SECTION H — ELECTRICITY

H04 ELECTRIC COMMUNICATION TECHNIQUE

H04N PICTORIAL COMMUNICATION, e.g. TELEVISION [4]

Note(s) [4]

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;
   - 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, 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.
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(s) [6]

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

1/00 Scanning, transmission or reproduction of documents or the like, e.g. facsimile transmission; Details thereof [1, 3, 4, 2006.01]

1/024 • Details of scanning heads **[3, 4, 2006.01]**
1/028 • • for picture-information pick-up **[3, 4, 2006.01]**
1/029 • • • Heads optically focused on only one picture element at a time **[6, 2006.01]**
1/03 • • • with photodetectors arranged in a substantially linear array **[6, 2006.01]**
1/031 • • • • the photodetectors having a one-to-one and optically positive correspondence with the scanned picture elements, e.g. linear contact sensors **[6, 2006.01]**
1/032 • • for picture-information reproduction **[3, 4, 2006.01]**
1/034 • • • using ink, e.g. ink-jet heads **[5, 2006.01]**
1/036 • • • for optical reproduction **[3, 4, 2006.01]**
1/04 • Scanning arrangements (H04N 1/387 takes precedence) **[1, 4, 2006.01]**
1/047 • • Detection, control or error compensation of scanning velocity or position (H04N 1/17 takes precedence) **[6, 2006.01]**
1/053 • • • in main scanning direction, e.g. synchronisation of line start or picture elements in a line **[6, 2006.01]**
1/06 • • using cylindrical picture-bearing surfaces **[1, 4, 2006.01]**
1/08 • • • Mechanisms for mounting or holding the sheet around the drum **[1, 4, 2006.01]**
1/10 • • using flat picture-bearing surfaces **[1, 4, 2006.01]**
1/107 • • • with manual scanning **[6, 2006.01]**

1/113 • • using oscillating or rotating mirrors **[6, 2006.01]**
1/12 • • using the sheet-feed movement as the slow scanning component (using multi-element arrays H04N 1/19) **[1, 4, 6, 2006.01]**
1/14 • • • using a rotating endless belt carrying the scanning heads **[1, 4, 2006.01]**
1/16 • • • using a rotating helical element **[1, 4, 2006.01]**
1/17 • • the scanning speed being dependent on content of picture **[3, 4, 2006.01]**
1/19 • • using multi-element arrays **[6, 2006.01]**
1/191 • • • the array comprising a one-dimensional array **[6, 2006.01]**
1/192 • • • • Simultaneously scanning picture elements on one main scanning line **[6, 2006.01]**
1/193 • • • • • using electrically scanned linear arrays **[6, 2006.01]**
1/195 • • • the array comprising a two-dimensional array **[6, 2006.01]**
1/203 • • Simultaneous scanning of two or more separate pictures **[6, 2006.01]**
1/207 • • Simultaneous scanning of the original picture and the reproduced picture with a common scanning device **[6, 2006.01]**
1/21 • Intermediate information storage (H04N 1/387, H04N 1/41 take precedence) **[4, 2006.01]**
1/23 • Reproducing arrangements **[4, 2006.01]**
1/27 • • involving production of a magnetic intermediate picture **[4, 2006.01]**
1/29 • • involving production of an electrostatic intermediate picture **[4, 2006.01]**
1/31 • • Mechanical arrangements for picture transmission, e.g. adaptation of clutches, gearing, gear transmissions **[4, 2006.01]**
1/32 • Circuits or arrangements for control or supervision between transmitter and receiver **[1, 2006.01]**
1/327 • • Initiating, continuing or ending a single-mode communication; Handshaking therefor **[6, 2006.01]**
1/333 • • Mode signalling or mode changing; Handshaking therefor **[6, 2006.01]**
1/34 • • for coin-freed systems **[1, 2006.01]**
1/36 • • for synchronising or phasing transmitter and receiver **[1, 2006.01]**
1/38 • Circuits or arrangements for blanking or otherwise eliminating unwanted parts of pictures (H04N 1/387 takes precedence) **[1, 4, 2006.01]**
1/387 • Composing, repositioning or otherwise modifying originals **[4, 2006.01]**
1/393 • • Enlarging or reducing **[4, 2006.01]**
1/40 • Picture signal circuits (H04N 1/387 takes precedence) **[1, 4, 2006.01]**
1/401 • • Compensating positionaly unequal response of the pick-up or reproducing head (H04N 1/403 takes precedence) **[6, 2006.01]**
1/403 • • Discrimination between the two tones in the picture signal of a two-tone original **[6, 2006.01]**
1/405 • • Halftoning, i.e. converting the picture signal of a continuous-tone original into a corresponding signal showing only two levels **[6, 2006.01]**
1/407 • • Control or modification of tonal gradation or of extreme levels, e.g. background level **[6, 2006.01]**
1/409 • • Edge or detail enhancement; Noise or error suppression **[6, 2006.01]**
1/41 • Bandwidth or redundancy reduction (by scanning H04N 1/17) **[3, 2006.01]**
1/411 • • for the transmission or reproduction of two-tone pictures, e.g. black and white pictures **[4, 2006.01]**
1/413 • • • Systems or arrangements allowing the picture to be reproduced without loss or modification of picture-information **[4, 2006.01]**
1/415 • • • • in which the picture-elements are subdivided or grouped into fixed one-dimensional or two-dimensional blocks **[4, 2006.01]**
1/417 • • • • using predictive or differential encoding **[4, 2006.01]**
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, 2006.01]**
1/42 • Systems for two-way working **[1, 2006.01]**
1/44 • Secrecy systems **[1, 2006.01]**
1/46 • Colour picture communication systems **[1, 2006.01]**
1/48 • • Picture signal generators (for halftone screening H04N 1/52) **[6, 2006.01]**
1/50 • • Picture reproducers (for halftone screening H04N 1/52) **[6, 2006.01]**
1/52 • • Circuits or arrangements for halftone screening **[6, 2006.01]**
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, 2006.01]**
1/56 • • Processing of colour picture signals (H04N 1/52 takes precedence) **[6, 2006.01]**
1/58 • • • Edge or detail enhancement; Noise or error suppression, e.g. colour misregistration correction (H04N 1/62 takes precedence) **[6, 2006.01]**
1/60 • • • Colour correction or control **[6, 2006.01]**
1/62 • • • • Retouching, i.e. modification of isolated colours only or in isolated picture areas only **[6, 2006.01]**
1/64 • • Systems for the transmission or the storage of the colour picture signal; Details therefor, e.g. coding or decoding means therefor **[6, 2006.01]**

3/00 Scanning details of television systems; Combination thereof with generation of supply voltages [1, 4, 2006.01]

3/02 • by optical-mechanical means only (H04N 3/36 takes precedence) **[1, 2, 2006.01]**
3/04 • • having a moving aperture **[1, 2006.01]**
3/06 • • having a moving lens or other refractor **[1, 2006.01]**
3/08 • • having a moving reflector **[1, 2006.01]**
3/09 • • • for electromagnetic radiation in the invisible region, e.g. infrared **[4, 2006.01]**
3/10 • by means not exclusively optical-mechanical (H04N 3/36 takes precedence) **[1, 2, 2006.01]**
3/12 • • by switched stationary formation of lamps, photocells, or light relays **[1, 2006.01]**
3/14 • • by means of electrically scanned solid-state devices (for picture generation H04N 25/00) **[1, 2006.01]**
3/16 • • by deflecting electron beam in cathode-ray tube **[1, 2006.01]**
3/18 • • • Generation of supply voltages, in combination with electron beam deflecting **[1, 4, 2006.01]**
3/185 • • • • Maintaining DC voltage constant **[4, 2006.01]**
3/19 • • • • Arrangements or assemblies in supply circuits for the purpose of withstanding high voltages **[3, 2006.01]**
3/20 • • • Prevention of damage to cathode-ray tubes in event of failure of scanning **[1, 2006.01]**

3/22 • • • Circuits for controlling dimensions, shape or centering of picture on screen **[1, 2006.01]**

3/223 • • • • Controlling dimensions (by maintaining the cathode-ray tube high voltage constant H04N 3/185) **[4, 2006.01]**

3/227 • • • • Centering **[4, 2006.01]**

3/23 • • • • Distortion correction, e.g. for pincushion distortion correction, S-correction **[4, 2006.01]**

3/233 • • • • • using active elements **[4, 2006.01]**

3/237 • • • • • using passive elements **[4, 2006.01]**

3/24 • • • Blanking circuits **[1, 2006.01]**

3/26 • • • Modifications of scanning arrangements to improve focusing **[1, 2006.01]**

3/27 • • • Circuits special to multi-standard receivers **[3, 4, 2006.01]**

3/28 • • producing multiple scanning, i.e. using more than one spot at the same time **[1, 2006.01]**

3/30 • • otherwise than with constant velocity or otherwise than in pattern formed by unidirectional, straight, substantially horizontal or vertical lines **[1, 2006.01]**

3/32 • • • Velocity varied in dependence upon picture information **[1, 2006.01]**

3/34 • • • Elemental scanning area oscillated rapidly in direction transverse to main scanning direction **[1, 2006.01]**

3/36 • Scanning of motion picture films, e.g. for telecine **[2, 2006.01]**

3/38 • • with continuously moving film **[4, 2006.01]**

3/40 • • with intermittently moving film **[4, 2006.01]**

5/00 **Details of television systems** (scanning details or combination thereof with generation of supply voltages H04N 3/00) **[1, 4, 2006.01, 2011.01]**

5/04 • Synchronising (for television systems using pulse code modulation H04N 7/56) **[1, 4, 2006.01]**

5/05 • • Synchronising circuits with arrangements for extending range of synchronisation, e.g. by using switching between several time constants **[2, 2006.01]**

5/06 • • Generation of synchronising signals **[1, 2006.01]**

5/067 • • • Arrangements or circuits at the transmitter end **[4, 2006.01]**

5/073 • • • • for mutually locking plural sources of synchronising signals, e.g. studios or relay stations **[4, 2006.01]**

5/08 • • Separation of synchronising signals from picture signals **[1, 2006.01]**

5/10 • • • Separation of line synchronising signal from frame synchronising signal **[1, 2006.01]**

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 **[1, 2, 2006.01]**

5/14 • Picture signal circuitry for video frequency region (cameras or camera modules comprising electronic image sensors, or control thereof H04N 23/00) **[1, 2, 2006.01]**

5/16 • • Circuitry for reinsertion of DC and slowly varying components of signal; Circuitry for preservation of black or white level **[1, 2006.01]**

5/18 • • • by means of "clamp" circuit operated by switching circuit **[1, 2006.01]**

5/20 • • Circuitry for controlling amplitude response **[1, 2006.01]**

5/202 • • • Gamma control (circuits for controlling camera response irrespective of the scene brightness H04N 23/82) **[4, 2006.01, 2023.01]**

