14.01 TWO-WAY VIDEO AND VOICE COMMUNICATION (E.G., VIDEOPHONE)

14.02 .Over wireless communication
14.03 .User interface (e.g., touch screen menu)
14.04 .Operating with other appliance (e.g., TV, VCR, FAX, etc.)
14.05 .Remote control
14.06 .Answering machine
14.07 .Display arrangement (e.g., multiscreen display)
14.08 .Conferencing (e.g., loop)
14.09 .Conferencing with multipoint control unit
14.1 .Motion image conferencing
14.11 .Switching
14.12 .Transmission control (e.g., resolution or quality)
14.13 .Compression or decompression
14.14 .Still frame (e.g., freeze frame)
14.15 .Field or frame difference (e.g., moving frame)
14.16 .User positioning (e.g., parallax)

21 PLURAL TRANSMITTER SYSTEM CONSIDERATIONS (E.G., INTERFERENCE REDUCTION)

22 SLOW SCANNING TRANSMISSION (E.G., STILL FRAME)

23 .Color TV
24 PLURAL STILL IMAGES OVER CONVENTIONAL CHANNEL
25 IMAGE FALSIFICATION TO IMPROVE VIEWER PERCEPTION OF SELECTIVE OBJECT (E.G., MOVING OBJECT OR TARGET)

26 .Contour generator
27 .Quantizer
28 .Selective contrast expander
29 .False color
30 .Hue expander

31 BACK SCATTER REDUCTION
32 PSEUDO COLOR
33 .Multispectral to color conversion (e.g., infrared and visible, infrared bands, etc.)
34 .Including intensity to color conversion (e.g., colorizer, etc.)

35 PSEUDO BLACK AND WHITE
36 PANORAMIC

37 .With continuously rotating element
38 .Multiple channels
39 .With observer selected field of view

40 HOLOGRAPHIC
41 .Color TV

42 STEREOSCOPIC
43 .Signal formatting
44 .Pseudo
45 .Endoscope
46 .Picture signal generator
47 .Multiple cameras
48 .More than two cameras
49 .Single camera with optical path division
50 .Single camera from multiple positions
51 .Stereoscopic display device
52 .More than two display devices
53 .Viewer attached
54 .Single display with optical path division
55 .Separation by time division
56 .With alternating shutters
57 .With alternating polarization
58 .Separation by polarization
59 .Separation by lenticular screen
60 .Separation by color (i.e., anaglyphic)

61 SPECIAL APPLICATIONS
62 .Aid for the blind
63 .Image magnifying
64 .Combined electronic sensing and photographic film cameras
65 .With endoscope
66 .Dental
67 .Laser
68 .Illumination
69 .Controlled by video signal
70 .Color sequential illumination
71 ..Color TV
72 ..Plural endoscopes interchangeable
73 ..External camera
74 ..With additional adjunct (e.g., recorder control, etc.)
75 ..Adaptor or connector
76 ..Physical structure of circuit element
77 .Human body observation
78 ..Eye

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.Microscope
.Electronic
.Underwater
.Hazardous or inaccessible
..Furnace (e.g., nuclear reactor, etc.)
..Pipeline
..Borehole
..Manufacturing
..Electronic circuit chip or board (e.g., positioning)
..Web, sheet or filament
..Agricultural or food production
..Welding
..Sorting, distributing or classifying
..Quality inspection
..Color TV
..Position detection
..Alignment or positioning
..Film, disc or card scanning
..Motion picture film scanner
..Mechanical optical scanning
..Flying spot scanner
..Flying spot scanner
..Color TV
...Intermittent film movement
...With modification of scanner sweep
...Intermittent film movement
...With modification of scanner sweep
...With record location
...Flying spot scanner
...Color TV
..Slide
..Color TV
..Microfilm
..Navigation
..Remote control
..Head-up display
..Direction finding or location determination
..Aircraft or spacecraft
..Land vehicle
..Program control (e.g., path guidance, etc.)
..Farm vehicle
..Simulator
..Visibility (e.g., fog, etc.)
..Aircraft or spacecraft
..Ship
..Flaw detector
..Of electronic circuit chip or board
..Of transparent container or content (e.g., bottle, jar, etc.)
..Of surface (e.g., texture or smoothness, etc.)
..By comparison with reference object
..With stored representation of reference object
..With specific illumination detail
..With strobe illumination
..With circuit detail
..Including line to line comparison
..Object or scene measurement
..Projected scale on object
..Scale on camera target
..Pulse or clock counting
..Multiple cameras on baseline (e.g., range finder, etc.)
..Distance by apparent target size (e.g., stadia, etc.)
..By cursor coordinate location
..With camera and object moved relative to each other
..Observation of or from a specific location (e.g., surveillance)
..Aerial viewing
..With linear array
..With rotating reflector
..With transformation or rectification
..Vehicular
..Traffic monitoring
..Point of sale or banking
..Camera concealment
..Intrusion detection
..Using plural cameras
..Motion detection
..Access control
..Sporting event
..Portable
..Plural cameras
..Reading meter or data printer
..Object comparison (e.g., remote verification of signature, etc.)
RESPONSIVE TO NONVISIBLE ENERGY
.Sonic or ultrasonic
.Infrared
.Pyroelectric
.With linear array
...With rotating reflector
...With rotating reflector

OBJECT TRACKING
.Using tracking gate
.Centroidal tracking
.Centroidal tracking

CATHODE-RAY TUBE BURN-IN PREVENTION
.Camera

CATHODE-RAY TUBE BURN-IN PREVENTION
_CAMERA WITH BUILT-IN TEST SIGNAL GENERATOR, TEST PATTERN, OR ADJUSTING ADJUNCT
.Setup
.Color match comparator

DISPLAY OR RECEIVER WITH BUILT-IN TEST SIGNAL GENERATOR, TEST PATTERN, OR ADJUSTING ADJUNCT
.Setup
.Color match comparator

MONITORING, TESTING, OR MEASURING
.Test signal generator
.Chroma or color bar
.VITS or ILTS
.Monitor
..Combined plural functions
(e.g., picture and waveform monitor)
..Vectorscope
.Testing of camera
..Using test chart
.Testing of image reproducer
.Alignment-manufacturing
.Display photometry
.Transmission path testing
.Signal to noise ratio
.Synchronization (e.g., H-sync to subcarrier)

MECHANICAL OPTICAL SCANNING
.Color TV
..With fiber optics
.By acoustic wave
.Moving aperture
.Drum or belt
.Multiple scanning elements
.Moving lens or refractor
.Moving reflector
.Helical element
.Vibrating or oscillating

SPECIAL SCANNING (E.G., SPIRAL, RANDOM, ZIGZAG)

CAMERA, SYSTEM AND DETAIL
.Camera connected to computer
..Computer can control camera
..Camera connected to printer
..Camera image stabilization
..Electrical motion detection
..Mechanical motion detection
..Differentiating unintentional from purposeful camera movement (pan, tilt)
..Motion correction
..Including both electrical and mechanical correcting devices
..Electrical (memory shifting, electronic zoom, etc.)
..Mechanical
..Variable angle prisms
..Optics, lens shifting
..Combined with other camera operations (e.g., autofocus or autoexposure details)
..Motion correction plus resolution enhancement
..Object tracking
..Warning/indicator
..Changing camera function based on motion detection (mode, power supply)
..With flying spot scanner
..For color scanning
..Remote control
..Communication methods
..Wireless
..Network (master/slave, client or server, etc.)
..Control devices
..Multiplexed or other embedded control signals
..Preprogrammed or stored control instructions
..Electromechanical controls (joystick, trackball, mouse, etc.)
..Monitor used to control remote camera
..Camera characteristics affecting control (zoom angle, distance to camera time delays, weight, etc.)
..Plural cameras being controlled
..Video teleconferencing (including access or authorization)
211.13 Monitor (including for controlling camera)
211.14 Camera located remotely from image processor (i.e., camera head)
215.1 With streak device
216.1 Low light level
217.1 With image intensifier
218.1 Unitary image formed by compiling sub-areas of same scene (e.g., array of cameras)
219.1 Swing driven
220.1 Still and motion modes of operation
221.1 Exposure control
222.1 Combined image signal generator and general image signal processing
223.1 Color balance (e.g., white balance)
224.1 Dependent upon operation or characteristic of iris, flash, lens, or filter
225.1 With means for preventing colored object from effecting color balance
226.1 Including flicker detection (e.g., fluorescent)
227.1 With ambient light sensor
228.1 Responsive to output signal
229.1 Combined automatic gain control and exposure control (i.e., sensitivity control)
230.1 Readout of solid-state image sensor considered or altered
231.99 With details of static memory for output image (e.g., for a still camera)
231.1 Available memory space detection
231.2 Image file management
231.3 Storage of additional data
231.4 Audio
231.5 Time or date, annotation
231.6 Processing or camera details
231.7 Detachable
231.8 Multiple detachable memories
231.9 Details of communication between memory and camera
240.99 Zoom
240.1 Using both optical and electronic zoom
240.2 Electronic zoom
240.3 Optical zoom

