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

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.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00  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)

NOTE
In this group, group H04B 1/0003 takes precedence over groups H04B 1/005 - H04B 1/76

1/0003  . . . (Software-defined radio [SDR] systems, i.e.
systems wherein components typically implemented in hardware, e.g. filters or modulators/demodulators,
are implemented using software, e.g. by involving an AD or DA conversion stage such that at least part
of the signal processing is performed in the digital domain (digital baseband systems H04L 25/00;
digital modulation/demodulation H04L 27/00; CDMA H04B 1/707; TDMA H04B 7/2643; image
transmission H04N 5/00))

1/0007  . . . (wherein the AD/DA conversion occurs at
radiofrequency or intermediate frequency stage)

1/001  . . . (Channel filtering, i.e. selecting a frequency
channel within the SDR system (multiplexing of multichannel modulation signals being
represented by different frequencies H04L 5/006; multiplexing of multichannel modulation
signals H04L 5/023))

1/0014  . . . (using DSP [Digital Signal Processor]
quadrate modulation and demodulation)

1/0017  . . . (Digital filtering (H04B 1/0001 takes
precedence; digital filters per se H03D 17/00))

1/0021  . . . (Decimation, i.e. data rate reduction
techniques)

1/0025  . . . (using a sampling rate lower than twice the
highest frequency component of the sampled
signal (for demodulation of angle-modulated
signals H03D 3/006))

1/0028  . . . (wherein the AD/DA conversion occurs at
baseband stage)

1/0032  . . . (with analogue quadrature frequency
conversion to and from the baseband
(quadrature modulators and demodulators per
se H03D 3/007, H03C 3/40))

1/0035  . . . (Channel filtering, i.e. selecting a frequency
channel within a software radio system
(multiplexing of multichannel modulation
signals being represented by different
frequencies H04L 5/006; multiplexing of
multichannel modulation signals H04L 5/023))

1/0039  . . . (using DSP [Digital Signal Processor]
quadrate modulation and demodulation)

1/0042  . . . (Digital filtering (H04B 1/0035 takes
precedence; digital filters per se H03H 17/00))

1/0046  . . . (Decimation, i.e. data rate reduction
techniques)

1/005  . . . (adapting radio receivers, transmitters
and transceivers for operation on two or more bands,
i.e. frequency ranges)

1/0053  . . . (with common antenna for more than one band)

1/0057  . . . (using duplexing or multiplexing filters for
selecting the desired band)

1/006  . . . (using switches for selecting the desired band
(H04B 1/0057 takes precedence))

1/0064  . . . (with separate antennas for the more than one
band (H04B 1/0057 takes precedence))

1/0067  . . . (with one or more circuit blocks in common for
different bands)

1/0071  . . . (using a common intermediate frequency
for more than one band (H04B 1/0075 takes
precedence))

1/0075  . . . (using different intermediate frequencies for
the different bands)

1/0078  . . . (with a common intermediate frequency
amplifier for the different intermediate
frequencies, e.g. when using switched
intermediate frequency filters)

