

Title (en)  
COAXIAL CONDUCTOR STRUCTURE

Title (de)  
KOAXIALLEITERSTRUKTUR

Title (fr)  
STRUCTURE DE CONDUCTEURS COAXIAUX

Publication  
**EP 2553757 B1 20140514 (DE)**

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 TE<sub>11</sub> 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 TE<sub>11</sub> mode forming in the  $m\text{th}$  band  $\pm$  a tolerance range  $\Delta f$ , 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 TE<sub>11</sub> mode forming within the  $(m+1)\text{th}$  band  $\pm$  a tolerance range  $\Delta f$ .

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CPC (source: EP KR US)  
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