

Measurement of Reflective Mirror for Blu-ray Disk using High Reflective Attached Equipment (Custom-Made)

INTRODUCTION

One type of the memory media for music and motion pictures is optical disks such as CD, DVD, and BD (Blu-ray disk). To read these optical disks, semiconductor lasers is used. For example, the semiconductor laser having the intensity at 405 nm is used for BD.

This time, the reflectance of the reflective mirror used for a BD drive was measured by using the high reflective attached equipment (Figure 1).

In addition, the same sample was measured by using the 45° specular reflectance accessory. As a result (Figure 2), the reflectance of higher than 99.9% was obtained at 405 nm, the wavelength used for BD. The result compared the two equipment (Figure 3, Figure 4, and Table 1) confirmed that the high reflective attached equipment allows the better measurement with a low noise level and high reproducibility (wavelength of 405 nm, n = 5, relative standard deviation: 0.01%).

SAMPLE

Sample : Reflective mirror for blu-ray disk

INSTRUMENT CONDITIONS

Instrument : U-4100 spectrophotometer (solid sample measurement system)

Measurement wavelength range : 350 - 500 nm

Sampling interval : 0.5 nm

[UV/VIS]

Scan speed : 300 nm/min

Slit : 5 nm

[NIR]

Scan speed : 750 nm/min

Slit : Automatic control

PbS sensitivity : 2

ACCESSORY

High reflective attached equipment (custom made)

Polarizer holder
(P/N : 132-0325)

Glan Taylor prism
MGTYB 20

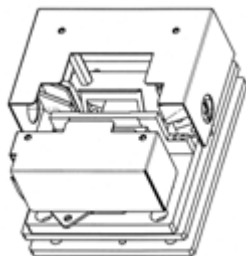


Figure 1. Appearance of High Reflective Attached Equipment

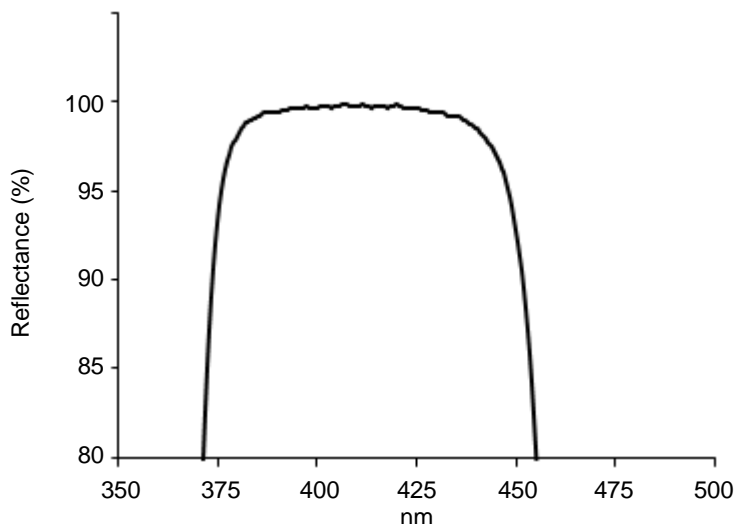


Figure 2. Analysis Results by High Reflective Attached Equipment (Mean Spectrum of S- and P-polarizations)

*Two sample sizes are required for the analysis.

- 45(W) × 20(H) × 1 – 5(t) mm
- 60(W) × 20(H) × 1 – 5(t) mm

KEY WORDS

Material/Processing Material Related, Glass/Ceramic, Blu-ray Disk, Reflective Mirror, Reflectance Spectrum, High Reflectance, Spectrophotometer, U-4100

Spectrophotometer (UV)

Sheet No. UV110011-01

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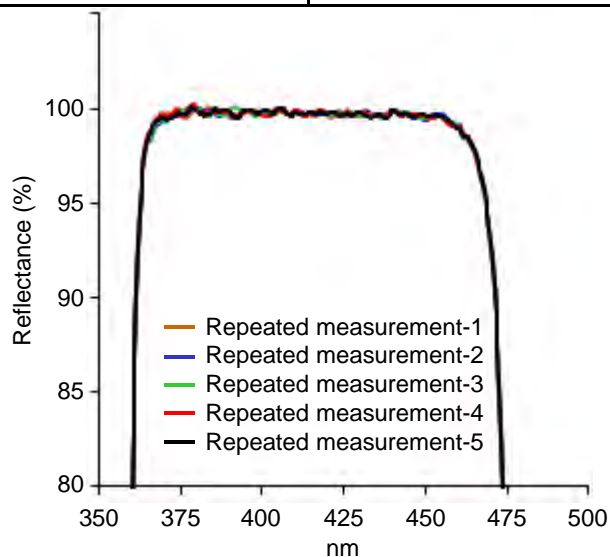
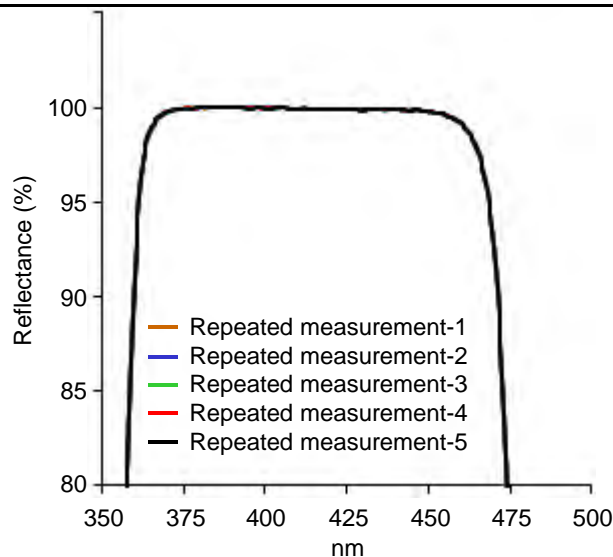


Figure 3. Result of Repeated Measurements by High Reflective Attached Equipment (s-polarization)

Figure 4. Result of Repeated Measurements by 45° Specular Reflectance Accessory (s-polarization)

	Mean reflectance (%)	Relative standard deviation (%)
High reflective attached equipment	99.96	0.01
45° specular reflectance accessory	99.96	0.08

KEY WORDS

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Spectrophotometer (UV)

Sheet No. UV110011-02