

# CPC COOPERATIVE PATENT CLASSIFICATION

**H01P WAVEGUIDES; RESONATORS, LINES, OR OTHER DEVICES OF THE WAVEGUIDE TYPE** (operating at optical frequencies [G02B](#); aerials [H01Q](#); {modulating electromagnetic waves in transmission line, waveguide, cavity resonator or radiation field of aerial [H03C 7/02](#)}; networks comprising lumped impedance elements [H03H](#))

## NOTE

In this subclass, the following expression is used with the meaning indicated :

- "waveguide type" as applied to transmission lines includes only high-frequency coaxial cables or Lecher lines, and as applied to resonators, delay lines, or other devices includes all devices having distributed inductance and capacitance.

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| <p><b>1/00 Auxiliary devices (coupling devices of the waveguide type <a href="#">H01P 5/00</a>)</b></p> <p>1/005 . {Diode mounting means}</p> <p>1/02 . Bends; Corners; Twists</p> <p>1/022 . . {in waveguides of polygonal cross-section (<a href="#">H01P 1/065</a> takes precedence)}</p> <p>1/025 . . . {in the E-plane}</p> <p>1/027 . . . {in the H-plane}</p> <p>1/04 . Fixed joints ({pipe joints <a href="#">F16L</a>}; line connectors <a href="#">H01R</a>; cable fittings <a href="#">H02G 15/00</a>)</p> <p>1/042 . . {Hollow waveguide joints}</p> <p>1/045 . . {Coaxial joints}</p> <p>1/047 . . {Strip line joints}</p> <p>1/06 . Movable joints, e.g. rotating joints</p> <p>1/061 . . {the relative movement being a translation along an axis common to at least two rectilinear parts, e.g. expansion joints}</p> <p>1/062 . . {the relative movement being a rotation}</p> <p>1/063 . . . {with a limited angle of rotation}</p> <p>1/064 . . . . {the axis of rotation being perpendicular to the transmission path, e.g. hinge joint}</p> <p>1/065 . . . . {the axis of rotation being parallel to the transmission path, e.g. stepped twist}</p> <p>1/066 . . . {with an unlimited angle of rotation}</p> <p>1/067 . . . . {the energy being transmitted in only one line located on the axis of rotation}</p> <p>1/068 . . . . {the energy being transmitted in at least one ring-shaped transmission line located around the axis of rotation, e.g. "around the mast" rotary joint (<a href="#">H01P 1/069</a> takes precedence; coaxial line with solid inner conductor <a href="#">H01P 1/067</a>)}</p> <p>1/069 . . . . {the energy being transmitted in at least one ring-shaped transmission line located around an axial transmission line; Concentric coaxial systems}</p> <p>1/08 . Dielectric windows (coupling devices for transit time tubes <a href="#">H01J 23/36</a>)</p> <p>1/10 . for switching or interrupting {(in systems using reflection or reradiation of radio, acoustic or other waves <a href="#">G01S 7/034</a>)}</p> <p>1/11 . . by ferromagnetic devices</p> <p>1/12 . . by mechanical chopper</p> <p>1/122 . . . {Waveguide switches}</p> <p>1/125 . . . {Coaxial switches}</p> <p>1/127 . . . {Strip line switches}</p> <p>1/14 . . by electric discharge devices (discharge devices <a href="#">H01J 17/64</a>)</p> <p>1/15 . . by semiconductor devices</p> | <p>1/16 . for mode selection, e.g. mode suppression or mode promotion; for mode conversion (linking dissimilar lines or devices <a href="#">H01P 5/08</a>)</p> <p>1/161 . . sustaining two independent orthogonal modes, e.g. orthomode transducer {(combining or separating polarisations and frequencies <a href="#">H01P 1/2131</a>)}</p> <p>1/162 . . absorbing spurious or unwanted modes of propagation</p> <p>1/163 . . specifically adapted for selection or promotion of the TE<sub>01</sub> circular-electric