

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

### H03 BASIC ELECTRONIC CIRCUITRY

**H03H IMPEDANCE NETWORKS, e.g. RESONANT CIRCUITS; RESONATORS** (measuring, testing [G01R](#); arrangements for producing a reverberation or echo sound [G10K 15/08](#); impedance networks or resonators consisting of distributed impedances, e.g. of the waveguide type, [H01P](#); control of amplification, e.g. bandwidth control of amplifiers, [H03G](#); tuning resonant circuits, e.g. tuning coupled resonant circuits, [H03J](#); networks for modifying the frequency characteristics of communication systems [H04B](#))

#### NOTES

1. This subclass covers :
  - networks comprising lumped impedance elements;
  - networks comprising distributed impedance elements together with lumped impedance elements;
  - networks comprising electromechanical or electro-acoustic elements;
  - networks simulating reactances and comprising discharge tubes or semiconductor devices;
  - constructions of electromechanical resonators.
2. In this subclass, the following expression is used with the meaning indicated:  
"passive elements" means resistors, capacitors, inductors, mutual inductors or diodes.
3. Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "microstructural devices" and "microstructural systems".
4. In this subclass, main groups with a higher number take precedence.

#### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<p><b>1/00</b>      <b>Constructional details of impedance networks whose electrical mode of operation is not specified or applicable to more than one type of network</b> (constructional details of electromechanical transducers <a href="#">H03H 9/00</a>)</p> <p>1/0007      . {of radio frequency interference filters}</p> <p>2001/0014      . {Capacitor filters, i.e. capacitors whose parasitic inductance is of relevance to consider it as filter}</p> <p>2001/0021      . {Constructional details}</p> <p>2001/0028      . . {RFI filters with housing divided in two bodies}</p> <p>2001/0035      . . {Wound magnetic core}</p> <p>2001/0042      . . {Wound, ring or feed-through type capacitor}</p> <p>2001/005      . . {Wound, ring or feed-through type inductor}</p> <p>2001/0057      . . {comprising magnetic material}</p> <p>2001/0064      . . {comprising semiconductor material}</p> <p>2001/0071      . . {comprising zig-zag inductor}</p> <p>2001/0078      . . {comprising spiral inductor on a substrate}</p> <p>2001/0085      . . {Multilayer, e.g. LTCC, HTCC, green sheets (inside PCB filters <a href="#">H05K</a>)}</p> <p>2001/0092      . {Inductor filters, i.e. inductors whose parasitic capacitance is of relevance to consider it as filter}</p> <p>1/02      . of RC networks, e.g. integrated networks</p> <p><b>2/00</b>      <b>Networks using elements or techniques not provided for in groups <a href="#">H03H 3/00</a> - <a href="#">H03H 21/00</a></b></p> <p>2/001      . {comprising magnetostatic wave network elements}</p>	<p>2/003      . {comprising optical fibre network elements (optical elements per se <a href="#">G02B</a>, <a href="#">G02F</a>; transmission systems using light waves <a href="#">H04B 10/00</a>)}</p> <p>2/005      . {Coupling circuits between transmission lines or antennas and transmitters, receivers or amplifiers}</p> <p>2/006      . . {Transmitter or amplifier output circuits}</p> <p>2/008      . . {Receiver or amplifier input circuits}</p> <p><b>3/00</b>      <b>Apparatus or processes specially adapted for the manufacture of impedance networks, resonating circuits, resonators</b></p> <p>3/007      . for the manufacture of electromechanical resonators or networks</p> <p>2003/0071      . . {of bulk acoustic wave and surface acoustic wave elements in the same process}</p> <p>3/0072      . . {of microelectro-mechanical resonators or networks (micromembranes or microbeams <a href="#">B81B 2203/01</a>; manufacture of microstructural devices in general <a href="#">B81C</a>)}</p> <p>3/0073      . . . {Integration with other electronic structures}</p> <p>3/0075      . . . {Arrangements or methods specially adapted for testing microelectro-mechanical resonators or networks}</p> <p>3/0076      . . . {for obtaining desired frequency or temperature coefficients}</p> <p>3/0077      . . . . {by tuning of resonance frequency}</p> <p>3/0078      . . . . . {involving adjustment of the transducing gap}</p>
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## H03H

- 3/013 . . for obtaining desired frequency or temperature coefficient ([\(H03H 3/0076\)](#) [H03H 3/04](#), [H03H 3/10](#) take precedence)
- 3/02 . . for the manufacture of piezo-electric or electrostrictive resonators or networks ([H03H 3/08](#) takes precedence)
- 2003/021 . . . {the resonators or networks being of the air-gap type}
- 2003/022 . . . {the resonators or networks being of the cantilever type}
- 2003/023 . . . {the resonators or networks being of the membrane type}
- 2003/025 . . . {the resonators or networks comprising an acoustic mirror}
- 2003/026 . . . {the resonators or networks being of the tuning fork type}
- 2003/027 . . . {the resonators or networks being of the microelectro-mechanical [MEMS] type}
- 2003/028 . . . {for obtaining desired values of other parameters}
- 3/04 . . . for obtaining desired frequency or temperature coefficient
  - 2003/0407 . . . . {Temperature coefficient}
  - 2003/0414 . . . . {Resonance frequency}
  - 2003/0421 . . . . {Modification of the thickness of an element}
    - 2003/0428 . . . . . {of an electrode}
    - 2003/0435 . . . . . {of a piezoelectric layer}
    - 2003/0442 . . . . . {of a non-piezoelectric layer}
    - 2003/045 . . . . . {Modification of the area of an element}
    - 2003/0457 . . . . . {of an electrode}
    - 2003/0464 . . . . . {operating on an additional circuit element, e.g. a passive circuit element connected to the resonator}
  - 2003/0471 . . . . . {of a plurality of resonators at different frequencies}
    - 2003/0478 . . . . . {in a process for mass production}
    - 2003/0485 . . . . . {during the manufacture of a cantilever}
    - 2003/0492 . . . . . {during the manufacture of a tuning-fork}
- 3/06 . . for the manufacture of magnetostrictive resonators or networks
- 3/08 . . for the manufacture of resonators or networks using surface acoustic waves
- 3/10 . . . for obtaining desired frequency or temperature coefficient
- 5/00 One-port networks comprising only passive electrical elements as network components**
- 5/003 . {comprising distributed impedance elements together with lumped impedance elements}
- 5/006 . {comprising simultaneously tunable inductance and capacitance}
- 5/02 . without voltage- or current-dependent elements
- 5/10 . . comprising at least one element with prescribed temperature coefficient
- 5/12 . with at least one voltage- or current-dependent element
- 7/00 Multiple-port networks comprising only passive electrical elements as network components** ([receiver input circuits H04B 1/18](#); [networks simulating a length of communication cable H04B 3/40](#))
- 7/002 . {Gyrators}
- 7/004 . {Capacitive coupling circuits not otherwise provided for}
- 2007/006 . {MEMS}
- 2007/008 . . {the MEMS being trimmable}
- 7/01 . Frequency selective two-port networks
  - 7/0107 . . {Non-linear filters}
  - 7/0115 . . {comprising only inductors and capacitors ([H03H 7/075](#), [H03H 7/09](#), [H03H 7/12](#), [H03H 7/13](#) take precedence)}
  - 7/0123 . . {comprising distributed impedance elements together with lumped impedance elements}
  - 2007/013 . . {Notch or bandstop filters}
  - 7/0138 . . {Electrical filters or coupling circuits}
  - 7/0146 . . . {Coupling circuits between two tubes, not otherwise provided for}
  - 7/0153 . . {Electrical filters; Controlling thereof}
  - 7/0161 . . . {Bandpass filters ([H03H 7/12](#) takes precedence)}
  - 7/0169 . . . . {Intermediate frequency filters}
  - 7/0176 . . . . . {without magnetic core}
  - 7/0184 . . . . . {with ferromagnetic core}
  - 2007/0192 . . {Complex filters}
  - 7/03 . . comprising means for compensation of loss
  - 7/06 . . including resistors ([H03H 7/075](#), [H03H 7/09](#), [H03H 7/12](#), [H03H 7/13](#) take precedence)
  - 7/065 . . . Parallel T-filters
  - 7/07 . . . Bridged T-filters
  - 7/075 . . Ladder networks, e.g. electric wave filters
  - 7/09 . . Filters comprising mutual inductance
  - 7/12 . . Bandpass or bandstop filters with adjustable bandwidth and fixed centre frequency ([H03H 7/09](#) takes precedence; [automatic control of bandwidth in amplifiers H03G 5/16](#))
  - 7/13 . . using electro-optic elements
  - 7/17 . . {Structural details of sub-circuits of frequency selective networks}
  - 7/1708 . . . {Comprising bridging elements, i.e. elements in a series path without own reference to ground and spanning branching nodes of another series path ([H03H 7/07](#) takes precedence)}
  - 7/1716 . . . {Comprising foot-point elements}
  - 7/1725 . . . . {Element to ground being common to different shunt paths, i.e. Y-structure}
  - 7/1733 . . . . {Element between different shunt or branch paths ([H03H 7/425](#) takes precedence)}
  - 7/1741 . . . {Comprising typical LC combinations, irrespective of presence and location of additional resistors (when resistors are present, also classify in [H03H 7/06](#) - [H03H 7/07](#))}
  - 7/175 . . . . {Series LC in series path ([H03H 7/1783](#) takes precedence)}
  - 7/1758 . . . . {Series LC in shunt or branch path ([H03H 7/1791](#) takes precedence)}
  - 7/1766 . . . . {Parallel LC in series path ([H03H 7/1783](#) takes precedence)}
  - 7/1775 . . . . {Parallel LC in shunt or branch path ([H03H 7/1791](#) takes precedence)}
  - 7/1783 . . . . {Combined LC in series path}
  - 7/1791 . . . . {Combined LC in shunt or branch path}
  - 7/18 . . Networks for phase shifting
  - 7/185 . . {comprising distributed impedance elements together with lumped impedance elements}

