

## G01V

**GEOPHYSICS; GRAVITATIONAL MEASUREMENTS; DETECTING MASSES OR OBJECTS** (detecting or locating foreign bodies for diagnostic, surgical or person-identification purposes [A61B](#); means for indicating the location of accidentally buried, e.g. snow-buried persons [A63B 29/02](#); investigating or analysing earth materials by determining their chemical or physical properties [G01N](#); measuring electric or magnetic variables in general, other than direction or magnitude of the earth's field [G01R](#); electronic or nuclear magnetic resonance arrangements [G01R 33/20](#); radar, sonar or analogous methods in general, detecting masses or objects involving these methods [G01S](#))

### Definition statement

*This place covers:*

Methods and apparatus for geophysical purposes such as

Seismic measurements, including the generation of seismic energy, the detection of seismic signals and their processing,

Measuring the magnetic or electric field of the earth or its modification by geological structures,

Measuring the gravitational field of the earth or its modification by geological structures;

Prospecting or detecting of masses or objects in general, e.g. by seismic, electric, magnetic, gravimetric, or optical means, or by the use of nuclear radiation.

Measuring gravitational fields or waves in general, e.g. gravitational forces between two bodies, or gravitational waves of cosmic origin.

Manufacturing, calibrating, cleaning, or repairing such apparatus.

Tags attached to, or associated with, an object, in order to enable detection of the object.

Geophysical modelling, whether or not related to the measurement of a physical parameter

In this subclass, the geophysical methods apply both to the earth and to other celestial objects, e.g. planets.

### Relationships with other classification places

The general subject matter for locating or detecting masses or objects is covered by several subclasses besides [G01V](#): [G01S](#), [G01C](#).

[G01V](#) covers radar, sonar, lidar or analogous systems specifically designed for geophysical use. Radar, sonar, lidar or analogous systems, or details of such systems, if of general interest, are covered by subclass [G01S](#).

[G01V](#) also covers geophysical modelling, whether or not related to the measurement of a physical parameter. Other fields, involving geophysical modelling are [E21B](#) and [G06F](#)

In general, documents relating to the functional aspects of the modelling per se, e.g. finite difference modelling, should be classified in the [G06F 17/00](#). Fluid flow simulation and modelling which is not application specific, e.g. using specialized computer or software, is covered by [G06F 17/5018](#).

Documents relating to the application aspects of the modelling of physical system or processes should be classified in their application field, that is [G01V](#) for geophysics and seismics and [E21B](#) for oil production.

More in particular, models relating to the state of the subsurface/formation, e.g. sedimentation models, should be classified in [G01V 99/005](#), as this is considered the application field of exploration.

Models used when processing seismic data in general should be classified in [G01V 1/28](#). Models used for velocity profiles should be classified in [G01V 1/303](#)

Modelling related to production of reservoir fluids, e.g. fluid flow models, should be with [E21B](#).

Equally, analysis of models for production or simulated production are classified in [E21B](#), like e.g. risk analysis, production forecast, net present value [NPV].

## References

### Limiting references

*This place does not cover:*

|   |                            |
|---|----------------------------|
| Detecting or locating foreign bodies for diagnostic, surgical or person-identification purposes | <a href="#">A61B</a>       |
| Means for indicating the location of accidentally buried, e.g. snow-buried, person              | <a href="#">A63B 29/02</a> |
| Burglar, theft, or intruder alarms  | <a href="#">G08B 13/00</a> |

### Informative references

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

|   |                            |
|---|----------------------------|
| Survey of boreholes or wells  | <a href="#">E21B 47/00</a> |
| Investigating or analysing earth materials by determining their chemical or physical properties             | <a href="#">G01N</a>       |
| Measuring electric or magnetic variables in general, other than direction or magnitude of the earth's field | <a href="#">G01R</a>       |
| Radar, sonar, lidar or analogous systems, or details of such systems in general                             | <a href="#">G01S</a>       |

## G01V 1/00

### Seismology; Seismic or acoustic prospecting or detecting

#### Definition statement

*This place covers:*

Seismic measurements, including the generation of seismic energy, the detection of seismic signals and their processing.

Presence detection by acoustical means.

Earthquake detection or prediction.

