CPC COOPERATIVE PATENT CLASSIFICATION

H ELECTRICITY

(NOTE omitted)

H03 ELECTRONIC CIRCUITRY

H03D DEMODULATION OR TRANSFERENCE OF MODULATION FROM ONE CARRIER

TO ANOTHER (masers, lasers <u>H01S</u>; circuits capable of acting both as modulator and demodulator <u>H03C</u>; details applicable to both modulators and frequency-changers <u>H03C</u>; demodulating pulses <u>H03K 9/00</u>; transforming types of pulse modulation <u>H03K 11/00</u>; coding, decoding or code conversion, in general <u>H03M</u>; repeater stations <u>H04B 7/14</u>; demodulators adapted for ac systems of digital information transmission <u>H04L 27/00</u>; synchronous demodulators adapted for colour television <u>H04N 9/66</u>)

NOTE

This subclass covers only:

- · demodulation or transference of signals modulated on a sinusoidal carrier or on electromagnetic waves;
- · comparing phase or frequency of two mutually-independent oscillations.

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	Demodulation of amplitude-modulated oscillations (H03D 5/00, H03D 9/00, H03D 11/00 take precedence)	1/2272	• • {using FET's (<u>H03D 1/2209</u> , <u>H03D 1/2245</u> and <u>H03D 1/2281</u> take precedence)}
1/02 1/04	Details Modifications of demodulators to reduce	1/2281	 • {using a phase locked loop (<u>H03D 1/2236</u> and <u>H03D 1/2254</u> take precedence)} • {using at least a two emittor-coupled differential
1/06	interference by undesired signals Modifications of demodulators to reduce	-77	pair of transistors (<u>H03D 1/2209</u> - <u>H03D 1/2281</u> take precedence)}
1/08	distortion, e.g. by negative feedback by means of non-linear two-pole elements (H03D 1/22, H03D 1/26, H03D 1/28 take)	1/24	• • for demodulation of signals wherein one sideband or the carrier has been wholly or partially suppressed {(receiver circuits <u>H04B 1/302</u>)}
	precedence)	1/26	 by means of transit-time tubes
1/10 1/12	. of diodes. with provision for equalising ac and dc loads	1/28	• by deflecting an electron beam in a discharge tube (<u>H03D 1/26</u> takes precedence)
1/14	 by means of non-linear elements having more than two poles (<u>H03D 1/22</u>, <u>H03D 1/26</u>, <u>H03D 1/28</u> take precedence) 	3/00	Demodulation of angle-, {frequency- or phase-} modulated oscillations (H03D 5/00, H03D 9/00, H03D 11/00 take precedence)
1/16	• of discharge tubes	3/001	• {Details of arrangements applicable to more than
1/18 1/20	 of semiconductor devices with provision for preventing undesired type of	3/001	one type of frequency demodulator (<u>H03D 3/28</u> takes precedence)}
1/22	demodulation, e.g. preventing anode detection in a grid detection circuit Homodyne or synchrodyne circuits {(receiver	3/002	• • {Modifications of demodulators to reduce interference by undesired signals (<u>H03D 3/248</u> takes precedence)}
1/2209	 circuits <u>H04B 1/30</u>)} • {Decoders for simultaneous demodulation and decoding of signals composed of a sum-signal 	3/003	{Arrangements for reducing frequency deviation, e.g. by negative frequency feedback (combined with a phase locked loop demodulator)
	and a suppressed carrier, amplitude modulated by a difference signal, e.g. stereocoders}		<u>H03D 3/242</u> ; changing frequency deviation for modulators <u>H03C 3/06</u>)}
1/2218	• • • {using diodes for the decoding}	3/004	{wherein the demodulated signal is used
1/2227	• • • {using switches for the decoding (diodes used as switches <u>H03D 1/2218</u>)}		for controlling an oscillator, e.g. the local oscillator}
1/2236	{using a phase locked loop}	3/005	• • • {wherein the demodulated signal is used
1/2245	• • {using two quadrature channels (<u>H03D 1/2209</u> takes precedence)}		for controlling a bandpass filter (automatic bandwidth control <u>H03G</u> ; automatic frequency
1/2254	• • • {and a phase locked loop}		control <u>H03J 7/02</u>)}
2001/2263	• • • {including a counter or a divider in the PLL}		

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. Circuits for demodulating amplitude-modulated or angle-modulated signals (1803 2.324 is large precedence) . Compensating padenture phase or amplitude inbolances) . Compensating underture phase or amplitude inbolances of the compensation of the	3/006	• {by sampling the oscillations and further processing the samples, e.g. by computing techniques (H03D 3/007 takes precedence)}	3/34	• by means of electromechanical devices (<u>H03D 3/16</u> takes precedence)
3.009 . (Compensating judications phase of amplitude infollutions) 3.010 . (Compensating judications) phase difference between two signals obtained from input signal (HBID) 3.228 1 HBID) 3.232 to receive the HBID 3.228 1 HBID) 3.232 to receive the HBID 3.228 1 HBID) 3.232 to receive the HBID 3.232 II to r	3/007	• {by converting the oscillations into two quadrature related signals (<u>H03D 3/245</u> takes precedence)}	5/00	or angle-modulated oscillations at will (H03D 9/00,
imbalances] 302 by detecting phase difference between two signals obtained from input signal (1803 3/28 + 1803 3/22				
