

Title (en)

Microwave duplexer comprising dielectric filters, a T-junction, two coaxial ports and one waveguide port

Title (de)

Mikrowellen-Duplexer mit dielektrischen Filtern, einem T-Glied, zwei koaxialen Ports und einem Wellenleiter-Port

Title (fr)

Duplexeur micro-ondes avec des filtres diélectriques, une jonction T, deux ports coaxiaux et un port de guide d'ondes

Publication

**EP 1469548 B1 20081119 (EN)**

Application

**EP 03425240 A 20030418**

Priority

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Abstract (en)

[origin: EP1469548A1] Duplexer filter is constituted by a metallized alumina substrate (11) interposed between a robust metallic base (14) and a metallic hollow body (17) milled as a short waveguide tract fixed to the metallic base. The free end of the hollow body (17) is connected to an R140 mechanical waveguide connected to the antenna feeder at the other end. The metallized layout includes two dielectric resonant cavities (CVL, CVH) at the two sides of a central unmetallized gap (GP) on the upper face of the alumina. Each dielectric cavity terminates with a tapered transition (TPL, TPH) towards a microstrip conveying either the transmission or reception signal towards either the high or low bandpass dielectric filter (BPL, BPH) built up on the cavity. The metallic hollow body (17) includes a terminal tract with reduced section (MC-T) whose rectangular opening is faced to the central unmetallized gap (GP) between the two dielectric filters. The walls of the hollow body (17) delimiting the central opening are soldered (by brazing) to the metallic layout delimiting the central unmetallized gap, in order to keep the two dielectric cavities of the filters and the metallic cavity of the hollow body contiguous to each other. The central part of this structure constitutes an extremely compact T-junction including two identical transitions between dielectric and mechanical waveguide, and vice versa, without the need of separate excitation means as probes or irises. The dielectric cavities of the two filters include metallized through holes acting as inductive posts for shaping the separate bandpass responses in a no-tuning way. In a preferred embodiment of the duplexer the central unmetallized gap (GP) of the alumina substrate projects itself outside the original rectangular profile for optimising the design of the T-junction. The enlarged gap is surrounded by a metallized frame (12, 13) for shielding and simplifying the sealing (by brazing) of the space at the two short sides of the gap (fig.10). <IMAGE>

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CPC (source: EP)

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Cited by

JP2014022864A; EP3944410A1; CN108270058A; DE102016208097A1; CN106663853A; CN108832239A; US8841038B2; CN109301413A; US9178256B2; US9917627B2; WO2016052782A1; US7821355B2; US10333189B2; US8456253B2; US8884725B2; US10530326B2; US10917066B2

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