#### References

##### Limiting references

*This place does not cover:*

|                              |                            |
|------------------------------|----------------------------|
| Measuring vibrations as such | <a href="#">G01H</a>       |
| Sonar                        | <a href="#">G01S 15/00</a> |

|  |                      |
|--|----------------------|
| Alarm systems  | <a href="#">G08B</a> |
| Production and propagation of sound                        | <a href="#">G10K</a> |
| Microphones or like acoustic electromechanical transducers | <a href="#">H04R</a> |

### **Informative references**

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

|                              |                            |
|------------------------------|----------------------------|
| Survey of boreholes or wells | <a href="#">E21B 47/00</a> |
|------------------------------|----------------------------|

### **Special rules of classification**

For details which are not covered by specific subgroups of [G01V 1/00](#), the Indexing Codes [G01V 2200/00](#) and subcodes should be applied.

## **G01V 1/001**

{Acoustic presence detection (measurement of sonic vibrations [G01H](#); alarm systems [G08B](#))}

### **Definition statement**

*This place covers:*

Acoustic presence detection for passive detection only, e.g. footsteps by walking person.

### **Relationships with other classification places**

[G01V 1/001](#) covers the passive detection of "presence", i.e. availability/existence of an object or a person, e.g. in a room, by the sound produced.

This term "presence" is not to be confused with the term "event" as is used in other subgroups of [G01V 1/00](#). The term "event" refers to an occurrence of an acoustic effect, for example in earthquake detection ([G01V 1/008](#)) or in microseismics ([G01V 1/288](#)).

### **References**

#### **Limiting references**

*This place does not cover:*

|   |                              |
|---|------------------------------|
| Burglar, theft, or intruder alarms actuated by interference with mechanical vibrations using passive vibration detection system | <a href="#">G08B 13/1654</a> |
|---|------------------------------|

### **Informative references**

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

|                              |                      |
|------------------------------|----------------------|
| Measuring vibrations as such | <a href="#">G01H</a> |
|------------------------------|----------------------|

## G01V 1/003

{Seismic data acquisition in general, e.g. survey design ([G01V 1/3808](#), [G01V 1/42](#) takes precedence)}

### Definition statement

*This place covers:*

General design of seismic surveys

Use of special signals, e.g. for slip sweep arrangements, swept signals, pseudo-random codes.

Use of plurality of generators for generating single coherent signals.

### References

#### Limiting references

*This place does not cover:*

|                                 |                             |
|---------------------------------|-----------------------------|
| Marine seismic data acquisition | <a href="#">G01V 1/3808</a> |
| Control of marine source arrays | <a href="#">G01V 1/3861</a> |
| VSP acquisition                 | <a href="#">G01V 1/42</a>   |

#### Informative references

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

|                                  |                           |
|----------------------------------|---------------------------|
| Generating seismic energy per se | <a href="#">G01V 1/02</a> |
|----------------------------------|---------------------------|

## G01V 1/008

{Earthquake measurement or prediction (event detection for microseismic events [G01V 1/288](#))}

### Definition statement

*This place covers:*

Earthquake detection or prediction

Mudslides or avalanche detection

### Relationships with other classification places

[G01V 1/008](#) relates to direct detection or prediction of calamitous events whereas [G01V 1/288](#) relates to analysis per se of seismic events.

### References

#### Limiting references

*This place does not cover:*

|  |                            |
|--|----------------------------|
| Processing for the detection of seismic or microseismic events | <a href="#">G01V 1/288</a> |
| Alarms responsive to calamitous events, e.g. Tsunami warning   | <a href="#">G08B 21/10</a> |

## G01V 1/02

**Generating seismic energy ( {[G01V 1/003](#) takes precedence } ; blasting in general [F42](#); nuclear explosives [G21J](#))**

### Definition statement

*This place covers:*

Details of seismic sources, like ground coupling, ignition or the like.