- 7/19 . . Two-port phase shifters providing a predetermined phase shift, e.g. "all-pass" filters
- 7/20 . . Two-port phase shifters providing an adjustable phase shift
- 7/21 . . providing two or more phase shifted output signals, e.g. n-phase output
- 7/24 . Frequency- independent attenuators
- 7/25 . . comprising an element controlled by an electric or magnetic variable ([H03H 7/27](#) takes precedence)
- 7/251 . . . {the element being a thermistor}
- 7/253 . . . {the element being a diode}
- 7/255 . . . . {the element being a PIN diode}
- 7/256 . . . . {the element being a VARACTOR diode}
- 7/258 . . . {using a galvano-magnetic device}
- 7/27 . . comprising a photo-electric element
- 7/30 . Time-delay networks ({[analogue shift registers G11C 27/04](#)})
- 7/32 . . with lumped inductance and capacitance
- 7/325 . . . {Adjustable networks}
- 7/34 . . with lumped and distributed reactance
- 7/345 . . . {Adjustable networks}
- 7/38 . Impedance-matching networks
- 7/383 . . {comprising distributed impedance elements together with lumped impedance elements}
- 2007/386 . . {Multiple band impedance matching}
- 7/40 . . Automatic matching of load impedance to source impedance
- 7/42 . Balance/unbalance networks
- 7/422 . . {comprising distributed impedance elements together with lumped impedance elements}
- 7/425 . . {Balance-balance networks}
- 7/427 . . . {Common-mode filters ([H02J 3/01](#) and [H02M 1/126](#) takes precedence)}
- 7/46 . Networks for connecting several sources or loads, working on different frequencies or frequency bands, to a common load or source ([for use in multiplex transmission systems H04J 1/00](#))
- 7/461 . . {particularly adapted for use in common antenna systems}
- 7/463 . . {Duplexers}
- 7/465 . . . {having variable circuit topology, e.g. including switches}
- 7/466 . . {particularly adapted as input circuit for receivers}
- 7/468 . . {particularly adapted as coupling circuit between transmitters and antennas}
- 7/48 . Networks for connecting several sources or loads, working on the same frequency or frequency band, to a common load or source ([phase shifters providing two or more output signals H03H 7/21](#))
- 7/482 . . {particularly adapted for use in common antenna systems}
- 7/485 . . {particularly adapted as input circuit for receivers}
- 7/487 . . {particularly adapted as coupling circuit between transmitters and antennas}
- 7/52 . One-way transmission networks, i.e. unilines
- 7/54 . Modifications of networks to reduce influence of variations of temperature
- 9/00 **Networks comprising electromechanical or electro-acoustic devices; Electromechanical resonators (making single crystals [C30B](#); selection of materials thereof [H01L](#); piezo-electric, electrostrictive or magnetostrictive devices *per se* [H01L 41/00](#); electromechanical transducers [H04R](#))**
- 9/0004 . {Impedance-matching networks ([H03H 9/145](#) takes precedence)}
- 9/0009 . . {using surface acoustic wave devices}
- 9/0014 . . {using bulk acoustic wave devices}
- 2009/0019 . {Surface acoustic wave multichip}
- 9/0023 . {Balance-unbalance or balance-balance networks}
- 9/0028 . . {using surface acoustic wave devices}
- 9/0033 . . . {having one acoustic track only}
- 9/0038 . . . . {the balanced terminals being on the same side of the track}
- 9/0042 . . . . {the balanced terminals being on opposite sides of the track}
- 9/0047 . . . {having two acoustic tracks ([H03H 9/008](#), [H03H 9/0085](#) take precedence)}
- 9/0052 . . . . {being electrically cascaded}
- 9/0057 . . . . {the balanced terminals being on the same side of the tracks}
- 9/0061 . . . . {the balanced terminals being on opposite sides of the tracks}
- 9/0066 . . . . {being electrically parallel}
- 9/0071 . . . . {the balanced terminals being on the same side of the tracks}
- 9/0076 . . . . {the balanced terminals being on opposite sides of the tracks}
- 9/008 . . . {having three acoustic tracks ([H03H 9/0085](#) takes precedence)}
- 9/0085 . . . {having four acoustic tracks}
- 9/009 . . . . {Lattice filters}
- 9/0095 . . {using bulk acoustic wave devices}
- 9/02 . Details
- 9/02007 . . {of bulk acoustic wave devices}
- 9/02015 . . . {Characteristics of piezoelectric layers, e.g. cutting angles}
- 9/02023 . . . . {consisting of quartz}
- 9/02031 . . . . {consisting of ceramic}
- 9/02039 . . . . {consisting of a material from the crystal group 32, e.g. langasite, langatate, langanite}
- 9/02047 . . . {Treatment of substrates}
- 9/02055 . . . . {of the surface including the back surface}
- 9/02062 . . . {Details relating to the vibration mode}
- 9/0207 . . . . {the vibration mode being harmonic}
- 9/02078 . . . . {the vibration mode being overmoded}
- 9/02086 . . . {Means for compensation or elimination of undesirable effects}
- 9/02094 . . . . {of adherence}
- 9/02102 . . . . {of temperature influence ([cutting angles H03H 9/02015](#))}
- 9/0211 . . . . {of reflections}
- 9/02118 . . . . {of lateral leakage between adjacent resonators}
- 9/02125 . . . . {of parasitic elements}
- 9/02133 . . . . {of stress}
- 9/02141 . . . . {of electric discharge due to pyroelectricity}
- 9/02149 . . . . {of ageing changes of characteristics, e.g. electro-acousto-migration}

