IRS at 7 GHz

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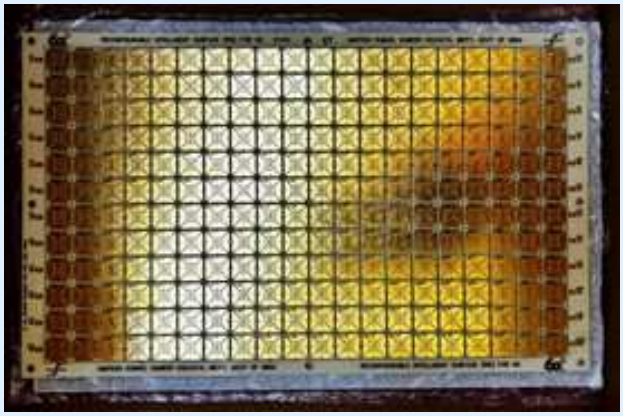

A dual-linearly polarized IRS is indigenously developed at 7 GHz. It offers 2-bit phase control, tunable operating frequency, and wideband performance.

Key Features

- Electronic beam steering
- Sub-wavelength unit cell
- Varactor loaded.
- 20 x 12 array
- Dual linearly polarized

Applications

- For 6G Non Line of Sight communication
- Non-specular reflections at various angles due to different pre-phase code

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Plano-Convex Lens Antenna at D-band

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Homogeneous plano-convex lens antenna operating at the D-band. It is excited by dual-mode conical horns to achieve high efficiency and low cross-polarization levels.

Key Features

- Operates over 133-150 GHz.
- Gain ~ 40 dBi, 3dB beamwidths of ~ 1.4°.
- Low cross polar level, high efficiency
- Lens dia = 106 mm.

Applications

- 6G Line-of-Sight Communication
- Tx/Rx antenna in D-band front end.
-
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Elliptic Lens Antenna at D-band

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This D-band elliptic lens antenna is excited with a pyramidal horn. It exhibits low sidelobes and high cross-polarization discrimination.

Key Features

- Operating frequency ≈ 110-170 GHz, Lens (dia = 60 mm)
- Gain ≈ 32dBi at 140 GHz, 3dB beamwidth ≈ 3.2° x 3.2°.
- Side Lobe Level ~ 20 dB
- Cross polar discrimination (XPD) ~ 50 dB.

Applications

- 6G Line-of-Sight Communication
- Tx/Rx antenna in D-band front end.
-
-

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Hemispherical Lens Antenna at J-Band

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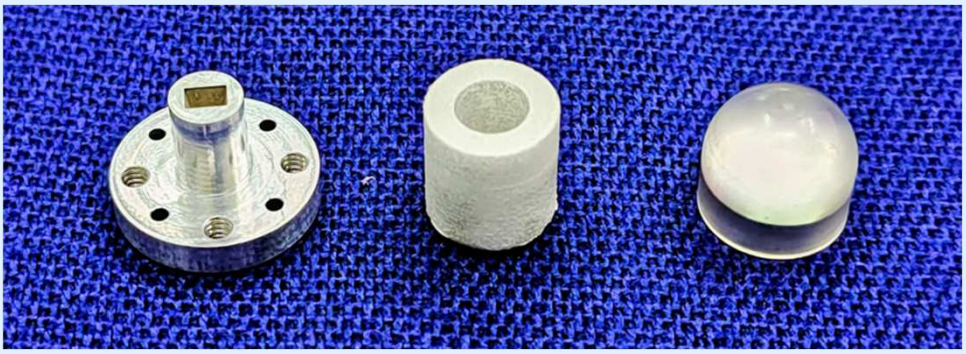

This D-band hemispherical lens antenna is excited with a pyramidal horn. It exhibits low sidelobes and high cross-polarization discrimination.

Key Features

- Operating frequency ≈ 110-170 GHz, Lens (dia = 12 mm)
- Gain ≈ 22dBi at 140 GHz.
- Side Lobe Level ~ 20 dB
- Cross polar discrimination (XPD) ~ 25 dB.

Applications

- 6G Line-of-Sight Communication
- Plane wave illumination of IRS at D-band.

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Elliptic Lens Antenna at D-Band

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This D-band elliptic lens antenna is excited with a pyramidal horn. It exhibits low cross polar levels and high efficiency.

Key Features

- Operating frequency ≈ 110-170 GHz.
- Gain ≈ 31.5 dBi at 140 GHz
- 3dB beamwidths ~ 3.5° × 3.5°.
- Side Lobe Level ~ 23 dB
- Cross polar discrimination (XPD) ~ 35 dB.

Applications

- 6G Line-of-Sight Communication
- Tx/Rx antenna in D-band front end.

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Elliptic Lens Antenna at J-Band

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This J-band lens antenna is excited with a pyramidal feed. It exhibits narrow beam, low sidelobes, low cross-polarization and high efficiency.

Key Features

- Operating frequency ≈ 220-330 GHz
- Gain ≈ 52dBi, 3dB beamwidths ~ 0.35° x 0.35°
- Side-lobe levels ~ 23 dB
- Lens diameter = 175 mm, Overall Antenna Dia. = 200 mm
- Linearly Polarized

Applications

- 6G Line-of-Sight Communication
- Tx/Rx antenna in J-band front end.

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Elliptic Lens Antenna at J-Band

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This J-band elliptic lens antenna is excited with a pyramidal horn. It exhibits low cross polar levels and high efficiency.

Key Features

- Operating frequency ≈ 220-330 GHz
- Gain ≈ 44.2 dBi at 280 GHz
- 3dB beamwidths ~ 1° × 1°.
- Side-lobe levels ~ 25 dB
- Linearly polarized

Applications

- 6G Line-of-Sight Communication
- Tx/Rx antenna in J-band front end.

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Static IRS - 140 GHz

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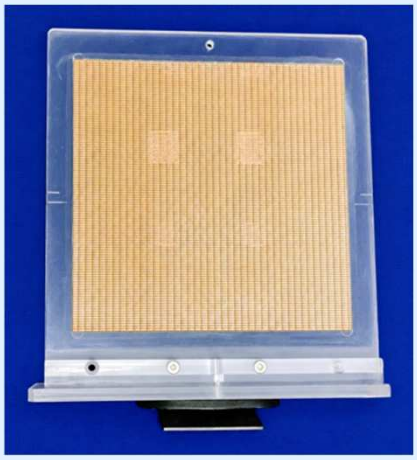

The indigenously developed static IRS employs a directional reflection-phase gradient to steer the incident beam towards a predefined direction.

Key Features

- Operating Frequency : 140 GHz
- Non specular reflection at a fixed angle
- Reflection at 30° with Normal Incidence,
- Dimensions = 120 mm x 120 mm

Applications

- For 6G Non Line of Sight communication
- Non-specular reflections at a fixed angle.
-
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