

H04 ELECTRIC COMMUNICATION TECHNIQUE**Note**

This class covers electrical communication systems with propagation paths employing beams of corpuscular radiation, acoustic waves or electromagnetic waves, e.g. radio or optical communication. [4]

H04B TRANSMISSION (transmission systems for measured values, control or similar signals G08C; speech analysis or synthesis G10L; coding, decoding or code conversion, in general H03M; broadcast communication H04H; multiplex systems H04J; secret communication H04K; transmission of digital information H04L) [4]

Note

This subclass covers the transmission of information-carrying signals, the transmission being independent of the nature of the information, and includes monitoring and testing arrangements and the suppression and limitation of noise and interference.

Subclass Index

DETAILS.....	1/00	SYSTEMS NOT CHARACTERISED BY THE MEDIUM USED FOR TRANSMISSION	14/00
SYSTEMS CHARACTERISED BY THE MEDIUM USED FOR TRANSMISSION		SUPPRESSION OR LIMITATION OF NOISE OR INTERFERENCE	15/00
Using conductors	3/00	MONITORING, TESTING	17/00
Using free-space propagation	5/00 to 11/00		
Others	13/00		
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1/00 Details of transmission systems, not covered by a single one of groups H04B 3/00 to H04B 13/00; Details of transmission systems not characterised by the medium used for transmission (tuning resonant circuits H03J) [4]	1/30	. . . for homodyne or synchrodyne receivers (demodulator circuits H03D 1/22)	
1/02 . Transmitters (spatial arrangements of component circuits in radio pills for living beings A61B 5/07)	1/38	. Transceivers, i.e. devices in which transmitter and receiver form a structural unit and in which at least one part is used for functions of transmitting and receiving	
1/03 . . Constructional details, e.g. casings, housings [2]	1/40	. . Circuits	
1/034 . . . Portable transmitters [2]	1/44	. . . Transmit/receive switching (in radar systems G01S; tubes therefor H01J 17/64; waveguide switches H01P 1/10) [2]	
1/036 . . . Cooling arrangements (cooling transformers H01F 27/08; cooling discharge tubes H01J 7/24, H01J 19/74) [2]	1/46	. . . . by voice-frequency signals; by pilot signals	
1/04 . . Circuits (of television transmitters H04N 5/38)	1/48	. . . . in circuit for connecting transmitter and receiver to a common transmission path, e.g. by energy of transmitter	
1/06 . Receivers (control of amplification H03G; television receivers H04N 5/44, H04N 5/64)	1/50	. . . using different frequencies for the two directions of communication	
1/08 . . Constructional details, e.g. cabinet	1/52	. . . . Hybrid arrangements, i.e. for transition from single-path two-way transmission to single transmission on each of two paths, or <u>vice versa</u>	
1/10 . . Means associated with receiver for limiting or suppressing noise or interference	1/54	. . . using the same frequency for both directions of communication (H04B 1/44 takes precedence)	
1/12 . . . Neutralising, balancing, or compensation arrangements	1/56	. . . . with provision for simultaneous communication in both directions	
1/14 . . . Automatic detuning arrangements	1/58	. . . . Hybrid arrangements, i.e. for transition from single-path two-way transmission to single transmission on each of two paths, or <u>vice versa</u>	
1/16 . . Circuits	1/59	. Responders; Transponders (relay systems H04B 7/14)	
1/18 . . . Input circuits, e.g. for coupling to an aerial or a transmission line (input circuits for amplifiers in general H03F; coupling networks between aerials or lines and receivers independent of the nature of the receiver H03H)	1/60	. Supervising unattended repeaters	
1/20 . . . for coupling gramophone pick-up, recorder output, or microphone to receiver	1/62	. for providing a predistortion of the signal in the transmitter and corresponding correction in the receiver, e.g. for improving the signal/noise ratio	
1/22 . . . for receivers in which no local oscillation is generated	1/64	. . Volume compression or expansion arrangements	
1/24 the receiver comprising at least one semiconductor device having three or more electrodes	1/66	. for reducing bandwidth of signals (in speech analysis-synthesis techniques G10L 19/00; in pictorial communication systems H04N); for improving efficiency of transmission (H04B 1/68 takes precedence)	
1/26 . . . for superheterodyne receivers (multiple frequency-changing H03D 7/16)			
1/28 the receiver comprising at least one semiconductor device having three or more electrodes			

H04B

- 1/68 . for wholly or partially suppressing the carrier or one side band [4]
- 1/69 . Spread spectrum techniques in general (for code multiplex systems H04J 13/02) [6]
- 1/707 . . using direct sequence modulation [6]
- 1/713 . . using frequency hopping [6]
- 1/72 . Circuits or components for simulating aerials, e.g. dummy aerial (dissipative waveguide terminations H01P 1/26)
- 1/74 . for increasing reliability, e.g. using redundant or spare channels or apparatus [3]
- 1/76 . Pilot transmitters or receivers for control of transmission or for equalising [3]
- 3/00 Line transmission systems** (combined with near-field transmission systems H04B 5/00; constructional features of cables H01B 11/00)
 - 3/02 . Details
 - 3/03 . . Hybrid circuits (for transceivers H04B 1/52, H04B 1/58; hybrid junctions of the waveguide type H01P 5/16) [3]
 - 3/04 . . Control of transmission; Equalising (control of amplification in general H03G)
 - 3/06 . . . by the transmitted signal
 - 3/08 in negative-feedback path of line amplifier
 - 3/10 . . . by pilot signal
 - 3/11 using pilot wire (H04B 3/12 take precedence) [3]
 - 3/12 in negative-feedback path of line amplifier
 - 3/14 . . . characterised by the equalising network used
 - 3/16 . . . characterised by the negative-impedance network used
 - 3/18 wherein the network comprises semiconductor devices
 - 3/20 . . Reducing echo effects or singing; Opening or closing transmitting path; Conditioning for transmission in one direction or the other
 - 3/21 . . . using a set of bandfilters [3]
 - 3/23 . . . using a replica of transmitted signal in the time domain, e.g. echo cancellers [3]
 - 3/26 . . Improving frequency characteristic by the use of loading coils (loading coils *per se* H01F 17/08)
 - 3/28 . . Reducing interference caused by currents induced in cable sheathing or armouring
 - 3/30 . . Reducing interference caused by unbalance current in a normally balanced line
 - 3/32 . . Reducing cross-talk, e.g. by compensating
 - 3/34 . . . by systematic interconnection of lengths of cable during laying; by addition of balancing components to cable during laying
 - 3/36 . . Repeater circuits (H04B 3/58 takes precedence; amplifiers therefor H03F)
 - 3/38 . . . for signals in two different frequency ranges transmitted in opposite directions over the same transmission path
 - 3/40 . . Artificial lines; Networks simulating a line of certain length
 - 3/42 . . Circuits for by-passing of ringing signals
 - 3/44 . . Arrangements for feeding power to a repeater along the transmission line
 - 3/46 . . Monitoring; Testing
 - 3/48 . . . Testing attenuation
 - 3/50 . Systems for transmission between fixed stations via two-conductor transmission lines (H04B 3/54 takes precedence)
 - 3/52 . Systems for transmission between fixed stations via waveguides
- 3/54 . Systems for transmission via power distribution lines (in alarm signalling systems G08B 25/06; remote indication of power network conditions, remote control of switching means in a power distribution network H02J 13/00)
- 3/56 . . Circuits for coupling, blocking, or by-passing of signals
- 3/58 . . Repeater circuits (amplifiers therefor H03F)
- 3/60 . Systems for communication between relatively movable stations, e.g. for communication with lift (H04B 3/54 takes precedence)
- 5/00 Near-field transmission systems, e.g. inductive loop type**
 - 5/02 . using transceiver
 - 5/04 . Calling systems, e.g. paging system
 - 5/06 . using a portable transmitter associated with a microphone
- 7/00 Radio transmission systems, i.e. using radiation field** (H04B 10/00, H04B 15/00 take precedence)
 - 7/005 . Control of transmission; Equalising [3]
 - 7/01 . Reducing phase shift [3]
 - 7/015 . Reducing echo effects [3]
 - 7/02 . Diversity systems (for direction finding G01S 3/72; aerial arrays or systems H01Q)
 - 7/04 . . using a plurality of spaced independent aerials
 - 7/06 . . . at transmitting station
 - 7/08 . . . at receiving station
 - 7/10 . . using a single aerial system characterised by its polarisation or directive properties, e.g. polarisation diversity, direction diversity
 - 7/12 . . Frequency-diversity systems
 - 7/14 . Relay systems (interrogator-responder radar systems G01S 13/74) [2]
 - 7/145 . . Passive relay systems [2]
 - 7/15 . . Active relay systems [2]
 - 7/155 . . . Ground-based stations (H04B 7/204 takes precedence) [2,5]
 - 7/165 employing angle modulation [2]
 - 7/17 employing pulse modulation, e.g. pulse code modulation [2]
 - 7/185 . . . Space-based or airborne stations (H04B 7/204 takes precedence) [2,5]
 - 7/19 Earth-synchronous stations [2]
 - 7/195 Non-synchronous stations [2]
 - 7/204 . . . Multiple access [5]
 - 7/208 Frequency-division multiple access [5]
 - 7/212 Time-division multiple access [5]
 - 7/216 Code-division or spread-spectrum multiple access (spread spectrum techniques in general H04B 1/69) [5]
 - 7/22 . Scatter propagation systems
 - 7/24 . for communication between two or more posts (for selecting H04Q 7/00) [2]
 - 7/26 . . at least one of which is mobile [2]

- 10/00 Transmission systems employing beams of corpuscular radiation, or electromagnetic waves other than radio waves, e.g. light, infra-red** (optical coupling, mixing or splitting G02B; light guides G02B 6/00; switching, modulation, demodulation of light beams G02B, G02F; devices or arrangements for the control, e.g. modulation, of light beams G02F 1/00; devices or arrangements for demodulating light, transferring the modulation or changing the frequency of light G02F 2/00; optical multiplex systems H04J 14/00) [5]
- 10/02 . Details [5]
 - 10/04 . . Transmitters [5]
 - 10/06 . . Receivers [5]
 - 10/08 . . Equipment for monitoring, testing or fault measuring [5]
 - 10/10 . Transmission through free space, e.g. through the atmosphere (H04B 10/22, H04B 10/24, H04B 10/30 take precedence) [5,7]
 - 10/105 . . specially adapted for satellite links [6]
 - 10/12 . Transmission through light guides, e.g. optical fibres (H04B 10/22, H04B 10/24, H04B 10/30 take precedence) [5,7]
 - 10/13 . . using multimodal transmission [6]
 - 10/135 . . using single mode transmission [6]
 - 10/14 . . Terminal stations [5]
 - 10/142 . . . Coherent homodyne or heterodyne systems [6]
 - 10/145 Transmitters [6]
 - 10/148 Receivers [6]
 - 10/152 . . . Non-coherent direct-detection systems [6]
 - 10/155 Transmitters [6]
 - 10/158 Receivers [6]
 - 10/16 . . Repeaters [5]
 - 10/17 . . . in which processing or amplification is carried out without conversion of the signal from optical form [6]
 - 10/18 . . Arrangements for reducing or eliminating distortion or dispersion, e.g. equalisers [5]
 - 10/20 . . Arrangements for networking, e.g. bus or star coupling [5]
 - 10/207 . . . using a star-type coupler [6]
 - 10/213 . . . using a T-type coupler [6]
 - 10/22 . Transmission between two stations which are mobile relative to each other (H04B 10/30 takes precedence) [5,7]
 - 10/24 . Bidirectional transmission (H04B 10/22, H04B 10/30 take precedence) [5,7]
 - 10/26 . . using a single light source for both stations involved [6]
 - 10/28 . . using a single device as a light source or a light receiver [6]
 - 10/30 . Transmission systems employing beams of corpuscular radiation (arrangements for handling beams of corpuscular radiation, e.g. focusing, moderating, G21K 1/00) [7]
- 11/00 Transmission systems employing ultrasonic, sonic or infrasonic waves**
- 13/00 Transmission systems characterised by the medium used for transmission, not provided for in groups H04B 3/00 to H04B 11/00**
- 13/02 . Transmission systems in which the medium consists of the earth or a large mass of water thereon, e.g. earth telegraphy (line transmission systems with earth or water return H04B 3/00)
- 14/00 Transmission systems not characterised by the medium used for transmission** (details thereof H04B 1/00) [4]
- 14/02 . characterised by the use of pulse modulation (in radio transmission relays H04B 7/17) [4]
 - 14/04 . . using pulse code modulation (analogue/digital or digital/analogue conversion H03M 1/00) [4]
 - 14/06 . . using differential modulation, e.g. delta modulation (conversion of analogue values to or from differential modulation H03M 3/00) [4]
 - 14/08 . characterised by the use of a sub-carrier [4]
- 15/00 Suppression or limitation of noise or interference** (by means associated with receiver H04B 1/10)
- 15/02 . Reducing interference from electric apparatus by means located at or near the interfering apparatus (structural association with dynamo-electric machines H02K 11/00; screening H05K 9/00)
 - 15/04 . . the interference being caused by substantially sinusoidal oscillations, e.g. in a receiver, in a tape-recorder (reducing parasitic oscillations H03B, F)
 - 15/06 . . . by local oscillators of receivers
- 17/00 Monitoring; Testing [2]**
- 17/02 . of relay systems [2]

H04H BROADCAST COMMUNICATION (transmission in general H04B; multiplex communication H04J)

Note

This subclass covers:

- distribution of entertainment or informative matter simultaneously to a number of receiving stations over transmission lines or over radio waves;
- recording of the use made of the broadcast service.