9/02157 . . .	{Dimensional parameters, e.g. ratio between two dimension parameters, length, width or thickness}	2009/02456 . . . .	{Parasitic elements or effects, e.g. parasitic capacitive coupling between input and output}
2009/02165 . . .	{Tuning}	2009/02464 . . . .	{Pull-in}
2009/02173 . . .	{of film bulk acoustic resonators [FBAR]}	2009/02472 . . . .	{Stiction}
2009/02181 . . . .	{by application of heat from a heat source}	2009/0248 . . . .	{Strain}
2009/02188 . . . .	{Electrically tuning}	2009/02488 . . . .	{Vibration modes}
2009/02196 . . . . .	{operating on the FBAR element, e.g. by direct application of a tuning DC voltage}	2009/02496 . . . . .	{Horizontal, i.e. parallel to the substrate plane}
2009/02204 . . . . .	{operating on an additional circuit element, e.g. applying a tuning DC voltage to a passive circuit element connected to the resonator}	2009/02503 . . . . .	{Breath-like, e.g. Lam? mode, wine-glass mode}
2009/02212 . . . . .	{Magnetically tuning}	2009/02511 . . . . .	{Vertical, i.e. perpendicular to the substrate plane}
9/0222 . . .	{of interface-acoustic, boundary, pseudo-acoustic or Stonely wave devices}	2009/02519 . . . . .	{Torsional}
9/02228 . . .	{Guided bulk acoustic wave devices or Lamb wave devices having interdigital transducers situated in parallel planes on either side of a piezoelectric layer}	2009/02527 . . . . .	{Combined}
9/02236 . . .	{of surface skimming bulk wave devices}	9/02535 . . .	{of surface acoustic wave devices}
9/02244 . . .	{of microelectro-mechanical resonators}	9/02543 . . . .	{Characteristics of substrate, e.g. cutting angles}
2009/02251 . . . .	{Design}	9/02551 . . . . .	{of quartz substrates}
9/02259 . . . .	{Driving or detection means}	9/02559 . . . . .	{of lithium niobate or lithium-tantalate substrates}
2009/02267 . . . . .	{having dimensions of atomic scale, e.g. involving electron transfer across vibration gap}	9/02566 . . . . .	{of semiconductor substrates}
9/02275 . . . . .	{Comb electrodes}	9/02574 . . . . .	{of combined substrates, multilayered substrates, piezo-electrical layers on not-piezo- electrical substrate}
2009/02283 . . . .	{Vibrating means}	9/02582 . . . . .	{of diamond substrates}
2009/02291 . . . . .	{Beams}	9/0259 . . . . .	{of langasite substrates}
2009/02299 . . . . .	{Comb-like, i.e. the beam comprising a plurality of fingers or protrusions along its length}	9/02598 . . . . .	{of langatate substrates}
2009/02307 . . . . .	{Dog-bone-like structure, i.e. the elongated part of the "bone" is doubly clamped}	9/02606 . . . . .	{of langanite substrates}
2009/02314 . . . . .	{forming part of a transistor structure}	9/02614 . . . . .	{Treatment of substrates, e.g. curved, spherical, cylindrical substrates ensuring closed round-about circuits for the acoustical waves}
2009/02322 . . . . .	{Material}	9/02622 . . . . .	{of the surface, including back surface}
2009/0233 . . . . .	{comprising perforations}	9/02629 . . . . .	{of the edges}
9/02338 . . . .	{Suspension means}	9/02637 . . . . .	{Details concerning reflective or coupling arrays}
2009/02346 . . . . .	{Anchors for ring resonators}	9/02645 . . . . .	{Waffle-iron or dot arrays}
2009/02354 . . . . .	{applied along the periphery, e.g. at nodal points of the ring}	9/02653 . . . . .	{Grooves or arrays buried in the substrate}
9/02362 . . . . .	{Folded-flexure}	9/02661 . . . . .	{being located inside the interdigital transducers}
2009/0237 . . . . .	{applied at the center}	9/02669 . . . . .	{Edge reflection structures, i.e. resonating structures without metallic reflectors, e.g. Bleustein-Gulyaev-Shimizu [BGS], shear horizontal [SH], shear transverse [ST], Love waves devices}
9/02377 . . . . .	{Symmetric folded-flexure}	9/02677 . . . . .	{having specially shaped edges, e.g. stepped, U-shaped edges}
2009/02385 . . . . .	{Anchors for square resonators, i.e. resonators comprising a square vibrating membrane}	9/02685 . . . . .	{Grating lines having particular arrangements}
9/02393 . . . .	{Post-fabrication trimming of parameters, e.g. resonance frequency, Q factor}	9/02692 . . . . .	{Arched grating lines}
9/02401 . . . . .	{by annealing}	9/027 . . . . .	{U-shaped grating lines}
9/02409 . . . . .	{by application of a DC-bias voltage (H03H 9/02417 takes precedence)}	9/02708 . . . . .	{Shifted grating lines}
9/02417 . . . . .	{involving adjustment of the transducing gap}	9/02716 . . . . .	{Tilted, fan shaped or slanted grating lines}
9/02425 . . . . .	{by electrostatically pulling the beam}	9/02724 . . . . .	{Comb like grating lines}
9/02433 . . . .	{Means for compensation or elimination of undesired effects}	9/02732 . . . . .	{Bilateral comb like grating lines}
2009/0244 . . . . .	{Anchor loss}	9/0274 . . . . .	{Intra-transducers grating lines}
9/02448 . . . . .	{of temperature influence}	9/02748 . . . . .	{Dog-legged reflectors}
		9/02755 . . . . .	{Meandering floating or grounded grating lines}
		9/02763 . . . . .	{Left and right side electrically coupled reflectors}
		9/02771 . . . . .	{Reflector banks}

