

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

## H03 BASIC ELECTRONIC CIRCUITRY

### H03D DEMODULATION OR TRANSFERENCE OF MODULATION FROM ONE CARRIER TO ANOTHER (masers, lasers [H01S](#); circuits capable of acting both as modulator and demodulator [H03C](#); details applicable to both modulators and frequency-changers [H03C](#); demodulating pulses [H03K 9/00](#); transforming types of pulse modulation [H03K 11/00](#); coding, decoding or code conversion, in general [H03M](#); repeater stations [H04B 7/14](#); demodulators adapted for ac systems of digital information transmission [H04L 27/00](#); synchronous demodulators adapted for colour television [H04N 9/66](#))

#### 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.

<b>1/00</b>	<b>Demodulation of amplitude-modulated oscillations</b> ( <a href="#">H03D 5/00</a> , <a href="#">H03D 9/00</a> , <a href="#">H03D 11/00</a> take precedence)	<b>1/229</b>	. . {using at least a two emitter-coupled differential pair of transistors ( <a href="#">H03D 1/2209</a> - <a href="#">H03D 1/2281</a> take precedence)}
<b>1/02</b>	. Details	<b>1/24</b>	. . for demodulation of signals wherein one sideband or the carrier has been wholly or partially suppressed {(receiver circuits <a href="#">H04B 1/302</a> )}
<b>1/04</b>	. . Modifications of demodulators to reduce interference by undesired signals	<b>1/26</b>	. by means of transit-time tubes
<b>1/06</b>	. . Modifications of demodulators to reduce distortion, e.g. by negative feedback	<b>1/28</b>	. by deflecting an electron beam in a discharge tube ( <a href="#">H03D 1/26</a> takes precedence)
<b>1/08</b>	. by means of non-linear two-pole elements ( <a href="#">H03D 1/22</a> , <a href="#">H03D 1/26</a> , <a href="#">H03D 1/28</a> take precedence)	<b>3/00</b>	<b>Demodulation of angle-, {frequency- or phase-} modulated oscillations</b> ( <a href="#">H03D 5/00</a> , <a href="#">H03D 9/00</a> , <a href="#">H03D 11/00</a> take precedence)
<b>1/10</b>	. . of diodes	<b>3/001</b>	. {Details of arrangements applicable to more than one type of frequency demodulator ( <a href="#">H03D 3/28</a> takes precedence)}
<b>1/12</b>	. . . with provision for equalising ac and dc loads	<b>3/002</b>	. . {Modifications of demodulators to reduce interference by undesired signals ( <a href="#">H03D 3/248</a> takes precedence)}
<b>1/14</b>	. by means of non-linear elements having more than two poles ( <a href="#">H03D 1/22</a> , <a href="#">H03D 1/26</a> , <a href="#">H03D 1/28</a> take precedence)	<b>3/003</b>	. . {Arrangements for reducing frequency deviation, e.g. by negative frequency feedback (combined with a phase locked loop demodulator <a href="#">H03D 3/242</a> ; changing frequency deviation for modulators <a href="#">H03C 3/06</a> )}
<b>1/16</b>	. . of discharge tubes	<b>3/004</b>	. . . {wherein the demodulated signal is used for controlling an oscillator, e.g. the local oscillator}
<b>1/18</b>	. . of semiconductor devices	<b>3/005</b>	. . . {wherein the demodulated signal is used for controlling a bandpass filter (automatic bandwidth control <a href="#">H03G</a> ; automatic frequency control <a href="#">H03J 7/02</a> )}
<b>1/20</b>	. . with provision for preventing undesired type of demodulation, e.g. preventing anode detection in a grid detection circuit	<b>3/006</b>	. {by sampling the oscillations and further processing the samples, e.g. by computing techniques ( <a href="#">H03D 3/007</a> takes precedence)}
<b>1/22</b>	. Homodyne or synchrodyne circuits {(receiver circuits <a href="#">H04B 1/30</a> )}	<b>3/007</b>	. {by converting the oscillations into two quadrature related signals ( <a href="#">H03D 3/245</a> takes precedence)}
<b>1/2209</b>	. . {Decoders for simultaneous demodulation and decoding of signals composed of a sum-signal and a suppressed carrier, amplitude modulated by a difference signal, e.g. stereocoders}	<b>3/008</b>	. . {Compensating DC offsets}
<b>1/2218</b>	. . . {using diodes for the decoding}	<b>3/009</b>	. . {Compensating quadrature phase or amplitude imbalances}
<b>1/2227</b>	. . . {using switches for the decoding (diodes used as switches <a href="#">H03D 1/2218</a> )}		
<b>1/2236</b>	. . . {using a phase locked loop}		
<b>1/2245</b>	. . {using two quadrature channels ( <a href="#">H03D 1/2209</a> takes precedence)}		
<b>1/2254</b>	. . . {and a phase locked loop}		
<b>2001/2263</b>	. . . . {including a counter or a divider in the PLL}		
<b>1/2272</b>	. . {using FET's ( <a href="#">H03D 1/2209</a> , <a href="#">H03D 1/2245</a> and <a href="#">H03D 1/2281</a> take precedence)}		
<b>1/2281</b>	. . {using a phase locked loop ( <a href="#">H03D 1/2236</a> and <a href="#">H03D 1/2254</a> take precedence)}		

