

CPC COOPERATIVE PATENT CLASSIFICATION

H ELECTRICITY

(NOTE omitted)

H03 BASIC ELECTRONIC CIRCUITRY

H03J TUNING RESONANT CIRCUITS; SELECTING RESONANT CIRCUITS (indicating arrangements for measuring [G01D](#); measuring, testing [G01R](#); remote-control in general [G05](#), [G08](#); automatic control or stabilisation of generators [H03L](#))

NOTE

This subclass covers also the control of tuning, including the combined control of tuning and other functions, e.g. combinations of tuning control and volume control, combinations of control of local oscillator and of supplementary resonant circuits.

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.

1/00	Details of adjusting, driving, indicating, or mechanical control arrangements for resonant circuits in general (machine elements in general F16; coupling of knobs to shafts F16D)	1/045	. . . {Indication of the tuning band, the bandwidth, tone control, the channel number, the frequency, or the like}
1/0008	. {using a central processing unit, e.g. a microprocessor (digital tuning in general H03J 5/0245)}	1/047 {using electronic means, e.g. LED's (display of electronic variables in general G01R 13/00 , for discontinuous display G01R 13/404)}
1/0016	. . {Indicating arrangements (digital indication of tuning in general H03J 1/048)}	1/048 {with digital indication (using a microprocessor H03J 1/0016)}
1/0025	. . {in a remote control unit (remote control tuning in general H03J 9/00)}	1/06	. Driving or adjusting arrangements; combined with other driving or adjusting arrangements, e.g. of gain control
1/0033	. . {for voltage synthesis with a D/A converter}	1/063	. . {Special arrangements taken in correlation with the wear; Suppressing backlash; Locking in a desired position}
1/0041	. . {for frequency synthesis with counters or frequency dividers}	1/066	. . {Constructional details regarding potentiometric setting of voltage or current variable reactances}
1/005	. . . {in a loop}		NOTE
1/0058	. . {provided with channel identification means (arrangements for monitoring the use made of broadcast services H04H 60/31)}		Groups H03J 1/14 , H03J 1/16 take precedence over groups H03J 1/08 - H03J 1/12 .
1/0066	. . . {with means for analysing the received signal strength (H03J 1/0083 takes precedence)}	1/08	. . Toothed-gear drive; Worm drive
1/0075 {where the receiving frequencies of the stations are stored in a permanent memory, e.g. ROM}	1/10	. . Rope drive; Chain drive
1/0083	. . . {using two or more tuners}	1/12	. . Friction drive
1/0091	. . {provided with means for scanning over a band of frequencies (H03J 1/0058 takes precedence)}	1/14	. . Special arrangements for fine and coarse tuning
1/02	. Indicating arrangements ({indicating correct tuning H03J 3/12)}	1/16	. . Single control means independently performing two or more functions
1/025	. . {with voiced announcement}	1/18	. Control by auxiliary power
1/04	. . with optical indicating means	1/182	. . {using a ring of magnets or the like}
1/041	. . . {Pointers, markers, or the like, for tuning dials; Folding dials}	1/185	. . {the auxiliary power producing an adjustment dependent on the current intensity}
1/042	. . . {Means insuring a precise reading of the dial, e.g. special scale, local illumination possibly temporary, luminous point moving with the pointer}	1/187	. . {the auxiliary power balancing automatically a Wheatstone bridge or the like, that has been unbalanced by the controlling device}
1/044	. . . {Illumination of the tuning dial; On and off switching of the illumination; Circuits related with illumination}	1/20	. . the auxiliary power being switched on as long as controlling current is switched on
		1/22	. . with stepping arrangements actuated by control pulses