1/00 Broadcast distribution systems

- 1/02 . Wired systems
- 1/04 . . using carrier waves
- 1/06 . . . having frequencies in two or more frequency bands, e.g. medium wave and VHF
- 1/08 . . . combined with telephone network over which the broadcast is continuously available (telephone systems in general H04M)

- 1/10 . . using signals not modulated on a carrier
- 1/12 . . . not sharing the network with any other service
- 1/14 . . combined with power distribution network

3/00 Common-wave systems, i.e. using separate transmitters operating on substantially the same frequency

5/00 Stereophonic broadcast systems (multiplex systems in general H04J)

7/00 Studio equipment (for television H04N);
Interconnection of studios (arrangements for producing a reverberation or echo sound G10K 15/08) [5]

7/02 . Mobile studios

7/04 . Monitoring programmes

9/00 Recording the use made of the broadcast service

H04J MULTIPLEX COMMUNICATION (transmission in general H04B; peculiar to transmission of digital information H04L 5/00; systems for the simultaneous or sequential transmission of more than one television signal H04N 7/08; in exchanges H04Q 11/00; stereophonic systems H04S)

Note

This subclass covers:

- circuits or apparatus for combining or dividing signals for the purpose of transmitting them simultaneously or sequentially over the same transmission path;
- monitoring arrangements therefor.

1/00 Frequency-division multiplex systems (H04J 14/00 takes precedence) [5]

1/02 . Details

1/04 . . Frequency-transposition arrangements

1/05 . . . using digital techniques [3]

1/06 . . Arrangements for supplying the carrier waves

1/08 . . Arrangements for combining channels

1/10 . . Intermediate station arrangements, e.g. for branching, for tapping-off

1/12 . . Arrangements for reducing cross-talk between channels

1/14 . . Arrangements providing for calling or supervisory signals

1/16 . . Monitoring arrangements

1/18 . in which all the carriers are amplitude-modulated (H04J 1/02 takes precedence) [3]

1/20 . in which at least one carrier is angle-modulated (H04J 1/02 takes precedence) [3]

3/00 Time-division multiplex systems (H04J 14/00 takes precedence; relay systems H04B 7/14; selecting techniques H04Q) [4,5]

3/02 . Details (electronic switching or gating H03K 17/00)

3/04 . . Distributors combined with modulators or demodulators

3/06 . . Synchronising arrangements

3/07 . . . using pulse stuffing for systems with different or fluctuating information rates [3]

3/08 . . Intermediate station arrangements, e.g. for branching, for tapping-off

3/10 . . Arrangements for reducing cross-talk between channels

3/12 . . Arrangements providing for calling or supervisory signals

3/14 . . Monitoring arrangements

3/16 . in which the time allocation to individual channels within a transmission cycle is variable, e.g. to accommodate varying complexity of signals, to vary number of channels transmitted (H04J 3/17, H04J 3/24 take precedence) [4]

3/17 . in which the transmission channel allotted to a first user may be taken away and re-allotted to a second user if the first user becomes inactive, e.g. TASI [4]

3/18 . using frequency compression and subsequent expansion of the individual signals

3/20 . using resonant transfer [2]

3/22 . in which the sources have different rates or codes [4]

3/24 . in which the allocation is indicated by an address (H04J 3/17 takes precedence; in computers G06F 12/00, G06F 13/00) [4]

3/26 . . in which the information and the address are simultaneously transmitted [4]

4/00 Combined time-division and frequency-division multiplex systems (H04J 13/00 takes precedence) [2]

7/00 Multiplex systems in which the amplitudes or durations of the signals in individual channels are characteristic of those channels

7/02 . in which the polarity of the amplitude is characteristic

9/00 Multiplex systems in which each channel is represented by a different type of modulation of the carrier

11/00 Orthogonal multiplex systems (H04J 13/00 takes precedence) [2]

13/00 Code multiplex systems [2]

13/02 . using spread spectrum techniques [6]

13/04 . . using direct sequence modulation [6]

13/06 . . using frequency hopping [6]

14/00 Optical multiplex systems (optical coupling, mixing or splitting, *per se* G02B) [5]

14/02 . Wavelength-division multiplex systems [5]

14/04 . Mode multiplex systems [5]

14/06 . Polarisation multiplex systems [5]

14/08 . Time-division multiplex systems [5]

15/00 Multiplex systems not otherwise provided for [2]

H04K SECRET COMMUNICATION; JAMMING OF COMMUNICATION**Note**

In this subclass, the following expression is used with the meaning indicated:

- “secret communication” includes secret line and radiation transmission systems, i.e. those in which apparatus at the transmitting station modifies the signal in such a way that the information cannot be intelligibly received without corresponding modifying apparatus at the receiving station.

1/00	Secret communication (ciphering or deciphering apparatus <u>per se</u> G09C; systems with reduced bandwidth or suppressed carrier H04B 1/66; spread spectrum techniques in general H04B 1/69; by using a sub-carrier H04B 14/08; by multiplexing H04J; transmission systems for secret digital information H04L 9/00; secret or subscription television systems H04N 7/16)	1/06	. by transmitting the information or elements thereof at unnatural speeds or in jumbled order or backwards
		1/08	. by varying the polarisation of transmitted waves
		1/10	. by using two signals transmitted simultaneously or successively
1/02	. by adding a second signal to make the desired signal unintelligible	3/00	Jamming of communication; Counter-measures (counter-measures used in radar or analogous systems G01S 7/00)
1/04	. by frequency scrambling, i.e. by transposing or inverting parts of the frequency band or by inverting the whole band		

H04L TRANSMISSION OF DIGITAL INFORMATION, E.G. TELEGRAPHIC COMMUNICATION (typewriters B41J; order telegraphs, fire or police telegraphs G08B; visual telegraphy G08B, G08C; teleautographic systems G08C; ciphering or deciphering apparatus per se G09C; coding, decoding or code conversion, in general H03M; arrangements common to telegraphic and telephonic communication H04M; selecting H04Q) [4]

Note

This subclass covers transmission of signals having been supplied in digital form and includes data transmission, telegraphic communication, or methods or arrangements for monitoring.

Subclass Index

SYSTEMS CHARACTERISED BY:	DATA SWITCHING NETWORKS	12/00
The code used: Morse; Baudot; details	ARRANGEMENTS OF GENERAL APPLICATION	
15/00; 17/00; 13/00	Security: errors; secret	1/00; 9/00
Otherwise: step by step; mosaic printers; other systems	Multiple communications; synchronising	5/00; 7/00
19/00; 21/00; 23/00	OTHER ARRANGEMENTS, APPARATUS OR SYSTEMS	29/00
BASEBAND SYSTEMS		
25/00		
MODULATED-CARRIER SYSTEMS		
27/00		

1/00	Arrangements for detecting or preventing errors in the information received (correcting synchronisation H04L 7/00; arrangements in the transmission path H04B)	5/00	Arrangements affording multiple use of the transmission path (multiplex communication in general H04J)
1/02	. by diversity reception (in general H04B 7/02)	5/02	. Channels characterised by the type of signal
1/04	. . using frequency diversity	5/04	. . the signals being represented by different amplitudes or polarities, e.g. quadriplex
1/06	. . using space diversity	5/06	. . the signals being represented by different frequencies (combined with time-division multiplexing H04L 5/26)
1/08	. by repeating transmission, e.g. Verdan system	5/08	. . . each combination of signals in different channels being represented by a fixed frequency
1/12	. by using return channel	5/10	. . . with dynamo-electric generation of carriers; with mechanical filters or demodulators
1/14	. . in which the signals are sent back to the transmitter to be checked	5/12	. . the signals being represented by different phase modulations of a single carrier
1/16	. . in which the return channel carries supervisory signals, e.g. repetition request signals		
1/18	. . . Automatic repetition systems, e.g. van Duuren system		
1/20	. using signal-quality detector [3]		
1/22	. using redundant apparatus to increase reliability [3]		
1/24	. Testing correct operation [3]		

H04L

- 5/14 . Two-way operation using the same type of signal, i.e. duplex (conditioning for two-way transmission in general H04B 3/20)
- 5/16 . . Half-duplex systems; Simplex/duplex switching; Transmission of break signals
- 5/18 . . Automatic changing of the traffic direction
- 5/20 . using different combinations of lines, e.g. phantom working
- 5/22 . using time-division multiplexing
- 5/24 . . with start-stop synchronous converters
- 5/26 . . combined with the use of different frequencies
- 7/00 Arrangements for synchronising receiver with transmitter**
- 7/02 . Speed or phase control by the received code signals, the signals containing no special synchronisation information
- 7/027 . . extracting the synchronising or clock signal from the received signal spectrum, e.g. by using a resonant or bandpass circuit [5]
- 7/033 . . using the transitions of the received signal to control the phase of the synchronising-signal-generating means, e.g. using a phase-locked loop [5]
- 7/04 . Speed or phase control by synchronisation signals
- 7/06 . . the synchronisation signals differing from the information signals in amplitude, polarity, or frequency
- 7/08 . . the synchronisation signals recurring cyclically
- 7/10 . . Arrangements for initial synchronisation
- 9/00 Arrangements for secret or secure communication** (spread spectrum techniques in general H04B 1/69)
- Note**
- In group H04L 9/06 to H04L 9/32, in the absence of an indication to the contrary, classification is made in the last appropriate place. [5]
- 9/06 . the encryption apparatus using shift registers or memories for blockwise coding, e.g. D.E.S. systems [5]
- 9/08 . . Key distribution [5]
- 9/10 . with particular housing, physical features or manual controls [5]
- 9/12 . Transmitting and receiving encryption devices synchronised or initially set up in a particular manner [5]
- 9/14 . using a plurality of keys or algorithms [5]
- 9/16 . . the keys or algorithms being changed during operation [5]
- 9/18 . Encryption by serially and continuously modifying data stream elements, e.g. stream cipher systems [5]
- 9/20 . . Pseudorandom key sequence combined element-for-element with data sequence [5]
- 9/22 . . . with particular pseudorandom sequence generator [5]
- 9/24 sequence produced by more than one generator [5]
- 9/26 producing a nonlinear pseudorandom sequence [5]
- 9/28 . using particular encryption algorithm [5]
- 9/30 . . Public key, i.e. encryption algorithm being computationally infeasible to invert and users' encryption keys not requiring secrecy [5]
- 9/32 . including means for verifying the identity or authority of a user of the system (computer systems G06F; coin-free or like apparatus with coded identity card or credit card G07F 7/08) [5]
- 9/34 . Bits, or blocks of bits, of the telegraphic message being interchanged in time [5]
- 9/36 . with means for detecting characters not meant for transmission [5]
- 9/38 . Encryption being effected by mechanical apparatus, e.g. rotating cams, switches, keytape punchers [5]
- 12/00 Data switching networks** (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units G06F 13/00) [5]
- 12/02 . Details [5]
- 12/04 . . Switchboards [5]
- 12/06 . . Answer-back mechanisms or circuits [5]
- 12/08 . . Allotting numbers to messages; Counting characters, words or messages [5]
- 12/10 . . Current supply arrangements [5]
- 12/12 . . Arrangements for remote connection or disconnection of substations or of equipment thereof [5]
- 12/14 . . Charging arrangements [5]
- 12/16 . . Arrangements for providing special services to substations [5]
- 12/18 . . . for broadcast or conference [5]
- 12/20 . . . for converting transmission speed from the inherent speed of a substation to the inherent speed of other substations [5]
- 12/22 . . Arrangements for preventing the taking of data from a data transmission channel without authorisation (means for verifying the identity or the authority of a user of a secure or secret communication system H04L 9/32) [5]
- 12/24 . . Arrangements for maintenance or administration [5]
- 12/26 . . Monitoring arrangements; Testing arrangements [5]
- 12/28 . characterised by path configuration, e.g. local area networks (LAN), wide area networks (WAN) [5,6]
- 12/40 . . Bus networks [5,6]
- 12/403 . . . with centralised control, e.g. polling [6]
- 12/407 . . . with decentralised control [6]
- 12/413 with random access, e.g. carrier-sense multiple-access with collision detection (CSMA-CD) [6]
- 12/417 with deterministic access, e.g. token passing [6]
- 12/42 . . Loop networks [5,6]
- 12/423 . . . with centralised control, e.g. polling [6]
- 12/427 . . . with decentralised control [6]
- 12/43 with synchronous transmission, e.g. time division multiplex (TDM), slotted rings [6]
- 12/433 with asynchronous transmission, e.g. token ring, register insertion [6]
- 12/437 . . . Ring fault isolation or reconfiguration [6]
- 12/44 . . Star or tree networks [5,6]
- 12/46 . . Interconnection of networks [5,6]
- 12/50 . Circuit switching systems, i.e. systems in which the path is physically permanent during the communication [5,6]
- 12/52 . . using time division techniques (in digital transmission systems H04L 5/22) [5,6]
- 12/54 . Stored and forward switching systems [5,6]
- 12/56 . . Packet switching systems [5,6]