Details of luminance signal formation in color camera
With means for providing high band and low band luminance signals
Using distinct luminance image sensor
For single sensor type camera supplying plural color signals
Using distinct luminance image sensor
Camera and video special effects (e.g., subtitling, fading, or merging)
In charge coupled type sensor
In charge coupled type sensor
Shading or black spot correction
With transition or edge sharpening (e.g., aperture correction)
Color TV
Gray scale transformation (e.g., gamma correction)
Amplitude control (e.g., automatic gain control)
Color TV (e.g., saturation)
With DC level control
With bias illumination
Combined with color separating optical system
For single scanning device color camera
Plural bias illuminators
With plural image scanning devices
Color imagery registration
Scanning devices offset in the image plane
Each supplying only one color signal

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With single image scanning device supplying plural color signals

Separate complete images on face of pickup device

Color sequential

With color sequential illumination

With moving color filters

Four or more color types

Solid-state multicolor image sensor

With color filter or operation according to color filter

Having overlapping elements

Staggered or irregular elements

Including transparent elements

With three or more colors

Based on more than four colors

Based on four colors

Based on three colors

X-Y architecture

Charge coupled architecture

With multiple output registers

Cathode-ray tube

Phase separable signals

With indexing

Conductive grid at target

Index elements outside of image area

Frequency separable signals

Specified optical filter arrangement

Combined with grating, lens array, or refractor

Having diagonally arranged stripes

Interdigital signal electrodes

Solid-state image sensor

Time delay and integration mode (TDI)

Electronic shuttering

Accumulation or integration time responsive to light or signal intensity

In charge coupled type image sensor

With overflow gate or drain

With amplifier

Pixel amplifiers
333.01 .With electronic viewfinder or display monitor
333.02 .With display of additional information
333.03 ...Including display of a frame and line of sight determination
333.04 ...Including warning indication
333.05 ..Display of multiple images (e.g., thumbnail images, etc.)
333.06 ..Movable or rotatable unit
333.07 ..Detachable
333.08 ..Including optics
333.09 ...With optical viewfinder (e.g., correction for parallax, etc.)
333.1 ...With projector function
333.11 ...Use for previewing images (e.g., variety of image resolutions, etc.)
333.12 ..Modification of displayed image
333.13 ..Power saving mode
335 ..Optics
336 ..Color separating optics
337 ...Prism arrangement
338 ....With dichroic layer or air gap between prism sections
339 ...Exclusively dichroic elements
340 ..With optics peculiar to solid-state sensor
341 ...Optical viewfinder
342 ...With frequency selective filter (e.g., IR cut, optical LPF, etc.)
343 ..Optical multiplexing
344 ..Optical path switching
345 ...Focus control
346 ...With display of focusing condition or alarm
347 ...With zoom position detection or interrelated iris control
348 ...Using active ranging
349 ...Using image signal
350 ....With auxiliary sensor or separate area on imager
351 ....With oscillation of lens or sensor to optimize error signal
352 ....With motion detection
353 ....By detecting contrast
354 ....By analyzing high frequency component
355 .....Plural high frequencies
356 .....Detection of peak or slope of image signal
357 ...Servo unit structure or mechanism
358 ...Fiber optics
359 ..Lens or filter substitution
360 ..Automatic
361 ...Exposure control
362 ...Automatic control of iris, stop, or diaphragm
363 ...Based on image signal
364 .....Contrast
365 ...Based on ambient light
366 ...Periodic shuttering
367 .... Rotary
368 ...Changing viewing angle via optics
369 .With object or scene illumination
370 ..Flash or strobe
371 .Power supply
372 .Support or housing
373 ...For internal camera components
374 ...For specified accessory
375 ...Portable or hand-held

CATHODE-RAY TUBE DISPLAY EXCESSIVE VOLTAGE CONTROL
379 .With disabling

CATHODE-RAY TUBE DISPLAY AUTOMATIC BLACK LEVEL BIAS CONTROL

CATHODE-RAY TUBE DISPLAY BEAM CURRENT CONTROL
381 .With beam energy determining color
382 ..Variable depth of penetration of electron beam into the luminescent layer

MODULAR IMAGE DISPLAY SYSTEM BANDWIDTH REDUCTION SYSTEM
385.1 .Plural video programs in single channel
386.1 ..Color television
387.1 ..Data rate reduction
388.1 .Multiple channel (e.g., plural carrier)
389.1 ..Including one conventional or compatible channel (e.g., two channel NTSC systems)
390.1 .Data rate reduction
391.1 ..Specified color signal
392.1 ...Sub-Nyquist sampling
393.1 ...Direct coding of color composite signal
394.1 ....Predictive coding
395.1 ....Transform coding

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Including luminance signal
Using separate coders for different picture features (e.g., highs, lows)
Subband encoding (e.g., low horizontal/low vertical frequency, low horizontal/high vertical frequency)

Picture feature dependent sampling rate or sample selection
Involving hybrid transform and difference coding
With prior difference coding
Including motion vector
Involving transform coding
Adaptive
Sampling
Normalizer
Motion
Transformed sample selection (e.g., hierarchical sample selection)
Involving difference transmission (e.g., predictive)
Involving both base and differential encoding
Plural predictors
Including temporal predictor (e.g., frame difference)
Including motion vector
Involving pattern matching
Including temporal prediction (e.g., frame difference)
Including motion vector
Involving pattern matching
Involving pattern matching
Coding element controlled by buffer fullness
Involving block coding
Involving minimum, maximum, or average of block
Involving pattern matching
Arrangements for multiplexing one video signal, one or more audio signals, and a synchronizing signal
Sub-Nyquist sampling
Adaptive
Associated signal processing
Involving error detection or correction
Involving signal formatting
Involving synchronization
..Motion adaptive
..Specified chrominance processing
..PAL to NTSC or vice versa
..In which simultaneous signals are converted into sequential signals or vice versa
...Field or frame sequential to simultaneous
..Frequency change of subcarrier
..Changing number of lines for standard conversion
..Changing number of fields for standard conversion
DIVERSE DEVICE CONTROLLED BY INFORMATION EMBEDDED IN VIDEO SIGNAL
NONPICTORIAL DATA PACKET IN TELEVISION FORMAT
.Audio
.Full field
.Sync
.Data separation or detection
.Error correction or prevention
.Data format
.Including teletext decoder or display
.FORMAT
.Adapted to reduce noise or for frequency modulation (e.g., variable gain)
.Including pulse modulation of video signal (e.g., pulse width, PAM)
..Pulse code modulation
..Including additional information
..For controlling video processing (e.g., digitally assisted video)
..Additional modulation of picture carrier (e.g., quadrature)
.During sync, blanking, or overscan
.During both vertical and horizontal blanking
.During vertical blanking
.During horizontal blanking
...Sound signal
...Plural (e.g., stereo or SAP)
...Sound signal
...Plural (e.g., stereo or SAP)
...Sound signal
...Plural (e.g., stereo or SAP)
.Including the use of a subcarrier
.Broadband (e.g., occupying two adjacent channels or parts thereof)
.Specified color signal format
..Time division multiplexing of luminance and chrominance (e.g., MAC)
..Field or frame sequential systems
..Simultaneous and sequential (e.g., SECAM)
..Simultaneous signals
...Luminance plus dual-phase modulated color carrier
...Dot sequential
..Of sync signal
..Color
FLUTTER OR JITTER CORRECTION (E.G., DYNAMIC REPRODUCTION)
.Specified color
..Using frequency shifting (e.g., heterodyne)
.SYNCHRONIZATION
.Reprocessing
..Specified color
..For sequential color components
..With line rate switch (e.g., SECAM)
..Phase locking regenerated subcarrier to color burst
..Burst gate
..Including demodulator
...Digital
...With line rate switch (e.g., PAL)
..Locking of computer to video timebase
..Control of picture position
..Locking of video or audio to reference timebase
..Frame or field synchronizers
..Color television
..Audio to video
..By controlling video or sync generator
..Color television
..Including compensation for transmission delays
..Color
..Sync generation
..Means on video signal generator
..With addressable memory
..With counter or frequency divider

