

FAMPAT

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■ Coverage:

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87 national offices, including former Japanese patents issued law (status C) (list on page 2)

6 regional offices (EPO, WIPO, OAPI, ARIPO, EAPO and CGC).

Utility models (U) are also covered for 28 countries (list on page 2)

▪ Coverage starting dates vary by country. 1920's and earlier for US, DE, FR, and GB publications. See the complete country coverage listing on page 2.

■ Contents:

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- Official English language abstracts are provided for more than 19 million families. This coverage is supplemented by abstracts in French, German, Spanish etc. English Language Machine Translations of French, German, Japanese, Chinese, Korean and Taiwanese publications are searchable. This machine-translated data is replaced by the official English data when available.
- Full text claims and descriptions are searchable for WO, US, EP, AT, BE, BR, CA, CH, CN, DE, ES, FR, GB, JP, RU, DK, FI and SE publications.
- US, EP and WO publications are enhanced by information extracted from the full text and searchable in three fields – Patent Object (OBJ), Advantages of the invention and disadvantages of the prior art (ADB) and Independent Claim (ICLM).
- Patent Classifications: EPO Classification (ECLA, Dutch and Berlin Classifications), FI and F-Terms (Japanese Classifications) International Patent Classification (IPC), and USPTO Classification
- Search reports, patent and bibliographic cited references are available for 19 patent authorities.
- The legal status of information for approximately 50 countries (see coverage page 4)
- Relevancy Indicators as used by the EPO in their search reports are searchable.

■ **Number of records:** More than 40 million records

■ **Updating:** Weekly

■ **Language of records:** Majority of titles and abstracts are in English
English, French, German and other language abstracts
Select documents have multi-language abstracts

■ **SDI Profiles:** Weekly
Monthly

■ **Producer:** Questel <http://www.questel.com>

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Country Coverage

(Year indicates the year of earliest documents)

Country	Country Code	Coverage from:
Argentina	AR	1973
Algeria	DZ	2002
ARIPO	AP	1984
Australia	AU	1966
Austria Utility Models	AT	1969 1994
Belarus	BY	1997
Belgium (1926)	BE	1964
Bosnia and Herzegovina	BA	1998
Brazil Utility Models	BR	1973 1975
Bulgaria Utility Models	BG	1973 1994
Canada	CA	1973
Chile Utility Models	CL	2005 2005
China Utility Models	CN	1986 1986
Columbia	CO	1995
Costa Rica	CR	2007
Croatia	HR	1994
Cuba	CU	1974-1995
Cyprus	CY	1975
Czech Republic Utility Models	CZ	1993 1999
Czechoslovakia	CS	1973-1994
Denmark Utility Models	DK	1968 1996
Dominican Republic	DO	2002
Ecuador (1992) Utility Models	EC	2002 2002
Estonia	EE	1995
Egypt	EG	1976
El Salvador	SV	2000
Eurasian Patents	EA	1997
European Patents	EP	1978
Finland Utility Models	FI	1970 1992
France (1902)	FR	1920
Georgia	GE	2006
Germany (1877) Utility Models	DE	1968 1968
Germany, D R Utility Models	DD	1973-1992 1973-1992
Great Britain (1909)	GB	1963
Guatemala (1996)	GT	2007
Gulf Council	GC	2002
Greece Utility Models	GR	1977 1990
Hong Kong	HK	1976
Hungary Utility Models	HU	1973 1992
Iceland	IS	1926
India	IN	1975
Indonesia (1988)	ID	1996

Country	Country Code	Coverage from:
Korea Utility Models	KR	1978 1978
Latvia	LV	1993
Lithuania	LT	1993
Luxembourg (1946)	LU	1960
Malawi	MW	1973-1994
Malaysia	MY	1971-1996
Malta	MT	1968-1992
Mexico	MX	1981
Moldova Utility Models	MD	1994 1994
Monaco	MC	1958
Mongolia	MN	1972
Morocco	MA	1979
Netherlands (1912)	NL	1964
Nicaragua	NI	2008
Norway	NO	1968
New Zealand	NZ	1978
OAPI	OA	1966
Panama (1996)	PA	2000
Peru (1992) Utility Models	PE	2005 2005
Philippines Utility Models	PH	1975-1999 1981-1997
Poland Utility Models	PL	1973 1996
Portugal Utility Models	PT	1976 1976
Romania	RO	1973
Russian Federation	RU	1993
Singapore	SG	1983
Slovakia	SK	1993
Slovenia	SI	1993
South Africa	ZA	1971
Soviet Union	SU	1972-1994
Spain Utility Models	ES	1968 1993
Sweden	SE	1968
Switzerland (1920)	CH	1969
Tajikistan Utility Models	TJ	1998 1998
Taiwan (1993) Utility Models	TW	2000 2000
Trinidad & Tobago	TT	1994
Turkey Utility Models	TR	1973-1998 1996-1998
Ukraine (1987) Utility Models	UA	2003 2005
United States (1920) Designs	US	1968 1916 (1977)
Uruguay Utility Models	UY	2000 2002
Uzbekistan	UZ	1997

Ireland	IE	1973
Israel	IL	1968
Italy Utility Models	IT	1973 1987
Japan (1928) Utility Models (1913)	JP	1972 1993
Kenya	KE	1975-1989

Vietnam Utility Models	CN	1984-1998 1989-1998
WIPO (PCT) Applications	WO	1978
Yugoslavia	YU	1973-1992
Zambia	ZM	1969-1994
Zimbabwe	ZW	1980-1995

Full Text Coverage

Country	Country code	Original language	English Machine Translation	Coverage
WIPO (World Intellectual Property Organization)	WO	English or German or French or Spanish or Russian or Japanese * Korean *	✓] For publications in Japanese, Russian and Korean	1978
EPO (European Patent Office)	EP	English or French or German		1986 (applications) 1991 (issued)
United States	US	English		1880 (issued) 2001 (applications)
Germany	DE	German		1987 (Dem. patent) 2004 (utility models)
Austria	AT	German		1902-2005 (issued – partial coverage 1964 to 1990 and from 1996 to 1999 - years 51 to 58 and 91 to 95 not covered) 1994-2005 (utility models - partial until 1999) 2005 (Dem. patent - Partial)
Belgium	BE	Dutch or French or German		1925 (partial coverage until 1986, 1970 uncovered)
Brazil	BR	Portuguese	✓	1982 (partial coverage 1982 to 2000 and since 2006 - years 2001 to 2005 not covered)
Canada	CA	English or French		1978-1989 (old law) 1989 (new law)
China	CN	Chinese *	✓	1985 (Dem. patent unexamined) 1985-1992 (Dem. patents reviewed) 1993 (patents) 1985 (utility models)
Denmark	DK	Danish	✓	2009 (issued)
Spain	ES	Spanish	✓	1980-1992 (patents) 1993 (Dem. patent) 1980 (utility models)
Finland	FI	Finnish	✓	2009 (issued)
France	FR	French		1920 (Dem. patent)
Japan	JP	Japanese *	✓	2004 (Dem. patents and utility models)
United Kingdom	GB	English		1920 (Dem. patent)
Russia (Federation)	RU	Russian *	✓	1993 (patents) 1994 (utility models) 2009 (Dem. patent)
Sweden	SE	Swedish	✓	2009 (issued)
Switzerland	CH	German or French or Italian		1920 (issued -Partial coverage until 1997)

* Non-searchable

Legal Status Coverage

Legal status of publications from the following offices:

Country	Country code	Coverage	Country	Country code	Coverage
WIPO	WO	1978	Hungary	HU	1990
EPO	EP	1978	Ireland	IE	1993
EAPO	EA	1996	Israel	IL	1996
United States	US	1968	Italy	IT	1989
Germany	DE	1978	Lithuania	LT	1995
Former East Germany	DD	1992	Moldova (Rep. of)	MD	1994
Australia	AU	2000	Monaco	MC	1972
Austria	AT	1975	Norway	NO	2001
Belgium	BE	1984	New Zealand	NZ	2001
Brazil	BR	1995	Netherlands	NL	1973
Canada	CA	1993	Portugal	PT	1991
Chile	CL	1990	United Kingdom	GB	1968
Denmark	DK	1982	Russia (Federation)	RU	2009
Spain	ES	1992	Sweden	SE	1995
Estonia	EE	2004	Slovenia	SI	2004
Finland	FI	1993	Switzerland	CH	1958
France	FR	1969	Taiwan	TW	2000
Hong Kong	HK	2004	Czech (Rep.)	CZ	2000

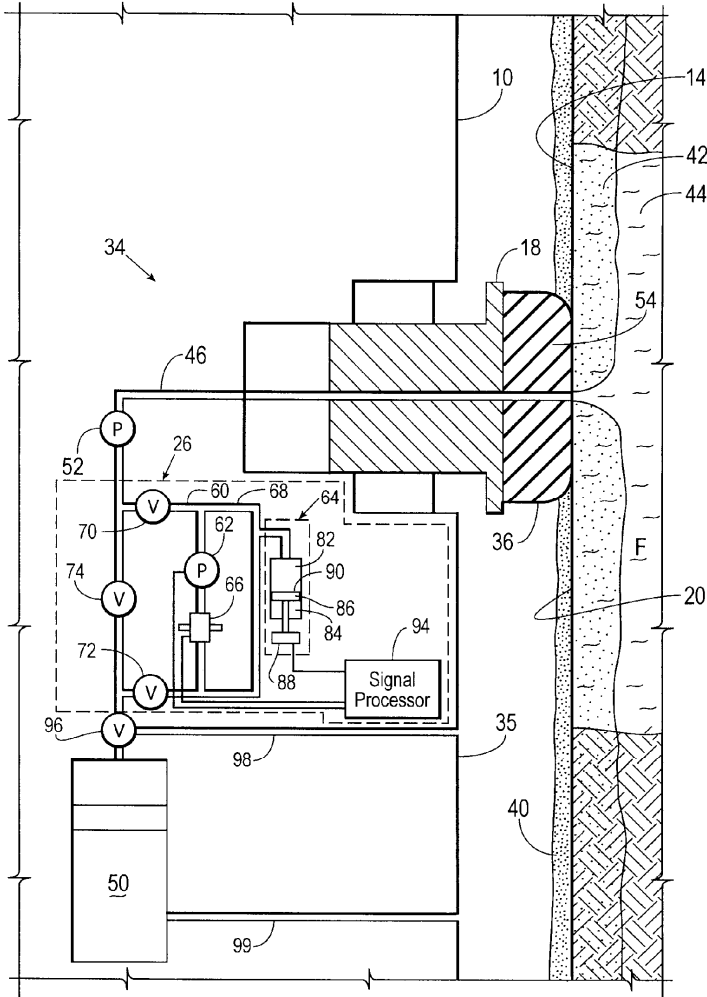
For Bulgaria, Belize, China, Egypt, Georgia, Japan, Kenya, South Korea, Latvia, Mexico, Poland, Romania, Slovakia, Uzbekistan and South Africa, the database only contains information on entry into national phase of the corresponding PCT application.

For Luxembourg, the database only covers the Supplementary Protection Certificates.