- 9/02779 . . . . {Continuous surface reflective arrays}
- 9/02787 . . . . {having wave guide like arrangements}
- 9/02795 . . . . {Multi-strip couplers as track changers}
- 9/02803 . . . . {Weighted reflective structures}
- 9/02811 . . . . {Chirped reflective or coupling arrays}
- 9/02818 . . . {Means for compensation or elimination of undesirable effects}
- 9/02826 . . . . {of adherence}
- 9/02834 . . . . {of temperature influence (cut angles [H03H 9/02543](#))}
- 9/02842 . . . . {of reflections ([H03H 9/6406](#) takes precedence)}
- 9/0285 . . . . {of triple transit echo}
- 9/02858 . . . . {of wave front distortion}
- 9/02866 . . . . {of bulk wave excitation and reflections}
- 9/02874 . . . . {of direct coupling between input and output transducers}
- 9/02881 . . . . {of diffraction of wave beam}
- 9/02889 . . . . {of influence of mass loading}
- 9/02897 . . . . {of strain or mechanical damage, e.g. strain due to bending influence}
- 9/02905 . . . . {Measures for separating propagation paths on substrate}
- 9/02913 . . . . {Measures for shielding against electromagnetic fields (shielding of electrical components in general [H05K 9/00](#))}
- 9/02921 . . . . {Measures for preventing electric discharge due to pyroelectricity}
- 9/02929 . . . . {of ageing changes of characteristics, e.g. electro-acousto-migration}
- 9/02937 . . . . {of chemical damage, e.g. corrosion}
- 9/02944 . . . . {of ohmic loss}
- 9/02952 . . . . {of parasitic capacitance}
- 9/0296 . . . {Surface acoustic wave [SAW] devices having both acoustic and non-acoustic properties}
- 9/02968 . . . . {with optical devices ([mounting in enclosures H03H 9/12](#))}
- 9/02976 . . . . {with semiconductor devices}
- 9/02984 . . . {Protection measures against damaging}
- 9/02992 . . . {Details of bus bars, contact pads or other electrical connections for finger electrodes}
- 9/05 . . Holders; Supports
- 9/0504 . . . {for bulk acoustic wave devices}
- 9/0509 . . . . {consisting of adhesive elements}
- 9/0514 . . . . {consisting of mounting pads or bumps}
- 9/0519 . . . . {for cantilever ([H03H 9/1021](#) takes precedence)}
- 9/0523 . . . . {for flip-chip mounting}
- 9/0528 . . . . {consisting of clips}
- 9/0533 . . . . {consisting of wire}
- 9/0538 . . . {Constructional combinations of supports or holders with electromechanical or other electronic elements}
- 9/0542 . . . . {consisting of a lateral arrangement ([H03H 9/0566](#) takes precedence)}
- 9/0547 . . . . {consisting of a vertical arrangement ([H03H 9/0566](#) takes precedence)}
- 9/0552 . . . . {the device and the other elements being mounted on opposite sides of a common substrate}
- 9/0557 . . . . {the other elements being buried in the substrate}
- 9/0561 . . . . {consisting of a multilayered structure}
- 9/0566 . . . . {for duplexers}
- 9/0571 . . . . {including bulk acoustic wave [BAW] devices}
- 9/0576 . . . . {including surface acoustic wave [SAW] devices}
- 9/058 . . . . {for surface acoustic wave devices}
- 9/0585 . . . . {consisting of an adhesive layer}
- 9/059 . . . . {consisting of mounting pads or bumps}
- 9/0595 . . . {the holder support and resonator being formed in one body}
- 9/08 . . . Holders with means for regulating temperature
- 9/09 . . . Elastic or damping supports
- 9/10 . . . Mounting in enclosures ([constructional combinations of enclosure with electromechanical and other electronic elements H03H 9/0538](#))}
- 9/1007 . . . . {for bulk acoustic wave [BAW] devices}
- 9/1014 . . . . {the enclosure being defined by a frame built on a substrate and a cap, the frame having no mechanical contact with the BAW device}
- 9/1021 . . . . {the BAW device being of the cantilever type}
- 9/1028 . . . . {the BAW device being held between spring terminals}
- 9/1035 . . . . {the enclosure being defined by two sealing substrates sandwiching the piezoelectric layer of the BAW device}
- 9/1042 . . . . {the enclosure being defined by a housing formed by a cavity in a resin}
- 9/105 . . . . {the enclosure being defined by a cover cap mounted on an element forming part of the BAW device}
- 9/1057 . . . . {for microelectro-mechanical devices}
- 9/1064 . . . . {for surface acoustic wave [SAW] devices}
- 9/1071 . . . . {the enclosure being defined by a frame built on a substrate and a cap, the frame having no mechanical contact with the SAW device}
- 9/1078 . . . . {the enclosure being defined by a foil covering the non-active sides of the SAW device}
- 9/1085 . . . . {the enclosure being defined by a non-uniform sealing mass covering the non-active sides of the BAW device}
- 9/1092 . . . . {the enclosure being defined by a cover cap mounted on an element forming part of the surface acoustic wave [SAW] device on the side of the IDT's}
- 9/12 . . . . for networks with interaction of optical and acoustic waves
- 9/125 . . . Driving means, e.g. electrodes, coils
- 9/13 . . . for networks consisting of piezo-electric or electrostrictive materials ([H03H 9/145](#) takes precedence)
- 9/131 . . . . {consisting of a multilayered structure}
- 9/132 . . . . {characterized by a particular shape}
- 9/133 . . . . {for electromechanical delay lines or filters}
- 9/135 . . . for networks consisting of magnetostrictive materials ([H03H 9/145](#) takes precedence)
- 9/145 . . . for networks using surface acoustic waves
- 9/14502 . . . . {Surface acoustic wave [SAW] transducers for a particular purpose}
- 9/14505 . . . . {Unidirectional SAW transducers}