- 12/58 . . . Message switching systems (permutation- code selecting H04Q 3/02) [5,6]
- 12/60 . . . Manual relay systems, e.g. push-button switching [5,6]
- 12/62 . . . with perforated tape storage [5,6]
- 12/64 . Hybrid switching systems [5,6]
- 12/66 . Arrangements for connecting between networks having differing types of switching systems, e.g. gateways [5,6]
- 13/00 Details of the apparatus or circuits covered by groups H04L 15/00 or H04L 17/00**
- 13/02 . Details not particular to receiver or transmitter
- 13/04 . . Driving mechanisms; Clutches (in general F16)
- 13/06 . . Tape or page guiding or feeding devices
- 13/08 . . Intermediate storage means
- 13/10 . . Distributors
- 13/12 . . . Non-mechanical distributors, e.g. relay distributors
- 13/14 Electronic distributors (in general H03K 17/00)
- 13/16 . of transmitters, e.g. code-bars, code-discs
- 13/18 . of receivers
- 15/00 Apparatus or local circuits for transmitting or receiving dot-and-dash codes, e.g. Morse code** (teaching apparatus therefor G09B; keyboard switches in general H01H 13/70, H03K 17/94; telegraph tapping keys H01H 21/86; coding in connection with keyboards or like devices, in general H03M 11/00)
- 15/03 . Keys structurally combined with sound generators [2]
- 15/04 . Apparatus or circuits at the transmitting end
- 15/06 . . with a restricted number of keys, e.g. separate key for each type of code element
- 15/08 . . . with a single key which transmits dots in one position and dashes in a second position
- 15/10 . . . combined with perforating apparatus
- 15/12 . . with keyboard co-operating with code-bars
- 15/14 . . . combined with perforating apparatus
- 15/16 . . with keyboard co-operating with code discs
- 15/18 . . Automatic transmitters, e.g. controlled by perforated tape
- 15/20 . . . with optical sensing means
- 15/22 . . Apparatus or circuits for sending one or a restricted number of signals, e.g. distress signals
- 15/24 . Apparatus or circuits at the receiving end
- 15/26 . . operating only on reception of predetermined code signals, e.g. distress signals, party-line call signals
- 15/28 . . Code reproducing apparatus
- 15/30 . . . Writing recorders
- 15/32 . . . Perforating recorders
- 15/34 . . Apparatus for recording received coded signals after translation, e.g. as type-characters
- 17/00 Apparatus or local circuits for transmitting or receiving codes wherein each character is represented by the same number of equal-length code elements, e.g. Baudot code** (keyboard switches in general H01H 13/70, H03K 17/94; coding in connection with keyboards or like devices, in general H03M 11/00)
- 17/02 . Apparatus or circuits at the transmitting end
- 17/04 . . with keyboard co-operating with code-bars
- 17/06 . . . Contact operating means
- 17/08 . . . combined with perforating apparatus
- 17/10 . . with keyboard co-operating with code-discs
- 17/12 . . Automatic transmitters, e.g. controlled by perforated tape
- 17/14 . . . with optical sensing means
- 17/16 . Apparatus or circuits at the receiving end
- 17/18 . . Code selection mechanisms
- 17/20 . . using perforating recorders
- 17/22 . . using mechanical translation and type-bar printing
- 17/24 . . using mechanical translation and type-head printing, e.g. type-wheel, type-cylinder
- 17/26 . . using aggregate motion translation
- 17/28 . . using pneumatic or hydraulic translation
- 17/30 . . using electric or electronic translation
- 19/00 Apparatus or local circuits for step-by-step systems**
- 21/00 Apparatus or local circuits for mosaic printer telegraph systems**
- 21/02 . at the transmitting end
- 21/04 . at the receiving end
- 23/00 Apparatus or local circuits for systems other than those covered by groups H04L 15/00 to H04L 21/00**
- 23/02 . adapted for orthogonal signalling [2]
- 25/00 Baseband systems**
- 25/02 . Details (circuits in general for handling pulses H03K; in line transmission systems in general H04B 3/02)
- 25/03 . . Shaping networks in transmitter or receiver, e.g. adaptive shaping networks (impedance networks *per se* H03H) [2]
- 25/04 . . . Passive shaping networks [2]
- 25/05 . . Electric or magnetic storage of signals before transmitting or retransmitting for changing the transmission rate [7]
- 25/06 . . Dc level restoring means; Bias distortion correction
- 25/08 . . Modifications for reducing interference; Modifications for reducing effects due to line faults
- 25/10 . . Compensating for variations in line balance
- 25/12 . . Compensating for variations in line impedance
- 25/14 . . Channel dividing arrangements
- 25/17 . . Interpolating arrangements [4]
- 25/18 . . Arrangements for inductively generating telegraphic signals (induction coil interrupters H01H 51/34; dynamo-electric generators H02K)
- 25/20 . . Repeater circuits; Relay circuits
- 25/22 . . . Repeaters for converting two wires to four wires (in general H04B); Repeaters for converting single current to double current
- 25/24 . . . Relay circuits using discharge tubes or semiconductor devices
- 25/26 . . . Circuits with optical sensing means
- 25/28 . . . Repeaters using modulation and subsequent demodulation
- 25/30 . Non-synchronous systems
- 25/32 . . characterised by the code employed
- 25/34 . . . using three or more different amplitudes, e.g. cable code
- 25/38 . Synchronous or start-stop systems, e.g. for Baudot code
- 25/40 . . Transmitting circuits; Receiving circuits (repeater circuits, relay circuits H04L 25/52)
- 25/42 . . . using mechanical distributors
- 25/44 . . . using relay distributors
- 25/45 . . . using electronic distributors (electronic distributors in general H03K 17/00) [2]
- 25/46 . . . using tuning forks or vibrating reeds

H04L – H04M

- 25/48 . . . characterised by the code employed (H04L 25/49 takes precedence) [2]
- 25/49 . . . using code conversion at the transmitter; using pre-distortion; using insertion of idle bits for obtaining a desired frequency spectrum; using three or more amplitude levels [2]
- 25/493 by transition coding, i.e. the time-position or direction of a transition being encoded before transmission [3]
- 25/497 by correlative coding, e.g. partial response coding or echo modulation coding [3]
- 25/52 . . . Repeater circuits; Relay circuits
- 25/54 using mechanical distributors
- 25/56 Non-electrical regenerative repeaters
- 25/58 using relay distributors
- 25/60 Regenerative repeaters with electromagnetic switches
- 25/62 using tuning forks or vibrating reeds
- 25/64 Start-stop regenerative repeaters using discharge tubes or semiconductor devices
- 25/66 Synchronous repeaters using discharge tubes or semiconductor devices
- 27/00 Modulated-carrier systems**
- 27/01 . Equalisers [5]
- 27/02 . Amplitude-modulated carrier systems, e.g. using on/off keying; Single sideband or vestigial sideband modulation (H04L 27/32 takes precedence) [2,5]
- 27/04 . . Modulator circuits (in general H03C); Transmitter circuits
- 27/06 . . Demodulator circuits (in general H03D); Receiver circuits
- 27/08 . . Amplitude regulation arrangements
- 27/10 . Frequency-modulated carrier systems, i.e. using frequency-shift keying (H04L 27/32 takes precedence) [5]
- 27/12 . . Modulator circuits (in general H03C); Transmitter circuits
- 27/14 . . Demodulator circuits (in general H03D); Receiver circuits
- 27/144 . . . with demodulation using spectral properties of the received signal, e.g. by using frequency selective- or frequency sensitive elements [6]
- 27/148 using filters, including PLL-type filters [6]
- 27/152 using controlled oscillators, e.g. PLL arrangements [6]
- 27/156 . . . with demodulation using temporal properties of the received signal, e.g. detecting pulse width [6]
- 27/16 . . Frequency regulation arrangements
- 27/18 . Phase-modulated carrier systems, i.e. using phase-shift keying (H04L 27/32 takes precedence) [5]
- 27/20 . . Modulator circuits (in general H03C); Transmitter circuits
- 27/22 . . Demodulator circuits (in general H03D); Receiver circuits
- 27/227 . . . using coherent demodulation [6]
- 27/233 . . . using non-coherent demodulation [6]
- 27/24 . . Half-wave signalling systems
- 27/26 . . Systems using multi-frequency codes (H04L 27/32 takes precedence) [5]
- 27/28 . . with simultaneous transmission of different frequencies each representing one code element
- 27/30 . . wherein each code element is represented by a combination of frequencies
- 27/32 . Carrier systems characterised by combinations of two or more of the types covered by groups H04L 27/02, H04L 27/10, H04L 27/18, or H04L 27/26 [5]
- 27/34 . . Amplitude- and phase-modulated carrier systems, e.g. quadrature-amplitude modulated carrier systems [5]
- 27/36 . . . Modulator circuits; Transmitter circuits [5]
- 27/38 . . . Demodulator circuits; Receiver circuits [5]
- 29/00 Arrangements, apparatus, circuits or systems, not covered by a single one of groups H04L 1/00 to H04L 27/00** (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units G06F 13/00) [5]
- 29/02 . Communication control; Communication processing (H04L 29/12, H04L 29/14 take precedence) [5]
- 29/04 . . for plural communication lines [5]
- 29/06 . . characterised by a protocol [5]
- 29/08 . . . Transmission control procedure, e.g. data link level control procedure [5]
- 29/10 . . characterised by an interface, e.g. the interface between the data link level and the physical level [5]
- 29/12 . characterised by the data terminal [5]
- 29/14 . Counter-measures to a fault [5]

H04M TELEPHONIC COMMUNICATION (counting mechanisms G06M; circuits for controlling other apparatus *via* a telephone cable and not involving telephone switching apparatus G08; reels or other take-up devices for cords H02G 11/00; multiplex transmission between switching centres H04J; selecting arrangements H04Q; loudspeakers, microphones, gramophone pick-ups or like electromechanical transducers H04R)

Notes

- (1) This subclass covers:
- telephonic communication systems combined with other electrical systems;
 - testing arrangements peculiar to telephonic communication systems.
- (2) In this subclass, the following terms or expressions are used with the meanings indicated:
- “subscriber” is a general term for terminal equipment, e.g. telephone for public use;
 - “substation” means a subscriber or monitoring equipment which may connect a single subscriber to a line without choice as to subscriber;
 - “satellite” is a type of exchange the operation of which depends upon control signals received from a supervisory exchange;
 - “switching centres” includes exchanges and satellites.

Subclass Index

TELEPHONIC SYSTEMS

Combined; party-line systems;
prepayment systems..... 11/00; 13/00;
17/00

EQUIPMENTS AND ARRANGEMENTS

Equipments 1/00
Exchanges: automatic; manual..... 3/00; 5/00

Interconnection arrangements:
centralised; non-centralised7/00; 9/00
Monitoring and control; supply
arrangements15/00; 19/00

SUBJECT MATTER NOT PROVIDED FOR
IN OTHER GROUPS OF THIS SUBCLASS99/00

-
- 1/00 **Substation equipment, e.g. for use by subscribers**
(subscriber services or facilities provided at exchanges
H04M 3/00; prepayment telephone coin boxes
H04M 17/00; current supply arrangements H04M 19/08;
keyboard switches in general H01H 13/70,
H03K 17/94) [1,7]
 - 1/02 . Constructional features of telephone sets
 - 1/03 . . Constructional features of telephone transmitters
or receivers, e.g. telephone hand-sets (transducers
in general H04R 1/00) [2]
 - 1/04 . . Supports for telephone transmitters or receivers
(for transducers in general H04R 1/00)
 - 1/05 . . . adapted for use on head, throat, or breast
 - 1/06 . . . Hooks; Cradles
 - 1/08 associated with switches operated by weight
of receiver or hand-set
 - 1/10 associated with switches operated by
magnetic effect due to proximity of receiver
or hand-set
 - 1/11 . . Supports for sets, e.g. incorporating armrests
 - 1/12 . . . Adjustable supports, e.g. extensible
 - 1/13 pantographic
 - 1/14 . . . with resilient means to eliminate extraneous
vibrations
 - 1/15 . . Protection or guiding telephone cords (devices
specially adapted or mounted for storing and
repeatedly paying-out and restoring lengths of
material B65H 75/34; in general H02G 11/00) [5]
 - 1/17 . . Hygienic or sanitary devices on telephone
equipment (for mouthpieces or earpieces
H04R 1/12) [2]
 - 1/18 . . Telephone sets modified for use in ships, mines, or
other places exposed to adverse environment
(H04M 1/19 takes precedence; telephone cabinets
E04H 1/14)
 - 1/19 . . Arrangements of transmitters, receivers, or
complete sets to prevent eavesdropping, to
attenuate local noise or to prevent undesired
transmission; Special mouthpieces or receivers
therefor (circuit arrangements for preventing
eavesdropping H04M 1/68; telephone cabinets
E04H 1/14)
 - 1/20 . . Arrangements for preventing acoustic feedback
(H04M 1/62 takes precedence)
 - 1/21 . . Combinations with auxiliary equipment, e.g. with
clock, with memoranda pad
 - 1/215 . . . by non-intrusive coupling means, e.g. acoustic
couplers [7]
 - 1/22 . . Illuminating; Arrangements for improving
visibility of characters on dials
 - 1/23 . . Construction or mounting of dials or of equivalent
devices; Means for facilitating the use thereof (by
improving visibility H04M 1/22)
 - 1/24 . Arrangements for testing (measuring electric values
G01R; testing transducers H04R 29/00)
 - 1/247 . Telephone sets including user guidance or feature
selection means facilitating their use [7]
 - 1/253 . Telephone sets using digital voice transmission
(simultaneous speech and data transmission
H04M 11/06) [7]
 - 1/26 . Devices for calling a subscriber (H04M 1/66 takes
precedence; coding in connection with keyboards or
like devices, in general H03M 11/00) [1,7]
 - 1/27 . . Devices whereby a plurality of signals may be
stored simultaneously [2]
 - 1/272 . . . with provision for storing only one subscriber
number at a time, e.g. by keyboard or dial [2]
 - 1/274 . . . with provision for storing more than one
subscriber number at a time, e.g. using toothed
disc [2]
 - 1/2745 using static electronic memories, i.e.
memories whose operation does not require
relative movement between storage means
and a transducer, e.g. chip [7]
 - 1/275 implemented by means of portable
electronic directories [7]
 - 1/2755 whose contents are provided by optical
scanning [7]
 - 1/276 using magnetic recording, e.g. on tape [2]
 - 1/278 using punched cards or tapes [2]
 - 1/30 . . Devices which can set up and transmit only one
digit at a time
 - 1/31 by interrupting current to generate trains of
pulses; by periodically opening and closing
contacts to generate trains of pulses [2]
 - 1/315 Clutches, spring assemblies, speed
regulators, e.g. centrifugal brakes
(H04M 1/32 to H04M 1/40 take
precedence) [3]
 - 1/32 Locking setting devices during transmission
to prevent interference by user
 - 1/34 Lost-motion or other arrangements for
ensuring a pause between successive digit
transmissions
 - 1/38 Pulses transmitted by a movement variably
limited by the setting of a stop
 - 1/40 wherein the setting-operation short-circuits
or open-circuits the transmitting mechanism
during a variable part of a cycle
 - 1/50 . . . by generating or selecting currents of
predetermined frequencies or combinations of
frequencies [2]
 - 1/515 . . . by generating or selecting other signals than trains
of pulses of similar shape or other signals than
currents of one or more different frequencies,
e.g. generation of dc signals of alternating polarity,
coded pulses, impedance dialling [2]
 - 1/52 . . Arrangements wherein a dial or equivalent is
mechanically coupled to a line selector
 - 1/53 . . Generation of additional signals, e.g. additional
pulses [2]