- 3/00** **Continuous tuning** ([H03J 7/00](#), [H03J 9/00](#) take precedence; combination of continuous and discontinuous tuning other than for bandspreading [H03J 5/00](#))
- 3/02 . Details
- 3/04 . . Arrangements for compensating for variations of physical values, e.g. temperature ([automatic control of ambient conditions G05D](#))
- 3/06 . . Arrangements for obtaining constant bandwidth or gain throughout tuning range or ranges ([automatic gain control H03G](#))
- 3/08 . . . by varying a second parameter simultaneously with the tuning, e.g. coupling bandpass filter
- 3/10 . . Circuit arrangements for fine tuning, e.g. bandspreading
- 3/12 . . Electrically-operated arrangements for indicating correct tuning
- 3/14 . . . Visual indication, e.g. magic eye
- 3/16 . . Tuning without displacement of reactive element, e.g. by varying permeability
- 3/18 . . . by discharge tube or semiconductor device simulating variable reactance
- 3/185 {with varactors, i.e. voltage variable reactive diodes}
- 3/20 . of single resonant circuit by varying inductance only or capacitance only
- 3/22 . of single resonant circuit by varying inductance and capacitance simultaneously
- 3/24 . of more than one resonant circuit simultaneously, the circuits being tuned to substantially the same frequency, e.g. for single-knob tuning
- 3/26 . . the circuits being coupled so as to form a bandpass filter
- 3/28 . of more than one resonant circuit simultaneously, the tuning frequencies of the circuits having a substantially constant difference throughout the tuning range
- 3/30 . . Arrangements for ensuring tracking with variable inductors
- 3/32 . . Arrangements for ensuring tracking with variable capacitors
- 5/00** **Discontinuous tuning; Selecting predetermined frequencies; Selecting frequency bands with or without continuous tuning in one or more of the bands, e.g. push-button tuning, turret tuner** ([H03J 7/00](#), [H03J 9/00](#) take precedence; for bandspreading [H03J 3/10](#))
- 5/02 . with variable tuning element having a number of predetermined settings and adjustable to a desired one of these settings
- 5/0209 . . {Discontinuous tuning using an electrical variable impedance element, e.g. a voltage variable reactive diode, by selecting the corresponding analogue value between a set of non preset values}
- 5/0218 . . {Discontinuous tuning using an electrical variable impedance element, e.g. a voltage variable reactive diode, by selecting the corresponding analogue value between a set of preset values}
- 5/0227 . . . {using a counter}
- 5/0236 . . . {with possibility to skip over certain counter positions, i.e. channel skipping, or scanning the counter position with a variable frequency rate}
- 5/0245 . . {Discontinuous tuning using an electrical variable impedance element, e.g. a voltage variable reactive diode, in which no corresponding analogue value either exists or is preset, i.e. the tuning information is only available in a digital form ([microprocessor tuning H03J 1/0008](#))}
- 5/0254 . . . {the digital values being transferred to a D/A converter}
- 5/0263 {the digital values being held in an auxiliary non erasable memory}
- 5/0272 {the digital values being used to preset a counter or a frequency divider in a phase locked loop, e.g. frequency synthesizer}
- 5/0281 {the digital values being held in an auxiliary non erasable memory}
- 5/029 . . . {with channel skipping capability}
- 5/04 . . operated by hand
- 5/06 . . . Settings determined by single indexing means with snap action
- 5/08 . . . Settings determined by a number of separately-actuated positioning means
- 5/10 . . . Settings determined by a number of positioning means mounted on a common support, e.g. turret tuner, which is adjustable to desired positions, a different positioning means being in operation in each position
- 5/12 . . . Settings determined by a number of separately-actuated driving means which adjust the tuning element directly to desired settings
- 5/14 . . operated by auxiliary power
- 5/143 . . . {Settings determined by a number of positioning means mounted on a common support, e.g. turret tuner, which is adjustable to determined positions, a different positioning means being in operation in each position}
- 5/146 . . . {Settings desired by a switch controlled together with the tuning member and which stops the control as soon as a desired position is reached}
- 5/16 . . . Settings determined by a number of separate positioning means actuated by hand
- 5/18 . . . Settings determined by a number of separate positioning means actuated by electromagnets
- 5/20 . . . Settings determined by a number of positioning means actuated by a second means adjustable to different positions by the same or by a second auxiliary power
- 5/22 . . . Settings determined by a number of separately actuated driving means which adjust the tuning element directly to desired settings
- 5/24 . with a number of separate pretuned tuning circuits or separate tuning elements selectively brought into circuit, e.g. for waveband selection, for television channel selection ([switches in general H01H](#))
- 5/242 . . {used exclusively for band selection}
- 5/244 . . . {using electronic means}
- 5/246 . . {using electronic means ([H03J 5/244](#) takes precedence)}
- 5/248 . . {using electromechanical means}
- 5/26 . . operated by hand
- 5/28 . . . Tuning circuits or elements supported on a revolving member with contacts arranged in a plane perpendicular to the axis