the preedence, intuiting in frequency, modulation receivers HIJRS 3/28]; limiting arrangements (7002) and (702) arrangements for measuring frequencies (7018 2/3/10) and (702) arrangements for measuring frequencies (7018 2/3/10) and (702) arrangements of measuring frequencies (7018 2/3/10) and (702) arrangements (703) arrangements (704) arrangements (705) arrangements (706) arrangements (707) arrangements (708) arrangements (708) arrangements (709) arrangemen		imbalances}	7/00	another, e.g. frequency-changing (H03D 9/00,
H03G 1100 by counting or integrating cycles of oscillations (1arrangements for measuring frequencies G01R 23/10) by combining signals additively or in product demodulators chemodulators chemodulat	3/02	obtained from input signal (<u>H03D 3/28</u> - <u>H03D 3/32</u> take precedence; {muting in frequency-modulation	7/005	magnetic amplifiers, parametric amplifiers used as a frequency-changers <u>H03F</u>)
Solution				
Going 23:10 Solution Soluti	3/04		7/02	
by means of diodes, e.g. Foster-Seeley discriminators 308	3/04	{(arrangements for measuring frequencies	7/04	having {a partially} negative resistance
some with the diodes are simultaneously conducting during the same half period of the signal, e.g. radio detector signal, e.g. radio detector who electrodes to which the diodes are simultaneously conducting during the same half period of the signal, e.g. radio detector who electrodes to which the diodes are simultaneously conducting during the same half period of the signal, e.g. radio detector who electrodes to which two electrodes to which we electrodes to which two electrodes to which two electrodes to which two electrodes to which two signals are applied ferveed from the signal to be demodulated and having a phase difference and two electrodes to which two signals are applied derived from the signal to be demodulated and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency deviation, e.g. phase detector and having a phase difference related to the frequency of a further oscillator, e.g. for negative frequency feedback or APC) 3/241 (the oscillator being part of a phase locked loops (multiple loops in general H031, 7007,	3/06	by combining signals additively or in product	7/06	 by means of discharge tubes having more than
discriminator in which the diodes are simultaneously conducting during the same half period of the signal, e.g. radio detector 3/12 · by means of discharge tubes having more than two electrodes 3/14 · by means of discharge tubes having more than two electrodes 3/16 · by means of semiconductor devices having more than two electrodes 3/18 · by means of semiconductor devices having more than two electrodes (H/3D 7/14 · H/3D 7/22 take precedence) 3/20 · producing pulses whose amplitude or duration depends on phase difference to the frequency deviation, e.g. phase detector 3/21 · by means of active elements with more than two electrodes (H/3D 7/14 · H/3D 7/24 takes precedence) 3/22 · by means of active elements with more than two electrodes (H/3D 7/14 · H/3D 7/24 takes precedence) 3/24 · Modifications of demodulators to reject or remove amplitude variations by means of lockedino oscillator circuits 3/241 · (the oscillator being part of a phase locked loop) 3/242 · (combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency (reduced with means for obtaining automatic gain control) 3/245 · (combined with means for obtaining automatic gain control) 3/246 · (combined with means for obtaining automatic gain control) 3/247 · (suing a least twophase detectors in the loop (H/3D 3/244 takes precedence) in general H/3L 7/08T)) 3/248 · (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H/3L 7/08T)) 3/249 · (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H/3L 7/08T)) 3/240 · (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H/3L 7/08T)) 3/240 · (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H/3L 7/08T)) 3/241 · (with incharge tube having more than two electrodes (H/3D 7/145 takes precedence)) 3/242 · (sombined with me	3/08	by means of diodes, e.g. Foster-Seeley		
signal, e.g. radio detector 3/12 . by means of discharge tubes having more than two electrodes 3/14 . by means of semiconductor devices having more than two electrodes 3/16 . by means of semiconductor devices having more than two electrodes 3/18 . by means of synchronous gating arrangements 3/20 . producing pulses whose amplitude or duration depends on phase difference 3/22 . by means of active elements with more than two electrodes to which two signals are applied derived from the signal to be demodulated and having a phase difference related to the frequency deviation, e.g. phase detector 3/24 . (the oscillator being part of a phase locked loop) 3/24 . (the oscillator being part of a phase locked loop) 3/24 . (combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency frequency feedback or AFC) 3/24 . (combined with means for obtaining automatic gain control) 3/24 . (using a controlled phase shifter (in general H031, 7/087)) 3/24 . (with diodes) 7/145 . (twith discharge tubes having more than two electrodes) 7/146 . (with diodes) 7/147 . (using a factive elements with more than two electrodes) 7/148 . (using