H04M

- 1/54 . . . Arrangements wherein a dial or equivalent generates identifying signals, e.g. in party-line systems [2]
- 1/56 . Arrangements for indicating or recording the called number at the calling subscriber's set
- 1/57 . Arrangements for indicating or recording the number of the calling subscriber at the called subscriber's set (at the operator set in a manual exchange H04M 5/20) [2]
- 1/58 . Anti-side-tone circuits (hybrid circuits for carrier-frequency operation H04B 1/00)
- 1/60 . including speech amplifiers
- 1/62 . . . Constructional arrangements
- 1/64 . Automatic arrangements for answering calls; Automatic arrangements for recording messages for absent subscribers; Arrangements for recording conversations (centralised dictation systems H04M 11/10) [1,7]
- 1/65 . . . Recording arrangements [2,7]
- 1/652 . . . Means for playing back the recorded messages by remote control over a telephone line (H04M 1/658 takes precedence) [7]
- 1/654 . . . Telephone line monitoring circuits therefor, e.g. ring detectors [7]
- 1/656 . . . for recording conversations [7]
- 1/658 . . . Means for redirecting recorded messages to other extensions or equipment [7]
- 1/66 . with means for preventing unauthorised or fraudulent calling (verifying user identity or authority in secret or secure digital communications H04L 9/32) [1,7]
- 1/663 . . . Preventing unauthorised calls to a telephone set [7]
- 1/665 . . . by checking the validity of a code [7]
- 1/667 . . . Preventing unauthorised calls from a telephone set (H04M 1/677 takes precedence) [7]
- 1/67 . . . by electronic means [7]
- 1/673 the user being required to key in a code [7]
- 1/675 the user being required to insert a coded card, e.g. a smart card carrying an integrated circuit chip [7]
- 1/677 . . . Preventing the dialling or sending of predetermined telephone numbers or selected types of telephone numbers, e.g. long distance [7]
- 1/68 . Circuit arrangements for preventing eavesdropping
- 1/70 . . . Lock-out or secrecy arrangements in party-line systems
- 1/72 . Substation extension arrangements; Cordless telephones, i.e. devices for establishing wireless links to base stations without route selecting [1,7]
- 1/723 . . . using two or more extensions per line (H04M 1/725 takes precedence) [7]
- 1/725 . . . Cordless telephones [7]
- 1/727 . . . Identification code transfer arrangements [7]
- 1/73 . . . Battery saving arrangements [7]
- 1/733 . . . with a plurality of base stations connected to a plurality of lines [7]
- 1/737 . . . characterised by transmission of electromagnetic waves other than radio waves, e.g. infra-red [7]
- 1/738 . Interface circuits for coupling substations to external telephone lines (H04M 1/78 takes precedence) [7]
- 1/74 . . . with means for reducing interference; with means for reducing effects due to line faults
- 1/76 . . . Compensating for differences in line impedance (in general H04B)
- 1/78 . . . Circuit arrangements in which low-frequency speech signals proceed in one direction on the line, while speech signals proceeding in the other direction on the line are modulated on a high-frequency carrier signal (repeater circuits H04B 3/38) [2]
- 1/80 . Telephone line holding circuits [7]
- 1/82 . Line monitoring circuits for call progress or status discrimination [7]
- 3/00 Automatic or semi-automatic exchanges**
- 3/02 . Ringing or otherwise calling substations (selective calling H04Q)
- 3/04 . . . calling signal supplied from final selector
- 3/06 . . . calling signal supplied from subscriber's line circuit
- 3/08 . Indicating faults in circuits or apparatus
- 3/10 . . . providing fault- or trouble-signals
- 3/12 . . . Marking faulty circuits "busy"; Enabling equipment to disengage itself from faulty circuits
- 3/14 . . . Signalling existence of persistent "off-hook" condition
- 3/16 . with lock-out or secrecy provision in party-line systems
- 3/18 . with means for reducing interference; with means for reducing effects due to line faults
- 3/20 . with means for interrupting existing connections; with means for breaking-in on conversations
- 3/22 . Supervisory, monitoring, or testing arrangements
- 3/24 . . . with provision for checking the normal operation
- 3/26 . . . with means for applying test signals
- 3/28 Automatic routine testing
- 3/30 for subscribers' lines
- 3/32 for lines between exchanges
- 3/34 Testing for cross-talk (in lines generally H04B)
- 3/36 . . . Statistical metering, e.g. recording occasions when traffic exceeds capacity of trunks (digital computers for evaluating statistical data G06F 17/18)
- 3/38 . Graded-service arrangements, i.e. some subscribers prevented from establishing certain connections (queuing arrangements H04Q 3/64)
- 3/40 . Applications of speech amplifiers
- 3/42 . Systems providing special services or facilities to subscribers
- 3/424 . . . Arrangements for automatic redialling (at the subscriber's set H04M 1/27) [7]
- 3/428 . . . Arrangements for placing incoming calls on hold [7]
- 3/432 . . . Arrangements for calling a subscriber at a specific time, e.g. morning call service [7]
- 3/436 . . . Arrangements for screening incoming calls [7]
- 3/44 . . . Additional connecting arrangements for providing access to frequently-wanted subscribers, e.g. abbreviated dialling (at the subscriber's set H04M 1/27; automatic redialling H04M 3/424) [1,7]
- 3/46 . . . Arrangements for calling a number of substations in a predetermined sequence until an answer is obtained
- 3/48 . . . Arrangements for recalling a calling subscriber when the wanted subscriber ceases to be busy
- 3/487 . . . Arrangements for providing information services, e.g. recorded voice services, time announcement [7]
- 3/493 . . . Interactive information services, e.g. directory enquiries [7]

- 3/50 . . Centralised arrangements for answering calls; Centralised arrangements for recording messages for absent or busy subscribers (H04M 3/487 takes precedence; centralised dictation systems H04M 11/10) [1,7]
- 3/51 . . . Centralised call answering arrangements requiring operator intervention [7]
- 3/52 Arrangements for routing dead number calls to operators
- 3/523 with call distribution or queuing [7]
- 3/527 . . . Centralised call answering arrangements not requiring operator intervention [7]
- 3/53 . . . Centralised arrangements for recording incoming messages [7]
- 3/533 Voice mail systems [7]
- 3/537 Arrangements for indicating the presence of a recorded message [7]
- 3/54 . . Arrangements for diverting calls for one subscriber to another predetermined subscriber
- 3/56 . . Arrangements for connecting several subscribers to a common circuit, i.e. affording conference facilities (video conference systems H04N 7/15)
- 3/58 . . Arrangements for transferring received calls from one subscriber to another; Arrangements affording interim conversations between either the calling or the called party and a third party (substation line holding circuits H04M 1/80) [1,7]
- 3/60 . Semi-automatic systems, i.e. in which the numerical selection of the outgoing line is under the control of an operator
- 3/62 . . Keyboard equipment
- 3/64 . . Arrangements for signalling the number or class of the calling line to the operator (between operators in inter-exchange working H04M 5/18)
- 5/00 Manual exchanges** (substation equipment in general H04M 1/00)
 - 5/02 . Constructional details (jacks, jack-plugs H01R 24/04)
 - 5/04 . Arrangements for indicating calls or supervising connections for calling or clearing
 - 5/06 . . affording automatic call distribution
 - 5/08 . using connecting means other than cords
 - 5/10 . using separate plug for each subscriber
 - 5/12 . Ringing or otherwise calling substations
 - 5/14 . Applications of speech amplifiers
 - 5/16 . with means for reducing interference; with means for reducing effects due to line faults
 - 5/18 . Arrangements for signalling the class or number of called or calling line from one exchange to another
 - 5/20 . . Number-indicating arrangements for incoming lines
- 7/00 Interconnection arrangements between switching centres** (transmission arrangements in general H04B)
 - 7/02 . for compensating differences of ground potential
 - 7/04 . for compensating differences of line impedance
 - 7/06 . using auxiliary connections for control or supervision
 - 7/08 . for phantom working
 - 7/10 . for two-way working, i.e. calls may be set-up in either direction over the same connection
 - 7/12 . for working between exchanges having different types of switching equipment, e.g. power-driven and step by step, decimal and non-decimal
 - 7/14 . in systems involving main and subordinate switching centres (current supply source at subordinate switching centre charged from main exchange H04M 19/06)
 - 7/16 . in systems employing carrier frequencies
- 9/00 Interconnection arrangements not involving centralised switching**
 - 9/02 . involving a common line for all parties
 - 9/04 . involving a separate line for each pair of parties
 - 9/06 . involving combinations of interconnecting lines
 - 9/08 . Two-way loud-speaking telephone systems with means for suppressing echoes or otherwise conditioning for one or other direction of traffic (for line transmission in general H04B 3/20)
 - 9/10 . . with switching of direction of transmission by voice frequency
- 11/00 Telephonic communication systems adapted for combination with other electrical systems**
 - 11/02 . with bell or annunciator systems (such systems in general G08)
 - 11/04 . with fire, police, burglar, or other alarm systems (such systems in general G08)
 - 11/06 . Simultaneous speech and telegraphic or other data transmission over the same conductors (transmission of digital information in general H04L)
 - 11/08 . adapted for optional reception of entertainment or informative matter (systems in which the information is continuously available on a carrier over the whole network H04H 1/08)
 - 11/10 . with dictation recording and playback systems (such systems in general G11B)
- 13/00 Party-line systems** (substation equipment H04M 1/00; exchange equipment H04M 3/00, H04M 5/00; metering arrangements H04M 15/36)
- 15/00 Metering arrangements; Time-controlling arrangements; Time-indicating arrangements**
 - 15/02 . Severing connection after predetermined time
 - 15/04 . Recording calls in printed, perforated, or other permanent form
 - 15/06 . . Recording class or number of calling or of called party
 - 15/08 . Metering calls to called party
 - 15/10 . Metering calls from calling party
 - 15/12 . . Discriminative metering
 - 15/14 . . . according to class of calling party
 - 15/16 . . . according to connection obtained
 - 15/18 . . . according to duration of call
 - 15/20 Operator's time recording or indicating arrangements
 - 15/22 . . . according to time of day
 - 15/24 . . . preventing metering of tax-free calls to certain lines, e.g. to fire or ambulance stations
 - 15/26 . . Meter at exchange controlled by operator
 - 15/28 . with meter at substation
 - 15/30 . . Meter not controlled from exchange
 - 15/32 . Metering arrangements for satellites or concentrators which connect one or more exchange lines with a group of local lines
 - 15/34 . Metering arrangements for private branch exchanges
 - 15/36 . Metering arrangements for party-lines
 - 15/38 . Metering by apparatus not of the mechanical step-by-step counter type

H04M – H04N

<p>17/00 Prepayment telephone systems (using a coded card to authorise calls from a telephone set H04M 1/675) [1,7]</p> <p>17/02 . Coin-freed or check-freed systems (coin-freed or check-freed apparatus in general G07F)</p> <p>19/00 Current supply arrangements for telephone systems (for selecting equipment H04Q 1/28)</p> <p>19/02 . providing ringing current or supervisory tones, e.g. dialling tone, busy tone</p>	<p>19/04 . . Ringing-current generated at substation</p> <p>19/06 . Current supply source at subordinate switching centre charged from main exchange</p> <p>19/08 . Current supply source at substation (battery saving arrangements for cordless telephones H04M 1/73; generating ringing current H04M 19/04) [1,7]</p> <p>99/00 Subject matter not provided for in other groups of this subclass [8]</p>
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H04N **PICTORIAL COMMUNICATION, E.G. TELEVISION** (measuring, testing G01; systems for autographic writing, e.g. writing telegraphy, which involve following an outline G08; information storage based on relative movement between record carrier and transducer G11B; coding, decoding or code conversion, in general H03M; broadcast distribution or the recording of use made thereof H04H) [4]

