

ECLA**EUROPEAN CLASSIFICATION****H03C**

MODULATION (measuring, testing G01R; masers, lasers H01S; modulators specially adapted for use in the amplifiers [H03F3/38](#); modulating pulses [H03K7/00](#); so-called modulators capable only of a switching between predetermined states of amplitude, frequency or phase [H03K17/00](#), H04L; coding, decoding or code conversion, in general H03M; synchronous modulators specially adapted for colour television [H04N9/65](#))
[C9408]

[N: WARNING]

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

[H03C1/38](#) to [H03C1/44](#) covered by [H03C1/36](#)
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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.

H03C1/00

Amplitude modulation ([H03C5/00](#), [H03C7/00](#) take precedence)

H03C1/02

- . Details

H03C1/04

- . . Means in or combined with modulating stage for reducing angle modulation

H03C1/06

- . . Modification of modulator to reduce distortion, e.g. by feedback, and clearly applicable to more than one type of modulator

H03C1/08

- . by means of variable impedance element ([H03C1/28](#) to [H03C1/34](#), [H03C1/46](#) to [H03C1/52](#), [H03C1/62](#) take precedence)

H03C1/10

- . . the element being a current-dependent inductor

H03C1/12

- . . the element being a voltage-dependent capacitor

H03C1/14

- . . the element being a diode

H03C1/16

- . by means of discharge device having at least three electrodes ([H03C1/28](#) to [H03C1/34](#), [H03C1/50](#), [H03C1/52](#), [H03C1/62](#) take precedence)

H03C1/18

- . . carrier applied to control grid

H03C1/20

- . . . modulating signal applied to anode

H03C1/22

- . . . modulating signal applied to same grid

H03C1/24

- . . . modulating signal applied to different grid

H03C1/26

- . . . modulating signal applied to cathode

H03C1/28

- . by means of transit-time tube

- H03C1/30 . . by means of a magnetron
- H03C1/32 . by deflection of electron beam in discharge tube
- H03C1/34 . by means of light-sensitive element
- H03C1/36 . by means of semiconductor device having at least three electrodes ([H03C1/34](#), [H03C1/50](#), [H03C1/52](#), [H03C1/62](#) take precedence)
- H03C1/46 . Modulators with mechanically or acoustically driven parts
- H03C1/48 . by means of Hall-effect devices
- H03C1/50 . by converting angle modulation to amplitude modulation ([H03C1/28](#) to [H03C1/34](#), [H03C1/46](#), [H03C1/48](#) take precedence)
- H03C1/52 . Modulators in which carrier or one side-band are wholly or partially suppressed ([H03C1/28](#) to [H03C1/34](#), [H03C1/46](#), [H03C1/48](#) take precedence)
- H03C1/54 . . Balanced modulators, e.g. bridge type, ring type, double balanced type
- H03C1/54B . . . [N: comprising semiconductor devices with at least three electrodes]
- H03C1/54B2 [N: using bipolar transistors] [N0205]
- H03C1/54B4 [N: using field-effect transistors] [N0205]
- H03C1/56 . . . comprising variable two-pole elements only
- H03C1/58 comprising diodes
- H03C1/60 . . with one sideband wholly or partially suppressed
- H03C1/62 . 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 ([H03C1/28](#) to [H03C1/34](#), [H03C1/46](#), [H03C1/48](#) take precedence)
- H03C3/00** **Angle modulation** ([H03C5/00](#), [H03C7/00](#) take precedence)
- H03C3/00B . [N: Circuits for asymmetric modulation]
- H03C3/02 . Details
- H03C3/04 . . Means in or combined with modulating stage for reducing amplitude modulation
- H03C3/06 . . Means for changing frequency deviation [N: for demodulation [H03D3/00A2](#), [H03D3/24A1](#)]
- H03C3/08 . . Modification of modulator to linearise modulation, e.g. by feedback, and clearly applicable to more than one type of modulator
- H03C3/09 . . Modifications of modulator for regulating the mean frequency
- H03C3/09A . . . [N: using a phase locked loop] [C1202]
- H03C3/09A1 [N: with frequency divider or counter in the loop] [N0202] [C1202]
- H03C3/09A1A [N: applying frequency modulation at the divider in the feedback loop] [N1202]
- H03C3/09A1B [N: using fractional frequency division in the feedback loop of the phase locked loop] [N1202]
- H03C3/09A2 [N: applying frequency modulation at more than one point in the loop] [N1202]