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Sync separation
Field or frame identification
...Color
Including automatic gain control (AGC)
To produce distinct vertical output
With distinct horizontal output
To produce distinct horizontal output
By amplitude
Noise reduction
Amplitude limiting
Noise inversion
Automatic phase or frequency control
Of sampling or clock
With data interpolation
...Color
Horizontal sync component
Cascaded phase or frequency adjusting
Plural distinct operating modes
Line rates
Locking rates
Different mode during vertical blanking
Countdown
Vertical sync component
Countdown
Using color subcarrier
To achieve interlaced scanning
Of mechanical scan
COMBINED WITH DIVERSE ART DEVICE (E.G., COMPUTER, TELEPHONE)
BASIC RECEIVER WITH ADDITIONAL FUNCTION
Multimode (e.g., composite, Y, C; baseband RF)
For receiving more than one format at will (e.g., NTSC/PAL)
For format with different aspect ratio
Color processing
Format detection
Instant replay or freeze frame
Color television processing
For magnification of part of image
Color television
For display of additional information
Simultaneously and on same screen (e.g., multiscreen)
Picture in picture
Color television
Memory
Compression
Receiver indicator (e.g., on screen display)
Tuning indication
IMAGE SIGNAL PROCESSING CIRCUITRY SPECIFIC TO TELEVISION
A/D converters
Analog to binary
Including dither
Video reprocessing
Selective image modification (e.g., touch up)
Color change type
Special effects
Strobe (e.g., ball tracker)
Geometric transformation
Size change
Color signal
Rotation
Combining plural sources
Including priority key
Foreground/background insertion
Including hue detection (e.g., chroma key)
Multiple distinct images (e.g., splitscreen)
Including insertion of characters or graphics (e.g., titles)
Specified details of key signal generation or processing
Self keyers (e.g., key generated from video being mixed
Chroma key (e.g., hue detector)
Artificial key generation
Wipes signal generator
Fades signal generator
Window signal generator (e.g., rectangle)
For generation of soft edge (e.g., blending)
Specified details of signal combining
Color signal

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...Graphic or character insertion type

...Marker or pointer generator

Display controlled by ambient light

Specified color (e.g., saturation and contrast control)

Including nonstandard signal detection controlling processing

Including vertical interval reference (e.g., VIR)

Combined noise reduction and transition sharpening

Noise or undesired signal reduction

Processing at encoder or transmitter (e.g., pre-correction)

Reduction of chrominance luminance cross-talk (e.g., precomb)

Adaptive

To suppress echo

Color signals

Complementary system (e.g., preemphasis - deemphasis)

Ghost elimination (e.g., multipath)

Blackspot or shading correction (e.g., corrects for fixed pattern defects)

Dropout compensator (e.g., replacement type)

For color television

For removal of low amplitude random noise (e.g., variable bandwidth)

Averaging type

Using frame or field delays (e.g., motion adaptive)

For color television

Noise component generator, limiter, subtractor type

Coring type

For color television

Transition or edge sharpeners

Scanning velocity modulation

Including processing to prevent the addition of noise (e.g., coring enhancement signal, noise responsive peaking control)

Vertical transition

Including horizontal transition

Color television processing

Luminance transition controls chrominance transition

Sound muting

Including picture blanking

Picture blanking

For color television

At transmitter

Retrace type

PAL signal

For quadrature signal (e.g., NTSC)

Noise or undesired signal reduction

Precomb

Noise component generator, limiter, subtractor type

Coring type

To suppress echo

Color signals

Complementary system (e.g., preemphasis - deemphasis)

Ghost elimination (e.g., multipath)

Blackspot or shading correction (e.g., corrects for fixed pattern defects)

Dropout compensator (e.g., replacement type)

For color television

For removal of low amplitude random noise (e.g., variable bandwidth)

Averaging type

Using frame or field delays (e.g., motion adaptive)

For color television

Noise component generator, limiter, subtractor type

Coring type

For color television

Transition or edge sharpeners

Scanning velocity modulation

Including processing to prevent the addition of noise (e.g., coring enhancement signal, noise responsive peaking control)

Vertical transition

Including horizontal transition

Color television processing

Luminance transition controls chrominance transition

Sound muting

Including picture blanking

Picture blanking

For color television

At transmitter

Retrace type

PAL signal

For quadrature signal (e.g., NTSC)
...Including adaptive artifacts removal (e.g., switchable trap or LPF in luma channel)

...Adaptive comb filter

....Selects or blends two or more separated signals to derive output

.....Including frame or field delays (e.g., motion adaptive)

...Including frame or field delays

.Gray scale transformation

..Using histogram

..Combined contrast control and brightness or DC level control

..Nonlinear amplitude modification (e.g., gamma)

..Color television

...By adding outputs from parallel channels

...With specified DC level control

..Automatic range control (e.g., AGC, automatic contrast control)

...Color television

...At transmitter

..Carrier envelope

..Sync or blanking

....Noise reduction or elimination

....Keyed

...Manual contrast control (e.g., linear)

..Brightness control

..By subtracting averaged active video portion (e.g., flare)

..With DC clamping

..White limiter

..DC insertion

..Color television

..At transmitter

..For plural signals or signal components

..Level inserted during keying signals (e.g., keyed clamp)

..Insertion level derived by key signals

...Level derived within feedback path

..Diode

..Motion vector generation

Motion dependent key signal generation or scene change detection

Specified processing of frame or field difference signal (e.g., noise reduction, key signal spreading)

Composite color signal

.Hue or saturation detector

.Sweep expansion or reduction

Switching

receiver type

Amplifiers

Color television signal processing

Signal modification for one gun color tube (e.g., dot sequential)

.Differential phase or amplitude responsive

.Frequency response modification

.Luminance channel circuitry

.Chrominance channel circuitry

.With details of static storage device

.For storing a sequence of frames or fields

.Specified data formatting (e.g., memory mapping)

...Of color signal

..Accessing circuitry

...Including processor interface (e.g., CPU)

..Digital

..Plural processing units

TELEVISION TRANSMITTER CIRCUITRY

.Modulator

.RECEIVER CIRCUITRY

..Demodulator

..Color television

..Color television

..Television receiver adapted to receive radio broadcast or in combination with radio receiver

.Power supply

.Tuning

..Search tuning

..Tuning voltage

..Remote control

..Automatic frequency control

..Sound traps

..Intercarrier circuits

..Sound circuit

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VIDEO DISPLAY

Array of shutters
Red-white phenomena
Color sequential
With moving color filters
Projection device
With alignment, registration or focus
Raster shape distortion
Raster size or position compensation
With cooling device
Liquid
Plural parallel light modulators
Liquid crystal
Using birefringent or polarizing medium (e.g., Kerr cell, Pockels cell, etc.)
Electron beam addressed
Acousto-optic (e.g., Bragg cell, etc.)
Deformable medium
With optical element
Beam combining
Plural serial light modulators
Single light modulator
Color TV
Liquid crystal
Using birefringent or polarizing medium (e.g., Kerr cell, Pockels cell, etc.)
Electron beam addressed
Deformable medium
Fluid
Liquid crystal
Using birefringent or polarizing medium (e.g., Kerr cell, Pockels cell, etc.)
Electron beam addressed
Acousto-optic
Deformable medium
Including solid-state deflection elements (e.g., deformable mirror device (DMD))
Medium in tape, ribbon, or membrane form
Fluid medium
Deformed into diffraction grating (e.g., using electron beam)
Having significant chemical composition
Cathode-ray tube image source