Notes

- (1) This subclass covers:
- transmission of pictures or their transient or permanent reproduction either locally or remotely, by methods involving both the following steps:
 - step (a): the scanning of a picture, i.e. resolving the whole picture-containing area into individual picture-elements and the derivation of picture-representative electric signals related thereto, simultaneously or in sequence;
 - step (b): the reproduction of the whole picture-containing area by the reproduction of individual picture-elements into which the picture is resolved by means of picture-representative electric signals derived therefrom, simultaneously or in sequence; [4]
 - (in group H04N 1/00) systems for the transmission or the reproduction of arbitrarily composed pictures or patterns in which the local light variations composing a picture are not subject to variation with time, e.g. documents (both written and printed), maps, charts, photographs (other than cinematograph films);
 - circuits specially designed for dealing with pictorial communication signals, e.g. television signals, as distinct from merely signals of a particular frequency range.
- (2) This subclass does not cover:
- circuits or other parts of systems which form the subject of other subclasses, which are covered by the corresponding subclasses, e.g. H03C, H03F, H03J, H04B, H04H;
 - systems in which legible alphanumeric or like character forms are analysed according to step (a) of Note (1) to derive an electric signal from which the character is recognised by comparison with stored information, which are covered by subclass G06K;
 - systems for the direct photographic copying of an original picture in which an electric signal representative of the picture is derived according to the said step (a) and employed to modify the operation of the system, e.g. to control exposure, which are covered by class G03;
 - systems for the reproduction according to step (b) of Note (1) of pictures comprising alphanumeric or like character forms but involving the production of the equivalent of a signal which would be derived according to the above-mentioned step (a), e.g. by cams, punched card or tape, coded control signal, or other means, which are covered by the subclass for the application, e.g. G01D, G06T, H04L;
 - systems for the reproduction according to the above-mentioned step (b) of pictures comprising alphanumeric or like character forms and involving the generation according to the above-mentioned step (a) of picture-representative electric signals from a pre-arranged assembly of such characters, or records thereof, forming an integral part of the systems, which are covered by the subclass for the application, e.g. B41B, G06K, subject to those applications which are covered by this subclass;
 - printing, duplication or marking processes, or materials therefor, which are covered by the relevant subclasses, e.g. B41C, B41J, B41M, G03C, G03F, G03G. [4]
- (3) In this subclass, the following expression is used with the meaning indicated:
- “television systems” means those systems for the transmission and reproduction of arbitrarily composed pictures in which the local light variations composing a picture may change with time, e.g. natural “live” scenes, recordings of such scenes such as cinematograph films.

Note

In groups H04N 1/00 to H04N 17/00, it is desirable to add the indexing code of group H04N 101/00. [6]

1/00 **Scanning, transmission or reproduction of documents or the like, e.g. facsimile transmission; Details thereof [3,4]**

- 1/024 . Details of scanning heads [3,4]
- 1/028 . . . for picture-information pick-up [3,4]
- 1/029 . . . Heads optically focused on only one picture element at a time [6]

- 1/03 . . . with photodetectors arranged in a substantially linear array (scanning of linear arrays H04N 1/19) [6]
- 1/031 . . . the photodetectors having a one-to-one and optically positive correspondence with the scanned picture elements, e.g. linear contact sensors [6]
- 1/032 . . for picture-information reproduction (engraving heads for the manufacture of printing formes B41C 1/02) [3,4]
- 1/034 . . . using ink, e.g. ink-jet heads [5]
- 1/036 . . . for optical reproduction [3,4]
- 1/04 . Scanning arrangements (H04N 1/387 takes precedence) [4]

- 1/047 . . . Detection, control or error compensation of scanning velocity or position (H04N 1/17 takes precedence) [6]
- 1/053 . . . in main scanning direction, e.g. synchronisation of line start or picture elements in a line [6]
- 1/06 . . . using cylindrical picture-bearing surfaces [4]
- 1/08 . . . Mechanisms for mounting or holding the sheet around the drum [4]
- 1/10 . . . using flat picture-bearing surfaces [4]
- 1/107 . . . with manual scanning [6]
- 1/113 . . . using oscillating or rotating mirrors [6]
- 1/12 . . . using the sheet-feed movement as the slow scanning component (using multi-element arrays H04N 1/19) [4,6]
- 1/14 . . . using a rotating endless belt carrying the scanning heads [4]
- 1/16 . . . using a rotating helical element [4]
- 1/17 . . . the scanning speed being dependent on content of picture [3,4]
- 1/19 . . . using multi-element arrays [6]
- 1/191 . . . the array comprising a one-dimensional array [6]
- 1/192 . . . Simultaneously scanning picture elements on one main scanning line [6]
- 1/193 . . . using electrically scanned linear arrays [6]
- 1/195 . . . the array comprising a two-dimensional array [6]
- 1/203 . . . Simultaneous scanning of two or more separate pictures [6]
- 1/207 . . . Simultaneous scanning of the original picture and the reproduced picture with a common scanning device [6]
- 1/21 . . . Intermediate information storage (H04N 1/387, H04N 1/41 take precedence; information storage in general G11) [4]
- 1/23 . . . Reproducing arrangements (details of scanning heads H04N 1/024; scanning arrangements therefor H04N 1/04) [4]
- 1/27 . . . involving production of a magnetic intermediate picture [4]
- 1/29 . . . involving production of an electrostatic intermediate picture [4]
- 1/31 . . . Mechanical arrangements for picture transmission, e.g. adaptation of clutches, gearing, gear transmissions [4]
- 1/32 . . . Circuits or arrangements for control or supervision between transmitter and receiver
- 1/327 . . . Initiating, continuing or ending a single-mode communication; Handshaking therefor [6]
- 1/333 . . . Mode signalling or mode changing; Handshaking therefor [6]
- 1/34 . . . for coin-freed systems
- 1/36 . . . for synchronising or phasing transmitter and receiver
- 1/38 . . . Circuits or arrangements for blanking or otherwise eliminating unwanted parts of pictures (H04N 1/387 takes precedence) [4]
- 1/387 . . . Composing, repositioning or otherwise modifying originals (photoelectronic composing of characters B41B 19/00) [4]
- 1/393 . . . Enlarging or reducing [4]
- 1/40 . . . Picture signal circuits (H04N 1/387 takes precedence) [4]
- 1/401 . . . Compensating positionally unequal response of the pick-up or reproducing head (H04N 1/403 takes precedence) [6]
- 1/403 . . . Discrimination between the two tones in the picture signal of a two-tone original (shaping pulses by limiting or thresholding, in general H03K 5/08) [6]
- 1/405 . . . Halftoning, i.e. converting the picture signal of a continuous-tone original into a corresponding signal showing only two levels [6]
- 1/407 . . . Control or modification of tonal gradation or of extreme levels, e.g. background level [6]
- 1/409 . . . Edge or detail enhancement; Noise or error suppression [6]
- 1/41 . . . Bandwidth or redundancy reduction (by scanning H04N 1/17) [3]
- 1/411 . . . for the transmission or reproduction of two-tone pictures, e.g. black and white pictures [4]
- 1/413 . . . Systems or arrangements allowing the picture to be reproduced without loss or modification of picture-information [4]
- 1/415 . . . in which the picture-elements are subdivided or grouped into fixed one-dimensional or two-dimensional blocks [4]
- 1/417 . . . using predictive or differential encoding [4]
- 1/419 . . . in which encoding of the length of a succession of picture-elements of the same value along a scanning line is the only encoding step [4]
- 1/42 . . . Systems for two-way working
- 1/44 . . . Secrecy systems
- 1/46 . . . Colour picture communication systems
- 1/48 . . . Picture signal generators (for halftone screening H04N 1/52) [6]
- 1/50 . . . Picture reproducers (for halftone screening H04N 1/52) [6]
- 1/52 . . . Circuits or arrangements for halftone screening [6]
- 1/54 . . . Conversion of colour picture signals to a plurality of signals some of which represent particular mixed colours, e.g. for textile printing [6]
- 1/56 . . . Processing of colour picture signals (H04N 1/52 takes precedence) [6]
- 1/58 . . . Edge or detail enhancement; Noise or error suppression, e.g. colour misregistration correction (H04N 1/62 takes precedence) [6]
- 1/60 . . . Colour correction or control [6]
- 1/62 . . . Retouching, i.e. modification of isolated colours only or in isolated picture areas only [6]
- 1/64 . . . Systems for the transmission or the storage of the colour picture signal; Details therefor, e.g. coding or decoding means therefor [6]
- 3/00 Scanning details of television systems; Combination thereof with generation of supply voltages [4]**
- 3/02 . . . by optical-mechanical means only (H04N 3/36 takes precedence; optical scanning systems in general G02B 26/10) [2]
- 3/04 . . . having a moving aperture
- 3/06 . . . having a moving lens or other refractor
- 3/08 . . . having a moving reflector
- 3/09 . . . for electromagnetic radiation in the invisible region, e.g. infra-red [4]
- 3/10 . . . by means not exclusively optical-mechanical (H04N 3/36 takes precedence; devices or arrangements for the electro-, magneto- or acousto-optical modulation or deflection of light beams G02F) [2]
- 3/12 . . . by switched stationary formation of lamps, photocells, or light relays

H04N

- 3/14 . . . by means of electrically scanned solid-state devices
- 3/15 . . . for picture signal generation [3]
- 3/16 . . . by deflecting electron beam in cathode-ray tube (producing sawtooth waveforms H03K 4/00)
- 3/18 . . . Generation of supply voltages, in combination with electron beam deflecting [4]
- 3/185 Maintaining dc voltage constant (regulation of dc voltage in general G05F) [4]
- 3/19 Arrangements or assemblies in supply circuits for the purpose of withstanding high voltages [3]
- 3/20 Prevention of damage to cathode-ray tubes in event of failure of scanning
- 3/22 Circuits for controlling dimensions, shape or centering of picture on screen
- 3/223 Controlling dimensions (by maintaining the cathode-ray tube high voltage constant H04N 3/185) [4]
- 3/227 Centering [4]
- 3/23 Distortion correction, e.g. for pincushion distortion correction, S-correction [4]
- 3/233 using active elements [4]
- 3/237 using passive elements [4]
- 3/24 Blanking circuits
- 3/26 Modifications of scanning arrangements to improve focusing (focusing circuits in general H01J)
- 3/27 Circuits special to multi-standard receivers (circuitry of multi-standard receivers in general H04N 5/46) [3,4]
- 3/28 . . . producing multiple scanning, i.e. using more than one spot at the same time
- 3/30 . . . otherwise than with constant velocity or otherwise than in pattern formed by unidirectional, straight, substantially horizontal or vertical lines
- 3/32 Velocity varied in dependence upon picture information
- 3/34 Elemental scanning area oscillated rapidly in direction transverse to main scanning direction
- 3/36 . . Scanning of motion picture films, e.g. for telecine [2]
- 3/38 . . . with continuously moving film [4]
- 3/40 . . . with intermittently moving film [4]
- 5/00 Details of television systems** (scanning details or combination thereof with generation of supply voltages H04N 3/00; specially adapted for colour television H04N 9/00) [4]
- 5/04 . . Synchronising (for television systems using pulse code modulation H04N 7/24; in general H03L 7/00) [4]
- 5/05 . . Synchronising circuits with arrangements for extending range of synchronisation, e.g. by using switching between several time constants [2]
- 5/06 . . . Generation of synchronising signals
- 5/067 Arrangements or circuits at the transmitter end [4]
- 5/073 for mutually locking plural sources of synchronising signals, e.g. studios or relay stations [4]
- 5/08 . . . Separation of synchronising signals from picture signals
- 5/10 Separation of line synchronising signal from frame synchronising signal
- 5/12 . . . Devices in which the synchronising signals are only operative if a phase difference occurs between synchronising and synchronised scanning devices, e.g. flywheel synchronising [2]
- 5/14 . . Picture signal circuitry for video frequency region (H04N 5/222 takes precedence) [2]
- 5/16 . . . Circuitry for reinsertion of dc and slowly varying components of signal; Circuitry for preservation of black or white level
- 5/18 by means of “clamp” circuit operated by switching circuit
- 5/20 . . . Circuitry for controlling amplitude response
- 5/202 Gamma control [4]
- 5/205 for correcting amplitude versus frequency characteristic [4]
- 5/208 for compensating for attenuation of high frequency components, e.g. crispening, aperture distortion correction [4]
- 5/21 . . . Circuitry for suppressing or minimising disturbance, e.g. moire, halo (suppression of noise in television recording H04N 5/911)
- 5/213 Circuitry for suppressing or minimising impulsive noise (H04N 5/217 takes precedence) [4]
- 5/217 in picture signal generation [4]
- 5/222 . . Studio circuitry; Studio devices; Studio equipment [4]
- 5/225 . . . Television cameras [4]
- 5/228 Circuit details for pick-up tubes [4]
- 5/232 Devices for controlling television cameras, e.g. remote control (H04N 5/235 takes precedence; control of exposure in cameras by setting shutters, diaphragms or filters separately or conjointly G03B 7/00; focusing for cameras G03B 13/00; varying magnification for cameras G03B 17/00) [4]
- 5/235 Circuitry for compensating for variation in the brightness of the object [4]
- 5/238 by influencing optical part of the camera [4]
- 5/243 by influencing the picture signal [4]
- 5/247 Arrangement of television cameras [4]
- 5/253 Picture signal generating by scanning motion picture films or slide opaques, e.g. for telecine (scanning details therefor H04N 3/36) [4]
- 5/257 . . . Picture signal generators using flying-spot scanners (H04N 5/253 takes precedence) [4]
- 5/262 . . . Studio circuits, e.g. for mixing, switching-over, change of character of image, other special effects [4]
- 5/265 Mixing [4]
- 5/268 Signal distribution or switching (for broadcasting H04H 1/00) [4]
- 5/272 Means for inserting a foreground image in a background image, i.e. inlay, outlay [4]
- 5/275 Generation of keying signals [4]
- 5/278 Subtitling [4]
- 5/28 . . . Mobile studios
- 5/30 . . Transforming light or analogous information into electric information (H04N 5/222 takes precedence; scanning details H04N 3/00; transforming acoustic waves into electric information G01S 7/52, G01S 15/89; light transforming elements H01J, H01L) [2,4,7]
- 5/32 . . . Transforming X-rays
- 5/321 with video transmission of fluoroscopic images [5]

