Title (en)

COMPACT BUTLER MATRIX , PLANAR BI-DIMENSIONAL BEAM-FORMER, AND PLANAR ANTENNA WITH SUCH A BUTLER MATRIX

Title (de)

BUTLER MATRIX COMPACT, BI-DIMENSIONALES PLANARE BEAM-FORMER UND PLANARANTENNE MIT EINER SOLCHEN BUTLER MATRIX

Title (fr)

MATRICE DE BUTLER COMPACTE, FORMATEUR DE FAISCEAUX BIDIMENSIONNEL PLANAIRE ET ANTENNE PLANE COMPORTANT UNE TELLE MATRICE DE BUTLER

Publication

EP 3073569 A1 20160928 (FR)

Application

EP 16161459 A 20160321

Priority

FR 1500565 A 20150323

Abstract (en)

[origin: US2016285165A1] A compact Butler matrix consists a planar multilayer structure comprising N parallel metal plate waveguides PPW, stacked one on top of the other, two adjacent waveguides PPW comprising a common wall consisting of one of the metal plates. The couplers, the phase-shifters and the crossover devices of the Butler matrix consist of metasurfaces incorporated in the metal plates. The planar two-dimensional beam-former can comprise a Butler matrix with waveguides PPW associated with optical lenses incorporated in each waveguide PPW. Alternatively, the planar two-dimensional beam-former can comprise an upper stage consisting of a Butler matrix with waveguides PPW, and a lower stage comprising waveguides PPW equipped with incorporated reflectors, the two stages being connected in series.

Abstract (fr)

La matrice de Butler compacte est constituée d'une structure multicouches planaire comportant N guides d'onde à plaques métalliques parallèles PPW, empilés les uns au-dessus des autres, deux guides d'onde PPW adjacents comportant une paroi commune constituée par l'une des plaques métalliques. Les coupleurs, les déphaseurs et les dispositifs de croisement de la matrice de Butler sont constitués par des métasurfaces intégrées dans les plaques métalliques. Le formateur de faisceaux bidimensionnel planaire peut comporter une matrice de Butler à guides d'onde PPW associée à des lentilles optiques intégrées dans chaque guide d'onde PPW. Alternativement, le formateur de faisceaux bidimensionnel planaire peut comporter un étage supérieur constitué d'une matrice de Butler à guides d'onde PPW, et un étage inférieur comportant des guides d'onde PPW équipés de réflecteurs intégrés, les deux étages étant connectés en série.

IPC 8 full level

H01Q 1/28 (2006.01); **H01P 1/18** (2006.01); **H01P 3/12** (2006.01); **H01P 3/20** (2006.01); **H01P 5/02** (2006.01); **H01P 5/18** (2006.01); **H01Q 3/26** (2006.01); **H01Q 3/40** (2006.01); **H01Q 15/00** (2006.01); **H01Q 15/08** (2006.01); **H01Q 15/10** (2006.01); **H01Q 15/16** (2006.01); **H01Q 21/06** (2006.01); **H01Q 25/00** (2006.01); **H04B 7/185** (2006.01)

CPC (source: EP US)

H01P 1/182 (2013.01 - EP US); **H01P 3/121** (2013.01 - US); **H01P 5/024** (2013.01 - EP US); **H01Q 1/288** (2013.01 - EP US); **H01Q 3/40** (2013.01 - EP US); **H01Q 15/0073** (2013.01 - EP US); **H01Q 15/008** (2013.01 - EP US); **H01Q 15/0086** (2013.01 - EP US); **H01Q 15/08** (2013.01 - EP US); **H01Q 15/10** (2013.01 - EP US); **H01Q 15/16** (2013.01 - EP US); **H01Q 19/138** (2013.01 - EP); **H01Q 21/0031** (2013.01 - EP US); **H01Q 21/061** (2013.01 - US); **H01Q 21/064** (2013.01 - EP US); **H01Q 25/008** (2013.01 - EP US)

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