5/205 • • • for correcting amplitude versus frequency characteristic **[4, 2006.01]**

5/208 • • • • for compensating for attenuation of high frequency components, e.g. crispening, aperture distortion correction **[4, 2006.01]**

5/21 • • Circuitry for suppressing or minimising disturbance, e.g. moire or halo **[1, 2006.01]**

5/213 • • • Circuitry for suppressing or minimising impulsive noise (for suppressing or minimising disturbance in image signal generation H04N 23/81) **[4, 2006.01]**

5/222 • Studio circuitry; Studio devices; Studio equipment (cameras or camera modules comprising electronic image sensors, or control thereof H04N 23/00) **[4, 2006.01]**

5/253 • • Picture signal generating by scanning motion picture films or slide opaques, e.g. for telecine (scanning details therefor H04N 3/36) **[4, 2006.01]**

5/257 • • Picture signal generators using flying-spot scanners (H04N 5/253 takes precedence) **[4, 2006.01]**

5/262 • • Studio circuits, e.g. for mixing, switching-over, change of character of image, other special effects **[4, 2006.01]**

5/265 • • • Mixing **[4, 2006.01]**

5/268 • • • Signal distribution or switching **[4, 2006.01]**

5/272 • • • Means for inserting a foreground image in a background image, i.e. inlay, outlay **[4, 2006.01]**

5/275 • • • • Generation of keying signals **[4, 2006.01]**

5/278 • • • Subtitling **[4, 2006.01]**

5/28 • • Mobile studios **[1, 2006.01]**

5/30 • Transforming light or analogous information into electric information (scanning details H04N 3/00; cameras or camera modules comprising electronic image sensors, or control thereof H04N 23/00; circuitry of solid-state image sensors [SSIS] or control thereof H04N 25/00) **[1, 2, 4, 7, 2006.01]**

5/32 • • Transforming X-rays (cameras or camera modules for generating image signals from X-rays H04N 23/30; circuitry of SSIS for transforming X-rays into image signals H04N 25/30) **[1, 2006.01, 2023.01]**

5/321 • • • with video transmission of fluoroscopic images **[5, 2006.01]**

5/325 • • • • Image enhancement, e.g. by subtraction techniques using polyenergetic X-rays **[5, 2006.01]**

5/33 • • Transforming infrared radiation (cameras or camera modules for generating image signals from infrared radiation H04N 23/20; circuitry of SSIS for transforming infrared radiation into image signals H04N 25/20) **[2, 2006.01, 2023.01]**

5/38 • Transmitter circuitry (H04N 5/14 takes precedence) **[1, 4, 2006.01]**

5/40 • • Modulation circuits **[1, 2006.01]**

5/42 • • for transmitting at will black-and-white or colour signals **[1, 2006.01]**

5/44 • Receiver circuitry (H04N 5/14 takes precedence) **[1, 4, 2006.01, 2011.01]**

5/445 • • for displaying additional information (H04N 5/50 takes precedence) **[4, 2006.01, 2011.01]**

5/45 • • • Picture in picture **[4, 2006.01, 2011.01]**

5/455 • • Demodulation-circuits **[4, 2006.01]**

5/46 • • for receiving on more than one standard at will (deflecting circuits of multi-standard receivers H04N 3/27) **[1, 4, 2006.01]**
5/50 • • Tuning indicators; Automatic tuning control **[1, 4, 2006.01]**
5/52 • • Automatic gain control **[1, 4, 2006.01]**
5/53 • • • Keyed automatic gain control **[4, 2006.01]**
5/54 • • • for positively-modulated picture signals (H04N 5/53 takes precedence) **[1, 4, 2006.01]**
5/56 • • • for negatively-modulated picture signals (H04N 5/53 takes precedence) **[1, 4, 2006.01]**
5/57 • • Control of contrast or brightness **[4, 2006.01]**
5/58 • • • in dependence upon ambient light **[1, 4, 2006.01]**
5/59 • • • in dependence upon beam current of cathode ray tube **[4, 2006.01]**
5/60 • • for the sound signals **[1, 2006.01]**
5/62 • • • Intercarrier circuits, i.e. heterodyning sound and vision carriers **[1, 2006.01]**
5/63 • Generation or supply of power specially adapted for television receivers **[4, 2006.01]**
5/64 • Constructional details of receivers, e.g. cabinets or dust covers (furniture aspects A47B 81/06) **[1, 2, 2006.01]**
5/645 • • Mounting of picture tube on chassis or in housing **[1, 2006.01]**
5/65 • • Holding-devices for protective discs or for picture masks **[1, 2006.01]**
5/655 • • Construction or mounting of chassis, e.g. for varying the elevation of the tube **[1, 2006.01]**
5/66 • Transforming electric information into light information (scanning details H04N 3/00) **[1, 2006.01]**
5/68 • • Circuit details for cathode-ray display tubes **[1, 2006.01]**
5/70 • • Circuit details for electroluminescent devices **[1, 2006.01]**
5/72 • Modifying the appearance of television pictures by optical filters or diffusing screens **[1, 2006.01]**
5/74 • Projection arrangements for image reproduction, e.g. using eidophor **[1, 2006.01]**
5/76 • Television signal recording **[1, 3, 4, 2006.01]**
5/761 • • Systems for programming the time at which predetermined television channels will be selected for recording **[7, 2006.01]**
5/7613 • • • by using data entered by the user and a reference timing clock incorporated in the recorder **[7, 2006.01]**
5/7617 • • • by using data entered by the user and reference data transmitted by the broadcasting station **[7, 2006.01]**
5/765 • • Interface circuits between an apparatus for recording and another apparatus **[6, 2006.01]**
5/77 • • • between a recording apparatus and a television camera **[6, 2006.01]**
5/775 • • • between a recording apparatus and a television receiver **[6, 2006.01]**
5/78 • • using magnetic recording (H04N 5/91 takes precedence) **[1, 3, 2006.01]**
5/781 • • • on disks or drums **[3, 2006.01]**
5/782 • • • on tape **[3, 2006.01]**
5/7822 • • • • with stationary magnetic heads **[6, 2006.01]**
5/7824 • • • • with rotating magnetic heads **[6, 2006.01]**
5/7826 • • • • • involving helical scanning of the magnetic tape **[6, 2006.01]**
5/7828 • • • • • involving transversal scanning of the magnetic tape **[6, 2006.01]**
5/783 • • • • Adaptations for reproducing at a rate different from the recording rate **[3, 2006.01]**
5/784 • • • on a sheet **[6, 2006.01]**
5/80 • • using electrostatic recording (H04N 5/91 takes precedence) **[1, 3, 2006.01]**
5/82 • • • using deformable thermoplastic recording medium **[1, 2006.01]**
5/83 • • • • on disks or drums **[3, 2006.01]**
5/84 • • using optical recording (H04N 5/80, H04N 5/89, H04N 5/91 take precedence) **[1, 3, 4, 2006.01]**
5/85 • • • on discs or drums **[3, 2006.01]**
5/87 • • • Producing a motion picture film from a television signal **[3, 4, 2006.01]**
5/89 • • using holographic recording (H04N 5/91 take precedence) **[3, 2006.01]**
5/90 • • • on discs or drums **[3, 2006.01]**
5/903 • • using variable electrical capacitive recording (H04N 5/91 takes precedence) **[4, 2006.01]**
5/907 • • using static stores, e.g. storage tubes or semiconductor memories (H04N 5/91 takes precedence) **[4, 2006.01]**
5/91 • • Television signal processing therefor **[3, 2006.01]**
5/911 • • • for the suppression of noise **[6, 2006.01]**
5/913 • • • for scrambling **[6, 2006.01]**
5/915 • • • for field- or frame-skip recording or reproducing **[6, 2006.01]**
5/917 • • • for bandwidth reduction **[6, 2006.01]**
5/919 • • • • by dividing samples or signal segments, e.g. television lines, among a plurality of recording channels **[6, 2006.01]**
5/92 • • • Transformation of the television signal for recording, e.g. modulation, frequency changing; Inverse transformation for playback **[3, 2006.01]**
5/921 • • • • by recording or reproducing the baseband signal **[6, 2006.01]**
5/922 • • • • by modulation of the signal on a carrier wave, e.g. amplitude or frequency modulation **[6, 2006.01]**
5/923 • • • • using preemphasis of the signal before modulation and deemphasis of the signal after demodulation **[6, 2006.01]**
5/924 • • • • using duty cycle modulation **[6, 2006.01]**
5/926 • • • • by pulse code modulation (H04N 5/919 takes precedence) **[6, 2006.01]**
5/928 • • • • the sound signal being pulse code modulated and recorded in time division multiplex with the modulated video signal **[6, 2006.01]**
5/93 • • • Regeneration of the television signal or of selected parts thereof **[3, 2006.01]**
5/931 • • • • for restoring the level of the reproduced signal **[6, 2006.01]**
5/932 • • • • Regeneration of analogue synchronisation signals **[6, 2006.01]**
5/935 • • • • Regeneration of digital synchronisation signals **[6, 2006.01]**
5/937 • • • • by assembling picture element blocks in an intermediate store **[6, 2006.01]**
5/94 • • • • Signal drop-out compensation **[3, 2006.01]**
5/945 • • • • • for signals recorded by pulse code modulation **[6, 2006.01]**
5/95 • • • • Time-base error compensation **[3, 2006.01]**

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, 2006.01]**

5/956 • • • • • by using a digital memory with independent write-in and read-out clock generators **[6, 2006.01]**

7/00 Television systems (details H04N 3/00, H04N 5/00; methods or arrangements, for coding, decoding, compressing or decompressing digital video signals H04N 19/00; selective content distribution H04N 21/00) **[1, 4, 2006.01, 2011.01]**

7/01 • Conversion of standards **[4, 2006.01]**

7/015 • High-definition television systems **[6, 2006.01]**

7/025 • Systems for transmission of digital non-picture data, e.g. of text during the active part of a television frame **[6, 2006.01]**

7/03 • • Subscription systems therefor **[6, 2006.01]**

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, 2006.01]**

7/04 • Systems for the transmission of one television signal, i.e. both picture and sound, by a single carrier **[1, 4, 2006.01]**

7/045 • • the carrier being frequency modulated **[6, 2006.01]**

7/06 • Systems for the simultaneous transmission of one television signal, i.e. both picture and sound, by more than one carrier **[1, 4, 2006.01]**

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 **[1, 4, 6, 2006.01]**

7/081 • • the additional information signals being transmitted by means of a subcarrier **[6, 2006.01]**

7/083 • • with signal insertion during the vertical and the horizontal blanking interval **[6, 2006.01]**

7/084 • • with signal insertion during the horizontal blanking interval **[6, 2006.01]**