- 5/30 . . . Tuning circuits or elements supported on a revolving member with contacts arranged in lines parallel to the axis
- 5/32 . . . Stationary tuning circuits or elements selected by push-button
- 7/00 Automatic frequency control; Automatic scanning over a band of frequencies**
- 7/02 . Automatic frequency control ([H03J 7/18](#) takes precedence; automatic tuning control for television receivers [H04N 5/50](#))
- 7/023 . . {Neutralization of the automatic frequency correction during a tuning change}
- 7/026 . . {Means preventing a wrong working of the automatic frequency correction in case of fading or bad signal/noise ratio}
- 7/04 . . where the frequency control is accomplished by varying the electrical characteristics of a non-mechanically adjustable element or where the nature of the frequency controlling element is not significant
- 7/042 . . . {with reactance tube}
- 7/045 . . . {Modification of automatic frequency control sensitivity or linearising automatic frequency control operation; Modification of the working range ([H03J 7/10](#) takes precedence)}
- 7/047 . . . {Automatic frequency control using an auxiliary signal, e.g. low frequency scanning of the locking range or superimposing a special signal on the input signal}
- 7/06 . . . using counters or frequency dividers
- 7/065 {the counter or frequency divider being used in a phase locked loop}
- 7/08 . . . using varactors, i.e. voltage variable reactive diodes ([H03J 7/06](#) takes precedence)
- 7/10 Modification of automatic frequency control sensitivity or linearising automatic frequency control operation
- 7/12 Combination of automatic frequency control voltage with stabilised varactor supply voltage
- 7/14 . . . Controlling the magnetic state of inductor cores ([H03J 7/06](#) takes precedence)
- 7/16 . . where the frequency control is accomplished by mechanical means, e.g. by a motor
- 7/18 . Automatic scanning over a band of frequencies
- 7/183 . . {combined with selection between different stations transmitting the same programm, e.g. by analysis of the received signal strength}
- 7/186 . . . {using two or more tuners}
- 7/20 . . where the scanning is accomplished by varying the electrical characteristics of a non-mechanically adjustable element ([H03J 7/183](#) takes precedence)}
- 7/22 . . . in which an automatic frequency control circuit is brought into action after the scanning action has been stopped ([H03J 7/24](#) takes precedence)
- 7/24 . . . using varactors, i.e. voltage variable reactive diodes ([H03J 7/28](#) takes precedence)
- 7/26 in which an automatic frequency control circuit is brought into action after the scanning action has been stopped
- 7/28 . . . using counters or frequency dividers
- 7/285 {the counter or frequency divider being used in a phase locked loop}
- 7/30 . . where the scanning is accomplished by mechanical means, e.g. by a motor
- 7/305 . . . {in which an automatic frequency control circuit is brought in action after the scanning action has been stopped}
- 7/32 . . with simultaneous display of received frequencies, e.g. panoramic receivers
- 9/00 Remote-control of tuned circuits; Combined remote-control of tuning and other functions, e.g. brightness, amplification (mechanical remote-control arrangements [H03J 1/00](#) {; using a microprocessor [H03J 1/0025](#); constructional details of remote control switching devices [H01H 9/0235](#)})**
- 9/002 . {comprising one or more tuning stages separated from the rest of a receiver}
- 9/005 . {using non-electrical means without push-button control, e.g. pneumatic, hydraulic or sound wave transmission, Bowden cables}
- 9/007 . {by voltages or currents with different frequencies or phases}
- 9/02 . using radio transmission; using near-field transmission
- 9/04 . using ultrasonic, sonic or infrasonic waves
- 9/06 . using electromagnetic waves other than radio waves, e.g. light
- 2200/00 Indexing scheme relating to tuning resonant circuits and selecting resonant circuits**
- 2200/01 . Circuitry controlling the selecting or switching action
- 2200/02 . Algorithm used as input for AFC action alignment receiver
- 2200/03 . Alignment of a receiver during fabrication
- 2200/04 . Alignment of a transmitter during fabrication
- 2200/05 . Alignment of transmitter with a receiver, after fabrication
- 2200/06 . Tuning of antenna
- 2200/07 . Calibration of receivers, using quartz crystal oscillators as reference
- 2200/08 . Calibration of receivers, in particular of a band pass filter
- 2200/09 . Calibration of oscillator in receiver, using an external carrier frequency as reference
- 2200/10 . Tuning of a resonator by means of digitally controlled capacitor bank
- 2200/11 . Cellular receiver, e.g. GSM, combined with a GPS receiver
- 2200/12 . Radio receiver combined with a GPS receiver
- 2200/13 . Television receiver combined with a GPS receiver
- 2200/14 . Tunable filter in receiver contributing to image rejection
- 2200/15 . Tuning of resonator by means of digitally controlled inductor bank
- 2200/16 . Interpolation of control values for varicaps
- 2200/17 . Elimination of interference caused by harmonics of local oscillator
- 2200/18 . Tuning of a master filter in order to tune its slave filter
- 2200/19 . Resonator in MEMS technology
- 2200/20 . Radio receiver with possibility to choose a station with a certain program style
- 2200/21 . Television receiver with possibility to choose a station with a certain program style

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- 2200/22 . Remote control device controlling cursor and/or including a cursor detecting device
- 2200/23 . Remote control device with display showing data to be transmitted to the controlled apparatus
- 2200/24 . Remote control device with display showing program content
- 2200/25 . Remote control device with display
- 2200/26 . . Remote control device with touch screen display
- 2200/27 . Adjusting the seek sensitivity of a scanning or sweeping receiver
- 2200/28 . Automatic self-alignment of a receiver
- 2200/29 . Self-calibration of a receiver
- 2200/30 . Radio receiver with speech synthesis ability, used for conveying information that is shown on the display
- 2200/31 . Several sweeping or scanning speeds
- 2200/32 . Tuning of tracking filter
- 2200/33 . Tuning of filter by controlling transconductance
- 2200/34 . Tuning of oscillator by controlling transconductance
- 2200/35 . Inductance tunable by switching in/out parts of the inductor
- 2200/36 . Circuit arrangements for, e.g. increasing the tuning range, linearizing the voltage-capacitance relationship, lowering noise, constant slope in different bands
- 2200/37 . Control voltage applied to the anode of the varicap
- 2200/38 . Control voltage applied to the cathode of the varicap
- 2200/39 . Variable capacitors implemented using microelectro-mechanical systems [MEMS]
- 2200/40 . Conversion to a zero or near-zero intermediate frequency