

CPC**COOPERATIVE PATENT CLASSIFICATION****G03H**

HOLOGRAPHIC PROCESSES OR APPARATUS (holograms, e.g. point holograms, used as ordinary optical elements [G02B 5/32](#); producing stereoscopic or other three-dimensional effects [G02B 27/22](#); diffraction-grating systems [G02B 27/44](#); systems using moiré fringes [G02B 27/60](#); optical logic elements [G02F 3/00](#); stereo-photography [G03B 35/00](#); photosensitive materials or processes for photographic purposes [G03C](#); { stereo-photographic or similar processes [G03C 9/00](#) }; apparatus for processing exposed photographic materials [G03D](#); analogue computers performing mathematical operations with the aid of optical elements [G06E 3/00](#); authentication by radiation, of concealed information carried by holograms or diffraction gratings [G06K 19/16](#); holographic storage [G11B 7/0065](#), [G11C 13/04](#); { stereoscopic or other three dimensional effects in television systems [H04N 13/00](#) })

NOTE

This subclass covers means for producing a record of the phase and amplitude information of a wave-front, which information can be used to reconstruct the original wave-front, or means to reconstruct the original wave-front from a record containing the phase and amplitude information of the wave-front.

G03H 1/00

Holographic processes or apparatus using light, infra-red or ultra-violet waves for obtaining holograms or for obtaining an image from them; Details peculiar thereto

- G03H 1/0005 . { Adaptation of holography to specific applications (holographic optical element [G02B 5/32](#); holographic scanner [G02B 26/106](#); recognition using holographic mask [G06K 9/76](#); holographic memories [G11B 7/0065](#), [G11C 13/042](#))}
- G03H 1/0011 .. { for security or authentication (holograms on information-bearing cards [B42D 15/10D](#); testing papers with holograms [G07D 7/0013](#))}
- G03H 2001/0016 ... { Covert holograms or holobjects requiring additional knowledge to be perceived, e.g. holobject reconstructed only under IR illumination (micro-holograms [G03H 2230/10](#))}
- G03H 2001/0022 { Deciphering being performed with numerical or optical key, e.g. with the optical scrambler used during recording (optical element in object beam [G03H 1/041](#))}
- G03H 2001/0027 ... { Being copy-protected against fraudulent replication, e.g. by layering a filter rejecting laser lines }
- G03H 2001/0033 .. { in hologrammetry for measuring or analysing }
- G03H 2001/0038 ... { analogue or digital holobjects (holographic interferometry [G01B 9/021](#); investigating particles [G01N 15/0227](#))}
- G03H 2001/0044 ... { holographic fringes deformations; holographic sensors (holographic rain sensor in vehicles [B60S 1/084](#))}
- G03H 2001/005 .. { in microscopy, e.g. digital holographic microscope [DHM] (microscopes [G02B 21/00](#); digital holography [G03H 1/0866](#))}
- G03H 2001/0055 .. { in advertising or decorative art }
- G03H 2001/0061 .. { in haptic applications when the observer interacts with the holobject }

- G03H 2001/0066 .. { for wavefront matching wherein the hologram is arranged to convert a predetermined wavefront into a comprehensive wave, e.g. associative memory (recognition using holographic masks [G06K 9/76](#)) }
- G03H 2001/0072 .. { for wavefront conjugation wherein the hologram generates a wavefront conjugating a predetermined object, e.g. null testing, positioning, comparative holography }
- G03H 2001/0077 .. { for optical manipulation, e.g. holographic optical tweezers [HOT] }
- G03H 2001/0083 .. { for restoring distorted objects, e.g. restoring objects through scattering media }
- G03H 2001/0088 .. { for video-holography, i.e. integrating hologram acquisition, transmission and display }
- G03H 2001/0094 .. { for patterning or machining using the holobject as input light distribution (microlithography [G03F 7/70283](#)) }