Sample Records

Format - MAXL IMG

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CPIM Questel



FAN - 20090121357759
 PN - GB0608349 D0 20060607 [GB200608349]
 STG: Patent application filed
 AP : 2006GB-0008349 20060427
 - CA2544866 A1 20061029 [CA2544866]
 STG: Application laid open
 AP : 2006CA-2544866 20060425
 - NO20061817 A 20061030 [NO200601817]
 STG: Patent application made available to the public
 AP : 2006NO-0001817 20060425
 - US2006243033 A1 20061102 [US20060243033]
 STG: First published patent application
 AP : 2005US-0908161 20050429
 - US2006243047 A1 20061102 [US20060243047]
 STG: First published patent application
 AP : 2005US-0203932 20050815

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- DE102006019813 A1 20061102 [DE102006019813]
STG: Doc. laid open (First publication)
AP : 2006DE-10019813 20060428
- FR2885166 A1 20061103 [FR2885166]
STG: Application for patent of invention, (first publ.)
AP : 2006FR-0003697 20060421
- GB2425794 A 20061108 [GB2425794]
STG: Published patent application
- WO2006117604 A1 20061109 [WO2006117604]
STG: International publication with international search report
AP : 2006WO-IB00919 20060419
- CA2605830 A1 20061109 [CA2605830]
STG: Application laid open
AP : 2006CA-2605830 20060419
- CN1912341 A 20070214 [CN1912341]
STG: Unexamined application for a patent for inv.
AP : 2006CN-0089814 20060429
- MXPA06004693 A 20070424 [MX2006PA004693]
STG: Patent application
AP : 2006MX-PA04693 20060427
- GB2425794 B 20070704 [GB2425794]
STG: Patent specification
- RU2006114647 A 20071120 [RU2006114647]
STG: Application for invention
AP : 2006RU-0114647 20060428
- NO20075593 B 20071123 [NO20075593]
STG: Document laid open for public inspection
AP : 2007NO-0005593 20071105
- EP1877646 A1 20080116 [EP1877646]
STG: Application published with search report
AP : 2006EP-0744517 20060419
- MX2007013221 A 20080116 [MX2007013221]
STG: Patent application
AP : 1920MX-7013221 20071023
- CN101189409 A 20080528 [CN101189409]
STG: Unexamined application for a patent for inv.
AP : 2006CN-80019958 20060419
- US7458252 B2 20081202 [US7458252]
STG: Granted patent as second publication
FD : Previous Publication: US20060243033 A1 20061102
- US7461547 B2 20081209 [US7461547]
STG: Granted patent as second publication
FD : CIP of: US10908161 20050429 [2005US-0908161]
FD : Previous Publication: US20060243047 A1 20061102
- RU2007144207 A 20090610 [RU2007144207]
STG: Application for invention
AP : 2007RU-0144207 20060419
- EP1877646 B1 20090624 [EP1877646]
STG: Patent specification
- DE602006007458 D1 20090806 [DE602006007458]
STG: Granted EP number in Bulletin
AP : 2006DE-60007458 20060419
- TI - METHODS AND APPARATUS OF DOWNHOLE FLUID ANALYSIS
- PA - PETROLEUM RES & DEV NV; SCHLUMBERGER CA LTD; SCHLUMBERGER HOLDINGS;
SCHLUMBERGER SERVICES PETROL; SCHLUMBERGER TECHNOLOGY BV; SCHLUMBERGER
TECHNOLOGY CORP
- PA0 - Schlumberger Technology B.V.; Parkstraat 83-89; 2514 JG The Hague
(NL) (for : BG CZ DE DK GR HU IE IT LT PL RO SI SK TR)
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(FR) (for : FR)
- Petroleum Research and Development N.V.; De Ruyterkade 62; Willemstad,
Curacao (AN) (for : AT BE CH CY EE ES FI IS LI LU LV MC PT SE)
- SCHLUMBERGER HOLDINGS LIMITED; Craigmuir Chambers Road Town; Tortola
(VG) (for : GB NL)

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KURKJIAN ANDREW L

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PR - 2005US-0203932 20050815; 2005US-0908161 20050429; 2006WO-IB00919
20060419

IC - E21B-047/00 E21B-047/06 E21B-047/08 E21B-049/00 E21B-049/08
E21B-049/10 G01N-007/00 G01V-008/10

ICAA- E21B-049/10 [2006-01 A F I B H EP]; G01N-007/00 [2006-01 A L I B H EP]

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EC - E21B-049/10 G01N-009/36

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DS - (EP1877646)
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DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KM KN
KP KR KZ LC LK LR LS LT LU LV LY MA MD MG MK MN MW MX MZ NA NG NI NO
NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA
UG US UZ VC VN YU ZA ZM ZW

- ARIPO patent : BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW

- Eurasian patent : AM AZ BY KG KZ MD RU TJ TM

- European patent : AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS
IT LT LU LV MC NL PL PT RO SE SI SK TR

- OAPI patent : BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

CT - (US20060243033)
Search Report [Examiner]
US5934374 (A) [US5934374]
US6964301 (B2) [US6964301]
US7100689 (B2) [US7100689]

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WO0231476 (A2) [WO200231476]

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CT - (US20060243047)
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- CT - (GB200608349)
Search Report [Examiner]
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GB2397382 (A) [GB2397382]
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- REF - (EP1877646)
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- REF - (US20060243033)
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-Ellis, T. et al., "A Demountable Glass Circulating Pump," J. Sci. Instrum., 1962, vol. 39, pp. 234-235.
-Kallo, D. et al., "Circulating Pump and Flowmeter for Kinetic Reaction Apparatus," J. Sci. Instrum., 1964, vol. 41, pp. 338-340.
- REF - (US20060243047)
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-Lloyd, R.V. et al., "EPR Cavity for Oriented Single Crystals in Sealed Tubes," Rev. Sci. Instrum. 40, 514 (1969), pp. 514-515.
-Mohamed, W.M. et al., "Simple High-Speed Circulating Pump for Gases," Rev. Sci. Instrum. 60 (7), Jul. 1989, pp. 1349-1350.
-Duncan, S. et al., "A Double-Acting All-Glass Gas Circulating Pump," J. Sci. Instrum., 1967, vol. 44, p. 388.
-Ellis, T. et al., "A Demountable Glass Circulating Pump," J. Sci. Instrum., 1962, vol. 39, pp. 234-235.
-Kallo, D. et al., "Circulating Pump and Flowmeter for Kinetic Reaction Apparatus," J. Sci. Instrum., 1964, Vol. 41, pp. 338-340.
- AB - (EP1877646)
Methods and apparatus for downhole analysis of formation fluids by isolating the fluids from the formation and/or borehole in a pressure and volume control unit that is integrated with a flowline of a fluid analysis module and determining fluid characteristics of the isolated fluids. Parameters of interest may be derived for formation fluids in a static state and undesirable formation fluids may be drained and replaced with formation fluids that are suitable for downhole characterization or surface sample extraction. Isolated formation fluids may be circulated in a loop of the flowline for phase behavior

characterization. Real-time analysis of the fluids may be performed at or near downhole conditions.

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OBJ - (US20060243033)

[0002] The present invention relates to techniques for performing formation evaluation of a subterranean formation by a down hole tool positioned in a well bore penetrating the subterranean formation.

- [0014] In at least one aspect, the present invention relates to a fluid analysis assembly for analyzing a fluid.
- [0019] In another aspect, the present invention relates to a down hole tool positionable in a well bore having a wall and penetrating a subterranean formation.

ADB - (US20060243033)

[0013] It is, therefore, desirable to provide techniques capable of performing formation evaluation of fluid that is representative of fluid in the formation.

It is further desirable that such techniques provide accurate and real-time measurements.

- The advantage of having multiple fluid analysis assemblies 26 permits the down hole tool 10a to retrieve more than one sample of the formation fluid and to test the samples either simultaneously or intermittently.

This permits comparisons of the results of the samples to provide a better indication of the accuracy of the down hole measurements.

- As discussed above with reference to FIG. 4, the advantage of having multiple fluid analysis assemblies 26 permits the down hole tool 10a or 10c to retrieve more than one sample of the formation fluid and to test the samples either simultaneously or intermittently.

This permits comparisons of the results of the samples to provide a better indication of the accuracy of the down hole measurements.

- These changes can affect the measurements taken during formation evaluation.
- Such loop mixing may also be desirable in other applications that do not involve narrow flowlines.

ICLM- (US20060243033)

1. A fluid analysis assembly for analyzing a fluid, the fluid analysis assembly comprising:

a chamber defining an evaluation cavity for receiving the fluid; a fluid movement device having a force medium applying force to the fluid to cause the fluid to move within the cavity; a pressurization assembly changing the pressure of the fluid in a continuous manner; and at least one sensor communicating with the fluid for sensing at least one parameter of the fluid while the pressure of the fluid is changing in the continuous manner.

- 9. A down hole tool positionable in a well bore having a wall and penetrating a subterranean formation, the formation having a fluid therein, the down hole tool comprising:
a housing; a fluid communication device extendable from the housing for sealing engagement with the wall of the well bore, the fluid communication device having at least one inlet for receiving the fluid from the formation; a fluid analysis assembly positioned within the housing for analyzing the fluid, the fluid analysis assembly comprising:
a chamber defining an evaluation cavity for receiving the fluid from the fluid communication device; a fluid movement device having a force medium applying force to the fluid to cause the fluid to move within the evaluation cavity; a pressurization assembly changing the pressure of the fluid; and at least one sensor communicating with the fluid for sensing at least one parameter of the fluid.

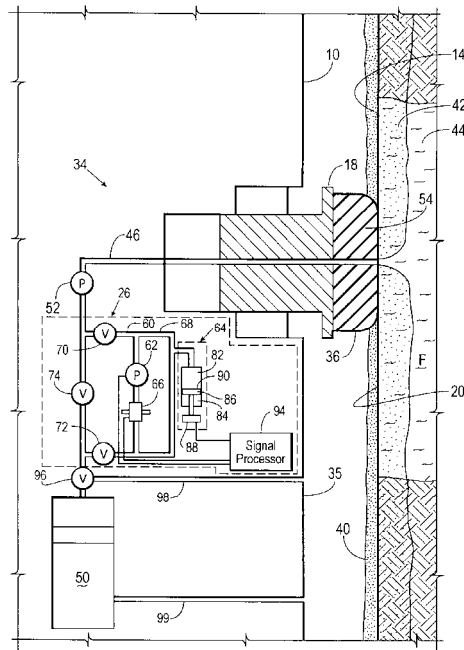
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- 21. A method for measuring a parameter of an unknown fluid within a well bore penetrating a formation having the fluid therein, comprising the steps of:
positioning a fluid communication device of the down hole tool in sealing engagement with a wall of the well bore; drawing fluid out of the formation and into an evaluation cavity within the down hole tool; moving the fluid within the evaluation cavity; and sampling data of the fluid while the fluid is being moved within the evaluation cavity.
- 27. A down hole tool positionable in a well bore having a wall and penetrating a subterranean formation, the formation having a fluid therein, the down hole tool comprising:
a housing; a fluid communication device extendable from the housing for sealing engagement with the wall of the well bore, the fluid communication device having at least one inlet for receiving the fluid from the formation; a fluid analysis assembly positioned within the housing for analyzing the fluid, the fluid analysis assembly comprising:
a chamber defining an evaluation cavity configured as a re-circulating loop for receiving the fluid from the fluid communication device; a fluid movement device having a force medium applying force to the fluid to cause the fluid to re-circulate within the re-circulating loop; a pressurization assembly changing the pressure of the fluid; and at least one sensor communicating with the fluid for sensing at least one parameter of the fluid.