7/085 • • • the inserted signal being digital **[6, 2006.01]**

7/087 • • with signal insertion during the vertical blanking interval **[4, 2006.01]**

7/088 • • • the inserted signal being digital **[6, 2006.01]**

7/10 • Adaptations for transmission by electrical cable (H04N 7/12 takes precedence) **[1, 4, 2006.01]**

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) **[1, 4, 2006.01]**

7/14 • Systems for two-way working (H04N 7/173 takes precedence) **[1, 4, 2006.01]**

7/15 • • Conference systems **[5, 2006.01]**

7/16 • Analogue secrecy systems; Analogue subscription systems **[1, 2006.01, 2011.01]**

7/167 • • Systems rendering the television signal unintelligible and subsequently intelligible **[4, 2006.01, 2011.01]**

7/169 • • • Systems operating in the time domain of the television signal **[6, 2006.01, 2011.01]**

7/171 • • • Systems operating in the amplitude domain of the television signal **[6, 2006.01, 2011.01]**

7/173 • • with two-way working, e.g. subscriber sending a programme selection signal **[4, 2006.01, 2011.01]**

7/18 • Closed-circuit television [CCTV] systems, i.e. systems in which the video signal is not broadcast **[1, 2006.01]**

7/20 • Adaptations for transmission via a GHz frequency band, e.g. via satellite **[4, 2006.01]**

7/22 • Adaptations for optical transmission **[4, 2006.01]**

7/24 • Systems for the transmission of television signals using pulse code modulation (H04N 21/00 takes precedence) **[6, 2006.01, 2011.01]**

7/52 • • Systems for transmission of a pulse code modulated with one or more other pulse code modulated signals, e.g. an audio signal or a synchronizing signal (assembling of a multiplex stream by combining a video stream with other content or additional data, remultiplexing of multiplex streams, insertion of stuffing bits into the multiplex stream, assembling of a packetised elementary stream at server side H04N 21/236; disassembling of a multiplex stream, remultiplexing of multiplex streams, extraction or processing of Service Information, disassembling of packetised elementary stream at client side H04N 21/434) **[6, 2006.01, 2011.01]**

7/54 • • • the signals being synchronous **[6, 2006.01]**

7/56 • • • • Synchronising systems therefor **[6, 2006.01]**

9/00 Details of colour television systems [1, 4, 2006.01]

9/01 • Circuitry for demodulating colour component signals modulated spatially by colour striped filters by phase separation **[2023.01]**

9/03 • Circuitry for demodulating colour component signals modulated spatially by colour striped filters by frequency separation **[2023.01]**

9/11 • Scanning of colour motion picture films, e.g. for telecine **[2, 4, 2006.01]**

9/12 • Picture reproducers (H04N 9/11 takes precedence) **[1, 2, 4, 2006.01]**

9/14 • • using optical-mechanical scanning means only **[1, 2, 4, 2006.01]**

9/16 • • using cathode ray tubes (H04N 9/11 takes precedence) **[1, 2, 4, 2006.01]**

9/18 • • • using separate electron beams for the primary colour signals (H04N 9/27 takes precedence) **[1, 2, 4, 2006.01]**

9/20 • • • • with more than one beam in a tube **[1, 4, 2006.01]**

9/22 • • • using the same beam for more than one primary colour information (H04N 9/27 takes precedence) **[1, 2, 4, 2006.01]**

9/24 • • • • using means, integral with, or external to, the tube, for producing signal indicating instantaneous beam position **[1, 4, 2006.01]**

9/26 • • • • using electron-optical colour selection means, e.g. line grid, deflection means in or near the gun or near the phosphor screen **[1, 4, 2006.01]**

9/27 • • • with variable depth of penetration of electron beam into the luminescent layer, e.g. penetrons **[2, 4, 2006.01]**

9/28 • • • Arrangements for convergence or focusing **[1, 4, 2006.01]**

9/285 • • • • using quadrupole lenses **[4, 2006.01]**

9/29 • • • using demagnetisation or compensation of external magnetic fields **[2, 4, 2006.01]**

9/30 • • using solid-state colour display devices **[1, 4, 2006.01]**

9/31 • • Projection devices for colour picture display **[2, 4, 2006.01]**

9/43 • Conversion of monochrome picture signals to colour picture signals for colour picture display **[4, 2006.01]**
9/44 • Colour synchronisation **[1, 4, 2006.01]**
9/45 • • Generation or recovery of colour sub-carriers **[4, 2006.01]**
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, 2006.01]**
9/465 • • Synchronisation of the PAL-switch **[4, 2006.01]**
9/47 • • for sequential signals **[2, 4, 2006.01]**
9/475 • • for mutually locking different synchronisation sources **[4, 2006.01]**
9/64 • Circuits for processing colour signals (H04N 9/77 takes precedence; camera processing pipelines for processing colour signals H04N 23/84) **[4, 2006.01, 2023.01]**
9/65 • • for synchronous modulators **[4, 2006.01]**
9/66 • • for synchronous demodulators **[4, 2006.01]**
9/67 • • for matrixing (camera processing pipelines for matrixing of colour signals H04N 23/85) **[4, 2006.01, 2023.01]**
9/68 • • for controlling the amplitude of colour signals, e.g. automatic chroma control circuits (H04N 9/71, H04N 9/73 take precedence; camera processing pipelines for controlling the colour saturation of colour signals H04N 23/86) **[4, 2006.01, 2023.01]**
9/69 • • • for modifying the colour signals by gamma correction (controlling camera response for colour signals H04N 23/83) **[4, 2006.01, 2023.01]**
9/70 • • for colour killing **[4, 2006.01]**
9/71 • • • combined with colour gain control **[4, 2006.01]**
9/72 • • for reinsertion of DC and slowly varying components of colour signals (camera processing pipelines for reinsertion of DC or slowly varying components of colour signals H04N 23/87) **[4, 2006.01, 2023.01]**
9/73 • • Colour balance circuits, e.g. white balance circuits or colour temperature control (camera processing pipelines for colour balance H04N 23/88) **[4, 2006.01, 2023.01]**
9/74 • • for obtaining special effects (H04N 9/65-H04N 9/73 take precedence) **[4, 2006.01]**
9/75 • • • Chroma key **[4, 2006.01]**
9/76 • • • for mixing of colour signals (H04N 9/75 takes precedence) **[4, 2006.01]**
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, 2006.01]**
9/78 • • for separating the brightness signal or the chrominance signal from the colour television signal, e.g. using comb filter **[4, 2006.01]**
9/79 • Processing of colour television signals in connection with recording **[4, 2006.01]**
9/793 • • for controlling the level of the chrominance signal, e.g. by means of automatic chroma control circuits **[6, 2006.01]**
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, 2006.01]**
9/80 • • Transformation of the television signal for recording, e.g. modulation, frequency changing; Inverse transformation for playback **[4, 2006.01]**
9/802 • • • involving processing of the sound signal (H04N 9/806, H04N 9/835 take precedence) **[6, 2006.01]**
9/804 • • • involving pulse code modulation of the colour picture signal components **[6, 2006.01]**
9/806 • • • • with processing of the sound signal **[6, 2006.01]**
9/808 • • • involving pulse code modulation of the composite colour video-signal **[6, 2006.01]**
9/81 • • • the individual colour picture signal components being recorded sequentially only **[4, 2006.01]**
9/815 • • • • the luminance signal and the sequential colour component signals being recorded in separate recording channels **[6, 2006.01]**
9/82 • • • the individual colour picture signal components being recorded simultaneously only **[4, 2006.01]**
9/825 • • • • the luminance and chrominance signals being recorded in separate channels **[6, 2006.01]**
9/83 • • • • the recorded chrominance signal occupying a frequency band under the frequency band of the recorded brightness signal **[4, 2006.01]**
9/835 • • • • • involving processing of the sound signal **[6, 2006.01]**
9/84 • • • • • the recorded signal showing a feature, which is different in adjacent track parts, e.g. different phase or frequency **[4, 2006.01]**
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, 2006.01]**
9/86 • • • the individual colour picture signal components being recorded sequentially and simultaneously, e.g. corresponding to SECAM-system **[4, 2006.01]**
9/87 • • Regeneration of colour television signals (H04N 9/80 takes precedence) **[4, 2006.01]**
9/873 • • • for restoring the colour component sequence of the reproduced signal **[6, 2006.01]**
9/877 • • • by assembling picture element blocks in an intermediate memory **[6, 2006.01]**
9/88 • • • Signal drop-out compensation **[4, 2006.01]**
9/882 • • • • the signal being a composite colour television signal **[6, 2006.01]**
9/885 • • • • • using a digital intermediate memory **[6, 2006.01]**
9/888 • • • • for signals recorded by pulse code modulation **[6, 2006.01]**
9/89 • • • Time-base error compensation **[4, 2006.01]**
9/893 • • • • using an analogue memory, e.g. a CCD-shift register, the delay of which is controlled by a voltage controlled oscillator **[6, 2006.01]**
9/896 • • • • using a digital memory with independent write-in and read-out clock generators **[6, 2006.01]**
9/898 • • • using frequency multiplication of the reproduced colour signal with another auxiliary reproduced signal, e.g. a pilot signal carrier **[6, 2006.01]**

11/00 **Colour television systems** (details H04N 9/00) **[4, 2006.01]**

11/02 • with bandwidth reduction (H04N 11/04 takes precedence) **[4, 2006.01]**

11/04 • using pulse code modulation **[4, 2006.01]**

11/06 • Transmission systems characterised by the manner in which the individual colour picture signal components are combined **[4, 2006.01]**

11/08 • • using sequential signals only (dot sequential systems H04N 11/12) **[4, 2006.01]**

11/10 • • • in which colour signals are inserted in the blanking interval of brightness signal **[4, 2006.01]**

11/12 • • using simultaneous signals only **[4, 2006.01]**

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, 2006.01]**

11/16 • • • • the chrominance signal alternating in phase, e.g. PAL-system **[4, 2006.01]**

11/18 • • using simultaneous and sequential signals, e.g. SECAM-system **[4, 2006.01]**

11/20 • • Conversion of the manner in which the individual colour picture signal components are combined, e.g. conversion of colour television standards **[4, 2006.01]**

11/22 • • • in which simultaneous signals are converted into sequential signals or vice versa **[4, 2006.01]**

11/24 • High-definition television systems **[6, 2006.01]**

13/00 **Stereoscopic video systems; Multi-view video systems; Details thereof [4, 2006.01, 2018.01]**

Note(s) [2018.01]

This group covers systems providing a three-dimensional [3D] effect, or different views to one or more viewers by means of electronic signals representing images, which could be taken from different viewpoints, or by means of signals including depth information.