1/0082  . . . (with a common local oscillator for more than
one band)
1/0085  . . . . [where one band is the image frequency band of the other and the band selection is done by image rejection]
1/0089  . . . . [using a first intermediate frequency higher that the highest of any band received]
1/0092  . . . . [using a wideband front end]
1/0096  . . . . [where a full band is frequency converted into another full band]
1/02  Transmitters (spatial arrangements of component circuits in radio pills for living beings A61B 5/07)
1/03  Constructional details, e.g. casings, housings (adapted for airplanes B64D)
1/034  Portable transmitters ([distress beacons G01S 1/06; means for indicating the location of accidentally buried persons A63B 29/021])
1/0343  . . . . [to be carried on the body]
1/0346  . . . . [Hand-held transmitters]
1/036  . . . . Cooling arrangements (cooling transformers H01P 27/08; cooling discharge tubes H01J 7/24, H01J 19/74)
1/04  Circuits (of television transmitters H04N 5/38; oscillators H03B; modulators H03C 1/00; H03C 3/00; H03C 5/00; amplifiers H03E; power supplies H04B 1/1607)
2001/0408  . . . . [with power amplifiers]
2001/0416  . . . . [having gain or transmission power control]
2001/0425  . . . . [with linearisation using predistortion]
2001/0433  . . . . [with linearisation using feedback]
2001/0441  . . . . [with linearisation using feed-forward]
2001/045  . . . . [with means for improving efficiency]
1/0458  . . . . [Arrangements for matching and coupling between power amplifier and antenna or between amplifying stages (matching circuits in general H03H)]
1/0466  . . . . [Fault detection or indication (H04B 1/0483 takes precedence)]
1/0475  . . . . [with means for limiting noise, interference or distortion (H04B 1/0483 takes precedence)]
1/0483  . . . . [Transmitters with multiple parallel paths]
2001/0491  . . . . [with frequency synthesizers, frequency converters or modulators]
1/06  . . . . Receivers (control of amplification H03G; television receivers H04N 5/44, H04N 5/64)
1/08  Constructional details, e.g. cabinet
1/082  . . . . [to be used in vehicles (H04B 1/086 takes precedence; holding or mounting accessories B60R 11/02)]
2001/084  . . . . [with removable front panel]
1/086  . . . . [Portable receivers]
1/088  . . . . [with parts of the receiver detachable or collapsible]
1/10  . . . . Means associated with receiver for limiting or suppressing noise or interference [induced by transmission (interference reduction in spread spectrum systems H04B 1/7097; equalising on HF or IF H04B 7/005; diversity systems H04B 7/02; elimination of image frequencies H03D 7/18; noise suppression by control of amplification H03G 3/00, H03G 5/00, H03G 7/00; squelching H03G 3/26, H03G 3/34)]
1/1009  . . . . [Placing the antenna at a place where the noise level is low and using a noise-free transmission line between the antenna and the receivers (screened aerials H01Q 7/04; feeders for aerials H01Q 9/00)]
1/1018  . . . . [noise filters connected between the power supply and the receiver (suppression or limitation of noise from electric apparatus H04B 15/00; demodulation H03D; ripple filters H02M 1/14; filters in general 95G, H03H; power supplies H04B 1/1607)]
1/1027  . . . . [assessing signal quality or detecting noise/interference for the received signal]
1/1036  . . . . [with automatic suppression of narrow band noise or interference, e.g. by using tuneable notch filters (H04B 1/123 takes precedence; filter circuits H03H)]
2001/1045  . . . . [Adjacent-channel interference]
2001/1054  . . . . [by changing bandwidth]
2001/1063  . . . . [using a notch filter]
2001/1072  . . . . [by tuning the receiver frequency]
1/1081  . . . . [Reduction of multipath noise (by equalising H04B 7/005)]
1/109  . . . . [by improving strong signal performance of the receiver when strong unwanted signals are present at the receiver input]
1/12  . . . . Neutralising, balancing, or compensation arrangements (balancing ripple filters H04B 15/005 H02M 1/143)]
1/123  . . . . [using adaptive balancing or compensation means (adaptive filter circuits and algorithms H03H)]
1/126  . . . . [having multiple inputs, e.g. auxiliary antenna for receiving interfering signal (aerials in general H01Q)]
1/14  . . . . Automatic detuning arrangements
1/16  . . . . Circuits (demodulators H03D)
1/1607  . . . . [Supply circuits (converters H02M; filters therefor H02M 1/14; voltage stabilisers G05F 1/46)]
1/1615  . . . . [Switching on; Switching off, e.g. remotely (battery saving circuits associated with selective call operation H04W 5/200; details of power consumption reduction in a PLL, H03L 7/0802, H03L 7/14, H03L 220/0708, H03L 220/1708; muting amplifiers by gain control see H03G 3/34)]
1/1623  . . . . [using tubes]
1/163  . . . . [Special arrangements for the reduction of the damping of resonant circuits of receivers (amplifiers H03F; negative impedance networks for line transmission systems H04B 3/16)]
1/1638  . . . . [Special circuits to enhance selectivity of receivers not otherwise provided for (resonant circuits H03H)]
1/1646  . . . . [adapted for the reception of stereophonic signals]
1/1653  . . . . [Detection of the presence of stereo signals and pilot signal regeneration]
1/1661  . . . . [Reduction of noise by manipulation of the baseband composite stereophonic signal or the decoded left and right channels]
1/1669  . . . . [of the demodulated composite stereo signal]
1/1676 . . . . . [of the sum or difference signal]
1/1684 . . . . . [of the decoded left or right stereo channel]
1/1692 . . . . . [using companding of the stereo difference signal, e.g. FMX (volume compression or expansion in amplifiers H03G 7/00)]
1/18 . . . . . Input circuits, e.g. for coupling to an antenna or a transmission line (coupling networks between antennas or lines and receivers independent of the nature of the receiver H03H)
1/20 . . . . . for coupling gramophone pick-up, recorder output, or microphone to receiver (. e.g. for Hi-Fi systems or audio/video combinations (constructional details for associated working of receivers and recording devices G11B 31/003; for television signals only H04N 5/00))
1/202 . . . . . [by remote control]
1/205 . . . . . [with control bus for exchanging commands between units]
1/207 . . . . . [with an audio or audio/video bus for signal distribution (H04B 1/205 takes precedence)]
1/22 . . . . . for receivers in which no local oscillation is generated
1/24 . . . . . the receiver comprising at least one semiconductor device having three or more electrodes
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
1/30 . . . . . for homodyne or synthesodyne receivers (demodulator circuits H03D 1/22)
1/302 . . . . . [for single sideband receivers (demodulator circuits H03D 1/24)]
2001/305 . . . . [using dc offset compensation techniques]
2001/307 . . . . [using n-port mixer]
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
1/3805 . . . . . with built-in auxiliary receivers
2001/3811 . . . . [Split configuration of transmission devices]
1/3816 . . . . . Mechanical arrangements for accommodating identification devices, e.g. cards or chips; with connectors for programming identification devices
1/3818 . . . . . Arrangements for facilitating insertion or removal of identification devices
1/3822 . . . . . specially adapted for use in vehicles (H04B 1/3827 takes precedence)
1/3827 . . . . . Portable transceivers
1/3833 . . . . . [Hand-held transceivers]
1/3838 . . . . . [Arrangements for reducing RF exposure to the user, e.g. by changing the shape of the transceiver while in use]
2001/3844 . . . . . [with means to alert the user that a certain exposure has been reached]
1/385 . . . . . [Transceivers carried on the body, e.g. in helmets]
2001/3855 . . . . . [carried in a belt or harness]
2001/3861 . . . . . [carried in a hand or on fingers]
2001/3866 . . . . . [carried on the head]
2001/3872 . . . . . [with extendable microphones or earphones]
1/3877 . . . . . Arrangements for enabling portable transceivers to be used in a fixed position, e.g. cradles or boosters
1/3883 . . . . . Arrangements for mounting batteries or battery chargers
1/3888 . . . . . Arrangements for carrying or protecting transceivers
2001/3894 . . . . [Waterproofing of transmission device]
1/40 . . . . . Circuits
1/401 . . . . . for selecting or indicating operating mode
1/403 . . . . . using the same oscillator for generating both the transmitter frequency and the receiver local oscillator frequency
1/405 . . . . . with multiple discrete channels
1/406 . . . . . [with more than one transmission mode, e.g. analog and digital modes]
1/408 . . . . . the transmitter oscillator frequency being identical to the receiver local oscillator frequency
1/44 . . . . . Transmit/receive switching
1/46 . . . . . by voice-frequency signals; by pilot signals
1/48 . . . . . in circuits for connecting transmitter and receiver to a common transmission path, e.g. by energy of transmitter (H04B 1/46 takes precedence)
2001/485 . . . . . [inhibiting unwanted transmission]
1/50 . . . . . using different frequencies for the two directions of communication
1/52 . . . . . Hybrid arrangements, i.e. arrangements for transition from single-path two-direction transmission to single-direction transmission on each of two paths or vice versa
1/525 . . . . . with means for reducing leakage of transmitter signal into the receiver
1/54 . . . . . using the same frequency for two directions of communication (H04B 1/44 takes precedence)
1/56 . . . . . with provision for simultaneous communication in two directions
1/58 . . . . . Hybrid arrangements, i.e. arrangements for transition from single-path two-direction transmission to single-direction transmission on each of two paths or vice versa
1/581 . . . . . [using a transformer]
1/582 . . . . . [with automatic balancing]
1/583 . . . . . [using a bridge network]
1/585 . . . . . [with automatic balancing]
1/586 . . . . . [using an electronic circuit]
1/587 . . . . . [using opto-couplers (light transmission systems H04B 10/00)]
1/588 . . . . . [using sampling gates]
1/59 . . . . . Responders; Transponders (relay systems H04B 7/14)
1/60 . . . . . Supervising unattended repeaters
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 (for optical transmitters H04B 10/58)
1/64 . . . . . Volume compression or expansion arrangements (for amplifiers H03G 7/00)
1/66 . . . . . for reducing bandwidth of signals (in pictorial communication systems H04N); for improving efficiency of transmission (H04B 1/68 takes precedence; vocoders H04L)
Spread spectrum techniques