9/14508	. . . . .	{Polyphase SAW transducers}	9/176	. . .	{consisting of ceramic material ( <a href="#">H03H 9/177</a> , <a href="#">H03H 9/178</a> take precedence)}
9/14511	. . . . .	{SAW transducers for non-piezoelectric substrates}	9/177	. . .	{of the energy-trap type}
9/14514	. . . . .	{Broad band transducers}	9/178	. . .	{of a laminated structure of multiple piezoelectric layers with inner electrodes}
9/14517	. . . . .	{Means for weighting}	9/19	. . .	consisting of quartz
9/1452	. . . . .	{by finger overlap length, apodisation}	9/205	. .	having multiple resonators ( <a href="#">crystal tuning forks H03H 9/21</a> )
9/14523	. . . . .	{Capacitive tap weighted transducers}	9/21	. .	Crystal tuning forks
9/14526	. . . . .	{Finger withdrawal}	9/215	. . .	consisting of quartz
9/14529	. . . . .	{Distributed tap}	9/22	. .	Constructional features of resonators consisting of magnetostrictive material
9/14532	. . . . .	{Series weighting; Transverse weighting}	9/24	. .	Constructional features of resonators of material which is not piezo-electric, electrostrictive, or magnetostrictive
9/14535	. . . . .	{Position weighting}	9/2405	. .	{of microelectro-mechanical resonators}
9/14538	. . . . .	{Formation}	2009/241	. . .	{Bulk-mode MEMS resonators}
9/14541	. . . . .	{Multilayer finger or busbar electrode}	2009/2415	. . . . .	{with concave shape [CBAR]}
9/14544	. . . . .	{Transducers of particular shape or position ( <a href="#">weighting H03H 9/14517</a> )}	2009/2421	. . . . .	{with I shape [IBAR]}
9/14547	. . . . .	{Fan shaped; Tilted; Shifted; Slanted; Tapered; Arched; Stepped finger transducers}	9/2426	. . .	{in combination with other electronic elements}
9/1455	. . . . .	{constituted of N parallel or series transducers}	9/2431	. . .	{Ring resonators}
9/14552	. . . . .	{comprising split fingers}	9/2436	. . .	{Disk resonators}
9/14555	. . . . .	{Chirped transducers ( <a href="#">H03H 9/6406</a> takes precedence)}	2009/2442	. . .	{Square resonators}
9/14558	. . . . .	{Slanted, tapered or fan shaped transducers ( <a href="#">H03H 9/14561</a> , <a href="#">H03H 9/14564</a> take precedence)}	9/2447	. . .	{Beam resonators ( <a href="#">H03H 9/2468</a> takes precedence)}
9/14561	. . . . .	{Arched, curved or ring shaped transducers}	9/2452	. . . . .	{Free-free beam resonators}
9/14564	. . . . .	{Shifted fingers transducers}	9/2457	. . . . .	{Clamped-free beam resonators}
9/14567	. . . . .	{Stepped-fan shaped transducers}	9/2463	. . . . .	{Clamped-clamped beam resonators}
9/1457	. . . . .	{Transducers having different finger widths}	9/2468	. . . . .	{Tuning fork resonators}
9/14573	. . . . .	{Arrow type transducers}	9/2473	. . . . .	{Double-Ended Tuning Fork [DETF] resonators}
9/14576	. . . . .	{Transducers whereby only the last fingers have different characteristics with respect to the other fingers, e.g. different shape, thickness or material, split finger}	9/2478	. . . . .	{Single-Ended Tuning Fork resonators}
9/14579	. . . . .	{the last fingers having a different shape}	9/2484	. . . . .	{with two fork tines, e.g. Y-beam cantilever}
9/14582	. . . . .	{the last fingers having a different pitch}	9/2489	. . . . .	{with more than two fork tines}
9/14585	. . . . .	{the last fingers being split}	9/2494	. . . . .	{H-shaped, i.e. two tuning forks with common base}
9/14588	. . . . .	{Horizontally-split transducers}	9/25	. .	Constructional features of resonators using surface acoustic waves {(devices for manipulating acoustic surface waves in general <a href="#">G10K 11/36</a> )}
9/14591	. . . . .	{Vertically-split transducers}	9/30	. .	Time-delay networks
9/14594	. . . . .	{Plan-rotated or plan-tilted transducers}	9/36	. .	with non-adjustable delay time ( <a href="#">H03H 9/40</a> , <a href="#">H03H 9/42</a> take precedence)
9/14597	. . . . .	{Matching SAW transducers to external electrical circuits}	9/38	. .	with adjustable delay time ( <a href="#">H03H 9/40</a> , <a href="#">H03H 9/42</a> take precedence)
9/15	. .	Constructional features of resonators consisting of piezo-electric or electrostrictive material ( <a href="#">H03H 9/25</a> takes precedence)	9/40	. .	Frequency dependent delay lines, e.g. dispersive delay lines ( <a href="#">H03H 9/42</a> takes precedence)
2009/155	. .	{using MEMS techniques}	9/42	. .	using surface acoustic waves {(devices for manipulating acoustic surface waves in general <a href="#">G10K 11/36</a> )}
9/17	. .	having a single resonator ( <a href="#">crystal tuning forks H03H 9/21</a> )	9/423	. . .	{with adjustable delay time}
9/171	. . .	{implemented with thin-film techniques, i.e. of the film bulk acoustic resonator [FBAR] type}	9/426	. . .	{Magneto-elastic surface waves}
9/172	. . . . .	{Means for mounting on a substrate, i.e. means constituting the material interface confining the waves to a volume}	9/44	. . .	Frequency dependent delay lines, e.g. dispersive delay lines
9/173	. . . . .	{Air-gaps}	9/46	. .	Filters ( <a href="#">multiple-port electromechanical filters H03H 9/70</a> )
9/174	. . . . .	{Membranes}	9/462	. .	{Microelectro-mechanical filters}
9/175	. . . . .	{Acoustic mirrors}	9/465	. . .	{in combination with other electronic elements}
			9/467	. . .	{Post-fabrication trimming of parameters, e.g. center frequency}
			9/48	. .	Coupling means therefor

- 9/485 . . . {for microelectro-mechanical filters}
- 9/50 . . . Mechanical coupling means
- 9/505 . . . . {for microelectro-mechanical filters}
- 9/52 . . . Electric coupling means
- 9/525 . . . . {for microelectro-mechanical filters}
- 9/54 . . comprising resonators of piezo-electric or electrostrictive material ([H03H 9/64](#) takes precedence)
- 9/542 . . . {including passive elements ([H03H 9/545](#) takes precedence)}
- 9/545 . . . {including active elements}
- 9/547 . . . {Notch filters, e.g. notch BAW or thin film resonator filters}
- 9/56 . . . Monolithic crystal filters
- 9/562 . . . . {comprising a ceramic piezoelectric layer}
- 9/564 . . . . {implemented with thin-film techniques}
- 9/566 . . . . {Electric coupling means therefor ([H03H 9/0095](#) takes precedence)}
- 9/568 . . . . {consisting of a ladder configuration}
- 9/58 . . . Multiple crystal filters
- 9/581 . . . . {comprising ceramic piezoelectric layers}
- 9/582 . . . . {implemented with thin-film techniques}
- 9/583 . . . . {comprising a plurality of piezoelectric layers acoustically coupled}
- 9/584 . . . . . {Coupled Resonator Filters [CFR]}
- 9/585 . . . . . {Stacked Crystal Filters [SCF]}
- 9/586 . . . . . {Means for mounting to a substrate, i.e. means constituting the material interface confining the waves to a volume}
- 9/587 . . . . . {Air-gaps}
- 9/588 . . . . . {Membranes}
- 9/589 . . . . . {Acoustic mirrors}
- 9/60 . . . . Electric coupling means therefor ([H03H 9/0095](#) takes precedence)}
- 9/605 . . . . . {consisting of a ladder configuration}
- 9/62 . . comprising resonators of magnetostrictive material ([H03H 9/64](#) takes precedence)
- 9/64 . . using surface acoustic waves
- 9/6403 . . . {Programmable filters}
- 9/6406 . . . {Filters characterised by a particular frequency characteristic}
- 9/6409 . . . . {SAW notch filters}
- 9/6413 . . . . {SAW comb filters}
- 9/6416 . . . . {SAW matched filters, e.g. surface acoustic wave compressors, chirped or coded surface acoustic wave filters}
- 9/642 . . . . . {SAW transducers details for remote interrogation systems, e.g. surface acoustic wave transducers details for ID-tags ([remote interrogation systems per se G06K 7/10009](#), [G01S 13/74](#))}
- 9/6423 . . . {Means for obtaining a particular transfer characteristic}
- 9/6426 . . . . {Combinations of the characteristics of different transducers}
- 9/643 . . . . {the transfer characteristic being determined by reflective or coupling array characteristics}
- 9/6433 . . . . {Coupled resonator filters}
- 9/6436 . . . . . {having one acoustic track only}
- 9/644 . . . . . {having two acoustic tracks}
- 9/6443 . . . . . {being acoustically coupled}
- 9/6446 . . . . . . {by floating multistrip couplers ([H03H 9/645](#), [H03H 9/6453](#) take precedence)}
- 9/645 . . . . . . {by grating reflectors overlapping both tracks}
- 9/6453 . . . . . . {by at least an interdigital transducer overlapping both tracks}
- 9/6456 . . . . . . {being electrically coupled}
- 9/6459 . . . . . . {via one connecting electrode}
- 9/6463 . . . . . . {the tracks being electrically cascaded}
- 9/6466 . . . . . . . {each track containing more than two transducers}
- 9/6469 . . . . . . . {via two connecting electrodes}
- 9/6473 . . . . . . . {the electrodes being electrically interconnected}
- 9/6476 . . . . . . . {the tracks being electrically parallel}
- 9/6479 . . . . . {Capacitively coupled SAW resonator filters}
- 9/6483 . . . . . {Ladder SAW filters}
- 9/6486 . . . . . {having crossing or intersecting acoustic tracks, e.g. intersection in a perpendicular or diagonal orientation}
- 9/6489 . . . . {Compensation of undesirable effects}
- 9/6493 . . . . . {Side lobe suppression}
- 9/6496 . . . . . {Reducing ripple in transfer characteristic}
- 9/66 . . Phase shifters
- 9/68 . . using surface acoustic waves
- 9/70 . . Multiple-port networks for connecting several sources or loads, working on different frequencies or frequency bands, to a common load or source
- 9/703 . . . {Networks using bulk acoustic wave devices}
- 9/706 . . . . {Duplexers}
- 9/72 . . Networks using surface acoustic waves
- 9/725 . . . . {Duplexers}
- 9/74 . . Multiple-port networks for connecting several sources or loads, working on the same frequency or frequency band, to a common load or source ([networks for phase shifting H03H 9/66](#))
- 9/76 . . Networks using surface acoustic waves
- 11/00 Networks using active elements**
- 11/02 . . Multiple-port networks
- 11/025 . . . {using current conveyors}
- 11/04 . . Frequency selective two-port networks
- 11/0405 . . . . {Non-linear filters}
- 2011/0411 . . . . . {Rank order or median filters}
- 11/0416 . . . . {using positive impedance converters ([H03H 11/08](#) takes precedence)}
- 11/0422 . . . . {using transconductance amplifiers, e.g. gmC filters}
- 11/0427 . . . . . {Filters using a single transconductance amplifier; Filters derived from a single transconductor filter, e.g. by element substitution, cascading, parallel connection ([H03H 11/0433](#) - [H03H 11/0472](#) take precedence)}
- 11/0433 . . . . . {Two integrator loop filters ([H03H 11/0455](#) takes precedence)}
- 11/0438 . . . . . {Tow-Thomas biquad}
- 11/0444 . . . . . {Simulation of ladder networks}
- 11/045 . . . . . {Leapfrog structures}
- 11/0455 . . . . . {Multiple integrator loop feedback filters}

