Questel

How to carry out an effective Freedom To Operate search?

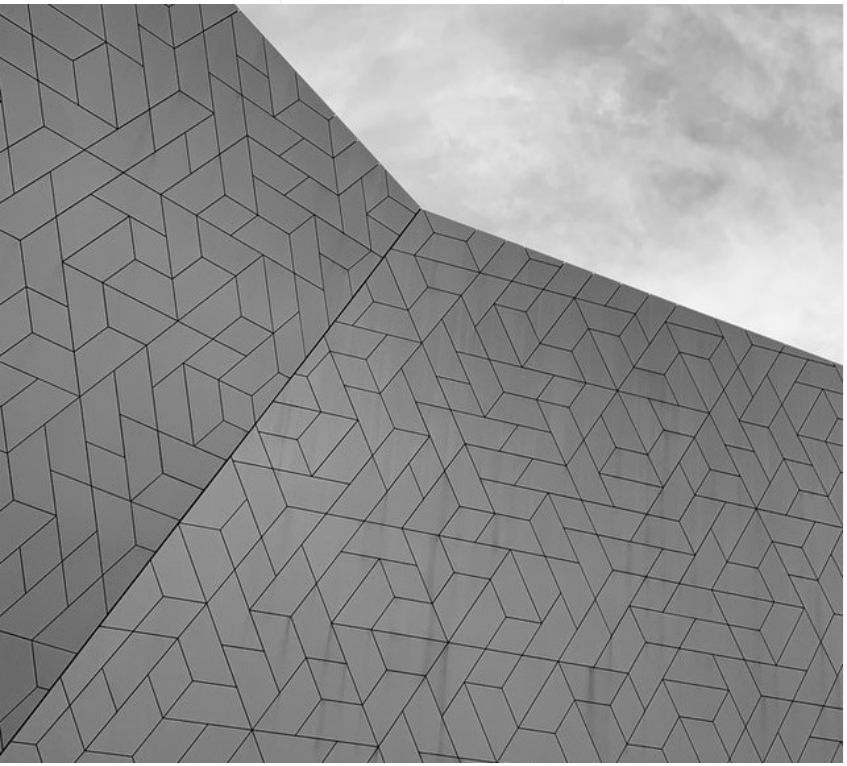
Tips & Tricks

Orbit Intelligence

Questel – October 21, 2021

Agenda

Webinar Agenda “How to carry out an effective Freedom To Operate search”



- Overview (Goals & purpose)
- Strategy Formulation
- Review your search results
- Develop your search strategy
- End Product & Legal information
- Conclusions

01

Overview

Goals & purpose

Questel

Freedom To Operate

A Freedom To Operate (FTO) analysis begins by searching patent literature for issued or pending patents, and obtaining a legal opinion as to whether a product, process or service may be considered to infringe any patent(s) owned by others.

(WIPO Magazine, "IP and Business: Launching a New Product: freedom to operate", September 2005)

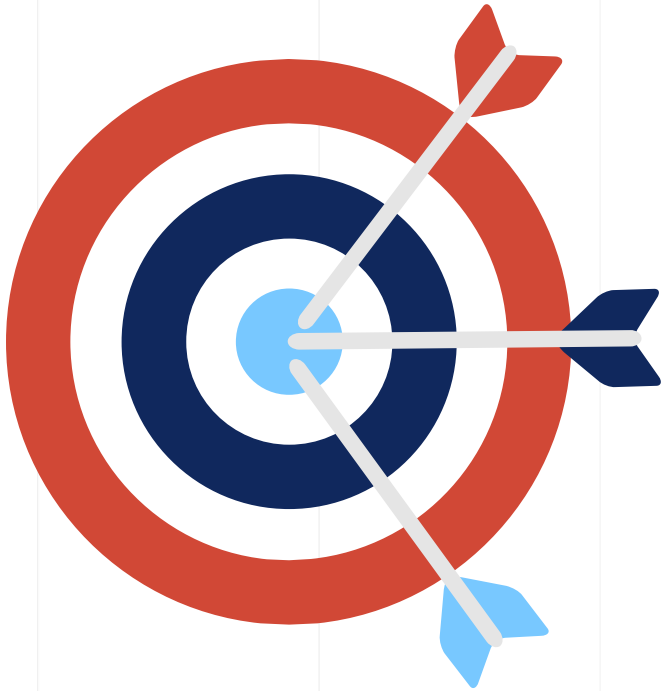
Questel

Overview

Search parameters depend upon the proper scope

Useful to have:

- Keywords or specialized terms
- Class codes
- Similar patents
- Similar inventions
- Similar products
- Known inventors/assignees
- Known non-patent literature



Questel

Overview

Considerations for a FTO Search

- Conduct a broad search, taking advantage of enhanced features
- Consider searching by country-level for clearance in a particular country
- Narrow search by patents that are still alive
- Narrow search by claims when you retrieve relevant patents and need to focus on what is claimed

A two-step process

1. A general search to find the most patents in the subject area
2. A narrow search on claims within a particular country where the inventor is to be practiced or to focus on specifics that will be useful to the person doing the analysis

Questel

02

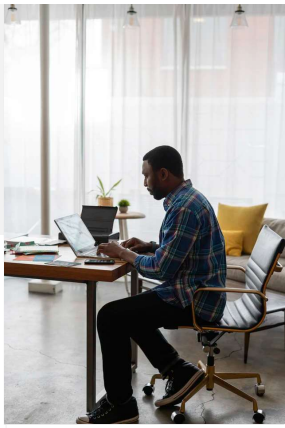
Strategy Formulation

Questel

Considerations for an effective search

- Keywords
- Classification codes
- Semantics
- Citations (also look at citations of citations)
- Look for other keywords that were not used
- Consider additional classification schemes
- Consider inventors or assignees as potential search terms

Search capabilities – Typical Search



Preferred database: **FullPat** (see here how to activate this database)

- Better to focus on individual countries
- Native language when possible

Limitation:

- **Legal status**: Only alive patents can block you
  - Advice: choose **"Alive"** (but be careful with lapsed publications)
- **Validity date of the patents:** if the patent is lapsed/dead/expired, you are typically free to operate
  - Advice: choose "**Priority date**" and search "**21 years ago to present**"
- **Specific geographic areas: where you are trying to determine FTO**
  - Advice: consider searching by country level for clearance in a particular country
- **Field:** claims characterize and limit the scope
  - Advice: choose "**Claims**"

Questel

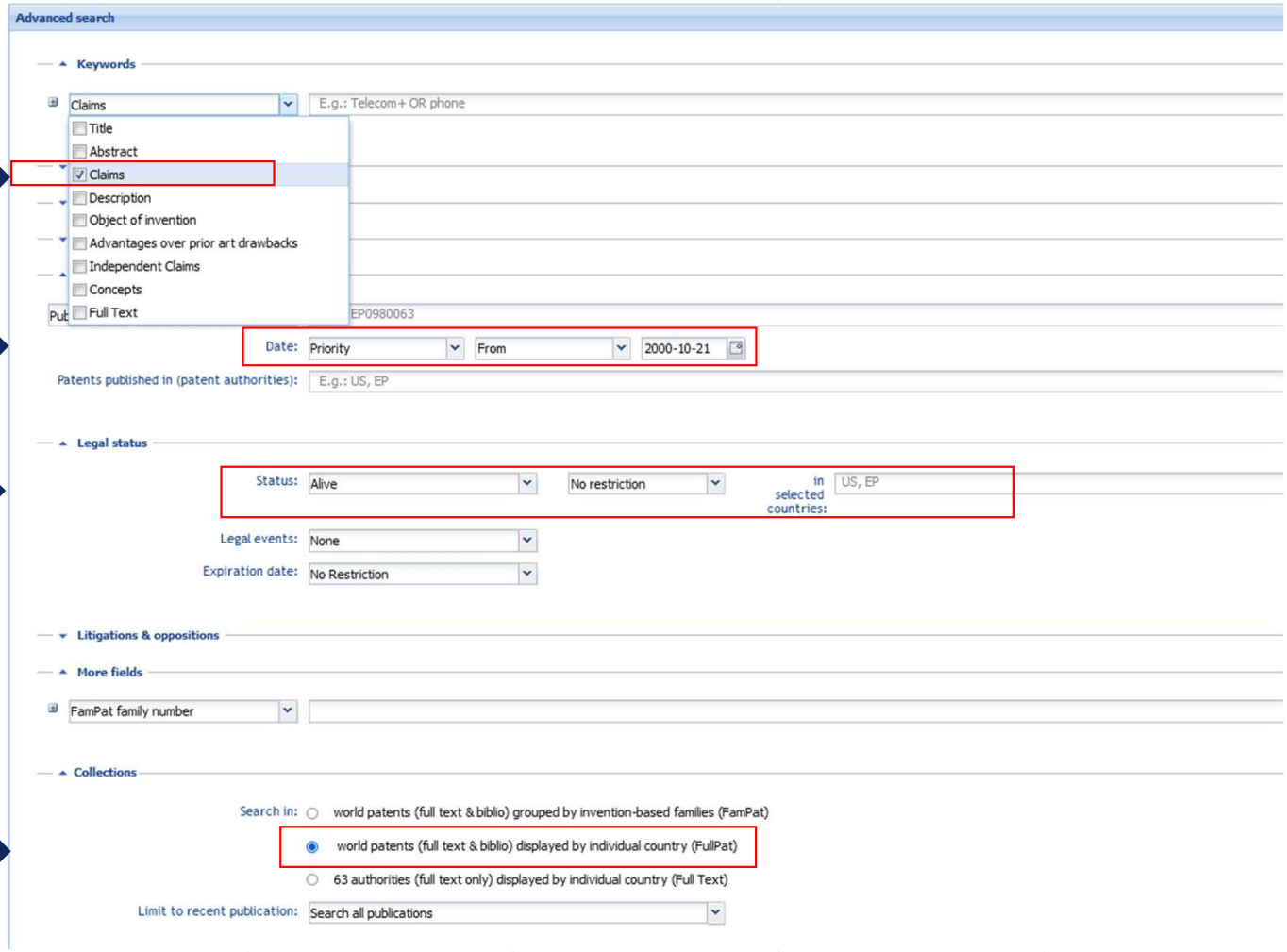
Search capabilities – Typical Search

Field Limitation:
Claims

Patent validity limitation:
Preceding 21 years

Legal State and geographic limitation:
Alive and a specific country

Search by publication:
FullPat database



Questel

This sample search is meant to illustrate suggested considerations for conducting a search for a freedom to operate decision and not the actual decision itself.

In order to determine if an invention is cleared, a comprehensive search must be conducted and then the results must be examined in great depth. Thus, the search should be as comprehensive as possible in order to insure a suitable decision.

