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Glossy Papers, General

Glossy papers are not straightforward targets when measured with infrared moisture meters. The main obstacle is the specular reflection caused by the extreme reflectivity of the paper's outer surface. When light reflects from the top layer of molecules only, it contains very little, if any, information of moisture content of the base paper. This is due to the fact that light rays have not passed any depth to the paper at all. When the specular part of the re-emitted light is allowed to the meter's detectors, that will cause a dip into moisture readings compared to the case when there is no specular part.

When glossy samples are to be measured with AK50 meters, it is best to do it at an angle of 20 degrees (-5/+15deg). Then you can avoid specular reflections which might affect the moisture reading. Refer to the figure below. For best repeatable results, use the same angle and same direction of tilt. This applies to all IRMA-7 model D meters delivered. The same principle applies, whether you measure off-line samples or on-line webs.

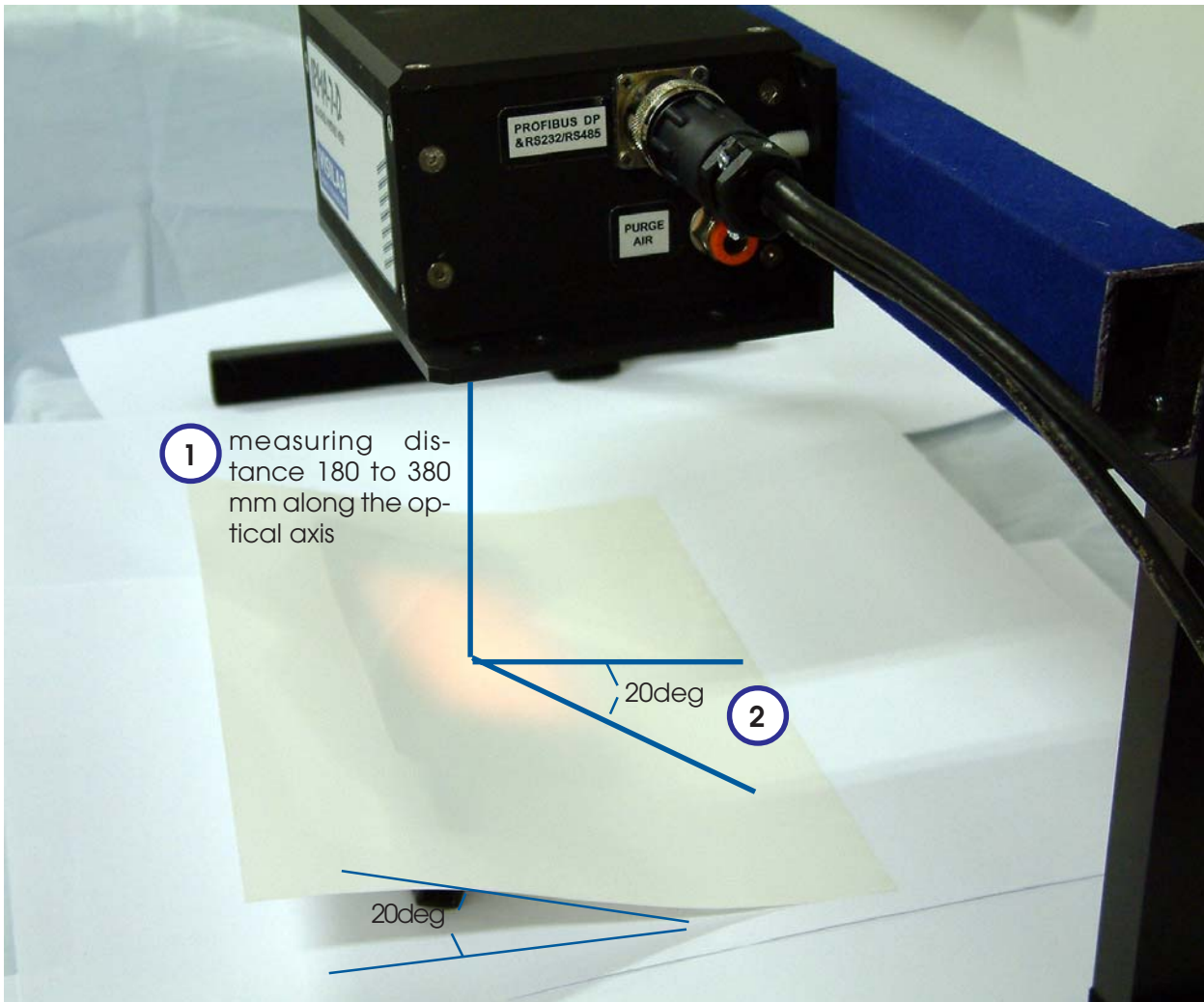


Figure 1. Measuring glossy papers, off-line or on-line. Numbers refer to the text in the following.

1. The measuring distance is determined from the bottom of the meter along the optical axis to the paper surface. Do not go under the minimum distance for your unit. Distortion of reading may happen.

2. The angle is determined as a rotation of the meter around its main axis, in the direction indicated in Fig. 1. AK50 meters can accept a rotation to negative direction too but earlier revisions do not. Stick to the tilt once adopted.

For best results, observe the angle used relative to the meter. Do not tilt the meter around the other axes. The glossy paper calibrations should be done in the same way. Note that we have used here a black background plate (regular matte oxidized Aluminum) to avoid any further reflections when thin papers are measured. The background has no effect for papers with BW above 120g/m².