

CPC COOPERATIVE PATENT CLASSIFICATION

H03C MODULATION (measuring, testing [G01R](#); masers, lasers [H01S](#); modulators specially adapted for use in the amplifiers [H03F 3/38](#); modulating pulses [H03K 7/00](#); so-called modulators capable only of a switching between predetermined states of amplitude, frequency or phase [H03K 17/00](#), [H04L](#); coding, decoding or code conversion, in general [H03M](#); synchronous modulators specially adapted for colour television [H04N 9/65](#))

NOTES

1. This subclass covers only modulation, keying, or interruption of sinusoidal oscillations or electromagnetic waves, the modulating signal having any desired waveform.
2. In this subclass, circuits usable both as modulator and demodulator are classified in the group dealing with the type of modulator involved.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups :

[H03C 1/38 - H03C 1/44](#) covered by [H03C 1/36](#)

1/00	Amplitude modulation (H03C 5/00 , H03C 7/00 take precedence)	1/54	. . Balanced modulators, e.g. bridge type, ring type, double balanced type
1/02	. Details	1/542	. . . {comprising semiconductor devices with at least three electrodes}
1/04	. . Means in or combined with modulating stage for reducing angle modulation	1/545 {using bipolar transistors}
1/06	. . Modification of modulator to reduce distortion, e.g. by feedback, and clearly applicable to more than one type of modulator	1/547 {using field-effect transistors}
		1/56	. . . comprising variable two-pole elements only
		1/58 comprising diodes
1/08	. by means of variable impedance element (H03C 1/28 - H03C 1/34 , H03C 1/46 - H03C 1/52 , H03C 1/62 take precedence)	1/60	. . with one sideband wholly or partially suppressed
		1/62	. Modulators in which amplitude of carrier component in output is dependent upon strength of modulating signal, e.g. no carrier output when no modulating signal is present (H03C 1/28 - H03C 1/34 , H03C 1/46 , H03C 1/48 take precedence)
1/10	. . the element being a current-dependent inductor		
1/12	. . the element being a voltage-dependent capacitor		
1/14	. . the element being a diode		
1/16	. by means of discharge device having at least three electrodes (H03C 1/28 - H03C 1/34 , H03C 1/50 , H03C 1/52 , H03C 1/62 take precedence)	3/00	Angle modulation (H03C 5/00 , H03C 7/00 take precedence)
1/18	. . carrier applied to control grid		
1/20	. . . modulating signal applied to anode	3/005	. {Circuits for asymmetric modulation}
1/22	. . . modulating signal applied to same grid	3/02	. Details
1/24	. . . modulating signal applied to different grid	3/04	. . Means in or combined with modulating stage for reducing amplitude modulation
1/26	. . . modulating signal applied to cathode		
1/28	. by means of transit-time tube	3/06	. . Means for changing frequency deviation {(for demodulation H03D 3/003 , H03D 3/242)}
1/30	. . by means of a magnetron	3/08	. . Modification of modulator to linearise modulation, e.g. by feedback, and clearly applicable to more than one type of modulator
1/32	. by deflection of electron beam in discharge tube		
1/34	. by means of light-sensitive element		
1/36	. by means of semiconductor device having at least three electrodes (H03C 1/34 , H03C 1/50 , H03C 1/52 , H03C 1/62 take precedence)	3/09	. . Modifications of modulator for regulating the mean frequency
		3/0908	. . . {using a phase locked loop}
1/46	. Modulators with mechanically or acoustically driven parts	3/0916 {with frequency divider or counter in the loop}
1/48	. by means of Hall-effect devices	3/0925 {applying frequency modulation at the divider in the feedback loop}
1/50	. by converting angle modulation to amplitude modulation (H03C 1/28 - H03C 1/34 , H03C 1/46 , H03C 1/48 take precedence)	3/0933 {using fractional frequency division in the feedback loop of the phase locked loop}
		3/0941 {applying frequency modulation at more than one point in the loop}
1/52	. Modulators in which carrier or one sideband are wholly or partially suppressed (H03C 1/28 - H03C 1/34 , H03C 1/46 , H03C 1/48 take precedence)	3/095 {applying frequency modulation to the loop in front of the voltage controlled oscillator}