mode</p> <p>1/165 . for rotating the plane of polarisation</p> <p>1/17 . . for producing a continuously rotating polarisation, e.g. circular polarisation</p> <p>1/171 . . . {using a corrugated or ridged waveguide section}</p> <p>1/172 . . . {using a dielectric element}</p> <p>1/173 . . . {using a conductive element}</p> <p>1/174 . . . {using a magnetic element (<a href="#">H01P 1/175</a> takes precedence)}</p> <p>1/175 . . using Faraday rotators</p> <p>1/18 . Phase-shifters (<a href="#">H01P 1/165</a> takes precedence; coupling devices with variable coupling factor <a href="#">H01P 5/04</a>)</p> <p>1/181 . . {using ferroelectric devices}</p> <p>1/182 . . {Waveguide phase-shifters (<a href="#">H01P 1/181</a>, <a href="#">H01P 1/185</a>, <a href="#">H01P 1/19</a> take precedence)}</p> <p>1/183 . . {Coaxial phase-shifters (<a href="#">H01P 1/181</a>, <a href="#">H01P 1/185</a>, <a href="#">H01P 1/19</a> take precedence)}</p> <p>1/184 . . {Strip line phase-shifters (<a href="#">H01P 1/181</a>, <a href="#">H01P 1/185</a>, <a href="#">H01P 1/19</a> take precedence)}</p> <p>1/185 . . using a diode or a gas filled discharge tube</p> <p>1/19 . . using a ferromagnetic device</p> <p>1/195 . . . having a toroidal shape</p> <p>1/20 . Frequency-selective devices, e.g. filters ({variable impedance transformers, e.g. slug tuners or stub tuners <a href="#">H01P 5/04</a>}; resonators <a href="#">H01P 7/00</a>)</p> <p>1/2002 . . {Dielectric waveguide filters (<a href="#">H01P 1/212</a>, <a href="#">H01P 1/213</a>, <a href="#">H01P 1/215</a>, <a href="#">H01P 1/219</a> take precedence)}</p> <p>1/2005 . . {Electromagnetic photonic bandgaps [EPB], or photonic bandgaps [PBG]}</p> <p>1/2007 . . {Filtering devices for biasing networks or DC returns}</p> <p>1/201 . . Filters for transverse electromagnetic waves (<a href="#">H01P 1/212</a>, <a href="#">H01P 1/213</a>, <a href="#">H01P 1/215</a>, <a href="#">H01P 1/219</a> take precedence)</p> <p>1/2013 . . . {Coplanar line filters}</p> <p>1/2016 . . . {Slot line filters; Fin line filters}</p> |
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- 1/202 . . . Coaxial filters ([cascaded coaxial cavities H01P 1/205](#))
- 1/203 . . . Strip line filters
- 1/20309 . . . . {with dielectric resonator}
- 1/20318 . . . . . {with dielectric resonators as non-metallised opposite openings in the metallised surfaces of a substrate}
- 1/20327 . . . . . {Electromagnetic interstage coupling}
- 1/20336 . . . . . {Comb or interdigital filters}
- 1/20345 . . . . . {Multilayer filters}
- 1/20354 . . . . . {Non-comb or non-interdigital filters}
- 1/20363 . . . . . {Linear resonators}
- 1/20372 . . . . . {Hairpin resonators}
- 1/20381 . . . . . {Special shape resonators}
- 1/2039 . . . . {Galvanic coupling between Input/Output}
- 1/205 . . . Comb or interdigital filters; Cascaded coaxial cavities ([H01P 1/203 takes precedence](#))
- 1/2053 . . . . {the coaxial cavity resonators being disposed parall to each other}
- 1/2056 . . . . {Comb filters or interdigital filters with metallised resonator holes in a dielectric block}
- 1/207 . . Hollow waveguide filters ([H01P 1/212, H01P 1/213, H01P 1/215, H01P 1/219 take precedence](#))
- 1/208 . . . Cascaded cavities; Cascaded resonators inside a hollow waveguide structure ([H01P 1/205 takes precedence](#))
- 1/2082 . . . . {with multimode resonators ([H01P 1/2086 takes precedence](#))}
- 1/2084 . . . . {with dielectric resonators}
- 1/2086 . . . . . {multimode}
- 1/2088 . . . . {Integrated in a substrate}
- 1/209 . . . comprising one or more branching arms or cavities wholly outside the main waveguide
