

EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 571

DATE: JANUARY 1, 2019

PROJECT MP0418

The following classification changes will be effected by this Notice of Changes:

<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
SCHEME:		
Titles Changed:	H01S	Subclass
	H01S	1/00, 1/06
	H01S	3/00, 3/036, 3/067, 3/08, 3/095, 3/10, 3/101, 3/17
	H01S	4/00
	H01S	5/00, 5/022, 5/024, 5/026, 5/06, 5/50
Notes Modified:	H01S	Subclass
DEFINITIONS:		
Definitions Modified:	H01S	Subclass
	H01S	1/00
	H01S	3/036, 3/067, 3/08, 3/083, 3/10,
	H01S	4/00
	H01S	5/00, 5/022, 5/024, 5/026, 5/06, 5/50

No other subclasses/groups are impacted by this Notice of Changes.

This Notice of Changes includes the following [Check the ones included]:

1. CLASSIFICATION SCHEME CHANGES

- A. New, Modified or Deleted Group(s)
- B. New, Modified or Deleted Warning(s)
- C. New, Modified or Deleted Note(s)
- D. New, Modified or Deleted Guidance Heading(s)

2. DEFINITIONS

- A. New or Modified Definitions (Full definition template)
- B. Modified or Deleted Definitions (Definitions Quick Fix)

3. REVISION CONCORDANCE LIST (RCL)

4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

5. CHANGES TO THE CROSS-REFERENCE LIST (CRL)

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1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)**SUBCLASS H01S – DEVICES USING STIMULATED EMISSION**

<u>Type*</u>	<u>Symbol</u>	<u>Indent Level Number of dots (e.g. 0, 1, 2)</u>	<u>Title</u> <u>“CPC only” text should normally be enclosed in {curly brackets}**</u>	<u>Transferred to#</u>
M	H01S	Subclass	DEVICES USING THE PROCESS OF LIGHT AMPLIFICATION BY STIMULATED EMISSION OF RADIATION [LASER] TO AMPLIFY OR GENERATE LIGHT; DEVICES USING STIMULATED EMISSION OF ELECTROMAGNETIC RADIATION IN WAVE RANGES OTHER THAN OPTICAL	
M	H01S1/00	0	Masers, i.e. devices using stimulated emission of electromagnetic radiation in the microwave range	
M	H01S1/06	1	Gaseous {, i.e. beam masers}	
M	H01S3/00	0	Lasers, i.e. devices using stimulated emission of electromagnetic radiation in the infrared, visible or ultraviolet wave range (semiconductors lasers H01S 5/00)	
M	H01S3/03	2	of gas laser discharge tubes	
M	H01S3/036	3	Means for obtaining or maintaining the desired gas pressure within the tube, e.g. by gettering, replenishing; Means for circulating the gas, e.g. for equalising the pressure within the tube {(H01S3/031 takes precedence)}	
M	H01S3/067	4	Fibre lasers	
M	H01S3/08	2	Construction or shape of optical resonators or components thereof {(waveguide lasers H01S3/063)}	
M	H01S 3/083	4	Ring lasers {(fibre ring lasers H01S3/06791)}	
M	H01S 3/095	2	using chemical or thermal pumping	
M	H01S 3/10	1	Controlling the intensity, frequency, phase, polarisation or direction of the emitted radiation, e.g. switching, gating, modulating or demodulating	
M	H01S 3/101	2	Lasers provided with means to change the location from which, or the direction in which, laser radiation is emitted	
M	H01S 3/17	3	amorphous, e.g. glass	

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<u>Type*</u>	<u>Symbol</u>	<u>Indent Level Number of dots (e.g. 0, 1, 2)</u>	<u>Title</u> <u>“CPC only” text should normally be enclosed in {curly brackets}**</u>	<u>Transferred to#</u>
M	H01S 4/00	0	Devices using stimulated emission of electromagnetic radiation in wave ranges other than those covered by groups H01S 1/00, H01S 3/00 or H01S 5/00, e.g. phonon masers, X-ray lasers or gamma-ray lasers	
M	H01S 5/00	0	Semiconductor lasers (superluminescent diodes {H01L 33/0045})	
M	H01S 5/022	2	Mountings; Housings	
M	H01S 5/024	2	Cooling arrangements {(H01S 5/0261 takes precedence)}	
M	H01S 5/026	2	Monolithically integrated components, e.g. waveguides, monitoring photo-detectors, drivers (stabilisation of output H01S5/06)	
M	H01S 5/06	1	Arrangements for controlling the laser output parameters, e.g. by operating on the active medium	
M	H01S 5/50	1	Amplifier structures not provided for in groups H01S 5/02-H01S 5/30	