13/10 • Processing, recording or transmission of stereoscopic or multi-view image signals **[2018.01]**

13/106 • • Processing image signals (for multi-view video sequence encoding H04N 19/597) **[2018.01]**

13/111 • • • Transformation of image signals corresponding to virtual viewpoints, e.g. spatial image interpolation **[2018.01]**

13/117 • • • • the virtual viewpoint locations being selected by the viewers or determined by viewer tracking **[2018.01]**

13/122 • • • Improving the 3D impression of stereoscopic images by modifying image signal contents, e.g. by filtering or adding monoscopic depth cues (H04N 13/128 takes precedence) **[2018.01]**

13/125 • • • • for crosstalk reduction **[2018.01]**

13/128 • • • Adjusting depth or disparity **[2018.01]**

13/133 • • • Equalising the characteristics of different image components, e.g. their average brightness or colour balance **[2018.01]**

13/139 • • • Format conversion, e.g. of frame-rate or size **[2018.01]**

13/144 • • • for flicker reduction **[2018.01]**

13/15 • • • for colour aspects of image signals **[2018.01]**

13/156 • • • Mixing image signals **[2018.01]**

13/161 • • • Encoding, multiplexing or demultiplexing different image signal components (for multi-view video sequence encoding H04N 19/597) **[2018.01]**

13/167 • • • Synchronising or controlling image signals **[2018.01]**

13/172 • • • image signals comprising non-image signal components, e.g. headers or format information **[2018.01]**

13/178 • • • • Metadata, e.g. disparity information **[2018.01]**

13/183 • • • • On-screen display [OSD] information, e.g. subtitles or menus **[2018.01]**

13/189 • • Recording image signals; Reproducing recorded image signals **[2018.01]**

13/194 • • Transmission of image signals **[2018.01]**

13/20 • Image signal generators **[2018.01]**

13/204 • • using stereoscopic image cameras (stereoscopic photography G03B 35/00) **[2018.01]**

13/207 • • • using a single 2D image sensor **[2018.01]**

13/211 • • • • using temporal multiplexing **[2018.01]**

13/214 • • • • using spectral multiplexing **[2018.01]**

13/218 • • • • using spatial multiplexing **[2018.01]**

13/221 • • • • using the relative movement between cameras and objects **[2018.01]**

13/225 • • • • using parallax barriers **[2018.01]**

13/229 • • • • using lenticular lenses, e.g. arrangements of cylindrical lenses **[2018.01]**

13/232 • • • • using fly-eye lenses, e.g. arrangements of circular lenses **[2018.01]**

13/236 • • • • using varifocal lenses or mirrors **[2018.01]**

13/239 • • • using two 2D image sensors having a relative position equal to or related to the interocular distance (H04N 13/243 takes precedence) **[2018.01]**

13/243 • • • using three or more 2D image sensors **[2018.01]**

13/246 • • • Calibration of cameras **[2018.01]**

13/25 • • • using two or more image sensors with different characteristics other than in their location or field of view, e.g. having different resolutions or colour pickup characteristics; using image signals from one sensor to control the characteristics of another sensor **[2018.01]**

13/254 • • • in combination with electromagnetic radiation sources for illuminating objects **[2018.01]**

13/257 • • Colour aspects **[2018.01]**

13/261 • • with monoscopic-to-stereoscopic image conversion **[2018.01]**

13/264 • • • using the relative movement of objects in two video frames or fields **[2018.01]**

13/268 • • • based on depth image-based rendering [DIBR] **[2018.01]**

13/271 • • wherein the generated image signals comprise depth maps or disparity maps **[2018.01]**

13/275 • • from 3D object models, e.g. computer-generated stereoscopic image signals **[2018.01]**

13/279 • • • the virtual viewpoint locations being selected by the viewers or determined by tracking **[2018.01]**

13/282 • • for generating image signals corresponding to three or more geometrical viewpoints, e.g. multi-view systems **[2018.01]**

13/286 • • having separate monoscopic and stereoscopic modes **[2018.01]**

13/289 • • • Switching between monoscopic and stereoscopic modes **[2018.01]**

13/293 • • Generating mixed stereoscopic images; Generating mixed monoscopic and stereoscopic images, e.g. a stereoscopic image overlay window on a monoscopic image background **[2018.01]**

13/296 • • Synchronisation thereof; Control thereof **[2018.01]**

13/30 • Image reproducers (optical systems for producing stereoscopic or other three-dimensional effects G02B 30/00) **[2018.01]**

13/302 • • for viewing without the aid of special glasses, i.e. using autostereoscopic displays **[2018.01]**

13/305 • • • using lenticular lenses, e.g. arrangements of cylindrical lenses **[2018.01]**

13/307 • • • using fly-eye lenses, e.g. arrangements of circular lenses **[2018.01]**

13/31 • • • using parallax barriers **[2018.01]**

13/312 • • • • the parallax barriers being placed behind the display panel, e.g. between backlight and spatial light modulator [SLM] **[2018.01]**

13/315 • • • • the parallax barriers being time-variant **[2018.01]**

13/317 • • • using slanted parallax optics **[2018.01]**

13/32 • • • using arrays of controllable light sources; using moving apertures or moving light sources **[2018.01]**

13/322 • • • using varifocal lenses or mirrors **[2018.01]**

13/324 • • Colour aspects **[2018.01]**

13/327 • • Calibration thereof **[2018.01]**

13/332 • • Displays for viewing with the aid of special glasses or head-mounted displays [HMD] **[2018.01]**

13/334 • • • using spectral multiplexing **[2018.01]**

13/337 • • • using polarisation multiplexing **[2018.01]**

13/339 • • • using spatial multiplexing (H04N 13/337 takes precedence) **[2018.01]**

13/341 • • • using temporal multiplexing **[2018.01]**

13/344 • • • with head-mounted left-right displays **[2018.01]**

13/346 • • using prisms or semi-transparent mirrors **[2018.01]**

13/349 • • Multi-view displays for displaying three or more geometrical viewpoints without viewer tracking (for viewing without the aid of special glasses using fly-eye lenses H04N 13/307) **[2018.01]**

13/351 • • • for displaying simultaneously **[2018.01]**

13/354 • • • for displaying sequentially **[2018.01]**

13/356 • • having separate monoscopic and stereoscopic modes **[2018.01]**

13/359 • • • Switching between monoscopic and stereoscopic modes **[2018.01]**

13/361 • • Reproducing mixed stereoscopic images; Reproducing mixed monoscopic and stereoscopic images, e.g. a stereoscopic image overlay window on a monoscopic image background **[2018.01]**

13/363 • • using image projection screens (volumetric displays H04N 13/388) **[2018.01]**

13/365 • • using digital micromirror devices [DMD] **[2018.01]**

13/366 • • using viewer tracking **[2018.01]**

13/368 • • • for two or more viewers **[2018.01]**

13/371 • • • for tracking viewers with different interocular distances; for tracking rotational head movements around the vertical axis **[2018.01]**

13/373 • • • for tracking forward-backward translational head movements, i.e. longitudinal movements **[2018.01]**

13/376 • • • for tracking left-right translational head movements, i.e. lateral movements **[2018.01]**

13/378 • • • for tracking rotational head movements around an axis perpendicular to the screen **[2018.01]**

13/38 • • • for tracking vertical translational head movements **[2018.01]**

13/383 • • • for tracking with gaze detection, i.e. detecting the lines of sight of the viewer's eyes **[2018.01]**

13/385 • • alternating rapidly the location of the left-right image components on the display screens (for viewing without the aid of special glasses using time variant parallax barriers H04N 13/315; displays for viewing with the aid of special glasses or head-mounted displays using temporal multiplexing H04N 13/341) **[2018.01]**

13/388 • • Volumetric displays, i.e. systems where the image is built up from picture elements distributed through a volume **[2018.01]**

13/39 • • • the picture elements emitting light at places where a pair of light beams intersect in a transparent material **[2018.01]**

13/393 • • • the volume being generated by a moving, e.g. vibrating or rotating, surface **[2018.01]**

13/395 • • • with depth sampling, i.e. the volume being constructed from a stack or sequence of 2D image planes **[2018.01]**

13/398 • • Synchronisation thereof; Control thereof **[2018.01]**

17/00 Diagnosis, testing or measuring for television systems or their details [4, 2006.01]

17/02 • for colour television signals **[4, 2006.01]**

17/04 • for receivers **[4, 2006.01]**

17/06 • for recorders **[4, 2006.01]**

19/00 Methods or arrangements for coding, decoding, compressing or decompressing digital video signals [2014.01]

19/10 • using adaptive coding **[2014.01]**

Note(s) [2014.01]

When classifying in this group, each aspect relating to adaptive coding should, insomuch as possible, be classified in each one of subgroups H04N 19/102, H04N 19/134, H04N 19/169 and H04N 19/189.

19/102 • • characterised by the element, parameter or selection affected or controlled by the adaptive coding **[2014.01]**

19/103 • • • Selection of coding mode or of prediction mode **[2014.01]**

19/105 • • • • Selection of the reference unit for prediction within a chosen coding or prediction mode, e.g. adaptive choice of position and number of pixels used for prediction **[2014.01]**

19/107 • • • • between spatial and temporal predictive coding, e.g. picture refresh **[2014.01]**

19/109 • • • • among a plurality of temporal predictive coding modes **[2014.01]**

19/11 • • • • among a plurality of spatial predictive coding modes **[2014.01]**

19/112 • • • • according to a given display mode, e.g. for interlaced or progressive display mode **[2014.01]**

19/114 • • • • Adapting the group of pictures [GOP] structure, e.g. number of B-frames between two anchor frames (H04N 19/107 takes precedence) **[2014.01]**

19/115 • • • Selection of the code volume for a coding unit prior to coding **[2014.01]**

19/117 • • • Filters, e.g. for pre-processing or post-processing (sub-band filter banks H04N 19/635) **[2014.01]**

19/119 • • • Adaptive subdivision aspects e.g. subdivision of a picture into rectangular or non-rectangular coding blocks **[2014.01]**

19/12 • • • Selection from among a plurality of transforms or standards, e.g. selection between discrete cosine transform [DCT] and sub-band transform or selection between H.263 and H.264 **[2014.01]**

Note(s) [2014.01]

When classifying in this group, each compression algorithm is further classified in the relevant subgroups of groups H04N 19/60 or H04N 19/90.