- 1/211 . . . Waffle-iron filters; Corrugated structures
- 1/212 . . suppressing or attenuating harmonic frequencies ([H01P 1/215 takes precedence](#))
- 1/213 . . combining or separating two or more different frequencies ([H01P 1/215 takes precedence](#))
- 1/2131 . . . {with combining or separating polarisations}
- 1/2133 . . . {using coaxial filters ([H01P 1/2131, H01P 1/2136 take precedence](#))}
- 1/2135 . . . {using strip line filters ([H01P 1/2131 takes precedence](#))}
- 1/2136 . . . {using comb or interdigital filters; using cascaded coaxial cavities ([H01P 1/2131, H01P 1/2135 take precedence](#))}
- 1/2138 . . . {using hollow waveguide filters ([H01P 1/2131 takes precedence](#))}
- 1/215 . . using ferromagnetic material
- 1/217 . . . the ferromagnetic material acting as a tuning element in resonators
- 1/218 . . . the ferromagnetic material acting as a frequency selective coupling element, e.g. YIG-filters
- 1/219 . . Evanescent mode filters
- 1/22 . . Attenuating devices ([dissipative terminating devices H01P 1/26](#))
- 1/222 . . {Waveguide attenuators ([H01P 1/23 takes precedence](#))}
- 1/225 . . {Coaxial attenuators ([H01P 1/23 takes precedence](#))}
- 1/227 . . {Strip line attenuators ([H01P 1/23 takes precedence](#))}
- 1/23 . . using ferromagnetic material
- 1/24 . Terminating devices
- 1/26 . . Dissipative terminations
- 1/262 . . . {the dissipative medium being a liquid or being cooled by a liquid}
- 1/264 . . . {Waveguide terminations ([H01P 1/262 takes precedence](#))}
- 1/266 . . . {Coaxial terminations ([H01P 1/262 takes precedence](#))}
- 1/268 . . . {Strip line terminations ([H01P 1/262 takes precedence](#))}
- 1/28 . . Short-circuiting plungers ([coupling devices with variable coupling factor H01P 5/04](#))
- 1/30 . for compensation of, or protection against, temperature or moisture effects; {for improving power handling capability ([H01P 1/04, H01P 1/08 take precedence](#))}
- 1/32 . Non-reciprocal transmission devices ([H01P 1/02 - H01P 1/30 take precedence](#))
- 1/36 . . Isolators
- 1/362 . . . {Edge-guided mode devices}
- 1/365 . . . Resonance absorption isolators
- 1/37 . . . Field displacement isolators
- 1/375 . . . using Faraday rotators
- 1/38 . . Circulators
- 1/383 . . . Junction circulators, e.g. Y-circulators
- 1/387 . . . . Strip line circulators
- 1/39 . . . . Hollow waveguide circulators
- 1/393 . . . using Faraday rotators
- 1/397 . . . using non- reciprocal phase shifters ([H01P 1/393 takes precedence](#))
- 3/00 Waveguides; Transmission lines of the waveguide type**
- 3/003 . . {Coplanar lines}
- 3/006 . . {Conductor backed coplanar waveguides}
- 3/02 . with two longitudinal conductors
- 3/023 . . {Fin lines; Slot lines}
- 3/026 . . {Coplanar striplines [CPS]}
- 3/04 . . Lines formed as Lecher wire pairs
- 3/06 . . Coaxial lines ([not suitable for handling frequencies considerably beyond the audio range, \(coaxial cables in general\) H01B 11/18](#))
- NOTE**
- This subgroup is only used for documents disclosing typical HF-features of coaxial cables, e.g. propagation of non-TEM-modes, multimoding, oversized coaxial cables, particular cross-section adapted for HF-propagation
- 3/08 . . Microstrips; Strip lines
- 3/081 . . . {Micro-striplines}
- 3/082 . . . . {Multilayer dielectric}
- 3/084 . . . . {Suspended micro-striplines}
- 3/085 . . . {Triplate lines}
- 3/087 . . . . {Suspended triplate lines}
- 3/088 . . . {Stacked transmission lines}
- 3/10 . Wire waveguides, i.e. with a single solid longitudinal conductor
- 3/12 . Hollow waveguides ([H01P 3/20 takes precedence](#))

