

MEASUREMENT OF THE GLOSS OF PAINT PANELS

1. Scope and Field of Application

1.1 Scope

This standard agrees in principle with ISO 2813 and ASTM D523.

Herewith three methods for the measurement of the specular gloss of paints with 20°, 60° and 85° geometry are specified.

The measurement results are similar to those of the visual perception, BUT visual assessment according to Ford Laboratory Test Method BI 109-01 will always override numerical measurement data and is compulsory for any type of appearance approval.

1.2 Field of Application

Three geometries for the measurement of the specular gloss are recommended for paints. Depending on the gloss value of the 60° geometry measurement the suitable measurement geometry shall be chosen according to ASTM D523:

- The 20° geometry is intended for obtaining improved differentiation of high-gloss paints (>70 GU at 60°).
- The 60° geometry is intended for obtaining improved differentiation of medium-gloss paints (10 - 70 GU at 60°).
- The 85° geometry is intended for obtaining improved differentiation of low-gloss paints (<10 GU at 60°).

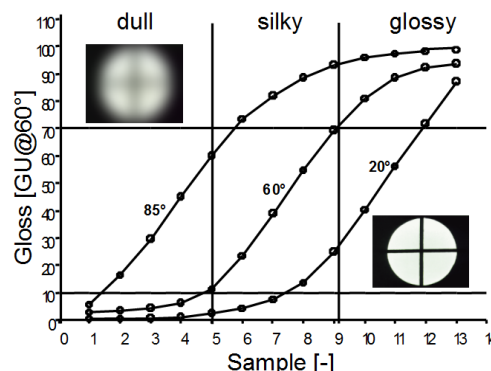


Figure 1.1: Ranges of best resolution

Although defined for paints, within FMC above geometries can be adapted to the following materials if the application is considered meaningful:

- plastic parts
 - o solids with or without texture
 - o painted, excluding effect colors
 - o foils, sheets & slush skins
- leathers
 - o natural
 - o artificial

Date	Action	Revisions	Rev. 2
2011 09 26	Revised	Editorial – no technical change	C. Starke, FoE
2010 01 19	Revised	Revised to national/international standards	C. Starke, FoE
1990 05 11	Released		



2. Definitions

Terms and definitions in terminology ASTM E284 are applicable to this method. Definitions of terms specific to this method are:

Gloss Unit (GU) The reflectometer (glossmeter) value is NOT a percentage, but referred to a black polished glass standard of a defined refractive index (1,567), for which the measured value is set to 100 gloss units (GU).

Instrument

- **Master Instrument** – The Master Instrument is an instrument to establish the basic references among various levels of standards and among other equipments. This instrument is the normal arbiter in any situation not adequately resolved at a lower level and is retained by the organization that issues the standards.
- **Secondary Instrument** – A Secondary Instrument is any other instrument used for color evaluation of the product by reference to the standards.

Masters

- **Target** – A physical Design idea representation (intended to be developed).
- **Internal Approval** – A physical representation approved to the target released to go to testing.
- **Final Approval** – A physical representation approved to the internal approval released to master.
- **Master** – A physical representation meant to define Design Intent, which is distributed.
- **Regional Standard** – A physical representation of a regional level capability to the master; for distribution within the specific region only (must be coded different to master).
- **Reference Approval** – A visual approval to either a master or regional standard to validate Design Intent and verify feasibility of specific materials.

Reference

A master or any other physical sample that the measurement of samples is correlated to. If only compared within a sample lot, the one sample is chosen to be reference that is visually closest to the idea/vision of the evaluator.

Specular Gloss

The relative luminous reflectance factor of a sample in the specular direction. The luminous reflectance factor is the ratio of the luminous flux reflected from, to that incident on, a sample for specified solid angles.

Standards

- **Primary Samples** – A Primary Sample is a physical standard out of a production batch, which represents color and construction.
- **Design Centre Standard** – The Design Centre Standard is the one physical standard representing the color target for visual and colorimetric evaluation of all products referenced to that color. It is a chosen one of the set of approved Primary Samples.
- **Master Standards** – A Master Standard is a physical standard in routine use as a high precision evaluation tool. Master Standards are made identical to the Design Center Standard and are instrumentally referenced to it.