

# UID Verification-Do I need all those lights?

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## Answer: Improved Results!

The folks who came up with the new AIM DPM 1-2006 Standard figured that the 10 individual lights or combinations they specified might be the difference between the camera being able to see the data matrix or not being able to see it. We have put a few examples below for illustrative purposes.

Consider this scenario:

You mark a part. It can be with a laser, dot peen, electro-chem etch. It might be a label or a data plate. It could be a flat item, or a round item, or a tube. Maybe the mark is protected by an overcoat to prevent corrosion. Now you need to have a verification report to ensure compliance with MIL STD 130 and the DFAR, as well as customer acceptance and payment.

You use a verifier with two sided, 30 degree lights because that is one of the acceptable AIM DPM 1-2006 methods. If it gets a good grade, you are done.

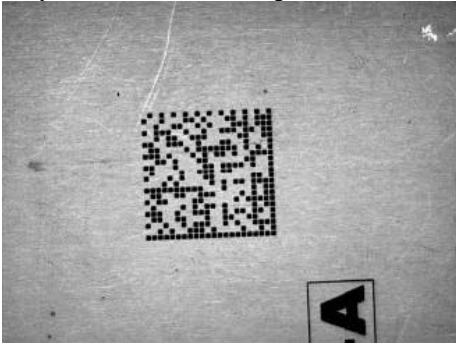
- If it fails... is it a "bad" mark? (or just bad lighting?)
- Is there a problem with your marking equipment? (or just lighting?)
- Do you need to change marking systems? (or just the lighting?)
- Do you need to change Marking methods? (or just lighting?)
- Do you need to re-engineer your entire marking process or approach?
- How much will this cost???

What if it is just a lighting issue? If you used a 90 degree light, or a dome light and got an "A" grade? What if this mark requires a 45 degree, 4 sided (45Q) light in order to be seen with sufficient contrast to be read? DON'T RE-ENGINEER YOUR PROCESS – USE ALL THE LIGHTS AIM ALLOWS! It just takes a few seconds!

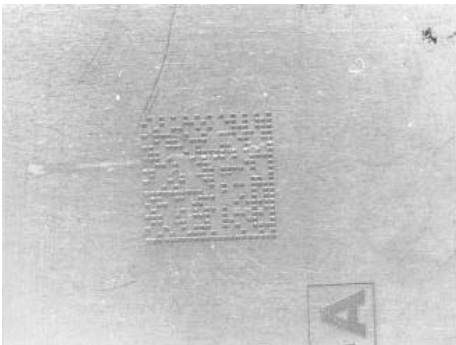
The table below is from the user screen for a verifier with the full array of AIM DPM 1-2006 lights (except the Dome, used on curved parts). Note that the 90 degree, 30T and 45Q lights passed, all others failed. Below the chart, we have posted pictures of the SAME SYMBOL, where the only thing that has changed is the lighting. Lighting changes the way the camera sees the symbol – often the difference between a "pass" and a "fail".

Results	Light	Verification Grade	Status
<a href="#">D4L2E2123456789-A0001_Result_000011C8.html</a>	90	4 (A)	PASS
<a href="#">Error Reading Data Matrix_Result_000011C9.html</a>	30Q	0 (F)	FAIL
<a href="#">D4L2E2123456789-A0001_Result_000011CA.html</a>	30T_EW	3 (B)	PASS
<a href="#">D4L2E2123456789-A0001_Result_000011CB.html</a>	30T_NS	1 (D)	FAIL
<a href="#">D4L2E2123456789-A0001_Result_000011CC.html</a>	45Q	3 (B)	PASS
<a href="#">Error Reading Data Matrix_Result_000011CD.html</a>	30S_N	0 (F)	FAIL
<a href="#">Error Reading Data Matrix_Result_000011CE.html</a>	30S_E	0 (F)	FAIL
<a href="#">D4L2E2123456789-A0001_Result_000011CF.html</a>	30S_S	0 (F)	FAIL
<a href="#">D4L2E2123456789-A0001_Result_000011D0.html</a>	30S_W	0 (F)	FAIL

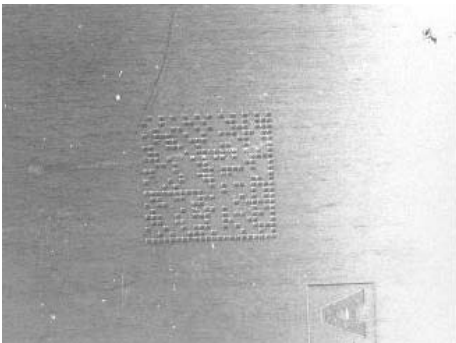
Only the LIGHT has changed: Result\_000011C8.jpg 90 Degree light "A" Grade (PASS)