a phase different pairs of electrodes) 7/149 . (twith diodes) 7/140 . (with diodes) 7/1410 . (with diodes) 7/1411 . (with diodes) 7/1411 . (with diodes) 7/1411 . (with diodes) 7/141 . (with diodes) 7/141 . (with diodes) 7/143 . (using a base different pairs of the electrodes) 7/145 . (with diodes) 7/146 . (with diodes) 7/147 . (using a federector less having more than two electrodes) 7/145 . (with diodes) 7/146 . (with diodes) 7/147 . (using facel fect transistors) 7/148 . (using balanced arrangements 7/149 . (using a federector) 7/149 . (using a confidence) 7/145 . (submaringing omponents of bipolar transistors (H03D 7/145 takes precedence)) 7/145 . (submaringing arrangements) 7/146 . (Passive mixer arrangements) 7/147 . (submaringing omponents for selecting a particular frequency components for selecting a particular frequ	3/10		7/08	the signals to be mixed being applied between the
two electrodes 3/14 by means of semiconductor devices having more than two electrodes 3/16 by means of electromechanical resonators 3/18 . by means of synchronous gating arrangements 3/20 . producing pulses whose amplitude or duration depends on phase difference and having a phase difference related to the frequency deviation, e.g. phase detector 3/24 . Modifications of demodulators to reject or remove amplitude variations by means of lockedions circuits 3/241 . (the oscillator being part of a phase locked loop) 3/242 (combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency feedback or AFC) 3/244 (combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency feedback or AFC) 3/245 (using at least twophase detectors in the loop (H03D 3/244 atkes precedence); in general H03L 7/087) 3/246 (using a controlled phase shifter (in general H03L 7/081) 3/247 (using a controlled phase shifter (in general H03L 7/081) 3/248 (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/081) 3/26 . by means of slooping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 + H03D 3/28 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ((automatic frequency control H03L) 3/29 . by means of slooping amplitude/frequency control H03L) 3/29 . by means of slooping amplitude/frequency control H03L) 3/29 . by means of slooping amplitude/frequency control H03L) 3/29 . by means of slooping amplitude/frequency control H03L) 3/20 . by means of soloping amplitude/frequency control H03L) 3/20 . by means of soloping amplitude/frequency control H03L) 3/20 . by means of soloping amplitude/frequency control H03L) 3/20 . by means of slooping amplitude/frequency control H03L) 3/20 . by means of slooping amplitude/frequency control H03L) 3/21 (using a control to the frequency control H03L) 3/21 (u			7/10	
more than two electrodes 3/18 . by means of electromechanical resonators 3/18 . by means of electromechanical resonators 3/20 . producing pulses whose amplitude or duration depends on phase difference 3/22 . by means of active elements with more than two electrodes to which two signals are applied derived from the signal to be demodulated and having a phase difference related to the frequency deviation, e.g. phase detector 3/24 . Modifications of demodulators to reject or remove amplitude variations by means of locked-in oscillator being part of a phase locked loop 3/241 . (the oscillator being part of a phase locked loop) 3/242 . (combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency feedback or AFC) 3/244 . (combined with means for obtaining automatic gain control} 3/245 . (using at least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/08T) 3/248 . (using at least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/08T) 3/248 . (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07.) 4/103 3/24 . H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ((automatic frequency control H03L) 3/29 . (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07.) 4/103 3/24 . (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07.) 4/103 3/24 . (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07.) 4/103 3/24 . (with ransistors) 4/145 . (with ransistors (H03D 7/145 takes precedence) 4/145 . (Subharmonic mixer arrangements) 5/145 . (Subharmonic mixer arrangements) 5/146 . (International activation of the output) 5/145 . (autifications of at least two of the frequency changers being located in differe	3/12	two electrodes	7/12	. by means of semiconductor devices having more