- Using direct sequence modulation
- Related theory
- Using chirp
- Using time hopping
- Using code hopping
- Using psychoacoustic properties of the ear, e.g. compression or expansion
- Using frequency hopping
- Using impulse radio

Interference-related aspects

- Correlator structure
- Carrier synchronisation aspects
- Locked loop
- Cell search, e.g. using a three-step approach
- Multi-mode search, i.e. using multiple search strategies
- Multi-step acquisition, e.g. multi-dwell, coarse-fine or validation
- Multi-dwell schemes, i.e. multiple accumulation times

Parallel implementation

Cell search, e.g. using a three-step approach

- Using a code tracking loop, e.g. a delay locked loop
- Using partial detection (H04B 1/70758 takes precedence)
- Partial phase search
- Setting of search window, i.e. range of code offsets to be searched (H04B 1/70758 takes precedence)
- Setting of lock conditions, e.g. threshold
- Jumping within the code, i.e. masking or slewing (H04B 1/70758 takes precedence)
- (with increased resolution, i.e. higher than half a chip (H04B 1/70758 takes precedence)
- Multimode search, i.e. using multiple search strategies
- Multi-step acquisition, e.g. multi-dwell, coarse-fine or validation
- Multi-dwell schemes, i.e. multiple accumulation times

- Parallel interference cancellation
- Successive interference cancellation
- Using decorrelation matrix
- Using minimum mean squared error (MMSE) detector
- Using maximum-likelihood sequence estimation (MLSE)

Selection, re-selection, allocation or re-allocation of paths to fingers, e.g. timing offset control of allocated fingers

- Weighting of fingers for combining, e.g. amplitude control or phase rotation using an inner loop
- Using frequency hopping
- Arrangements for generation of hop frequencies, e.g. using a bank of frequency sources, using continuous tuning or using a transform

Arrangements for generation of hop patterns

- Interference-related aspects
- [with means for suppressing interference]
- [with means for preventing interference]
- Arrangements for sequence synchronisation
- Acquisition
- Tracking
- Using impulse radio

Arrangements for generation of hop patterns

- Interference-related aspects
- [with means for suppressing interference]
- [with means for preventing interference]
- Arrangements for sequence synchronisation
- Acquisition
- Tracking
- Using impulse radio

Arrangements for generation of hop patterns

- Interference-related aspects
- [with means for suppressing interference]
- [with means for preventing interference]
- Arrangements for sequence synchronisation
- Acquisition
- Tracking
- Using impulse radio
Line transmission systems (combined with near-field transmission systems H04B 5/00; constructional features of cables H01B 1/00)

3/00  Details
3/02  Hybrid circuits (for transceivers H04B 1/52, H04B 1/58; hybrid junctions of the waveguide type H01P 5/16)
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 takes precedence)
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
3/22  using a set of bandfilters
3/23  using a replica of transmitted signal in the time domain, e.g. echo cancellers
3/231  (Echo cancellers using readout of a memory to provide the echo replica)
3/232  (using phase shift, phase roll or frequency offset correction)
3/234  (using double talk detection)
3/235  (combined with adaptive equaliser)
3/237  (using two adaptive filters, e.g. for near end and for end echo cancelling)
3/238  (using initial training sequence)
3/26  Improving frequency characteristic by the use of loading coils (loading coils per se H01F 17/00)
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
3/462  Testing group delay or phase shift, e.g. timing jitter
3/466  Testing attenuation in combination with at least one of group delay and phase shift
3/48  Testing attenuation (H04B 3/466 takes precedence)
3/493  Testing crosstalk effects
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
3/56  Systems for transmission via power distribution lines
3/54  Systems for transmission via power distribution
3/542  (the information being in digital form)
3/544  (Setting up communications; Call and signalling arrangements)
3/546  (Combination of signalling, telemetering, protection (circuits for remote indication of supply or distribution network condition H02J 13/00))
3/548  (the power on the line being DC (arrangements for feeding power H04L 12/10; extracting feeding power from signals H04L 25/02))
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
5/0006  (using a receiver structurally associated with a loudspeaker or an earphone)
5/0012  (using capacitive coupling)
5/0018  (using leaky or radiating cables, e.g. leaky coaxial cables or power lines for inductive transmission (leaky cables per se H01Q 13/20; for railways B61L 3/22))
5/0025  (Near field system adaptations)
5/0031  (for data transfer)
5/0037  (for power transfer)
5/0043  (for taking measurements, e.g. using sensor coils)
5/005  (for isolation purposes)
5/0056  (for use in interrogation, identification or read/write systems (record carriers G06K 7/00, G06K 19/00; for railways B61L 3/12))
Radio transmission systems, i.e. using radiation field (H04B 10/00, H04B 15/00 take precedence)

- [Reducing depolarization effects]
- Control of transmission; Equalising
- Reducing phase shift
- Reducing echo effects
- Diversity systems; Multi-antenna system, i.e. transmission or reception using multiple antennas (RAKE receivers H04B 1/7115)

**WARNING**

Group H04B 7/02 is impacted by reclassification into group H04B 1/7115. Groups H04B 7/02 and H04B 1/7115 should be considered in order to perform a complete search.