...With intensifier
...Plural CRTs
...With optical element
....Beam combining
...With optical element
....Mirror arrangement
....Concave mirror
......With correcting plate
......Adjustable
....With screen or absorption filter
...Cabinet or chassis
....Folding
....Cabinet or chassis
.Liquid crystal
...Color TV
...Scanning circuit
...Interlacing
...With cabinet or housing structure
.Direct viewed light valve
.Vacuum panel
.Gas discharge
.Array of lamps
..Color TV
.Electroluminescent (e.g., scanned matrix, etc.)
..Light emitting diode
..Color TV
..Color TV
..Color TV
..With optical fiber device
.Cathode-ray tube
..With distortion, alignment or focus
..Color convergence correction
..Color TV
...Separate electron beams in single tube
...One electron beam supplying more than one color
....Beam position indicating
.....Horizontal stripes
......Photoelectric sensor
.......Secondary emission sensor
.......With electron-optical color selection
....With color specific optical device
....Electrochromic device
..Protective device
....Radiation protection for user
...External electric or magnetic effect
....Implosion protection

December 2011
E-SUBCLASSES

The following subclasses beginning with the letter E are E-subclasses. Each E-subclass corresponds in scope to a classification in a foreign classification system, for example, the European Classification system (ECLA). The foreign classification equivalent to an E-subclass is identified in the subclass definition. In addition to US documents classified in E-subclasses by US examiners, documents are regularly classified in E-subclasses according to the classification practices of any foreign Offices identified in parentheses at the end of the title. For example, "(EPO)" at the end of a title indicates both European and US patent documents, as classified by the EPO, are regularly added to the subclass. E-subclasses may contain subject matter outside the scope of this class. Consult their definitions, or the documents themselves to clarify or interpret titles.
E13.014 ...Having two 2D image pickup sensors representing the interocular distance (EPO)
E13.015 ...Having more than two 2D image pickup sensors (EPO)
E13.016 ...Calibration aspects (EPO)
E13.017 ...Having several image pickup sensors with different characteristics other than location or field of view, e.g., different resolution, color pickup characteristic or additional depth information or, where the image signals of one image pickup sensor are used to control the characteristics of at least one other image pickup sensor (EPO)
E13.018 ...In combination with an electromagnetic radiation source for illuminating the subject (EPO)
E13.019 ...Color aspects (EPO)
E13.02 ...With monoscopic to stereoscopic image conversion (EPO)
E13.021 ...For generating stereoscopic image signals corresponding to more than two geometrical viewpoints (EPO)
E13.022 ...From a 3D object model, e.g., computer generated stereoscopic image signals (EPO)
E13.023 ...The virtual viewpoint location being selected by the observer, e.g., observer tracking (EPO)
E13.024 ...For generating monoscopic and stereoscopic images or mixed monoscopic/stereoscopic images, e.g., monoscopic and stereoscopic image generating modes or a stereoscopic image overlay window in a monoscopic image background (EPO)
E13.025 ...Synchronization or controlling aspects (EPO)
E13.026 ...Stereoscopic image displaying (EPO)
E13.027 ...Using an autostereoscopic display, i.e., viewing by the user without the aid of special glasses (EPO)
E13.028 ...Using a fly-eye lenticular screen (EPO)
E13.029 ...Using a lenticular screen (EPO)
E13.03 ...Using a parallax barrier, e.g., spatial light modulator (EPO)
E13.031 ...Using an array of controllable light sources or a moving aperture or light source (EPO)
E13.032 ...Using a varifocal lens or mirror (EPO)
E13.033 ...Color aspects (EPO)
E13.034 ...Calibration aspects (EPO)
E13.035 ...Using a digital micro mirror device (DMD) (EPO)
E13.036 ...For viewing by the user with the aid of special glasses or head mounted displays (HMD), i.e., stereoscopic displaying (EPO)
E13.037 ...With spectral multiplexing, i.e., simultaneously displaying left and right images separated using glasses with different spectral characteristics, e.g., anaglyph method or Pullfrich method (EPO)
E13.038 ...With polarization multiplexing, i.e., simultaneously displaying left and right images separated using glasses with different polarizing characteristics (EPO)
E13.039 ...With spatial multiplexing, i.e., simultaneously displaying left and right images on different parts of the display screen and using glasses to optically recombine the stereoscopic image, e.g., with prisms or mirrors (EPO)
E13.04 ...With temporal multiplexing, i.e., alternatively displaying left and right images separated in time and using glasses to alternatively block the right and left eye (EPO)
E13.041 ...With head mounted left-right displays (EPO)
E13.042 ...Using a half transparent mirror or prism (EPO)
E13.043 ...For displaying simultaneously more than two geometrical viewpoints, i.e., look-around effect without observer tracking (EPO)

E13.044 ...For displaying monoscopic and stereoscopic images or mixed monoscopic/stereoscopic images, e.g., monoscopic and stereoscopic image displaying modes or a stereoscopic image overlay window in a monoscopic image background (EPO)

E13.045 ...Using observer tracking (EPO)
E13.046 ....For several observers (EPO)
E13.047 ....For tracking with gaze detection, i.e., detecting the lines of sight of the observers eyes (EPO)

E13.048 ....For tracking with variable interocular distance or rotational head movements around the vertical axes (EPO)

E13.049 ....For tracking forward-backward translational head movements, i.e., longitudinal movements (EPO)

E13.05 ....For tracking left-right translational head movements, i.e., lateral movements (EPO)

E13.051 ....For tracking rotational head movements in a plane parallel to the screen (EPO)

E13.052 ....For tracking vertical translational head movements (EPO)

E13.053 ...Alternating rapidly the location of the left-right image components on the display screen (EPO)

E13.054 ...Using a volumetric display, i.e., systems where the image is built up from picture elements distributed over a volume (EPO)

E13.055 ....The picture elements emitting light where a pair of light beams intersect in a transparent material (EPO)

E13.056 ....The volume being generated by a moving, e.g., vibrating or rotating, surface (EPO)

E13.057 ....With depth sampling, i.e., the volume being constructed from a stack or sequence of 2D image planes (EPO)

E13.058 ...Using an image projection screen (EPO)

E13.059 ...Synchronization or controlling aspects (EPO)

E13.06 ...Stereoscopic image signal coding, multiplexing, processing, recording or transmission (EPO)

E13.061 ...Color aspects (EPO)

E13.062 ...Coding or decoding stereoscopic image signals (EPO)

E13.063 ...Mixing stereoscopic image signals (EPO)

E13.064 ...Processing stereoscopic image signals (EPO)

E13.065 ...Transformation of stereoscopic image signals corresponding to virtual viewpoints, e.g., spatial image interpolation (EPO)

E13.066 .....The virtual viewpoint location being selected by the observer, e.g., observer tracking with look around effect (EPO)

E13.067 ....Improving the 3D impression of a displayed stereoscopic image, e.g., with filtering or addition of monoscopic depth cues (EPO)

E13.068 ....Format conversion of stereoscopic images, e.g., frame-rate, size, (EPO)

E13.069 ....Equalizing the characteristics of different image components in stereoscopic images, e.g., average brightness or color balance (EPO)

E13.07 ...Switching stereoscopic image signals (EPO)

E13.071 ...Transmission of stereoscopic image signals (EPO)

E13.072 ...Multiplexing or demultiplexing different image signal components in stereoscopic image signals (EPO)

E13.073 ...Synchronization or controlling aspects (EPO)

E13.074 ...Picture signal generators (EPO)

E13.075 ...Picture reproducers (EPO)

E11.001 COLOR TELEVISION SYSTEMS (EPO)

E11.002 .High definition systems (EPO)

E11.003 .Involving two-channel transmission (EPO)

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E11.004 Involving bandwidth reduction, e.g., subsampling (EPO)
E11.005 With transmission of the extra information by means of quadrature modulation (EPO)
E11.006 With bandwidth reduction (EPO)
E11.007 Transmission systems characterized by the manner in which the individual color picture signal components are combined (EPO)
E11.008 Using sequential signals only (EPO)
E11.009 In which color signals are inserted in the blanking interval of brightness signal (EPO)
E11.010 Using simultaneous signals only (EPO)
E11.011 In which one signal, modulated in phase and amplitude, conveys color information and a second signal conveys brightness information, e.g., NTSC-system (EPO)
E11.012 The chrominance signal alternating in phase, e.g., PAL-system (EPO)
E11.013 A resolution-increasing signal being multiplexed to the PAL-system signal, e.g., PAL-PLUS-system (EPO)
E11.014 Encoding means therefor (EPO)
E11.015 Decoding means therefor (EPO)
E11.016 Encoding means therefor (EPO)
E11.017 Decoding means therefor (EPO)
E11.018 Using simultaneous and sequential signals, e.g., SECAM-system (EPO)
E11.019 Encoding means therefor (EPO)
E11.020 Decoding means therefor (EPO)
E11.021 Conversion of the manner in which the individual color picture signal components are combined, e.g., conversion of color television standards (EPO)
E11.022 In which simultaneous signals are converted into sequential signals or vice versa (EPO)