Types of seismic sources:

using explosions

using fluidic driving means

using mechanical driving means

using spark discharges

using piezoelectric or magnetostrictive driving means

### References

#### Limiting references

*This place does not cover:*

|   |                             |
|---|-----------------------------|
| Generating special signals  | <a href="#">G01V 1/005</a>  |
| Generating single signals by using more than one generator, other than explosive charge | <a href="#">G01V 1/006</a>  |
| Details exclusively relevant in a marine environment                                    | <a href="#">G01V 1/38</a>   |
| Control of marine source arrays   | <a href="#">G01V 1/3861</a> |

#### Informative references

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

|  |   |
|--|---|
| Generating mechanical vibrations by using piezoelectric or magnetostrictive effect, in general | <a href="#">B06B 1/06</a> , <a href="#">B06B 1/08</a> |
| Blasting in general  | <a href="#">F42D 3/06</a>                             |
| Nuclear explosives   | <a href="#">G21J</a>                                  |
| Spark gaps, discharge apparatus, not otherwise provided for                                    | <a href="#">H01T</a>                                  |

### Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under [G01V 1/38](#).

Subject matter relating to application in a borehole environment should also be classified as additional information under [G01V 1/40](#).

## G01V 1/16

### Receiving elements for seismic signals (electromechanical transducers [H04R](#)); Arrangements or adaptations of receiving elements

#### Definition statement

*This place covers:*

Details of receiving elements, like ground coupling, circuits or the like.

Deployment of receiving elements.

Types of receiving elements:

geophones

hydrophones

combinations thereof

Arrangements of receiving elements, e.g. geophone patterns or streamers

#### Relationships with other classification places

Combinations of receiving elements are classified in [G01V 1/18](#) when they essentially do a measurement on a single location.

For example, a combination of a sound pressure transducer and a particle velocity measuring transducer should be classified in [G01V 1/18](#).

Arrangements of receiving elements for simultaneously measuring on a plurality of locations should be classified in [G01V 1/20](#)

#### References

##### Limiting references

*This place does not cover:*

|                                  |                            |
|----------------------------------|----------------------------|
| Integrated optoseismic systems   | <a href="#">G01V 1/226</a> |
| Fibre-optical receiving elements | <a href="#">G01H 9/004</a> |

##### Informative references

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

|                                 |                             |
|---------------------------------|-----------------------------|
| Accelerometers in general       | <a href="#">G01P</a>        |
| Transducer mountings in general | <a href="#">G10K 11/004</a> |
| Electromechanical transducers   | <a href="#">H04R</a>        |

#### Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under [G01V 1/38](#).

Subject matter relating to application in a borehole environment should also be classified as additional information under [G01V 1/40](#).

Further details of streamers, not provided for in subgroups of in [G01V 1/202](#) or [G01V 1/208](#) , should be classified as additional information in **G01V1/20B4 - G01V1/20B6**.

## G01V 1/22

**Transmitting seismic signals to recording or processing apparatus (signal transmitting systems in general [G08C](#); transmission systems in general [H04B](#))**

### Definition statement

*This place covers:*

Transmission of seismic signals, e.g. by wire or radio signals.

Integrated combinations of receiving elements and transmission systems, e.g. optoseismic systems

### References

#### Informative references

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

|  |                      |
|--|----------------------|
| Signal transmitting systems in general | <a href="#">G08C</a> |
| Transmission systems in general        | <a href="#">H04B</a> |

### Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under [G01V 1/38](#).

Subject matter relating to application in a borehole environment should also be classified as additional information under [G01V 1/40](#).

## G01V 1/24

**Recording seismic data (transforming one recording into another [G01V 1/32](#); recording measured values in general [G01D](#))**

### Definition statement

*This place covers:*

Recording systems for seismic data always containing a memory structure for intermediate or final storage. This also covers seismographs that use paper as storage.

Amplitude control. e.g. for dynamic compression (for analogue systems).

Storage in acquisition units.

Time reference systems for synchronisation of the seismic data.

### References

#### Informative references

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

|   |                              |
|---|------------------------------|
| Transforming one recording into another | <a href="#">G01V 1/32</a>    |
| Clock synchronisation-related issues    | <a href="#">G01V 2200/12</a> |
| Recording measured values in general    | <a href="#">G01D</a>         |

|                              |                      |
|------------------------------|----------------------|
| Amplitude control in general | <a href="#">H03G</a> |
|------------------------------|----------------------|

### Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under [G01V 1/38](#).

Subject matter relating to application in a borehole environment should also be classified as additional information under [G01V 1/40](#).

