

H04 ELECTRIC COMMUNICATION TECHNIQUE

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]

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.

DETAILS.....	1/00	SYSTEMS NOT CHARACTERISED BY THE	
SYSTEMS CHARACTERISED BY THE		MEDIUM USED FOR TRANSMISSION	14/00
MEDIUM USED FOR TRANSMISSION		SUPPRESSION OR LIMITATION OF NOISE	
Using conductors	3/00	OR INTERFERENCE	15/00
Using free-space propagation	5/00 11/00	MONITORING, TESTING	17/00
Others.....	13/00		

1/00	Details of transmission systems, not covered by a single one of groups H04B 3/00 H04B 13/00; Details of transmission systems not characterised by the medium used for transmission (tuning resonant circuits H03J) [4]	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
1/02	. Transmitters (spatial arrangements of component circuits in radio pills for living beings A61B 5/07)	1/40	. . Circuits
1/03	. . Constructional details, e.g. casings, housings [2]	1/44	. . . Transmit/receive switching (in radar systems G01S; tubes therefor H01J 17/64; waveguide switches H01P 1/10) [2]
1/034	. . . Portable transmitters [2]	1/46	 by voice-frequency signals; by pilot signals
1/036	. . . Cooling arrangements (cooling transformers H01F 27/08; cooling discharge tubes H01J 7/24, H01J 19/74) [2]	1/48	 in circuit for connecting transmitter and receiver to a common transmission path, e.g. by energy of transmitter
1/04	. . Circuits (of television transmitters H04N 5/38)	1/50	. . . using different frequencies for the two directions of communication
1/06	. Receivers (control of amplification H03G; television receivers H04N 5/44, H04N 5/64)	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>
1/08	. . Constructional details, e.g. cabinet	1/54	. . . using the same frequency for both directions of communication (H04B 1/44 takes precedence)
1/10	. . Means associated with receiver for limiting or suppressing noise or interference	1/56	 with provision for simultaneous communication in both directions
1/12	. . . Neutralising, balancing, or compensation 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>
1/14	. . . Automatic detuning arrangements	1/59	. Responders; Transponders (relay systems H04B 7/14)
1/16	. . Circuits	1/60	. Supervising unattended repeaters
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)	1/62	. for providing a predistortion of the signal in the transmitter and corresponding correction in the receiver, e.g. for improving the signal/noise ratio
1/20	. . . for coupling gramophone pick-up, recorder output, or microphone to receiver	1/64	. . Volume compression or expansion arrangements
1/22	. . . for receivers in which no local oscillation is generated	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)
1/24	 the receiver comprising at least one semiconductor device having three or more electrodes	1/68	. for wholly or partially suppressing the carrier or one side band [4]
1/26	. . . for superheterodyne receivers (multiple frequency-changing H03D 7/16)	1/69	. Spread spectrum techniques in general (for code multiplex systems H04J 13/02) [6]
1/28	 the receiver comprising at least one semiconductor device having three or more electrodes	1/707	. . using direct sequence modulation [6]
1/30	. . . for homodyne or synchrodyne receivers (demodulator circuits H03D 1/22)	1/713	. . using frequency hopping [6]

H04B

- 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 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]