A	A			
1	Minimum Reflectance (MR)	>70%	>70%			
1	Axial Non-Uniformity (ANU)			+2 = - 2 = (or 0)		
1	Grid Non-Uniformity (GNU)			+6 = - 6 = (or 0)		



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Verify symbol 2 on the card and enter the measured values for the ANU parameter into Column 6. Confirm that the value falls within the limits calculated in column 5. If so, enter YES in Column 7.						
2	Axial Non-Uniformity (ANU)			+2 =		
				- 2 =		
Verify symbol 3 on the card and enter the measured values for the GNU parameter into Column 6. Confirm that the value falls within the limits calculated in column 5. If so, enter YES in Column 7.						
3	Grid Non-Uniformity (GNU)			+6 =		
				- 6 =		



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Verify symbol 4 on the card. This is the test for low Symbol Contrast. Since Symbol Contrast is not measured by ISO/IEC 29158, this test will actually use Cell Contrast (CC) and Minimum Reflectance (MR) for conformance testing. Instead of entering any Target values as marked on the card in Column 3, these values are already entered below as part of this procedure, and for CC, the target depends on whether lighting is /D (dome) or specular 90 degree (/90) or other. Enter the appropriate target from Column 3 into Column 5 for CC as directed. Furthermore, MR is not reported when using /90 lighting. Enter the measured values for CC and MR (if applicable) into Column 6. If you are using /90 lighting and MR is not reported, enter N/A in Column 6 and 7 for MR. Confirm that the value falls within the limits calculated in column 5. If so, enter YES in Column 7.						
4	CC	>50 if lighting is /D	Enter one of the values from column 3:			
		>15% if lighting is /90				
		>70% otherwise				
4	MR	< 60%	< 60%			
Verify symbol 6 on the card and enter the module reported as (X,X) for the CU parameter into Column 6. This value can be found in the General Characteristics section of the printed report. Confirm that the module is the same as shown in column 5. If so, enter YES in Column 7. Note that the location of the module but not the value of CU is checked in this procedure.						
6	Contrast Uniformity (CU)	(2,4)	(2,4)			



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Verify symbol 7 on the card and enter the measured values for the UEC parameter into Column 6. Some verifiers round this value to a whole number, as shown here, but matching the exact number is valid also. Confirm that the value equals the value in column 5. If so, enter YES in Column 7.						
7	Unused Error Correction (UEC)	41.7%	42%	42%		
Verify symbol 8 on the card and enter the measured values for the FPD parameter into Column 6. If you are grading to ISO/IEC 29158:2020, the FPD grade will be given to one decimal place, but the test card is made to ISO/IEC 15415 which only reports the grade to a whole-number precision. Therefore, you should round the reported value down to a whole number by dropping the value after the decimal point. Then, confirm that the value equals the value in column 5. If so, enter YES in Column 7.						
					Round down by dropping decimals.	
8	Fixed Pattern Damage (FPD)	2.0 (C)	2	2		

Date

Name

Signature