11/0461	. . . .	{Current mode filters}	11/20	. . .	Two-port phase shifters providing an adjustable phase shift
11/0466	. . . .	{Filters combining transconductance amplifiers with other active elements, e.g. operational amplifiers, transistors, voltage conveyors}	11/22	. . .	providing two or more phase shifted output signals, e.g. n-phase output
11/0472	. . . .	{Current or voltage controlled filters}	11/24	. . .	Frequency-independent attenuators
2011/0477	. . . .	{using current feedback operational amplifiers}	11/245	. . . .	{using field-effect transistor}
2011/0483	. . . .	{using operational transresistance amplifiers [OTRA]}	11/26	. . .	Time-delay networks ( <a href="#">analogue shift registers G11C 27/04</a> )
2011/0488	. . . .	{Notch or bandstop filters}	11/265	. . . .	{with adjustable delay}
2011/0494	. . . .	{Complex filters}	11/28	. . .	Impedance matching networks
11/06	. . . .	comprising means for compensation of loss	11/30	. . . .	Automatic matching of source impedance to load impedance
11/08	. . . .	using gyrators	11/32	. . .	Balance-unbalance networks
11/10	. . . .	using negative impedance converters ( <a href="#">H03H 11/08 takes precedence</a> )	11/34	. . .	Networks for connecting several sources or loads working on different frequencies or frequency bands, to a common load or source ( <a href="#">for use in multiplex transmission systems H04J 1/00</a> )
11/11	. . . .	{using current conveyors}	11/342	. . . .	{particularly adapted for use in common antenna systems}
11/12	. . . .	using amplifiers with feedback ( <a href="#">H03H 11/0422</a> ), <a href="#">H03H 11/08</a> , <a href="#">H03H 11/10</a> take precedence)	11/344	. . . .	{Duplexers}
11/1204	. . . .	{Distributed RC filters}	11/346	. . . .	{particularly adapted as input circuit for receivers}
11/1208	. . . .	{comprising an electromechanical resonator}	11/348	. . . .	{particularly adapted as coupling circuit between transmitters and antenna}
11/1213	. . . .	{using transistor amplifiers ( <a href="#">H03H 11/1204 takes precedence</a> ; <a href="#">parallel-T filters H03H 11/1295</a> )}	11/36	. . .	Networks for connecting several sources or loads, working on the same frequency band, to a common load or source ( <a href="#">phase shifters providing two or more output signals H03H 11/22</a> )
11/1217	. . . .	{using a plurality of operational amplifiers ( <a href="#">H03H 11/1204 takes precedence</a> ; <a href="#">parallel-T filters H03H 11/1295</a> )}	11/362	. . . .	{particularly adapted for use in common antenna systems}
11/1221	. . . . .	{Theory; Synthesis ( <a href="#">H03H 11/1226 - H03H 11/1252 take precedence</a> )}	11/365	. . . .	{particularly adapted as input circuit for receivers}
11/1226	. . . . .	{Filters using operational amplifier poles}	11/367	. . . .	{particularly adapted as coupling circuit between transmitters and antenna}
11/123	. . . . .	{Modifications to reduce sensitivity}	11/38	. . .	One-way transmission networks, i.e. unilines
11/1234	. . . . .	{Modifications to reduce detrimental influences of amplifier imperfections, e.g. limited gain-bandwidth product, limited input impedance}	11/40	. . .	Impedance converters
11/1239	. . . . .	{Modifications to reduce influence of variations of temperature}	11/405	. . . .	{Positive impedance converters ( <a href="#">H03H 11/42 takes precedence</a> ; <a href="#">used in frequency selective networks H03H 11/0416</a> )}
11/1243	. . . . .	{Simulation of ladder networks}	11/42	. . . .	Gyrators ( <a href="#">used in frequency selective networks H03H 11/08</a> )
11/1247	. . . . .	{Leapfrog structures}	11/44	. . . .	Negative impedance converters ( <a href="#">H03H 11/42 takes precedence</a> ; <a href="#">used in frequency selective networks H03H 11/10</a> )
11/1252	. . . . .	{Two integrator-loop-filters}	11/46	. . .	One-port networks
11/1256	. . . . .	{Tow-Thomas biquad}	11/48	. . .	simulating reactances
11/126	. . . . .	{using a single operational amplifier ( <a href="#">H03H 11/1204 takes precedence</a> ; <a href="#">parallel-T filters H03H 11/1295</a> )}	11/481	. . . .	{Simulating capacitances}
11/1265	. . . . .	{Synthesis ( <a href="#">H03H 11/1269 - H03H 11/1282 take precedence</a> )}	11/483	. . . .	{Simulating capacitance multipliers}
11/1269	. . . . .	{Filters using the operational amplifier pole}	11/485	. . . .	{Simulating inductances using operational amplifiers}
11/1273	. . . . .	{Modifications to reduce sensitivity}	11/486	. . . .	{Simulating inductances using transconductance amplifiers}
11/1278	. . . . .	{Modifications to reduce detrimental influences of amplifier imperfections, e.g. limited gain-bandwidth product, limited input impedance}	11/488	. . . .	{Simulating inductances using current conveyors}
11/1282	. . . . .	{Modifications to reduce influence of variations of temperature}	11/50	. . . .	using gyrators
11/1286	. . . . .	{Sallen-Key biquad}	11/52	. . .	simulating negative resistances
11/1291	. . . . .	{Current or voltage controlled filters}	11/525	. . . .	{Simulating frequency dependent negative resistance [FDNR]}
11/1295	. . . . .	{Parallel-T filters}	11/53	. . .	{simulating resistances; simulating resistance multipliers}
11/14	. . . .	using electro-optic devices	11/54	. . .	Modifications of networks to reduce influence of variations of temperature
11/16	. . .	Networks for phase shifting			
11/18	. . . .	Two-port phase shifters providing a predetermined phase shift, e.g. "all-pass" filters			