19/122 • • • • Selection of transform size, e.g. 8x8 or 2x4x8 DCT; Selection of sub-band transforms of varying structure or type **[2014.01]**

19/124 • • • Quantisation **[2014.01]**

19/126 • • • • Details of normalisation or weighting functions, e.g. normalisation matrices or variable uniform quantisers **[2014.01]**

19/127 • • • Prioritisation of hardware or computational resources **[2014.01]**

19/129 • • • Scanning of coding units, e.g. zig-zag scan of transform coefficients or flexible macroblock ordering [FMO] **[2014.01]**

19/13 • • • Adaptive entropy coding, e.g. adaptive variable length coding [AVLC] or context adaptive binary arithmetic coding [CABAC] **[2014.01]**

19/132 • • • Sampling, masking or truncation of coding units, e.g. adaptive resampling, frame skipping, frame interpolation or high-frequency transform coefficient masking **[2014.01]**

19/134 • • characterised by the element, parameter or criterion affecting or controlling the adaptive coding **[2014.01]**

19/136 • • • Incoming video signal characteristics or properties **[2014.01]**

19/137 • • • • Motion inside a coding unit, e.g. average field, frame or block difference **[2014.01]**

19/139 • • • • • Analysis of motion vectors, e.g. their magnitude, direction, variance or reliability **[2014.01]**

19/14 • • • • Coding unit complexity, e.g. amount of activity or edge presence estimation (H04N 19/146 takes precedence) **[2014.01]**

19/142 • • • Detection of scene cut or scene change **[2014.01]**

19/146 • • • Data rate or code amount at the encoder output **[2014.01]**

19/147 • • • • according to rate distortion criteria (rate-distortion as a criterion for motion estimation H04N 19/567) **[2014.01]**

19/149 • • • • by estimating the code amount by means of a model, e.g. mathematical model or statistical model **[2014.01]**

19/15 • • • • by monitoring actual compressed data size at the memory before deciding storage at the transmission buffer **[2014.01]**

19/152 • • • • by measuring the fullness of the transmission buffer **[2014.01]**

19/154 • • • Measured or subjectively estimated visual quality after decoding, e.g. measurement of distortion (use of rate-distortion criteria H04N 19/147) **[2014.01]**

19/156 • • • Availability of hardware or computational resources, e.g. encoding based on power-saving criteria **[2014.01]**

19/157 • • • Assigned coding mode, i.e. the coding mode being predefined or preselected to be further used for selection of another element or parameter **[2014.01]**

19/159 • • • • Prediction type, e.g. intra-frame, inter-frame or bidirectional frame prediction **[2014.01]**

19/16 • • • • for a given display mode, e.g. for interlaced or progressive display mode **[2014.01]**

19/162 • • • User input **[2014.01]**

19/164 • • • Feedback from the receiver or from the transmission channel **[2014.01]**

19/166 • • • • concerning the amount of transmission errors, e.g. bit error rate [BER] **[2014.01]**

19/167 • • • Position within a video image, e.g. region of interest [ROI] **[2014.01]**

19/169 • • characterised by the coding unit, i.e. the structural portion or semantic portion of the video signal being the object or the subject of the adaptive coding **[2014.01]**

19/17 • • • the unit being an image region, e.g. an object **[2014.01]**

19/172 • • • • the region being a picture, frame or field **[2014.01]**

19/174 • • • • the region being a slice, e.g. a line of blocks or a group of blocks **[2014.01]**

19/176 • • • • the region being a block, e.g. a macroblock **[2014.01]**

19/177 • • • the unit being a group of pictures [GOP] **[2014.01]**

19/179 • • • the unit being a scene or a shot **[2014.01]**

19/18 • • • the unit being a set of transform coefficients **[2014.01]**

19/182 • • • the unit being a pixel **[2014.01]**

19/184 • • • the unit being bits, e.g. of the compressed video stream **[2014.01]**

19/186 • • • the unit being a colour or a chrominance component **[2014.01]**

19/187 • • • the unit being a scalable video layer **[2014.01]**

19/189 • • characterised by the adaptation method, adaptation tool or adaptation type used for the adaptive coding **[2014.01]**

19/19 • • • using optimisation based on Lagrange multipliers **[2014.01]**

19/192 • • • the adaptation method, adaptation tool or adaptation type being iterative or recursive **[2014.01]**

19/194 • • • • involving only two passes **[2014.01]**

19/196 • • • being specially adapted for the computation of encoding parameters, e.g. by averaging previously computed encoding parameters (processing of motion vectors H04N 19/513) **[2014.01]**

19/20 • using video object coding **[2014.01]**

19/21 • • with binary alpha-plane coding for video objects, e.g. context-based arithmetic encoding [CAE] **[2014.01]**

19/23 • • with coding of regions that are present throughout a whole video segment, e.g. sprites, background or mosaic **[2014.01]**

19/25 • • with scene description coding, e.g. binary format for scenes [BIFS] compression **[2014.01]**

19/27 • • involving both synthetic and natural picture components, e.g. synthetic natural hybrid coding [SNHC] **[2014.01]**

19/29 • • involving scalability at the object level, e.g. video object layer [VOL] **[2014.01]**
19/30 • using hierarchical techniques, e.g. scalability (H04N 19/63 takes precedence) **[2014.01]**
19/31 • • in the temporal domain **[2014.01]**
19/33 • • in the spatial domain **[2014.01]**
19/34 • • Scalability techniques involving progressive bit-plane based encoding of the enhancement layer, e.g. fine granular scalability [FGS] **[2014.01]**
19/36 • • Scalability techniques involving formatting the layers as a function of picture distortion after decoding, e.g. signal-to-noise [SNR] scalability **[2014.01]**
19/37 • • with arrangements for assigning different transmission priorities to video input data or to video coded data **[2014.01]**
19/39 • • involving multiple description coding [MDC], i.e. with separate layers being structured as independently decodable descriptions of input picture data **[2014.01]**
19/40 • using video transcoding, i.e. partial or full decoding of a coded input stream followed by re-encoding of the decoded output stream **[2014.01]**
19/42 • characterised by implementation details or hardware specially adapted for video compression or decompression, e.g. dedicated software implementation (H04N 19/635 takes precedence) **[2014.01]**
19/423 • • characterised by memory arrangements (H04N 19/433 takes precedence) **[2014.01]**
19/426 • • • using memory downsizing methods **[2014.01]**
19/43 • • Hardware specially adapted for motion estimation or compensation **[2014.01]**
19/433 • • • characterised by techniques for memory access **[2014.01]**
19/436 • • using parallelised computational arrangements **[2014.01]**
19/44 • Decoders specially adapted therefor, e.g. video decoders which are asymmetric with respect to the encoder **[2014.01]**
19/46 • Embedding additional information in the video signal during the compression process (H04N 19/517, H04N 19/68, H04N 19/70 take precedence) **[2014.01]**
19/463 • • by compressing encoding parameters before transmission **[2014.01]**
19/467 • • characterised by the embedded information being invisible, e.g. watermarking **[2014.01]**
19/48 • using compressed domain processing techniques other than decoding, e.g. modification of transform coefficients, variable length coding [VLC] data or run-length data (motion estimation in a transform domain H04N 19/547; processing of decoded motion vectors H04N 19/513) **[2014.01]**
19/50 • using predictive coding (H04N 19/61 takes precedence) **[2014.01]**
19/503 • • involving temporal prediction (adaptive coding with adaptive selection between spatial and temporal predictive coding H04N 19/107; adaptive coding with adaptive selection among a plurality of temporal predictive coding modes H04N 19/109) **[2014.01]**
19/507 • • • using conditional replenishment **[2014.01]**
19/51 • • • Motion estimation or motion compensation **[2014.01]**
19/513 • • • • Processing of motion vectors **[2014.01]**
19/517 • • • • • by encoding **[2014.01]**
19/52 • • • • • • by predictive encoding **[2014.01]**
19/523 • • • • with sub-pixel accuracy **[2014.01]**
19/527 • • • • Global motion vector estimation **[2014.01]**
19/53 • • • • Multi-resolution motion estimation; Hierarchical motion estimation **[2014.01]**
19/533 • • • • Motion estimation using multistep search, e.g. 2D-log search or one-at-a-time search [OTS] **[2014.01]**
19/537 • • • • Motion estimation other than block-based **[2014.01]**
19/54 • • • • • using feature points or meshes **[2014.01]**
19/543 • • • • • using regions **[2014.01]**
19/547 • • • • Motion estimation performed in a transform domain **[2014.01]**
19/55 • • • • Motion estimation with spatial constraints, e.g. at image or region borders **[2014.01]**
19/553 • • • • Motion estimation dealing with occlusions **[2014.01]**
19/557 • • • • Motion estimation characterised by stopping computation or iteration based on certain criteria, e.g. error magnitude being too large or early exit **[2014.01]**
19/56 • • • • Motion estimation with initialisation of the vector search, e.g. estimating a good candidate to initiate a search **[2014.01]**
19/563 • • • • Motion estimation with padding, i.e. with filling of non-object values in an arbitrarily shaped picture block or region for estimation purposes **[2014.01]**
19/567 • • • • Motion estimation based on rate distortion criteria **[2014.01]**
19/57 • • • • Motion estimation characterised by a search window with variable size or shape **[2014.01]**
19/573 • • • • Motion compensation with multiple frame prediction using two or more reference frames in a given prediction direction **[2014.01]**
19/577 • • • • Motion compensation with bidirectional frame interpolation, i.e. using B-pictures **[2014.01]**
19/58 • • • • Motion compensation with long-term prediction, i.e. the reference frame for a current frame not being the temporally closest one (H04N 19/23 takes precedence) **[2014.01]**
19/583 • • • • Motion compensation with overlapping blocks **[2014.01]**
19/587 • • involving temporal sub-sampling or interpolation, e.g. decimation or subsequent interpolation of pictures in a video sequence **[2014.01]**
19/59 • • involving spatial sub-sampling or interpolation, e.g. alteration of picture size or resolution **[2014.01]**
19/593 • • involving spatial prediction techniques **[2014.01]**
19/597 • • specially adapted for multi-view video sequence encoding **[2014.01]**
19/60 • using transform coding **[2014.01]**
19/61 • • in combination with predictive coding **[2014.01]**
19/615 • • • using motion compensated temporal filtering [MCTF] **[2014.01]**
19/62 • • by frequency transforming in three dimensions (H04N 19/63 takes precedence) **[2014.01]**
19/625 • • using discrete cosine transform [DCT] **[2014.01]**
19/63 • • using sub-band based transform, e.g. wavelets **[2014.01]**