- 3/02 . by detecting phase difference between two signals obtained from input signal ([H03D 3/28 - H03D 3/32 take precedence](#); {muting in frequency-modulation receivers [H03G 3/28](#)}; limiting arrangements [H03G 11/00](#))
- 3/04 . . by counting or integrating cycles of oscillations ({arrangements for measuring frequencies [G01R 23/10](#)})
- 3/06 . . by combining signals additively or in product demodulators
- 3/08 . . . by means of diodes, e.g. Foster-Seeley discriminator
- 3/10 . . . . 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 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
- 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 7/087](#))}
- 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 [H03J](#)}; automatic frequency control [H03L](#))
- 3/30 . by means of transit-time tubes
- 3/32 . by deflecting an electron beam in a discharge tube ([H03D 3/30 takes precedence](#))
- 3/34 . by means of electromechanical devices ([H03D 3/16 takes precedence](#))
- 5/00** **Circuits for demodulating amplitude-modulated or angle-modulated oscillations at will ([H03D 9/00](#), [H03D 11/00 take precedence](#))**
- 7/00** **Transference of modulation from one carrier to another, e.g. frequency-changing ([H03D 9/00](#), [H03D 11/00 take precedence](#); dielectric amplifiers, magnetic amplifiers, parametric amplifiers used as a frequency-changers [H03F](#))**
- 7/005 . {by means of superconductive devices}
- 7/02 . by means of diodes ([H03D 7/14 - H03D 7/22 take precedence](#))
- 7/04 . . having {a partially} negative resistance characteristic, e.g. tunnel diode
- 7/06 . by means of discharge tubes having more than two electrodes ([H03D 7/14 - H03D 7/22 take precedence](#))
- 7/08 . . the signals to be mixed being applied between the same two electrodes
- 7/10 . . the signals to be mixed being applied between different pairs of electrodes
- 7/12 . by means of semiconductor devices having more than two electrodes ([H03D 7/14 - H03D 7/22 take precedence](#))
- 7/125 . . {with field effect transistors}
- 7/14 . Balanced arrangements
- 7/1408 . . {with diodes}
- 7/1416 . . {with discharge tubes having more than two electrodes}
- 7/1425 . . {with transistors}
- WARNING**
- Subgroups [H03D 7/1433 - H03D 7/1491](#) are incomplete pending reclassification; see also this group and its other subgroups
- 7/1433 . . . {using bipolar transistors ([H03D 7/145 takes precedence](#))}
- 7/1441 . . . {using field-effect transistors ([H03D 7/145 takes precedence](#))}
- 7/145 . . . {using a combination of bipolar transistors and field-effect transistors}
- 7/1458 . . . {Double balanced arrangements, i.e. where both input signals are differential}
- 7/1466 . . . {Passive mixer arrangements}
- 7/1475 . . . {Subharmonic mixer arrangements}
- 7/1483 . . . {comprising components for selecting a particular frequency component of the output}
- 7/1491 . . . {Arrangements to linearise a transconductance stage of a mixer arrangement}
- 7/16 . Multiple-frequency-changing
- 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 1/2245](#), combined with angle demodulation [H03D 3/007](#); N-path filters [H03H 19/002](#))}
- 7/166 . . . {using two or more quadrature frequency translation stages}
- 7/168 . . . . {using a feedback loop containing mixers or demodulators}
- 7/18 . Modifications of frequency-changers for eliminating image frequencies ([H03D 7/16 takes precedence](#))}
- 7/20 . by means of transit-time tubes