- 15/00 Transversal filters (electromechanical filters**  
[H03H 9/46](#), [H03H 9/70](#))
- 2015/002 . {Computation saving measures}
  - 2015/005 . {comprising capacitors implemented with MEMS technology}
  - 2015/007 . {Programmable filters}
  - 15/02 . using analogue shift registers
  - 15/023 . . {with parallel-input configuration}
  - 2015/026 . {Matched filters in charge domain}
- 17/00 Networks using digital techniques**
- 17/0009 . {Time-delay networks}
  - 17/0018 . . {Realizing a fractional delay}
  - 17/0027 . . . {by means of a non-recursive filter}
  - 17/0036 . . . {by means of a recursive filter}
  - 17/0045 . {Impedance matching networks}
  - 17/0054 . {Attenuators}
  - 17/0063 . {R, L, C, simulating networks}
  - 2017/0072 . {Theoretical filter design}
  - 2017/0081 . . {of FIR filters}
  - 2017/009 . . {of IIR filters}
  - 17/02 . Frequency selective networks {(digital computers for complex mathematical operations [G06F 17/10](#))}
  - 17/0201 . . {Wave digital filters}
  - 17/0202 . . {Two or more dimensional filters; Filters for complex signals ([multidimensional convolutions G06F 17/153](#))}
  - 2017/0204 . . . {Comb filters}
  - 2017/0205 . . . {Kalman filters}
  - 2017/0207 . . . {Median filters}
  - 2017/0208 . . . {using neural networks}
  - 2017/021 . . . {Wave digital filters}
  - 17/0211 . . {using specific transformation algorithms, e.g. WALSH functions, Fermat transforms, Mersenne transforms, polynomial transforms, Hilbert transforms ([correlation computation G06F 17/156](#))}
  - 17/0213 . . . {Frequency domain filters using Fourier transforms}
  - 2017/0214 . . . . {with input-sampling frequency and output-delivery frequency which differ, e.g. interpolation, extrapolation; anti-aliasing}
  - 17/0216 . . . {Quefrequency domain filters}
  - 17/0217 . . . {Number theoretic transforms}
  - 17/0219 . . {Compensation of undesirable effects, e.g. quantisation noise, overflow ([stability problems H03H 17/0461](#))}
  - 2017/022 . . . {Rounding error}
  - 2017/0222 . . . {Phase error}
  - 17/0223 . . {Computation saving measures; Accelerating measures ([computations per se G06F](#))}
  - 17/0225 . . . {Measures concerning the multipliers}
  - 17/0226 . . . . {comprising look-up tables}
  - 17/0227 . . . {Measures concerning the coefficients}
  - 17/0229 . . . . {reducing the number of taps}
  - 17/023 . . . . {reducing the wordlength, the possible values of coefficients}
  - 2017/0232 . . . . . {Canonical signed digit [CSD] or power of 2 coefficients}
  - 17/0233 . . . {Measures concerning the signal representation}
  - 17/0235 . . . . {reducing the wordlength of signals}
  - 17/0236 . . . . {using codes}
  - 17/0238 . . . . {Measures concerning the arithmetic used ([performing computations G06F 7/60](#))}
  - 17/0239 . . . . {Signed digit arithmetic}
  - 17/0241 . . . . {Distributed arithmetic}
  - 17/0242 . . . . {Residue number arithmetic}
  - 2017/0244 . . . {Measures to reduce settling time}
  - 2017/0245 . . . {Measures to reduce power consumption ([H03H 17/0223 takes precedence](#))}
  - 2017/0247 . . . . {Parallel structures using a slower clock}
  - 17/0248 . . {Filters characterised by a particular frequency response or filtering method}
  - 17/025 . . . {Notch filters}
  - 17/0251 . . . {Comb filters}
  - 17/0252 . . . {Elliptic filters}
  - 17/0254 . . . {Matched filters}
  - 17/0255 . . . {Filters based on statistics ([adaptive filters H03H 21/0029](#))}
  - 17/0257 . . . . {KALMAN filters}
  - 17/0258 . . . . {ARMA filters}
  - 17/026 . . . {Averaging filters}
  - 17/0261 . . . {Non linear filters}
  - 17/0263 . . . . {Rank order filters}
  - 17/0264 . . . {Filter sets with mutual related characteristics}
  - 17/0266 . . . . {Filter banks}
  - 17/0267 . . . . . {comprising non-recursive filters}
  - 17/0269 . . . . . {comprising recursive filters}
  - 17/027 . . . . {Complementary filters; Phase complementary filters}
  - 17/0272 . . . . {Quadrature mirror filters}
  - 17/0273 . . . . {Polyphase filters}
  - 17/0275 . . . . . {comprising non-recursive filters}
  - 17/0276 . . . . . {having two phases}
  - 17/0277 . . . . . {comprising recursive filters}
  - 17/0279 . . . . . {having two phases}
  - 17/028 . . . {Polynomial filters}
  - 17/0282 . . . {Sinc or gaussian filters ([H03H 17/0671 takes precedence](#))}
  - 17/0283 . . {Filters characterised by the filter structure ([H03H 17/0202](#), [H03H 17/0219](#) - [H03H 17/0248 take precedence](#))}
  - 17/0285 . . . {Ladder or lattice filters}
  - 17/0286 . . . {Combinations of filter structures}
  - 17/0288 . . . . {Recursive, non-recursive, ladder, lattice structures}
  - 17/0289 . . . . . {Digital and active filter structures}
  - 17/0291 . . . . . {Digital and sampled data filters}
  - 17/0292 . . . {Time multiplexed filters; Time sharing filters}
  - 17/0294 . . {Variable filters; Programmable filters}
  - 2017/0295 . . . {Changing between two filter characteristics}
  - 2017/0297 . . . {Coefficients derived from input parameters}
  - 2017/0298 . . {DSP implementation}
  - 17/04 . . Recursive filters
  - 17/0405 . . . {comprising a ROM addressed by the input and output data signals}
  - 17/0411 . . . {using DELTA modulation}
  - 17/0416 . . . {with input-sampling frequency and output-delivery frequency which differ, e.g. extrapolation; Anti-aliasing}
  - 17/0422 . . . . {the input and output signals being derived from two separate clocks, i.e. asynchronous sample rate conversion}

