

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

## H03 BASIC ELECTRONIC CIRCUITRY

## H03G CONTROL OF AMPLIFICATION (impedance networks, e.g. attenuators, [H03H](#); control of transmission in lines [H04B 3/04](#))

### NOTES

1. This subclass covers:
  - control of gain of amplifiers or frequency-changers,
  - control of frequency range of amplifiers,
  - limiting amplitude or rate of change of amplitude
2. Attention is drawn to the Note following the title of subclass [H03F](#).

### 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.

<b>1/00</b>	<b>Details of arrangements for controlling amplification</b> {(for arrangements combined with means for generating a controlling signal, or these means <i>per se</i> , see the other main groups of <a href="#">H03G</a> )}	<b>3/001</b>	• {Digital control of analog signals}
<b>1/0005</b>	• {Circuits characterised by the type of controlling devices operated by a controlling current or voltage signal}	<b>3/002</b>	• {Control of digital or coded signals ( <a href="#">H03G 3/3089</a> take precedence)}
<b>1/0011</b>	• . {the device being at least one of the amplifying tubes of the amplifier}	<b>3/004</b>	• {Control by varying the supply voltage}
<b>1/0017</b>	• . {the device being at least one of the amplifying solid state elements of the amplifier}	<b>3/005</b>	• {Control by a pilot signal ( <a href="#">H03G 3/001</a> takes precedence)}
<b>1/0023</b>	• . . {in emitter-coupled or cascode amplifiers ( <a href="#">H03G 1/0029</a> takes precedence)}	<b>3/007</b>	• {Control dependent on the supply voltage}
<b>1/0029</b>	• . . {using FETs}	<b>3/008</b>	• {Control by switched capacitors}
<b>1/0035</b>	• . {using continuously variable impedance elements}	<b>3/02</b>	• Manually-operated control {( <a href="#">H03G 3/001</a> and <a href="#">H03G 3/002</a> take precedence)}
<b>1/0041</b>	• . . {using thermistors}	<b>3/04</b>	• . in untuned amplifiers
<b>1/0047</b>	• . . {using photo-electric elements}	<b>3/06</b>	• . . having discharge tubes
<b>1/0052</b>	• . . {using diodes}	<b>3/08</b>	• . . . incorporating negative feedback
<b>1/0058</b>	• . . . {PIN-diodes}	<b>3/10</b>	• . . having semiconductor devices
<b>1/0064</b>	• . . . {Variable capacitance diodes}	<b>3/12</b>	• . . . incorporating negative feedback
<b>1/007</b>	• . . {using FET type devices}	<b>3/14</b>	• . in frequency-selective amplifiers
<b>1/0076</b>	• . . {using galvanomagnetic elements}	<b>3/16</b>	• . . having discharge tubes
<b>1/0082</b>	• . . {using bipolar transistor-type devices}	<b>3/18</b>	• . . having semiconductor devices
<b>1/0088</b>	• . {using discontinuously variable devices, e.g. switch-operated}	<b>3/20</b>	• Automatic control {( <a href="#">H03G 3/005</a> takes precedence) ; combined with volume compression or expansion <a href="#">H03G 7/00</a> }
<b>1/0094</b>	• . . {using switched capacitors}	<b>3/22</b>	• . in amplifiers having discharge tubes
<b>1/02</b>	• Remote control of amplification, tone, or bandwidth (remote control in general <a href="#">G05</a> , <a href="#">G08</a> ; combined with remote tuning or selection of resonant circuits <a href="#">H03J</a> )	<b>3/225</b>	• . . {controlling or controlled by the (local) oscillators of a (super)heterodyne receiver}
<b>1/04</b>	• Modifications of control circuit to reduce distortion caused by control (modifications to reduce influence of variations of internal impedance of amplifying elements caused by control <a href="#">H03F 1/08</a> )	<b>3/24</b>	• . . Control dependent upon ambient noise level or sound level
<b>3/00</b>	<b>Gain control in amplifiers or frequency changers {without distortion of the input signal}</b> (gated amplifiers <a href="#">H03F 3/72</a> ; peculiar to television receivers <a href="#">H04N</a> )	<b>3/26</b>	• . . Muting amplifier when no signal is present {or when only weak signals are present, or caused by the presence of noise, e.g. squelch systems}
		<b>3/28</b>	• . . . in frequency-modulation receivers {; in angle-modulation receivers}
		<b>3/30</b>	• . in amplifiers having semiconductor devices
		<b>3/3005</b>	• . . {in amplifiers suitable for low-frequencies, e.g. audio amplifiers ( <a href="#">H03G 3/32</a> , <a href="#">H03G 3/34</a> take precedence)}
		<b>3/301</b>	• . . . {the gain being continuously variable}
		<b>3/3015</b>	• . . . . {using diodes or transistors}
		<b>3/3021</b>	• . . . . {by varying the duty cycle}