- G03H 1/02 . Details { of features involved during the holographic process; Replication of holograms without interference recording }
- G03H 2001/0204 .. { Object characteristics (corresponding details, see subgroups of [G03H 2210/00](#)) }
- G03H 2001/0208 .. { Individual components other than the hologram }
- G03H 2001/0212 ... { Light sources or light beam properties ([G03H 1/06](#), [G03H 1/24](#) take precedence; corresponding details, see subgroups of [G03H 2222/00](#)) }
- G03H 2001/0216 ... { Optical components ([G03H 2001/0224](#), [G03H 1/0256](#) take precedence; corresponding details, see subgroups of [G03H 2223/00](#)) }
- G03H 2001/022 .. { Writing means other than actinic light wave (corresponding details, see subgroups of [G03H 2224/00](#)) }
- G03H 2001/0224 ... { Active addressable light modulator, i.e. Spatial Light Modulator [SLM] (corresponding details, see subgroups of [G03H 2225/00](#)) }
- G03H 2001/0228 ... { Electro-optic or electronic components relating to digital holography ([G03H 2001/0224](#) takes precedence; corresponding details, see subgroups of [G03H 2226/00](#)) }
- G03H 2001/0232 ... { Mechanical components or mechanical aspects not otherwise provided for (corresponding details, see subgroups of [G03H 2227/00](#)) }
- G03H 1/0236 .. { Form or shape of the hologram when not registered to the substrate, e.g. trimming the hologram to alphanumeric shape (substrates bearing a hologram [G03H 1/0272](#)) }
- G03H 1/024 .. { Hologram nature or properties }
- G03H 1/0244 ... { Surface relief holograms (replicating hologram without interference recording [G03H 1/0276](#)) }
- G03H 1/0248 ... { Volume holograms }
- G03H 1/0252 .. { Laminate comprising a hologram layer }
- G03H 1/0256 ... { having specific functional layer }
- G03H 2001/026 .. { Recording materials or recording processes ([G03H 2226/11](#) takes precedence; corresponding details, see subgroups of [G03H 2260/00](#)) }
- G03H 2001/0264 ... { Organic recording material }
- G03H 2001/0268 ... { Inorganic recording material, e.g. photorefractive crystal [PRC] }
- G03H 1/0272 .. { Substrate bearing the hologram }
- G03H 1/0276 .. { Replicating a master hologram without interference recording (surface relief holograms [G03H 1/0244](#)) }

G03H 1/028	...	{ by embossing }
G03H 2001/0284	...	{ by moulding }
G03H 2001/0288	...	{ by electroforming }
G03H 2001/0292	...	{ by masking }
G03H 2001/0296	...	{ Formation of the master hologram }
G03H 1/04	.	Processes or apparatus for producing holograms (G03H 1/26 takes precedence)
G03H 1/0402	..	{ Recording geometries or arrangements (G03H 1/0443 , G03H 1/0476 , G03H 1/16 take precedence)}
G03H 1/0404	...	{ In-line recording arrangement }
G03H 1/0406	...	{ Image plane or focused image holograms, i.e. an image of the object or holobject is formed on, in or across the recording plane }
G03H 1/0408	...	{ Total internal reflection [TIR] holograms, e.g. edge lit or substrate mode holograms }
G03H 1/041	...	{ Optical element in the object space affecting the object beam, not otherwise provided for }
G03H 2001/0413	...	{ for recording transmission holograms }
G03H 2001/0415	...	{ for recording reflection holograms }
G03H 2001/0417	....	{ for recording single beam Lippmann hologram wherein the object is illuminated by reference beam passing through the recording material }
G03H 2001/0419	...	{ for recording combined transmission and reflection holograms }
G03H 2001/0421	...	{ Parallax aspect }
G03H 2001/0423	....	{ Restricted parallax, e.g. horizontal parallax only holograms [HPO] }
G03H 2001/0426	....	{ Extended parallax, e.g. panoramic or 360deg. holograms }
G03H 2001/0428	...	{ Image holography, i.e. an image of the object or holobject is recorded (G03H 1/0406 takes precedence; holographic microscope G03H 2001/005)}
G03H 2001/043	...	{ Non planar recording surface, e.g. curved surface }
G03H 2001/0432	...	{ Constrained record wherein, during exposure, the recording means undergoes constraints substantially differing from those expected at reconstruction }
G03H 2001/0434	...	{ In situ recording when the hologram is recorded within the device used for reconstruction }
G03H 2001/0436	...	{ Holographic camera (portable device G03H 2227/02)}
G03H 2001/0439	...	{ for recording Holographic Optical Element [HOE] (HOE per se G02B 5/32)}
G03H 2001/0441	...	{ Formation of interference pattern, not otherwise provided for }
G03H 1/0443	..	{ Digital holography, i.e. recording holograms with digital recording means (holobject computation G03H 1/0866)}
G03H 2001/0445	...	{ Off-axis recording arrangement (G03H 2001/0456 takes precedence)}
G03H 2001/0447	...	{ In-line recording arrangement }
G03H 2001/045	...	{ Fourier or lensless Fourier arrangement }
G03H 2001/0452	...	{ arranged to record an image of the object (holographic microscope G03H 2001/005)}
G03H 2001/0454	...	{ Arrangement for recovering hologram complex amplitude }
G03H 2001/0456	....	{ Spatial heterodyne, i.e. filtering a Fourier transform of the off-axis record }