- Site diversity; Macro-diversity (using two or more spaced independent antennas H04B 7/04)
- Co-operative use of antennas of several sites, e.g. in co-ordinated multipoint or co-operative multiple-input multiple-output [MIMO] systems
- Spatial transmit diversity using a single antenna at the transmitter
- using two or more spaced independent antennas
- the mobile station comprising multiple antennas, e.g. to provide uplink diversity
- using two or more beams, i.e. beam diversity
- MIMO systems
- Feedback systems
- utilising implicit feedback, e.g. steered pilot signals
- Power distribution
- using best eigenmode, e.g. beam forming or beam steering
- using multiple eigenmodes
- utilizing channel inversion
- utilizing “waterfilling” technique
- utilizing uniform distribution
- Multi-user MIMO systems
- Selection of precoding matrices or codebooks, e.g. using matrices antenna weighting
- taking physical layer constraints into account
- taking power amplifier or emission constraints, e.g. constant modulus, into account
- taking special antenna structures, e.g. cross polarized antennas into account
- taking constraints in layer or codeword to antenna mapping into account
- Special codebook structures directed to feedback optimization
- [Adaptive codebooks]
- [taking channel rank into account]
- using two or more sectors, i.e. sector diversity
- using overlapping sectors in the same base station to implement MIMO for antennas
- at the transmitting station
- using antenna switching (H04B 7/0686 takes precedence; antenna beam directivity switching H01Q 3/24)
- with predefined switching scheme
- [Random or pseudo-random switching scheme]
- [Antenna selection according to transmission parameters]
- [using feedback from receiving side]
- [using simultaneous transmission (H04B 7/0686 takes precedence)]
- [of weighted versions of same signal]
- [for beam forming]
- [using feedback from receiving side (feedback signaling for adaptive modulation/coding H04L 1/0001)]
- [Feedback content]
- [Auxiliary parameters, e.g. power control [PCB] or not acknowledged commands [NACK], used as feedback information]
- [Channel coefficients, e.g. channel state information [CSI]]
- [Diversity capabilities]
- [Parameters other than those covered in groups H04B 7/0623, H04B 7/0634, e.g. channel matrix rank or transmit mode selection]
- [Channel quality parameters, e.g. channel quality indicator [CQI]]
- [Antenna weights or vector/matrix coefficients]
- [Feedback format]
- [Using selective indices, e.g. of a codebook, e.g. pre-distortion matrix index [PMI] or for beam selection]
- [Differential feedback]
- [Feedback on request]
- [Variable feedback]
- [Variable feedback rate]
- [Variable contents, e.g. long-term or short-term]
- [Feedback error handling]
- [at the receiver, e.g. antenna verification at mobile station]
- [at the transmitter, e.g. error detection at base station]
- [Feedback reduction]
{Combined feedback for a number of channels, e.g. over several subcarriers like in orthogonal frequency division multiplexing (OFDM)}

{using vector or matrix manipulations}

{Feed forward of transmit weights to the receiver}

(of delayed versions of same signal (using space-time coding H04L 1/0618))

{using different channel coding between antennas (space-time coding H04L 1/0618)}

{using different delays between antennas}

{using feedback from receiving side}

{using random or pseudo-random delays}

{using different spreading codes between antennas (code allocation H04J 13/16)}

{using space frequency diversity (space-frequency coding H04L 1/0666)}

{using phase diversity (e.g. phase sweeping)}

{using different training sequences per antenna}

[Hybrid systems, i.e. switching and simultaneous transmission]

{using different transmission schemes, at least one of them being a diversity transmission scheme}

{using subgroups of transmit antennas}

{switching off a diversity branch, e.g. to save power}

{using beam selection}

{using spatial multiplexing}

at the receiving station

{using antenna selection (H04B 7/0868 takes precedence; antenna beam directivity switching H04Q 3/24)}

(with single receiver and antenna switching (H04B 7/0822 takes precedence))

{comparing all antennas before reception}

{during preamble or gap period}

{based on current reception conditions, e.g. switching to different antenna when signal level is below threshold}

{with multiple receivers and antenna path selection}

{selecting best antenna path}

{according to predefined selection scheme}

{with main and with auxiliary or diversity antennas}

{with delay elements in antenna paths}

{Compensation of the diversity switching process for non-uniform properties or faulty operations of the switches used in the diversity switching process}

{based on external parameters, e.g. subscriber speed or location}
H04B

7/15507 . . . . . {Relay station based processing for cell extension or control of coverage area, (network planning with network coordinated processing with regard to cell extension H04W 16/26; network topologies using dedicated repeater stations H04W 84/047; terminal devices adapted for relaying to or from an other terminal H04W 88/04)}

7/15514 . . . . . {for shadowing compensation (for satellite mobile telephony service systems H04B 7/18536)}

7/15521 . . . . . {combining by calculations packets received from different stations before transmitting the combined packets as part of network coding (network coding aspects for detection or prevention of errors in the information received H04L 1/0076; network traffic management with optimizing of information sizing, e.g. header compression, by using assembly and disassembly of packets H04W 28/065)}

7/15528 . . . . . {Control of operation parameters of a relay station to exploit the physical medium} 7/15535 . . . . . {Control of relay amplifier gain (amplifier gain control in general H03G 3/00; gain control reducing self - or loop interference H04B 7/15578)}

7/15542 . . . . . {Selecting at relay station its transmit and receive resources (selection of wireless resources by user or terminal H04W 72/02; arrangements affording multiple use of the transmission path by two-dimensional division of the resources H04L 5/0003; or by allocating sub-channels H04L 5/0003)}

7/1555 . . . . . {Selecting relay station antenna mode, e.g. selecting omnidirectional -, directional beams, selecting polarizations} 7/1557 . . . . . {Selecting relay station operation mode, e.g. between amplify and forward mode, decode and forward mode or FDD - and TDD mode} 7/15564 . . . . . {Relay station antenna loop interference reduction} 7/15571 . . . . . {by signal isolation, e.g. isolation by frequency or by antenna pattern, or by polarization} 7/15578 . . . . . {by gain adjustment} 7/15585 . . . . . {by interference cancellation} 7/15592 . . . . . {Adapting at the relay station communication parameters for supporting cooperative relaying, i.e. transmission of the same data via direct - and relayed path (cooperative diversity H04B 7/024)}

7/165 . . . . . employing angle modulation 7/17 . . . . . employing pulse modulation, e.g. pulse code modulation 7/185 . . . . Space-based or airborne stations; {Stations for satellite systems} (H04B 7/204 takes precedence) 7/18502 . . . . {Airborne stations} 7/18504 . . . . {Aircraft used as relay or high altitude atmospheric platform} 7/18506 . . . . {Communications with or from aircraft, i.e. aeronautical mobile service} 7/18508 . . . . . {with satellite system used as relay, i.e. aeronautical mobile satellite service} 7/1851 . . . . . {Systems using a satellite or space-based relay (H04B 7/18508, H04B 7/18521 take precedence; providing specific services H04B 7/18523 - H04B 7/18576)}

7/18513 . . . . . {Transmission in a satellite or space-based system} 7/18515 . . . . . {Transmission equipment in satellites or space-based relays} 7/18517 . . . . . {Transmission equipment in earth stations} 7/18519 . . . . . {Operations control, administration or maintenance} 7/18521 . . . . . {Systems of inter linked satellites, i.e. inter satellite service (for optical links between satellites H04B 10/118)} 7/18523 . . . . . {Satellite systems for providing broadcast service to terrestrial stations, i.e. broadcast satellite service (arrangements specially adapted for satellite broadcast receiving H04H 40/90; picture transmission via satellite H04N 1/00103; television transmission via satellite H04N 7/20)}