Questel

Strategy Formulation

Formulate a search strategy to find patents involving the interaction between self-driving cars and emergency vehicles. Find relevant patents and send the results to the requester for analysis.

Make the results thorough, but easy for the requester to conduct the research.

Questel

Strategy Formulation

Autonomous vehicle(s)

Autonomously driven vehicle(s)

Self-Driving car(s)

Emergency vehicle(s)

Ambulance

Police

Firetruck (Fire truck)

First responder

First response

Questel

Strategy Formulation

Autonomous+
Self_Driv+

automobile+
vehic+
car?

Emergency 2D vehic+
Ambulance+
Police+
Fire_truck+
First 2D respon+

Truncations

The ? allows for zero or one character only
The + allows for unlimited characters

Operators

The 2D finds the terms within two words of each other in any order

NOTE: CAR is a short word and we do not want longer words like CARGO, CARRYOVER, CARTOGRAPHY…
-> don’t use the + truncation

More info on ‘**Build queries using truncations and operators**‘ here

Questel

Initial Strategy

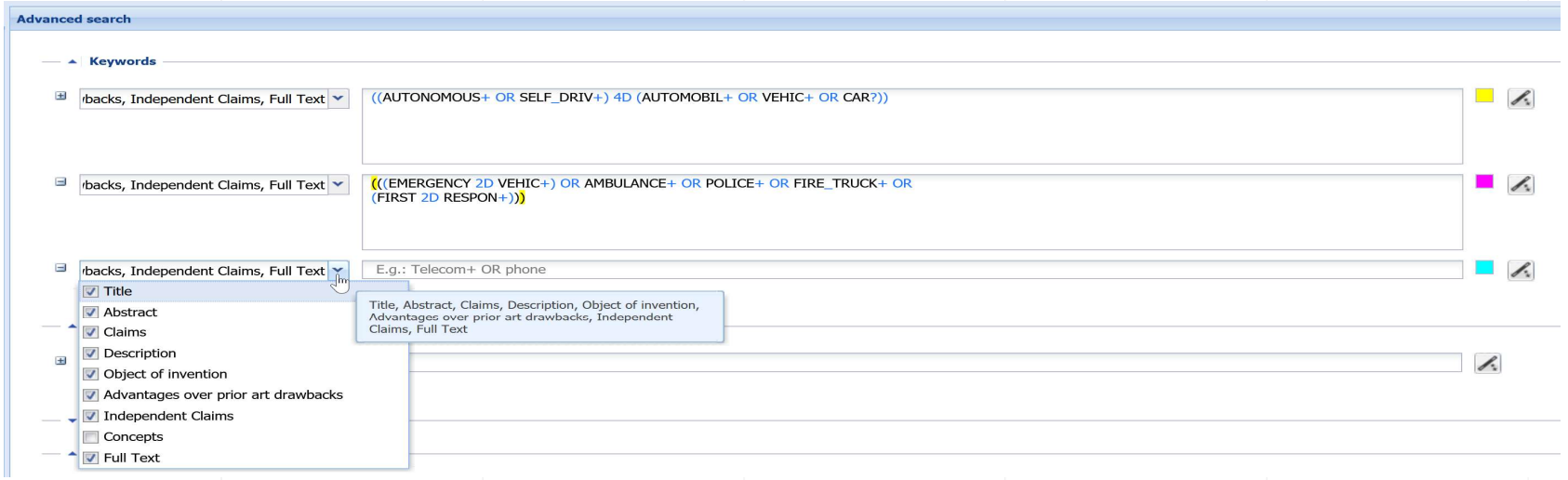
(((AUTONOMOUS+ OR SELF_DRIV+) 4D (AUTOMOBIL+ OR VEHIC+ OR CAR?)))

/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX

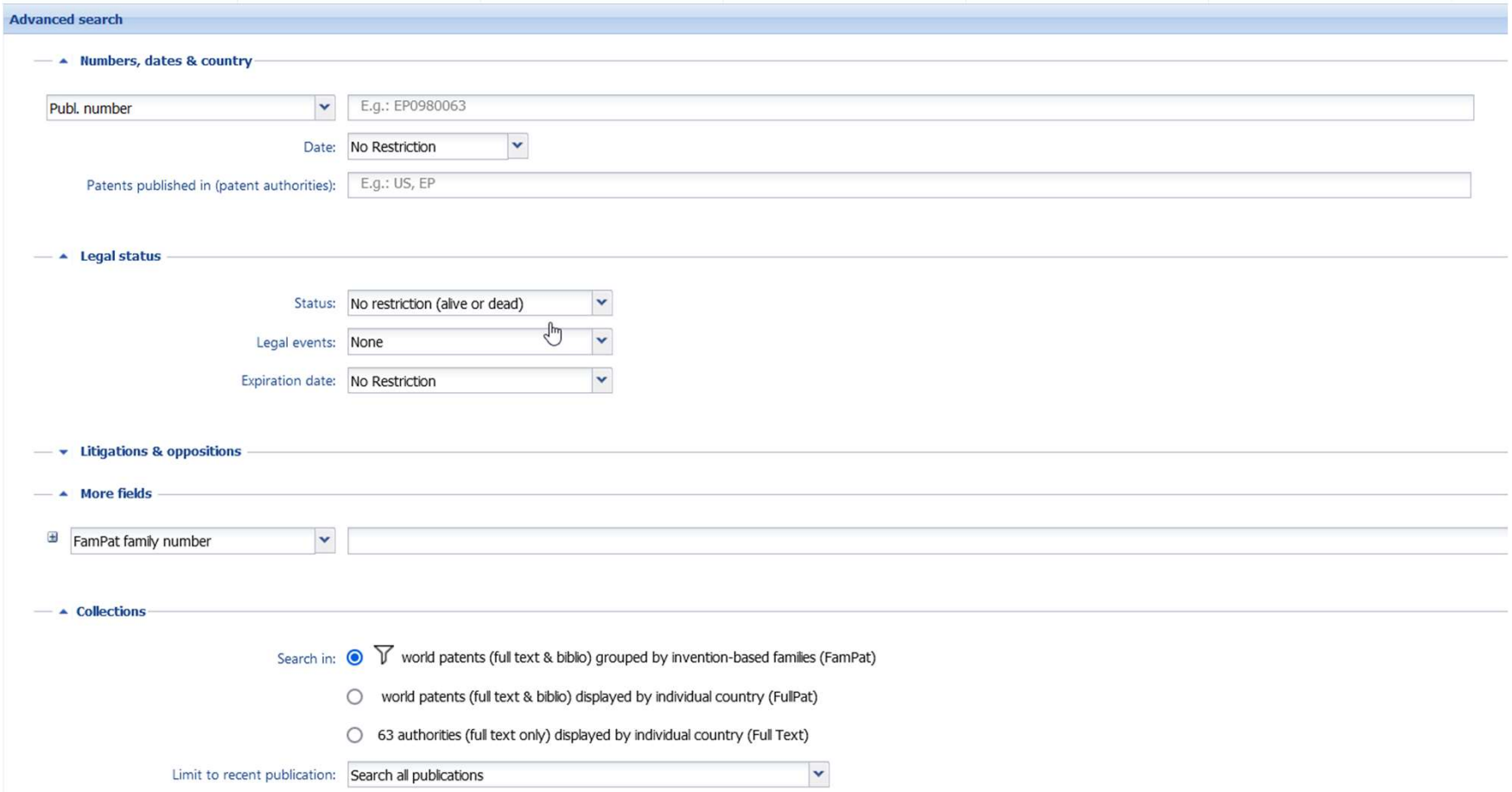
AND

(((EMERGENCY 2D VEHIC+) OR AMBULANCE+ OR POLICE+ OR FIRE_TRUCK+ OR

(FIRST 2D RESPON+))) /TI/AB/IW/CLMS/ICLM/DESC/ODES/OBJ/ADB/KEYW/TX)