G03H 2001/0458	....	{ Temporal or spatial phase shifting, e.g. parallel phase shifting method }
G03H 2001/046	...	{ Synthetic aperture }
G03H 2001/0463	...	{ Frequency heterodyne, i.e. one beam is frequency shifted }
G03H 1/0465	..	{ Particular recording light; Beam shape or geometry (G03H 1/06 takes precedence)}
G03H 2001/0467	...	{ Gated recording using pulsed or low coherence light source, e.g. light in flight, first arriving light }
G03H 2001/0469	...	{ Object light being reflected by the object }
G03H 2001/0471	...	{ Object light being transmitted through the object, e.g. illumination through living cells }
G03H 2001/0473	...	{ Particular illumination angle between object or reference beams and hologram }
G03H 1/0476	..	{ Holographic printer (G03H 1/268 takes precedence)}
G03H 2001/0478	...	{ Serial printer i.e. point oriented processing }
G03H 2001/048	...	{ Parallel printer, i.e. a fringe pattern is reproduced }
G03H 2001/0482	...	{ Interference based printer }
G03H 2001/0484	...	{ Arranged to produce three-dimensional fringe pattern }
G03H 1/0486	..	{ Improving or monitoring the quality of the record, e.g. by compensating distortions, aberrations }
G03H 2001/0489	...	{ by using phase stabilized beam }
G03H 2001/0491	...	{ by monitoring the hologram formation, e.g. via a feed-back loop }
G03H 1/0493	..	{ Special holograms not otherwise provided for, e.g. conoscopic, referenceless holography }
G03H 2001/0495	...	{ Polarisation preserving holography where amplitude, phase and polarisation state of the original objet wavefront are recorded }
G03H 2001/0497	...	{ Dot matrix holograms }
G03H 1/06	..	using incoherent light
G03H 1/08	..	Synthesising holograms, { i.e. holograms synthesized from objects or objects from holograms } (using electric digital computers G06F; G06T)
G03H 1/0808	...	{ Methods of numerical synthesis, e.g. coherent ray tracing [CRT], diffraction specific }
G03H 2001/0816	....	{ Iterative algorithms }
G03H 2001/0825	....	{ Numerical processing in hologram space, e.g. combination of the CGH [computer generated hologram] with a numerical optical element }
G03H 2001/0833	....	{ Look up table }
G03H 1/0841	...	{ Encoding method mapping the synthesized field into a restricted set of values representative of the modulator parameters, e.g. detour phase coding }
G03H 2001/085	....	{ Kinoform, i.e. phase only encoding wherein the computed field is processed into a distribution of phase differences }
G03H 2001/0858	....	{ Cell encoding wherein each computed values is represented by at least two pixels of the modulator, e.g. detour phase coding }
G03H 1/0866	...	{ Digital holographic imaging, i.e. synthesizing holobjects from holograms }
G03H 2001/0875	....	{ Solving phase ambiguity, e.g. phase unwrapping }
G03H 2001/0883	....	{ Reconstruction aspect, e.g. numerical focusing }