7/18526 . . . . . {Arrangements for data linking, networking or transporting, or for controlling an end to end session (data switching networks H04L 12/00)}

7/18528 . . . . . {Satellite systems for providing two-way communications service to a network of fixed stations, i.e. fixed satellite service or very small aperture terminal [VSAT] system} 7/1853 . . . . . {Satellite systems for providing telephony service to a mobile station, i.e. mobile satellite service (for selecting H04W)} 7/18532 . . . . . {Arrangements for managing transmission, i.e. for transporting data or a signalling message} 7/18534 . . . . . {for enhancing link reliability, e.g. satellites diversity} 7/18536 . . . . . {Shadowing compensation therefor, e.g. by using an additional terrestrial relay} 7/18539 . . . . . {Arrangements for managing radio resources, i.e. for establishing or releasing a connection} 7/18541 . . . . . {for handover of resources} 7/18543 . . . . . {for adaptation of transmission parameters, e.g. power control (for detecting or preventing errors in the information received H04L 1/00)} 7/18545 . . . . . {Arrangements for managing station mobility, i.e. for station registration or localisation} 7/18547 . . . . . {for geolocalisation of a station (position fixing by direction or distance determination G01S 5/00)} 7/1855 . . . . . { [using a telephonic control signal, e.g. propagation delay variation, Doppler frequency variation, power variation, beam identification]}

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7/18552 . . . . . . [using a telephonic control signal and a second ranging satellite (determining absolute distances from a plurality of spaced points of known location G01S 5/14)]

7/18554 . . . . . . [using the position provided by an existing geolocalisation system]

7/18556 . . . . . . [using a location database]

7/18558 . . . . . . [Arrangements for managing communications, i.e. for setting up, maintaining or releasing a call between stations]

7/1856 . . . . . . [for call routing]

7/18563 . . . . . . [Arrangements for interconnecting multiple systems (data switching networks H04L 12/00)]

7/18565 . . . . . . [Arrangements for preventing unauthorised access or for providing user protection (arrangements for secret or secure communication H04L 9/00)]

7/18567 . . . . . . [Arrangements for providing additional services to the basic mobile satellite telephony service]

7/18569 . . . . . . [Arrangements for system physical machine management, i.e. for construction operations control, administration, maintenance]

7/18571 . . . . . . [for satellites; for fixed or mobile stations]

7/18573 . . . . . . [for operations control, administration or maintenance]

7/18576 . . . . . . [Satellite systems for providing narrowband data service to fixed or mobile stations, e.g. using a minisatellite, a microsatellite (for selecting H04W)]

7/18578 . . . . . . [Satellite systems for providing broadband data service to individual earth stations (for selecting H04W; provisions for broadband connection, H04Q 11/0478)]

7/1858 . . . . . . [Arrangements for data transmission on the physical system, i.e. for data bit transmission between network components]

7/18582 . . . . . . [Arrangements for data linking, i.e. for data framing, for error recovery, for multiple access]

7/18584 . . . . . . [Arrangements for data networking, i.e. for data packet routing, for congestion control (data switching networks H04L 12/00)]

7/18586 . . . . . . [Arrangements for data transporting, e.g. for an end to end data transport or check]

7/18589 . . . . . . [Arrangements for controlling an end to end session, i.e. for initialising, synchronising or terminating an end to end link]

7/18591 . . . . . . [Arrangements for interconnecting multiple systems (data switching networks H04L 12/00)]

7/18593 . . . . . . [Arrangements for preventing unauthorised access or for providing user protection (arrangements for secret or secure communication H04L 9/00)]

7/18595 . . . . . . [Arrangements for adapting broadband applications to satellite systems]

7/18597 . . . . . . [Arrangements for system physical machine management, i.e. for construction, operations control, administration, maintenance]

7/19 . . . . . . [Earth-synchronous stations]

7/195 . . . . . . [Non-synchronous stations]

7/204 . . . . . . [Multiple access]

7/2041 . . . . . . [Spot beam multiple access]

7/2043 . . . . . . [Mixed mode, TDM and FDM systems]

7/2045 . . . . . . [SS-FDMA, FDMA satellite switching]

7/2046 . . . . . . [SS-TDMA, TDMA satellite switching]

7/2048 . . . . . . [Frame structure, synchronisation or frame acquisition in SS-TDMA systems]

7/208 . . . . . . [Frequency-division multiple access (FDMA)]

7/212 . . . . . . [Time-division multiple access (TDMA)]

7/2121 . . . . . . [Channels assignment to the different stations]

7/2123 . . . . . . [Variable assignment, e.g. demand assignment]

7/2125 . . . . . . [Synchronisation]

7/2126 . . . . . . [using a reference station]

7/2128 . . . . . . [Changing of the reference station]

7/216 . . . . . . [Code division or spread-spectrum multiple access (CDMA, SSSMA); spread spectrum techniques in general H04B 1/69]

7/22 . . . . . . [Scatter propagation systems, e.g. ionospheric, tropospheric or meteor scatter]

7/24 . . . . . . [for communication between two or more posts (wireless communication networks H04W)]

7/26 . . . . . . [at least one of which is mobile]

7/2603 . . . . . . [Arrangements for wireless physical layer control (H04B 7/2612 takes precedence)]

7/2606 . . . . . . [Arrangements for base station coverage control, e.g. by using relays in tunnels]

7/2609 . . . . . . [Arrangements for range control, e.g. by using remote antennas]

7/2612 . . . . . . [Arrangements for wireless medium access control, e.g. by allocating physical layer transmission capacity (H04B 7/2615 - H04B 7/2643 take precedence; provision for broadband connection H04Q 11/0478)]

7/2615 . . . . . . [using hybrid frequency-time division multiple access (FDMA-TDMA)]

7/2618 . . . . . . [using hybrid code-time division multiple access (CDMA-TDMA)]

7/2621 . . . . . . [using frequency division multiple access (FDMA) (H04B 7/2615 takes precedence)]

7/2625 . . . . . . [using common wave]

7/2628 . . . . . . [using code-division multiple access (CDMA) or spread spectrum multiple access (SSMA) (H04B 7/2618 takes precedence)]

7/2631 . . . . . . [for broadband transmission]

7/2634 . . . . . . [for channel frequency control]

7/2637 . . . . . . [for logical channel control]

7/264 . . . . . . [for data rate control]

7/2643 . . . . . . [using time-division multiple access (TDMA) (H04B 7/2615, H04B 7/2618 take precedence)]

7/2646 . . . . . . [for broadband transmission]

7/265 . . . . . . [for channel frequency control]

7/2653 . . . . . . [for logical channel control]

7/2656 . . . . . . [for structure of frame, burst]
Transmission systems employing electromagnetic waves other than radio-waves, e.g. infrared, visible or ultraviolet light, or employing corpuscular radiation, e.g. quantum communication

**NOTE**

Groups H04B 10/03, H04B 10/07, H04B 10/11, H04B 10/25, H04B 10/27, H04B 10/29 and H04B 10/40 - H04B 10/90, and their subgroups are based on IPC2013.01.