- 5/325 Image enhancement, e.g. by subtraction techniques using polyenergetic X-rays [5]
- 5/33 . . Transforming infra-red radiation [2]
- 5/335 . . using electrically scanned solid-state devices (H04N 5/32, H04N 5/33 take precedence) [4]
- 5/38 . Transmitter circuitry (H04N 5/14 takes precedence) [4]
- 5/40 . . Modulation circuits
- 5/42 . . for transmitting at will black-and-white or colour signals
- 5/44 . Receiver circuitry (H04N 5/14 takes precedence) [4]
- 5/445 . . for displaying additional information (H04N 5/50 takes precedence) [4]
- 5/45 Picture in picture [4]
- 5/455 . . Demodulation-circuits (demodulation in general H03D) [4]
- 5/46 . . for receiving on more than one standard at will (deflecting circuits of multi-standard receivers H04N 3/27) [4]
- 5/50 . . Tuning indicators; Automatic tuning control (tuning control in general H03J) [4]
- 5/52 . . Automatic gain control [4]
- 5/53 Keyed automatic gain control [4]
- 5/54 for positively-modulated picture signals (H04N 5/53 takes precedence) [4]
- 5/56 for negatively-modulated picture signals (H04N 5/53 takes precedence) [4]
- 5/57 . . Control of contrast or brightness [4]
- 5/58 in dependence upon ambient light [4]
- 5/59 in dependence upon beam current of cathode ray tube [4]
- 5/60 . . for the sound signals
- 5/62 Inter-carrier circuits, i.e. heterodyning sound and vision carriers
- 5/63 . Generation or supply of power specially adapted for television receivers (generation of supply voltages in combination with electron beam deflecting H04N 3/18; regulating of voltage or current in general G05F; transformers H01F; supplying or distributing electric power, in general H02J; static converters H02M) [4]
- 5/64 . Constructional details of receivers, e.g. cabinets, dust covers (furniture aspects A47B, e.g. A47B 81/06) [2]
- 5/645 . . Mounting of picture tube on chassis or in housing
- 5/65 . . Holding-devices for protective discs or for picture masks
- 5/655 . . Construction or mounting of chassis, e.g. for varying the elevation of the tube
- 5/66 . Transforming electric information into light information (scanning details H04N 3/00)
- 5/68 . . Circuit details for cathode-ray display tubes
- 5/70 . . Circuit details for electroluminescent devices
- 5/72 . Modifying the appearance of television pictures by optical filters or diffusing screens (optical filters or diffusing screens *per se* G02B 5/00)
- 5/74 . Projection arrangements for image reproduction, e.g. using eidophor (optical systems in general G02B)
- 5/76 . Television signal recording (diagnosis, testing or measuring of television signal recorders H04N 17/06; recording in connection with measuring G01D; information storage in general G11, e.g. G11B) [3,4]
- 5/761 . . Systems for programming the time at which predetermined television channels will be selected for recording [7]
- 5/7613 by using data entered by the user and a reference timing clock incorporated in the recorder [7]
- 5/7617 by using data entered by the user and reference data transmitted by the broadcasting station [7]
- 5/765 . . Interface circuits between an apparatus for recording and another apparatus (associated working of recording or reproducing apparatus with a television camera or receiver in which the television signal is not significantly involved G11B 31/00) [6]
- 5/77 between a recording apparatus and a television camera [6]
- 5/775 between a recording apparatus and a television receiver [6]
- 5/78 . . using magnetic recording (H04N 5/91 takes precedence) [3]
- 5/781 on discs or drums [3]
- 5/782 on tape [3]
- 5/7822 with stationary magnetic heads [6]
- 5/7824 with rotating magnetic heads [6]
- 5/7826 involving helical scanning of the magnetic tape [6]
- 5/7828 involving transversal scanning of the magnetic tape [6]
- 5/783 Adaptations for reproducing at a rate different from the recording rate [3]
- 5/784 on a sheet [6]
- 5/80 . . using electrostatic recording (H04N 5/91 takes precedence) [3]
- 5/82 using deformable thermoplastic recording medium
- 5/83 on discs or drums [3]
- 5/84 . . using optical recording (H04N 5/80, H04N 5/89, H04N 5/91 take precedence) [3,4]
- 5/85 on discs or drums [3]
- 5/87 Producing a motion picture film from a television signal (scanning of motion picture films for television signal generation H04N 3/36; television signal generation by scanning a motion picture film H04N 5/253, H04N 9/11) [3,4]
- 5/89 . . using holographic recording (H04N 5/91 take precedence) [3]
- 5/90 on discs or drums [3]
- 5/903 . . using variable electrical capacitive recording (H04N 5/91 takes precedence) [4]
- 5/907 . . using static stores, e.g. storage tubes, semiconductor memories (H04N 5/91 takes precedence; based on relative movement between record carrier and transducer H04N 5/78 to H04N 5/903) [4]
- 5/91 . . Television signal processing therefor (of colour signals H04N 9/79) [3]
- 5/911 for the suppression of noise [6]
- 5/913 for scrambling (scrambling of a television signal for transmission H04N 7/167) [6]
- 5/915 for field- or frame-skip recording or reproducing [6]
- 5/917 for bandwidth reduction (bandwidth reduction H04N 7/12; using pulse code modulation H04N 7/24) [6]
- 5/919 by dividing samples or signal segments, e.g. television lines, among a plurality of recording channels [6]
- 5/92 Transformation of the television signal for recording, e.g. modulation, frequency changing; Inverse transformation for playback [3]

- 5/921 by recording or reproducing the baseband signal [6]
- 5/922 by modulation of the signal on a carrier wave, e.g. amplitude or frequency modulation [6]
- 5/923 using preemphasis of the signal before modulation and deemphasis of the signal after demodulation [6]
- 5/924 using duty cycle modulation [6]
- 5/926 by pulse code modulation (H04N 5/919 takes precedence) [6]
- 5/928 the sound signal being pulse code modulated and recorded in time division multiplex with the modulated video signal [6]
- 5/93 Regeneration of the television signal or of selected parts thereof [3]
- 5/931 for restoring the level of the reproduced signal [6]
- 5/932 Regeneration of analogue synchronisation signals [6]
- 5/935 Regeneration of digital synchronisation signals [6]
- 5/937 by assembling picture element blocks in an intermediate store [6]
- 5/94 Signal drop-out compensation [3]
- 5/945 for signals recorded by pulse code modulation (error detection or correction of digital signals for recording in general G11B 20/18) [6]
- 5/95 Time-base error compensation [3]
- 5/953 by using an analogue memory, e.g. a CCD-shift register, the delay of which is controlled by a voltage controlled oscillator [6]
- 5/956 by using a digital memory with independent write-in and read-out clock generators [6]
- 7/00 Television systems** (details H04N 3/00, H04N 5/00; specially adapted for colour television H04N 11/00; stereoscopic television systems H04N 13/00) [4]
- 7/01 . Conversion of standards [4]
- 7/015 . High-definition television systems [6]
- 7/025 . Systems for transmission of digital non-picture data, e.g. of text during the active part of a television frame [6]
- 7/03 . . Subscription systems therefor [6]
- 7/035 . . Circuits for the digital non-picture data signal, e.g. for slicing of the data signal, for regeneration of the data-clock signal, for error detection or correction of the data signal [6]
- 7/04 . Systems for the transmission of one television signal, i.e. both picture and sound, by a single carrier [4]
- 7/045 . . the carrier being frequency modulated [6]
- 7/06 . Systems for the simultaneous transmission of one television signal, i.e. both picture and sound, by more than one carrier [4]
- 7/08 . Systems for the simultaneous or sequential transmission of more than one television signal, e.g. additional information signals, the signals occupying wholly or partially the same frequency band [4,6]
- 7/081 . . the additional information signals being transmitted by means of a subcarrier [6]
- 7/083 . . with signal insertion during the vertical and the horizontal blanking interval [6]
- 7/084 . . with signal insertion during the horizontal blanking interval [6]
- 7/085 . . . the inserted signal being digital [6]
- 7/087 . . with signal insertion during the vertical blanking interval [4]
- 7/088 . . . the inserted signal being digital [6]
- 7/10 . Adaptations for transmission by electrical cable (H04N 7/12 takes precedence) [4]
- 7/12 . Systems in which the television signal is transmitted via one channel or a plurality of parallel channels, the bandwidth of each channel being less than the bandwidth of the television signal (H04N 7/24 takes precedence; high-definition television systems H04N 7/015) [4]
- 7/14 . Systems for two-way working (H04N 7/173 takes precedence) [4]
- 7/15 . . Conference systems (telephonic conference arrangements H04M 3/56) [5]
- 7/16 . Secrecy systems; Subscription systems
- 7/167 . . Systems rendering the television signal unintelligible and subsequently intelligible [4]
- 7/169 . . . Systems operating in the time domain of the television signal [6]
- 7/171 . . . Systems operating in the amplitude domain of the television signal [6]
- 7/173 . . with two-way working, e.g. subscriber sending a programme selection signal [4]
- 7/18 . Closed-circuit television systems, i.e. systems in which the signal is not broadcast
- 7/20 . Adaptations for transmission via a GHz frequency band, e.g. via satellite [4]
- 7/22 . Adaptations for optical transmission [4]
- 7/24 . Systems for the transmission of television signals using pulse code modulation [6]
- 7/26 . . using bandwidth reduction (information reduction by code conversion in general H03M 7/30) [6]
- 7/28 . . . using vector coding [6]
- 7/30 . . . involving transform coding (H04N 7/50 takes precedence; digital computers for performing complex mathematical operations, e.g. domain transformation, G06F 17/14) [6]
- 7/32 . . . involving predictive coding (H04N 7/48, H04N 7/50 take precedence) [6]
- 7/34 using spatial prediction [6]
- 7/36 using temporal prediction [6]
- 7/38 involving delta modulation (systems using differential pulse code modulation in general H04B 14/06) [6]
- 7/40 adaptive [6]
- 7/42 involving differential modulation (systems using differential pulse code modulation in general H04B 14/06) [6]
- 7/44 adaptive [6]
- 7/46 using subsampling at the coder and sample restitution by interpolation at the coder or decoder [6]
- 7/48 . . . involving pulse code modulation and predictive coding [6]
- 7/50 . . . involving transform and predictive coding [6]
- 7/52 . . Systems for transmission of a pulse code modulated video signal with one or more other pulse code modulated signals, e.g. an audio signal, a synchronising signal [6]
- 7/54 . . . the signals being synchronous [6]
- 7/56 Synchronising systems therefor [6]
- 7/58 . . . involving more than one video signal [6]
- 7/60 . . . the signals being asynchronous [6]
- 7/62 Synchronising systems therefor [6]