- G03H 1/0891 ... { Processes or apparatus adapted to convert digital holographic data into a hologram ([G03H 1/2294](#) takes precedence)}
- G03H 1/10 .. using modulated reference beam
- G03H 1/12 ... Spatial modulation, e.g. ghost imaging
- G03H 1/14 ... Temporal modulation, e.g. extending depth of field or phase compensation for object motion
- G03H 1/16 .. using Fourier transform ({ [G03H 1/10](#) }, [G03H 1/12](#), [G03H 1/14](#) take precedence; analogue computers [G06G](#), e.g. [G06G 7/19](#))
- G03H 1/18 .. Particular processing of hologram record carriers, e.g. for obtaining blazed holograms {(photographic processing in general [G03C](#), [G03D](#))}
- G03H 1/181 ... { Pre-exposure processing, e.g. hypersensitisation }
- G03H 1/182 ... { Post-exposure processing, e.g. latensification }
- G03H 2001/183 { Erasing the holographic information }
- G03H 2001/184 { Partially erasing }
- G03H 2001/185 ... { Applying a curing step }
- G03H 2001/186 ... { Swelling or shrinking the holographic record or compensation thereof e.g. for controlling the reconstructed wavelength ([G03H 2001/0033](#), [G03H 2250/44](#) take precedence)}
- G03H 2001/187 ... { Trimming process i.e. macroscopically patterning the hologram (shape of hologram [G03H 1/0236](#))}
- G03H 2001/188 { Demetallisation, i.e. removing the enhancing metallic layer (enhancement layer [G03H 2250/36](#))}
- G03H 1/20 .. Copying holograms by holographic { i.e. optical } means
- G03H 1/202 ... { Contact copy when the reconstruction beam for the master H1 also serves as reference beam for the copy H2 }
- G03H 2001/205 ... { Subdivided copy, e.g. scanning transfer }
- G03H 2001/207 ... { with modification of the nature of the hologram, e.g. changing from volume to surface relief or from reflection to transmission }
- G03H 1/22 . Processes or apparatus for obtaining an optical image from holograms ([G03H 1/26](#) to [G03H 1/34](#) take precedence)
- G03H 1/2202 .. { Reconstruction geometries or arrangements }
- G03H 1/2205 ... { using downstream optical component }
- G03H 2001/2207 { Spatial filter, e.g. for suppressing higher diffraction orders }
- G03H 2001/221 { Element having optical power, e.g. field lens }
- G03H 2001/2213 { Diffusing screen revealing the real holobject, e.g. container filled with gel to reveal the 3D holobject }
- G03H 2001/2215 { Plane screen }
- G03H 2001/2218 { being perpendicular to optical axis }
- G03H 2001/2221 { Screen having complex surface, e.g. a structured object }
- G03H 2001/2223 ... { Particular relationship between light source, hologram and observer }
- G03H 2001/2226 { Edge lit holograms (TIR recording [G03H 1/0408](#))}
- G03H 2001/2228 { adapted for reflection and transmission reconstruction }
- G03H 2001/2231 { Reflection reconstruction }

G03H 2001/2234	....	{ Transmission reconstruction }
G03H 2001/2236	...	{ Details of the viewing window }
G03H 2001/2239	....	{ Enlarging the viewing window }
G03H 2001/2242	....	{ Multiple viewing windows }
G03H 2001/2244	...	{ Means for detecting or recording the holobject }
G03H 2001/2247	....	{ for testing the hologram or holobject }
G03H 1/2249	..	{ Holobject properties }
G03H 2001/2252	...	{ Location of the holobject }
G03H 2001/2255	....	{ Holobject out of Fourier or hologram planes }
G03H 2001/2257	....	{ Straddling the hologram }
G03H 2001/226	....	{ Virtual or real }
G03H 2001/2263	...	{ Multicoloured holobject }
G03H 2001/2265	....	{ Achromatic holobject }
G03H 2001/2268	....	{ Rainbow hologram }
G03H 2001/2271	....	{ RGB holobject }
G03H 2001/2273	...	{ Pseudo-dynamic holobject, e.g. due to angle multiplexing and viewer motion }
G03H 2001/2276	...	{ Polarisation dependent holobject (G03H 2001/0495 takes precedence)}
G03H 2001/2278	...	{ Orthoscopic or pseudoscopic }
G03H 2001/2281	...	{ Particular depth of field }
G03H 2001/2284	...	{ Superimposing the holobject with other visual information }
G03H 1/2286	..	{ Particular reconstruction light (G03H 1/24 takes precedence); Beam properties }
G03H 2001/2289	...	{ when reconstruction wavelength differs from recording wavelength }
G03H 2001/2292	...	{ Using scanning means }
G03H 1/2294	..	{ Addressing the hologram to an active spatial light modulator }
G03H 2001/2297	...	{ using frame sequential, e.g. for reducing speckle noise }
G03H 1/24	..	using white light { e.g. rainbow holograms }
G03H 1/26	.	Processes or apparatus specially adapted to produce multiple { sub- } holograms or to obtain images from them, e.g. multicolour technique
G03H 2001/2605	..	{ Arrangement of the sub-holograms, e.g. partial overlapping }
G03H 2001/261	...	{ in optical contact }
G03H 2001/2615	....	{ in physical contact, i.e. layered holograms }
G03H 2001/262	...	{ not in optical contact (G03H 1/30 takes precedence)}
G03H 2001/2625	..	{ Nature of the sub-holograms }
G03H 2001/263	...	{ Made of different recording materials }
G03H 2001/2635	...	{ Mixed volume and surface relief holograms }
G03H 2001/264	...	{ One hologram being a HOE }
G03H 1/2645	..	{ Multiplexing processes, e.g. aperture, shift, or wavefront multiplexing }
G03H 1/265	...	{ Angle multiplexing; Multichannel holograms (G03H 1/268 takes precedence)}
G03H 2001/2655	...	{ Time multiplexing, i.e. consecutive records wherein the period between records is pertinent per se }