7/22	<ul style="list-style-type: none"> <li>by deflecting an electron beam in a discharge tube (<a href="#">H03D 7/20</a> takes precedence)</li> </ul>	<b>2200/00</b>	<b>Indexing scheme relating to details of demodulation or transference of modulation from one carrier to another covered by <a href="#">H03D</a></b>
<b>9/00</b>	<b>Demodulation or transference of modulation of modulated electromagnetic waves</b> ( <a href="#">demodulating light, transferring modulation in light waves G02F 2/00</a> )	2200/0001	<ul style="list-style-type: none"> <li>Circuit elements of demodulators</li> </ul>
9/02	<ul style="list-style-type: none"> <li>Demodulation using distributed inductance and capacitance, e.g. in feeder lines</li> </ul>	2200/0003	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Rat race couplers</li> </ul> </li> </ul>
9/04	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>for angle-modulated oscillations</li> </ul> </li> </ul>	2200/0005	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Wilkinson power dividers or combiners</li> </ul> </li> </ul>
9/06	<ul style="list-style-type: none"> <li>Transference of modulation using distributed inductance and capacitance</li> </ul>	2200/0007	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Dual gate field effect transistors</li> </ul> </li> </ul>
9/0608	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{by means of diodes}</li> </ul> </li> </ul>	2200/0009	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Emitter or source coupled transistor pairs or long tail pairs</li> </ul> </li> </ul>
9/0616	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{mounted in a hollow waveguide (<a href="#">H03D 9/0641</a> takes precedence)}</li> </ul> </li> </ul>	2200/0011	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Diodes</li> </ul> </li> </ul>
9/0625	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{mounted in a coaxial resonator structure}</li> </ul> </li> </ul>	2200/0013	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Diodes connected in a ring configuration</li> </ul> </li> </ul> </li> </ul>
9/0633	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{mounted on a stripline circuit}</li> </ul> </li> </ul>	2200/0015	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Diodes connected in a star configuration</li> </ul> </li> </ul> </li> </ul>
9/0641	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{located in a hollow waveguide}</li> </ul> </li> </ul> </li> </ul>	2200/0017	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Intermediate frequency filter</li> </ul> </li> </ul>
9/065	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{by means of discharge tubes having more than two electrodes}</li> </ul> </li> </ul>	2200/0019	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Gilbert multipliers</li> </ul> </li> </ul>
9/0658	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{by means of semiconductor devices having more than two electrodes}</li> </ul> </li> </ul>	2200/0021	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Frequency multipliers</li> </ul> </li> </ul>
9/0666	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{using bipolar transistors (<a href="#">H03D 9/0683</a> takes precedence)}</li> </ul> </li> </ul>	2200/0023	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Balun circuits</li> </ul> </li> </ul>
9/0675	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{using field effect transistors (<a href="#">H03D 9/0683</a> takes precedence)}</li> </ul> </li> </ul>	2200/0025	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Gain control circuits</li> </ul> </li> </ul>
9/0683	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{using a combination of bipolar transistors and field effect transistors}</li> </ul> </li> </ul>	2200/0027	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>including arrangements for assuring the same gain in two paths</li> </ul> </li> </ul> </li> </ul>
2009/0691	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{by means of superconductive devices}</li> </ul> </li> </ul>	2200/0029	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Loop circuits with controlled phase shift</li> </ul> </li> </ul>
<b>11/00</b>	<b>Super-regenerative demodulator circuits</b> {(applications in responders <a href="#">G01S</a> )}	2200/0031	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>PLL circuits with quadrature locking, e.g. a Costas loop</li> </ul> </li> </ul>
11/02	<ul style="list-style-type: none"> <li>for amplitude-modulated oscillations</li> </ul>	2200/0033	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Current mirrors</li> </ul> </li> </ul>
11/04	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by means of semiconductor devices having more than two electrodes</li> </ul> </li> </ul>	2200/0035	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Digital multipliers and adders used for detection</li> </ul> </li> </ul>
11/06	<ul style="list-style-type: none"> <li>for angle-modulated oscillations</li> </ul>	2200/0037	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Diplexers</li> </ul> </li> </ul>
11/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by means of semiconductor devices having more than two electrodes</li> </ul> </li> </ul>	2200/0039	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Exclusive OR logic circuits</li> </ul> </li> </ul>