*N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; E= existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

NOTES:

- **No {curly brackets} are used for titles in CPC only subclasses, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets} are used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).
- U groups: it is obligatory to display the required “anchor” symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups). Always include the symbol, indent level and title of the U group in the table above.
- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types.
- “Transferred to” column must be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.
- When multiple symbols are included in the “Transferred to” column, avoid using ranges of symbols in order to be as precise as possible.
- For administrative transfer of documents, the following text should be used: “< administrative transfer to XX>”, “<administrative transfer to XX and YY simultaneously>”, or “<administrative transfer to XX, YY, ..and ZZ simultaneously>” when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be “additional information”.
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations “ADD” or “INV”: <administrative transfer to XX ADD>, <administrative transfer to XX INV>, or < administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.

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- In certain situations, the “D” entries of 2000-series or Y-series groups may not require a destination (“Transferred to”) symbol, however it is required to specify “<no transfer>” in the “Transferred to” column for such cases.
- For finalisation projects, the deleted “F” symbols should have <no transfer> in the “Transferred to” column.
- For more details about the types of scheme change, see CPC Guide.

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C. New, Modified or Deleted Note(s)

SUBCLASS H01S – DEVICES USING STIMULATED EMISSION

<u>Type*</u>	<u>Location</u>	<u>Old Note</u>	<u>New/Modified Note</u>
M	H01S	<p>This subclass <u>covers</u>:</p> <ul style="list-style-type: none"> • devices for the generation or amplification, by using stimulated emission, of coherent electromagnetic waves or other forms of wave energy; • such functions as modulating, demodulating, controlling, or stabilising such waves. 	<p>This subclass <u>covers</u>:</p> <ol style="list-style-type: none"> a. devices using the stimulated emission of radiation by excited atoms or molecules to amplify or generate coherent monochromatic electromagnetic radiation; b. functions as modulating, demodulating, controlling or stabilising such coherent monochromatic electromagnetic radiation.

*N = new note, M = modified note, D = deleted note

NOTE: The “Location” column only requires the symbol PRIOR to the location of the note. No further directions such as “before” or “after” are required.

2. A. DEFINITIONS (modified)

H01S

Definition statement

Replace: All of the text in the Definition statement section with the text shown below.

Devices using stimulated emission, for the generation or amplification of coherent electromagnetic waves or other forms of wave energy, e.g. masers, lasers, X-ray lasers, gamma lasers, optical amplifiers.

Constructional details or arrangements, e.g. housings, packages, cooling, electrodes.

Configuration of the resonators, or shape of the active media.

Processes or apparatus for pumping (exciting) said devices.

Such functions as modulating, demodulating, frequency-changing, controlling, or stabilising of said coherent electromagnetic waves, insofar these functions are performed by elements being part of the optical resonators or amplifier's arrangements; this includes particularly:

- Frequency multiplying, e.g. harmonic generation
- Pulse-techniques, e.g. Q-switching, mode-locking, or gain-switching.

The special choice or adaptation of materials as active media.

Devices using non-linear amplification effects, e.g. stimulated Raman or Brillouin scattering

Relationships with other classification places

Replace: In the Relationships with other classification places section, the existing **first** paragraph with the replacement paragraphs shown below.

This subclass covers functions as modulating, demodulating, frequency-changing, controlling, or stabilising of coherent

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electromagnetic waves, insofar these functions are performed by elements being part of the optical resonators or amplifier's arrangements, e.g. inside-cavity harmonic generation. Said functions when performed outside the resonators or amplifier's arrangement, e.g. harmonic generation, are covered by subclass [G02F](#).

With regard to the housing or package of a laser or maser, distinction is done between first and second level housing/packages.