UP - 2006-46

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TI - METHODS AND APPARATUS OF DOWNHOLE FLUID ANALYSIS
 PA - PETROLEUM RES & DEV NV; SCHLUMBERGER CA LTD; SCHLUMBERGER HOLDINGS;
 SCHLUMBERGER SERVICES PETROL; SCHLUMBERGER TECHNOLOGY BV; SCHLUMBERGER
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 IN - TERABAYASHI TORU; CHIKENJI AKIHITO; YAMATE TSUTOMU; MULLINS OLIVER C;
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AB - (EP1877646)

Methods and apparatus for downhole analysis of formation fluids by isolating the fluids from the formation and/or borehole in a pressure and volume control unit that is integrated with a flowline of a fluid analysis module and determining fluid characteristics of the isolated fluids. Parameters of interest may be derived for formation fluids in a static state and undesirable formation fluids may be drained and replaced with formation fluids that are suitable for downhole characterization or surface sample extraction. Isolated formation fluids may be circulated in a loop of the flowline for phase behavior characterization. Real-time analysis of the fluids may be performed at or near downhole conditions.

- (From US7461547 B2)

OBJ - (US20060243033)

[0002] The present invention relates to techniques for performing formation evaluation of a subterranean formation by a down hole tool positioned in a well bore penetrating the subterranean formation.

- [0014] In at least one aspect, the present invention relates to a fluid analysis assembly for analyzing a fluid.

- [0019] In another aspect, the present invention relates to a down hole tool positionable in a well bore having a wall and penetrating a subterranean formation.

OBJ - (US20060243047)

[0002] The present invention relates to the field of analysis of downhole fluids of a geological formation for evaluating and testing the formation for purposes of exploration and development of hydrocarbon-producing wells, such as oil or gas wells.

More particularly, the present invention is directed to methods and apparatus suitable for isolating formation fluids and characterizing the isolated fluids downhole utilizing, in part, a pressure and volume control unit.

- In one aspect of the invention, an optical sensor, for example, may measure fluid properties of interest, such as hydrocarbon composition, GOR, BTU, of the isolated formation fluid.

As another aspect of the invention, a suitable device, such as a density and viscosity sensor, may measure additional fluid properties of interest, such as fluid density and viscosity.

As yet another aspect of the invention, a pressure/temperature sensor (P/T gauge) may measure fluid pressure and temperature of the isolated formation fluid.

.../... - In yet another aspect of the invention, fluid compressibility may be measured with the changed volume and changed pressure, or fluid density change or optical absorption level change may be determined.

[0026] In yet another aspect of the present invention, fluid pressure of the isolated formation fluid may be reduced down to a certain pressure such that asphaltene is precipitated.

OBJ - (WO2006117604)

I 0 FIELD OF THE INVENTION [0002] The present invention relates to the field of analysis of downhole fluids of a geological formation for evaluating and testing the formation for purposes of exploration and development of hydrocarbon-producing wells, such as oil or gas wells. More particularly, the present 1 5 invention is directed to methods and apparatus suitable for isolating formation fluids and

characterizing the isolated fluids downhole.

- In one aspect of the invention, an optical sensor, for example, may measure fluid properties of interest, such as hydrocarbon composition, GOR, BTU, of the isolated formation fluid.
 - In yet another aspect of the invention, fluid compressibility may be measured with the changed volume and changed pressure, or fluid density change or optical absorption level change may be determined.
- [0026] In yet another aspect of the present invention, fluid pressure of the isolated formation fluid may be reduced down to a certain pressure such that asphaltene is precipitated.

ADB - (US20060243033)

[0013] It is, therefore, desirable to provide techniques capable of performing formation evaluation of fluid that is representative of fluid in the formation.

It is further desirable that such techniques provide accurate and real-time measurements.

- The advantage of having multiple fluid analysis assemblies 26 permits the down hole tool 10a to retrieve more than one sample of the formation fluid and to test the samples either simultaneously or intermittently.

This permits comparisons of the results of the samples to provide a better indication of the accuracy of the down hole measurements.

- As discussed above with reference to FIG. 4, the advantage of having multiple fluid analysis assemblies 26 permits the down hole tool 10a or 10c to retrieve more than one sample of the formation fluid and to test the samples either simultaneously or intermittently.

This permits comparisons of the results of the samples to provide a better indication of the accuracy of the down hole measurements.

- These changes can affect the measurements taken during formation evaluation.
- Such loop mixing may also be desirable in other applications that do not involve narrow flowlines.

ADB - (US20060243047)

[0015] Advantageously, the PVCU is suitable for downhole applications and since the flowline and/or PVCU of the downhole tool are used to isolate formation fluids, undesirable formation fluids can easily be drained and replaced with formation fluids that are suitable for downhole characterization.

- [0016] Applicants recognized that there is need for downhole analyses, which provide accurate answer products in close conjunction with sampling by a downhole tool, such as a formation tester tool.

- Advantageously, the flowline of the tool may include a pressure and volume control unit (PVCU) that is integrated with the flowline such that pressure and volume changes to isolated formation fluids are possible under downhole conditions.

- The sample transfer and transportation procedures in use are known to damage or spoil formation fluid samples by bubble formation, solid precipitation in the sample, among other difficulties associated with the handling of formation fluids for surface analysis of downhole fluid characteristics.

.../...

- Conventional apparatuses for changing the volume of fluid samples under downhole conditions use hydraulic pressure with one attendant shortcoming that it is difficult to precisely control the stroke and speed of the piston under the downhole conditions due to oil expansion and viscosity changes that are caused by the extreme downhole temperatures.

ADB - (WO2006117604)

[0015] Advantageously, the PVCU is suitable for downhole applications and since the flowline and/or PVCU of the downhole tool are used to isolate formation fluids, undesirable formation fluids can easily be drained and replaced with formation fluids that are suitable for downhole characterization.

- Advantageously, the flowline of the tool may include a pressure and volume control unit (PVCU) that is integrated with the flowline such that pressure and volume changes to isolated formation fluids are possible under downhole conditions.

- Advantageously, characteristics of the isolated fluid may be determined.

- The sample transfer and transportation procedures in use are known to damage or spoil formation fluid samples by bubble formation, solid precipitation in the sample, among other difficulties associated with the handling of formation fluids for surface analysis of downhole

fluid characteristics.

- Conventional apparatuses for changing the volume of fluid samples under downhole conditions use hydraulic pressure with one attendant shortcoming that it is difficult to precisely control the stroke and speed of the piston under the downhole conditions due to oil expansion and viscosity changes that are caused by the extreme downhole temperatures.

ICLM- (US20060243033)

1. A fluid analysis assembly for analyzing a fluid, the fluid analysis assembly comprising:

a chamber defining an evaluation cavity for receiving the fluid; a fluid movement device having a force medium applying force to the fluid to cause the fluid to move within the cavity; a pressurization assembly changing the pressure of the fluid in a continuous manner; and at least one sensor communicating with the fluid for sensing at least one parameter of the fluid while the pressure of the fluid is changing in the continuous manner.

- 9. A down hole tool positionable in a well bore having a wall and penetrating a subterranean formation, the formation having a fluid therein, the down hole tool comprising:
a housing; a fluid communication device extendable from the housing for sealing engagement with the wall of the well bore, the fluid communication device having at least one inlet for receiving the fluid from the formation; a fluid analysis assembly positioned within the housing for analyzing the fluid, the fluid analysis assembly comprising:
a chamber defining an evaluation cavity for receiving the fluid from the fluid communication device; a fluid movement device having a force medium applying force to the fluid to cause the fluid to move within the evaluation cavity; a pressurization assembly changing the pressure of the fluid; and at least one sensor communicating with the fluid for sensing at least one parameter of the fluid.

- 21. A method for measuring a parameter of an unknown fluid within a well bore penetrating a formation having the fluid therein, comprising the steps of:

positioning a fluid communication device of the down hole tool in sealing engagement with a wall of the well bore; drawing fluid out of the formation and into an evaluation cavity within the down hole tool; moving the fluid within the evaluation cavity; and sampling data of the fluid while the fluid is being moved within the evaluation cavity.

- 27. A down hole tool positionable in a well bore having a wall and penetrating a subterranean formation, the formation having a fluid therein, the down hole tool comprising:

.../...
a housing; a fluid communication device extendable from the housing for sealing engagement with the wall of the well bore, the fluid communication device having at least one inlet for receiving the fluid from the formation; a fluid analysis assembly positioned within the housing for analyzing the fluid, the fluid analysis assembly comprising:

a chamber defining an evaluation cavity configured as a re-circulating loop for receiving the fluid from the fluid communication device; a fluid movement device having a force medium applying force to the fluid to cause the fluid to re-circulate within the re-circulating loop; a pressurization assembly changing the pressure of the fluid; and at least one sensor communicating with the fluid for sensing at least one parameter of the fluid.

ICLM- (US20060243047)

1. A downhole fluid characterization apparatus, comprising:

a fluid analysis module, the fluid analysis module comprising:

a flowline for fluids withdrawn from a formation to flow through the fluid analysis module, the flowline having a first end for the fluids to enter and a second end for the fluids to exit the fluid analysis module; a first selectively operable device and a second selectively operable device structured and arranged with respect to the flowline for isolating a quantity of the fluids in a portion of the flowline between the first and second selectively operable device; and at least one sensor situated on the portion of the flowline between the first and second selectively operable device for measuring parameters of interest relating to the fluids in the flowline.

- 11. A method of downhole characterization of formation fluids utilizing a downhole tool comprising a fluid analysis module having a flowline for flowing formation fluids through the fluid analysis

module, the method comprising:
monitoring at least a first parameter of interest relating to formation fluids flowing in the flowline; when a predetermined criterion for the first parameter of interest is satisfied, restricting flow of the formation fluids in the flowline by operation of a first selectively operable device and a second selectively operable device of the fluid analysis module to isolate formation fluids in a portion of the flowline of the fluid analysis module between the first and second selectively operable device; and characterizing the isolated fluids by operation of one or more sensor on the flowline between the first and second selectively operable device.

- 19. A tool for characterizing formation fluids located downhole in an oilfield reservoir, comprising:
a fluid analysis module, the fluid analysis module comprising:
a flowline for fluids withdrawn from a formation to flow through the fluid analysis module, the flowline having a first end for the fluids to enter and a second end for the fluids to exit the fluid analysis module; the flowline comprising:
a bypass flowline and a circulation line interconnecting a first end of the bypass flowline with a second end of the bypass flowline such that fluids can circulate in the circulation line and the bypass flowline; and the fluid analysis module further comprising:
a circulation pump for circulating fluids in the circulation line and the bypass flowline; at least one sensor situated on the bypass flowline for measuring parameters of interest relating to the fluids in the bypass flowline; and a first selectively operable device and a second selectively operable device structured and arranged with respect to the flowline for isolating a quantity of the fluids in the bypass flowline between the first and second selectively operable device.