- 3/121 . . {integrated in a substrate}
- 3/122 . . {Dielectric loaded (not air)}
- 3/123 . . with a complex or stepped cross-section, e.g. ridged or grooved waveguides ([H01P 3/14 takes precedence](#))
- 3/127 . . with a circular, elliptic, or parabolic cross-section
- 3/13 . . specially adapted for transmission of the TE<sub>01</sub> circular-electric mode ({[selection, promotion H01P 1/163](#)})
- 3/14 . . flexible
- 3/16 . Dielectric waveguides, i.e. without a longitudinal conductor
- 3/165 . . {Non-radiating dielectric waveguides}
- 3/18 . built-up from several layers to increase operating surface, i.e. alternately conductive and dielectric layers
- 3/20 . Quasi-optical arrangements for guiding a wave, e.g. focusing by dielectric lenses ([quasi-optical devices in general H01Q 15/00](#))
- 5/00 Coupling devices of the waveguide type (non-reciprocal devices [H01P 1/32](#); for introducing or removing wave energy to or from the discharge in transit-time tubes [H01J 23/36](#))**
- 5/02 . with invariable factor of coupling ([H01P 5/12 takes precedence {choke joints H01P 1/04, H01P 1/06}](#))
- 5/022 . . {Transitions between lines of the same kind and shape, but with different dimensions}
- 5/024 . . . {between hollow waveguides}
- 5/026 . . . {between coaxial lines}
- 5/028 . . . {between strip lines}
- 5/04 . with variable factor of coupling
- 5/08 . for linking dissimilar lines or devices ([H01P 1/16, H01P 5/04 take precedence; linking lines of the same kind but with different dimensions H01P 5/02](#))
- 5/082 . . {Transitions between hollow waveguides of different shape, e.g. between a rectangular and a circular waveguide}
- 5/085 . . {Coaxial-line/strip-line transitions}
- 5/087 . . {Transitions to a dielectric waveguide}
- 5/10 . . for coupling balanced with unbalanced lines or devices
- 5/1007 . . . {Microstrip transitions to Slotline or finline}
- 5/1015 . . . {Coplanar line transitions to Slotline or finline}
- 5/1022 . . . {Transitions to dielectric waveguide}
- 5/103 . . . Hollow-waveguide/coaxial-line transitions
- 5/107 . . . Hollow-waveguide/strip-line transitions
- 5/12 . Coupling devices having more than two ports ([H01P 5/04 takes precedence](#))
- 5/16 . . Conjugate devices, i.e. devices having at least one port decoupled from one other port
- 5/18 . . . consisting of two coupled guides, e.g. directional couplers
- 5/181 . . . . {the guides being hollow waveguides}
- 5/182 . . . . {the waveguides being arranged in parallel}
- 5/183 . . . . {at least one of the guides being a coaxial line}
- 5/184 . . . . {the guides being strip lines or microstrips}
- 5/185 . . . . . {Edge coupled lines}
- 5/186 . . . . . {Lange couplers}
- 5/187 . . . . . {Broadside coupled lines}
- 5/188 . . . . {the guides being dielectric waveguides}
- 5/19 . . . of the junction type
- 5/20 . . . . Magic-T junctions
- 5/22 . . . . Hybrid ring junctions
- 5/222 . . . . . {180° rat race hybrid rings}
- 5/225 . . . . . {180° reversed phase hybrid rings}
- 5/227 . . . . . {90° branch line couplers}
- 7/00 Resonators of the waveguide type ({variable impedance transformers [H01P 5/04](#)}; structurally associated with transit-time tubes and interacting with the discharge therein [H01J 23/18](#); {generators of electronic oscillations using resonators of this type [H03B 5/18, H03B 7/14, H03B 9/14](#); electronic amplifiers using resonators of this type [H03F 3/54](#)}; microwave heating devices [H05B 6/64](#))**
- 7/005 . . {Helical resonators; Spiral resonators}
- 7/02 . Lecher resonators
- 7/04 . Coaxial resonators
- 7/06 . Cavity resonators
- 7/065 . . {integrated in a substrate}
- 7/08 . Strip line resonators
- 7/082 . . {Microstripline resonators ([H01P 7/088 takes precedence](#))}
- 7/084 . . {Triplate line resonators ([H01P 7/088 takes precedence](#))}
- 7/086 . . {Coplanar waveguide resonators ([H01P 7/088 takes precedence](#))}
- 7/088 . . {Tunable resonators}
- 7/10 . Dielectric resonators
- 7/105 . . {Multimode resonators}
- 9/00 Delay lines of the waveguide type (structurally associated with transit-time tubes and interacting with the discharge therein [H01J 23/24](#))**
- 9/003 . . {Delay equalizers}
- 9/006 . . {Meander lines}
- 9/02 . Helical lines
- 9/04 . Interdigital lines
- 11/00 Apparatus or processes specially adapted for manufacturing waveguides or resonators, lines, or other devices of the waveguide type (manufacture of coaxial cables [H01B 13/00](#))**
- 11/001 . . {Manufacturing waveguides or transmission lines of the waveguide type}
- 11/002 . . {Manufacturing hollow waveguides}
- 11/003 . . {Manufacturing lines with conductors on a substrate, e.g. strip lines, slot lines}
- 11/005 . . {Manufacturing coaxial lines}
- 11/006 . . {Manufacturing dielectric waveguides}
- 11/007 . . {Manufacturing frequency-selective devices ([resonators H01P 11/008](#))}
- 11/008 . . {Manufacturing resonators}