A first level housing is considered to be the housing of the laser/maser directly enclosing the (cooled) device. An example for a first level housing is a semiconductor laser or a microlaser in a TO-can ([H01S 5/022](#) and [H01S 3/025](#)).

References

Delete: The entire Limiting references section.

Insert: Application-oriented references section.

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Eye surgery using laser	A61F 9/008
Radiation therapy using laser light	A61N 2005/067
Sintering by using laser light	B22F 3/105
Working by laser beam, e.g. welding, cutting or, boring	B23K 26/00
Joining of preformed parts by using laser light	B29C 65/16
Laser printers	B41J 2/44 , B41J 2/455
Ring laser gyrometers; fibre laser gyrometers	G01C 19/66 , G01C 19/72
Investigating or analysing colour or spectral properties of materials by using tunable lasers	G01N 21/39

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Apparatus specially adapted for photomechanical, e.g. photolithographic, production of textured or patterned surfaces	G03F 7/20
Laser heads for recording or reproducing	G11B 7/125
Laser recording associated with non-optical reproducing, or laser reproducing associated with non-optical recording	G11B 11/00
Trimming by laser in the manufacture of resistors	H01C 17/242
Photolithographic processing on semiconductor bodies	H01L 21/027
Transmission systems employing light, e.g. all-optical repeaters	H04B 10/00, H04B 10/291- H04B 10/299

Informative references

Delete: The existing text located under the preamble in the Informative references section.

Lasers are included in a variety of devices. A selection of important main groups where applications of devices utilizing stimulated emission are classified comprises:

Delete: The following rows from the existing Informative references table.

Lasers used in medical applications	A61
Working by a laser beam	B23K 26/00
Printers	B41J 2/00
Combustion engines	F02P 23/00
CD/DVD recorder/player	G11B 7/00)
Transmission using light	H04B 10/00

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Insert: The following new rows in the existing Informative references table.

Coupling light guides with opto-electronic elements	G02B 6/42
Laser speckle optics	G02B 27/48
Control of light beams in general	G02F
Non-linear optics per se	G02F 1/35
Semiconductor devices specially adapted for light emission	H01L 33/00

Special rules of classification

Delete: In the Special rules of classification section, the first three paragraphs (shown below).

The following IPC groups are not used in the internal ECLA classification scheme.

Subject-matter covered by these groups is classified in the following ECLA groups:

H01S3/098 covered by H01S 3/08018, H01S 3/11

Insert: The following new paragraph as the last paragraph in the Special rules of classification section.

This subclass does not cover light emitting devices where it is merely stated that they are a laser or maser, i.e. where the laser or maser is simply a "black box" without any specific details on the electromagnetic wave generation or feedback on it.

Insert: The following two new sections: Glossary of terms and Synonyms and Keywords.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

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active medium	A medium providing for optical gain by the stimulated emission effect when excited by an excitation (pump) energy source.
laser	It is the acronym for "light amplification by stimulated emission of radiation" but it also refers, in broader sense, to any device using stimulated emission of radiation by excited atoms. Hence, for example, the expressions "semiconductor laser", "dye laser", "optical fibre laser" or "X-ray laser".
pumping	The process of providing the active medium for excitation energy.

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

active medium: gain medium, lasing medium
excitation: pump(ing)

LASER	Light Amplification by Stimulated Emission of Radiation
MASER	Microwave Amplification By Stimulated Emission Of Radiation also known as Microwave Laser
EDFA	Erbium Doped Fibre Amplifier
SOA	Semiconductor Optical Amplifier
DBR Laser	Distributed Bragg Reflector Laser
DFB Laser	Distributed Feed-Back Laser

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H01S 1/00

References

Delete: The entire existing Limiting references section (shown below).

Limiting references

This place does not cover:

Far-infrared and THz-lasers based on semiconductor lasers	H01S 5/00
Quantum cascade lasers with for example intra-band transitions	H01S 5/34

Informative references

Insert: The following two new rows in the existing Informative references table.

Far-infrared and THz-lasers based on semiconductor lasers	H01S 5/00
Quantum cascade lasers with for example intra-band transitions	H01S 5/34

H01S 3/036

References

Limiting references

Delete: The following two rows from the Limiting references table.

