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(54) **DISTRIBUTION OPTICAL ELEMENTS AND COMPOUND COLLECTING LENSES FOR BROADCAST OPTICAL INTERCONNECT**

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(57) **ABSTRACT**

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Methods and apparatus are described for distribution optical elements and compound collector lenses for a broadcast interconnect. An apparatus includes a broadcast optical interconnect including: a plurality of nodes positioned to define a node array, each of the plurality of nodes having at least one optical signal emitter and a plurality of optical signal receivers positioned to define a receiver array that substantially corresponds to the node array; and a plurality of optics optically coupled to the array of nodes, the plurality of optics positioned to define an optics array that substantially corresponds to the node array and the receiver array, each of the plurality of optics including at least one optical distributing element and an optical collecting element, wherein an optical signal from the optical signal emitter is fanned-out by the at least one optical distributing element of one of the optics and broadcast to one of the plurality of receivers of all of the plurality of nodes by the optical collecting element of all of the plurality of optics.

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