G03H 2001/266	...	{ Wavelength multiplexing }
G03H 2001/2665	...	{ Coherence multiplexing wherein different holograms are perceived under coherent or incoherent illumination }
G03H 2001/267	...	{ Polarisation multiplexing }
G03H 2001/2675	...	{ Phase code multiplexing, wherein the sub-holograms are multiplexed according to spatial modulation of the reference beam (reference beam spatial modulation G03H 1/12) }
G03H 1/268	..	{ Holographic stereogram }
G03H 2001/2685	...	{ One step recording process }
G03H 2001/269	...	{ Two and more than two steps recording process }
G03H 2001/2695	...	{ Dedicated printer (holographic printers G03H 1/0476) }
G03H 1/28	..	superimposed holograms only
G03H 1/30	..	discrete holograms only
G03H 2001/303	...	{ Interleaved sub-holograms, e.g. three RGB sub-holograms having interleaved pixels for reconstructing coloured hologram }
G03H 2001/306	...	{ Tiled identical sub-holograms }
G03H 1/32	.	Systems for obtaining speckle elimination
G03H 1/34	.	Systems for reducing the space-spatial bandwidth product
G03H 3/00	Holographic processes or apparatus using ultrasonic, sonic or infrasonic waves for obtaining holograms; Processes or apparatus for obtaining an optical image from them (G03H 1/22 takes precedence; { acoustic non-destructive testing using holographic methods G01N 29/0663 ; seismology using acoustic vibrations G01V 1/00 ; non-holographic methods for visualizing acoustic waves G10K 15/00 })	
G03H 5/00	Holographic processes or apparatus using particles or using waves other than those covered by groups G03H 1/00 or G03H 3/00 for obtaining holograms; Processes or apparatus for obtaining an optical image from them (G03H 1/22 takes precedence; construction of electron microscopes H01J 37/26 ; { investigating or analysing materials by the use of microwaves G01N 22/00 , by the use of particles wave or X-rays G01N 23/00 , G21K 7/00 })	
G03H 2210/00	Object characteristics (not used, see subgroups)	
G03H 2210/10	.	Modulation characteristics, e.g. amplitude, phase, polarisation
G03H 2210/11	..	Amplitude modulating object
G03H 2210/12	..	Phase modulating object, e.g. living cell
G03H 2210/13	..	Coloured object
G03H 2210/20	.	2D object
G03H 2210/22	..	2D SLM object wherein the object beam is formed of the light modulated by the SLM (SLM per se G03H 2001/0224)