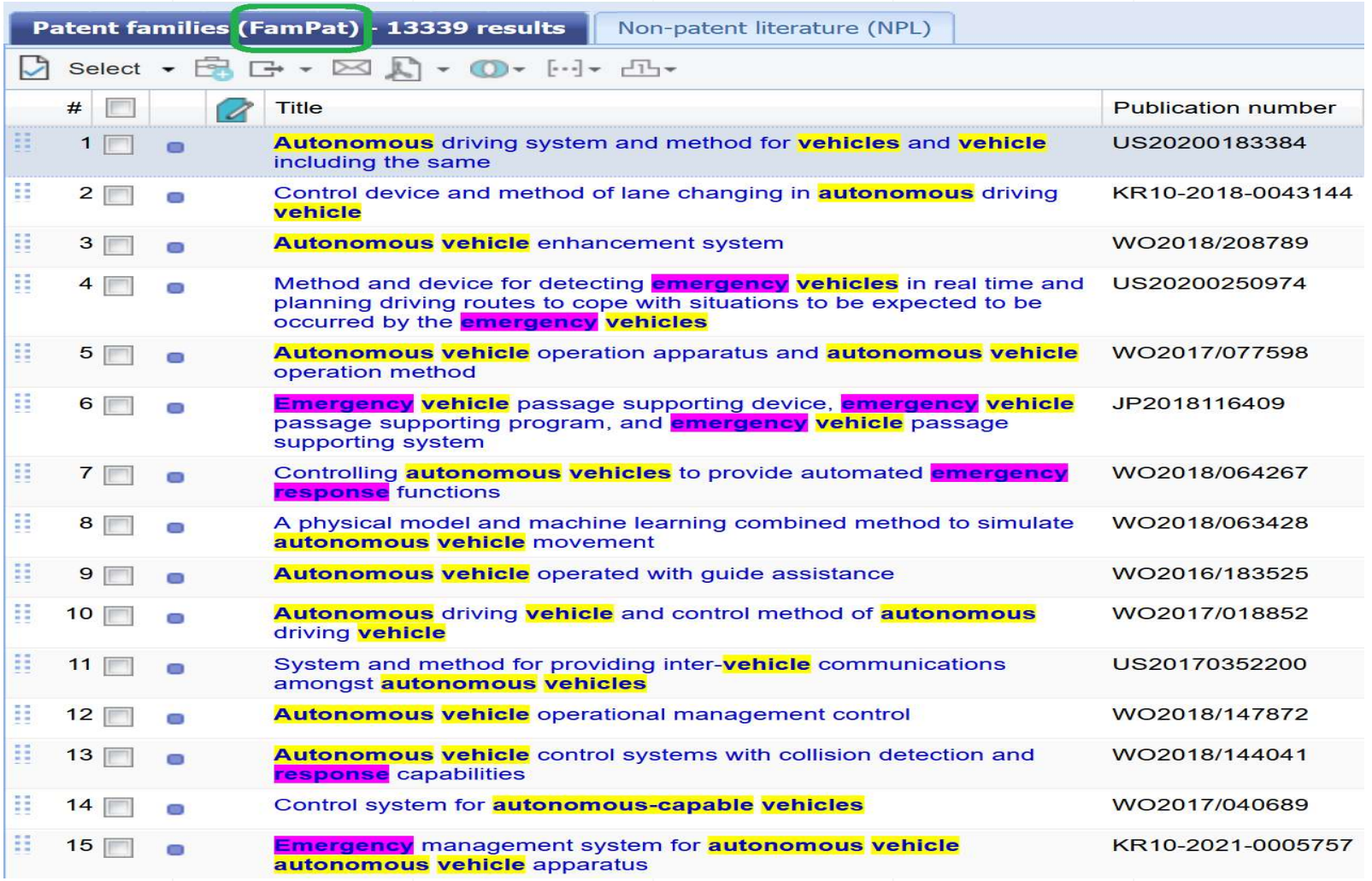


Strategy Formulation



Questel

Strategy Formulation – Broad Search



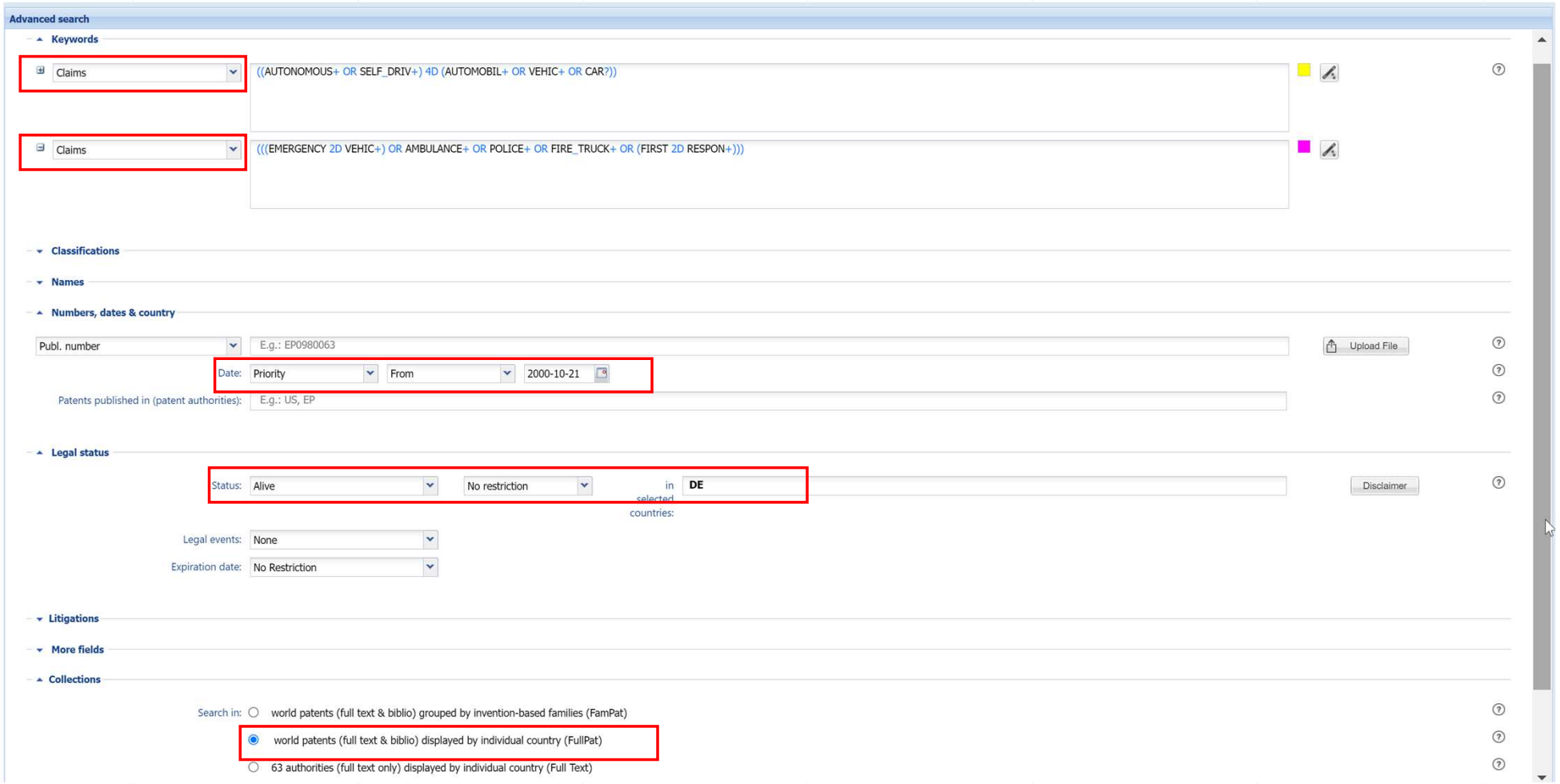
Patent families (FamPat) - 13339 results | Non-patent literature (NPL)

Select

#	Title	Publication number
1	**Autonomous** driving system and method for **vehicles** and **vehicle** including the same	US20200183384
2	Control device and method of lane changing in **autonomous** driving **vehicle**	KR10-2018-0043144
3	**Autonomous** **vehicle** enhancement system	WO2018/208789
4	Method and device for detecting **emergency** **vehicles** in real time and planning driving routes to cope with situations to be expected to be occurred by the **emergency** **vehicles**	US20200250974
5	**Autonomous** **vehicle** operation apparatus and **autonomous** **vehicle** operation method	WO2017/077598
6	**Emergency** **vehicle** passage supporting device, **emergency** **vehicle** passage supporting program, and **emergency** **vehicle** passage supporting system	JP2018116409
7	Controlling **autonomous** **vehicles** to provide automated **emergency** **response** functions	WO2018/064267
8	A physical model and machine learning combined method to simulate **autonomous** **vehicle** movement	WO2018/063428
9	**Autonomous** **vehicle** operated with guide assistance	WO2016/183525
10	**Autonomous** driving **vehicle** and control method of **autonomous** driving **vehicle**	WO2017/018852
11	System and method for providing inter-**vehicle** communications amongst **autonomous** **vehicles**	US20170352200
12	**Autonomous** **vehicle** operational management control	WO2018/147872
13	**Autonomous** **vehicle** control systems with collision detection and **response** capabilities	WO2018/144041
14	Control system for **autonomous-capable** **vehicles**	WO2017/040689
15	**Emergency** management system for **autonomous** **vehicle** **autonomous** **vehicle** apparatus	KR10-2021-0005757

Questel

Strategy Formulation – Narrow Search



Questel

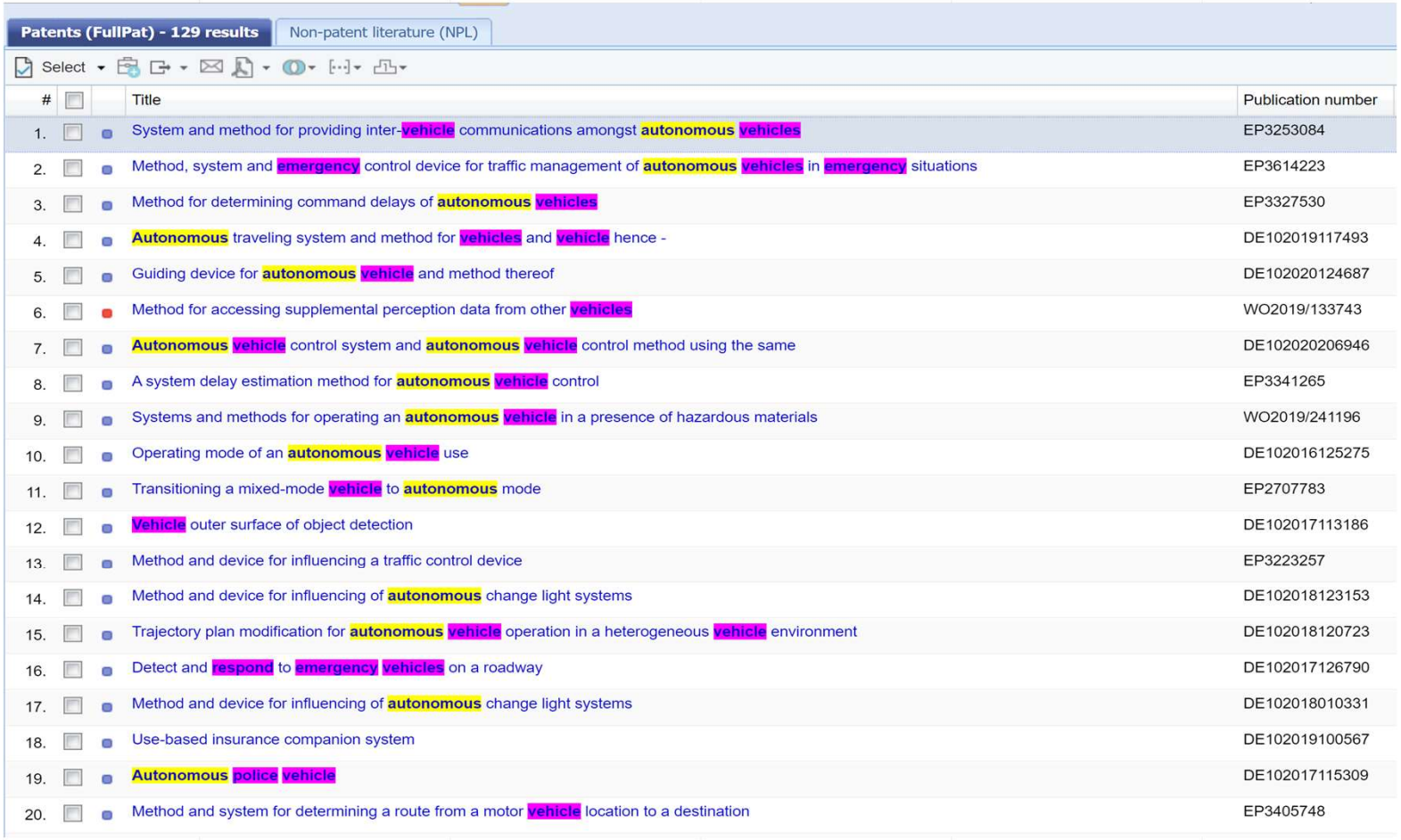
Strategy Formulation – Narrow Search

Specify **Alive** to focus on grants and pending applications for an FTO; not necessary when conducting a prior art search.

Can also specify grant/patent under “No restriction” and specify jurisdictions, if desired.