3/16 by means of electromechanical resonators 3/18 . by means of synchronous gating arrangements 3/20 . producing pulses whose amplitude or duration depends on phase difference 3/22 . by means of active elements with more than two electrodes to which two signals are applied derived from the signal to be demodulated and having a phase difference related to the frequency deviation, e.g. phase detector 3/24 . Modifications of demodulators to reject or remove amplitude variations by means of lockedin oscillator circuits 3/241 . (the oscillator being part of a phase locked loop) 3/242 (combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency feedback or AFC) 3/244 . (combined with means for obtaining automatic gain control) 3/245 . (using at least twophase detectors in the loop (HoB3) 3/244 takes precedence; in general H031, 7/087)) 3/247 . (using at least twophase detectors in the loop (H0B3) 3/244 takes precedence; in general H031, 7/087) 3/248 . (with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H031, 7/02). H031, 7/223 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ((automatic frequency control H031.) 3/29 . (using a controlled phase shifter (in general H031, 7/081)) 3/240 . (using a controlled phase shifter (in general H031, 7/081)) 3/241 . (using a controlled phase shifter (in general H031, 7/081)) 3/242 . (using a controlled phase shifter (in general H031, 7/081)) 3/243 . (using a controlled phase shifter (in general H031, 7/081)) 3/244 . (using a controlled phase shifter (in general H031, 7/081)) 3/245 . (using a controlled phase shifter (in general H031, 7/081)) 3/246 . (using a controlled phase shifter (in general H031, 7/081)) 3/247 . (using a controlled phase shifter (in general H031, 7/081)) 3/248 . (with discalary that the s	3/14	•		precedence)
3/18 by means of synchronous gating arrangements 3/20 . producing pulses whose amplitude or duration depends on phase difference 3/22 by means of active elements with more than two electrodes to which two signals are applied derived from the signal to be demodulated and having a phase difference related to the frequency deviation, e.g., phase detector 3/24 . Modifications of demodulators to reject or remove amplitude variations by means of locked-in oscillator circuits 3/241 . {the oscillator being part of a phase locked loop} 3/242 . {combined with means for controlling the frequency of a further oscillator, e.g., for negative frequency feedback or AFC} 3/244 . {combined with means for obtaining automatic gain control} 3/245 . {using at least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/08T)} 3/248 . {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/017, H03L 7/222)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency control H03L}) at the receivers H03L]; automatic frequency control H03L 0 by means of sloping amplitude/frequency control H03L 0 by means of sloping and plant control to the requency control H03L 0 by means of sloping and plant control beam in a discharge tube 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency control H03L}) at the requency control H03L 0 by means of sloping and plant control beam in a discharge tube 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency control H03L}) at the requency control H03L 0 by means of transit-time tubes 3/29			7/125	• • {with field effect transistors}
3/20 . producing pulses whose amplitude or duration depends on phase difference 3/22 . by means of active elements with more than two electrodes! owhich two signals are applied derived from the signal to be demodulated and having a phase difference related to the frequency deviation, e.g. phase detector 3/24 . Modifications of demodulators to reject or remove amplitude variations by means of locked-in oscillator circuits 3/241 . {the oscillator being part of a phase locked loop} 3/242 {combined with means for controlling the frequency feedback or AFC} 3/244 {combined with means for controlling the frequency feedback or AFC} 3/245 {using a least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/081)} 3/246 {using a controlled phase shifter (in general H03L 7/081)} 3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {with tansistors (H03D 7/145 takes precedence)} 7/143 {using bipolar transistors (H03D 7/145 takes precedence)} 7/145 {using a combination of bipolar transistors and field-effect transistors (H03D 7/145 takes precedence)} 7/146 . {Passive precedence} 7/147 {combined with means for controlling the frequency feedback or AFC} 3/240 {combined with means for obtaining automatic gain control} 3/241 {using a least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/081)} 3/242 {using a controlled phase shifter (in general H03L 7/081)} 3/243 {using a controlled phase shifter (in general H03L 7/081)} 3/244 {using a controlled phase shifter (in general H03L 7/081)} 3/245 {using a controlled phase shifter (in general H03L 7/081)} 3/246 {using a controlled phase shifter (in general H03L 7/081)} 3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {using a controlled phase shifter (in general H03L 7/081)} 3/249 {using a controlled phase shifter (in general H03L 7/081)} 3/240 {using feedback or AFC} 3/241 {combined wit			7/14	Balanced arrangements
depends on phase difference 3/22			7/1408	• • {with diodes}