.../... ICLM- (WO2006117604)

- 1 - A downhole fluid characterization apparatus, comprising:
a fluid analysis module, the fluid analysis module comprising:
a flowline for fluids withdrawn from a formation to flow through the fluid analysis module, the flowline having a first end for the fluids to enter and a second end for the fluids to exit the fluid analysis module; a first selectively operable device and a second selectively operable device structured and arranged with respect to the flowline for isolating a quantity of the fluids in a portion of the flowline between the first and second selectively operable device; and at least one sensor situated on the portion of the flowline between the first and second selectively operable device for measuring parameters of interest relating to the fluids in the flowline.
- 5 a circulation pump for circulating fluids in the closed loop of the circulation line and the bypass flowline.
- 10 The downhole fluid characterization apparatus according to claim 9, wherein the at least one sensor comprises one or more of a density sensor; a pressure sensor; a temperature sensor; a bubbles/gas sensor; a MEMS based sensor; an imager; and a scattering sensor, wherein the at least one sensor measures parameters of interest relating to fluids isolated in the bypass flowline; and the fluid analysis module further comprising:
one or more of a spectral sensor optically coupled to the flowline; a fluorescence and gas sensor; a chemical sensor; and a resistivity sensor, structured and arranged with respect to the flowline for measuring parameters of interest relating to fluids flowing through the flowline.
- I 1. A method of downhole characterization of formation fluids utilizing a downhole tool comprising a fluid analysis module having a flowline for flowing formation fluids through the fluid analysis module, the method comprising:
monitoring at least a first parameter of interest relating to formation fluids flowing in the flowline; 24 .
The method of downhole characterization of formation fluids according to claim I 0 1 1, wherein characterizing the isolated fluids includes determining one or more fluid property of the isolated fluids.
- 13 wherein the one or more fluid property determined after changing fluid pressure includes one or more of fluid compressibility; asphaltene precipitation onset; bubble point; and dew point.
- 16 wherein characterizing the isolated fluids includes determining phase behavior of the isolated fluids while circulating the fluids in

the closed loop.

- 17 wherein determining phase behavior of the isolated fluids comprises monitoring time dependent sensor properties to detect gravity separation of the phases.
- 19 A tool for characterizing formation fluids located downhole in an oilfield reservoir, comprising:
 - a fluid analysis module, the fluid analysis module comprising:
 - a flowline for fluids withdrawn from a formation to flow through the fluid analysis module, the flowline having a first end for the fluids to enter and a second end for the fluids to exit the fluid analysis module; the flowline comprising:
 - a bypass flowline and a circulation line interconnecting a first end of the bypass flowline with a second end of the bypass flowline such that fluids can circulate in the circulation line and the bypass flowline; and the fluid analysis module further comprising:
 - a circulation pump for circulating fluids in the circulation line and the bypass flowline; at least one sensor situated on the bypass flowline for measuring parameters of interest relating to the fluids in the bypass flowline; and a first selectively operable device and a second selectively operable device structured and arranged with respect to the flowline for isolating a quantity of the fluids in the bypass flowline between the first and second selectively operable device.

.../...ECLM- (EPI877646)

1. A downhole fluid characterization apparatus, comprising: a fluid analysis module (32), the fluid analysis module comprising: a flowline (33) for fluids withdrawn from a formation to flow through the fluid analysis module, the flowline having a first end for the fluids to enter and a second end for the fluids to exit the fluid analysis module (32); a first selectively operable device (52) and a second selectively operable device (54) arranged with respect to the flowline (33) for isolating a quantity of the fluids in a portion of the flowline between the first and second selectively operable device; and at least one sensor (11) situated on the portion of the flowline (33) between the first and second selectively operable devices (52, 54) for measuring parameters of interest relating to the fluids in the flowline; characterized in that the portion of the flowline (33) for isolating the fluids comprises: a bypass flowline (35), the first and second selectively operable devices (52, 54) being structured and arranged for isolating fluids in the bypass flowline, and a circulation line (37) interconnecting a first end of the bypass flowline with a second end of the bypass flowline such that fluids isolated between the first and second selectively operable devices (52, 54) can circulate in a closed loop formed by the circulation line and the bypass flowline; the fluid analysis module (32) further comprising a circulation pump (78) for circulating fluids in the closed loop of the circulation line (37) and the bypass flowline (35).
- 2. The apparatus of claim 1, wherein at least one of the first and second selectively operable devices (52, 54) comprises a valve.
- 3. The apparatus of claim 1, wherein one of the first and second selectively operable devices (52, 54) comprises a pump and the other of the first and second selectively operable devices (52, 54) comprises a valve.
- 4. The apparatus of claim 3, wherein the pump is in a pumpout module (38) of the apparatus.
- 5. The apparatus of claim 1, wherein the fluid analysis module (32) further comprises a pump unit (71) integrated with the flowline (33) for varying pressure and volume of the isolated fluids.
- 6. The apparatus of claim 5, wherein the pump unit (71) comprises a syringe-type pump.
- 7. The apparatus of claim 1, wherein the at least one sensor comprises a plurality of sensors.
- 8. The apparatus of claim 1, wherein the at least one sensor comprises one or more of a spectral sensor (56) optically coupled to the flowline (33), a fluorescence and gas sensor (58), a density sensor (68), a pressure sensor (64), a temperature sensor (64), a bubbles/gas sensor (76), a MEMS based sensor (68), an imager (72), a resistivity sensor (74), a chemical sensor (69), and a scattering sensor (76).
- 9. The apparatus of claim 1, wherein the at least one sensor comprises one or more of a density sensor (68), a pressure sensor (64), a temperature sensor (64), a bubbles/gas sensor (76), a MEMS based sensor (68); an imager (72); and a scattering sensor (76), and

measures parameters of interest relating to fluids isolated in the bypass flowline (35), and the fluid analysis module (32) further comprises one or more of a spectral sensor (56) optically coupled to the flowline (33), a fluorescence and gas sensor (58), a chemical sensor (69), and a resistivity sensor (74), arranged with respect to the flowline (33) for measuring parameters of interest relating to fluids flowing through the flowline.

- 10. A method of downhole characterization of formation fluids utilizing a downhole tool comprising a fluid analysis module (32) having a flowline (33) for flowing formation fluids through the fluid analysis module, the method comprising: monitoring at least a first parameter of interest relating to formation fluids flowing in the flowline; when a predetermined criterion for the first parameter of interest is satisfied, restricting flow of the formation fluids in the flowline by operation of a first selectively operable device (52) and a second selectively operable device (54) of the fluid analysis module (32) to isolate formation fluids in a portion of the flowline (33) of the fluid analysis module between the first and second selectively operable devices; and characterizing the isolated fluids by operation of one or more sensors (11) on the flowline (33) between the first and second selectively operable devices (52, 54); the method being characterized by circulating the isolated fluids in a closed loop (35, 37) of the flowline (33) while characterizing the isolated fluids.
- 11. The method of claim 10, wherein characterizing the isolated fluids includes determining one or more fluid property of the isolated fluids.
- 12. The method of claim 11, wherein determining one or more fluid property comprises changing fluid pressure of the isolated fluids by varying volume of the isolated fluids before determining the one or more fluid property.
- 13. The method claim 12, further comprising monitoring time dependent signals in the one or more sensor on the flowline to detect gravity separation of the isolated fluids.
- 14. The method of claim 13, wherein the one or more fluid property determined after changing fluid pressure includes one or more of fluid compressibility, asphaltene precipitation onset, bubble point, and dew point.
- 15. The method of claim 14, wherein characterizing the isolated fluids includes determining phase behavior of the isolated fluids while circulating the fluids in the closed loop (35, 37).
- 16. The method of claim 15, wherein determining phase behavior of the isolated fluids comprises monitoring time dependent sensor properties to detect gravity separation of the phases.

DESC- (EP1877646)

BACKGROUND OF THE INVENTION

- [0001] The present invention relates to the field of analysis of downhole fluids of a geological formation for evaluating and testing the formation for purposes of exploration and development of hydrocarbon-producing wells, such as oil or gas wells. More particularly, the present invention is directed to methods and apparatus suitable for isolating formation fluids and characterizing the isolated fluids downhole.
- [0002] Downhole fluid analysis is an important and efficient investigative technique typically used to ascertain characteristics and nature of geological formations having hydrocarbon deposits. In this, typical oilfield exploration and development includes downhole fluid analysis for determining petrophysical and fluid properties of hydrocarbon reservoirs. Fluid characterization is integral to an accurate evaluation of the economic viability of a hydrocarbon reservoir formation.
- [0003] Typically, a complex mixture of fluids, such as oil, gas, and water, is found downhole in reservoir formations. The downhole fluids, which are also referred to as formation fluids, have characteristics, formation fluid is isolated or trapped in the bypass flowline 35 between the valves 53 and 55.
- [0095] After isolating formation fluid in the bypass flowline 35, characteristics of the isolated formation fluid, such as density, viscosity, chemical composition, pressure, and temperature may be measured. The circulation pump 78 (note again Fig. Figures 9 and Fig. 10) may be operated to circulate or mix the formation fluid in the bypass flowline 35. A pump unit may be operated to increase the volume of the formation fluid isolated in the bypass flowline 35 so that

pressure of the fluid is reduced. A scattering detector, US transducer, and/or CCD camera may be used to measure the bubble point of the isolated formation fluid.

/...

- [0096] During the pressure-volume-temperature (PVT) analysis of the isolated formation fluid, or after the PVT analysis has been completed, a sample of the formation fluid may be captured in one or more sampling chambers, such as 34 and 36 in Fig. Figure 3, for surface analysis. Then the tool 20 may be moved to the next test point in the formation.
- [0097] In conventional methods and apparatus, a formation fluid sample is collected downhole and then transported to a laboratory at the surface for analysis. In this, typically a special sampling chamber or container is necessary to maintain sample pressure and temperature at downhole conditions so as to avoid damage and spoilage of the formation fluid sample. Moreover, sample analysis conditions at a surface laboratory are different from downhole conditions causing unpredictable and unacceptable variations in analytical results, and erroneous answer products derived from the formation fluid analysis.
- [0098] Advantageously, the present invention obviates need for a specialized chamber to store or analyze the formation fluids. The flowline of a downhole formation tester tool, through which formation fluids flow during normal operation of the downhole tool, may advantageously be used to isolate formation fluids for fluid characterization downhole. Furthermore, the same flowline may be used to change fluid conditions for measuring additional fluid properties and phase behavior of the isolated formation fluids.
- [0099] The preceding description has been presented only to illustrate and describe the invention and some examples of its implementation. It is not intended to be exhaustive or to limit the invention to any precise form disclosed. Many modifications and variations are possible in light of the above teaching.
- [0100] The preferred aspects were chosen and described in order to best explain principles of the invention and its practical applications. The preceding description is intended to enable others skilled in the art to best utilize the invention in various embodiments and aspects and with various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the following claims.