10/03. Arrangements for fault recovery

**WARNING**

This group and its subgroups are not complete pending reclassification; see also H04B 10/07 and subgroups H04B 10/071 - H04B 10/0799

10/07. Arrangements for monitoring or testing transmission systems; Arrangements for fault measurement of transmission systems

10/0705. [Prevention or detection of unauthorized access, e.g. tapping]

10/071. [using a reflected signal, e.g. using optical time-domain reflectometers (OTDRs)]

10/073. [using an out-of-service signal (H04B 10/071 takes precedence)]

10/0731. [Testing or characterisation of optical devices, e.g. amplifiers]
10/152 . . . [Non-coherent direct-detection systems]
10/22 . . . [Transmission between two stations which are mobile relative to each other)

**WARNING**

This group and its subgroup is no longer used for classification of new documents as from March 1, 2012. The backlog of this group and its subgroup is being continuously reclassified to H04B 10/2575 and H04B 10/70

10/225 . . . [using optical fibre links]
10/25 . . . Arrangements specific to fibre transmission
{ (optical fibres per se, structural details of arrangements comprising optical fibres or other optical elements G02B 6/00) }

**WARNING**

This group and its subgroups are not complete pending reclassification; see also H04B 10/12 and its subgroups

10/2503 . . . [Bidirectional transmission)
10/2504 . . . [Transmission components (H04B 10/40 takes precedence)]
10/2507 . . . for the reduction or elimination of distortion or dispersion
10/25073 . . . [using spectral equalisation, e.g. spectral filtering]
10/25077 . . . [using soliton propagation]
10/2513 . . . due to chromatic dispersion
10/25133 . . . [including a lumped electrical or optical dispersion compensator (H04B 10/2519, H04B 10/2525 take precedence); optical dispersion compensators involving optical fibres per se G02B 6/293]
10/25137 . . . [using pulse shaping at the transmitter, e.g. pre-chirping or dispersion supported transmission (DST)]
10/2519 . . . [using Bragg gratings (Bragg gratings per se G02B 6/02076; devices using fibre gratings for dispersion control per se G02B 6/29316)]
10/2525 . . . [using dispersion-compensating fibres (dispersion-tailored or dispersion compensation fibres per se G02B 6/02214)]
10/25253 . . . [with dispersion management, i.e. using a combination of different kind of fibres in the transmission system (devices with different kinds of fibres for dispersion control per se G02B 6/29374)]
10/2531 . . . [using spectral inversion]
10/2537 . . . due to scattering processes, e.g. Raman or Brillouin scattering
10/2543 . . . due to fibre non-linearities, e.g. Kerr effect (non-linear optical devices G02F 1/35)
10/255 . . . Self-phase modulation [SPM]
10/2557 . . . Cross-phase modulation [XPM]
10/2563 . . . [Four-wave mixing (FWM)]
10/2569 . . . due to polarisation mode dispersion [PMD]
10/2572 . . . [due to forms of polarisation-dependent distortion other than PMD]
10/2575 . . . Radio-over-fibre, e.g. radio frequency signal modulated onto an optical carrier (sub-carrier multiplexing H04J 14/0298)
10/297 . . . Bidirectional amplification
10/2971 . . . [A single amplifier for both directions]
10/2972 . . . [Each direction being amplified separately]
10/299 . . . Signal waveform processing, e.g. reshaping or retiming
10/30 . . . [Transmission systems employing beams of corpuscular radiation (arrangements for handling beams of corpuscular radiation, e.g. focusing, moderating, G21K 1/00)]

**WARNING**

This group is no longer used for classification of new documents as from March 1, 2012. The backlog of this group and its subgroups is being continuously reclassified to H04B 10/80 and H04B 10/90.