- G03H 2210/30 . 3D object
- G03H 2210/32 .. 3D+2D, i.e. composition of 3D and 2D sub-objects, e.g. scene in front of planar background
- G03H 2210/33 .. 3D/2D, i.e. the object is formed of stratified 2D planes, e.g. tomographic data
- G03H 2210/36 .. Occluded features resolved due to parallax selectivity
- G03H 2210/40 . Synthetic representation, i.e. digital or optical object decomposition
- G03H 2210/42 .. from real object, e.g. using 3D scanner
- G03H 2210/44 .. Digital representation
- G03H 2210/441 ... Numerical processing applied to the object data other than numerical propagation ([synthesizing propagation G03H 1/0808](#))
- G03H 2210/45 .. Representation of the decomposed object
- G03H 2210/452 ... into points
- G03H 2210/454 ... into planes
- G03H 2210/46 .. for subsequent optical processing ([G03H 1/268 takes precedence](#))
- G03H 2210/50 . Nature of the object
- G03H 2210/52 .. Alphanumeric
- G03H 2210/53 .. Coded object not directly interpretable, e.g. encrypted object, barcode
- G03H 2210/54 .. For individualisation of product
- G03H 2210/55 .. Having particular size, e.g. irresolvable by the eye
- G03H 2210/56 .. Multiple objects, e.g. each in different environment
- G03H 2210/562 ... Holographic object, i.e. a combination of an object and holobject ([G03H 1/20 takes precedence](#))
- G03H 2210/62 . Moving object
- G03H 2210/63 . Environment affecting the recording, e.g. underwater ([G03H 2001/0432 takes precedence](#))
- G03H 2222/00** **Light sources or light beam properties** ([not used, see subgroups](#))
- G03H 2222/10 . Spectral composition
- G03H 2222/12 .. Single or narrow bandwidth source e.g. laser, light emitting diode [LED]
- G03H 2222/13 .. Multi-wavelengths wave with discontinuous wavelength ranges ([G03H 2222/18 takes precedence](#))
- G03H 2222/14 .. Broadband source, e.g. sun light
- G03H 2222/15 .. Ultra Violet [UV]
- G03H 2222/16 .. Infra Red [IR]
- G03H 2222/17 .. White light ([G03H 1/24 takes precedence](#))
- G03H 2222/18 ... RGB trichrome light
- G03H 2222/20 . Coherence of the light source

- G03H 2222/22 . . Spatial coherence
- G03H 2222/23 . . Temporal coherence
- G03H 2222/24 . . Low coherence light normally not allowing valuable record or reconstruction
([G03H 1/06 takes precedence](#))

- G03H 2222/31 . Polarised light
- G03H 2222/32 . Unpolarised light
- G03H 2222/33 . Pulsed light beam
- G03H 2222/34 . Multiple light sources
- G03H 2222/35 . Transverse intensity distribution of the light beam
- G03H 2222/36 . Scanning light beam

- G03H 2222/40 . Particular irradiation beam not otherwise provided for
- G03H 2222/42 . . Reference beam at recording stage
- G03H 2222/43 . . Object beam at recording stage
- G03H 2222/44 . . Beam irradiating the object at recording stage
- G03H 2222/45 . . Interference beam at recording stage, i.e. following combination of object and reference beams
- G03H 2222/46 . . Reconstruction beam at reconstruction stage
- G03H 2222/47 . . Evanescent wave

- G03H 2222/50 . Geometrical property of the irradiating beam
- G03H 2222/52 . . Divergent beam
- G03H 2222/53 . . Collimated beam
- G03H 2222/54 . . Convergent beam
- G03H 2222/55 . . Astigmatic beam having different focal planes ([anamorphic optical element G03H 2223/21](#))
- G03H 2222/56 . . Conjugated beam

- G03H 2223/00** **Optical components** ([not used, see subgroups](#))

- G03H 2223/12 . Amplitude mask, e.g. diaphragm, Louver filter
- G03H 2223/13 . Phase mask
- G03H 2223/14 . Diffuser, e.g. lens array, random phase mask
- G03H 2223/15 . Colour filter, e.g. interferential colour filter
- G03H 2223/16 . Optical waveguide, e.g. optical fibre, rod