## G01V 1/28

### Processing seismic data, e.g. analysis, for interpretation, for correction ([G01V 1/48](#) takes precedence)

#### Definition statement

*This place covers:*

Processing seismic data:

application of seismic models

application of particular components of seismic signal, e.g. shear waves

event detection in seismic signals, e.g. microseismics

Analysis of seismic data:

determining seismic cross-section or geostructures

determining velocity profiles or traveltimes

determining physical properties of the subsurface

determining seismic attributes

time lapse or 4D effects

Transforming representations of seismic data

Displaying data

Correcting seismic data; eliminating unwanted energy:

static or dynamic corrections

seismic filtering

specially adapted for continuous agitation of the ground

#### Relationships with other classification places

4D effects in [G01V 1/00](#) cover effects over time to the subsurface formation as a result of production from that formation.

The group [E21B 47/00](#) covers 4D effects related to the fluid flow per se.

4D effects in [G01V 99/00](#) cover long term geophysical effects, e.g. sedimentation processes, which do not relate to seismic measurements per se.



## References

### Limiting references

*This place does not cover:*

|   |                            |
|---|----------------------------|
| Processing of acoustic logging data         | <a href="#">G01V 1/48</a>  |
| 4D effects related to the fluid flow per se | <a href="#">E21B 47/00</a> |

### Informative references

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

|                      |                     |
|----------------------|---------------------|
| Computing in general | <a href="#">G06</a> |
|----------------------|---------------------|

## Special rules of classification

Subject matter relating to application in a marine environment should also be classified as additional information under [G01V 1/38](#).

Subject matter relating to application in a borehole environment should also be classified as additional information under [G01V 1/40](#).

For details which are not covered by specific subgroups of [G01V 1/28](#), the Indexing Codes [G01V 2210/00](#) and subcodes should be applied.

For further details, including details which may already be covered by specific subgroups of [G01V 1/28](#), the Indexing Codes [G01V 2210/00](#) and subcodes should also be applied.

[G01V 2210/00](#) covers "Details of seismic processing or analysis", e.g.:

Aspects of acoustic signal generation or detection

Trace signal pre-filtering to select, remove or transform specific events or signal components, i.e. trace in and trace out

Noise handling

Transforming data representation

Corrections and adjustments related to wave propagation

Analysis

Other details related to processing

## G01V 1/38

**pecially adapted for water-covered areas ([G01V 1/28](#), {[G01V 1/42](#)} take precedence)**

### Definition statement

*This place covers:*

Marine seismic data acquisition. This also covers survey design

Positioning of marine seismic devices, including determining the position

Deployment of marine seismic devices, i.e. bringing into position prior to use, of streamers, ocean bottom cables [OBC] or nodes

Control of source arrays, e.g. for far field control

## References

### Limiting references

*This place does not cover:*

|  |                            |
|--|----------------------------|
| Constructional details of marine seismic streamers | <a href="#">G01V 1/201</a> |
| Marine seismic processing and analysis             | <a href="#">G01V 1/28</a>  |
| Marine VSP   | <a href="#">G01V 1/42</a>  |

### Informative references

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

|  |                            |
|--|----------------------------|
| Seismic data acquisition in general                | <a href="#">G01V 1/003</a> |
| Equipment for marine deployment in general         | <a href="#">B63B</a>       |
| Control of attitude or depth of underwater vessels | <a href="#">B63G</a>       |

## Special rules of classification

Classification in [G01V 1/38](#) usually also requires classification in one of the subgroups [G01V 1/02](#) - [G01V 1/375](#)

## Glossary of terms

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

|     |                            |
|-----|----------------------------|
| OBC | Ocean Bottom Cable         |
| ROV | Remotely Operated Vehicles |

## G01V 1/40

### pecially adapted for well-logging

#### Definition statement

*This place covers:*

Seismic or acoustic well-logging:

- Seismic logging in this group concerns investigation of the formation as a whole extending far away from the borehole, e.g. VSP or inter-well seismic tomography
- Acoustic logging in this group concerns close range investigations of the vicinity of the borehole
- Structural details directly related to acoustic and seismic well-logging

#### Relationships with other classification places

Acoustic logging in [G01V 1/00](#) concerns close range investigations of the vicinity of the borehole. Acoustic logging of the borehole itself is covered by [E21B 47/00](#)

## References

### Limiting references

*This place does not cover:*

|                                     |                           |
|-------------------------------------|---------------------------|
| VSP seismic processing and analysis | <a href="#">G01V 1/28</a> |
|-------------------------------------|---------------------------|