Questel

Strategy Formulation – Narrow Search



Patents (FullPat) - 129 results | Non-patent literature (NPL)

Select

#	Title	Publication number
1.	System and method for providing inter-vehicle communications amongst autonomous vehicles	EP3253084
2.	Method, system and emergency control device for traffic management of autonomous vehicles in emergency situations	EP3614223
3.	Method for determining command delays of autonomous vehicles	EP3327530
4.	Autonomous traveling system and method for vehicles and vehicle hence -	DE102019117493
5.	Guiding device for autonomous vehicle and method thereof	DE102020124687
6.	Method for accessing supplemental perception data from other vehicles	WO2019/133743
7.	Autonomous vehicle control system and autonomous vehicle control method using the same	DE102020206946
8.	A system delay estimation method for autonomous vehicle control	EP3341265
9.	Systems and methods for operating an autonomous vehicle in a presence of hazardous materials	WO2019/241196
10.	Operating mode of an autonomous vehicle use	DE102016125275
11.	Transitioning a mixed-mode vehicle to autonomous mode	EP2707783
12.	Vehicle outer surface of object detection	DE102017113186
13.	Method and device for influencing a traffic control device	EP3223257
14.	Method and device for influencing of autonomous change light systems	DE102018123153
15.	Trajectory plan modification for autonomous vehicle operation in a heterogeneous vehicle environment	DE102018120723
16.	Detect and respond to emergency vehicles on a roadway	DE102017126790
17.	Method and device for influencing of autonomous change light systems	DE102018010331
18.	Use-based insurance companion system	DE102019100567
19.	Autonomous police vehicle	DE102017115309
20.	Method and system for determining a route from a motor vehicle location to a destination	EP3405748

Questel

03

Review your search results

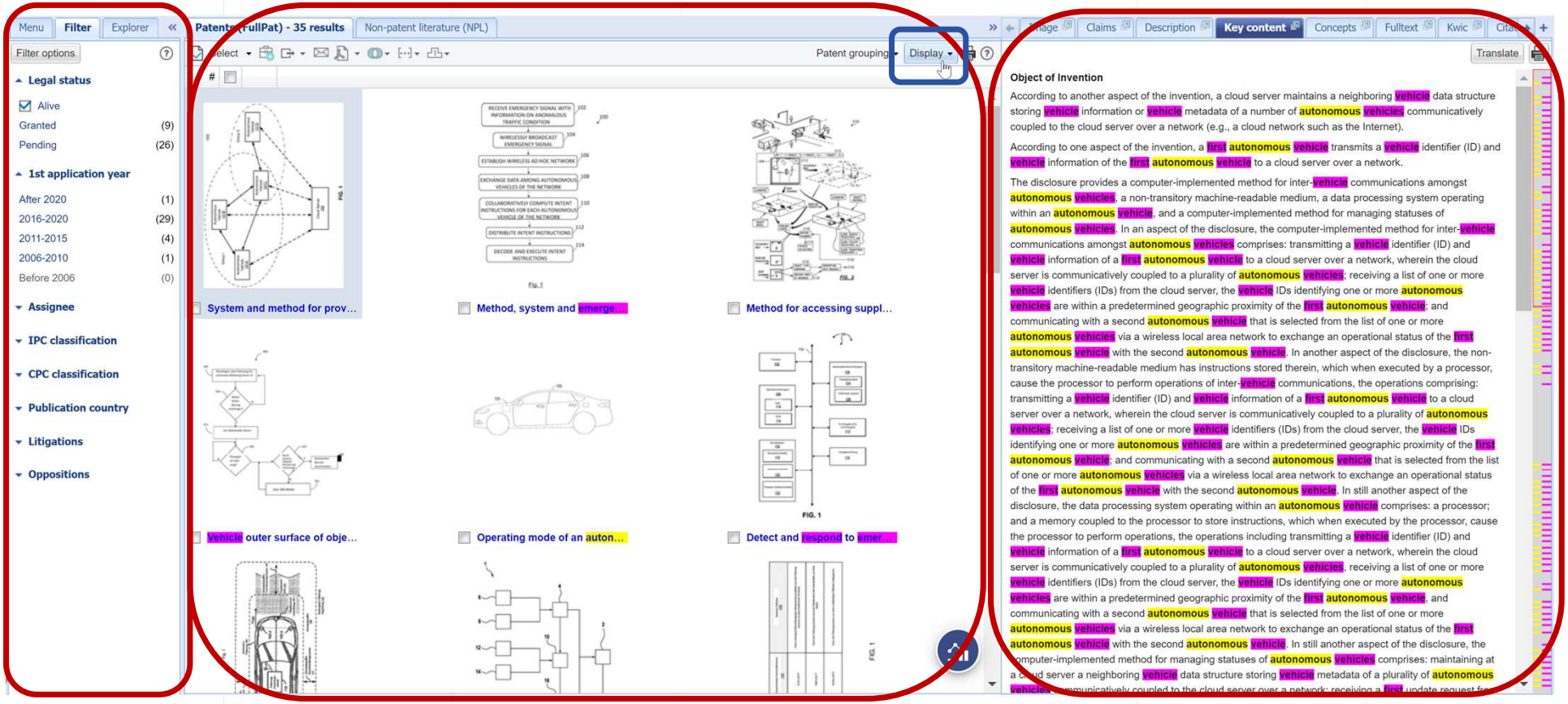
Questel

LC3

Review within the Tool

Review tools

- Customized Filters
- Highlights
- Key content (e.g. independent claims)
- Saving into lists
- Customized display settings (e.g. Images)