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FULL Format – Detail Display

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PN - GB0608349 D0 20060607 [GB200608349]
TI - (D0) Fluid analysis method and apparatus
PA - (D0) SCHLUMBERGER HOLDINGS
PA0 - SCHLUMBERGER HOLDINGS LIMITED
IN - (A) FREEMARK DARCY (CA); BORMAN CRAIG (CA); HAMMAMI AHMED (CA);
      MUHAMMED MOIN (CA); JACOBS SCOTT (CA); BROWN JONATHAN W (US);
      KURKJIAN ANDREW J (US); DONG CHENGLI (US); DHRUVA BRINDESH (US);
      HAVLINEK KENNETH L (US); GOODWIN ANTHONY R H (US)
AP - GB0608349 20060427 [2006GB-0008349]
PR - US90816105 20050429 [2005US-0908161]
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ICAA- E21B-049/10 [2006-01 A F I B H GB]
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EC - E21B-049/10
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UP - 2006-46
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PN - CA2544866 A1 20061029 [CA2544866]
TI - (A1) FLUID ANALYSIS METHOD AND APPARATUS
LA - ENGLISH (ENG)
PA - (A1) SCHLUMBERGER CA LTD (CA)
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PA0 - SCHLUMBERGER CANADA LIMITED (CA)
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 AP - CA2544866 20060425 [2006CA-2544866]
 PR - US90816105 20050429 [2005US-0908161]
 IC - (A1) E21B-047/06 E21B-049/00 E21B-049/08 E21B-049/10 G01V-008/10
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 - G01V-008/10 [2006-01 A L N B H CA]
 ICCA- E21B-049/00 [2006 C F I B H CA]; E21B-047/06 [2006 C L I B H CA]
 - G01V-008/10 [2006 C L N B H CA]
 EC - E21B-049/10
 UP - 2006-46

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 PN - NO20061817 A 20061030 [NO200601817]
 OTI - (A) Fremgangsmate og apparat for fluidanalyse
 PA - (A) SCHLUMBERGER TECHNOLOGY BV (NL)
 IN - (A) KURKJIAN ANDREW LORIS (US); BROWN JONATHAN W (GB); HAVLINEK KENNETH L (US); DONG CHENGLI (US); HAMMAMI AHMED (CA); GOODWIN ANTHONY ROBERT HOLMES (US); FREEMARK DARCY (CA); DHRUVA BRINDESH (US); JACOBS SCOTT (CA); BORMAN CRAIG (CA); MUHAMMED MOIN (CA)
 AP - NO20061817 20060425 [2006NO-0001817]
 PR - US90816105 20050429 [2005US-0908161]
 IC - (A) E21B-049/00 E21B-049/10
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 ICCA- E21B-049/00 [2006 C F I B H NO]
 EC - E21B-049/10
 UP - 2006-46

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 TI - (A1) FLUID ANALYSIS METHOD AND APPARATUS

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LA - ENGLISH (ENG)
 PA - (A1) SCHLUMBERGER TECHNOLOGY CORP (US)
 PA0 - Schlumberger Technology Corporation, Sugar Land TX [US]
 IN - (A1) FREEMARK DARCY (CA); BORMAN CRAIG (CA); HAMMAMI AHMED (CA); MUHAMMED MOIN (CA); JACOBS SCOTT (CA); BROWN JONATHAN W (US); KURKJIAN ANDREW L (US); DONG CHENGLI (US); DHRUVA BRINDESH (US); HAVLINEK KENNETH L (US); GOODWIN ANTHONY R (US)
 AP - US10908161 20050429 [2005US-0908161]
 FD - Previous Publication: US20060243033 A1 20061102
 PR - US90816105 20050429 [2005US-0908161]
 IC - (A1) G01N-007/00
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 EC - E21B-049/10
 PCL - ORIGINAL (O) : 073064450
 CT - Search Report [Examiner]
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PN - US2006243047 A1 20061102 [US20060243047]
TI - (A1) Methods and apparatus of downhole fluid analysis
LA - ENGLISH (ENG)
PA - (A1) TERABAYASHI TORU; CHIKENJI AKIHITO; YAMATE TSUTOMU; MULLINS OLIVER C; KURKJIAN ANDREW L; ELSHAHAWI HANI
PAO - Schlumberger Technology Corporation, Sugar Land TX [US]
IN - (A1) TERABAYASHI TORU (JP); CHIKENJI AKIHITO (FR); YAMATE TSUTOMU (JP); MULLINS OLIVER C (US); KURKJIAN ANDREW L (US); ELSHAHAWI HANI (US)
AP - US11203932 20050815 [2005US-0203932]
FD - CIP of: US10908161 20050429 [2005US-0908161]
- Previous Publication: US20060243047 A1 20061102
PR - US20393205 20050815 [2005US-0203932]
- US90816105 20050429 [2005US-0908161]
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ICCA- E21B-047/00 [2006 C F I B H US]
EC - G01N-009/36
- E21B-049/10
ICO - S01N-011/00S
PCL - ORIGINAL (O) : 073152550
CT - Search Report [Examiner]
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 -Lloyd, R.V. et al., "EPR Cavity for Oriented Single Crystals in Sealed Tubes," Rev. Sci. Instrum. 40, 514 (1969), pp. 514-515.
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 UP - 2006-46

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 PN - DE102006019813 A1 20061102 [DE102006019813]
 TI - (A1) Fluid analysis assembly for down hole tool, has sensors that communicate with formation fluid to sense one parameter of formation fluid while pressure of formation fluid changes in continuous manner
 PA - (A1) SCHLUMBERGER TECHNOLOGY BV (NL)
 PA0 - Schlumberger Technology B.V., Den Haag, NL
 IN - (A1) FREEMARK DARCY (CA); BORMAN CRAIG (CA); HAMMAMI AHMED (CA); MUHAMMED MOIN (CA); JACOBS SCOTT (CA); BROWN JONATHAN W (US); KURKJIAN ANDREW L (US); DONG CHENGLI (US); DHRUVA BRINDESH (US); HAVLINEK KENNETH L (US); GOODWIN ANTHONY R H (US)
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 PR - US90816105 20050429 [2005US-0908161]
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 EC - E21B-049/10
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 PN - FR2885166 A1 20061103 [FR2885166]
 IT - TOOL; SENSOR; WELL; FLUID; MEASURE; PRESSURE; POSITIONING; OIL; ANALYSIIS; DRILLING
 LA - FRENCH (FRE)
 PA - (A1) SCHLUMBERGER SERVICES PETROL (FR)
 PA0 - SERVICES PETROLIERS SCHLUMBERGER; 42 RUE ST DOMINIQUE 75007 PARIS (FR)
 IN - (A1) FREEMARK DARCY; BORMAN CRAIG; HAMMAMI AHMED; MUHAMMED MOIN; JACOBS SCOTT; BROWN JONATHAN W; KURKJIAN ANDREW L; DONG CHENGLI; DHRUVA BRINDESH; HAVLINEK KENNETH L; GOODWIN ANTHONY R H
 AP - FR0603697 20060421 [2006FR-0003697]
 PR - US90816105 20050429 [2005US-0908161]
 IC - (A1) E21B-049/00 E21B-049/08
 ICAA- E21B-049/08 [2006-01 A F I B H FR]

ICCA- E21B-049/00 [2006 C F I B H FR]
 EC - E21B-049/10
 FAB - Un ensemble d'analyse de fluide pour analyser un fluide. L'ensemble d'analyse de fluide comprend une chambre, un dispositif de déplacement du fluide, un ensemble de pressurisation et au moins un capteur. La chambre définit une cavité d'évaluation pour recevoir le fluide. Le dispositif de déplacement du fluide comporte un moyen d'application de force appliquant une force sur le fluide pour forcer le fluide à se déplacer à l'intérieur de la cavité. L'ensemble de pressurisation modifie la pression du fluide de manière continue. Le au moins un capteur communique avec le fluide pour détecter au moins un paramètre du fluide alors que la pression du fluide varie de la manière continue.
 UP - 2006-46

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 TI - (A1) METHODS AND APPARATUS OF DOWNHOLE FLUID ANALYSIS
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 PA - (A1) SCHLUMBERGER CA LTD (CA)
 PA0 - SCHLUMBERGER CANADA LIMITED (CA)
 IN - (A1) TERABAYASHI TORU (JP); CHIKENJI AKIHITO (FR); YAMATE TSUTOMU (JP); MULLINS OLIVER C (US); KURKJIAN ANDREW L (US)
 AP - CA2605830 20060419 [2006CA-2605830]
 PAP - WOIB2006000919 20060419 [2006WO-IB00919]
 PR - US90816105 20050429 [2005US-0908161]
 - US20393205 20050815 [2005US-0203932]
 - WOIB2006000919 20060419 [2006WO-IB00919]
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 ICAA- E21B-049/10 [2006-01 A F I B H EP]; G01N-007/00 [2006-01 A L I B H EP]
 ICCA- E21B-049/00 [2006 C F I B H EP]; G01N-007/00 [2006 C L I B H EP]
 EC - G01N-009/36
 - E21B-049/10
 ICO - S01N-011/00S
 UP - 2006-46

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 PA - (A1) SCHLUMBERGER TECHNOLOGY BV (NL); SCHLUMBERGER SERVICES PETROL (FR); PETROLEUM RES & DEV NV (NL); SCHLUMBERGER CA LTD (CA); SCHLUMBERGER HOLDINGS (FR); TERABAYASHI TORU (JP); CHIKENJI AKIHITO (US); YAMATE TSUTOMU (US); MULLINS OLIVER C; KURKJIAN ANDREW L
 PA0 - SCHLUMBERGER TECHNOLOGY B.V.; / Parkstraat 83-89, NL-2514 jg The Hague (NL) (as-indicated)
 - SERVICES PETROLIERS SCHLUMBERGER; / 42, rue Saint Dominique, F-75007 Paris (FR) (as-indicated)
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 - SCHLUMBERGER CANADA LIMITED; / 525-3rd Ave S.W., Calgary, Alberta T2P 0G4 (CA) (as-indicated)

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 - TERABAYASHI, Toru / 235-10, Tana, Sagami-hara-shi, Kanagawa-Ken 229-1124 (JP) (only US)
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 - MULLINS, Oliver, C.; / 48 Lewis Drive, Ridgefield, CT 06877 (US) (only US)
 - KURKJIAN, Andrew, L.; / 3327 Oakland Drive, Sugar Land, TX 77479 (US) (only US)
 IN - (A1) TERABAYASHI TORU (FR); CHIKENJI AKIHITO (JP); YAMATE TSUTOMU (US); MULLINS OLIVER C (US); KURKJIAN ANDREW L
 AP - WOIB2006000919 20060419 [2006WO-IB00919]
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 - US20393205 20050815 [2005US-0203932]
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 - E21B-049/10

ICO - S01N-011/00S

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NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA
UG US UZ VC VN YU ZA ZM ZW

- ARIPO patent : BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW

- Eurasian patent : AM AZ BY KG KZ MD RU TJ TM

- European patent : AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS
IT LT LU LV MC NL PL PT RO SE SI SK TR

- OAPI patent : BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

CT - Search Report [Examiner]
US5549159(A) (Cat. X) [US5549159]
US5622223(A) (Cat. X) [US5622223]
US2002194907(A1) (Cat. X,D) [US2002194907]
US5233866(A) (Cat. A) [US5233866]
US2002112854(A1) (Cat. A) [US2002112854]
US6128949(A) (Cat. A) [US6128949]

FAB - L'invention concerne des procedes et un appareil pour l'analyse de
fond de fluides de formation par isolation des fluides par rapport a
la formation et/ou au trou de forage dans une unite de commande de
volume et de pression integree a une conduite d'ecoulement d'un module
d'analyse de fluide, et par determination des caracteristiques
fluidiques des fluides isolees. Des parametres d'interet peuvent etre
derives pour des fluides de formation a l'etat statique et des fluides
de formation indesirables peuvent etre evacues et remplaces par des
fluides de formation appropriees a la caracterisation de fond ou a
l'extraction d'echantillons de surface. Des fluides de formation
isoles peuvent etre mis en circulation dans une boucle de la conduite
d'ecoulement pour la caracterisation d'un comportement de phase. Une
analyse en temps reel des fluides peut etre effectuee dans des
conditions de fond ou dans des conditions proches.