two electrodes to which two signals are applied derived from the signal to be demodulated and having a phase difference related to the frequency deviation, e.g. phase detector 3/24 • Modifications of demodulators to reject or remove amplitude variations by means of locked-in oscillator circuits 3/241 • .• (the oscillator being part of a phase locked loop} 3/242 • .• (combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency feedback or AFC} 3/244 • .• (combined with means for obtaining automatic gain control} 3/245 • .• (suing a telast twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/081)) 3/247 • .• (with means for obtaining signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/22)) 3/26 • by means of sloping amplitude/frequency control H03L) 3/28 • Modifications of demodulators to reduce effects of temperature variations (1 automatic frequency regulation in receivers H03I); automatic frequency control H03L) 3/30 • by means of transit-time tubes 3/30 • by deflecting an electron beam in a discharge tube	3/20	depends on phase difference	7/1416	
derived from the signal to be demodulated and having a phase difference related to the frequency deviation, e.g. phase detector 3/24	3/22		7/1425	• • {with transistors}
deviation, e.g. phase detector 3/24		derived from the signal to be demodulated and	7/1433	
remove amplitude variations by means of locked- in oscillator circuits 3/241 {the oscillator being part of a phase locked loop} 3/242 {combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency feedback or AFC} 3/244 {combined with means for obtaining automatic gain control} 3/245 {using at least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/087)} 3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/22)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 + H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations { automatic frequency regulation in receivers H03J}; automatic frequency control H03L) 3/30 . by means of transit-time tubes 3/30 . by deflecting an electron beam in a discharge tube 3/28 . Modifications of frequency-changers for eliminating interfering signals, e.g. by deflecting an electron beam in a discharge tube 3/28 . Modifications of frequency-changers for eliminating signals, e.g. where both input signals are differential} 3/246 {combined with means for controlling the frequency depairs arrangements, i.e. where both input signals are differential} 3/247 {combined with means for obtaining aparticular frequency components for selecting a particular frequency changers being connected in cascade} 3/247 {using a feedback toop containing mixers or demodulators} 3/248 {wliting a further toscillator, e.g. for the output is a further to	2/24	deviation, e.g. phase detector	7/1441	
3/241 {the oscillator being part of a phase locked loop} 3/242 {combined with means for controlling the frequency of a further oscillator, e.g. for negative frequency feedback or AFC} 3/244 {combined with means for obtaining automatic gain control} 3/245 {using at least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/081)} 3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/22)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 + H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency energy tangers to fund the phase locked loops (multiple loops in general H03L); automatic frequency control H03L) 3/30 . by means of transit-time tubes 3/310 . by deflecting an electron beam in a discharge tube 3/29 {using a feedback loop containing mixers or demodulators} 3/20 {using a feedback loop containing mixers or demodulators} 3/20 {using a feedback loop containing mixers or demodulators} 3/20 {using a feedback loop containing mixers or demodulators} 3/20 {using a feedback loop containing mixers or demodulators} 3/210 {using a feedback loop containing mixers or demodulators} 3/22 {using a feedback loop containing mixers or demodulators} 3/23 {using a feedback loop containing mixers or demodulators} 3/24 {using a feedback loop containing mixers or demodulators} 3/25 {using a feedback loop containing mixers or demodulators} 3/26 {using a feedback loop containing mixers or demodulators} 3/27	3/24	remove amplitude variations by means of locked-	7/145	
3/242	3/241	• • • {the oscillator being part of a phase locked	7/1458	
frequency of a further oscillator, e.g. for negative frequency feedback or AFC 3/244	2/242	1,	7/1466	• • {Passive mixer arrangements}
negative frequency feedback or AFC} 3/244 {combined with means for obtaining automatic gain control} 3/245 {using at least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/087)} 3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/22)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency characteristic of transit-time tubes} 3/30 . by means of transit-time tubes 3/31 . by deflecting an electron beam in a discharge tube 7/1481 {comprising components for selecting a particular frequency component of the output} 7/1491 {Arrangements to linearise a transconductance stage of a mixer arrangement} 7/160 . Multiple-frequency-changers being connected in cascade} 7/163 {the local oscillations of at least two of the frequency changers being derived from a single oscillator} 7/165 . {at least two frequency changers being located in different paths, e.g. in two paths with carriers in quadrature (combined with amplitude demodulation H03D 1/2245, combined with angle demodulation H03D 1/2245, combined	3/242		7/1475	• • • {Subharmonic mixer arrangements}