19/635 • • • characterised by filter definition or implementation details **[2014.01]**
19/64 • • • characterised by ordering of coefficients or of bits for transmission **[2014.01]**
19/645 • • • • by grouping of coefficients into blocks after the transform **[2014.01]**
19/65 • using error resilience **[2014.01]**
19/66 • • involving data partitioning, i.e. separation of data into packets or partitions according to importance **[2014.01]**
19/67 • • involving unequal error protection [UEP], i.e. providing protection according to the importance of the data **[2014.01]**
19/68 • • involving the insertion of resynchronisation markers into the bitstream **[2014.01]**
19/69 • • involving reversible variable length codes [RVLC] **[2014.01]**
19/70 • characterised by syntax aspects related to video coding, e.g. related to compression standards **[2014.01]**
19/80 • Details of filtering operations specially adapted for video compression, e.g. for pixel interpolation (H04N 19/635, H04N 19/86 take precedence) **[2014.01]**
19/82 • • involving filtering within a prediction loop **[2014.01]**
19/85 • using pre-processing or post-processing specially adapted for video compression **[2014.01]**
19/86 • • involving reduction of coding artifacts, e.g. of blockiness **[2014.01]**
19/87 • • involving scene cut or scene change detection in combination with video compression **[2014.01]**
19/88 • • involving rearrangement of data among different coding units, e.g. shuffling, interleaving, scrambling or permutation of pixel data or permutation of transform coefficient data among different blocks **[2014.01]**
19/89 • • involving methods or arrangements for detection of transmission errors at the decoder **[2014.01]**
19/895 • • • in combination with error concealment **[2014.01]**
19/90 • using coding techniques not provided for in groups H04N 19/10-H04N 19/85, e.g. fractals **[2014.01]**
19/91 • • Entropy coding, e.g. variable length coding [VLC] or arithmetic coding **[2014.01]**
19/93 • • Run-length coding **[2014.01]**
19/94 • • Vector quantisation **[2014.01]**
19/96 • • Tree coding, e.g. quad-tree coding **[2014.01]**
19/97 • • Matching pursuit coding **[2014.01]**
19/98 • • Adaptive-dynamic-range coding [ADRC] **[2014.01]**

21/00 Selective content distribution, e.g. interactive television or video on demand [VOD] (real-time bi-directional transmission of motion video data H04N 7/14) **[2011.01]**

Note(s) [2011.01]

1. This group covers :
   - interactive video distribution processes, systems, or elements thereof, which are characterised by point-to-multipoint system configurations, and which are mainly used for motion video data unidirectional distribution or delivery resulting from interactions between systems operators, e.g. access or service providers, or users e.g. subscribers, and system elements.
   - such systems include dedicated communication systems, such as television distribution systems, which primarily distribute or deliver motion video data in the manner indicated, which may, in addition, provide a framework for further, diverse data communications or services in either unidirectional or bi-directional form. However, video will occupy most of the downlink bandwidth in the distribution process.
   - typically, system operators interface with transmitter-side elements or users' interface with receiver-side elements in order to facilitate, through interaction with such elements, the dynamic control of data processing or data flow at various points in the system. This interaction is typically occasional or intermittent in nature.
   - processes, systems or elements thereof specially adapted to the generation, distribution and processing of data, which is either associated with video content, e.g. metadata, ratings, or related to the user or his environment and which has been actively or passively gathered. This data is either used to facilitate interaction or to alter or target the content.
2. In this main group, the first place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

21/20 • Servers specifically adapted for the distribution of content, e.g. VOD servers; Operations thereof **[2011.01]**
21/21 • • Server components or server architectures **[2011.01]**
21/214 • • • Specialised server platform, e.g. server located in an airplane, hotel or hospital **[2011.01]**
21/218 • • • Source of audio or video content, e.g. local disk arrays **[2011.01]**
21/2183 • • • • Cache memory **[2011.01]**
21/2187 • • • • Live feed **[2011.01]**
21/222 • • • Secondary servers, e.g. proxy server or cable television Head-end **[2011.01]**
21/2225 • • • • Local VOD servers **[2011.01]**
21/226 • • • Internal components of the server **[2011.01]**
21/23 • • Processing of content or additional data; Elementary server operations; Server middleware **[2011.01]**
21/231 • • • Content storage operation, e.g. caching movies for short term storage, replicating data over plural servers or prioritizing data for deletion **[2011.01]**
21/2312 • • • • Data placement on disk arrays **[2011.01]**
21/2315 • • • • • using interleaving **[2011.01]**
21/2318 • • • • • using striping **[2011.01]**
21/232 • • • Content retrieval operation within server, e.g. reading video streams from disk arrays **[2011.01]**
21/233 • • • Processing of audio elementary streams **[2011.01]**
21/234 • • • Processing of video elementary streams, e.g. splicing of video streams or manipulating encoded video stream scene graphs **[2011.01]**

21/2343 • • • • involving reformatting operations of video signals for distribution or compliance with end-user requests or end-user device requirements **[2011.01]**

21/2347 • • • • involving video stream encryption **[2011.01]**

21/235 • • • Processing of additional data, e.g. scrambling of additional data or processing content descriptors **[2011.01]**

21/236 • • • Assembling of a multiplex stream, e.g. transport stream, by combining a video stream with other content or additional data, e.g. inserting a URL [Uniform Resource Locator] into a video stream, multiplexing software data into a video stream; Remultiplexing of multiplex streams; Insertion of stuffing bits into the multiplex stream, e.g. to obtain a constant bit-rate; Assembling of a packetised elementary stream **[2011.01]**

21/2362 • • • • Generation or processing of SI [Service Information] **[2011.01]**

21/2365 • • • • Multiplexing of several video streams **[2011.01]**

21/2368 • • • • Multiplexing of audio and video streams **[2011.01]**

21/237 • • • Communication with additional data server **[2011.01]**

21/238 • • • Interfacing the downstream path of the transmission network, e.g. adapting the transmission rate of a video stream to network bandwidth; Processing of multiplex streams **[2011.01]**

21/2381 • • • • Adapting the multiplex stream to a specific network, e.g. an IP [Internet Protocol] network **[2011.01]**

21/2383 • • • • Channel coding of digital bit-stream, e.g. modulation **[2011.01]**

21/2385 • • • • Channel allocation (H04N 21/266 takes precedence); Bandwidth allocation (H04N 21/24 takes precedence) **[2011.01]**

21/2387 • • • • Stream processing in response to a playback request from an end-user, e.g. for trick-play **[2011.01]**

21/2389 • • • • Multiplex stream processing, e.g. multiplex stream encrypting **[2011.01]**

21/239 • • • Interfacing the upstream path of the transmission network, e.g. prioritizing client requests **[2011.01]**

21/24 • • • Monitoring of processes or resources, e.g. monitoring of server load, available bandwidth or upstream requests **[2011.01]**

21/241 • • • Operating system [OS] processes, e.g. server setup **[2011.01]**

21/242 • • • Synchronization processes, e.g. processing of PCR [Program Clock References] **[2011.01]**

21/25 • • Management operations performed by the server for facilitating the content distribution or administrating data related to end-users or client devices, e.g. end-user or client device authentication or learning user preferences for recommending movies **[2011.01]**

21/254 • • • Management at additional data server, e.g. shopping server or rights management server **[2011.01]**

21/2543 • • • • Billing **[2011.01]**

21/2547 • • • • • Third party billing, e.g. billing of advertiser **[2011.01]**

21/258 • • • Client or end-user data management, e.g. managing client capabilities, user preferences or demographics or processing of multiple end-users preferences to derive collaborative data **[2011.01]**

21/262 • • • Content or additional data distribution scheduling, e.g. sending additional data at off-peak times, updating software modules, calculating the carousel transmission frequency, delaying a video stream transmission or generating play-lists **[2011.01]**

21/266 • • • Channel or content management, e.g. generation and management of keys and entitlement messages in a conditional access system or merging a VOD unicast channel into a multicast channel **[2011.01]**

21/2662 • • • • Controlling the complexity of the video stream, e.g. by scaling the resolution or bitrate of the video stream based on the client capabilities **[2011.01]**

21/2665 • • • • Gathering content from different sources, e.g. Internet and satellite **[2011.01]**

21/2668 • • • • Creating a channel for a dedicated end-user group, e.g. by inserting targeted commercials into a video stream based on end-user profiles **[2011.01]**

21/27 • • Server based end-user applications **[2011.01]**

21/274 • • • Storing end-user specific content or additional data in response to end-user request **[2011.01]**

21/2743 • • • • Video hosting of uploaded data from client **[2011.01]**

21/2747 • • • • Remote storage of video programs received via the downstream path, e.g. from the server **[2011.01]**

21/278 • • • Content descriptor database or directory service for end-user access **[2011.01]**

21/40 • Client devices specifically adapted for the reception of, or interaction with, content, e.g. STB [set-top-box]; Operations thereof **[2011.01]**

21/41 • • Structure of client; Structure of client peripherals **[2011.01]**

21/414 • • • Specialised client platforms, e.g. receiver in car or embedded in a mobile appliance **[2011.01]**

21/4143 • • • • PC [Personal Computer] **[2011.01]**

21/4147 • • • • PVR [Personal Video Recorder] (H04N 5/76 takes precedence) **[2011.01]**

21/418 • • • External card to be used in combination with the client device, e.g. for conditional access **[2011.01]**

21/4185 • • • • for payment **[2011.01]**

21/422 • • • Input-only peripherals, e.g. global positioning system [GPS] **[2011.01]**

21/4223 • • • • Cameras (H04N 23/00 takes precedence) **[2011.01]**

21/4227 • • • • Remote input by a user located remotely from the client device, e.g. at work **[2011.01]**

21/426 • • • Internal components of the client (H04N 5/44 takes precedence) **[2011.01]**

21/43 • • Processing of content or additional data, e.g. demultiplexing additional data from a digital video stream; Elementary client operations, e.g. monitoring of home network or synchronizing decoder's clock; Client middleware **[2011.01]**

21/431 • • • Generation of visual interfaces; Content or additional data rendering **[2011.01]**

21/432 • • • Content retrieval operation from a local storage medium, e.g. hard-disk **[2011.01]**

21/433 • • • Content storage operation, e.g. storage operation in response to a pause request or caching operations **[2011.01]**

21/4335 • • • • Housekeeping operations, e.g. prioritizing content for deletion because of storage space restrictions **[2011.01]**

21/434 • • • Disassembling of a multiplex stream, e.g. demultiplexing audio and video streams or extraction of additional data from a video stream; Remultiplexing of multiplex streams; Extraction or processing of SI; Disassembling of packetised elementary stream **[2011.01]**

21/435 • • • Processing of additional data, e.g. decrypting of additional data or reconstructing software from modules extracted from the transport stream **[2011.01]**

21/436 • • • Interfacing a local distribution network, e.g. communicating with another STB or inside the home **[2011.01]**

21/4363 • • • • Adapting the video stream to a specific local network, e.g. a Bluetooth® network **[2011.01]**

21/4367 • • • • Establishing a secure communication between the client and a peripheral device or smart card **[2011.01]**

21/437 • • • Interfacing the upstream path of the transmission network, e.g. for transmitting client requests to a VOD server **[2011.01]**

21/438 • • • Interfacing the downstream path of the transmission network originating from a server, e.g. retrieving encoded video stream packets from an IP network **[2011.01]**

21/4385 • • • • Multiplex stream processing, e.g. multiplex stream decrypting **[2011.01]**

