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# Enhanced bandwidth of W type plastic optical fibers designed from singly clad step index plastic optical fibers

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## HIGHLIGHTS

- We propose a multimode W type plastic optical fiber (POF).
- For different widths of the inner cladding and refractive index of the outer cladding, the bandwidth is determined.
- Bandwidth of W type POF is significantly higher than the bandwidth of the original singly clad POF.
- The bandwidth of W type plastic optical fiber is enhanced by reducing the width of its inner cladding.

## ARTICLE INFO

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## ABSTRACT

We propose a multimode W type (doubly clad) plastic optical fiber which takes the characteristic W-shaped index profile designed from a multimode singly clad step index plastic optical fiber upon modification of the cladding layer of the latter. For different widths of the inner cladding and refractive index of the outer cladding, the bandwidth and steady-state loss are determined for such W type plastic optical fiber. We have shown that bandwidth of W type plastic optical fiber is significantly higher than the bandwidth of the original singly clad step index plastic optical fiber. The bandwidth of W type plastic optical fiber is mostly enhanced by reducing the width of its inner cladding.

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