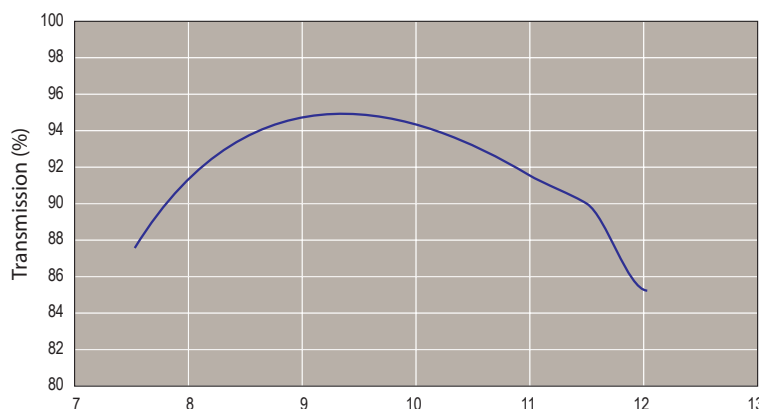


# Diamond-like Carbon Coatings & Capabilities

## Andover Corporation Now Offers Diamond-like Carbon (DLC) Coating

Diamond-like Carbon (DLC) is a hard durable coating with useful properties as an infrared optical coating. The coating is a mix of graphitic and diamond forms of Carbon. As a result, the film structure has no long range order and cannot be fractured. The presence of the diamond-like form imparts a hardness that cannot be matched by other coating materials typically used in the design of infrared optical coatings. The refractive index of DLC is about 2.0 and this makes it an ideal coating material for use as an anti-reflection coating when applied to higher index infrared optical materials. The infrared materials Germanium and Silicon have high refractive indices of 4.0 and 3.4 respectively.

## Transmission Response DLC / HEAR



## The DLC Advantage

Typically, the higher index materials are used as the first lens of an infrared lens assembly due to the high refractive power. The first lens is subjected to a harsher environment and the increased durability afforded by the DLC coating greatly enhances the protection of outer facing lens surfaces. DLC is a chemically inert nonporous coating with the high hardness associated with diamond. Therefore, DLC will easily survive exposure to harsh environmental testing such as 10-day humidity, acidified salt fog and severe abrasion. There is even a sand slurry wiper blade test specific to DLC that demonstrates its superior abrasion resistance compared to their infrared coating materials.

Andover Corporation can offer DLC as an option on Germanium or Silicon lenses.

Test	HEAR	DLC
Humidity	24 Hr 95%	240 Hr 95%
Salt Fog	No	48 Hr
Adhesion	Slow Pull	Fast Pull
Abrasion	Moderate	Severe
Wiper Blade	No	Yes

Germanium Broad Band Anti-Reflection Coating  
from 7.5-12μm

Side 1: DLC Coating  
Side 2: HEAR Coating

T(Average) > 91% from 8.0-12μm