10/40 . . . Transceivers
10/43 . . . using a single component as both light source and receiver, e.g. using a photoemitter as a photoreceiver
10/50 . . . Transmitters
10/501 . . . [Structural aspects]
10/502 . . . [LED transmitters]
10/503 . . . [Laser transmitters]
10/504 . . . [using direct modulation]
10/505 . . . [using external modulation]
10/5051 . . . . . . . [using a series, i.e. cascade, combination of modulators]
10/5053 . . . . . . . [using a parallel, i.e. shunt, combination of modulators]
10/5055 . . . . . . . [using a pre-coder]
10/5057 . . . . . . . [using a feedback signal generated by analysing the optical output]
10/50572 . . . . . . . [to control the modulating signal amplitude including amplitude distortion]
10/50573 . . . . . . . [to control the modulator DC bias]
10/50577 . . . . . . . [to control the phase of the modulating signal]
10/5059 . . . . . . . [using a feed-forward signal generated by analysing the optical or electrical input]
10/50593 . . . . . . . [to control the modulating signal amplitude including amplitude distortion]
10/50595 . . . . . . . [to control the modulator DC bias]
10/50597 . . . . . . . [to control the phase of the modulating signal]
10/506 . . . . [Multi-wavelength transmitters (WDM systems in general H04J 14/02)]
10/508 . . . Pulse generation, e.g. generation of solitons
10/516 . . . Details of coding or modulation
10/5161 . . . [Combination of different modulation schemes]
10/5162 . . . [Return-to-zero modulation schemes]
10/5165 . . . [Carrier suppressed; Single sideband; Double sideband or vestigial]
10/5167 . . . [Duo-binary; Alternative mark inversion; Phase shaped binary transmission]
10/524 . . . Pulse modulation
10/532 . . . Polarisation modulation [e.g. polarization switching or transmission of a single data stream on two orthogonal polarizations (polarization multiplexed systems H04J 14/06)]
10/54 . . . Intensity modulation
10/541 . . . [Digital intensity or amplitude modulation]
10/548 . . . Phase or frequency modulation
10/556 . . . Digital modulation, e.g. differential phase shift keying [DPSK] or frequency shift keying [FSK]
10/5561 . . . [Digital phase modulation]
10/5563 . . . [Digital frequency modulation]
10/564 . . . Power control
10/572 . . . Wavelength control
10/58 . . . Compensation for non-linear transmitter output
10/588 . . . in external modulation systems
10/60 . . . Receivers
10/61 . . . Coherent receivers (i.e., optical receivers using an optical local oscillator (delay line interferometer based DPSK optical receivers H04B 10/677))
10/611 . . . [Intradyne, i.e., coherent receivers with a free running local oscillator having a frequency close but not phase-locked to the carrier signal]
10/612 . . . [for optical signals modulated with a format different from binary or higher-order PSK [X-PSK], e.g. QAM, DPSK, FSK, MSK, ASK]
10/613 . . . [including phase diversity, e.g., having in-phase and quadrature branches, as in QPSK coherent receivers]
10/614 . . . [comprising one or more polarization beam splitters, e.g. polarization multiplexed [PolMux] X-PSK coherent receivers, polarization diversity heterodyne coherent receivers (H04J 14/06 takes precedence)]
10/615 . . . [Arrangements affecting the optical part of the receiver (adjustment of the frequency or phase of the local oscillator in homodyne receivers H04B 10/63; use of polarization beam splitters H04B 10/614)]
10/6151 . . . . . . . [comprising a polarization controller at the receiver’s input stage]
10/616 . . . [Details of the electronic signal processing in coherent optical receivers]
10/6161 . . . [Compensation of chromatic dispersion]
10/6162 . . . [Compensation of polarization related effects, e.g., PMD, PDL]
10/6163 . . . [Compensation of non-linear effects in the fiber optic link, e.g. self-phase modulation [SPM], cross-phase modulation [XPM], four wave mixing [FWM]]
10/6164 . . . [Estimation or correction of the frequency offset between the received optical signal and the optical local oscillator]
10/6165 . . . [Estimation of the phase of the received optical signal, phase error estimation or phase error correction]
10/6166 . . . [Polarization demultiplexing, tracking or alignment of orthogonal polarization components (polarisation multiplex systems H04J 14/06)]
Non-optical transmission systems, e.g. transmission power feeding or optical transmission through water for in groups H04B 10/03 transmission for specific applications, not provided

Optical aspects relating to the use of optical eavesdrop protection Protection from unauthorised access, e.g.

Arrangements for feeding power }

{ Arrangements for optimizing the detector in the receiver }

{ Photodiode bias control, e.g. for compensating temperature variations }

{ Arrangements for optimizing the preamplifier in the receiver }

{ Automatic gain control of the preamplifier }

{ Bandwidth control of bit rate adaptation }

{ Offset control of the differential preamplifier }

{ Arrangements for optimizing the decision element in the receiver, e.g. by using automatic threshold control }

{ Arrangements for reducing noise and distortion }

{ using equalisation }

{ using passive filtering }

{ using noise matching networks }

Optical quantum communication Optical aspects relating to the use of optical transmission for specific applications, not provided for in groups H04B 10/03 - H04B 10/70, e.g. optical power feeding or optical transmission through water

{ using optical interconnects, e.g. light coupled isolators, circuit board interconnections }

{ for isolation, e.g. using optocouplers }

{ Free space interconnects, e.g. between circuit boards or chips }

{ Arrangements for feeding power }

{ Optical power feeding, i.e. transmitting power using an optical signal }

{ Electrical power feeding of an optical transmission system (power feeding arrangements in general H04B 3/44) }

Protection from unauthorised access, e.g. eavesdrop protection Non-optical transmission systems, e.g. transmission systems employing non-photonics corpuscular radiation

Transmission systems employing sonic, ultrasonic or infrasonic waves Transmission systems characterised by the medium used for transmission, not provided for in groups H04B 3/00 - H04B 11/00

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: geophysics, detecting hidden masses G01H, G01V 1/16, G01V 1/18, G01V 3/00: sonars G01S 1/72: applications of earth currents G01S 1/72, H05F 7/00: direction and distance determination with lead cables G01S 13/00(1))

Transmission systems not characterised by the medium used for transmission (details thereof H04B 1/00)

characterised by the use of a carrier modulation (using subcarrier modulation H04B 14/08)

Amplitude modulation }

Angle modulation ]

Polarisation modulation ]

characterised by the use of pulse modulation (in radio transmission relays H04B 7/17: transmission of digital information per se H04L)

{ for TV signals H04N 7/24(1) }

{ Special circuits, e.g. comparators }

{ Sample and hold circuits (in general G11C 27/02) }

{ Systems or methods for reducing noise or bandwidth }

{ Non linear compression or expansion }

{ using differential modulation, e.g. delta modulation (conversion of analogue values to or from differential modulation H03M 3/00) }

{ using delta modulation or one-bit differential modulation (1DPCM) }

{ with adaptive feedback }

{ using differential modulation with several bits (NDPCM) }

{ with adaptive feedback }

characterised by the use of a sub-carrier

Suppression or limitation of noise or interference (by means associated with receiver H04B 1/10)

Reducing noise, e.g. humm, from the supply }

Reducing interference from electric apparatus by means located at or near the interfering apparatus (structural association with dynamo-electric machines H02K 11/00)

Reducing interference from ignition apparatus of fuel engines (cables with high resistance H01B)

the interference being caused by substantially sinusoidal oscillations, e.g. in a receiver, in a tape-recorder (reducing parasitic oscillations H03B, H03F; screening H05K 9/00)
17/00 Monitoring; Testing (of line transmission systems H04B 3/46; arrangements for monitoring or testing transmission systems employing electromagnetic waves other than radio waves H04B 10/07)