**Informative references**

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

|  |                             |
|--|-----------------------------|
| Structural details for well-logging in general | <a href="#">G01V 11/002</a> |
| Survey of boreholes or wells                   | <a href="#">E21B 47/00</a>  |

**Special rules of classification**

Further constructional details should be classified as additional information in [G01V 1/523](#) or **G01V1/52D**

**G01V 3/00**

**Electric or magnetic prospecting or detecting (by optical means [G01V 8/00](#)); Measuring magnetic field characteristics of the earth, e.g. declination, deviation (for navigation, for surveying [G01C](#); {measuring direction or magnitude of magnetic fields or magnetic flux in general [G01R 33/02](#)})**

**Definition statement**

*This place covers:*

Detecting the presence of objects as well as Geophysical prospecting by magnetic or electric means, e.g.

with propagation of electric current;

with magnetic or electric fields produced or modified by objects, structures or detecting devices;

with electromagnetic waves

with electron or nuclear magnetic resonance

Measuring magnetic field characteristics and properties of the earth, both as local deviations and of the earth as a whole.

Special adaptations of the techniques above for well-logging or for use during transport

**Relationships with other classification places**

[G01V 3/00](#) covers detecting and prospecting by electric or magnetic means, also if the prospecting is applied in boreholes. However, It does not cover the analysis of core samples, as taken from a borehole, which is covered by the appropriate classes in [G01N](#).

Investigating or analysing of materials by the use of electric, electro-chemical or magnetic means are classified in [G01N 27/00](#). Investigating or analysing of materials by NMR are classified in [G01N 24/00](#).

Magnetic resonance is classified in a number of technical fields. In particular [G01V 3/14](#) and [G01V 3/32](#) cover specific adaptations of magnetic resonance to geophysical measurements. As such, those groups strongly relate to [G01R 33/20](#) and subgroups and to [G01N 24/00](#) and subgroups. For a more complete explanation of the relationship, see [G01N 24/00](#).

Magnets and magnetic materials as such are classified in [H01F](#).

## References

### Limiting references

This place does not cover:

|  |                             |
|--|-----------------------------|
| Seismo-electric effect   | <a href="#">G01V 11/007</a> |
| Compasses, magnetic field measurements for navigation or surveying purposes                        | <a href="#">G01C 17/00</a>  |
| Investigating or analysing of materials by NMR   | <a href="#">G01N 24/00</a>  |
| Investigating or analysing of materials by the use of electric, electro-chemical or magnetic means | <a href="#">G01N 27/00</a>  |
| Investigating or analysing of earth materials  | <a href="#">G01N 33/24</a>  |

## Special rules of classification

### Further details of subgroups:

#### [G01V 3/08](#):

The distinction between electric and magnetic (i.e. [G01V 3/08](#)) on the one hand, and electromagnetic (i.e. [G01V 3/12](#)) on the other is not directly based on the frequency. Instead, it is mostly based on whether the wave character is important. If the wavelength is much larger than the dimensions of the structures or objects under investigation, the field is considered to be static and the subject matter is covered by [G01V 3/08](#) and subgroups. If the dimensions are comparable to, or larger than a wavelength, the subject matter falls under [G01V 3/12](#).

#### [G01V 3/083](#):

Further details should be classified as additional information with Indexing Codes [G01V 2003/084](#) - [G01V 2003/086](#).

#### [G01V 3/104](#):

[G01V 3/101](#) takes precedence.

#### [G01V 3/12](#):

Millimetre waves: [G01V 8/005](#).

#### [G01V 3/14](#):

Classification in this group may also require classification in [G01N 24/00](#).

#### [G01V 3/15](#) - [G01V 3/175](#):

Classification in one of these groups usually also requires classification in groups [G01V 3/02](#) - [G01V 3/14](#) if relevant.

#### [G01V 3/165](#) - [G01V 3/175](#):

These groups are only used when adapted for use on an aircraft.

#### [G01V 3/17](#):

Millimetre waves: [G01V 8/005](#).

#### [G01V 3/18](#) - [G01V 3/34](#):

These classes take precedence over groups [G01V 3/02](#) - [G01V 3/14](#).