E9.001 DETAILS OF COLOR TELEVISION SYSTEMS (EPO)
E9.002 Picture signal generators (EPO)
E9.003 With one pick-up device only (EPO)
E9.004 Whereby the color signals are characterized by their phase (EPO)
E9.005 Whereby the color signals are characterized by their frequency (EPO)
E9.006 With more than one pick-up device (EPO)
E9.007 Systems for avoiding or correcting misregistration of video signals (EPO)
E9.008 Optical arrangements associated therewith, e.g., for beam-splitting, for color correction (EPO)
E9.009 Scanning of color motion picture films, e.g., for telecine (EPO)
E9.010 Using solid-state devices (EPO)
E9.011 Using optical-mechanical scanning means only (EPO)
E9.012 Picture reproducers (EPO)
E9.013 Using optical-mechanical scanning means only (EPO)
E9.014 Using cathode ray tubes (EPO)
E9.015 With variable depth of penetration of electron beam into the luminescent layer, e.g., penetrons (EPO)
E9.016 Using separate electron beams for the primary color signals (EPO)
E9.017 With more than one beam in a tube (EPO)
E9.018 Using the same beam for more than one primary color information (EPO)
E9.019 Using means, integral with, or external to, the tube, for producing signal indicating instantaneous beam position (EPO)
E9.020 Using electron-optical color selection means, e.g., line grid, deflection means in or near the gun or near the phosphor screen (EPO)
E9.021 Arrangements for convergence or focusing (EPO)
E9.022 Using quadrupole lenses (EPO)
E9.023 Using demagnetization or compensation of external magnetic fields (EPO)
E9.024 ..Using solid-state color display devices (EPO)
E9.025 ..Projection devices for color picture display (EPO)
E9.026 ...Using laser beams scanning the display screen (EPO)
E9.027 ...Using light modulating optical valves (EPO)
E9.028 ..Conversion of monochrome picture signals to color picture signals for color picture display (EPO)
E9.029 ..Color synchronization (EPO)
E9.03 ..Generation or recovery of color sub-carriers (EPO)
E9.031 ..Generation of color burst signals; Insertion of color burst signals in color picture signals or separation of color burst signals from color picture signals
E9.032 ..Synchronization of the PAL-switch (EPO)
E9.033 ..For sequential signals (EPO)
E9.034 ..For mutually locking different synchronization sources (EPO)
E9.035 ..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 color signal, correcting differential gain or differential phase
E9.036 ..For separating the brightness signal or the chrominance signal from the color television signal, e.g., using comb filter (EPO)
E9.037 ..Circuits for processing color signals (EPO)
E9.038 ..Multi-standard receivers (EPO)
E9.039 ..Multi-purpose receivers, e.g., for auxiliary information (EPO)
E9.04 ..Hue control means, e.g., flesh tone control (EPO)
E9.041 ..Beam current control means (EPO)
E9.042 ..For image enhancement, e.g., vertical detail restoration, cross-color elimination, contour correction, chrominance trapping filters (EPO)
E9.043 ..I.F amplifiers (EPO)
E9.044 ..Video amplifiers (EPO)
E9.045 ..For synchronous modulators (EPO)
E9.046 ..For synchronous demodulators (EPO)
E9.047 ..For matrixing (EPO)
E9.048 ..For color killing (EPO)
E9.049 ...Combined with color gain control (EPO)
E9.05 ..For reinsertion of dc and slowly varying components of color signal (EPO)
E9.051 ..Color balance circuits, e.g., white balance circuits, color temperature control (EPO)
E9.052 ...For picture signal generators (EPO)
E9.053 ..For controlling the amplitude of color signals, e.g., automatic chroma control circuits (EPO)
E9.054 ...For modifying the color signals by gamma correction (EPO)
E9.055 ..For obtaining special effects (EPO)
E9.056 ...Chroma key (EPO)
E9.057 ...For mixing of color signals (EPO)
E7.001 TELEVISION SYSTEMS (EPO)
E7.002 ..Systems with supplementary picture signal insertion during a portion of the active part of a television signal, e.g., during top and bottom lines in a HDTV letter-box system (EPO)
E7.003 ..Conversion of standards (EPO)
E7.004 ..High-definition television systems (EPO)
E7.005 ..Using spatial or temporal subsampling (EPO)
E7.006 ...Using pixel blocks (EPO)
E7.007 ....With motion estimation, e.g., involving the use of motion vectors (EPO)
E7.008 ..Involving the resampling of the incoming video signal (EPO)
E7.009 ..Using a storage device with different write and read speed (EPO)
E7.01 ...Using beam gun storage (EPO)
E7.011 ...Using magnetic recording (EPO)

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E7.012 ...Involving interpolation processes (EPO)
E7.013 ...Involving the use of motion vectors (EPO)
E7.014 ...Dependent on presence/absence of motion, e.g., of motion zones (EPO)
E7.015 ...One of the standards corresponding to a cinematograph film standard (EPO)
E7.016 ...One of the standards being a high definition standard (EPO)
E7.017 .Systems for the transmission of digital nonpicture data, e.g., of text during the active part of a television frame (EPO)
E7.018 ...Display systems therefor (EPO)
E7.019 ...Subscription systems therefor (EPO)
E7.02 ...Circuits for the digital nonpicture 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 (EPO)
E7.021 ...For regeneration of the clock signal (EPO)
E7.022 ...For discrimination of the binary level of the digital data, e.g., amplitude slicers (EPO)
E7.023 ...For error detection or correction (EPO)
E7.024 .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 (EPO)
E7.025 ...The additional information signals being transmitted by means of a subcarrier (EPO)
E7.026 ...With signal insertion during the vertical and the horizontal blanking interval (EPO)
E7.027 ...With signal insertion during the horizontal blanking interval (EPO)
E7.028 ...The inserted signal being digital (EPO)
E7.029 ...The signal being time-compressed before its insertion and subsequently decompressed at reception (EPO)
E7.03 ...With signal insertion during the vertical blanking interval (EPO)
E7.031 ...The inserted signal being digital (EPO)
E7.032 ...The signal being time-compressed before its insertion and subsequently decompressed at reception (EPO)
E7.033 ...For the transmission of character code signals, e.g., for teletext (EPO)
E7.034 ...For the transmission of additional display-information, e.g., menu for program or channel selection (EPO)
E7.035 ...For the transmission of subtitles (EPO)
E7.036 ...For the transmission of program or channel identifying signals (EPO)
E7.037 ...Subscription systems therefor (EPO)
E7.038 ...Using frequency interleaving, e.g., with precision offset (EPO)
E7.039 ...The signals being two or more video signals (EPO)
E7.04 .Systems for the transmission of one television signal, i.e., both picture and sound, by a single carrier (EPO)
E7.041 ...The carrier being frequency modulated (EPO)
E7.042 ...Systems for the simultaneous transmission of one television signal, i.e., both picture and sound, by more than one carrier (EPO)
E7.043 ...Simultaneous transmission of separate parts of one picture (EPO)
E7.044 ...The carriers being allocated to more than one television channel (EPO)
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 (EPO)

Involving expansion and subsequent compression of a signal segment, e.g., a frame, a line (EPO)

The signal segment being a picture element (EPO)

Systems in which different parts of the picture signal frequency band are individually processed, e.g., suppressed, transposed (EPO)

Adaptations for transmission by electric cable (EPO)

For domestic distribution (EPO)

The cable being constituted by a pair of wires (EPO)

Circuits therefor, e.g., noise reducers, equalizers, amplifiers (EPO)

Switchers or splitters (EPO)

Secrecy systems; Subscription systems (EPO)

Systems rendering the television signal unintelligible and subsequently intelligible (EPO)

Providing digital key or authorization information for generation or regeneration of the scrambling sequence (EPO)

Systems operating in the time domain of the television signal (EPO)

By displacing synchronization signals relative to active picture signals or vice versa (EPO)

By changing or reversing the order of active picture signal portions (EPO)

Authorizing the user terminal, e.g., by paying; Registering the use of a subscription channel, e.g., billing (EPO)