Cooling arrangements for gas lasers	H01S 3/041
Gas dynamic lasers	H01S 3/0979

Informative references

Insert: The following two new rows in the Informative references table.

Cooling arrangements for gas lasers	H01S 3/041
Gas dynamic lasers	H01S 3/0979

H01S 3/067

References

Limiting references

Delete: The entire Limiting references section shown below.

Limiting references

This place does not cover:

Optical pumping thereof	H01S 3/094003
Controlling the output parameters	H01S 3/10
Stabilisation of the output parameters	H01S 3/13
Scattering effects, i.e. stimulated Brillouin or Raman effects	H01S 3/302

Informative references

Insert: The following four new rows in the existing Informative references table.

Optical pumping thereof	H01S 3/094003
Controlling the output parameters	H01S 3/10
Stabilisation of the output parameters	H01S 3/13
Scattering effects, i.e. stimulated Brillouin or Raman effects	H01S 3/302

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H01S 3/08

References

Limiting references

Delete: The last two rows, shown below, from the Limiting references table.

Controlling the laser output	H01S 3/10
Stabilising	H01S 3/13

Insert: The following new Informative references section.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Controlling the laser output	H01S 3/10
Stabilising	H01S 3/13

H01S 3/083

References

Insert: The following new Informative references section shown below.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ring laser gyrometers	G01C 19/66
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H01S 3/10

References

Limiting references

Delete: The entire Limiting references section shown below.

Limiting references

This place does not cover:

Mode locking	H01S 3/1106
Controlling of light beams, frequency-changing, non-linear optics, optical logic elements, in general	G02F

Insert: The following new Informative references section.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Controlling of light beams, frequency-changing, non-linear optics, optical logic elements, in general	G02F
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H01S 4/00

References

Delete: The entire Limiting references section.

This place does not cover:

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X-ray sources where for example a plasma is initiated by a focused femtosecond laser pulse which results in the generation of X-rays as this kind of X-ray generation does not involve stimulated emission	H05G 2/00
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Insert: The following new Informative references section.

Informative references

Attention is drawn to the following places, which may be of interest for search:

X-ray sources where for example a plasma is initiated by a focused femtosecond laser pulse which results in the generation of X-rays	H05G 2/00
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H01S 5/00

Relationships with other classification places

Replace: In the table (located in the Relationships with other classification places section), the text “LED” with the text “Light emitting diodes (LED)” as shown in the row below.

Light emitting diodes (LED)	H01L 33/00
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Limiting references

Delete: The first two rows from the Limiting references table.

Details of external cavity components; Control or stabilisation acting on laser components	H01S 3/08, H01S 3/10, H01S 3/13
Optical pumping by coherent light of a laser diode	H01S 3/0941

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Insert: The following new Informative references section.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of external cavity components; Control or stabilisation acting on laser components	H01S 3/08, H01S 3/10, H01S 3/13
Optical pumping by coherent light of a laser diode	H01S 3/0941

H01S 5/022

References

Delete: The entire Limiting references section.

Insert: The following new Informative references section.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Packaging and electrical lead-through per se	H01L 23/00
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H01S 5/024

References

Limiting references

Delete: The last row from the Limiting references table.

Cooling solid state junction devices	H01L 23/34
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Insert: The following new Informative references section.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cooling solid state junction devices	H01L 23/34
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H01S 5/026

References

Insert: The following new Limiting references section.

Limiting references

This place does not cover:

Stabilisation of output	H01S 5/06
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Informative references

Delete: The first row in the Informative references table.

Stabilisation of output	H01S 5/06
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H01S 5/06

References

Limiting references

Delete: The entire Limiting references section shown below,

Limiting references

This place does not cover:

Control/stabilisation of the external cavity elements	H01S 3/10, H01S 3/13
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Informative references

Insert: The following new row in the existing Informative references table.

Control/stabilisation of the external cavity elements	H01S 3/10, H01S 3/13
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H01S 5/50

References

Informative references

Replace: The invalid symbol in the Informative references table with the replacement symbol shown in the row below.

Amplifier structures as repeaters in transmission systems	H04B 10/291
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