3/244 {combined with means for obtaining automatic gain control} 3/245 {using at least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/081)} 3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07, H03L 7/22)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency control H03L)} 3/30 . by means of transit-time tubes 3/31 {carrangements to linearise a transconductance stage of a mixer arrangement} 7/161 {all the frequency changers being connected in cascade} 7/163 {the local oscillations of at least two of the frequency changers being derived from a single oscillator} 7/165 . {at least two frequency changers being located in different paths, e.g. in two paths with carriers in quadrature (combined with amplitude demodulation H03D 3/007; N-path filters H03H 19/002)} 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency changers for eliminating interfering signals, e.g. by deflecting an electron beam in a discharge tube 3/165 {two paths with carriers in quadrature (combined with amplitude demodulation H03D 3/007; N-path filters H03H 19/002)} 7/166 {using a feedback loop containing mixers or demodulators} 7/168 {using a feedback loop containing mixers or demodulators} 7/188 {using a feedback loop containing mixers or demodulators} 7/189 {all the frequency changers being connected in cascade} 7/165 {at least two frequency changers being located in different paths, e.g. in two paths with carriers in quadrature (combined with angle demodulation H03D 3/007; N-path filters H03H 19/002)} 7/168 {using a feedback loop containi			7/1483	
3/245 {using at least twophase detectors in the loop (H03D 3/244 takes precedence; in general H03L 7/087)} 3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07, H03L 7/22)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency control H03L)} 3/30 . by means of transit-time tubes 3/31 . Multiple-frequency-changers being connected in cascade} 7/163 . {all the frequency changers being connected in cascade} 7/165 . {at least two frequency changers being located in different paths, e.g. in two paths with carriers in quadrature (combined with amplitude demodulation H03D 1/2245, combined with angle demodulation H03D 1/2245, combined with angle demodulation H03D 3/007; N-path filters H03H 19/002)} 3/28 {using two or more quadrature frequency translation stages} 7/168 {using a feedback loop containing mixers or demodulators} 7/168 {using a feedback loop containing mixers or demodulators} 7/168 {using a feedback loop containing mixers or demodulators} 7/169 {using two or more quadrature frequency translation stages} 7/169 {using two or forequency-changers for eliminating interfering signals demodulators} 7/169 {using two or forequency-changers for eliminating interfering signals demodulators} 8/180 {using a feedback loop containing mixers or demodulators} 8/181 {using a feedback loop containing mixers or demodulators}	3/244	• • • {combined with means for obtaining	7/1491	{Arrangements to linearise a transconductance
(H03D 3/244 takes precedence; in general H03L 7/087)} 3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07, H03L 7/22)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency regulation in receivers H03L}; automatic frequency control H03L) 3/30 . by means of transit-time tubes 3/32 . Modification an electron beam in a discharge tube 3/48 {using a controlled phase shifter (in general H03L 7/081) 3/16 {all the frequency changers being connected in cascade} 3/163 {the local oscillations of at least two of the frequency changers being derived from a single oscillator} 3/165 . {at least two frequency changers being located in different paths, e.g. in two paths with carriers in quadrature (combined with amplitude demodulation H03D 1/2245, combined with angle demodulation H03D 3/007; N-path filters H03H 19/002)} 3/26 {using two or more quadrature frequency translation stages} 3/27 {using a feedback loop containing mixers or demodulators} 3/28 {using a feedback loop containing mixers or demodulators} 3/28 {using a feedback loop containing mixers or demodulators}	3/245			
H03L 7/087)	3/2/13		7/16	
3/247 {using a controlled phase shifter (in general H03L 7/081)} 3/248 {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07, H03L 7/22)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency regulation in receivers H03J}; automatic frequency control H03L) 3/30 . by means of transit-time tubes 3/32 . by deflecting an electron beam in a discharge tube 3/28 {the local oscillations of at least two of the frequency changers being derived from a single oscillator} 3/165 . {at least two frequency changers being located in different paths, e.g. in two paths with carriers in quadrature (combined with amplitude demodulation H03D 1/2245, combined with angle demodulation H03D 3/007; N-path filters H03H 19/002)} 3/28 {using two or more quadrature frequency translation stages} 7/168 {using a feedback loop containing mixers or demodulators} 3/30 by deflecting an electron beam in a discharge tube			7/161	