By receiver means only (EPO)

Coin-freed apparatus (EPO)

Centralized control of user terminal; Registering at central (EPO)

Constructional details of the subscriber equipment (EPO)

Passage/non-passage of the television signal, e.g., jamming, band suppression (EPO)

Systems operating in the amplitude domain of the television signal (EPO)

By modifying synchronization signals (EPO)

By inverting the polarity of active picture signal portions (EPO)

With two-way working, e.g., subscriber sending a program selection signal (EPO)

Transmission or handling of upstream communications (EPO)

Direct or substantially direct transmission and handling of requests (EPO)

With deferred transmission or handling of upstream communications (EPO)

Handling of requests in head-ends (EPO)

Control of the passage of the selected program (EPO)

In an intermediate station common to a plurality of user terminals (EPO)

At or near the user terminal (EPO)

Systems for two-way working (EPO)

Between two video terminals, e.g., videophone (EPO)

Constructional details of the terminal equipment, e.g., arrangements of the camera and the display (EPO)

Camera and display on the same optical axis, e.g., optically multiplexing the camera and display for eye to eye contact (EPO)

Communication arrangements, e.g., identifying the communication as a video-communication, intermediate storage of the signals (EPO)
E7.082 ...Interfacing a video terminal to a particular transmission medium, e.g., ISDN (EPO)
E7.083 ...Conference systems (EPO)
E7.084 ...Multipoint control units therefor (EPO)
E7.085 ...Closed circuit television systems, i.e., systems in which the signal is not broadcast (EPO)
E7.086 ...For receiving images from a plurality of remote sources (EPO)
E7.087 ...For receiving images from a single remote source (EPO)
E7.088 ...From a mobile camera, e.g., for remote control (EPO)
E7.089 ...Video door telephones (EPO)
E7.09 ...Capturing isolated or intermittent images triggered by the occurrence of a predetermined event, e.g., an object reaching a predetermined position (EPO)
E7.091 ...Special television systems not provided for by E7.002 to E7.085 (EPO)
E7.092 ...Using at least one opto-electrical conversion device (EPO)
E7.093 ...Adaptations for transmission via a GHz frequency band, e.g., via satellite (EPO)
E7.094 ...Adaptations for optical transmission (EPO)
E3.001 SCANNING DETAILS OF TELEVISION SYSTEMS (EPO)
E3.002 ...Scanning of motion picture films, e.g., for telecine (EPO)
E3.003 ...With continuously moving film (EPO)
E3.004 ...With intermittently moving film (EPO)
E3.005 ...With film moving only during the field blanking interval (EPO)
E3.006 ...By optical-mechanical means only (EPO)
E3.007 ...Having a moving aperture (EPO)
E3.008 ...Having a moving lens or other refractor (EPO)
E3.009 ...Having a moving reflector (EPO)
E3.01 ...For electromagnetic radiation in the invisible region, e.g., infra-red (EPO)
E3.011 ...By means not exclusively optical-mechanical (EPO)
E3.012 ...By switched stationary formation of lamps, photocells or light relays (EPO)
E3.013 ...Using cathode rays, e.g., multivision (EPO)
E3.014 ...Using gas discharges, e.g., plasma (EPO)
E3.015 ...Using liquid crystals (EPO)
E3.016 ...By means of electrically scanned solid-state devices (EPO)
E3.017 ...For picture signal generation (EPO)
E3.018 ...Control of the image-sensor operation, e.g., image processing within the image-sensor (EPO)
E3.019 ...For variable integration time (EPO)
E3.02 ...For selective scanning, e.g., windowing, zooming (EPO)
E3.021 ...For disturbance correction or prevention within the image-sensor, e.g., biasing, blooming, smearing (EPO)
E3.022 ...Picture signal readout register, e.g., shift registers, interline shift registers (EPO)
E3.023 ...With charge transfer within the image-sensor, e.g., time delay and integration (EPO)
E3.024 ...Using frame-interline transfer (EPO)
E3.025 ...Using interline transfer (EPO)
E3.026 ...Using frame transfer (EPO)
E3.027 ...Using linear image transfer (EPO)
E3.028 ...With addressing of the image-sensor elements (EPO)
E3.029 ...For MOS image-sensors, e.g., MOS-CCD (EPO)
E3.03 ...Using charge injection within the image-sensor (EPO)
E3.031 ...The image being sequentially picked-up by one device at different imaging positions, e.g., by shifting the image-sensor (EPO)
E3.032 The image being simultaneously picked-up by more than one device, e.g., the scene being partitioned into subimages (EPO)

E3.033 By deflecting electron beam in cathode-ray tube (EPO)

E3.034 Generation of supply voltages, in combination with electron beam deflecting (EPO)

E3.035 Maintaining dc voltage constant (EPO)

E3.036 Using regulation in parallel (EPO)

E3.037 Using regulation in series (EPO)

E3.038 Arrangements or assemblies in supply circuits for the purpose of withstanding high voltages (EPO)

E3.039 Prevention of damage to cathode-ray tubes in the event of failure of scanning (EPO)

E3.04 Circuits for controlling dimension, shape or centering of picture on screen (EPO)

E3.041 Controlling dimensions (EPO)

E3.042 Centering (EPO)

E3.043 Distortion correction, e.g., for pincushion distortion correction, S-correction (EPO)

E3.044 Using active elements (EPO)

E3.045 With calculating means (EPO)

E3.046 Using passive elements, e.g., diodes (EPO)

E3.047 Blanking circuits (EPO)

E3.048 Modifications of scanning arrangements to improve focusing (EPO)

E3.049 Circuits special to multi-standard receivers (EPO)

E3.05 Producing multiple scanning, i.e., using more than one spot at the same time (EPO)

E3.051 Otherwise than with constant velocity or otherwise than in pattern formed by unidirectional, straight, substantially horizontal or vertical lines (EPO)

E3.052 Velocity varied in dependence upon picture information (EPO)

E3.053 Elemental scanning area oscillated rapidly in direction transverse to main scanning direction (EPO)

E5.001 DETAILS OF TELEVISION SYSTEMS (EPO)

E5.002 Multimedia set-top circuitry for digital video services (EPO)

E5.003 Downstream channel decoding therefor (EPO)

E5.004 Involving conditional access (EPO)

E5.005 Transport demultiplexing therefor (EPO)

E5.006 Operative control therefor (EPO)

E5.007 Involving digital storage medium interfacing (EPO)

E5.008 Multimedia server circuitry for digital video services (EPO)

E5.009 Synchronizing (EPO)

E5.01 Synchronizing circuits with arrangements for extending range of synchronization, e.g., by using switching between several time constants (EPO)

E5.011 Generation of synchronizing signals (EPO)

E5.012 Arrangements or circuits at the transmitter end (EPO)

E5.013 For mixing the synchronizing signals with the picture signal or mutually (EPO)

E5.014 For mutually locking plural sources of synchronizing signals, e.g., studios or relay stations (EPO)

E5.015 For distributing synchronization pulses to different TV cameras (EPO)

E5.016 Using digital storage buffer techniques (EPO)

E5.017 Separation of synchronizing signals from picture signals (EPO)