- 3/0958 {applying frequency modulation by varying the characteristics of the voltage controlled oscillator}
- 3/0966 {modulating the reference clock}
- 3/0975 {applying frequency modulation in the phase locked loop at components other than the divider, the voltage controlled oscillator or the reference clock}
- 3/0983 {containing in the loop a mixer other than for phase detection}
- 3/0991 {including calibration means or calibration methods}
- 3/10 by means of variable impedance
([H03C 3/30](#) - [H03C 3/38](#) take precedence)
- 3/12 by means of a variable reactive element
- 3/14 simulated by circuit comprising active element with at least three electrodes, e.g. reactance-tube circuit
- 3/145 {by using semiconductor elements}
- 3/16 in which the active element simultaneously serves as the active element of an oscillator
- 3/18 the element being a current-dependent inductor
- 3/20 the element being a voltage-dependent capacitor
- 3/22 the element being a semiconductor diode, e.g. varicap diode
- 3/222 {using bipolar transistors ([H03C 3/227](#) takes precedence)}
- 3/225 {using field effect transistors ([H03C 3/227](#) takes precedence)}
- 3/227 {using a combination of bipolar transistors and field effect transistors}
- 3/24 by means of a variable resistive element, e.g. tube
- 3/245 {by using semiconductor elements}
- 3/26 comprising two elements controlled in push-pull by modulating signal
- 3/28 using variable impedance driven mechanically or acoustically
- 3/30 by means of transit-time tube
- 3/32 the tube being a magnetron
- 3/34 by deflection of electron beam in discharge tube
- 3/36 by means of light-sensitive element
- 3/38 by converting amplitude modulation to angle modulation
- 3/40 using two signal paths the outputs of which have a predetermined phase difference and at least one output being amplitude-modulated
- 3/403 {using two quadrature frequency conversion stages in cascade}
- 3/406 {using a feedback loop containing mixers or demodulators}
- 3/42 by means of electromechanical devices ([H03C 3/28](#) takes precedence)
- 5/00** **Amplitude modulation and angle modulation produced simultaneously or at will by the same modulating signal** ([H03C 7/00](#) takes precedence)
- 5/02 by means of transit-time tube
- 5/04 the tube being a magnetron
- 5/06 by deflection of electron beam in discharge tube
- 7/00** **Modulating electromagnetic waves (modulating light [G02F 1/00](#); for generating oscillations [H03B](#), [H03K](#))**
- 7/02 in transmission line, waveguide, cavity resonator, or radiation field of aerial
- 7/022 {using ferromagnetic devices, e.g. ferrites}
- 7/025 {using semiconductor devices}
- 7/027 {using diodes}
- 7/04 Polarisation of transmitted wave being modulated
{([H03C 7/022](#) takes precedence)}
- 99/00** **Subject matter not provided for in other groups of this subclass**
- 2200/00** **Indexing scheme relating to details of modulators or modulation methods covered by [H03C](#)**
- 2200/0004 Circuit elements of modulators
- 2200/0008 Variable capacitors, e.g. a varicap, a varactor or a variable capacitance of a diode or transistor
- 2200/0012 Emitter or source coupled transistor pairs or long tail pairs
- 2200/0016 Pre-emphasis or de-emphasis circuits
- 2200/002 Filters with particular characteristics
- 2200/0025 Gilbert multipliers
- 2200/0029 Memory circuits, e.g. ROMs, RAMs, EPROMs, latches, shift registers
- 2200/0033 Transmission lines, e.g. striplines, microstrips or coplanar lines
- 2200/0037 Functional aspects of modulators
- 2200/0041 Calibration of modulators
- 2200/0045 Pulse width, duty cycle or on/off ratio
- 2200/005 Modulation sensitivity
- 2200/0054 Filtering of the input modulating signal for obtaining a constant sensitivity of frequency modulation
- 2200/0058 Quadrature arrangements
- 2200/0062 Lowering the supply voltage and saving power
- 2200/0066 Reduction of carrier leakage or the suppression of the carrier
- 2200/007 with one sideband wholly or partially suppressed
- 2200/0075 FM modulation down to DC
- 2200/0079 Measures to linearise modulation or reduce distortion of modulation characteristics
- 2200/0083 Predistortion of input modulating signal to obtain a linear modulation characteristic
- 2200/0087 Measures to address temperature induced variations of modulation
- 2200/0091 by stabilising the temperature
- 2200/0095 by compensating temperature induced variations