- 7/64 . . . Systems for detection or correction of transmission errors (coding, decoding or code conversion for error detection or error correction in general H03M 13/00) [6]
- 7/66 . . . using redundant codes [6]
- 7/68 . . . using error concealment [6]
- 9/00 Details of colour television systems [4]**
- 9/04 . . . Picture signal generators [4]
- 9/07 . . . with one pick-up device only [2,4]
- 9/077 . . . whereby the colour signals are characterised by their phase [4]
- 9/083 . . . whereby the colour signals are characterised by their frequency [4]
- 9/09 . . . with more than one pick-up device [4]
- 9/093 . . . Systems for avoiding or correcting misregistration of video signals [4]
- 9/097 . . . Optical arrangements associated therewith, e.g. for beam-splitting, for colour correction (beam-splitting in general G02B 27/10) [4]
- 9/10 . . . using optical-mechanical scanning means only (H04N 9/11 takes precedence; optical scanning systems in general G02B 26/10) [2,4]
- 9/11 . . . Scanning of colour motion picture films, e.g. for telecine [2,4]
- 9/12 . . . Picture reproducers (H04N 9/11 takes precedence; devices or arrangements for the electro-, magneto- or acousto-optical modulation or deflection of light beams G02F) [2,4]
- 9/14 . . . using optical-mechanical scanning means only (optical scanning systems in general G02B 26/10) [2,4]
- 9/16 . . . using cathode ray tubes (H04N 9/11 takes precedence; cathode-ray tubes H01J 31/00) [2,4]
- 9/18 . . . using separate electron beams for the primary colour signals (H04N 9/27 takes precedence) [2,4]
- 9/20 . . . with more than one beam in a tube [4]
- 9/22 . . . using the same beam for more than one primary colour information (H04N 9/27 takes precedence) [2,4]
- 9/24 . . . using means, integral with, or external to, the tube, for producing signal indicating instantaneous beam position [4]
- 9/26 . . . using electron-optical colour selection means, e.g. line grid, deflection means in or near the gun or near the phosphor screen [4]
- 9/27 . . . with variable depth of penetration of electron beam into the luminescent layer, e.g. penetrans [2,4]
- 9/28 . . . Arrangements for convergence or focusing [4]
- 9/285 . . . using quadrupole lenses (quadrupole lenses *per se* G21K 1/08, H01J 3/14, H01J 29/58, H01J 37/10) [4]
- 9/29 . . . using demagnetisation or compensation of external magnetic fields [2,4]
- 9/30 . . . using solid-state colour display devices [4]
- 9/31 . . . Projection devices for colour picture display [2,4]
- 9/43 . . . Conversion of monochrome picture signals to colour picture signals for colour picture display [4]
- 9/44 . . . Colour synchronisation [4]
- 9/45 . . . Generation or recovery of colour sub-carriers [4]
- 9/455 . . . Generation of colour burst signals; Insertion of colour burst signals in colour picture signals or separation of colour burst signals from colour picture signals (H04N 9/45 takes precedence) [4]
- 9/465 . . . Synchronisation of the PAL-switch [4]
- 9/47 . . . for sequential signals [2,4]
- 9/475 . . . for mutually locking different synchronisation sources [4]
- 9/64 . . . Circuits for processing colour signals (H04N 9/77 takes precedence) [4]
- 9/65 . . . for synchronous modulators [4]
- 9/66 . . . for synchronous demodulators [4]
- 9/67 . . . for matrixing [4]
- 9/68 . . . for controlling the amplitude of colour signals, e.g. automatic chroma control circuits (H04N 9/71, H04N 9/73 take precedence) [4]
- 9/69 . . . for modifying the colour signals by gamma correction [4]
- 9/70 . . . for colour killing [4]
- 9/71 . . . combined with colour gain control [4]
- 9/72 . . . for reinsertion of dc and slowly varying components of colour signals [4]
- 9/73 . . . colour balance circuits, e.g. white balance circuits, colour temperature control [4]
- 9/74 . . . for obtaining special effects (H04N 9/65 to H04N 9/73 take precedence) [4]
- 9/75 . . . Chroma key [4]
- 9/76 . . . for mixing of colour signals (H04N 9/75 takes precedence) [4]
- 9/77 . . . Circuits for processing the brightness signal and the chrominance signal relative to each other, e.g. adjusting the phase of the brightness signal relative to the colour signal, correcting differential gain or differential phase (circuits for matrixing H04N 9/67) [4]
- 9/78 . . . for separating the brightness signal or the chrominance signal from the colour television signal, e.g. using comb filter [4]
- 9/79 . . . Processing of colour television signals in connection with recording [4]
- 9/793 . . . for controlling the level of the chrominance signal, e.g. by means of automatic chroma control circuits [6]
- 9/797 . . . for recording the signal in a plurality of channels, the bandwidth of each channel being less than the bandwidth of the signal (H04N 9/804, H04N 9/81, H04N 9/82 take precedence) [6]
- 9/80 . . . Transformation of the television signal for recording, e.g. modulation, frequency changing; Inverse transformation for playback [4]
- 9/802 . . . involving processing of the sound signal (H04N 9/806, H04N 9/835 take precedence) [6]
- 9/804 . . . involving pulse code modulation of the colour picture signal components [6]
- 9/806 . . . with processing of the sound signal [6]
- 9/808 . . . involving pulse code modulation of the composite colour video-signal [6]
- 9/81 . . . the individual colour picture signal components being recorded sequentially only [4]
- 9/815 . . . the luminance signal and the sequential colour component signals being recorded in separate recording channels [6]
- 9/82 . . . the individual colour picture signal components being recorded simultaneously only [4]
- 9/825 . . . the luminance and chrominance signals being recorded in separate channels [6]
- 9/83 . . . the recorded chrominance signal occupying a frequency band under the frequency band of the recorded brightness signal [4]
- 9/835 . . . involving processing of the sound signal [6]

H04N – H04Q

9/84	. . . . . the recorded signal showing a feature, which is different in adjacent track parts, e.g. different phase or frequency [4]	11/06	. . . . . Transmission systems characterised by the manner in which the individual colour picture signal components are combined [4]
9/85	. . . . . the recorded brightness signal occupying a frequency band totally overlapping the frequency band of the recorded chrominance signal, e.g. frequency interleaving [4]	11/08	. . . . . using sequential signals only (dot sequential systems H04N 11/12) [4]
9/86	. . . . . the individual colour picture signal components being recorded sequentially and simultaneously, e.g. corresponding to SECAM-system [4]	11/10	. . . . . in which colour signals are inserted in the blanking interval of brightness signal [4]
9/87	. . . . . Regeneration of colour television signals (H04N 9/80 takes precedence) [4]	11/12	. . . . . using simultaneous signals only [4]
9/873	. . . . . for restoring the colour component sequence of the reproduced signal [6]	11/14	. . . . . in which one signal, modulated in phase and amplitude, conveys colour information and a second signal conveys brightness information, e.g. NTSC-system [4]
9/877	. . . . . by assembling picture element blocks in an intermediate memory [6]	11/16	. . . . . the chrominance signal alternating in phase, e.g. PAL-system [4]
9/88	. . . . . Signal drop-out compensation [4]	11/18	. . . . . using simultaneous and sequential signals, e.g. SECAM-system [4]
9/882	. . . . . the signal being a composite colour television signal [6]	11/20	. . . . . Conversion of the manner in which the individual colour picture signal components are combined, e.g. conversion of colour television standards [4]
9/885	. . . . . using a digital intermediate memory [6]	11/22	. . . . . in which simultaneous signals are converted into sequential signals or <i>vice versa</i> [4]
9/888	. . . . . for signals recorded by pulse code modulation (error detection or correction of digital signals for recording in general G11B 20/18) [6]	11/24	. . . . . High-definition television systems [6]
9/89	. . . . . Time-base error compensation [4]	13/00	Stereoscopic television systems; Details thereof (specially adapted for colour television H04N 15/00) [4]
9/893	. . . . . using an analogue memory, e.g. a CCD-shift register, the delay of which is controlled by a voltage controlled oscillator [6]	13/02	. . . . . Picture signal generators [4]
9/896	. . . . . using a digital memory with independent write-in and read-out clock generators [6]	13/04	. . . . . Picture reproducers [4]
9/898	. . . . . using frequency multiplication of the reproduced colour signal with another auxiliary reproduced signal, e.g. a pilot signal carrier [6]	15/00	Stereoscopic colour television systems; Details thereof [4]
11/00	Colour television systems (details H04N 9/00; stereoscopic H04N 15/00) [4]	17/00	Diagnosis, testing or measuring for television systems or their details [4]
11/02	. . . . . with bandwidth reduction (H04N 11/04 takes precedence) [4]	17/02	. . . . . for colour television signals [4]
11/04	. . . . . using pulse code modulation [4]	17/04	. . . . . for receivers [4]
		17/06	. . . . . for recorders [4]
		<u>Indexing scheme associated with groups H04N 1/00 to H04N 17/00, relating to still video cameras.</u> [6]	
		101/00	Still video cameras [6]

H04Q SELECTING (switches, relays, selectors H01H; electronic switches H03K 17/00)

Notes

- (1) This subclass covers:
 - methods, circuits, or apparatus for establishing selectively a connection between a desired number of stations (normally two), or between a main station and a desired number of substations (normally one) for the purpose of transferring information via this connection after it has been established;
 - selective calling arrangements over connections already established. In either case, the connection may be by means of electric conductors or electromagnetic waves.
- (2) In this subclass, the following terms or expressions are used with the meanings indicated:
 - “subscriber” is a general term for terminal equipment, e.g. telephone for public use;
 - “substation” means a subscriber or monitoring equipment which may connect a single subscriber to a line without choice as to subscriber;
 - “satellite” is a kind of exchange the operation of which depends upon control signals received from a supervisory exchange;
 - “switching centres” includes exchanges and satellites.

Subclass Index

SELECTING ARRANGEMENTS

General; by line; via radio or inductive links; multiplex..... 3/00; 5/00; 7/00; 11/00

DISPOSITIONS FOR TELECONTROL OR

TELEMETRY..... 9/00
 DETAILS 1/00

- 1/00 Details of selecting apparatus or arrangements**
(details of selector switches H01H 63/00)
- 1/02 Constructional details
 - 1/04 Frames or mounting racks for selector switches; Accessories therefor, e.g. frame cover
 - 1/06 Cable ducts or mountings specially adapted for exchange installations (in general H02G)
 - 1/08 Frames or mounting racks for relays; Accessories therefor
 - 1/10 Exchange station construction
 - 1/12 Arrangements of multiple bars with or without pivotable frames
 - 1/14 Distribution frames
 - 1/16 Wiring arrangements for selector switches or relays in frames
 - 1/18 Electrical details
 - 1/20 Testing circuits or apparatus; Circuits or apparatus for detecting, indicating, or signalling faults or troubles
 - 1/22 Automatic arrangements
 - 1/24 for connection devices
 - 1/26 for signalling trouble in unoccupied sub-exchanges
 - 1/28 Current-supply circuits or arrangements for selection equipment at exchanges
 - 1/30 Signalling arrangements; Manipulation of signalling currents (multiplex systems providing for calling or supervisory signals H04J 1/14, H04J 3/12; telephone substation equipment H04M 1/00)
 - 1/32 using trains of dc pulses (H04Q 1/39 takes precedence) [3]
 - 1/34 Impulse regenerators with mechanical or other non-electrical marking arrangements
 - 1/36 Pulse-correcting arrangements, e.g. for reducing effects due to interference
 - 1/38 using combinations of direct currents of different amplitudes or polarities over line conductors or combination of line conductors
 - 1/39 using coded pulse groups [3]
 - 1/40 whereby duration of pulse or interval between two pulses is variable
 - 1/42 involving the position of a pulse in a cycle
 - 1/44 using ac (H04Q 1/50 takes precedence) [3]
 - 1/442 with out-of-voice band signalling frequencies [3]
 - 1/444 with voice-band signalling frequencies [3]
 - 1/446 using one signalling frequency (H04Q 1/46 takes precedence) [3]
 - 1/448 with conversion of a single frequency signal into a digital signal [3]
 - 1/45 using multi-frequency signalling (H04Q 1/46 takes precedence) [3]
 - 1/453 in which m-out-of-n signalling frequencies are transmitted [3]
 - 1/457 with conversion of multi-frequency signals into digital signals [3]
 - 1/46 comprising means for distinguishing between a signalling current of predetermined frequency and a complex current containing that frequency, e.g. speech current [3]
 - 1/48 Induced-current signalling arrangements
 - 1/50 Conversion between different kinds of signals
 - 1/54 Amplifier switched-on automatically in dependence on automatically selected lines
 - 1/56 Balancing circuitry switched-on automatically in dependence on automatically selected lines
 - 3/00 Selecting arrangements** (H04Q 5/00 to H04Q 11/00 take precedence)
 - 3/02 Circuit arrangements for selectors responsive to a permutation code
 - 3/04 Circuit arrangements for receivers of routing digits
 - 3/06 for group or trunk group selectors
 - 3/08 for local or long-distance selectors
 - 3/10 for PBX selectors, i.e. private branch exchange selectors
 - 3/12 for line selectors providing transfer of routing digits
 - 3/14 for two-way operation selectors
 - 3/16 for marking-switches
 - 3/18 Circuit arrangements for first stage of hunting switching
 - 3/20 for preselectors
 - 3/22 comprising common calling and disconnecting circuit
 - 3/24 for line finders
 - 3/26 comprising common calling and disconnecting circuit
 - 3/28 comprising main groups and subgroups
 - 3/30 Selector finders, i.e. allotters
 - 3/32 Circuit arrangements for second or subsequent stages of hunting switching [2]
 - 3/34 for the second preselection stage
 - 3/36 for the second line-finder stage
 - 3/38 for stages after the group-selector stage
 - 3/40 for stages after the line selector, e.g. for extension selector
 - 3/42 Circuit arrangements for indirect selecting controlled by common circuits, e.g. register controller, marker
 - 3/44 using revertive control
 - 3/46 using signals other than revertive impulses
 - 3/47 using translators
 - 3/48 using markers
 - 3/49 for end-to-end marking
 - 3/495 for routing connecting paths
 - 3/52 using static devices in switching stages, e.g. electronic switching arrangements [2]
 - 3/54 in which the logic circuitry controlling the exchange is centralised
 - 3/545 using a stored programme [4]
 - 3/55 using wired logic circuitry [4]
 - 3/555 being comprised by electro-magnetic devices [4]
 - 3/56 in which the control signals are multiplexed [2]
 - 3/58 Arrangements providing connection between main exchange and sub-exchange or satellite
 - 3/60 for connecting to satellites or concentrators which connect one or more exchange lines with a group of local lines
 - 3/62 for connecting to private branch exchanges
 - 3/64 Distributing or queuing
 - 3/66 Traffic distributors
 - 3/68 Grouping or interlacing selector groups or stages
 - 3/70 Identification of class of calling subscriber
 - 3/72 Finding out and indicating number of calling subscriber