21/439 • • • Processing of audio elementary streams **[2011.01]**

21/44 • • • Processing of video elementary streams, e.g. splicing a video clip retrieved from local storage with an incoming video stream or rendering scenes according to encoded video stream scene graphs **[2011.01]**

21/4402 • • • • involving reformatting operations of video signals for household redistribution, storage or real-time display **[2011.01]**

21/4405 • • • • involving video stream decryption **[2011.01]**

21/4408 • • • • involving video stream encryption, e.g. re-encrypting a decrypted video stream for redistribution in a home network **[2011.01]**

21/441 • • • Acquiring end-user identification **[2011.01]**

21/4415 • • • • using biometric characteristics of the user, e.g. by voice recognition or fingerprint scanning **[2011.01]**

21/442 • • • Monitoring of processes or resources, e.g. detecting the failure of a recording device, monitoring the downstream bandwidth, the number of times a movie has been viewed or the storage space available from the internal hard disk **[2011.01]**

21/4425 • • • • Monitoring of client processing errors or hardware failure **[2011.01]**

21/443 • • • OS processes, e.g. booting an STB, implementing a Java virtual machine in an STB or power management in an STB **[2011.01]**

21/45 • • Management operations performed by the client for facilitating the reception of or the interaction with the content or administrating data related to the end-user or to the client device itself, e.g. learning user preferences for recommending movies or resolving scheduling conflicts **[2011.01]**

21/454 • • • Content filtering, e.g. blocking advertisements **[2011.01]**

21/4545 • • • • Input to filtering algorithms, e.g. filtering a region of the image **[2011.01]**

21/458 • • • Scheduling content for creating a personalised stream, e.g. by combining a locally stored advertisement with an incoming stream; Updating operations, e.g. for OS modules **[2011.01]**

21/462 • • • Content or additional data management e.g. creating a master electronic program guide from data received from the Internet and a Head-end or controlling the complexity of a video stream by scaling the resolution or bit-rate based on the client capabilities **[2011.01]**

21/4623 • • • • Processing of entitlement messages, e.g. ECM [Entitlement Control Message] or EMM [Entitlement Management Message] **[2011.01]**

21/4627 • • • • Rights management **[2011.01]**

21/466 • • • Learning process for intelligent management, e.g. learning user preferences for recommending movies **[2011.01]**

21/47 • • End-user applications **[2011.01]**

21/472 • • • End-user interface for requesting content, additional data or services; End-user interface for interacting with content, e.g. for content reservation or setting reminders, for requesting event notification or for manipulating displayed content **[2011.01]**

21/4722 • • • • for requesting additional data associated with the content **[2011.01]**

21/4725 • • • • • using interactive regions of the image, e.g. hot spots **[2011.01]**

21/4728 • • • • for selecting a ROI [Region Of Interest], e.g. for requesting a higher resolution version of a selected region **[2011.01]**

21/475 • • • End-user interface for inputting end-user data, e.g. PIN [Personal Identification Number] or preference data **[2011.01]**

21/478 • • • Supplemental services, e.g. displaying phone caller identification or shopping application **[2011.01]**

21/4782 • • • • Web browsing **[2011.01]**

21/4784 • • • • receiving rewards **[2011.01]**

21/4786 • • • • e-mailing **[2011.01]**

21/4788 • • • • communicating with other users, e.g. chatting **[2011.01]**

21/482 • • • End-user interface for program selection **[2011.01]**

21/485 • • • End-user interface for client configuration **[2011.01]**

21/488 • • • Data services, e.g. news ticker **[2011.01]**

21/60 • Network structure or processes for video distribution between server and client or between remote clients; Control signalling between clients, server and network components; Transmission of management data between server and client; Communication details between server and client **[2011.01]**

21/61 • • Network physical structure; Signal processing **[2011.01]**

21/63 • • Control signaling between client, server and network components; Network processes for video distribution between server and clients, e.g. transmitting basic layer and enhancement layers over different transmission paths, setting up a peer-to-peer communication via Internet between remote STB's; Communication protocols; Addressing **[2011.01]**

21/633 • • • Control signals issued by server directed to the network components or client **[2011.01]**

21/6332 • • • • directed to client **[2011.01]**

21/6334 • • • • • for authorisation, e.g. by transmitting a key **[2011.01]**

21/6336 • • • • • directed to decoder **[2011.01]**

21/6338 • • • • directed to network **[2011.01]**

21/637 • • • Control signals issued by the client directed to the server or network components **[2011.01]**

21/6371 • • • • directed to network **[2011.01]**

21/6373 • • • • for rate control **[2011.01]**

21/6375 • • • • for requesting retransmission **[2011.01]**

21/6377 • • • • directed to server **[2011.01]**

21/6379 • • • • • directed to encoder **[2011.01]**

21/64 • • • Addressing **[2011.01]**

21/6402 • • • • Address allocation for clients **[2011.01]**

21/6405 • • • • Multicasting **[2011.01]**

21/6408 • • • • Unicasting **[2011.01]**

21/643 • • • Communication protocols **[2011.01]**

21/6433 • • • • DSM-CC [Digital Storage Media - Command and Control Protocol] **[2011.01]**

21/6437 • • • • RTP [Real-time Transport Protocol] **[2011.01]**

21/647 • • • Control signaling between network components and server or clients; Network processes for video distribution between server and clients, e.g. controlling the quality of the video stream, by dropping packets, protecting content from unauthorised alteration within the network, monitoring of network load or bridging between two different networks, e.g. between IP and wireless **[2011.01]**

21/65 • • Transmission of management data between client and server **[2011.01]**

21/654 • • • Transmission by server directed to the client **[2011.01]**

21/6543 • • • • for forcing some client operations, e.g. recording **[2011.01]**

21/6547 • • • • comprising parameters, e.g. for client setup **[2011.01]**

21/658 • • • Transmission by the client directed to the server **[2011.01]**

21/6583 • • • • Acknowledgement **[2011.01]**

21/6587 • • • • Control parameters, e.g. trick play commands or viewpoint selection **[2011.01]**

21/80 • Generation or processing of content or additional data by content creator independently of the distribution process; Content per se **[2011.01]**

21/81 • • Monomedia components thereof **[2011.01]**

21/83 • • Generation or processing of protective or descriptive data associated with content; Content structuring **[2011.01]**

21/835 • • • Generation of protective data, e.g. certificates **[2011.01]**

21/8352 • • • • involving content or source identification data, e.g. UMID [Unique Material Identifier] **[2011.01]**

21/8355 • • • • involving usage data, e.g. number of copies or viewings allowed **[2011.01]**

21/8358 • • • • involving watermark **[2011.01]**

21/84 • • • Generation or processing of descriptive data, e.g. content descriptors **[2011.01]**

21/8405 • • • • represented by keywords **[2011.01]**

21/845 • • • Structuring of content, e.g. decomposing content into time segments **[2011.01]**

21/85 • • Assembly of content; Generation of multimedia applications **[2011.01]**

21/854 • • • Content authoring **[2011.01]**

21/8541 • • • • involving branching, e.g. to different story endings **[2011.01]**

21/8543 • • • • using a description language, e.g. MHEG [Multimedia and Hypermedia information coding Expert Group] or XML [eXtensible Markup Language] **[2011.01]**

21/8545 • • • • for generating interactive applications **[2011.01]**

21/8547 • • • • involving timestamps for synchronizing content **[2011.01]**

21/8549 • • • • Creating video summaries, e.g. movie trailer **[2011.01]**

21/858 • • • Linking data to content, e.g. by linking an URL to a video object or by creating a hotspot **[2011.01]**

23/00 Cameras or camera modules comprising electronic image sensors; Control thereof [2023.01]

23/10 • for generating image signals from different wavelengths **[2023.01]**

23/11 • • for generating image signals from visible and infrared light wavelengths **[2023.01]**

23/12 • • with one sensor only **[2023.01]**

23/13 • • with multiple sensors **[2023.01]**

23/15 • • • Image signal generation with circuitry for avoiding or correcting image misregistration **[2023.01]**

23/16 • • • Optical arrangements associated therewith, e.g. for beam-splitting or for colour correction **[2023.01]**

23/17 • • using opto-mechanical scanning means only **[2023.01]**

23/20 • for generating image signals from infrared radiation only **[2023.01]**

23/21 • • from near infrared [NIR] radiation **[2023.01]**

23/23 • • from thermal infrared radiation **[2023.01]**

23/30 • for generating image signals from X-rays **[2023.01]**

23/40 • Circuit details for pick-up tubes **[2023.01]**

23/45 • for generating image signals from two or more image sensors being of different type or operating in different modes, e.g. with a CMOS sensor for moving images in combination with a charge-coupled device [CCD] for still images **[2023.01]**

23/50 • Constructional details **[2023.01]**

23/51 • • Housings **[2023.01]**

23/52 • • Elements optimising image sensor operation, e.g. for electromagnetic interference [EMI] protection or temperature control by heat transfer or cooling elements **[2023.01]**

23/53 • • of electronic viewfinders, e.g. rotatable or detachable **[2023.01]**

23/54 • • Mounting of pick-up tubes, electronic image sensors, deviation or focusing coils **[2023.01]**

23/55 • • Optical parts specially adapted for electronic image sensors; Mounting thereof **[2023.01]**