- 3/3026 . . . . {the gain being discontinuously variable, e.g. controlled by switching}
- 3/3031 . . . . . {using switched capacitors}
- 3/3036 . . . {in high-frequency amplifiers or in frequency-changers ([H03G 3/3052](#), [H03G 3/32](#), [H03G 3/34](#) take precedence)}
- 3/3042 . . . . {in modulators, frequency-changers, transmitters or power amplifiers (transmission power control in bidirectional transmission systems [H04W 52/04](#))}
- 3/3047 . . . . . {for intermittent signals, e.g. burst signals}
- 3/3052 . . . {in bandpass amplifiers (H.F. or I.F.) or in frequency-changers used in a (super)heterodyne receiver ([H03G 3/32](#), [H03G 3/34](#) take precedence)}
- 3/3057 . . . . {using at least one diode as controlling device}
- 3/3063 . . . . {using at least one transistor as controlling device, the transistor being used as a variable impedance device}
- 3/3068 . . . . {Circuits generating control signals for both R.F. and I.F. stages}
- 3/3073 . . . . {Circuits generating control signals when no carrier is present, or in SSB, CW or pulse receivers}
- 3/3078 . . . . {Circuits generating control signals for digitally modulated signals}
- 3/3084 . . . {in receivers or transmitters for electromagnetic waves other than radiowaves, e.g. lightwaves ([H03G 3/32](#), [H03G 3/34](#) take precedence)}
- 3/3089 . . . {Control of digital or coded signals}
- 3/3094 . . . {in parametric amplifiers ([H03G 3/32](#), [H03G 3/34](#) take precedence)}
- 3/32 . . . the control being dependent upon ambient noise level or sound level
- 3/34 . . . Muting amplifier when no signal is present {or when only weak signals are present, or caused by the presence of noise signals, e.g. squelch systems}
- 3/341 . . . . {Muting when no signals or only weak signals are present ([H03G 3/344](#), [H03G 3/345](#) take precedence)}
- 3/342 . . . . {Muting when some special characteristic of the signal is sensed which distinguishes it from noise, e.g. using speech detector ([H03G 3/344](#), [H03G 3/345](#) take precedence)}
- 3/344 . . . . {Muting responsive to the amount of noise (noise squelch) ([H03G 3/345](#) takes precedence)}
- 3/345 . . . . {Muting during a short period of time when noise pulses are detected, i.e. blanking ([H03G 3/348](#) takes precedence)}
- 3/347 . . . . . {dependent on the rate of noise pulses}
- 3/348 . . . . {Muting in response to a mechanical action or to power supply variations, e.g. during tuning; Click removal circuits}
- 5/00** **Tone control or bandwidth control in amplifiers**
- 5/005 . {of digital signals (see provisionally also [H03G 5/00](#))}
- 5/02 . Manually-operated control (variable bandpass or bandstop filters [H03H 7/12](#))
- 5/025 . . {Equalizers; Volume or gain control in limited frequency bands}
- 5/04 . . in untuned amplifiers
- 5/06 . . . having discharge tubes
- 5/08 . . . . incorporating negative feedback
- 5/10 . . . having semiconductor devices
- 5/12 . . . . incorporating negative feedback
- 5/14 . . in frequency-selective amplifiers
- 5/16 . Automatic control
- 5/165 . . {Equalizers; Volume or gain control in limited frequency bands}
- 5/18 . . in untuned amplifiers
- 5/20 . . . having discharge tubes
- 5/22 . . . having semiconductor devices
- 5/24 . . in frequency-selective amplifiers
- 5/26 . . . having discharge tubes
- 5/28 . . . having semiconductor devices
- 7/00** **Volume compression or expansion in amplifiers { (frequency dependent [H03G 9/00](#)) }**
- 7/001 . {without controlling loop ([H03G 7/007](#), [H03G 7/02](#), [H03G 7/06](#) take precedence)}
- 7/002 . {in untuned or low-frequency amplifiers, e.g. audio amplifiers ([H03G 7/007](#), [H03G 7/001](#), [H03G 7/008](#), [H03G 7/02](#), [H03G 7/06](#) take precedence)}
- 7/004 . . {using continuously variable impedance devices}
- 7/005 . . {using discontinuously variable devices, e.g. switch-operated}
- 7/007 . {of digital or coded signals (see provis. also [H03G 7/00](#))}
- 7/008 . {Control by a pilot signal ([H03G 7/007](#), [H03G 7/02](#), [H03G 7/06](#) take precedence)}
- 7/02 . having discharge tubes
- 7/04 . . incorporating negative feedback
- 7/06 . having semiconductor devices
- 7/08 . . incorporating negative feedback
- 9/00** **Combinations of two or more types of control, e.g. gain control and tone control**
- 9/005 . {of digital or coded signals}
- 9/02 . in untuned amplifiers (combined tone controls for low and high frequencies [H03G 5/00](#) {; compression or expansion combined with volume control [H03G 7/00](#)})
- 9/025 . . {frequency-dependent volume compression or expansion, e.g. multiple-band systems ([H03G 9/10](#), [H03G 9/18](#) take precedence)}
- 9/04 . . having discharge tubes
- 9/06 . . . for gain control and tone control
- 9/08 . . . . incorporating negative feedback
- 9/10 . . . for tone control and volume expansion or compression
- 9/12 . . having semiconductor devices
- 9/14 . . . for gain control and tone control
- 9/16 . . . . incorporating negative feedback
- 9/18 . . . for tone control and volume expansion or compression
- 9/20 . in frequency-selective amplifiers
- 9/22 . . having discharge tubes
- 9/24 . . having semiconductor devices
- 9/26 . in untuned amplifying stages as well as in frequency-selective amplifying stages (gain control in both stages [H03G 3/00](#); tone control or bandwidth control [H03G 5/00](#) {; compression or expansion combined with volume control [H03G 7/00](#)})