H04Q – H04R

- 3/74 . . . Identification of subscriber calling from a party-line
- 3/76 . Translation from the called subscriber's number to the outgoing or incoming control information [4]
- 3/78 . Temporary storage of information of calling or called subscriber (intermediate storage means for telegraphic communication H04L 13/08) [4]
- 5/00 Selecting arrangements wherein two or more subscriber stations are connected by the same line to the exchange**
 - 5/02 . with direct connection for all subscribers, i.e. party-line system (H04Q 5/24 takes precedence)
 - 5/04 . . . Signalling by currents in one or other or both line wires or additional wires
 - 5/06 . . . Signalling by amplitude or polarity of dc
 - 5/08 . . . Signalling by continuous ac
 - 5/10 . . . using single frequencies for different subscribers
 - 5/12 using combinations of frequencies
 - 5/14 . . . Signalling by pulses
 - 5/16 by predetermined number of pulses
 - 5/18 . with indirect connection, i.e. through subordinate switching centre
 - 5/20 . . the subordinate centre permitting interconnection of subscribers connected thereto
 - 5/22 . . the subordinate centre not permitting interconnection of subscribers connected thereto
 - 5/24 . for two-party-line systems
- 7/00 Selecting arrangements to which subscribers are connected via radio links or inductive links**
 - 7/06 . in which the radio or inductive links are essentially one-way, e.g. selective calling systems [6]
 - 7/08 . . . Selective calling networks, e.g. wide area paging [6]
 - 7/10 . . . Selective call encoders, i.e. equipment at paging centre or base station [6]
 - 7/12 . . with acknowledge back capability [6]
 - 7/14 . . . Selective call receivers [6]
 - 7/16 Selective call decoders [6]
 - 7/18 . . . Functional features associated with selective call operation, e.g. battery saving circuits, address code programming [6]
 - 7/20 . . in which the radio or inductive links are two-way links, e.g. mobile radio systems [6]
 - 7/22 . . . using dedicated mobile switching centres, e.g. cellular systems [6]
 - 7/24 . . . using public exchanges or networks with at least partially integrated mobile switching or mobile application [6]
 - 7/26 . . . using a private branch exchange (PBX) as final selecting device, e.g. cordless PBX [6]
 - 7/28 . . . Trunked radio systems, i.e. sharing radio channel among active subscribers [6]
 - 7/30 . . . Base station equipment [6]
 - 7/32 . . . Mobile subscriber equipment [6]
 - 7/34 . . . Test or monitoring equipment [6]
 - 7/36 . . . Arrangements for mobile service area coverage, e.g. cells layout [6]
 - 7/38 . . . Arrangements for completing call to or from mobile subscriber [6]
- 9/00 Arrangements in telecontrol or telemetry systems for selectively calling a substation from a main station, in which substation desired apparatus is selected for applying a control signal thereto or for obtaining measured values therefrom**
 - 9/02 . Automatically-operated arrangements
 - 9/04 . Arrangements for synchronous operation
 - 9/06 . Calling by using amplitude or polarity of dc
 - 9/08 . Calling by using continuous ac
 - 9/10 . . . using single different frequencies
 - 9/12 . . . using combinations of frequencies
 - 9/14 . Calling by using pulses
 - 9/16 . . . by predetermined number of pulses
- 11/00 Selecting arrangements for multiplex systems (multiplex systems H04J)**
 - 11/02 . for frequency-division multiplexing
 - 11/04 . for time-division multiplexing
 - 11/06 . . . Time-space-time switching [5]
 - 11/08 . . . Time only switching [5]

H04R LOUDSPEAKERS, MICROPHONES, GRAMOPHONE PICK-UPS OR LIKE ACOUSTIC ELECTROMECHANICAL TRANSDUCERS; DEAF-AID SETS; PUBLIC ADDRESS SYSTEMS (generating mechanical vibrations in general B06B; transducers for measuring particular variables G01; transducers in clocks G04; producing sounds with frequency not determined by supply frequency G10K; transducers in recording or reproducing heads G11B; transducers in motors H02) [6]

Notes

- (1) This subclass covers:
 - loudspeakers, microphones, gramophone pick-ups or like transducers producing acoustic waves or variations of electric current or voltage;
 - arrangements actuated by variations of electric current or voltage for cutting grooves in records;
 - circuits for the above-mentioned arrangements;
 - monitoring or testing the above-mentioned equipment.
- (2) Attention is drawn to the Notes following the titles of class B81 and subclass B81B relating to “micro-structural devices” and “micro-structural systems”. [7]

Subclass Index

TYPES OF TRANSDUCER

- With magnetic circuit:
 - moving coil; moving armature;
 - magnetisable diaphragm;
 - magnetostriction..... 9/00; 11/00;
 - 13/00; 15/00
- Without magnetic circuit:
 - piezo-electric; electrostatic;
 - with variable resistance..... 17/00; 19/00;
 - 21/00

- Other types 23/00
- Details
 - general; circuits; diaphragms
 - and cones 1/00; 3/00;
 - 7/00

APPLICATIONS

- Stereophonic arrangements; deaf-aid; public address systems 5/00; 25/00;
- 27/00

MONITORING, TESTING; MANUFACTURE.....29/00; 31/00

- 1/00 **Details of transducers** (diaphragms H04R 7/00; characterised by the nature of the transducer, see the relevant group of main groups H04R 9/00 to H04R 23/00; mounting radio sets or communication systems in helmets A42B 3/30; mountings specially adapted for telephone equipment H04M 1/02)
- 1/02 . Casings; Cabinets; Mountings therein (H04R 1/28 takes precedence)
- 1/04 . . Structural association of microphone with electric circuitry therefor (in deaf-aid sets H04R 25/00)
- 1/06 . Arranging circuit leads; Relieving strain on circuit leads
- 1/08 . Mouthpieces; Attachments therefor
- 1/10 . Earpieces; Attachments therefor
- 1/12 . Sanitary or hygienic devices for mouthpieces or earpieces, e.g. for protecting against infection
- 1/14 . Throat mountings for microphones
- 1/16 . Mounting or connecting stylus to transducer with or without damping means
- 1/18 . . Holders for styli; Mounting holders on transducers
- 1/20 . Arrangements for obtaining desired frequency or directional characteristics (for stereophonic purposes H04R 5/00; speech enhancement by processing of the speech signal G10L 21/02)
- 1/22 . . for obtaining desired frequency characteristic only (circuits for combining transducers having different responses H04R 3/00)
- 1/24 . . . Structural combinations of separate transducers or of parts of the same transducer and responsive respectively to two or more frequency ranges
- 1/26 . . . Spatial arrangement of separate transducers responsive to two or more frequency ranges
- 1/28 . . . Transducer mountings or enclosures designed for specific frequency response; Transducer enclosures modified by provision of mechanical or acoustic impedances, e.g. resonator, damping means
- 1/30 . . . Combinations of transducers with horns, e.g. with mechanical matching means (horns in general G10K)
- 1/32 . . for obtaining desired directional characteristic only
- 1/34 . . . by using a single transducer with sound reflecting, diffracting, directing or guiding means
- 1/36 by using a single aperture of dimensions not greater than the shortest operating wavelength
- 1/38 in which sound waves act upon both sides of a diaphragm and incorporating acoustic phase-shifting means, e.g. pressure-gradient microphone

- 1/40 . . . by combining a number of identical transducers
- 1/42 . Combinations of transducers with fluid-pressure or other non-electrical amplifying means
- 1/44 . Special adaptations for subaqueous use, e.g. for hydrophone
- 1/46 . Special adaptations for use as contact microphones, e.g. on musical instrument, on stethoscope (throat mountings H04R 1/14)
- 3/00 **Circuits for transducers** (for stereophonic arrangements H04R 5/04; arrangements for producing a reverberation or echo sound G10K 15/08; amplifiers H03F)
 - 3/02 . for preventing acoustic reaction
 - 3/04 . for correcting frequency response
 - 3/06 . . of electrostatic transducers
 - 3/08 . . of electromagnetic transducers
 - 3/10 . . of variable-resistance microphones
 - 3/12 . for distributing signals to two or more loud-speakers
 - 3/14 . . Cross-over networks

5/00 **Stereophonic arrangements** (stereophonic pick-ups H04R 9/16, H04R 11/12, H04R 17/08, H04R 19/10)

Note

In this group, the following expression is used with the meaning indicated:
 – “stereophonic arrangements” covers quadrasonic or similar arrangements. [3]

- 5/02 . Spatial or constructional arrangements of loud-speakers
- 5/027 . Spatial or constructional arrangements of microphones, e.g. in dummy heads [3]
- 5/033 . Headphones for stereophonic communication [3]
- 5/04 . Circuit arrangements (combinations of amplifiers H03F 3/68; stereophonic systems H04S)
- 7/00 **Diaphragms for electromechanical transducers** (in general F16J 3/00); **Cones** (for musical instruments G10)
 - 7/02 . characterised by the construction
 - 7/04 . . Plane diaphragms
 - 7/06 . . . comprising a plurality of sections or layers
 - 7/08 comprising superposed layers separated by air or other fluid
 - 7/10 comprising superposed layers in contact
 - 7/12 . . Non-planar diaphragms or cones
 - 7/14 . . . corrugated, pleated, or ribbed
 - 7/16 . Mounting or tensioning of diaphragms or cones
 - 7/18 . . at the periphery

H04R

- 7/20 Securing diaphragm or cone resiliently to support by flexible material, springs, cords, or strands
- 7/22 Clamping rim of diaphragm or cone against seating
- 7/24 Tensioning by means acting directly on free portion of diaphragm or cone
- 7/26 Damping by means acting directly on free portion of diaphragm or cone (air damping H04R 1/28)
- 9/00 Transducers of moving-coil, moving-strip, or moving-wire type**
- 9/02 Details
- 9/04 Construction, mounting, or centering of coil
- 9/06 Loud-speakers
- 9/08 Microphones
- 9/10 Telephone receivers
- 9/12 Gramophone pick-ups using a stylus; Recorders using a stylus
- 9/14 comprising two or more styli or transducers (H04R 9/16 takes precedence)
- 9/16 signals being recorded or played-back by vibration of a stylus in two orthogonal directions simultaneously
- 9/18 Resonant transducers, i.e. adapted to produce maximum output at a predetermined frequency
- 11/00 Transducers of moving-armature or moving-core type** (acoustic diaphragm of magnetisable material directly co-acting with electromagnet H04R 13/00)
- 11/02 Loud-speakers
- 11/04 Microphones
- 11/06 Telephone receivers
- 11/08 Gramophone pick-ups using a stylus; Recorders using a stylus
- 11/10 comprising two or more styli or transducers (H04R 11/12 takes precedence)
- 11/12 signals being recorded or played-back by vibration of a stylus in two orthogonal directions simultaneously
- 11/14 Resonant transducers, i.e. adapted to produce maximum output at a predetermined frequency
- 13/00 Transducers having an acoustic diaphragm of magnetisable material directly co-acting with electromagnet**
- 13/02 Telephone receivers
- 15/00 Magnetostrictive transducers** (magnetostrictive elements in general H01L 41/00)
- 15/02 Resonant transducers, i.e. adapted to produce maximum output at a predetermined frequency
- 17/00 Piezo-electric transducers; Electrostrictive transducers** (piezo-electric or electrostrictive elements in general H01L 41/00; details of piezo-electric or electrostrictive motors, generators or positioners H02N 2/00)
- 17/02 Microphones
- 17/04 Gramophone pick-ups using a stylus; Recorders using a stylus
- 17/06 comprising two or more styli or transducers (H04R 17/08 takes precedence)
- 17/08 signals being recorded or played-back by vibration of a stylus in two orthogonal directions simultaneously
- 17/10 Resonant transducers, i.e. adapted to produce maximum output at a predetermined frequency
- 19/00 Electrostatic transducers**
- 19/01 characterised by the use of electrets [3]
- 19/02 Loud-speakers (H04R 19/01 takes precedence) [3]
- 19/04 Microphones (H04R 19/01 takes precedence) [3]
- 19/06 Gramophone pick-ups using a stylus; Recorders using a stylus (H04R 19/01 takes precedence) [3]
- 19/08 comprising two or more styli or transducers (H04R 19/10 takes precedence)
- 19/10 signals being recorded or played-back by vibration of a stylus in two orthogonal directions simultaneously
- 21/00 Variable-resistance transducers** (gaseous-resistance transducers H04R 23/00; magneto-resistive transducers H04R 23/00)
- 21/02 Microphones
- 21/04 Gramophone pick-ups using a stylus; Recorders using a stylus
- 23/00 Transducers other than those covered by groups H04R 9/00 to H04R 21/00**
- 23/02 Transducers using more than one principle simultaneously
- 25/00 Deaf-aid sets** (constructions of transducers per se H04R 9/00 to H04R 23/00; structural combination with spectacle frames G02C 11/06; processing of speech signals G10L 21/00)
- 25/02 adapted to be supported entirely by ear
- 25/04 comprising pocket amplifiers
- 27/00 Public address systems** (circuits for preventing acoustic reaction H04R 3/02; circuits for distributing signals to loud-speakers H04R 3/12; amplifiers H03F)
- 27/02 Amplifying systems for the deaf
- 27/04 Electric megaphones
- 29/00 Monitoring arrangements; Testing arrangements**
- 31/00 Apparatus or processes specially adapted for the manufacture of transducers or diaphragms therefor** (processes or apparatus specially adapted for the manufacture of micro-structural devices or systems, e.g. in combination with electrical devices, B81C)

H04S STEREOPHONIC SYSTEMS (information storage on discs or tapes G11B; broadcast systems for the distribution of stereophonic information H04H 5/00; multiplex systems in general H04J) [3]

Note

In this subclass, the following expression is used with the meaning indicated:

- “stereophonic systems” covers quadraphonic or similar systems. [3]

1/00 Two-channel systems (H04S 5/00, H04S 7/00 take precedence) [3]

3/00 Systems employing more than two channels, e.g. quadraphonic (H04S 5/00, H04S 7/00 take precedence) [3]

3/02 . of the matrix type, i.e. in which input signals are combined algebraically, e.g. after having been phase shifted with respect to each other [3]

5/00 Pseudo-stereo systems, e.g. in which additional channel signals are derived from monophonic signals by means of phase shifting, time delay or reverberation (arrangements for producing a reverberation or echo sound G10K 15/08) [3]

5/02 . of the pseudo four-channel type, e.g. in which rear channel signals are derived from two-channel stereo signals [3]

7/00 Indicating arrangements; Control arrangements, e.g. balance control [3]