17/0427	. . . . {characterized by the ratio between the input-sampling and output-delivery frequencies}	21/0014	. . {Lattice filters}
17/0433	. . . . . {the ratio being arbitrary or irrational}	21/0016	. . {Non linear filters}
17/0438	. . . . . {the ratio being integer}	21/0018	. . {Matched filters}
17/0444	. . . . . {where the output-delivery frequency is higher than the input sampling frequency, i.e. interpolation}	21/002	. . {Filters with a particular frequency response (H03H 21/0014 - H03H 21/0018 take precedence)}
17/045	. . . . . {where the output-delivery frequency is lower than the input sampling frequency, i.e. decimation}	21/0021	. . . {Notch filters}
17/0455	. . . . . {the ratio being rational}	21/0023	. . . {Comb filters}
17/0461	. . . {Quantisation; Rounding; Truncation; Overflow oscillations or limit cycles eliminating measures}	21/0025	. . {Particular filtering methods}
2017/0466	. . . . {Reduction of limit cycle oscillation}	21/0027	. . . {filtering in the frequency domain}
2017/0472	. . . {based on allpass structures}	21/0029	. . . {based on statistics}
2017/0477	. . . {Direct form I}	21/003	. . . . {KALMAN filters}
2017/0483	. . . . {Transposed}	21/0032	. . . . {ARMA filters}
2017/0488	. . . {Direct form II}	2021/0034	. . . {Blind source separation}
2017/0494	. . . . {Transposed}	2021/0036	. . . . {of convolutive mixtures}
17/06	. . Non-recursive filters	2021/0038	. . . . {of instantaneous mixtures}
17/0607	. . . {comprising a ROM addressed by the input data signals}	2021/004	. . . . {using state space representation}
17/0614	. . . {using Delta-modulation}	2021/0041	. . . {Subband decomposition}
17/0621	. . . {with input-sampling frequency and output-delivery frequency which differ, e.g. extrapolation; Anti-aliasing}	21/0043	. . {Adaptive algorithms}
17/0628	. . . . {the input and output signals being derived from two separate clocks, i.e. asynchronous sample rate conversion}	2021/0045	. . . {Equation error}
17/0635	. . . . {characterized by the ratio between the input-sampling and output-delivery frequencies}	2021/0047	. . . . {Combined output and equation error}
17/0642	. . . . . {the ratio being arbitrary or irrational}	2021/0049	. . . {Recursive least squares algorithm}
17/065	. . . . . {the ratio being integer}	2021/005	. . . . {with forgetting factor}
17/0657	. . . . . {where the output-delivery frequency is higher than the input sampling frequency, i.e. interpolation}	2021/0052	. . . . {combined with stochastic gradient algorithm}
17/0664	. . . . . {where the output-delivery frequency is lower than the input sampling frequency, i.e. decimation}	2021/0054	. . . . . {Affine projection}
17/0671	. . . . . {Cascaded integrator-comb [CIC] filters}	2021/0056	. . . {Non-recursive least squares algorithm [LMS]}
2017/0678	. . . . . {with parallel structure, i.e. parallel CIC [PCIC]}	2021/0058	. . . . {Block LMS, i.e. in frequency domain}
17/0685	. . . . . {the ratio being rational}	2021/0059	. . . . {Delayed LMS}
2017/0692	. . . {Transposed}	2021/0061	. . . . {Normalized LMS [NLMS]}
17/08	. Networks for phase shifting	2021/0063	. . . . . {Proportionate NLMS}
<b>19/00</b>	<b>Networks using time-varying elements, e.g. N-path filters</b>	2021/0065	. . . . {Sign-sign LMS}
19/002	. {N-path filters}	21/0067	. . {Means or methods for compensation of undesirable effects}
19/004	. {Switched capacitor networks}	2021/0069	. . . {Finite wordlength}
19/006	. . {simulating one-port networks}	2021/007	. . {Computation saving measures; Accelerating measures}
19/008	. {with variable switch closing time}	2021/0072	. . . {Measures relating to the coefficients}
<b>21/00</b>	<b>Adaptive networks</b>	2021/0074	. . . . {Reduction of the update frequency}
21/0001	. {Analogue adaptive filters}	2021/0076	. . . {Measures relating to the convergence time (H03H 2021/0072 takes precedence)}
21/0003	. . {comprising CCD devices}	2021/0078	. . . . {varying the step size}
21/0005	. . {comprising SAW devices}	2021/0079	. . . {using look-up tables}
21/0007	. . {comprising switched capacitor [SC] devices}	2021/0081	. . {Details}
2021/0009	. . {Details}	2021/0083	. . . {Shadow filter, i.e. one of two filters which are simultaneously adapted, wherein the results of adapting the shadow filter are used for adapting the other filter}
2021/001	. . . {Analog multipliers}	2021/0085	. . {Applications}
21/0012	. {Digital adaptive filters}	2021/0087	. . . {Prediction}
		2021/0089	. . . {System identification, i.e. modeling}
		2021/009	. . . . {with recursive filters}
		2021/0092	. . . {Equalization, i.e. inverse modeling}
		2021/0094	. . . {Interference Cancelling}
		2021/0096	. . {with input-sampling frequency and output-delivery frequency which differ, e.g. extrapolation; anti-aliasing}
		2021/0098	. {Adaptive filters comprising analog and digital structures}
		<b>2210/00</b>	<b>Indexing scheme relating to details of tunable filters</b>
		2210/01	. Tuned parameter of filter characteristics

## H03H

- 2210/012 . . Centre frequency; Cut-off frequency
- 2210/015 . . Quality factor or bandwidth
- 2210/017 . . Amplitude, gain or attenuation
- 2210/02 . Variable filter component
- 2210/021 . . Amplifier, e.g. transconductance amplifier
- 2210/023 . . . Tuning of transconductance via tail current source
- 2210/025 . . Capacitor
- 2210/026 . . Inductor
- 2210/028 . . Resistor
- 2210/03 . Type of tuning
- 2210/033 . . Continuous
- 2210/036 . . Stepwise
- 2210/04 . Filter calibration method
- 2210/043 . . by measuring time constant
- 2210/046 . . Master -slave
  
- 2218/00 Indexing scheme relating to details of digital filters**
- 2218/02 . Coefficients
- 2218/025 . . updated selectively, e.g. by, in the presence of noise, temporally cancelling the update and outputting a predetermined value
- 2218/04 . In-phase and quadrature [I/Q] signals
- 2218/06 . Multiple-input, multiple-output [MIMO]; Multiple-input, single-output [MISO]
- 2218/08 . Resource sharing
- 2218/085 . . Multipliers
- 2218/10 . Multiplier and or accumulator units
- 2218/12 . Signal conditioning
- 2218/14 . Non-uniform sampling
  
- 2220/00 Indexing scheme relating to structures of digital filters**
- 2220/02 . Modular, e.g. cells connected in cascade
- 2220/04 . Pipelined
- 2220/06 . Systolic
- 2220/08 . Variable filter length
  
- 2222/00 Indexing scheme relating to digital filtering methods**
- 2222/02 . using fuzzy logic
- 2222/04 . using neural networks
- 2222/06 . using wavelets
  
- 2240/00 Indexing scheme relating to filter banks**
  
- 2250/00 Indexing scheme relating to dual- or multi-band filters**
  
- 2260/00 Theory relating to impedance networks**