E5.018 Separation of line synchronizing signal from frame synchronizing signal (EPO)
E5.019 Devices in which the synchronizing signals are only operative if a phase difference occurs between synchronizing and synchronized scanning devices, e.g., flywheel synchronizing (EPO)
E5.02 ...Whereby the synchronization signal directly commands a frequency generator (EPO)
E5.021 ...Whereby the synchronization signal indirectly commands a frequency generator (EPO)
E5.022 Studio circuitry; Studio devices; Studio equipment (EPO)
E5.023 ...Prompting (EPO)
E5.024 ...Television cameras (EPO)
E5.025 ...Construcational details (EPO)
E5.026 ...Housings (EPO)
E5.027 ...Mounting of pick-up device, deviation or focusing coils (EPO)
E5.028 ...Mounting of optical parts, e.g., lenses, shutters, filters (EPO)
E5.029 ...Provided with illuminating means (EPO)
E5.03 ...Means for changing the camera's field of view without moving the camera body, e.g., nutating or panning optics or image-sensors (EPO)
E5.031 ...Circuit details for pick-up tubes (EPO)
E5.032 ...Beam current control (EPO)
E5.033 ...During retrace periods, e.g., circuits for ACT tubes, leg suppression (EPO)
E5.034 ...Circuitry for compensating for variation in the brightness of the object (EPO)
E5.035 ...Circuitry for evaluating the brightness variations of the object (EPO)
E5.036 ...Combination of two or more compensation controls (EPO)
E5.037 ...By influencing the exposure time, e.g., shutter (EPO)
E5.038 ...By influencing the scene brightness using illuminating means (EPO)
E5.039 ...By influencing at least one of the pick-up tube voltages (EPO)
E5.04 ...By influencing the optical part of the camera (EPO)
E5.041 ...By influencing the picture signal (EPO)
E5.042 ...Devices for controlling television cameras, e.g., remote control (EPO)
E5.043 ...Remote control signaling for television cameras or for parts of television camera, e.g., between main body and part of camera (EPO)
E5.044 ...For interchangeable parts of television camera (EPO)
E5.045 ...Focusing (EPO)
E5.046 ...For stable pick-up of the scene in spite of camera body vibration (EPO)
E5.047 ...View-finder (EPO)
E5.048 ...Arrangements of television cameras (EPO)
E5.049 ...Picture signal generating by scanning motion picture films or slide opaques, e.g., for telecine (EPO)
E5.05 ...Picture signal generators using flying-spot scanners (EPO)
E5.051 ...Studio circuits, e.g., for mixing, switching-over, change of character of image, other special effects (EPO)
E5.052 ...Signal amplitude transition in the zone between image portions, e.g., soft edges (EPO)
E5.053 ...For obtaining an image which is composed of whole input images, e.g., splitscreen (EPO)
E5.054 ...For obtaining an image which is composed of images from a temporal image sequence, e.g., for a stroboscopic effect (EPO)
E5.055 ...Alteration of picture size, shape, position or orientation, e.g., zooming, rotation, rolling, perspective, translation (EPO)
E5.056 ...Mixing (EPO)
E5.057 ...Signal distribution or switching (EPO)
E5.058 ...Means for inserting a foreground image in a background image, i.e., inlay, outlay (EPO)
E5.059 ....Generation of keying signals (EPO)
E5.06 ...Subtitling (EPO)
E5.061 ..Mobile studios (EPO)
E5.062 .Picture signal circuitry for video frequency region (EPO)
E5.063 ..Beam current control means (EPO)
E5.064 ..Edging; Contouring (EPO)
E5.065 ..Movement detection (EPO)
E5.066 ...Movement estimation (EPO)
E5.067 ..Scene change detection (EPO)
E5.068 ..Video amplifiers (EPO)
E5.069 ..Circuitry for reinsertion of dc and slowly varying components of signal; Circuitry for preservation of black or white level (EPO)
E5.07 ...To maintain the black level constant (EPO)
E5.071 ...By means of "clamp" circuit operated by switching circuit (EPO)
E5.072 ....For the black level (EPO)
E5.073 ..Circuitry for controlling amplitude response (EPO)
E5.074 ...Gamma control (EPO)
E5.075 ...For correcting amplitude versus frequency characteristic (EPO)
E5.076 ....For compensating for attenuation of high frequency components, e.g., crispening, aperture distortion correction (EPO)
E5.077 ..Circuitry for suppressing or minimizing disturbance, e.g., moire, halo (EPO)
E5.078 ...In picture signal generation (EPO)
E5.079 ....In solid-state picture signal generation (EPO)
E5.08 .....Suppression of excedentary charges, e.g., blooming, smearing (EPO)
E5.081 .....Correction or equalization of amplitude response, e.g., dark current, blemishes, non-uniformity (EPO)
E5.082 ......By initial calibration, e.g., with memory means (EPO)
E5.083 ...Circuitry for suppressing or minimizing impulsive noise (EPO)
E5.084 ...Ghost signal cancellation (EPO)
E5.085 ..Transforming light or analogous information into electric information (EPO)
E5.086 ..Transforming X-rays (EPO)
E5.087 ...With video transmission of fluoroscopic images (EPO)
E5.088 ....Image enhancement, e.g., by subtraction techniques using polyenergetic X-rays (EPO)
E5.089 ...Using subtraction imaging techniques (EPO)
E5.09 ..Transforming infra-red radiation (EPO)
E5.091 ..Using electrically scanned solid-state devices (EPO)
E5.092 ....With digital output of the sensor cell, e.g., dynamic RAM image sensors (EPO)
E5.093 ..Transmitter circuitry (EPO)
E5.094 ..Modulation circuits (EPO)
E5.095 ..For transmitting at will black-and-white or color signals (EPO)
E5.096 ..Receiver circuitry (EPO)
E5.097 ..Tuning indicators; Automatic tuning control (EPO)
E5.098 ...Invisible or silent tuning (EPO)
E5.099 ..For displaying additional information (EPO)
E5.1 ...Circuit details of the additional information generator, e.g., details of the character or graphics signal generator, overlay mixing circuits (EPO)
E5.101 ...Multiplexed with a digital video signal (EPO)
E5.102 ...For displaying or controlling a single function of one single apparatus, e.g., TV receiver or VCR (EPO)
E5.103 ...The additional information being controlled by a remote control apparatus (EPO)
E5.104 ...The additional information being displayed in a separate window, e.g., by using splitscreen display (EPO)
E5.105 ....Menu-type displays (EPO)
E5.106 ..I.F. amplifier-circuits as far as concerned for B&W-TV (EPO)
E5.107 ..For frame-grabbing (EPO)
E5.108 ..For the reception of a digital modulated video signal (EPO)
E5.109 ..For progressive scanning (EPO)
E5.11 ..For flicker reduction (EPO)
E5.111 ..For displaying different aspect ratios (EPO)
E5.112 ...Picture in picture (EPO)
E5.113 ..Demodulation-circuits (EPO)
E5.114 ...For receiving on more than one standard at will (EPO)
E5.115 ..Automatic gain control (EPO)
E5.116 ...Keyed automatic gain control (EPO)
E5.117 ...For positively-modulated picture signals (EPO)
E5.118 ...For negatively-modulated picture signals (EPO)
E5.119 ..Control of contrast or brightness (EPO)
E5.12 ...In dependence upon ambient light (EPO)
E5.121 ...In dependence upon beam current of cathode ray tube (EPO)
E5.122 ...For the sound signals (EPO)
E5.123 ...For digital sound signals (EPO)
E5.124 ...According to the NICAM system (EPO)
E5.125 ...For more than one sound signal, e.g., stereo, multilanguages (EPO)
E5.126 ...Intercarrier circuits, i.e., heterodyning sound and vision carriers (EPO)
E5.127 ...Generation or supply of power specially adapted for television receivers (EPO)
E5.128 .Constructional details of receivers, e.g., cabinets, dust covers (EPO)
E5.129 ...Mounting of picture tube on chassis or in housing (EPO)
E5.13 ...Disposition of sound reproducers (EPO)
E5.131 ...Holding-devices for protective discs or for picture masks (EPO)
E5.132 ...Construction or mounting of chassis, e.g., for varying the elevation of the tube (EPO)
E5.133 .Transforming electric information into light information (EPO)
E5.134 ..Circuit details for cathode-ray display tubes (EPO)
E5.135 ..Circuit details for electroluminescent devices (EPO)
E5.136 .Modifying the appearance of television pictures by optical filters or diffusing screens (EPO)
E5.137 .Projection arrangements for image reproduction, e.g., using eidophor (EPO)
E5.138 ...Direct viewing projectors, e.g., an image displayed on a video CRT or LCD display being projected on a screen (EPO)
E5.139 ...Involving the use of a spatial light modulator, e.g., a light valve, controlled by a video signal (EPO)
E5.14 ...The modulator being a dielectric deformable layer controlled by an electron beam, e.g., eidophor projector (EPO)
E5.141 ...The modulator being an array of liquid crystal cells (EPO)
E5.142 ...The modulator being an array of deformable mirrors, e.g., digital micromirror device (DMD) (EPO)
E5.143 ...Constructional details of television projection apparatus (EPO)
E5.144 ...For multi-screen projection (EPO)
E5.145 ...Of head mounted projectors (EPO)

