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# VISUAL COMPARISON REFERENCE

# User Manual

(Original Instructions)


## Applicable Standards:

*MIL-PRF-13830B*

*MIL-C-675C*

*ANSI/OEOSC OP1.002:2009 (Visibility)*

*ISO 10110-7 / ISO 14997 (Visibility)*

REVISION: 1.0

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REVISION HISTORY

| | | | |
|---|---|---|---|
| 1.0 | JUNE 2025 | First issue | TF |
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| | | | |

LANGUAGE / TRANSLATION*

| |
|---|
| ENGLISH (ORIGINAL INSTRUCTIONS) |

* SPECIFIC TRANSLATIONS AVAILABLE ON REQUEST

THIS MANUAL SHOULD BE KEPT NEAR TO THE VISUAL COMPARISON REFERENCE FOR REFERENCE AT ALL TIMES. ALL INFORMATION IS PROVIDED “AS IS” AND IS CORRECT AT THE TIME OF WRITING.



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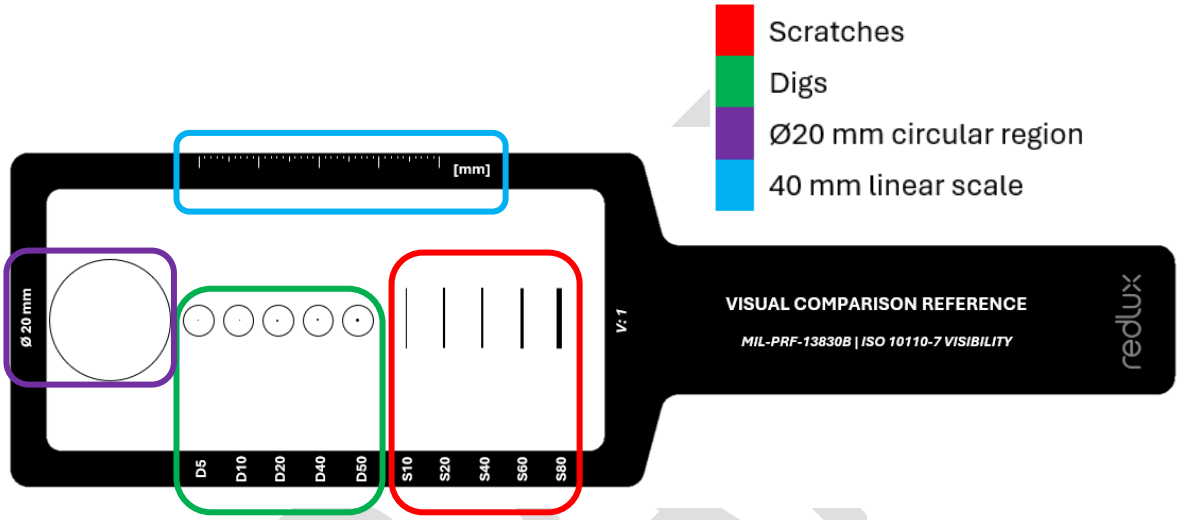
# VISUAL COMPARISON REFERENCE

The Visual Comparison Reference is a hermetically sealed glass unit housed in an anodised aluminium frame. Designed to be handheld by trained inspectors, it is used to directly compare, and grade scratches and digs on optical components under standard-defined dark-field illumination conditions.

## REFERENCE FEATURES




### SCRATCHES

Graded scratches are marked as S10, S20, S40, S60 and S80. The scratches are 10 mm in length.

### DIGS

Graded digs are marked as D5, D10, D20, D40, D50 and are centrally located in 4 mm circles for easy identification. Dig sizes are in units of $\frac{1}{100}$ $mm$ (e.g. D5 = Ø50 $\mu m$).

### OTHER FEATURES

Other features of the Visual Comparison Reference are:

- Ø20 mm circular region (*i.e. for ISO 10110-7 section 4.3.3 Concentrations of visibility imperfections*).
- 40 mm linear scale (1 mm graduations).

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# GENERAL USAGE

The Visual Comparison Reference is designed to be durable, provided careful handling and cleaning guidelines are employed. While hermetically sealed to prevent direct contact and contamination of the surface features, the unit and glass surfaces are sensitive to handling and cleaning conditions and should be treated as a precision optical component and handled appropriately by trained inspectors.

The following details handling, cleaning and general usage procedures and likely mistakes.

## HANDLING

HANDLING GUIDELINES

The following handling guidelines should be considered:

- Always store in the supplied case when not in use.
- Handle only via the metal frame, never touch the glass.
- Do not disassemble.

LIKELY MISTAKES

- Handling where the glass surfaces are contacted leading to the deposition of oils and dirt may invalidate surface features.
- Resting on uneven surfaces/out of the box may lead to damaged glass surfaces.
- Drops from height may cause damage to the glass surfaces and frame.
- Exposure to temperature and pressure extremes may cause damage to the glass unit.

## CLEANING

Occasionally cleaning may be required for the effective use of the Visual Comparison Reference. The following guidelines and likely mistakes should be considered.

CLEANING GUIDELINES

The unit is sealed, and its surfaces may be cleaned gently as follows:

1. Using an air gun, blow off any dust or loose debris.
2. Lightly drag wipe using lint-free wipes or spot clean with cotton buds using methanol (do not use acetone as it may affect the seal) or mild detergent solution applied directly to the cleaning implement.

LIKELY MISTAKES

- Wiping or spot cleaning before blowing loose debris risks dragging abrasive particles across the glass surfaces.
- Forceful cleaning may cause the glass to release from the frame.
- Submersion in solvent/water may cause leaks, fogging or glues to dissolve.
- Ultrasound cleaning may damage the seal.