Questel

Diapositive 22

LC3 Add link to KB articles

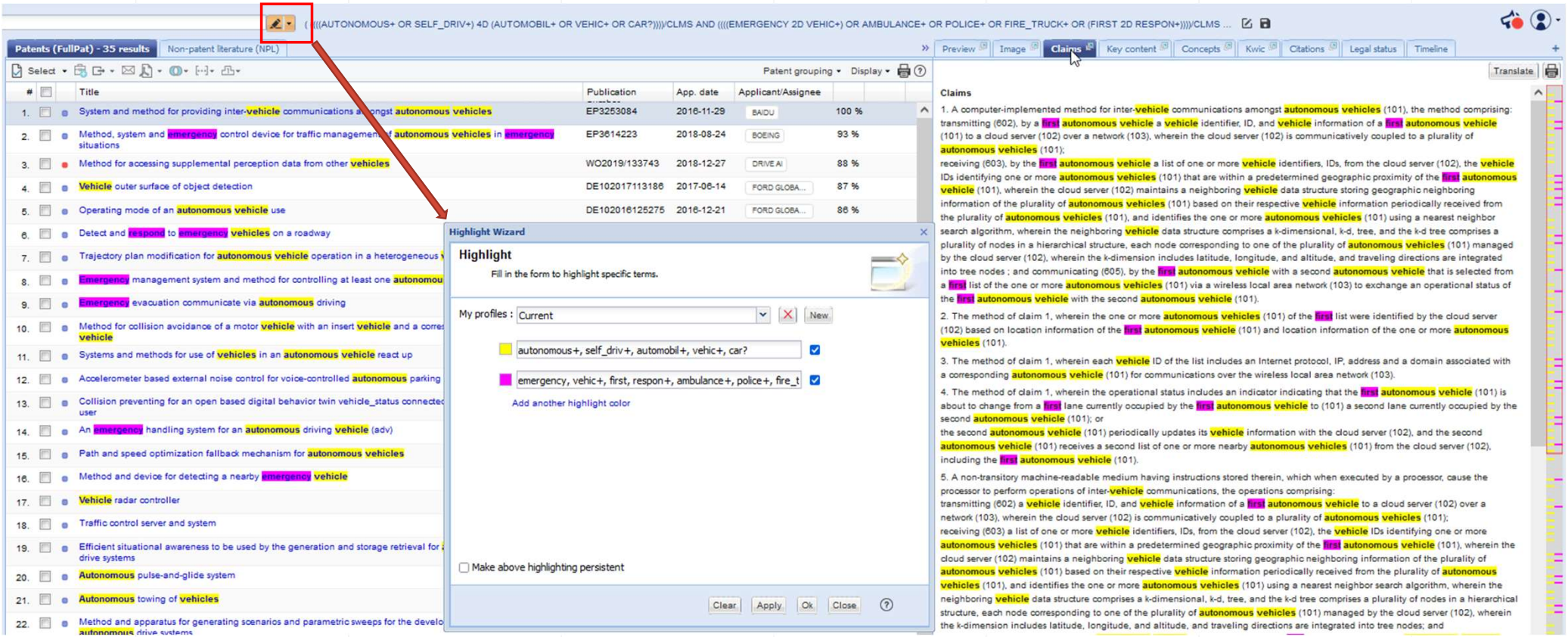
Loris Caruana, 15/10/2021

LC4

Highlighting

Highlights

Find your keywords quickly in the text



Questel

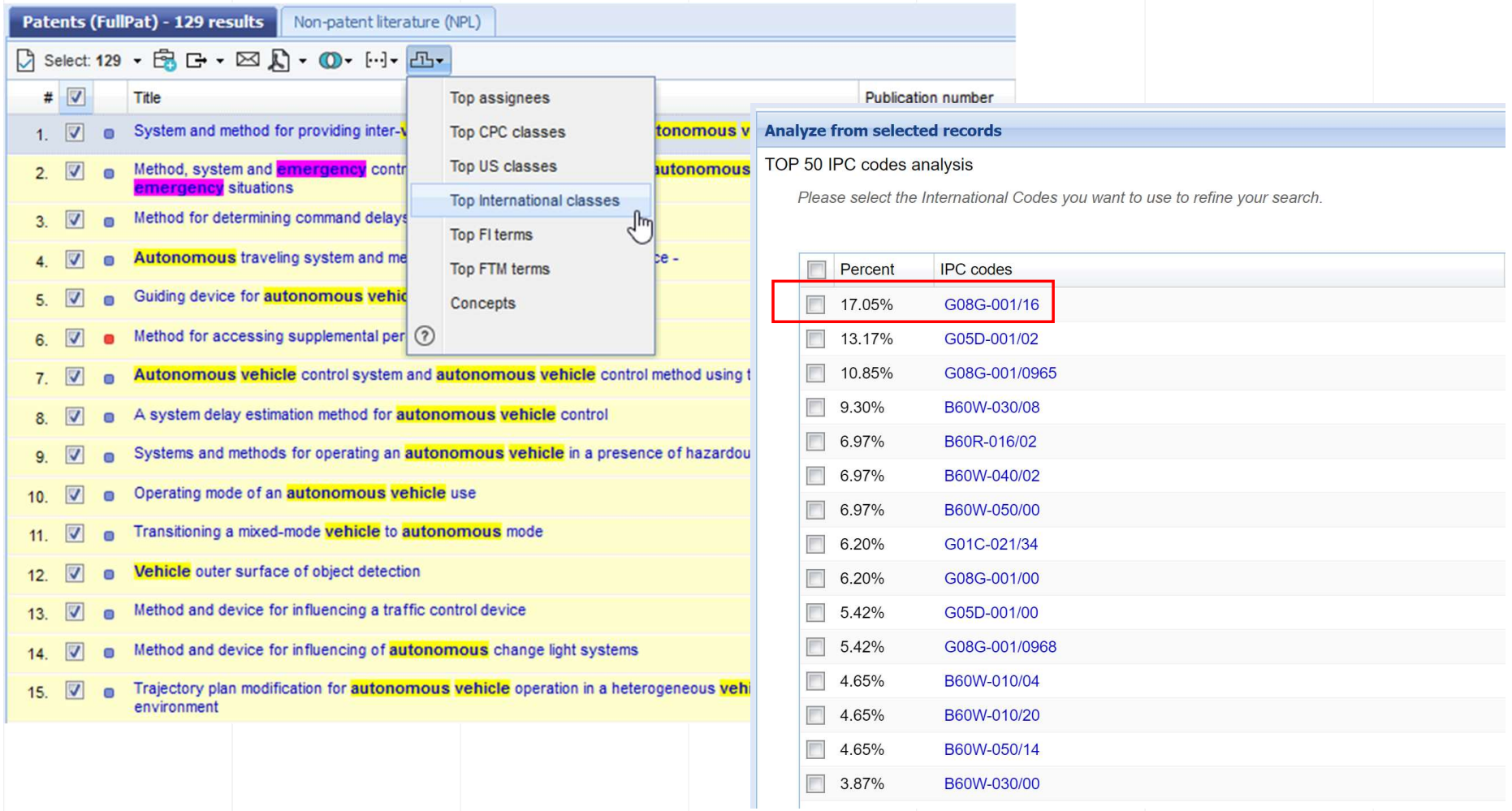
Diapositive 23

LC4 Add KB article's link

Loris Caruana, 15/10/2021

Class Codes

Find class codes



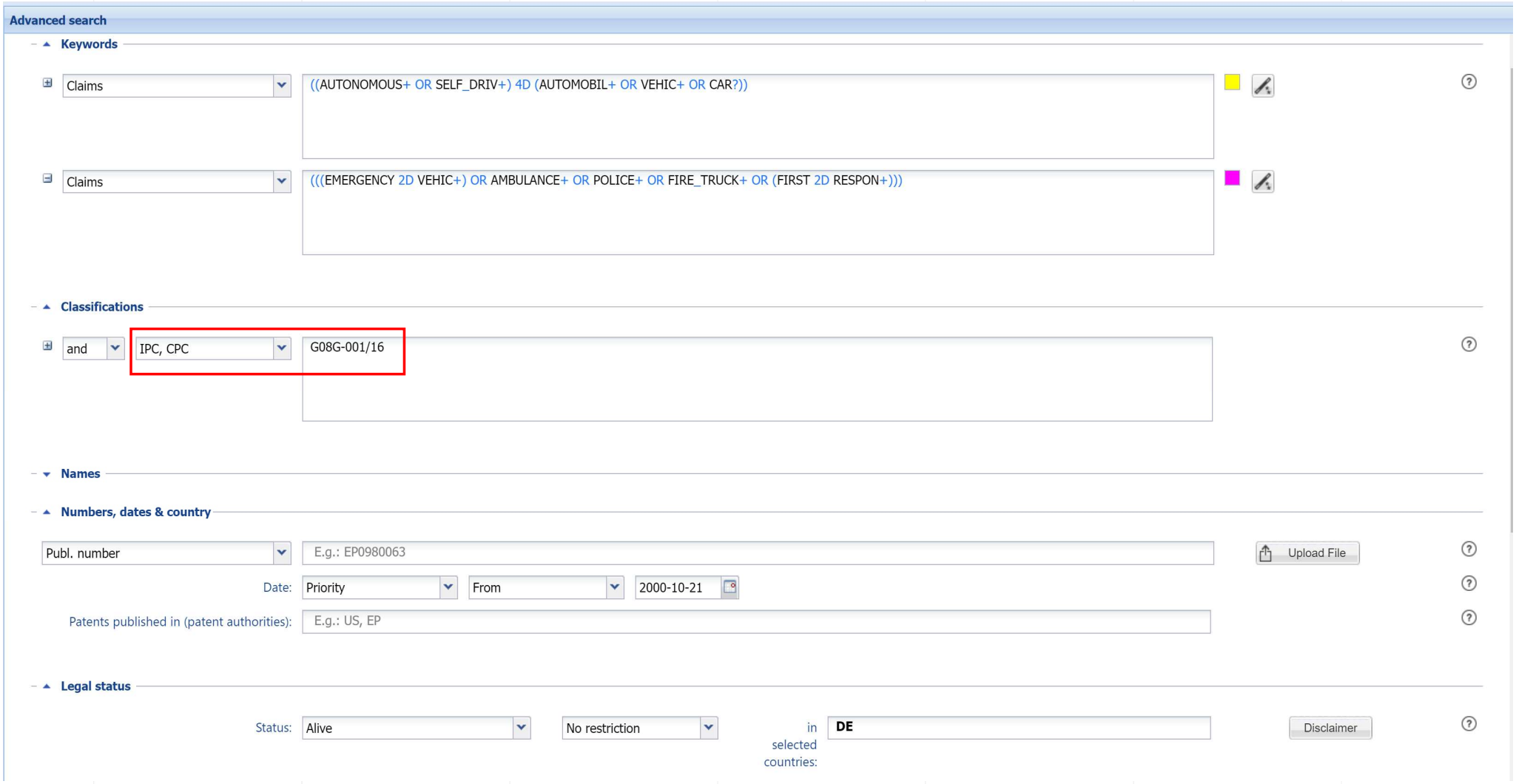
Questel

Strategy Formulation

(Autonomous+ Self_Driv+ Driverless) (automobile+ vehic+ car?) Emergency 2D vehic+ Ambulance+ Police+ Fire_truck+ First 2D respon+

(G08G-001/16)/IPC

Questel


Advanced search
Keywords
Claims
((AUTONOMOUS+ OR SELF_DRIV+) 4D (AUTOMOBIL+ OR VEHIC+ OR CAR?))
Claims
(((EMERGENCY 2D VEHIC+) OR AMBULANCE+ OR POLICE+ OR FIRE_TRUCK+ OR (FIRST 2D RESPON+)))
Classifications
and
IPC, CPC
G08G-001/16
Names
Numbers, dates & country
Publ. number
E.g.: EP0980063
Upload File
Date:
Priority
From
2000-10-21
Patents published in (patent authorities):
E.g.: US, EP
Legal status
Status:
Alive
No restriction
in selected countries:
DE
Disclaimer

Questel

Strategy narrowed by jurisdiction, priority date and claims AND IPC/CPC code

(((AUTONOMOUS+ OR SELF_DRIV+ OR DRIVERLESS) 4D (AUTOMOBIL+ OR VEHIC+ OR CAR?))/CLMS)

AND

(((((EMERGENCY 2D VEHIC+) OR AMBULANCE+ OR POLICE+ OR FIRE_TRUCK+ OR (FIRST 2D RESPON+)) /CLMS

AND ((G08G-001/16)/IPC/CPC)))

AND PRD >= 2000-10-21 AND

(STATE/ACT=ALIVE P (PC/ACT=DE OR CC/ACT=DE))

Questel

Limit by IPC/CPC code

Patents (FullPat) - 35 results | Non-patent literature (NPL)

Select

#	Title	Publication number
1.	System and method for providing inter-vehicle communications amongst autonomous vehicles	EP3253084
2.	Method, system and emergency control device for traffic management of autonomous vehicles in emergency situations	EP3614223
3.	Method for accessing supplemental perception data from other vehicles	WO2019/133743
4.	Vehicle outer surface of object detection	DE102017113186
5.	Operating mode of an autonomous vehicle use	DE102016125275
6.	Detect and respond to emergency vehicles on a roadway	DE102017126790
7.	Trajectory plan modification for autonomous vehicle operation in a heterogeneous vehicle environment	DE102018120723
8.	Emergency management system and method for controlling at least one autonomous vehicle in an emergency	DE102017211797
9.	Emergency evacuation communicate via autonomous driving	DE102017125494
10.	Method for collision avoidance of a motor vehicle with an insert vehicle and a corresponding system and motor vehicle	DE102015226232
11.	Systems and methods for use of vehicles in an autonomous vehicle react up	DE102018114600
12.	Accelerometer based external noise control for voice-controlled autonomous parking	DE102018124422
13.	Collision preventing for an open based digital behavior twin vehicle_status connected region of an control of the user	DE102019115783
14.	An emergency handling system for an autonomous driving vehicle (adv)	EP3323687
15.	Path and speed optimization fallback mechanism for autonomous vehicles	EP3517893

Questel

04

Develop your search strategy

Questel

Further considerations

At this point in the search, you have a few possible decisions that you can make:

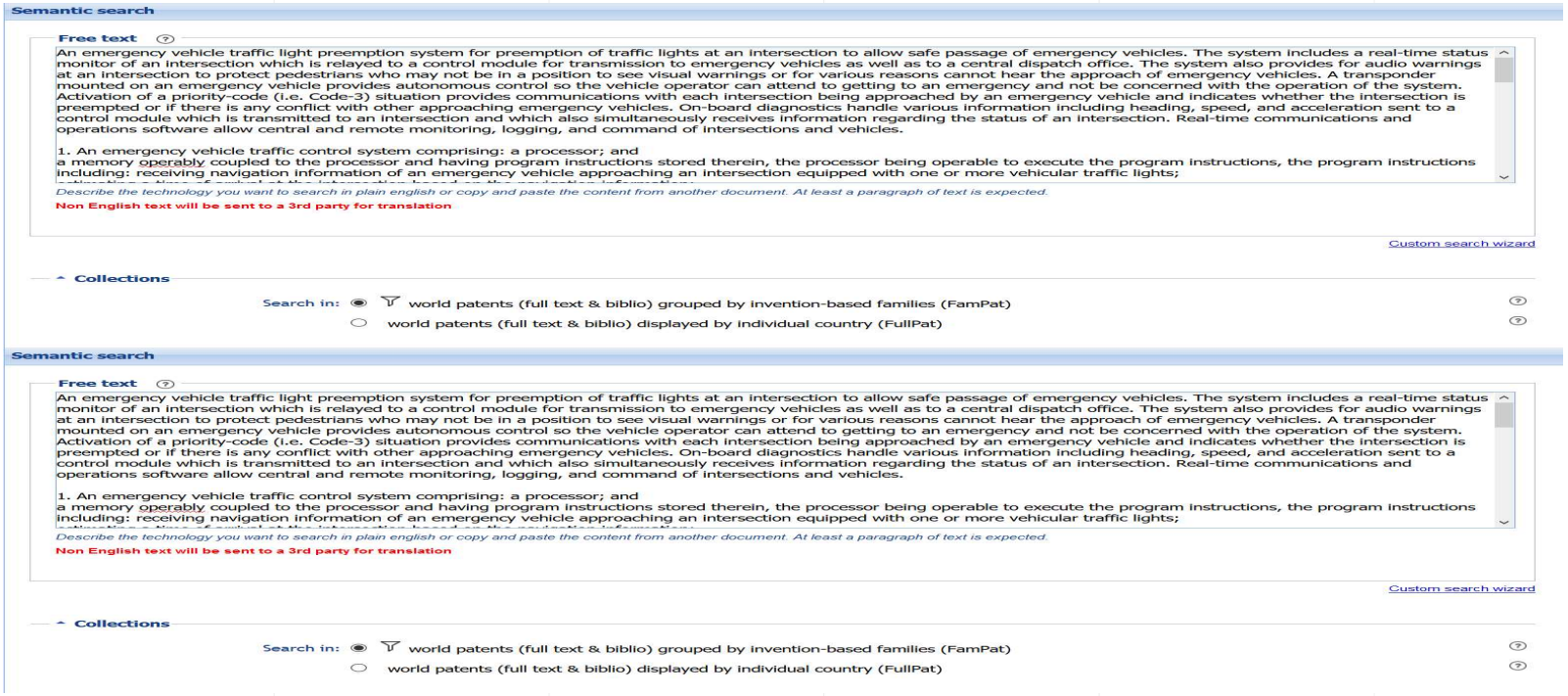
1. You can add more keywords, class codes, etc., based upon further research, or comments from the requester
2. You can narrow the search using additional operators to focus the search
3. You can opt for different type of searches available in Orbit intelligence

LC5

Semantics

Semantic Search

Much goes on in the background, but the input should read like a description. You can use a disclosure, a summary of the invention, an abstract of a patent, or merged information.



Tip: To avoid too much noise don't use just a few keywords

Questel

Diapositive 31

LC5 insert KB link

Loris Caruana, 15/10/2021

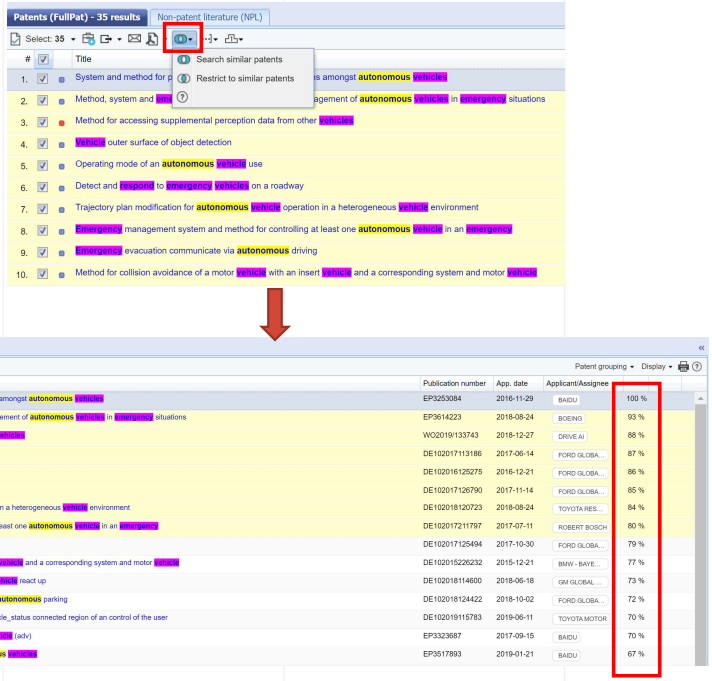
LC6
LC7

Similarity

Similarity Search

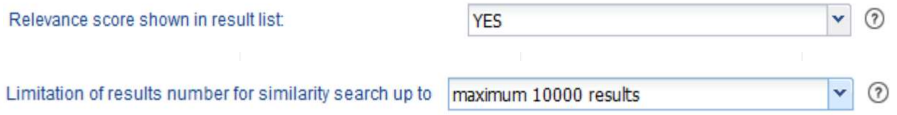
Run a similarity search on a selection or list based on:

- Concept extraction
- Classification Code
- Citation



Sorted by relevance

User settings



Questel

Diapositive 32

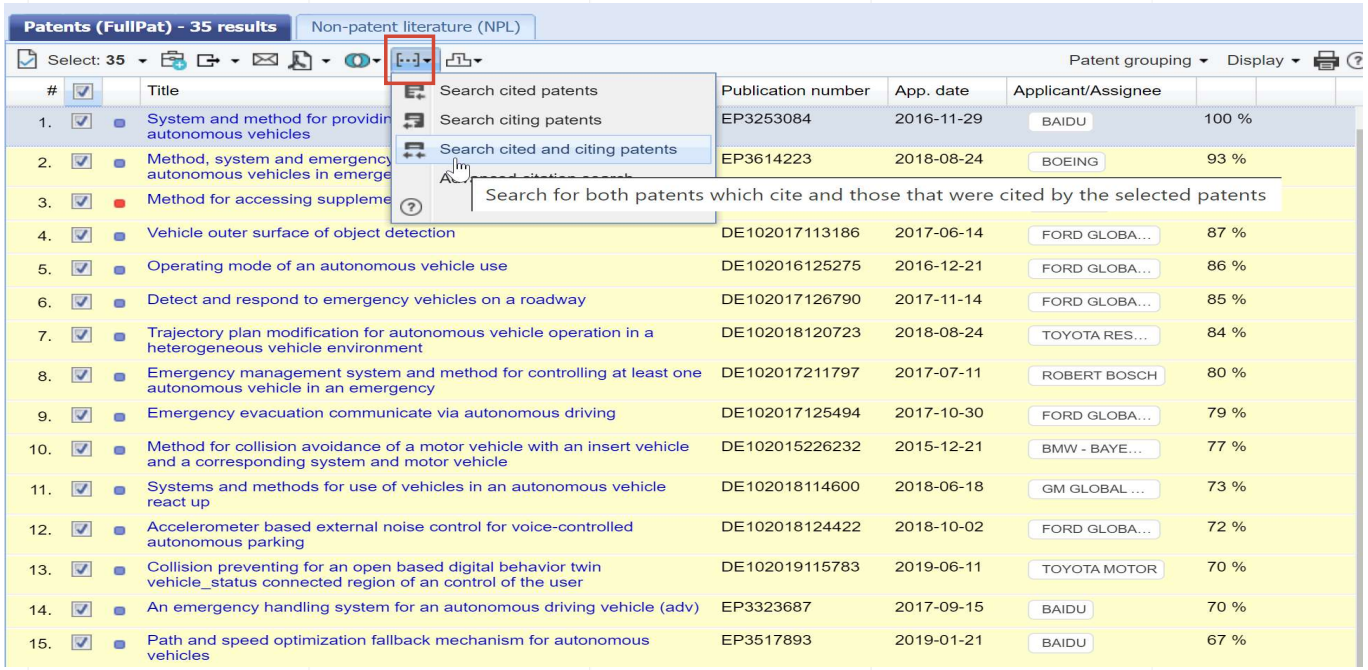
LC6 NB: Penser à analyser le contenu de l'onglet 'KWIC' pour étudier quelles similitudes ont été trouvées
Loris Caruana, 15/10/2021

LC7 Change slide pattern
Loris Caruana, 15/10/2021

LC8

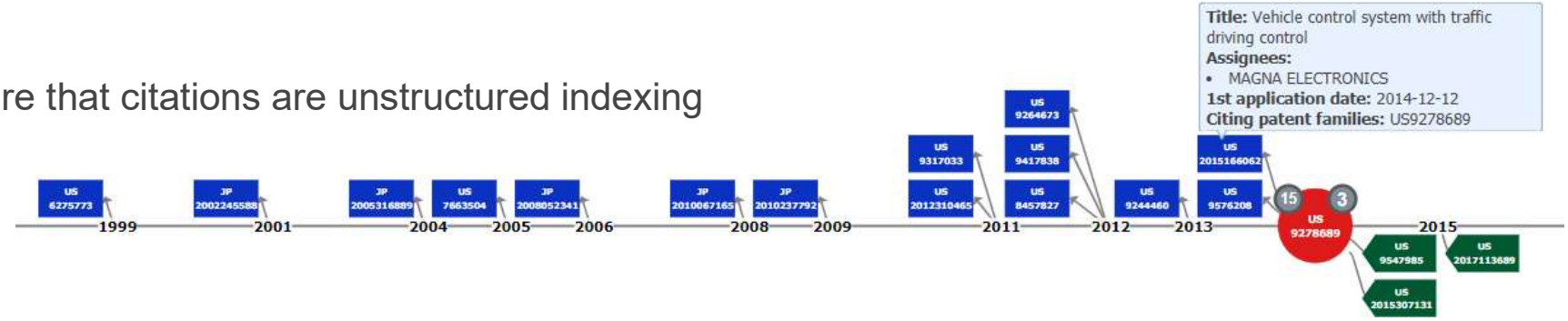
Citations

Citation search



The applicant/examiner can control the backwards citations, but not the forward ones
Both types of citations are useful in finding art that may have been missed by other means

Be aware that citations are unstructured indexing



Questel

Diapositive 33

LC8 LInk to KB

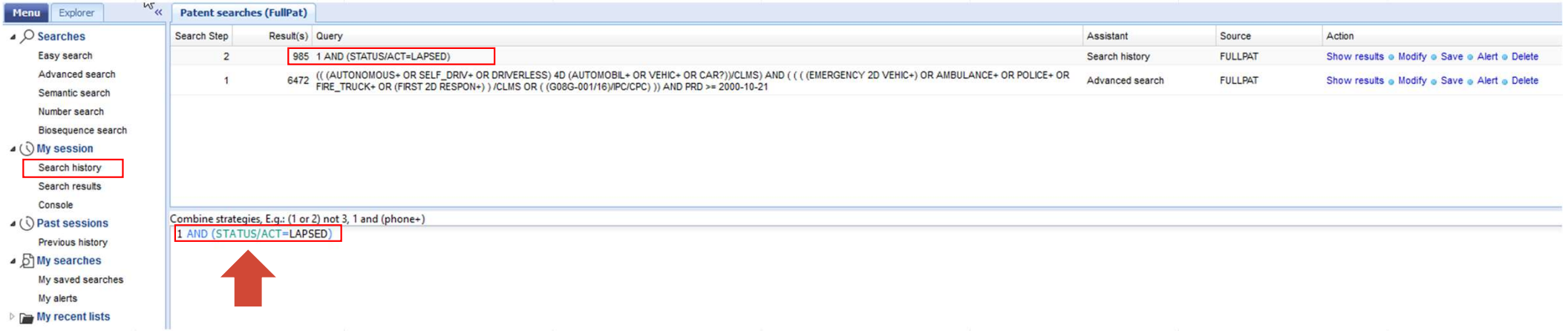
Loris Caruana, 15/10/2021

LC9

Limitation on Lapsed

Expand Search

For further assurance, run the search on lapsed patents with the help of the command line in your Search History