- G03H 2223/17 . Element having optical power
- G03H 2223/18 . Prism
- G03H 2223/19 . Micro-optic array e.g. lens array
- G03H 2223/20 . Birefringent optical element, e.g. wave plate
- G03H 2223/21 . Anamorphic optical element e.g. cylindrical ([astigmatic beam G03H 2222/55](#))
- G03H 2223/22 . Polariser
- G03H 2223/23 . Diffractive element
- G03H 2223/24 . Reflector; Mirror
- G03H 2223/25 . Index matching material
- G03H 2223/26 . Means providing optical delay e.g. for path length matching
- G03H 2223/50 . Particular location or purpose of optical element ([downstream optical component G03H 1/2205](#))
- G03H 2223/52 . . Filtering the object information
- G03H 2223/53 . . Filtering the hologram information, i.e. the fringe pattern
- G03H 2223/54 . . Filtering the holobject information
- G03H 2223/55 . . Arranged at a Fourier plane
- G03H 2224/00** **Writing means other than actinic light wave** ([not used, see subgroups](#))
- G03H 2224/02 . Mechanical means, e.g. diamond tool
- G03H 2224/04 . Particle beam, e.g. e-beam
- G03H 2224/06 . Thermal or photo-thermal means ([infra red source G03H 2222/16](#))
- G03H 2225/00** **Active addressable light modulator** ([not used, see subgroups](#))
- G03H 2225/10 . Shape or geometry
- G03H 2225/11 . . 1D SLM
- G03H 2225/12 . . 2D SLM
- G03H 2225/13 . . 3D SLM
- G03H 2225/20 . Nature, e.g. e-beam addressed
- G03H 2225/21 . . Acousto-optic SLM [AO-SLM]
- G03H 2225/22 . . Electrically addressed SLM [EA-SLM]

G03H 2225/23	..	Grating based SLM
G03H 2225/24	..	Having movable pixels, e.g. micro-electromechanical systems [MEMS]
G03H 2225/25	..	Optically addressed SLM [OA-SLM]
G03H 2225/30	.	Modulation
G03H 2225/31	..	Amplitude only
G03H 2225/32	..	Phase only
G03H 2225/33	..	Complex modulation
G03H 2225/34	...	Amplitude and phase coupled modulation
G03H 2225/35	..	Colour modulation
G03H 2225/36	..	Polarisation
G03H 2225/52	.	Reflective modulator
G03H 2225/55	.	Having optical element registered to each pixel
G03H 2225/60	.	Multiple SLMs
G03H 2225/61	..	for multicolour processing
G03H 2226/00		Electro-optic or electronic components relating to digital holography (not used, see subgroups)
G03H 2226/02	.	Computing or processing means, e.g. digital signal processor [DSP]
G03H 2226/04	.	Transmission or communication means, e.g. internet protocol
G03H 2226/05	.	Means for tracking the observer
G03H 2226/11	.	Electro-optic recording means, e.g. CCD, pyroelectric sensors
G03H 2226/13	..	Multiple recording means
G03H 2227/00		Mechanical components or mechanical aspects not otherwise provided for (not used, see subgroups)
G03H 2227/02	.	Handheld portable device, e.g. holographic camera, mobile holographic display
G03H 2227/03	.	Means for moving one component (G03H 1/0476 , G03H 2001/2695 take precedence)
G03H 2227/04	.	Production line for mass production
G03H 2227/05	.	Support holding the holographic record
G03H 2227/06	..	Support including light source
G03H 2230/00		Form or shape of the hologram when not registered to the substrate (not used, see subgroups)

G03H 2230/10 . Micro-hologram not registered to the substrate

G03H 2240/00 Hologram nature or properties (not used, see subgroups)

G03H 2240/10 . Physical parameter modulated by the hologram ([G03H 2001/0224 takes precedence](#))

G03H 2240/11 . . Phase only modulation ([G03H 1/0244 takes precedence](#))

G03H 2240/12 . . Amplitude only modulation

G03H 2240/13 . . Amplitude and phase complex modulation

G03H 2240/15 . . Polarisation modulation

G03H 2240/20 . Details of physical variations exhibited in the hologram

G03H 2240/21 . . Optical density variations

G03H 2240/22 . . . Chromatic variations e.g. photochromic or electrochromic

G03H 2240/23 . . Optical length variations, e.g. bleached silver halide ([G03H 1/0244 takes precedence](#))

G03H 2240/24 . . . Index variations only

G03H 2240/25 . . Magnetic variations

G03H 2240/26 . . Structural variations, e.g. structure variations due to photoanchoring or conformation variations due to photo-isomerisation

G03H 2240/40 . . Dynamic of the variations

G03H 2240/41 . . . Binary

G03H 2240/42 . . . Discrete level

G03H 2240/43 . . . Continuous

G03H 2240/50 . Parameters or numerical values associated with holography, e.g. peel strength

G03H 2240/51 . . Intensity, power or luminance ([G03H 2240/52 takes precedence](#))

G03H 2240/52 . . Exposure parameters e.g. time, intensity

G03H 2240/53 . . Diffraction efficiency [DE]