CROSS-REFERENCE ART COLLECTIONS

901 HIGH SPEED TELEVISION SYSTEM
902 PHOTOCHROMIC
903 INCLUDING SIDE PANEL INFORMATION IN SINGLE CHANNEL
904 SEPARATION OR JOINING OF SIDE AND CENTER PANELS
905 REPRODUCTION OF A COLOR FIELD OR FRAME
908 CONVERTIBLE CIRCUITS (E.G., Y/C SEPARATION OR NOISE REDUCTION)
909 NOISE RESPONSIVE SIGNAL PROCESSING
910 FLICKER REDUCTION

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LINE DOUBLER ADAPTED FOR REPRODUCING PROGRAM ORIGINALLY FROM FILM (E.G., 24 FRAME PER SECOND)

DIFFERENTIAL AMPLITUDE CONSIDERATION (E.G., AMPLITUDE VS. FREQUENCY)

LETTERBOX (E.G., DISPLAY 16:9 ASPECT RATIO IMAGE ON 4:3 SCREEN)

DELAY FOR EQUALIZATION

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collections listed below. These Collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 100 BANDWIDTH REDUCTION SYSTEM (348/384)
FOR 101 .Plural video programs in single channel (348/385)
FOR 102 ..Color television (348/386)
FOR 103 ..Bit-rate reduction (348/387)
FOR 104 .Multiple channel (e.g., plural carrier) (348/388)
FOR 105 ..Including one conventional or compatible channel (e.g., two channel NTSC systems) (348/389)
FOR 106 .Bit-rate reduction (348/390)
FOR 107 ..Specified color signal (348/391)
FOR 108 ...Sub-Nyquist sampling (348/392)
FOR 109 ...Direct coding of color composite signal (348/393)
FOR 110 ....Predictive coding (348/394)
FOR 111 ....Transform coding (348/395)
FOR 112 ...Including luminance signal (348/396)
FOR 113 ...Using separate coders for different picture features (e.g., highs, lows) (348/397)

FOR 114 ...Sub-band encoding (e.g., low horizontal/low vertical frequency, low horizontal/high vertical frequency) (348/398)
FOR 115 ..Picture feature dependent sampling rate or sample selection (348/399)
FOR 116 ..Involving hybrid transform and difference coding (348/400)
FOR 117 ...With prior difference coding (348/401)
FOR 118 ....Including motion vector (348/402)
FOR 119 ..Involving transform coding (348/403)
FOR 120 ...Adaptive (348/404)
FOR 121 ....Quantizer (348/405)
FOR 122 ....Normalizer (348/406)
FOR 123 ....Motion (348/407)
FOR 124 ...Transformed sample selection (e.g., hierarchical sample selection) (348/408)
FOR 125 ..Involving difference transmission (348/409)
FOR 126 ...Involving both PCM and DPCM encoding (348/410)
FOR 127 ...Plural predictors (348/411)
FOR 128 ....Including temporal predictor (e.g., frame difference) (348/412)
FOR 129 .....Including motion vector (348/413)
FOR 130 ...Involving vector quantization (348/414)
FOR 131 ....Including temporal prediction (e.g., frame difference) (348/415)
FOR 132 .....Including motion vector (348/416)
FOR 133 ....Involving vector quantization (348/417)
FOR 134 ...Involving vector quantization (348/418)
FOR 135 ...Coding element controlled by buffer fullness (e.g., adaptive quantizer) (348/419)
FOR 136 ...Involving block coding (348/420)
FOR 137 ...PCM represents minimum, maximum, or average of block (348/421)
FOR 138 ..Involving vector quantization (348/422)

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FOR 139 . Arrangements for multiplexing one video signal, one or more audio signals, and a synchronizing signal (348/423)

FOR 140 . Sub-Nyquist sampling (348/424)

FOR 141 . Adaptive (348/425)

FOR 142 . Associated signal processing (348/845)

FOR 143 . Involving error detection or correction (348/845.1)

FOR 144 . Involving signal formatting (348/845.2)

FOR 145 . Involving synchronization (348/845.3)

FOR 146 . Format type (e.g., HDTV or EDTV) (348/426)

FOR 147 . Including frequency folding (e.g., subsampling) (348/427)

FOR 148 . Spotwobble (e.g., pixels from plural lines form single transmitted line) (348/428)

FOR 149 . Including video related information (e.g., digitally assisted television) (348/429)

FOR 150 . Using two or more frames (348/430)

FOR 151 . Motion adaptive (348/431)

FOR 152 . Added video information in standard channel format (e.g., compatible EDTV) (348/432)

FOR 153 . Including additional modulation of picture carrier (e.g., quadrature) (348/433)

FOR 154 . Including information in sync, blanking, or overscan (348/434)

FOR 155 . During vertical blanking interval (348/435)

FOR 156 . Including the use of a subcarrier (348/436)

FOR 157 . Individual processing of different parts of image frequency band (e.g., sum and difference, high band/low band) (348/437)

FOR 158 . Individual processing of different parts of image frequency band (e.g., sum and difference, high band/low band) (438/438)

FOR 159 . Frame field or line dropping followed by time expansion and time compression (348/439)

FOR 160 . Scan rate variation (348/440)

FOR 161 . With electronic viewfinder or display monitor (348/333)

FOR 162 . With indicium (348/334)

FOR 163 . USE SURVEY AND ACCOUNTING (348/1)

FOR 164 . Monitoring of physical reaction of viewer (348/2)

FOR 165 . With billing (348/3)

FOR 166 . Monitoring of synchronization or blanking pulse (e.g., horizontal or vertical pulse signal) (348/4)

FOR 167 . With video cassette recorder (VCR) (348/5)

FOR 168 . USE OR ACCESS BLOCKING (E.G., LOCKING SWITCH) (348/5.5)

FOR 169 . WIRED BROADCAST (E.G., CABLE) (348/6)

FOR 170 . Broadcast on demand (348/7)

FOR 171 . Local distribution (e.g., hotel, hospital, vehicle, etc.) (348/8)

FOR 172 . Controlled signal substitution (e.g., emergency warning, local preemption, etc.) (348/9)

FOR 173 . With subscriber terminal details (348/10)

FOR 174 . For frequency conversion (348/11)

FOR 175 . Two-way (348/12)

FOR 176 . TWO-WAY (E.G., INTERACTIVE) (348/13)

FOR 177 . With voice capability (e.g., videophone) (348/14)

FOR 178 . Conferencing (348/15)

FOR 179 . Switching (348/16)

FOR 180 . Transmission scheme (348/17)

FOR 181 . Still frame (i.e., freeze frame) (348/18)

FOR 182 . Field or frame difference (e.g., moving frame) (348/19)

FOR 183 . User positioning (e.g., parallax) (348/20)

FOR 184 . CAMERA, SYSTEM AND DETAIL (348/207)

FOR 185 . Camera image stabilization (348/208)

FOR 186 . With flying spot scanner (348/209)

FOR 187 . For color scanning (348/210)

FOR 188 . Remote control (348/211)

FOR 189 . By multiplexed control signals (e.g., duplexing, etc.) (348/212)
FOR 190 ..Preprogrammed or stored control instructions (348/213)
FOR 191 ..Body movement actuation (348/214)
FOR 192 ..With streak device (348/215)
FOR 193 ..Low light level (348/216)
FOR 194 ..With image intensifier (348/217)
FOR 195 .Unitary image formed by compiling sub-areas of same scene (e.g., array of cameras) (348/218)
FOR 196 .Swing driven
FOR 197 .Still and motion modes of operation (348/220)
FOR 198 ..Exposure control (348/221)
FOR 199 .Combined image signal generator and general image signal processing (348/222)
FOR 200 ..Color balance (e.g., white balance) (348/223)
FOR 201 ...Dependent upon operation or characteristic of iris, flash, lens, or filter (348/224)
FOR 202 ...With means for preventing colored object from effecting color balance (348/225)
FOR 203 ...Including flicker detection (e.g., fluorescent (348/226)
FOR 204 ...With ambient light sensor (348/227)
FOR 205 ...Responsive to output signal (348/228)
FOR 206 ..Combined automatic gain control and exposure control (i.e., sensitivity control (348/229)
FOR 207 ...Readout of solid-state image sensor considered or altered (348/230)
FOR 208 ..With details of static memory for output image (e.g., for a still camera) (348/231)
FOR 209 ...With storage of additional, non-image information (e.g., audio, time, date) (348/232)
FOR 210 ...Detachable (348/233)
FOR 211 ...Electronic zoom (348/240)
FOR 212 ..Variable magnification (i.e., zoom) (348/358)