Questel

Diapositive 34

LC9 Link to KB

Loris Caruana, 15/10/2021

Output

Output

Analysing

Exporting

Formats that are useful for FTO

Backup/Recovery

Checking/Importance

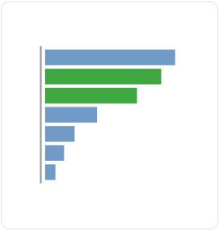
Sharing

Monitoring

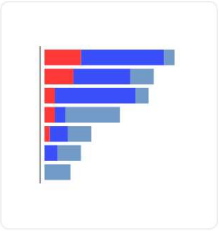
Questel

Analysis

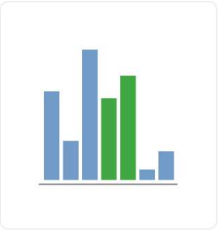
Analyze Search Data to Deliver Business Insights



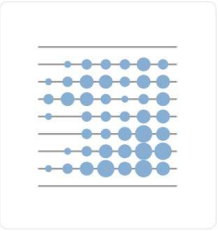
Key players



Key players by legal status

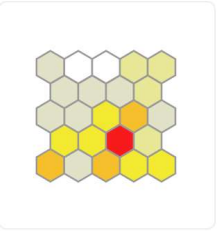


Investment trend

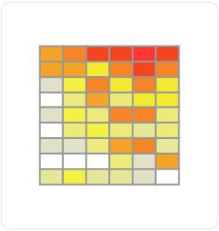


Investment trend for key players

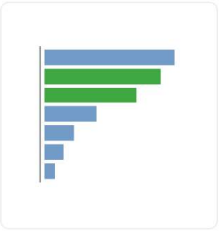
Markets & competitors location



Technology overview



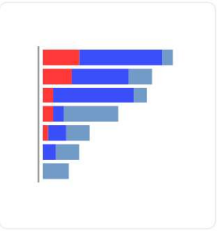
Key players by technical domain



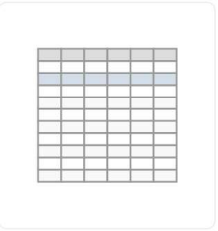
Key inventors

Landscape by technology clusters

Technologies & applications



Key inventions by players

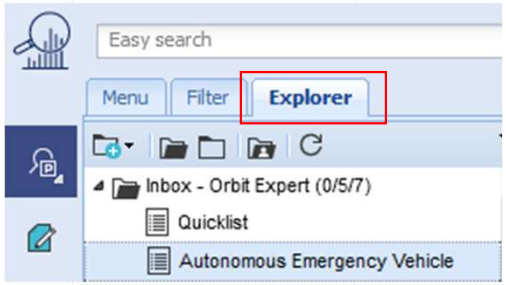


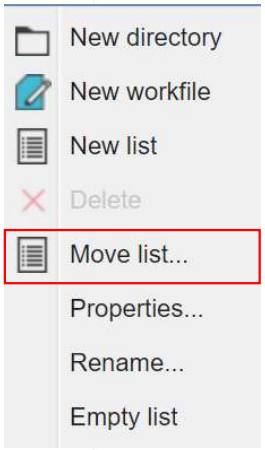
Key invention metrics

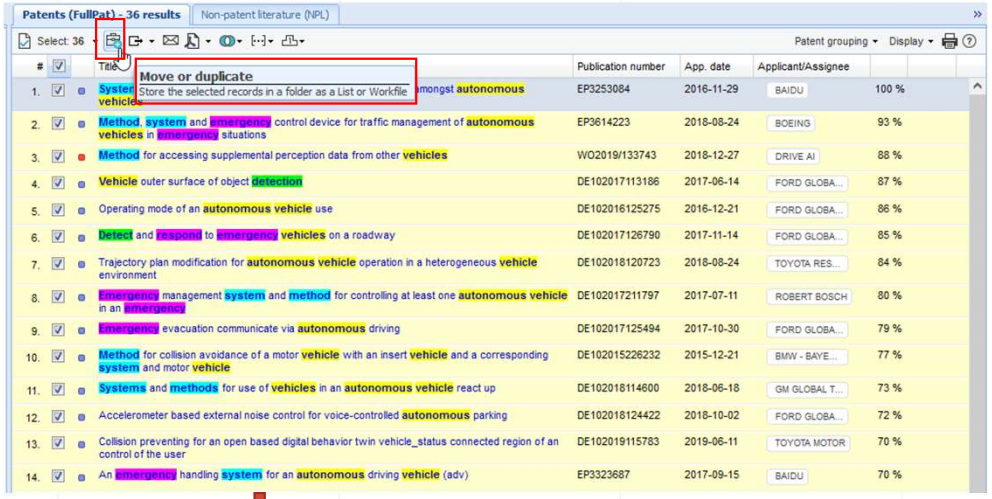
Questel

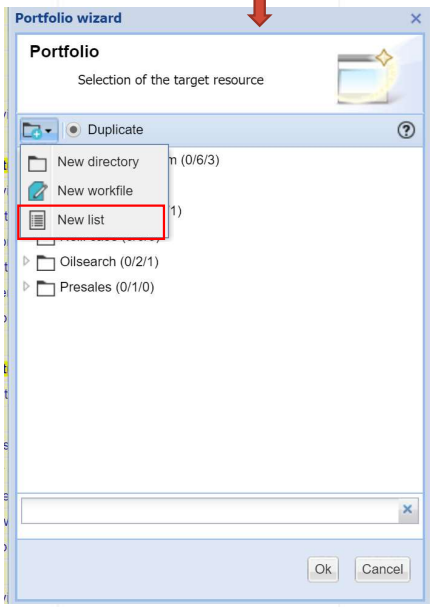
Output

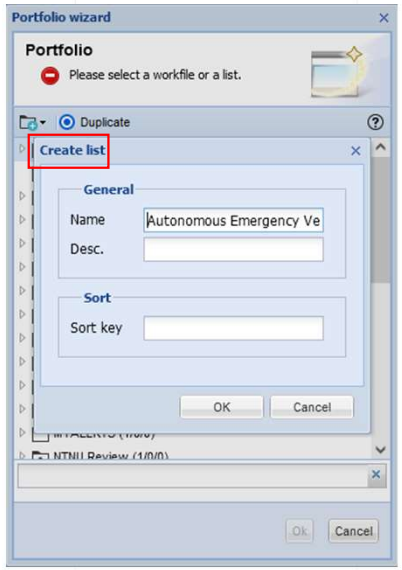
Store Relevant Results in a List and Manage it











Questel

05

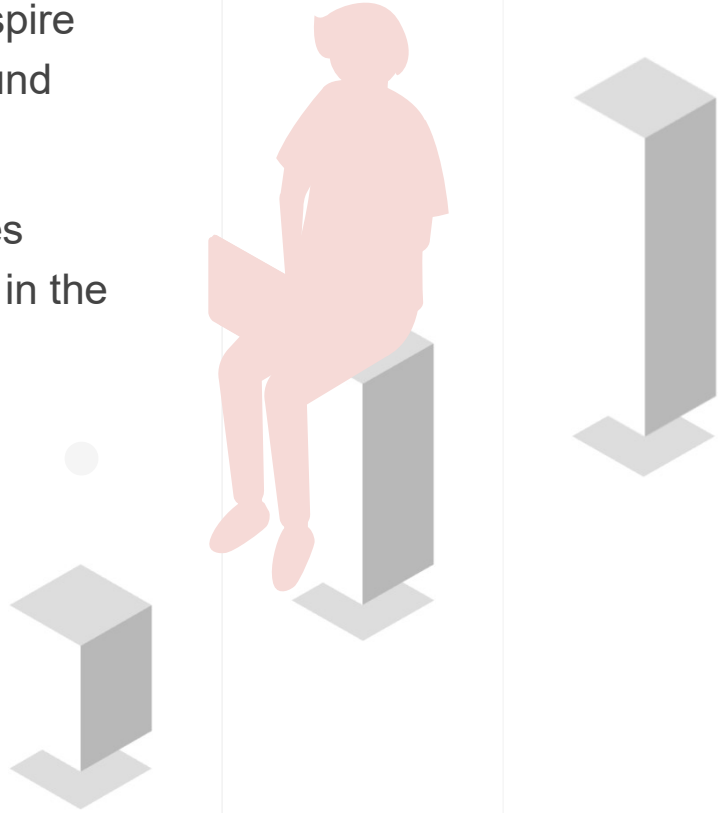
End Product & Legal information

Questel

End Product

The combination of these approaches should inspire confidence that the most relevant items were found

Any hits that are duplicated within these searches simply indicates patents that are worth including in the final results



Questel

Legal Status and Litigation

An FTO is a legal decision, but it is helpful to know what other companies are patenting in the same area

Knowing how litigious a company is can be very useful in determining the risk of practicing an invention in an area in which the claims may be interpreted broadly

Check legal status and litigation information

Obtaining a legal opinion as to whether a product, process or service may be considered to infringe any patent(s) owned by others

Questel

06

Conclusions

Questel

LC11

Conclusions

Summary

- Create a broad search query using building blocks
- Run keyword search, using advanced features (operators, truncations, specific text field)
- Tweak strategy based upon retrieval, including class codes
- Use advanced features to add more to recall, without affecting precision adversely (citations, semantic, similarity)
- Export and/or save in a format that streamlines your team's process
- Use Analysis module for additional insights and potential search modification

Questel

Diapositive 42

LC11 Pour résumer nous avons
Lancé une 1ere recherche assez vaste
Puis lancé une recherche avancée sur des mots-clés et des codes de classification, puis l'avons ajustée
Ensuite, nous avons complété avec les recherches de citations, sémantique, et similarité
Puis nous avons rapidement mentionné comment analyser, sauvegarder, exporter partager ces résultats.
Loris Caruana, 15/10/2021