23/56 • provided with illuminating means **[2023.01]**

23/57 • Mechanical or electrical details of cameras or camera modules specially adapted for being embedded in other devices **[2023.01]**
23/58 • Means for changing the camera field of view without moving the camera body, e.g. nutating or panning of optics or image sensors **[2023.01]**
23/60 • Control of cameras or camera modules **[2023.01]**
23/61 • • based on recognised objects **[2023.01]**
23/611 • • • where the recognised objects include parts of the human body **[2023.01]**
23/617 • • Upgrading or updating of programs or applications for camera control **[2023.01]**
23/62 • • Control of parameters via user interfaces **[2023.01]**
23/63 • • by using electronic viewfinders **[2023.01]**
23/65 • • Control of camera operation in relation to power supply **[2023.01]**
23/66 • • Remote control of cameras or camera parts, e.g. by remote control devices **[2023.01]**
23/661 • • • Transmitting camera control signals through networks, e.g. control via the Internet **[2023.01]**
23/663 • • • for controlling interchangeable camera parts based on electronic image sensor signals **[2023.01]**
23/667 • • Camera operation mode switching, e.g. between still and video, sport and normal or high and low resolution modes **[2023.01]**
23/67 • • Focus control based on electronic image sensor signals **[2023.01]**
23/68 • • for stable pick-up of the scene, e.g. compensating for camera body vibrations **[2023.01]**
23/69 • • Control of means for changing angle of the field of view, e.g. optical zoom objectives or electronic zooming **[2023.01]**
23/695 • • Control of camera direction for changing a field of view, e.g. pan, tilt or based on tracking of objects **[2023.01]**
23/698 • • for achieving an enlarged field of view, e.g. panoramic image capture **[2023.01]**
23/70 • Circuitry for compensating brightness variation in the scene **[2023.01]**
23/71 • • Circuitry for evaluating the brightness variation **[2023.01]**
23/72 • • Combination of two or more compensation controls **[2023.01]**
23/73 • • by influencing the exposure time **[2023.01]**
23/74 • • by influencing the scene brightness using illuminating means **[2023.01]**
23/741 • • by increasing the dynamic range of the image compared to the dynamic range of the electronic image sensors **[2023.01]**
23/743 • • Bracketing, i.e. taking a series of images with varying exposure conditions **[2023.01]**
23/745 • • Detection of flicker frequency or suppression of flicker wherein the flicker is caused by illumination, e.g. due to fluorescent tube illumination or pulsed LED illumination **[2023.01]**
23/75 • • by influencing optical camera components **[2023.01]**
23/76 • • by influencing the image signals **[2023.01]**
23/80 • Camera processing pipelines; Components thereof **[2023.01]**
23/81 • • for suppressing or minimising disturbance in the image signal generation **[2023.01]**
23/82 • • for controlling camera response irrespective of the scene brightness, e.g. gamma correction **[2023.01]**
23/83 • • • specially adapted for colour signals **[2023.01]**
23/84 • • for processing colour signals **[2023.01]**
23/85 • • • for matrixing **[2023.01]**
23/86 • • • for controlling the colour saturation of colour signals, e.g. automatic chroma control circuits **[2023.01]**
23/87 • • • for reinsertion of DC or slowly varying components of colour signals **[2023.01]**
23/88 • • • for colour balance, e.g. white-balance circuits or colour temperature control **[2023.01]**
23/90 • Arrangement of cameras or camera modules, e.g. multiple cameras in TV studios or sports stadiums **[2023.01]**
23/95 • Computational photography systems, e.g. light-field imaging systems **[2023.01]**
23/951 • • by using two or more images to influence resolution, frame rate or aspect ratio **[2023.01]**
23/955 • • for lensless imaging **[2023.01]**
23/957 • • Light-field or plenoptic cameras or camera modules **[2023.01]**
23/958 • • for extended depth of field imaging **[2023.01]**
23/959 • • • by adjusting depth of field during image capture, e.g. maximising or setting range based on scene characteristics **[2023.01]**

25/00 Circuitry of solid-state image sensors [SSIS]; Control thereof [2023.01]
25/10 • for transforming different wavelengths into image signals **[2023.01]**
25/11 • • Arrangement of colour filter arrays [CFA]; Filter mosaics **[2023.01]**
25/13 • • • characterised by the spectral characteristics of the filter elements **[2023.01]**
25/131 • • • • including elements passing infrared wavelengths **[2023.01]**
25/133 • • • • including elements passing panchromatic light, e.g. filters passing white light **[2023.01]**
25/17 • • Colour separation based on photon absorption depth, e.g. full colour resolution obtained simultaneously at each pixel location **[2023.01]**
25/20 • for transforming only infrared radiation into image signals **[2023.01]**
25/21 • • for transforming thermal infrared radiation into image signals **[2023.01]**
25/30 • for transforming X-rays into image signals **[2023.01]**
25/40 • Extracting pixel data from image sensors by controlling scanning circuits, e.g. by modifying the number of pixels sampled or to be sampled **[2023.01]**
25/42 • • by switching between different modes of operation using different resolutions or aspect ratios, e.g. switching between interlaced and non-interlaced mode **[2023.01]**
25/44 • • by partially reading an SSIS array **[2023.01]**
25/441 • • • by reading contiguous pixels from selected rows or columns of the array, e.g. interlaced scanning **[2023.01]**
25/443 • • • by reading pixels from selected 2D regions of the array, e.g. for windowing or digital zooming **[2023.01]**
25/445 • • • by skipping some contiguous pixels within the read portion of the array **[2023.01]**
25/447 • • • by preserving the colour pattern with or without loss of information **[2023.01]**
25/46 • • by combining or binning pixels **[2023.01]**
25/47 • Image sensors with pixel address output; Event-driven image sensors; Selection of pixels to be read out based on image data **[2023.01]**

25/48 • Increasing resolution by shifting the sensor relative to the scene **[2023.01]**
25/50 • Control of the SSIS exposure **[2023.01]**
25/51 • • Control of the gain **[2023.01]**
25/53 • • Control of the integration time **[2023.01]**
25/531 • • • by controlling rolling shutters in CMOS SSIS **[2023.01]**
25/532 • • • by controlling global shutters in CMOS SSIS **[2023.01]**
25/533 • • • by using differing integration times for different sensor regions **[2023.01]**
25/534 • • • • depending on the spectral component **[2023.01]**
25/535 • • • • by dynamic region selection **[2023.01]**
25/57 • • Control of the dynamic range **[2023.01]**
25/571 • • • involving a non-linear response **[2023.01]**
25/58 • • • involving two or more exposures **[2023.01]**
25/581 • • • • acquired simultaneously **[2023.01]**
25/583 • • • • • with different integration times **[2023.01]**
25/585 • • • • • with pixels having different sensitivities within the sensor, e.g. fast or slow pixels or pixels having different sizes **[2023.01]**
25/587 • • • • acquired sequentially, e.g. using the combination of odd and even image fields **[2023.01]**
25/589 • • • • • with different integration times, e.g. short and long exposures **[2023.01]**
25/59 • • • by controlling the amount of charge storable in the pixel, e.g. modification of the charge conversion ratio of the floating node capacitance **[2023.01]**
25/60 • Noise processing, e.g. detecting, correcting, reducing or removing noise **[2023.01]**
25/61 • • the noise originating only from the lens unit, e.g. flare, shading, vignetting or "cos4" **[2023.01]**
25/611 • • • Correction of chromatic aberration **[2023.01]**
25/615 • • • involving a transfer function modelling the optical system, e.g. optical transfer function [OTF], phase transfer function [PhTF] or modulation transfer function [MTF] **[2023.01]**
25/616 • • involving a correlated sampling function, e.g. correlated double sampling [CDS] or triple sampling **[2023.01]**
25/617 • • for reducing electromagnetic interference, e.g. clocking noise **[2023.01]**
25/618 • • for random or high-frequency noise **[2023.01]**
25/62 • • Detection or reduction of noise due to excess charges produced by the exposure, e.g. smear, blooming, ghost image, crosstalk or leakage between pixels **[2023.01]**
25/621 • • • for the control of blooming **[2023.01]**
25/625 • • • for the control of smear **[2023.01]**
25/626 • • • Reduction of noise due to residual charges remaining after image readout, e.g. to remove ghost images or afterimages **[2023.01]**
25/627 • • • Detection or reduction of inverted contrast or eclipsing effects **[2023.01]**
25/628 • • • for reducing horizontal stripes caused by saturated regions of CMOS sensors **[2023.01]**
25/63 • • applied to dark current **[2023.01]**
25/633 • • • by using optical black pixels **[2023.01]**
25/65 • • applied to reset noise, e.g. KTC noise related to CMOS structures by techniques other than CDS **[2023.01]**
25/67 • • applied to fixed-pattern noise, e.g. non-uniformity of response **[2023.01]**
25/671 • • • for non-uniformity detection or correction **[2023.01]**
25/672 • • • • between adjacent sensors or output registers for reading a single image **[2023.01]**
25/673 • • • • by using reference sources **[2023.01]**
25/674 • • • • • based on the scene itself, e.g. defocusing **[2023.01]**
25/677 • • • • for reducing the column or line fixed pattern noise **[2023.01]**
25/68 • • applied to defects **[2023.01]**
25/683 • • • by defect estimation performed on the scene signal, e.g. real time or on the fly detection **[2023.01]**
25/69 • • • SSIS comprising testing or correcting structures for circuits other than pixel cells **[2023.01]**
25/70 • SSIS architectures; Circuits associated therewith **[2023.01]**
25/701 • • Line sensors **[2023.01]**
25/702 • • SSIS architectures characterised by non-identical, non-equidistant or non-planar pixel layout **[2023.01]**
25/703 • • SSIS architectures incorporating pixels for producing signals other than image signals **[2023.01]**
25/704 • • • Pixels specially adapted for focusing, e.g. phase difference pixel sets **[2023.01]**
25/705 • • • Pixels for depth measurement, e.g. RGBZ **[2023.01]**
25/706 • • • Pixels for exposure or ambient light measuring **[2023.01]**
25/707 • • • Pixels for event detection **[2023.01]**
25/708 • • • Pixels for edge detection **[2023.01]**
25/709 • • Circuitry for control of the power supply **[2023.01]**
25/71 • • Charge-coupled device [CCD] sensors; Charge-transfer registers specially adapted for CCD sensors **[2023.01]**
25/711 • • • Time delay and integration [TDI] registers; TDI shift registers **[2023.01]**
25/713 • • • Transfer or readout registers; Split readout registers or multiple readout registers **[2023.01]**
25/715 • • • using frame interline transfer [FIT] **[2023.01]**
25/72 • • • using frame transfer [FT] **[2023.01]**
25/73 • • • using interline transfer [IT] **[2023.01]**
25/74 • • • Circuitry for scanning or addressing the pixel array **[2023.01]**
25/75 • • • Circuitry for providing, modifying or processing image signals from the pixel array **[2023.01]**
25/76 • • Addressed sensors, e.g. MOS or CMOS sensors **[2023.01]**
25/766 • • • comprising control or output lines used for a plurality of functions, e.g. for pixel output, driving, reset or power **[2023.01]**
25/767 • • • Horizontal readout lines, multiplexers or registers **[2023.01]**
25/768 • • • for time delay and integration [TDI] **[2023.01]**
25/77 • • • Pixel circuitry, e.g. memories, A/D converters, pixel amplifiers, shared circuits or shared components **[2023.01]**
25/771 • • • • comprising storage means other than floating diffusion **[2023.01]**
25/772 • • • • comprising A/D, V/T, V/F, I/T or I/F converters **[2023.01]**

25/773 • • • • • comprising photon counting circuits, e.g. single photon detection [SPD] or single photon avalanche diodes [SPAD] **[2023.01]**

25/778 • • • • comprising amplifiers shared between a plurality of pixels, i.e. at least one part of the amplifier must be on the sensor array itself **[2023.01]**

25/779 • • • Circuitry for scanning or addressing the pixel array **[2023.01]**

25/78 • • • Readout circuits for addressed sensors, e.g. output amplifiers or A/D converters **[2023.01]**

25/79 • • Arrangements of circuitry being divided between different or multiple substrates, chips or circuit boards, e.g. stacked image sensors **[2023.01]**

Indexing scheme associated with groups H04N 1/00-H04N 17/00, relating to still video cameras. [6]

101/00 Still video cameras [6, 2006.01]