

Title (en)
COAXIAL CONDUCTOR STRUCTURE

Title (de)
KOAXIALLEITERSTRUKTUR

Title (fr)
STRUCTURE DE CONDUCTEURS COAXIAUX

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Application
EP 11718269 A 20110329

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Abstract (en)
[origin: WO2011124350A1] The invention relates to a coaxial conductor structure for interference-free transmission of a TEM mode of a HF signal wave within at least one band of n frequency bands forming in the context of a dispersion relation, with n as a positive natural number, with a) an internal conductor comprising a round cross-section having an internal conductor diameter D_i , b) an external conductor which equidistantly radially surrounds the internal conductor having an internal diameter D_a of the external conductor, c) an axially extending common conductor section of the internal and external conductor, along which in each case s rod-shaped structures having a rod diameter D_s , which electrically connect the internal conductor to the external conductor are provided at equidistant intervals p , wherein for a propagation of the TE₁₁ mode along the coaxial conductor structure undisturbed by higher excitation modes which form at least in the form of a Ten mode within m frequency bands, the parameters D_i , D_a , D_s , p , s can be selected in such a way that i) a lower cutoff frequency $f_u(\text{TEM})$ of the TEM mode propagating within a $n = 2\text{th}$ band is greater than or equal to an upper cutoff frequency $f_o(\text{TE}_{11})$ of the TE₁₁ mode forming in the $m\text{th}$ band \pm a tolerance range Δf , and ii) an upper cutoff frequency $f_o(\text{TEM})$ of the TEM mode propagating within the $n = 2\text{th}$ band is less than or equal to a lower cutoff frequency $f_u(\text{TE}_{11})$ of the TE₁₁ mode forming within the $(m+1)\text{th}$ band \pm a tolerance range Δf .

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