<b>13/00</b>	<b>Circuits for comparing the phase or frequency of two mutually-independent oscillations</b> {(measuring phase <a href="#">G01R 25/00</a> ; phase-discriminators with yes/no output <a href="#">G01R 25/005</a> )}	2200/0041	<ul style="list-style-type: none"> <li>Functional aspects of demodulators</li> </ul>
13/001	<ul style="list-style-type: none"> <li>{in which a pulse counter is used followed by a conversion into an analog signal}</li> </ul>	2200/0043	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Bias and operating point</li> </ul> </li> </ul>
13/002	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{the counter being an up-down counter}</li> </ul> </li> </ul>	2200/0045	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Calibration of demodulators</li> </ul> </li> </ul>
13/003	<ul style="list-style-type: none"> <li>{in which both oscillations are converted by logic means into pulses which are applied to filtering or integrating means}</li> </ul>	2200/0047	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Offset of DC voltage or frequency</li> </ul> </li> </ul>
13/004	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{the logic means delivering pulses at more than one terminal, e.g. up and down pulses}</li> </ul> </li> </ul>	2200/0049	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Analog multiplication for detection</li> </ul> </li> </ul>
13/005	<ul style="list-style-type: none"> <li>{in which one of the oscillations is, or is converted into, a signal having a special waveform, e.g. triangular}</li> </ul>	2200/005	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Analog to digital conversion</li> </ul> </li> </ul>
13/006	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{and by sampling this signal by narrow pulses obtained from the second oscillation}</li> </ul> </li> </ul>	2200/0052	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Digital to analog conversion</li> </ul> </li> </ul>
13/007	<ul style="list-style-type: none"> <li>{by analog multiplication of the oscillations or by performing a similar analog operation on the oscillations}</li> </ul>	2200/0054	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Digital filters</li> </ul> </li> </ul>
13/008	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{using transistors}</li> </ul> </li> </ul>	2200/0056	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>including a digital decimation filter</li> </ul> </li> </ul> </li> </ul>
13/009	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{using diodes}</li> </ul> </li> </ul>	2200/0058	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>using a digital filter with interpolation</li> </ul> </li> </ul> </li> </ul>
<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>	2200/006	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Signal sampling</li> </ul> </li> </ul>
		2200/0062	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Computation of input samples, e.g. successive samples</li> </ul> </li> </ul> </li> </ul>
		2200/0064	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Detection of passages through null of a signal</li> </ul> </li> </ul> </li> </ul>
		2200/0066	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Mixing</li> </ul> </li> </ul>
		2200/0068	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by computation</li> </ul> </li> </ul> </li> </ul>
		2200/007	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by using a logic circuit, e.g. flipflop, XOR</li> </ul> </li> </ul> </li> </ul>
		2200/0072	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by complex multiplication</li> </ul> </li> </ul> </li> </ul>
		2200/0074	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>using a resistive mixer or a passive mixer</li> </ul> </li> </ul> </li> </ul>
		2200/0076	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>using a distributed mixer</li> </ul> </li> </ul> </li> </ul>
		2200/0078	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>using a switched phase shifter or delay line</li> </ul> </li> </ul> </li> </ul>
		2200/008	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Hilbert type transformation</li> </ul> </li> </ul>
		2200/0082	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Quadrature arrangements</li> </ul> </li> </ul>
		2200/0084	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Lowering the supply voltage and saving power</li> </ul> </li> </ul>
		2200/0086	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Reduction or prevention of harmonic frequencies</li> </ul> </li> </ul>
		2200/0088	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Reduction of intermodulation, nonlinearities, adjacent channel interference; intercept points of harmonics or intermodulation products</li> </ul> </li> </ul>
		2200/009	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Reduction of local oscillator or RF leakage</li> </ul> </li> </ul>
		2200/0092	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Detection or reduction of fading in multipath transmission arrangements</li> </ul> </li> </ul>
		2200/0094	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Measures to address temperature induced variations of demodulation</li> </ul> </li> </ul>
		2200/0096	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by stabilising the temperature</li> </ul> </li> </ul> </li> </ul>
		2200/0098	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>by compensating temperature induced variations</li> </ul> </li> </ul> </li> </ul>