## H03G

- 9/28 . . all amplifying stages having discharge tubes
- 9/30 . . all amplifying stages having semiconductor devices

- 2201/704 . . being number of multiplexed channels
- 2201/706 . . being quality indicator, e.g. BER,C/I
- 2201/708 . . being temperature

### 11/00 Limiting amplitude; Limiting rate of change of amplitude {; Clipping in general}

- 11/002 . {without controlling loop ([H03G 11/004](#), [H03G 11/006](#), [H03G 11/008](#), [H03G 11/02](#), [H03G 11/04](#), [H03G 11/06](#), [H03G 11/08](#) take precedence; see provisional also [H03G 11/00](#))}
- 11/004 . {using discharge tubes ([H03G 11/008](#) takes precedence)}
- 11/006 . {in circuits having distributed constants ([H03G 11/008](#) takes precedence)}
- 11/008 . {of digital or coded signals (see provis. also [H03G 11/00](#), [H03G 11/02](#))}
- 11/02 . by means of diodes ({[H03G 11/008](#), } [H03G 11/04](#), [H03G 11/06](#), [H03G 11/08](#) take precedence)
- 11/025 . . {in circuits having distributed constants}
- 11/04 . Limiting level dependent on strength of signal; Limiting level dependent on strength of carrier on which signal is modulated {([H03G 11/008](#) takes precedence)}
- 11/06 . {Limiters of angle-modulated signals}; such limiters combined with discriminators ([H03G 11/00](#) takes precedence; discriminators having an inherent limiting action [H03D 3/00](#))
- 11/08 . Limiting rate of change of amplitude {([H03G 11/008](#) takes precedence)}

### 99/00 Subject matter not provided for in other groups of this subclass

#### 2201/00 Indexing scheme relating to subclass [H03G](#)

- 2201/10 . Gain control characterised by the type of controlled element
- 2201/103 . . being an amplifying element
- 2201/106 . . being attenuating element
- 2201/20 . Gain control characterized by the position of the detection
- 2201/202 . . being in baseband
- 2201/204 . . being in intermediate frequency
- 2201/206 . . being in radio frequency
- 2201/208 . . being in power supply of the amplifier
- 2201/30 . Gain control characterized by the type of controlled signal
- 2201/302 . . being baseband signal
- 2201/305 . . being intermediate frequency signal
- 2201/307 . . being radio frequency signal
- 2201/40 . Combined gain and bias control
- 2201/50 . Gain control characterized by the means of gain control
- 2201/502 . . by switching impedance in feedback loop
- 2201/504 . . by summing selected parallel amplifying paths, i.e. more amplifying/attenuating paths summed together
- 2201/506 . . by selecting one parallel amplifying path
- 2201/508 . . by using look-up tables
- 2201/60 . Gain control characterized by varying time constants in control loop
- 2201/603 . . time constant being continuous
- 2201/606 . . time constant being discrete
- 2201/70 . Gain control characterized by the gain control parameter
- 2201/702 . . being frequency, e.g. frequency deviations