G03H 2240/54 . . Refractive index

G03H 2240/55 . . Thickness

G03H 2240/56 . . Resolution

G03H 2240/61 . . SLM related parameters, e.g. pixel size

G03H 2240/62 . . Sampling aspect applied to sensor or display

G03H 2250/00 Laminate comprising a hologram layer (not used, see subgroups)

G03H 2250/10 . arranged to be transferred onto a carrier body ([adhesive layer G03H 2250/35](#))

G03H 2250/12 . Special arrangement of layers

G03H 2250/14 . Forming layer onto which a surface relief hologram is formed ([G03H 2270/52 takes precedence](#))

- G03H 2250/32 . Antireflective layer
- G03H 2250/33 . Absorbing layer
- G03H 2250/34 . Colour layer
- G03H 2250/35 . Adhesive layer
- G03H 2250/36 . Conform enhancement layer
- G03H 2250/37 . Enclosing the photosensitive material
- G03H 2250/38 . Liquid crystal
- G03H 2250/39 . Protective layer
- G03H 2250/40 . Printed information overlapped with the hologram
- G03H 2250/41 . Polarisation active layer
- G03H 2250/42 . Reflective layer ([G03H 2250/36 takes precedence](#))
- G03H 2250/43 . One layer having dispersed particles ([G03H 2260/33 takes precedence](#))
- G03H 2250/44 . Colour tuning layer
- G03H 2260/00** **Recording materials or recording processes** ([not used, see subgroups](#))
- G03H 2260/10 . Dichromated gelatine or equivalents
- G03H 2260/12 . Photopolymer
- G03H 2260/14 . Photoresist
- G03H 2260/16 . Silver halide emulsion
- G03H 2260/30 . Details of photosensitive recording material not otherwise provided for
- G03H 2260/31 . . Ageing or resistance of the material ([G03H 2250/39 takes precedence](#))
- G03H 2260/32 . . Combining different recording materials ([G03H 2001/2615 takes precedence](#))
- G03H 2260/33 . . Having dispersed compound
- G03H 2260/34 . . Non uniform thickness
- G03H 2260/35 . . Rewritable material allowing several record and erase cycles
- G03H 2260/36 . . . Dynamic material where the lifetime of the recorded pattern is quasi instantaneous, the holobject is simultaneously reconstructed
- G03H 2260/50 . Reactivity or recording processes ([writing means G03H 2001/0212, G03H 2001/022](#))

- G03H 2260/51 . . Photoanisotropic reactivity wherein polarized light induces material birefringence, e.g. azo-dye doped polymer
- G03H 2260/52 . . Photochromic reactivity wherein light induces a reversible transformation between two states having different absorption spectra
- G03H 2260/53 . . Photoconductor thermoplastic reactivity wherein light is transformed into an electrostatic then into a thickness distribution
- G03H 2260/54 . . Photorefractive reactivity wherein light induces photo-generation, redistribution and trapping of charges then a modification of refractive index, e.g. photorefractive polymer
- G03H 2260/61 . . Producing material deformation
- G03H 2260/62 . . Direct etching
- G03H 2260/63 . . Indirect etching, e.g. lithography ([photoresist G03H 2260/14](#))

- G03H 2270/00 Substrate bearing the hologram (not used, see subgroups)**

- G03H 2270/10 . Composition
 - G03H 2270/11 . . Crystal or glass ([G03H 2270/55 takes precedence](#))
 - G03H 2270/12 . . Fibrous, e.g. paper, textile
 - G03H 2270/13 . . Metallic
 - G03H 2270/14 . . Plastic

- G03H 2270/20 . Shape
 - G03H 2270/21 . . Curved bearing surface
 - G03H 2270/22 . . Disc shaped
 - G03H 2270/23 . . Ribbon shaped, e.g. holographic foil
 - G03H 2270/24 . . Having particular size, e.g. microscopic

- G03H 2270/30 . Nature
 - G03H 2270/31 . . Flexible
 - G03H 2270/32 . . Transparent

- G03H 2270/52 . Integrated surface relief hologram without forming layer
- G03H 2270/53 . Recording material dispersed into porous substrate
- G03H 2270/54 . Recording material filed in recessed substrate
- G03H 2270/55 . being an optical element, e.g. spectacles