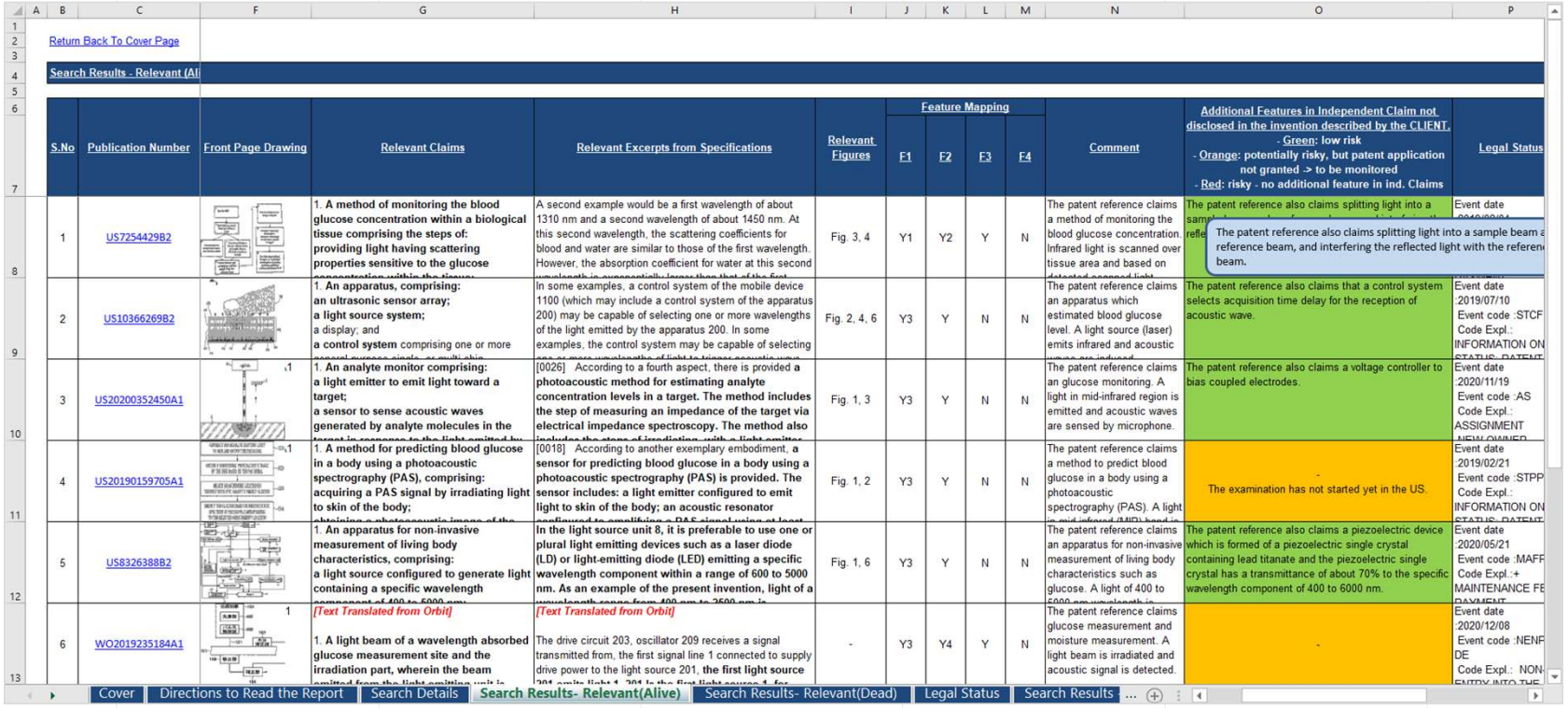
LC10

Deliverables

Freedom to operate

- ✓ Report in DOC, XLS, PPT or Client specific format
- ✓ List of selected documents ranked according to their threat to the exploitation of the Client's product or solution
- ✓ Comments on the presence of additional specifications (restrictions) in the independent claims of the relevant references not anticipated by the Client's product or solution
- ✓ PDF of original documents, machine translation extract whenever necessary
- ✓ Upload of list of results directly on Client's Orbit Intelligence account

Results analysis



Return Back To Cover Page

Search Results - Relevant (Al

S.No	Publication Number	Front Page Drawing	Relevant Claims	Relevant Excerpts from Specifications	Relevant Figures	Feature Mapping F1	F2	F3	F4	Comment	Additional Features in Independent Claim not disclosed in the invention described by the CLIENT. - Green: low risk - Orange: potentially risky, but patent application not granted -> to be monitored - Red: risky - no additional feature in ind. Claims	Legal Status
1	US7254429B2		1. A method of monitoring the blood glucose concentration within a biological tissue comprising the steps of: providing light having scattering properties sensitive to the glucose	A second example would be a first wavelength of about 1310 nm and a second wavelength of about 1450 nm. At this second wavelength, the scattering coefficients for blood and water are similar to those of the first wavelength. However, the absorption coefficient for water at this second	Fig. 3, 4	Y1	Y2	Y	N	The patent reference claims a method of monitoring the blood glucose concentration. Infrared light is scanned over tissue area and based on	The patent reference also claims splitting light into a sample beam a reference beam, and interfering the reflected light with the referen beam.	Event date :2019/07/10 Event code :STCF Code Expl.: INFORMATION ON
2	US10366269B2		1. An apparatus, comprising: an ultrasonic sensor array; a light source system; a display; and a control system comprising one or more	In some examples, a control system of the mobile device 1100 (which may include a control system of the apparatus 200) may be capable of selecting one or more wavelengths of the light emitted by the apparatus 200. In some examples, the control system may be capable of selecting	Fig. 2, 4, 6	Y3	Y	N	N	The patent reference claims an apparatus which estimated blood glucose level. A light source (laser) emits infrared and acoustic	The patent reference also claims that a control system selects acquisition time delay for the reception of acoustic wave.	Event date :2019/07/10 Event code :STCF Code Expl.: INFORMATION ON
3	US20200352450A1		1. An analyte monitor comprising: a light emitter to emit light toward a target; a sensor to sense acoustic waves generated by analyte molecules in the	[0026] According to a fourth aspect, there is provided a photoacoustic method for estimating analyte concentration levels in a target. The method includes the step of measuring an impedance of the target via electrical impedance spectroscopy. The method also	Fig. 1, 3	Y3	Y	N	N	The patent reference claims an glucose monitoring. A light in mid-infrared region is emitted and acoustic waves are sensed by microphone.	The patent reference also claims a voltage controller to bias coupled electrodes.	Event date :2020/11/19 Event code :AS Code Expl.: ASSIGNMENT
4	US20190159705A1		1. A method for predicting blood glucose in a body using a photoacoustic spectrography (PAS), comprising: acquiring a PAS signal by irradiating light to skin of the body;	[0018] According to another exemplary embodiment, a sensor for predicting blood glucose in a body using a photoacoustic spectrography (PAS) is provided. The sensor includes: a light emitter configured to emit light to skin of the body; an acoustic resonator	Fig. 1, 2	Y3	Y	N	N	The patent reference claims a method to predict blood glucose in a body using a photoacoustic spectrography (PAS). A light	- The examination has not started yet in the US.	Event date :2019/02/21 Event code :STPP Code Expl.: INFORMATION ON
5	US8326388B2		1. An apparatus for non-invasive measurement of living body characteristics, comprising: a light source configured to generate light containing a specific wavelength	In the light source unit 8, it is preferable to use one or plural light emitting devices such as a laser diode (LD) or light-emitting diode (LED) emitting a specific wavelength component within a range of 600 to 5000 nm. As an example of the present invention, light of a	Fig. 1, 6	Y3	Y	N	N	The patent reference claims an apparatus for non-invasive measurement of living body characteristics such as glucose. A light of 400 to	The patent reference also claims a piezoelectric device which is formed of a piezoelectric single crystal containing lead titanate and the piezoelectric single crystal has a transmittance of about 70% to the specific wavelength component of 400 to 6000 nm.	Event date :2020/05/21 Event code :MAFF Code Expl.:+ MAINTENANCE FE
6	WO2019235184A1		[Text Translated from Orbit] 1. A light beam of a wavelength absorbed glucose measurement site and the irradiation part, wherein the beam	[Text Translated from Orbit] The drive circuit 203, oscillator 209 receives a signal transmitted from, the first signal line 1 connected to supply drive power to the light source 201, the first light source	-	Y3	Y4	Y	N	The patent reference claims glucose measurement and moisture measurement. A light beam is irradiated and acoustic signal is detected.	-	Event date :2020/12/08 Event code :NENF DE Code Expl.: NON-

Cover | Directions to Read the Report | Search Details | Search Results- Relevant(Alive) | Search Results- Relevant(Dead) | Legal Status | Search Results

Questel

*XLS format displayed

Diapositive 43

LC10 Voici un exemple de fichier d'export tel que produit par nos services de Consulting:

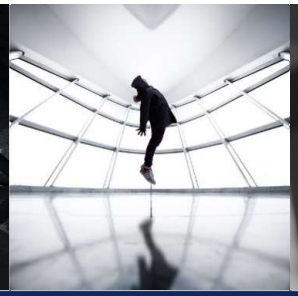
Liste des documents sélectionnés, classés en fonction de leur menace pour l'exploitation du produit ou de la solution du client.
Commentaires sur la présence de spécifications additionnelles (restrictions) dans les revendications indépendantes des références pertinentes non anticipées.
Lien vers les PDF des documents originaux, extrait de traduction automatique si nécessaire
A savoir : Nos services de consulting peuvent aussi charger la liste des résultats directement sur le compte Orbit Intelligence du client.
Si ces services vous intéressent, vous pouvez vous tourner vers votre contacte commercial, ou nous en demander les coordonnées si vous avez un doute

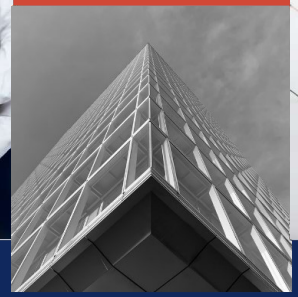
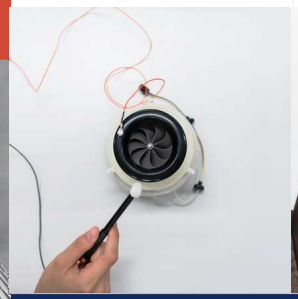
Loris Caruana, 15/10/2021

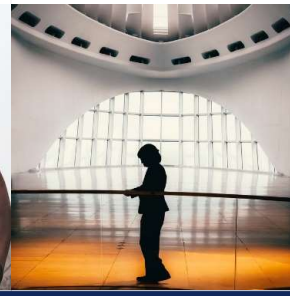
Thank you!

Need more information?

Questions?





CONTACT US
help@questel.com

Access our knowledge base :
https://intelligence.help.questel.com/support/home

Visit our website

www.questel.com

Questel