UP - 2006-46

.../...

1/1 FAMPAT - (C) Questel- image
PN - CN1912341 A 20070214 [CN1912341]
TI - (A) Methods and apparatus of fluid analysis
PA - (A) SCHLUMBERGER TECHNOLOGY BV (AN)
IN - (A) ANDR FREEMARK DARCY BORMAN CRA (AN)
AP - CN200610089814 20060429 [2006CN-0089814]
PR - US90816105 20050429 [2005US-0908161]
IC - (A) E21B-049/00 E21B-049/08
ICAA- E21B-049/08 [2006-01 A F I B H CN]
ICCA- E21B-049/00 [2006 C F I B H CN]
EC - E21B-049/10
UP - 2006-46

1/1 FAMPAT - (C) Questel- image
PN - MXPA06004693 A 20070424 [MX2006PA004693]
TI - (A) METHODS AND APPARATUS OF DOWNHOLE FLUID ANALYSIS.
OTI - (A) METODO DE ANALISIS DE FLUIDO Y APARATO.
LA - SPANISH (SPA)
PA - (A) SCHLUMBERGER TECHNOLOGY BV (NL)
PA0 - SCHLUMBERGER TECHNOLOGY B.V. (NL)
IN - (A) DONG CHENGLI (CA); KURKJIAN ANDREW L; BROWN JONATHAN W; HAVLINEK
KENNETH L; FREEMARK DARCY; BORMAN CRAIG; HAMMAMI AHMED; MUHAMMED MOIN;
JACOBS SCOTT; DHRUVA BRINDESH; GOOWIN ANTHONY R H
AP - MXPA06004693 20060427 [2006MX-PA04693]
PR - US90816105 20050429 [2005US-0908161]
IC - (A) E21B-049/00
ICCA- E21B-049/00 [2006 C F I B M MX]
EC - E21B-049/10
UP - 2006-46

1/1 FAMPAT - (C) Questel- image
PN - RU2006114647 A 20071120 [RU2006114647]
OTI - (A)
LA - RUSSIAN (RUS)
AP - RU2006114647 20060428 [2006RU-0114647]
PR - US90816105 20050429 [2005US-0908161]
IC - (A) E21B-049/00
ICAA- E21B-049/00 [2006-01 A F I B H RU]
ICCA- E21B-049/00 [2006 C F I B H RU]

EC - E21B-049/10
UP - 2006-46

1/1 FAMPAT - (C) Questel- image

PN - NO20075593 B 20071123 [NO20075593]
OTI - (B) Fremgangsmater og apparat for bronnfluidanalyser
PA - (B) SCHLUMBERGER TECHNOLOGY BV (NL)
IN - (B) MULLINS OLIVER CLINTON (US); TERABAYASHI TORU (JP); CHIKENJI
AKIHITO (JP); YAMATE TSUTOMU (JP); KURKJIAN ANDREW L (US)
AP - NO20075593 20071105 [2007NO-0005593]
PAP - WOIB2006000919 20060419 [2006WO-IB00919]
PR - US90816105 20050429 [2005US-0908161]
- US20393205 20050815 [2005US-0203932]
- WOIB2006000919 20060419 [2006WO-IB00919]
IC - (B) E21B-049/00 E21B-049/10 G01N-007/00
ICAA- E21B-049/10 [2006-01 A F I B H NO]; G01N-007/00 [2006-01 A L I B H NO]
ICCA- E21B-049/00 [2006 C F I B H NO]; G01N-007/00 [2006 C L I B H NO]
EC - G01N-009/36
- E21B-049/10
ICO - S01N-011/00S
UP - 2006-46

1/1 FAMPAT - (C) Questel- image

PN - MX2007013221 A 20080116 [MX2007013221]
TI - (A) METHODS AND APPARATUS OF DOWNHOLE FLUID ANALYSIS.
OTI - (A) METODOS Y APARATOS PARA EL ANALISIS DE LOS FLUIDOS LOCALIZADOS EN
EL FONDO DE LOS POZOS DE PERFORACION.
LA - SPANISH (SPA)
PA - (A) SCHLUMBERGER TECHNOLOGY BV (NL)
PA0 - SCHLUMBERGER TECHNOLOGY B.V. (NL)
IN - (A) MULLINS OLIVER C (JP); TERABAYASHI TORU; KURKJIAN ANDREW L;
YAMATE TSUTOMU; CHIKENJI AKIHITO
AP - MX2007013221 20071023 [1920MX-7013221]
PAP - WOIB2006000919 20060419 [2006WO-IB00919]
PR - US90816105 20050429 [2005US-0908161]
- US20393205 20050815 [2005US-0203932]
- WOIB2006000919 20060419 [2006WO-IB00919]
IC - (A) E21B-049/00 E21B-049/10 G01N-007/00
ICAA- E21B-049/10 [2006-01 A F I B H MX]; G01N-007/00 [2006-01 A L I B H MX]
ICCA- E21B-049/00 [2006 C F I B H MX]; G01N-007/00 [2006 C L I B H MX]
EC - G01N-009/36
- E21B-049/10
ICO - S01N-011/00S
UP - 2006-46

1/1 FAMPAT - (C) Questel- image

PN - EP1877646 A1 20080116 [EP1877646]
TI - (A1) METHODS AND APPARATUS OF DOWNHOLE FLUID ANALYSIS
LA - ENGLISH (ENG)
PA - (A1) SCHLUMBERGER TECHNOLOGY BV (NL); SCHLUMBERGER SERVICES PETROL
(FR); PETROLEUM RES & DEV NV (AN); SCHLUMBERGER HOLDINGS (VG)
PA0 - Schlumberger Technology B.V.; Parkstraat 83-89; 2514 JG The Hague
(NL) (for : BG CZ DE DK GR HU IE IT LT PL RO SI SK TR)
- Services Petroliers Schlumberger; 42, rue Saint Dominique; 75007 Paris
(FR) (for : FR)
- Petroleum Research and Development N.V.; De Ruyterkade 62; Willemstad,
Curacao (AN) (for : AT BE CH CY EE ES FI IS LI LU LV MC PT SE)
- SCHLUMBERGER HOLDINGS LIMITED; Craigmuir Chambers Road Town; Tortola
(VG) (for : GB NL)
IN - (A1) TERABAYASHI TORU (JP); CHIKENJI AKIHITO (FR); YAMATE TSUTOMU
(JP); MULLINS OLIVER C (US); KURKJIAN ANDREW L (US)
AP - EP06744517 20060419 [2006EP-0744517]
PPN - WO2006117604 - 20061109 [WO2006117604]
PAP - WOIB2006000919 20060419 [2006WO-IB00919]
PR - WOIB2006000919 20060419 [2006WO-IB00919]
- US90816105 20050429 [2005US-0908161]
- US20393205 20050815 [2005US-0203932]
IC - (A1) E21B-049/00 E21B-049/10 G01N-007/00
ICAA- E21B-049/10 [2006-01 A F I B H EP]; G01N-007/00 [2006-01 A L I B H EP]
ICCA- E21B-049/00 [2006 C F I B H EP]; G01N-007/00 [2006 C L I B H EP]
EC - G01N-009/36
- E21B-049/10
ICO - S01N-011/00S

DS - DE FR GB
UP - 2006-46

1/1 FAMPAT - (C) Questel- image
PN - CN101189409 A 20080528 [CN101189409]
TI - (A) Methods and apparatus of downhole fluid analysis
LA - ENGLISH (ENG)
PA - (A) PETROLEUM RES & DEV NV (AN)
PA0 - PETROLEUM RES AND DEV N. V. (AN)
IN - (A) CLINTON MULLINS OLIVER (AN); TORU TERABAYASHI (AN); AKIHITO
CHIKENJI (AN); TSUTOMU YAMATE (AN)
AP - CN200680019958 20060419 [2006CN-80019958]
PPN - WO2006/117604 20061109 [WO2006117604]
PAP - PCT/IB2006/000919 20060419 [2006WO-IB00919]
PR - US90816105 20050429 [2005US-0908161]
IC - (A) E21B-049/00 E21B-049/10 G01N-007/00
ICAA- E21B-049/10 [2006-01 A F I B H CN]; G01N-007/00 [2006-01 A L I B H CN]
ICCA- E21B-049/00 [2006 C F I B H CN]; G01N-007/00 [2006 C L I B H CN]
EC - E21B-049/10
UP - 2006-46

1/1 FAMPAT - (C) Questel- image
PN - RU2007144207 A 20090610 [RU2007144207]
LA - RUSSIAN (RUS)
AP - RU2007144207 20060419 [2007RU-0144207]
PR - US90816105 20050429 [2005US-0908161]
- US20393205 20050815 [2005US-0203932]
IC - (A) E21B-049/00 E21B-049/10
ICAA- E21B-049/10 [2006-01 A - I B H RU]
ICCA- E21B-049/00 [2009 C - I B H RU]
EC - G01N-009/36
- E21B-049/10
ICO - S01N-011/00S
UP - 2006-46

1/1 FAMPAT - (C) Questel- image
PN - DE602006007458 D1 20090806 [DE602006007458]
PA - (D1) PETROLEUM RES & DEV NV (AN); SCHLUMBERGER TECHNOLOGY BV (NL)
IN - (D1) TERABAYASHI TORU (JP); CHIKENJI AKIHITO (FR); YAMATE TSUTOMU
(JP); MULLINS OLIVER C (US); KURKJIAN ANDREW L (US)
AP - DE602006007458T 20060419 [2006DE-60007458]
PAP - WOIB2006000919 20060419 [2006WO-IB00919]
PR - US90816105 20050429 [2005US-0908161]
- US20393205 20050815 [2005US-0203932]
- WOIB2006000919 20060419 [2006WO-IB00919]
IC - (D1) E21B-049/00 E21B-049/10 G01N-007/00
ICAA- E21B-049/10 [2006-01 A F I B H EP]; G01N-007/00 [2006-01 A L I B H EP]
ICCA- E21B-049/00 [2009 C F I B H EP]; G01N-007/00 [2009 C L I B H EP]
EC - G01N-009/36
- E21B-049/10
ICO - S01N-011/00S
UP - 2006-46