17/0082 . . . (using service channels; using auxiliary channels)
17/0085 . . . (using test signal generators)
17/0087 . . . (using auxiliary channels or channel simulators)
17/10 . . . of transmitters
17/10/1 . . . (for measurement of parameters)
17/10/2 . . . (of radiated power at antenna port)
17/10/3 . . . (of reflected power, e.g. return loss)
17/10/4 . . . (of other parameters, e.g. DC offset, delay or propagation times)
17/11 . . . for calibration
17/12 . . . of transmit antennas, e.g. of the amplitude or phase
17/13 . . . of power amplifiers, e.g. gain or non-linearity
17/14 . . . of the whole transmission and reception path, e.g. self-test loop-back
17/15 . . . Performance testing
17/16 . . . Test equipment located at the transmitter
17/17 . . . Detection of non-compliance or faulty performance, e.g. response deviations (H04B 17/18 takes precedence)
17/18 . . . Monitoring during normal operation
17/19 . . . Self-testing arrangements
17/20 . . . of receivers
17/21 . . . for calibration; for correcting measurements
17/23 . . . Indication means, e.g. displays, alarms, audible means
17/24 . . . with feedback of measurements to the transmitter
17/26 . . . using historical data, averaging values or statistics
17/27 . . . for locating or positioning the transmitter
17/29 . . . Performance testing
17/30 . . . of propagation channels
17/30/9 . . . Measuring or estimating channel quality parameters
17/318 . . . Received signal strength
17/327 . . . Received signal code power [RSCP]
17/336 . . . Signal-to-interference ratio [SIR] or carrier-to-interference ratio [CIR]
17/345 . . . Interference values (H04B 17/336 takes precedence)
17/354 . . . Adjacent channel leakage power
17/364 . . . Delay profiles
17/373 . . . Predicting channel quality parameters
17/382 . . . for resource allocation, admission control or handover
17/391 . . . Modelling the propagation channel
17/391/1 . . . (Fading models or fading generators)
17/39/12 . . . (Simulation models)
17/39/13 . . . (Predictive models)
17/40 . . . of relay systems
17/40/1 . . . (with selective localization)
17/40/2 . . . (using different frequencies)
17/40/3 . . . (generated by local oscillators)
17/40/4 . . . (selected by local filters)
17/40/5 . . . (generated by local multipliers, dividers, modulators)
17/40/6 . . . (using coded addresses)
17/40/7 . . . (without selective localization)
17/408 . . . (using successive loop-backs)
17/409 . . . (by means of resistance, voltage or current measurement)

2201/00 Indexing scheme relating to details of transmission systems not covered by a single group of H04B 3/00 - H04B 13/00

2201/69 . . . Orthogonal indexing scheme relating to spread spectrum techniques in general
2201/692 . . . Cognitive radio
2201/694 . . . WPAN
2201/696 . . . relating to Dowlink
2201/698 . . . relating to Uplink
2201/707 . . . relating to direct sequence modulation
2201/707/01 . . . featuring pilot assisted reception
2201/707/02 . . . Inter-cell-related aspects
2201/707/03 . . . using multiple or variable rates
2201/707/05 . . . Rate detection
2201/707/06 . . . with means for reducing the peak-to-average power ratio
2201/707/07 . . . Efficiency-related aspects
2201/707/09 . . . with discontinuous detection
2201/707/1 . . . with dynamic control of receiver resources
2201/707/11 . . . with modular structure
2201/707/13 . . . Reducing computational requirements
2201/707/14 . . . Reducing hardware requirements
2201/707/15 . . . with application-specific features
2201/707/16 . . . Quadrature
2201/707/18 . . . Particular systems or standards
2201/707/19 . . . CDMA2000
2201/707/2 . . . HDR
2201/707/22 . . . HSDPA/HSUPA
2201/707/23 . . . Multi-carrier HSPA
2201/707/24 . . . UMTS
2201/707/26 . . . Asynchronous CDMA
2201/707/27 . . . using fast Fourier transform
2201/707/28 . . . Frequency aspects
2201/707/3 . . . Direct sequence modulation synchronisation
2201/707/33 . . . 2D search
2201/707/36 . . . DSA
2201/707/97 . . . Direct sequence modulation interference
2201/707/997 . . . Methods of preventing interference
2201/709/18 . . . Determine interference
2201/709/727 . . . GRAKE type RAKE receivers
2201/709/736 . . . Hybrid interference mitigation schemes
2201/709/745 . . . Iterative interference mitigation schemes
2201/709/754 . . . Blind joint detection
2201/709/763 . . . Joint detection using feedback
2201/709/772 . . . Joint detection using feedforward
2201/709/781 . . . Linear detectors for joint detection
2201/709/797 . . . Fat finger issues in RAKE receivers
2201/713 . . . Frequency hopping
2201/713/07 . . . Partial band interference
2201/713/15 . . . Wide band interference
2201/713/23 . . . Adaptive systems
2201/713 . . . Asymmetric systems
2201/713/33 . . . Asynchronous systems
2201/713/46 . . . Bluetooth
2201/713/53 . . . Fast frequency hopping
2201/713/61 . . . Slow frequency hopping
2201/713/69 . . . OFCHM
2201/713/76 . . . Threshold
Look-up tables
Orthogonal indexing scheme relating to impulse radio
Diversity
Applied to ranging
Transmitted reference
Spectrum issues

Indexing scheme relating to line transmission systems

Aspects of powerline communications not already covered by H04B 3/54 and its subgroups
Methods of transmitting or receiving signals via power distribution lines
using protocols
by modifying wave form of the power source
by adding signals to the wave form of the power source
using zero crossing information
improving S/N by matching impedance, noise reduction, gain control
Applications for powerline communications
Remote metering
Wired telephone
Wireless systems or telephone
Local network
Audio/video application, e.g. interphone
Adapter and plugs
Monitor sensor; Alarm systems
Systems for power line communications
using three phases conductors
via DC power distribution
adapted for drill or well combined with data transmission
using repeaters
using coupling circuits
cables
using filtering and bypassing
having measurements and testing channel

Indexing scheme relating to optical transmission systems

Devices including multiple stages, e.g., multi-stage optical amplifiers or dispersion compensators
Devices for generating or processing an RF signal by optical means
Monitoring an optical transmission system using a supervisory signal (OAM for WDM transmission H04J 14/0272)
using alarms
using an overhead signal
using a superposed, over-modulated signal
using a pilot tone
using a separate fibre
using a separate wavelength
Shut-down or eye-safety
Distortion or dispersion compensation
after the transmission line, i.e. post-compensation
before the transmission line, i.e. pre-compensation
at the repeater, i.e. repeater compensation
treating each wavelength or wavelength band separately

Optical conversion of optical modulation formats, e.g., from optical ASK to optical PSK
Optical NRZ to RZ conversion, or vice versa
Reducing interference at the transmission system level
Reduction of burst noise, e.g. in TDMA systems
by inhibiting burst transmission
by smoothing the transmission power envelope
Reduction of clock or synthesizer reference frequency harmonics
by changing the frequency of clock or reference frequency
by stopping a clock generator
by modulation dispersion
by avoiding a reception frequency range
Reduction of switch mode power supply ripple