[G01V 3/32:](#)

Classification in this group may also require classification in [G01N 24/00](#).

[G01V 3/36:](#)

[G01V 3/34](#) takes precedence.

[G01V 3/40:](#)

This group does not cover earth magnetic field measurements for the purpose of navigation or surveying, which is covered by [G01C 17/00](#).

**G01V 5/00**

**Prospecting or detecting by the use of nuclear radiation, e.g. of natural or induced radioactivity (determining the properties of materials [G01N](#); measuring nuclear radiation [G01T](#))**

**Definition statement**

*This place covers:*

- Detecting hidden objects
- Specially adapted for surface logging (e.g. from aircraft)
- Specially adapted for well-logging

**References****Limiting references**

*This place does not cover:*

|                                       |                            |
|---------------------------------------|----------------------------|
| Survey of borehole or wells           | <a href="#">E21B 47/00</a> |
| Investigating or analysing materials  | <a href="#">G01N 23/00</a> |
| Measurement of nuclear or X-radiation | <a href="#">G01T</a>       |

**Informative references**

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

|  |                            |
|--|----------------------------|
| Radar or analogous systems specially adapted for specific applications (e.g. Terahertz scanners) | <a href="#">G01S 13/88</a> |
| Scintillation detectors  | <a href="#">G01T 1/20</a>  |
| Semiconductor detectors  | <a href="#">G01T 1/24</a>  |
| Measuring neutron radiation  | <a href="#">G01T 3/00</a>  |
| Detector interrogation using an external network   | <a href="#">G01T 7/00</a>  |

**Glossary of terms**

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

|     |                          |
|-----|--------------------------|
| SNM | Special Nuclear Material |
|-----|--------------------------|

**G01V 5/0008**

{Detecting hidden objects, e.g. weapons, explosives (sorting of materials or articles according to radioactive properties [B07C 5/342](#); investigating or analysing materials by the use of wave or particle radiation [G01N 23/00](#))}

**References****Limiting references**

*This place does not cover:*

|   |                            |
|---|----------------------------|
| Prospecting or detecting with millimeter waves  | <a href="#">G01V 8/005</a> |
| Detecting or locating foreign bodies for diagnostic, surgical or person-identification purposes | <a href="#">A61B 6/00</a>  |
| Tetahertz Scanners  | <a href="#">G01S 13/88</a> |

**G01V 7/00**

**Measuring gravitational fields or waves; Gravimetric prospecting or detecting**

**Definition statement**

*This place covers:*

Measuring the magnitude and orientation of a gravity field.

Prospecting or detecting through anomalies in the earth gravity field.

**Relationships with other classification places**

The following place may also be relevant for classification:

The measurement of gravity is closely related to the measurement of acceleration as is generally covered by [G01P 15/00](#). As such, comparable methods and devices may be found and classified in both places whenever a change in speed or motion is concerned.

**References****Limiting references**

*This place does not cover:*

|          |                      |
|----------|----------------------|
| Weighing | <a href="#">G01G</a> |
|----------|----------------------|

**Informative references**

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

|   |                            |
|---|----------------------------|
| Measuring slope or direction of boreholes | <a href="#">E21B 47/02</a> |
| Clinometers                               | <a href="#">G01C 9/00</a>  |

## G01V 7/04

Electric, photoelectric, or magnetic indicating or recording means

### References

#### Limiting references

*This place does not cover:*

|  |                      |
|--|----------------------|
| Indicating or recording measured values in general | <a href="#">G01D</a> |
|--|----------------------|

## G01V 7/16

especially adapted for use on moving platforms, e.g. ship, aircraft

### Special rules of classification

Documents, classified in this subgroup, may also require classification in one of the subgroups [G01V 7/02](#) - [G01V 7/14](#)

## G01V 8/00

Prospecting or detecting by optical means (measurement of characteristics of light [G01J](#); optical scanning systems [G02B 26/10](#); discharge tubes detecting the presence of radiation [H01J 40/00](#), [H01J 47/00](#); semiconductor devices sensitive to light [H01L 31/00](#))

### Definition statement

*This place covers:*

Prospecting by optical means, e.g. by spectroscopic means, but also by optical inspection.

Detection of objects by optical means, usually through interruption of a beam of light.

In this main group, the term "optical" includes ultra-violet, infrared, visible light and millimetre waves.