Family - LEGE format

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1/1 FAMPAT - (C) Questel- image
FAN - 20092450000875
PN - EP1220438          A2 20020703  [EP1220438]
   - BR0106457          A  20020820  [BR200106457]
   - US2002118555       A1 20020829  [US20020118555]
   - US6466467          B2 20021015  [US6466467]
   - EP1220438          A3 20030528  [EP1220438]
   - AR030511           A1 20030820  [AR--30511]
TI - Onduleur resonant a frequence variable
PA - PATRICIO LAGOS LEHUEDE
PA0 - Lagos Lehuede, Patricio; Avda. Pajaritos 6030, Estacion Central;
     Santiago de Chile (CL)
IN - LAGOS LEHUEDE PATRICIO
AP - 2001AR-0104107 20010829; 2001US-0984417 20011030; 2001BR-0006457
     20011221; 2001EP-0500292 20011221
PR - CL35862000 20001222
DS - (EP1220438)
     AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
LGLE- (EP1220438)
     20011221 EP-API [POS; EXM]
     FILING DETAILS
     EP01500292 20011221 [2001EP-0500292]
   - 20020703 EP-A2 [POS; EXM]
     Application published without search report
     EP1220438 A2 20020703 [EP1220438]
   - 20030528 EP-A3 [POS; EXM]
     Search report
     EP1220438 A3 20030528 [EP1220438]
     20020703 EP/AK-A [POS; ADM]
     DESIGNATED CONTRACTING STATES:
     AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
   - 20020703 EP/AX-A [POS; ADM]
     EXTENSION OF THE EUROPEAN PATENT TO
     AL;LT;LV;MK;RO;SI
   - 20020828 EP/17P-A [POS; EXM]
     REQUEST FOR EXAMINATION FILED
     EFFECTIVE DATE: 20020617
   - 20030528 EP/AK-A [POS; ADM]
     DESIGNATED CONTRACTING STATES:
     AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
   - 20030528 EP/AX-A [POS; ADM]
     EXTENSION OF THE EUROPEAN PATENT TO
     AL LT LV MK RO SI
   - 20031210 EP/17Q-A [POS; EXM]
     FIRST EXAMINATION REPORT
     EFFECTIVE DATE: 20031027
   - 20040218 EP/AKX-A [POS; ADM; PIF]
     PAYMENT OF DESIGNATION FEES
     AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
   - 20060222 EP/18D-A [NEG; NIF]
     DEEMED TO BE WITHDRAWN
     EFFECTIVE DATE: 20050728
LGLE- (US20020118555)
     20011030 US-API [POS; EXM]
     FILING DETAILS
     US98441701 20011030 [2001US-0984417]
   - 20020829 US-A1 [POS; EXM]
     First published patent application
     US2002118555 A1 20020829 [US20020118555]
   - 20021015 US-B2 [POS; PIF]
     Granted patent as second publication
     US6466467 B2 20021015 [US6466467]
     20061212 US/FP-A [NEG; NIF]
     EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE
     EFFECTIVE DATE: 20061015
   - 20070205 US/PRDP-A [POS; RES]
     PATENT REINSTATED DUE TO THE ACCEPTANCE OF A LATE MAINTENANCE FEE
     EFFECTIVE DATE: 20070206
UP - 2002-27
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Searching

Basic Index (/BI) and Super Index (/SA)

Search by	Index	Search Hints	Examples
Basic Index (BI) + Super-Index (SA)	/BI / SA (default)	<p>The search is conducted by default in the following fields:</p> <ul style="list-style-type: none"> • Title in English language for all stages of publication (IT) • Original title in French for all stages of publication (FT) • Original title in German for all stages of publication (GT) • Original title in another language for all stages of publication (OTI) • Official English Abstract (AB) • Abstract in French (FAB) • Abstract in German (GAB) • Abstract in another language (OAB) • Abstract in English machine translation (MTAB) • English language descriptors of French documents(IW) • Patent Object (OBJ) • Advantages and drawbacks of the prior art (ADB) • Independent Claims (ICLM) <p>Search by:</p> <ul style="list-style-type: none"> - Simple words using the operators - Phrases using implied adjacency <p>Use truncation. The left truncation is also available.</p>	SPEECH RECOGNIZER? AND FREELY PIVOT+
Basic Index (BI)	/BI	/BI Restrict the search to the TI, FT, GT, OTI, AB FAB, ABMs, OAB MTAB and IW fields.	/BI MEMORY MANAGEMENT AND SPEECH ??? RECOGNIZER?
Super Abstract (SA)	/SA	/SA Restricts the search to 3 fields OBJ, ADB and ICLM.	/SA PORTABLE AND MEASUR+ AND FLEXIB+ AND ACCELER+ AND FREELY PIVOT+

**Details of the fields found in the Basic Index and the Super Abstract fields on the following pages

Basic Index (/BI) - Details

Search by	Index	Search Hints	Examples
Terms from the Basic Index	/BI (default)	The Basic Index incorporates: Title (TI), French Title (FT), German Title (GT) Original Title (OTI), Abstract (AB), French Abstract (FAB), German Abstract (GAB) Original language abstracts (OAB) and Index Terms (IT) for Select French Patents Only All Basic Index terms may be searched without field qualifiers. For all these indexes, search by: Single terms using Boolean or proximity operators; Phrases using implied adjacency. Use truncation. Left-hand truncation is available.	SYNTHETIC AND AQUEOUS HYDROPHOB+ POLYMER? +SPHERE+
Title	/TI	It is important to note that qualifying to /TI will search ONLY English Language Titles. Please Note: English language Machine translations are included for the following publications, and are replaced with the official English translations when available: CNA, CNY, JPA, JPU3, FRA, DEA1, DEU1, KRA, KRU and TWA. Search English language title by: Single terms using Boolean or proximity operators. Phrases using implied adjacency. Use truncation. Left-hand truncation is available.	/TI OSTEOGENIC PROTEIN? /TI +LITOGRA+
Title - French	/FT	French language titles are primarily available for the following publications: EP, FR, WO, CA, BE, CH. Search French language title by: Single terms using Boolean or proximity operators Phrases using implied adjacency. Use truncation. Left-hand truncation is available	/FT ROTATIF?
Title - German	/GT	German language titles are primarily available for the following publications: DE, EP, AT, CH, WO, DD Search German language title by: Single terms using Boolean or proximity operators. Phrases using implied adjacency. Use truncation. Left-hand truncation is available	/GT ELEKTRISCH+
Original Title (Languages other than English, French and German)	/OTI	Search original language title: Single terms using Boolean or proximity operators. Phrases using implied adjacency. Use truncation. Left-hand truncation is available.	/OTI FOTOINICIADORES FUNCIONALIZADOS

Basic Index (/BI) Details (cont'd.)

Search by	Index	Search Hints	Examples
Abstract (English)	/AB	All Abstracts are searched using: Single terms using Boolean or proximity operators. Phrases using implied adjacency. Use truncation. Left-hand truncation is available. Note: qualifying to /AB will search ONLY official English Language Abstracts, NOT Machine Translated Abstracts – see MTAB English abstracts are available for 99 % of minimum PCT documents (EP, FR, DE, CH, GB, US, WO, JP and RU/SU). The other English abstracts are mainly from the CN, IT, FI, DK, NL, ES, SE, AT and PT publications.	/AB +ISOMER? /AB DNA AND VIRUS
Abstract (French)	/FAB	French abstracts are provided for WO, EP, FR, CA and BE publications from 1978.	/FAB TRANSMISSION 3d METRIQUE
Abstract (German)	/GAB	German abstracts are provided for DE from 1989, EP from 1978 and WO from 1995.	/GAB UBERTRAGUNGS PRIORITAT
Abstract (Other) Country of origin language abstracts are available for a small percentage of the records	/OAB	Use to search primarily for abstracts for following patent offices: - Spanish (ES, MX, AR, CR, PA, PE, NI, SV, UY) - Portuguese (BR) - Italian (IT) - Hungarian (HU)	/OAB PLURALIDAD S TRAYECTORIA
Abstract (English machine translated)	MTAB	This abstract (MTAB) is replaced by the official English abstract (AB) when available. Available currently for new CNA, CNY, JPA, JPU3, FRA, DEA1, DEU1, KRA, KRU and TWA.	/MTAB GOLF
Index Terms	/IT	English Language Index Terms for select French Patent Records. Search using: Single terms using Boolean, proximity operators and/or truncation. Phrases using implied adjacency and/or truncation. **Please note: Left hand truncation is not supported.	/IT DISTANCE /IT ROBOT+ /IT DISTANCE MEASUREMENT

Super-Index

All Abstracts	/ABS	All abstracts may be searched in tandem with /AB /FAB/GAB/MTAB or by using the super-index ABS	/ABS KEVLAR
No Machine Translated Abstracts	/NOMT	MTAB is included in the basic index, but may be excluded from the search, by using the field qualifier /NOMT (No Machine Translations)	/NOMT KEVLAR

Super Index (/SA) – Details:

Available for the following: EP published applications: 1980 to date (Euro-PCTs excluded), PCT published applications: Mid 2001 to date, US Granted Patents: 1971 to 2000, US Published applications: March, 15, 2001 onwards

Search by	Index	Search Hints	Examples
Objective:	/OBJ	Search statements of objectives by: - Single terms using Boolean or proximity operators. - Phrases using implied adjacency. Use truncation. Left-hand truncation is available.	/OBJ NETWORK? 2D SECURITY /OBJ DISEASE RESISTANCE /OBJ +ASSAY+
Advantages & Drawbacks	/ADB	Search advantages and previous drawbacks text : - Single terms using Boolean or proximity operators. - Phrases using implied adjacency. Use truncation. Left-hand truncation is available.	/ADB SLOW+ DOWN /ADB INCREAS+ 2D CONCENTRATION /ADB +VIRAL
Independent Claims: Including Main or First Claim	/ICLM	Search independent claims using: - Single terms using Boolean or proximity operators. - Phrases using implied adjacency. Use truncation. Left-hand truncation is available.	/ICLM COLLAPS+ S KEYBOARD? /ICLM "3D" DATA /ICLM +VINYL P COATING?
Objective, Advantages & Drawbacks and Independent Claims	/SA	This super-index groups together the contents of the OBJ (Objective), ADB (Advantages & Drawbacks) and ICLM (Independent Claims) fields. You are thus able to search without necessarily knowing in what area the terms are found in the publication. Search by single terms or phrases. Proximity operators, boolean operators and truncation may also be used	/SA FILTRATION MEMBRANE?