3/248 {with means for eliminating interfering signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07, H03L 7/22)} 3/26 . by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 . Modifications of demodulators to reduce effects of temperature variations ({automatic frequency regulation in receivers H03J}; automatic frequency control H03L) 3/30 . by means of transit-time tubes 3/32 . by deflecting an electron beam in a discharge tube 3/28 {with means for eliminating interfering oscillator} 5/165 . {at least two frequency changers being derived from a single oscillator} 5/165 . {at least two frequency changers being derived from a single oscillator} 6/20 . {at least two frequency changers being derived from a single oscillator} 7/165 . {at least two frequency changers being derived from a single oscillator} 8/216 . {at least two frequency changers being derived from a single oscillator} 8/216 . {at least two frequency changers being derived from a single oscillator} 8/216 . {at least two frequency changers being derived from a single oscillator} 8/216 . {at least two frequency changers being derived from a single oscillator} 8/216 {at least two frequency changers being derived from a single oscillator} 8/216 {at least two frequency changers being derived from a single oscillator} 8/216 {at least two frequency changers being derived from a single oscillator} 9/216 {at least two frequency changers being derived from a single oscillator} 9/216 {at least two frequency changers being derived from a single oscillator} 9/216 {at least two frequency changers being derived from a single oscillator} 9/216 {at least two frequency changers being derived from a single oscillator}	3/247	• • • { using a controlled phase shifter (in general	7/163	•
signals, e.g. by multiple phase locked loops (multiple loops in general H03L 7/07, H03L 7/22)} 3/26 • by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 • Modifications of demodulators to reduce effects of temperature variations ({automatic frequency regulation in receivers H03L}; automatic frequency control H03L) 3/30 • by means of transit-time tubes 3/32 • by deflecting an electron beam in a discharge tube 5/165 • {at least two frequency changers being located in different paths, e.g. in two paths with carriers in quadrature (combined with amplitude demodulation H03D 1/2245, combined with angle demodulation H03D 3/007; N-path filters H03H 19/002)} 5/166 • {using two or more quadrature frequency translation stages} 7/168 • · · · {using a feedback loop containing mixers or demodulators} 5/18 • Modifications of frequency-changers for eliminating image frequencies (AU3D 7/16 takes precedence))	3/248		7/103	
3/26 by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 3/28 Modifications of demodulators to reduce effects of temperature variations ({automatic frequency regulation in receivers H03J}; automatic frequency control H03L) 3/30 by means of transit-time tubes 3/32 by deflecting an electron beam in a discharge tube in quadrature (combined with amplitude demodulation H03D 1/2245, combined with angle demodulation H03D 3/007; N-path filters H03H 19/002)} - **(using two or more quadrature frequency translation stages}) - **(using a feedback loop containing mixers or demodulators}) - **Modifications of frequency-changers for eliminating images frequencies (M03D 7/16 takes precedence))	3/240	signals, e.g. by multiple phase locked loops (multiple loops in general <u>H03L 7/07</u> ,	7/165	{at least two frequency changers being located
 Modifications of demodulators to reduce effects of temperature variations ({automatic frequency regulation in receivers H03J}; automatic frequency control H03L) by means of transit-time tubes by deflecting an electron beam in a discharge tube Modifications or demodulators to reduce effects {using two or more quadrature frequency translation stages} {using a feedback loop containing mixers or demodulators} Modifications of frequency-changers for eliminating image frequency frequency (M03D 7/16 takes precedence)) 	3/26	 by means of sloping amplitude/frequency characteristic of tuned or reactive circuit (H03D 3/28 - H03D 3/32 takes precedence) 		in quadrature (combined with amplitude demodulation H03D 1/2245, combined with angle demodulation H03D 3/007; N-path filters
7/168 {using a feedback loop containing mixers or demodulators} by means of transit-time tubes by deflecting an electron beam in a discharge tube 7/18 {using a feedback loop containing mixers or demodulators} 7/18 {using a feedback loop containing mixers or demodulators} 7/18 {using a feedback loop containing mixers or demodulators} 7/18 {using a feedback loop containing mixers or demodulators}	3/28	of temperature variations ({automatic frequency	7/166	• • { using two or more quadrature frequency
5/30 • by hearts of transfit-time tubes 7/18 • Modifications of frequency-changers for eliminating image frequency (MO2D 7/16 takes precedence)	2/20	control <u>H03L</u>)	7/168	{using a feedback loop containing mixers or
		• by deflecting an electron beam in a discharge tube	7/18	. Modifications of frequency-changers for eliminating

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7/20	• by means of transit-time tubes	2200/00	Indexing scheme relating to details of