### Relationships with other classification places

The main group [G01S 17/00](#) concerns location or presence detection by means of reflection or reradiation of electromagnetic waves from the object. In [G01V 8/00](#), the detection normally occurs through interruption of a beam or set of beams. In the context of [G01V 8/00](#), the term "reflectors" only refers to means for deflecting the optical beam. It does not refer to the object to be detected.

Infrared radiation is considered to be light when used in e.g. light curtains. Documents, using infrared radiation as a measure of local temperature (e.g. thermal imaging), should be classified in [G01V 9/005](#).

### References

#### Limiting references

*This place does not cover:*

|   |                            |
|---|----------------------------|
| Photogrammetry; Photographic surveying                | <a href="#">G01C 11/00</a> |
| Measurement of the characteristics of light           | <a href="#">G01J</a>       |
| Investigating or analysing materials by optical means | <a href="#">G01N 21/00</a> |
| Optical components or systems                         | <a href="#">G02B</a>       |

|  |                            |
|--|----------------------------|
| Counting of objects, carried by a conveyor | <a href="#">G06M 7/00</a>  |
| Detecting movement of traffic              | <a href="#">G08G 1/01</a>  |
| Semiconductor devices sensitive to light   | <a href="#">H01L 31/00</a> |

### **Informative references**

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

|  |                             |
|--|-----------------------------|
| Safety devices in passenger lifts  | <a href="#">B66B 13/24</a>  |
| Safety devices for doors and the like, operated by disruption of energy beams              | <a href="#">E05F 15/43</a>  |
| Safety devices acting in conjunction with the control or operation of a machine            | <a href="#">F16P 3/14</a>   |
| Burglar, theft or intruder alarms, activated by interference with heat, light or radiation | <a href="#">G08B 13/18</a>  |
| Switches using optical detectors   | <a href="#">H03K 17/941</a> |

### **Special rules of classification**

#### **Further details of subgroups**

[G01V 8/10](#) - [G01V 8/26](#)

Documents should be classified in the lowest possible subgroup. If e.g. the document discloses both a system with a single beam and with multiple beams, but the latter is merely a juxtaposition of several single beam arrangements, it should be classified in the appropriate class for single beams. Details of single elements (transmitters or receivers), even if used in single beam or multiple beam systems, should be classified in [G01V 8/10](#).

[G01V 8/14](#) and [G01V 8/22](#)

Detection by reflection from the object itself is covered by [G01S 17/00](#)

[G01V 8/18](#) and [G01V 8/26](#)

Optical scanning system per sé: [G02B 26/10](#)

## **G01V 9/00**

### **Prospecting or detecting by methods not provided for in groups**

[G01V 1/00](#) - [G01V 8/00](#)

### **Definition statement**

*This place covers:*

Prospecting or detecting by a specific measuring method, other than those, provided for in groups [G01V 1/00](#) - [G01V 8/00](#),

like:

by parascientific methods

by thermal methods

by detection of gases representative of underground layers, e.g. for seep detection or the determination of underground water existence or flow



## References

### Limiting references

*This place does not cover:*

|   |                            |
|---|----------------------------|
| Prospecting or detecting when the measuring method is irrelevant.                     | <a href="#">G01V 11/00</a> |
| Prospecting or detecting, where no measuring method is involved (e.g. model building) | <a href="#">G01V 99/00</a> |

### References out of a residual place

*Examples of places in relation to which this place is residual:*

|  |                           |
|--|---------------------------|
| Seismic or acoustic prospecting or detecting             | <a href="#">G01V 1/00</a> |
| Electric or magnetic prospecting or detecting            | <a href="#">G01V 3/00</a> |
| Prospecting or detecting by the use of nuclear radiation | <a href="#">G01V 5/00</a> |
| Gravimetric prospecting or detecting                     | <a href="#">G01V 7/00</a> |
| Prospecting or detecting by optical means                | <a href="#">G01V 8/00</a> |

## Special rules of classification

### Further details of subgroups

#### [G01V 9/002](#)

This subgroup covers prospecting and detecting by parascientific methods, or by methods that are not based on formal science.

Parascientific features take precedence over features from other groups in [G01V](#), e.g. if a dowsing tool makes use of magnets, it would be classified in [G01V 9/002](#).

