

# LASER OPTICAL DENSITY CERTIFICATION

## D AB8

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66804B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
180-315 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 266 nm  
Polarization: Linear  
Pulsewidth (FWHM): N/A  
Spot Diameter (1/e): 1.011 mm  
Test Prep: N<sub>2</sub> blow  
Quantity: 3

Substrate Material: Acrylic  
Incidence Angle: 0°  
PRF : CW  
Transverse Mode : TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 100 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB8 during irradiation.

COMMENTS: None.

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by



**Spica**  
Technologies Inc.

18 Clinton Drive #3  
Hollis, NH 03049  
[www.spicatech.com](http://www.spicatech.com)  
603-882-8233

# LASER OPTICAL DENSITY CERTIFICATION

## I AB3

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66808B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
180-315 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 266 nm  
Polarization: Random  
Pulsewidth (FWHM): 200 ms  
Spot Diameter (1/e): 1.011 mm  
Test Prep: N<sub>2</sub> blow  
Quantity: 3

Substrate Material: Acrylic  
Incidence Angle: 0°  
PRF: 2 Hz  
Transverse Mode : TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 100 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB3 during irradiation.

COMMENTS: None.

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by \_\_\_\_\_



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# LASER OPTICAL DENSITY CERTIFICATION

## M AB3

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5161R  
Lot: B100  
Color: Grey

Cert. Number: 66816C-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
180-315 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 266 nm  
Polarization: Linear  
Pulsewidth (FWHM): 400 ps  
Spot Diameter (1/e): 0.502 mm  
Test Prep: N<sub>2</sub> blow  
Quantity: 3

Substrate Material: Acrylic  
Incidence Angle: 0°  
PRF : 10 Hz  
Transverse Mode : TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 100 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB3 during irradiation.

COMMENTS: None.

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by \_\_\_\_\_



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# LASER OPTICAL DENSITY CERTIFICATION

## R AB3

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66812B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
180-315 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 266 nm  
Polarization: Linear  
Pulsewidth (FWHM): 2 ns  
Spot Diameter (1/e): 1.047 mm  
Test Prep: N<sub>2</sub> blow  
Quantity: 3

Substrate Material: Acrylic  
Incidence Angle: 0°  
PRF : 10 Hz  
Transverse Mode: n/a  
Axial Modes: TEM<sub>00</sub>  
Number of Sites: 1  
Exposure Duration: 100 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB3 during irradiation.

COMMENTS: None.

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# LASER OPTICAL DENSITY CERTIFICATION

## D AB4

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66819B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
315-1050 nm Range.

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### TEST PARAMETERS

Coating Type: Laser Blocking  
Test Wavelength: 940 nm  
Polarization: Random  
Pulsewidth (FWHM): N/A  
Spot Diameter (1/e): 1.03 mm  
Test Prep: None  
Quantity: 3

Substrate Mat'l: Acrylic  
Incidence Angle: 0°  
PRF : CW  
Transverse Mode: TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 100 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB4 during irradiation.

COMMENTS: None.

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by \_\_\_\_\_



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# LASER OPTICAL DENSITY CERTIFICATION

## I AB8

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66810B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2. 315-1400 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 1064 nm  
Polarization: Random  
Pulsewidth (square): 15 ms  
Spot Diameter (1/e): 1.001 mm  
Test Prep: N<sub>2</sub> blow  
Quantity: 3

Substrate Material: N/A  
Incidence Angle: 0°  
PRF: 30 Hz  
Transverse Mode: TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 1000 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB8 during irradiation.

COMMENTS: None

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by \_\_\_\_\_



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# LASER OPTICAL DENSITY CERTIFICATION

## R AB7

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66814B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2. 315-1400 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 1064 nm  
Polarization: Random  
Pulsewidth (FWHM): 10 ns  
Spot Diameter (1/e): 1.011 mm  
Test Prep: None  
Quantity: 3

Substrate Material: Acrylic  
Incidence Angle: 0°  
PRF : 10 Hz  
Transverse Mode: TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 1000 shots/site

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB7, during irradiation.

COMMENTS: None.

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by \_\_\_\_\_



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Technologies Inc.

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# LASER OPTICAL DENSITY CERTIFICATION

## D AB4

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66806B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
1050-1400 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 1070 nm  
Polarization: Linear  
Pulsewidth (FWHM): N/A  
Spot Diameter (1/e): 0.997 mm  
Test Prep: None  
Quantity: 3

Substrate Material: Acrylic  
Incidence Angle: 0°  
PRF : CW  
Transverse Mode: TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 100 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB4 during irradiation.

COMMENTS: None.

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by



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Technologies Inc.

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Hollis, NH 03049  
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# LASER OPTICAL DENSITY CERTIFICATION

## D AB2

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66807B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
1400-10,600 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 10.6  $\mu\text{m}$   
Polarization: Linear  
Pulsewidth (FWHM): N/A  
Spot Diameter (1/e): 0.999 mm  
Test Prep: None  
Quantity: 3

Substrate Material: Acrylic  
Incidence Angle: 0°  
PRF : CW  
Transverse Mode: TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 100 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB2 Resistance level.

COMMENTS: None.

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by \_\_\_\_\_



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Technologies Inc.

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# LASER OPTICAL DENSITY CERTIFICATION

## I AB3

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66811B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
1400-10,600 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 10.6  $\mu\text{m}$   
Polarization: Linear  
Pulsewidth (Square): 100 ms  
Spot Diameter (1/e): 1.003 mm  
Test Prep: None  
Quantity: 3

Substrate Material: Acrylic  
Incidence Angle: 0°  
PRF : 10 Hz  
Transverse Mode: TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 100 seconds

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### TEST RESULTS:

#### Measurement Level

Sample maintains AB3 Resistance Level.

COMMENTS: None.

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# LASER OPTICAL DENSITY CERTIFICATION

## R AB3

Supplier: NOIR  
Purchase Order Number: 75094  
Part ID: A5151G  
Lot: B100  
Color: Green

Cert. Number: 66815B-N  
Date: July 7, 2020

Requirements: EN 12254: 2010(E), Paragraph 5.3 Resistance to Laser Radiation, Table 2.  
1400-10,600 nm Range.

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### TEST PARAMETERS

Coating Type: N/A  
Test Wavelength: 10.6  $\mu\text{m}$   
Polarization: Linear  
Pulsewidth (Square): 70 ns  
Spot Diameter (1/e): 1.025 mm  
Test Prep: None  
Quantity: 3

Substrate Mat'l: Acrylic  
Incidence Angle: 0°  
PRF: 1 Hz  
Transverse Mode: TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 1000 seconds

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### TEST RESULTS:

#### Measurement Level

Samples maintain AB3 during irradiation.

COMMENTS: None.

**Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.**

Test conducted by \_\_\_\_\_



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