7/22	 by deflecting an electron beam in a discharge tube 		demodulation or transference of modulation from
	(H03D 7/20 takes precedence)		one carrier to another covered by <u>H03D</u>
0/00		2200/0001	Circuit elements of demodulators
9/00	Demodulation or transference of modulation of modulated electromagnetic waves (demodulating	2200/0003	Rat race couplers
	light, transferring modulation in light waves	2200/0005	Wilkinson power dividers or combiners
	G02F 2/00)	2200/0007	Dual gate field effect transistors
9/02	Demodulation using distributed inductance and	2200/0009	Emitter or source coupled transistor pairs or long
7/02	capacitance, e.g. in feeder lines		tail pairs
9/04	for angle-modulated oscillations	2200/0011	Diodes
9/06	Transference of modulation using distributed	2200/0013	Diodes connected in a ring configuration
2700	inductance and capacitance	2200/0015	Diodes connected in a star configuration
9/0608	• • {by means of diodes}	2200/0017	Intermediate frequency filter
9/0616	• • • {mounted in a hollow waveguide	2200/0019	Gilbert multipliers
	(H03D 9/0641 takes precedence)	2200/0021	Frequency multipliers
9/0625	• • {mounted in a coaxial resonator structure}	2200/0023	Balun circuits
9/0633	• • {mounted on a stripline circuit}	2200/0025	Gain control circuits
9/0641	{located in a hollow waveguide}	2200/0027	including arrangements for assuring the same
9/065	• • {by means of discharge tubes having more than		gain in two paths
	two electrodes}	2200/0029	Loop circuits with controlled phase shift
9/0658	• • {by means of semiconductor devices having more	2200/0031	• PLL circuits with quadrature locking, e.g. a
	than two electrodes}		Costas loop
9/0666	• • • {using bipolar transistors (<u>H03D 9/0683</u> takes	2200/0033	Current mirrors
	precedence)}	2200/0035	Digital multipliers and adders used for detection
9/0675	• • { using field effect transistors (<u>H03D 9/0683</u>	2200/0037	Diplexers
	takes precedence)}	2200/0039	Exclusive OR logic circuits
9/0683	• • { using a combination of bipolar transistors and	2200/0041	Functional aspects of demodulators
	field effect transistors}	2200/0043	Bias and operating point
2009/0691	• • {by means of superconductive devices}	2200/0045	Calibration of demodulators
11/00	Super-regenerative demodulator circuits	2200/0047	Offset of DC voltage or frequency
22,00	{(applications in responders G01S)}	2200/0049	Analog multiplication for detection
11/02	• for amplitude-modulated oscillations	2200/005	Analog to digital conversion
11/04	by means of semiconductor devices having more	2200/0052	Digital to analog conversion
	than two electrodes	2200/0054	Digital filters
11/06	for angle-modulated oscillations	2200/0056	including a digital decimation filter
11/08	by means of semiconductor devices having more	2200/0058	using a digital filter with interpolation
	than two electrodes	2200/006	Signal sampling
13/00	Circuits for comparing the phase or frequency of	2200/0062	Computation of input samples, e.g. successive
13/00	two mutually-independent oscillations {(measuring	2200/00/4	samples
	phase G01R 25/00; phase-discriminators with yes/no	2200/0064	Detection of passages through null of a signal
	output <u>G01R 25/005</u>)}	2200/0066	Mixing
13/001	• (in which a pulse counter is used followed by a	2200/0068	by computation
	conversion into an analog signal}	2200/007	by using a logic circuit, e.g. flipflop, XOR
13/002	• • {the counter being an up-down counter}	2200/0072	by complex multiplication
13/003	• {in which both oscillations are converted by logic	2200/0074	using a resistive mixer or a passive mixer
	means into pulses which are applied to filtering or	2200/0076	using a distributed mixer
	integrating means}	2200/0078	using a switched phase shifter or delay line
13/004	• • {the logic means delivering pulses at more than	2200/008	Hilbert type transformation
	one terminal, e.g. up and down pulses}	2200/0082	Quadrature arrangements
13/005	• {in which one of the oscillations is, or is converted	2200/0084	Lowering the supply voltage and saving power
	into, a signal having a special waveform, e.g.	2200/0086	. Reduction or prevention of harmonic frequencies
10/00	triangular}	2200/0088	. Reduction of intermodulation, nonlinearities,
13/006	• • {and by sampling this signal by narrow pulses		adjacent channel interference; intercept points of harmonics or intermodulation products
12/007	obtained from the second oscillation}	2200/009	Reduction of local oscillator or RF leakage
13/007	• {by analog multiplication of the oscillations or	2200/009	Detection or reduction of fading in multipath
	by performing a similar analog operation on the oscillations}	2200/0032	transmission arrangements
13/008	• • {using transistors}	2200/0094	Measures to address temperature induced
13/008	. {using transitions}. {using diodes}	2230/0074	variations of demodulation
13/009	• • [using diodes]	2200/0096	by stabilising the temperature
99/00	Subject matter not provided for in other groups of	2200/0098	by compensating temperature induced
	this subclass		variations

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