#### [G01V 9/005](#)

In this subgroup, infrared radiation is used as an indicator of local temperature, e.g. for thermal imaging. If it is used as the optical beam of a light curtain, the document should be classified in [G01V 8/00](#).

#### [G01V 9/007](#)

Analysing earth materials: [G01N 33/24](#)

Analysing gases per sé: [G01N](#)

## G01V 11/00

**Prospecting or detecting by methods combining techniques covered by two or more of main groups [G01V 1/00](#) - [G01V 9/00](#)**

### Definition statement

*This place covers:*

Prospecting or detecting using a combination of methods.

Prospecting or detecting where the method is irrelevant.

## References

### Limiting references

*This place does not cover:*

|   |                            |
|---|----------------------------|
| Geomodels or geomodelling, not related to particular measurements | <a href="#">G01V 99/00</a> |
|---|----------------------------|

### Further details of subgroups

#### [G01V 11/002:](#)

Transmission systems, specifically adapted for use in a borehole.

Components of downhole systems.

Transmission systems, suitable for both logging signals (i.e. [G01V](#)) and well survey signals (i.e. [E21B](#)) are classified in this group.

Transmission of seismic signals as such is classified in [G01V 1/22](#).

Signal transmission in general: [H04B](#).

#### [G01V 11/005:](#)

This subgroup contains means for locking sondes against the borehole wall,

means for centralising sondes in the borehole and means for determining the position and orientation of logging tools.

Combinations of measurement tools with locking mechanisms, e.g. in order to provide a better acoustical or electrical contact with the borehole wall, are classified in the appropriate class for the measurement method.

#### [G01V 11/007:](#)

When the seismo-electric effect is used for the purpose of earthquake prediction, the document should only be classified in [G01V 1/008](#).

## G01V 13/00

### Manufacturing, calibrating, cleaning, or repairing instruments or devices covered by the preceding groups

## References

### Informative references

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

|   |                            |
|---|----------------------------|
| Testing or calibrating of vibration detectors as such | <a href="#">G01H 3/005</a> |
|---|----------------------------|

## G01V 15/00

**Tags attached to, or associated with, an object, in order to enable detection of the object (record carriers for use with machines [G06K 19/00](#); signs, labels [G09F](#))**

### Definition statement

*This place covers:*

Tags for objects that, due to their nature or to special circumstances, are not readily detectable in themselves by any of the methods in [G01V 1/00](#) - [G01V 9/00](#), e.g. buried PVC pipes but also e.g. merchandise that is in risk of theft.

It is not intended for identification of a particular object (e.g. among a group of similar objects) or for carrying information about the object.

### References

#### Limiting references

*This place does not cover:*

|   |                              |
|---|------------------------------|
| Means for indicating the location of accidentally buried persons  | <a href="#">A63B 29/00</a>   |
| Methods or arrangements for sensing record carriers   | <a href="#">G06K 7/00</a>    |
| Record carriers for use with machines and with at least a part designed to carry digital markings (e.g. RFID) | <a href="#">G06K 19/00</a>   |
| Identification tags   | <a href="#">G07C 9/00</a>    |
| Theft detection systems using tags  | <a href="#">G08B 13/2402</a> |
| Signs, labels   | <a href="#">G09F</a>         |

#### Informative references

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

|   |                           |
|---|---------------------------|
| Aerials, structurally associated with other equipment or articles | <a href="#">H01Q 1/22</a> |
| Installation of electric cables underground                       | <a href="#">H02G 9/00</a> |

### Glossary of terms

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

|     |  |
|-----|--|
| Tag | active or passive means, designed to facilitate the detection of hidden or buried objects, that would not otherwise be readily detectable. |
|-----|--|

## G01V 99/00

**Subject matter not provided for in other groups of this subclass**

### Definition statement

*This place covers:*

Geomodels or geomodelling, not related to particular measurements

**References*****Limiting references***

*This place does not cover:*

|  |                            |
|--|----------------------------|
| Models for seismic processing                                  | <a href="#">G01V 1/282</a> |
| Velocity profiles  | <a href="#">G01V 1/303</a> |
| Modelling, related to reservoir fluids, e.g. fluid flow models | <a href="#">E21B</a>       |
| Modelling algorithms per sé                                    | <a href="#">G06F 17/00</a> |