Amplification of the Incidence Angles of a Light Beam to Cover Up to 4π Steradians

Title: Amplification of the Incidence of a Light Beam to Cover Up to 4π Steradians

Invention: The invention employs a means of preventing total internal reflection and allows the beam to exit the material to steer at a wider diffraction angle, increasing the incidence angle of a light beam for spatial light modulators and integrated phase arrays.

Background: Non-mechanical beam steering requires efficient diffraction and a high angle of incidence. At high angles, the diffracted beam becomes trapped between interfaces and can’t exit the material. To allow access to the beam, total internal reflection must be avoided.

Applications:

• Non-mechanical beam steering in need of larger angles of incidence
• LiDAR scanning
• Maskless lithography
• Optical communication

Advantages:

• Provides efficient diffraction
• Produces higher angles of incidence than predecessors
• Efficient with space

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