Result\_000011C9 30Q lighting "F" grade



Result\_000011CE 30 degree, Single direction, East "F" grade



Here is another Summary:

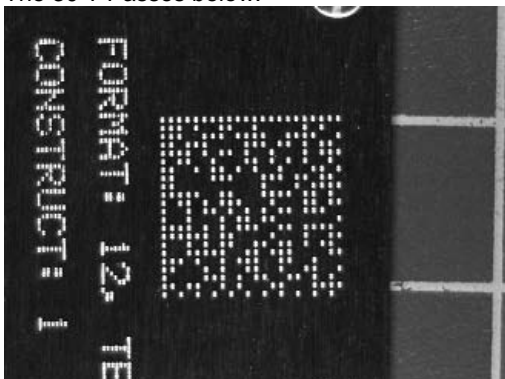
April 08 2008 18:27:06

Mark Summary:

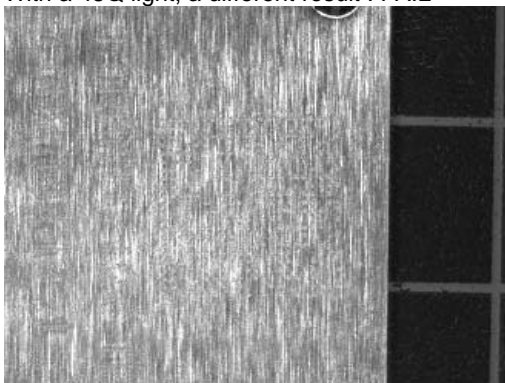
Results	Light	Verification Grade	Status
<a href="#">DIMPTIMARKING123 Result 000011F7.html</a>	90	3 (B)	PASS
<a href="#">Error Reading Data Matrix Result 000011F3.html</a>	30Q	0 (F)	FAIL
<a href="#">Error Reading Data Matrix Result 000011F9.html</a>	30T_EW	0 (F)	FAIL
<a href="#">DIMPTIMARKING123 Result 000011FA.html</a>	30T_NS	4 (A)	PASS
<a href="#">Error Reading Data Matrix Result 000011FB.html</a>	45Q	0 (F)	FAIL
<a href="#">DIMPTIMARKING123 Result 000011FC.html</a>	30S_N	4 (A)	PASS
<a href="#">Error Reading Data Matrix Result 000011FD.html</a>	30S_E	0 (F)	FAIL
<a href="#">Error Reading Data Matrix Result 000011FE.html</a>	30S_S	0 (F)	FAIL
<a href="#">Error Reading Data Matrix Result 000011FF.html</a>	30S_W	0 (F)	FAIL

Again, only the light changes. Note the example – same image, field of view, angles, (we never move the part) and only the lighting changes.

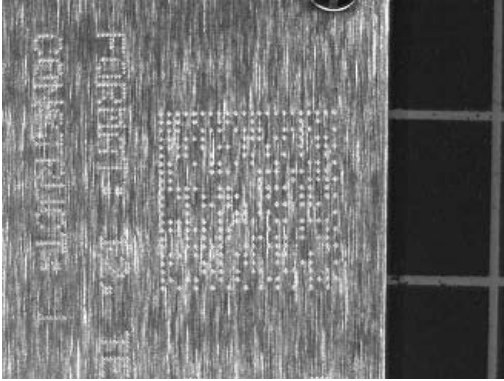
The 30 T Passes below:



With a 45Q light, a different result : FAIL



And the 30Q also FAIL



The Human eye and the Camera's "eye" are different. We may see no contrast where the camera sees high contrast because of the lighting used. MIL STD 130 allows the newest verification guidelines from AIM, the AIM DPM 1-2006 Guidelines which allow a total of 10 different light configurations to evaluate the quality of your marking process.

It is much more expensive to change the process or marking method than it is to use all of the different lights the regulations allow.

*If you still can not achieve a passing grade, you then know you have no alternative but to modify your process.*



#### **UID Compliance Verifiers**

Verifying and Validating UID Data Matrix marks for compliance with US Department of Defense mandated Unique Identification policy in accordance with MIL-STD-130.

*For more information on meeting Military Labeling Standards, contact Winco Identification.*



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