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.

1/00 Details of arrangements for controlling amplification {(for arrangements combined with means for generating a controlling signal, or these means per se, see the other main groups of H03G)}
1/0005 . . . [Circuits characterised by the type of controlling devices operated by a controlling current or voltage signal]
1/0011 . . . [the device being at least one of the amplifying tubes of the amplifier]
1/0017 . . . [the device being at least one of the amplifying solid state elements of the amplifier]
1/0023 . . . [in emitter-coupled or cascode amplifiers (H03G 1/0029 takes precedence)]
1/0029 . . . [using FETs]
1/0035 . . . [using continuously variable impedance elements]
1/0041 . . . [using thermistors]
1/0047 . . . [using photo-electric elements]
1/0052 . . . [using diodes]
1/0058 . . . [PIN-diodes]
1/0064 . . . [Variable capacitance diodes]
1/007 . . . [using FET type devices]
1/0076 . . . [using galvanomagnetic elements]
1/0082 . . . [using bipolar transistor-type devices]
1/0088 . . . [using discontinuously variable devices, e.g. switch-operated]
1/0094 . . . [using switched capacitors]
1/02 . Remote control of amplification, tone, or bandwidth (remote control in general G05, G08; combined with remote tuning or selection of resonant circuits H03J)
1/04 . 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 H03F 1/08)
3/00 Gain control in amplifiers or frequency changers [without distortion of the input signal] (gated amplifiers H03F 3/72; peculiar to television receivers H04N)
3/001 . . . [Digital control of analog signals]
3/002 . . . [Control of digital or coded signals (H03G 3/3089 take precedence)]
3/004 . . . [Control by varying the supply voltage]
3/005 . . . [Control by a pilot signal (H03G 3/001 takes precedence)]
3/007 . . . [Control dependent on the supply voltage]
3/008 . . . [Control by switched capacitors]
3/02 . Manually-operated control [(H03G 3/001 and H03G 3/002 take precedence)]
3/04 . . . in untuned amplifiers
3/06 . . . having discharge tubes
3/08 . . . incorporating negative feedback
3/10 . . . having semiconductor devices
3/12 . . . incorporating negative feedback
3/14 . . . in frequency-selective amplifiers
3/16 . . . having discharge tubes
3/18 . . . having semiconductor devices
3/20 . Automatic control ([H03G 3/005 takes precedence] ; combined with volume compression or expansion H03G 7/00)
3/22 . . . in amplifiers having discharge tubes
3/225 . . . [controlling or controlled by the (local) oscillators of a (super)heterodyne receiver]
3/24 . . . Control dependent upon ambient noise level or sound level
3/26 . . . 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}
3/28 . . . in frequency-modulation receivers {; in angle-modulation receivers]
3/30 . . . in amplifiers having semiconductor devices
3/3005 . . . [in amplifiers suitable for low-frequencies, e.g. audio amplifiers (H03G 3/32, H03G 3/34 take precedence)]
3/301 . . . [the gain being continuously variable]
3/3015 . . . [using diodes or transistors]
3/3021 . . . [by varying the duty cycle]
5/02 . . . . . [using at least one diode as controlling device]
5/03 . . . . . [using at least one transistor as controlling device, the transistor being used as a variable impedance device]
5/08 . . . . . [Circuits generating control signals for both R.F. and I.F. stages]
5/10 . . . . . [Circuits generating control signals when no carrier is present, or in SSB, CW or pulse receivers]
5/12 . . . . . [Circuits generating control signals for digitally modulated signals]
5/16 . . . . . [in receivers or transmitters for electromagnetic waves other than radiowaves, e.g. lightwaves (H03G 3/22, H03G 3/34 take precedence)]
5/18 . . . . . [Control of digital or coded signals]
5/20 . . . . . [in parametric amplifiers (H03G 3/32, H03G 3/34 take precedence)]
5/22 . . . . . [the control being dependent upon ambient noise level or sound level]
5/24 . . . . . [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)]
5/26 . . . . . [Muting when no signals or only weak signals are present (H03G 3/344, H03G 3/345 take precedence)]
5/28 . . . . . [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)]
5/30 . . . . . [Muting responsive to the amount of noise (squelch) (H03G 3/345 takes precedence)]
5/32 . . . . . [Muting during a short period of time when noise pulses are detected, i.e. blanking (H03G 3/348 takes precedence)]
5/34 . . . . . [dependent on the rate of noise pulses]
5/36 . . . . . [Muting in response to a mechanical action or to power supply variations, e.g. during tuning; Click removal circuits]
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]
5/18 . . . . . [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
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 7/001)}]
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 2/00; tone control or bandwidth control H03G 5/00 {; compression or expansion combined with volume control H03G 7/001}}]
all amplifying stages having discharge tubes
all amplifying stages having semiconductor devices

**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 an 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