- H03C3/09A3 [N: applying frequency modulation to the loop in front of the voltage controlled oscillator] [N1202]
- H03C3/09A4 [N: applying frequency modulation by varying the characteristics of the voltage controlled oscillator] [N1202]
- H03C3/09A5 [N: modulating the reference clock] [N1202]
- H03C3/09A6 [N: applying frequency modulation in the phase locked loop at components other than the divider, the voltage controlled oscillator or the reference clock] [N1202]
- H03C3/09A7 [N: containing in the loop a mixer other than for phase detection] [N1202]
- H03C3/09A8 [N: including calibration means or calibration methods] [N1202]

- H03C3/10 . by means of variable impedance ([H03C3/30](#) to [H03C3/38](#) take precedence)
- H03C3/12 . . by means of a variable reactive element
- H03C3/14 . . . simulated by circuit comprising active element with at least three electrodes, e.g. reactance-tube circuit
- H03C3/14B [N: by using semiconductor elements]
- H03C3/16 in which the active element simultaneously serves as the active element of an oscillator
- H03C3/18 . . . the element being a current-dependent inductor
- H03C3/20 . . . the element being a voltage-dependent capacitor
- H03C3/22 . . . the element being a semiconductor diode, e.g. varicap diode
- H03C3/22C [N: using bipolar transistors ([H03C3/22E](#) takes precedence)] [N0210]
- H03C3/22D [N: using field effect transistors ([H03C3/22E](#) takes precedence)] [N0210]
- H03C3/22E [N: using a combination of bipolar transistors and field effect transistors] [N0210]
- H03C3/24 . . by means of a variable resistive element, e.g. tube
- H03C3/24B . . . [N: by using semiconductor elements]
- H03C3/26 . . . comprising two elements controlled in push-pull by modulating signal
- H03C3/28 . . using variable impedance driven mechanically or acoustically

- H03C3/30 . by means of transit-time tube
- H03C3/32 . . the tube being a magnetron

- H03C3/34 . by deflection of electron beam in discharge tube

- H03C3/36 . by means of light-sensitive element

- H03C3/38 . by converting amplitude modulation to angle modulation
- H03C3/40 . . using two signal paths the outputs of which have a predetermined phase difference and at least one output being amplitude-modulated
- H03C3/40B . . . [N: using two quadrature frequency conversion stages in cascade] [N0308]
- H03C3/40F . . . [N: using a feedback loop containing mixers or demodulators] [N0308]

- H03C3/42 . by means of electromechanical devices ([H03C3/28](#) takes precedence)

- H03C5/00** **Amplitude modulation and angle modulation produced simultaneously or at will by the same modulating signal ([H03C7/00](#) takes precedence)**

- H03C5/02 . by means of transit-time tube
- H03C5/04 . . the tube being a magnetron
- H03C5/06 . by deflection of electron beam in discharge tube
- H03C7/00** **Modulating electromagnetic waves** (modulating light [G02F1/00](#); for generating oscillations [H03B](#), [H03K](#))
- H03C7/02 . in transmission line, waveguide, cavity resonator, or radiation field of aerial
- H03C7/02B . . [N: using ferromagnetic devices, e.g. ferrites]
- H03C7/02D . . [N: using semiconductor devices]
- H03C7/02D2 . . . [N: using diodes]
- H03C7/04 . . Polarisation of transmitted wave being modulated [N: [H03C7/02B](#) takes precedence]
- H03C99/00** **Subject matter not provided for in other groups of this subclass** [N0704]