CLAIMS and Descriptions (/TX)

Details of countries covered are found on page 3

Search by	Index	Search Hints	Examples
Claims in: - English - French - German - Other languages	/ ECLM / FCLM / GCLM / OCLM	Search by: - Simple words using the operators - Phrases using implied adjacency Use truncation. The left truncation is also available.	/ ECLM PORTABLE MEASUR FLEXIBIL + AND + AND CLUB HEAD
Description	/DESC		/ DESC ELECTRONIC? AND ACCELEROMETER +
All Claims	/CLMS	/ CLMS simultaneously searches the ECLM, FCLM, GCLM and OCLM fields.	/CLMS (COLLAPS + OR FOLDING OR COLLAPSIBLE) AND (OR KEYBOARD KEYBOARD)
All Claims and Descriptions	/TX	/ TX simultaneously searches the ECLM, FCLM, GCLM, OCLM and DESC fields.	/ TX + PIVOT FREELY

Publication Data

Search by	Index	Search Hints	Examples
Publication number	/PN (/PC, /PUB, KD)	<ul style="list-style-type: none"> ● Search all the patent publication stages using the patent/publication number in the format: <ol style="list-style-type: none"> 1) if patent authority uses a continuous series: CC-NNNNNN (if number is <7 digits, fill with a hyphen (-) after the country code) 2) if patent authority restarts number series each year: pre Y2K: CCYYNNNNN (if number is <5 digit, fill with 0 (zeros) after the series year CCYY) post Y2K: CCYYYYNNNNN CCYYYYNNNNN ● Search for all publications by ISO country code CC= ISO country code NNNNNNN= publication number ● Search by publication country and kind code information: CCKK ● Search by publication date: YYYYMMDD YYYYMM YYYY 	/PN EP-982976 /PN EP--84665 /PN WO8909788 /PN WO9916958 /PN WO200016958 /PN JP2000077507 /PN US20010000001 /PN US /PN DE19743500 JPB2/PN EPA/PN EPB#/PN 19950625/PN 199506/PN 1995/PN
Related/Original PCT Publication number (present for following documents : EP, DE, US, CN, JP and KR)	/PPN	Search in Questel Standardized format: pre Y2K: CCYYNNNNN post Y2K: CCYYYYNNNNN	WO9900001/PPN WO2004000006/PPN PPN=YES and JP/PN
Publication date	/PD	First original publication date (incl D0 date Search in the format: YYYY-MM-DD YYYY-MM YYYY Use numeric operators: =, <, >, <=, >=	PD=1985-10-19 PD=1997-04-01:1997-04-15 PD>=1997
Published application Date	/PDA	Publication date for disclosure of application (does not retrieve D0 date – date of announcement of application).	PDA>=2000 AND GB/PN
Granted Patent date	/PDG	Patent or grant date	PDG=2008 AND EP/PN
Other publication date	/OPD	Primarily relates to following dates: - coming into force for Utility Models - U.S.C. 371 National stage Date (US)	OPD=2007:2008 AND DEU1/pn
Internal Publication Kind (Kind of Document)	/IKD	Searchable CCKK where CC is the country code and KK is the kind code. Use IKD with NBR, MEM, MEMS and GET.	/IKD JPB2 /IKD EPB#
Standardized Patent Number	/XPN	To facilitate searching across patent databases, Questel has created a standardized patent number field. Use MEM /XPN to extract standardized patent numbers. Use *MEM /XPN to search the standardized patent numbers. To search as cited references.	MEM /XPN *MEM /XPN *MEM /XCT

Application Data

Search by	Index	Search Hints	Examples
Application number	/AP	<ul style="list-style-type: none"> Search application number using the number in the format: YYYYCC-NNNNNNN <p>YYYY= 4-digit application year CC= ISO country code NNNNNNN= 7 digit application number (fill with 0 zero(s) if number contains less than 7 digits)</p> <ul style="list-style-type: none"> Search by application date in the format: YYYYMMDD YYYYMM YYYY 	<p>/AP 1978EP-0100811</p> <p>/AP 1989WO-US01505 /AP 1999US-0353402</p> <p>19980615/AP 199806/AP 1998/AP</p>
Related /Original PCT Application Number Provides the original PCT filing number for member patent office documents filed via the PCT.	/PAP	<p>Search application number using the number in the format: YYYYWO-CCNNNNN</p> <p>YYYY= 4-digit application year CC= ISO country code WONNNNN= 5 digit application number (fill with 0 zero(s) if number contains less than 5 digits)</p>	<p>2007WO-JP59325/PAP 2007WO-CN01245/PAP</p> <p>PAP=YES AND KR/PN</p>
Application country	/APC (or /AP)	Search by ISO country code.	/APC WO /APC DE
Application date	/APD	<p>Search in the format: YYYY-MM-DD YYYY-MM YYYY</p> <p>Use numeric operators: =, <, >, <=, >=.</p>	<p>APD=1999-03-09 APD=1999-01:1999-06</p> <p>APD>=1996</p>
Standardized Application Number	/XAP	<p>To facilitate crossfile searching with other patent databases, Questel has created a standardized application number field: YYYYCC-NNNNNNN.</p> <p>Use MEM /XAP to extract standardized application numbers. Use *MEM /XAP to search the standardized application numbers.</p>	<p>MEM /XAP</p> <p>*MEM /XAP</p>

Priority Data

Search by	Index	Search Hints	Examples
Priority number	/PR	<ul style="list-style-type: none"> Search the priority number using the number in the format: YYYYCC-NNNNNNN YYYY= 4-digit application year CC= ISO country code NNNNNNN= 7 digit application number (fill with leading 0 zero(s) if number contains less than 7 digits) <ul style="list-style-type: none"> Search by priority date in the format: YYYYMMDD YYYYMM YYYY 	/PR 1995DE-1020801 /PR 1998US-0179680 19970919/PR 199709/PR 1997/PR
Number of priorities	/NPR	Use numeric operators: =, <, >, <=, >=.	NPR=3 NPR>1
Priority country	/PRC (or /PR)	Search by ISO country code.	/PRC CA /PRC NL
Priority date	/PRD	Search in the format: YYYY-MM-DD YYYY-MM YYYY Use numeric operators: =, <, >, <=, >=. Note: Priority date ranging is available for all priorities.	PRD=1998-04-07 PRD=1999-01:1999-06 PRD>=1998
First Priority Date	/PRD1	The first priority date in the family	PRD1=2000:2004
Standardized Priority Number	/XPR	To facilitate crossfile searching with other patent databases, Questel has created a standardized priority number field: YYYYCC-NNNNNNN. Use MEM /XPR to extract standardized priority numbers. Use *MEM /XPR to search the extracted priority numbers.	MEM /XPR *MEM /XPR

Classification Data

<p>EPO Classification (ECLA)</p> <p>Note: ECLA codes are revised monthly and retrospectively applied</p>	<p>/EC</p>	<p>Search the ECLA codes in the following formats:</p> <p>SubClass: ANNA Group: ANNA-NNN</p> <p>SubGroup: ANNA-NNN/NN</p> <p>Subdivision: ANNA-NNN/NNN ANNA-NNN/NNA ANNA-NNN/NNAN ANNA-NNN/NNANA ANNA-NNN/NNANAN</p> <p>The generic levels are separately searchable without truncation.</p> <p>Use double quotes to search the complementary chemical codes that contain colon [:] separators.</p> <p>Note: To search the range of ECLA codes, use colon [:] between the first and last item specified in the range of codes. Auto posting of the subclasses may cause false hits, please use this feature with care.</p>	<p>/EC A63F /EC E21B-001 /EC E21B-00? /EC E21B-003/02</p> <p>/EC C21D-001/773 /EC C21D-006/00K /EC B25G-001/06S1 /EC B25F-005/02B2B /EC C12Q-001/68D2E1</p> <p>/EC A63F /EC E21B-001</p> <p>/EC "C07C-025:08" /EC "C07C-025:125"</p> <p>/EC A63F-001/00:A63F-001/16</p>
<p>EPO Classification ICO (In Computer Only) Classification</p> <p>Note: Applied by the EPO examiners</p>	<p>/ICO</p>	<p>ICO classification is based on the ECLA classification system. The ICO codes are used in the following cases:</p> <ul style="list-style-type: none"> - non-inventive aspects; - when one group takes precedence over another group; - for additional characteristics (if there is no specific group). <p>ICO symbols are derived from classification symbols, with a different 1st letter: instead of A,B,C,D,E,F,G,H the letters K,L,M,N,P,R,S,T are used.</p> <p>The ICO codes maybe either entirely or partially derived from the ECLA codes (there are also codes that are not derived from an existing code).</p>	<p>/ICO K61M /ICO K61M-016 /ICO K61M-016/00M8</p> <p>/ICO L65D-019/00Y4B1 /ICO L65G-812/02F4D2D4B</p>
<p>International Patent Classification (IPC v 8)</p> <p>Note: Not all attributes will be available for all codes. Questel will output what is delivered to us by the patent offices</p>	<p>/IC /ICAA /ICAI /ICAN /ICCA /ICCI /ICCN</p>	<p>IPC All IPC v8 and historical</p> <p>IPC Advanced All IPC Advanced Inventive IPC Advanced Non-Inventive</p> <p>IPC Core All IPC Core Inventive IPC Core non-Inventive</p> <p>IPC codes can be searched at different levels :</p> <p>full code (ANNA-NNN/NNNN) group (ANNA-NNN) sub-class (ANNA) class (ANN+ – use unlimited truncation)</p>	<p>/IC A43B-005/04 /IC A43B-005 /IC A43B /IC A43+ /IC A63B-043 /IC B25B-001 /IC F01B</p>

Classification Data (cont'd)

<p>FI and F-terms : Developed by Japanese Patent Office</p>		<p>*See IPDL and PATOLIS websites for more info and FI / F-term lookup JP documents from 1980 onwards(not complete for JPU and JPT docs) http://www.ipdl.ncipi.go.jp/homepg_e.ipdl ** Note: FI terms are displayed and searched in the JPO format facilitating lookups in the online thesauri, FI IPC class format (no padding zeros) is different to the standard IC QO format (padding zeros)</p>	
<p>FI (File Index)</p>	<p>/FI</p>	<p>Classification derived from the IPC 6th edition.** It is an extension of the IPC (similar to ECLA classification). The classifications are cascaded with discrimination section and then subdivision ,but without intervening spaces between the original IPC Searching with the spaces allows retrieval of exactly what the office indexed, searching without the spaces retrieves more broadly.</p>	<p>JP/PN and (FI=YES)</p>
<p>F-term (File Forming Term)</p>	<p>/FTM</p>	<p>Format of FI classes is as follows : - an IPC class: ANNA[N]N/NN[N] - an IPC code followed by a file discrimination symbol (1 letter) :ANNA[N]N/NN[N] A - an IPC code followed by a subdivision symbol (3 chars) :ANNA[N]N/NN[N] NNN - an IPC code followed by both subdivision and file discrimination symbols : ANNA[N]N/NN[N] NNNA - an IPC code with facet (3 letters) ANNA[N]N/NN[N] ZNN</p> <p>Classification based on different technical viewpoints. Format : Theme code (5 digits) NANNN Theme code and technical viewpoint indicator (2 letters) NANNN AA+ Theme code, technical viewpoint and "figure" indicator (2 digits) NANNN AANN</p>	<p>/FI A01B1/16 /FI G10L9/20 A /FI G11B11/105 506 /FI G11B11/105 506A /FI G11B11/08 ZNM /FTM 4C206 /FTM 4C206 CB+ /FTM 4C206 CB23</p>
<p>USPTO Classification (PCL)</p> <p>Note: US Classes are revised quarterly and retrospectively applied</p>	<p>/PCL</p> <p>/PCLO</p>	<p>Search the Main (Primary) and Cross Reference (Secondary) classes simultaneously Search the original US classification with 9 or 12 characters in the format: MMSSDDDDAAA. - MMM= three digit main class - SSS= three digit subclass or DIG for digest - DDD= three digits - AAA= 1-3 alpha characters To search the PCL by: - the class (3 characters), - the "digest" including the DIG notice, - the full code (ending with 3 digits (DDD) and 3 alphanumeric characters (AAA)). Search the Main US Class</p>	<p>/PCL 714777000 /PCL 714 /PCL 714005 /PCLO 714</p>
<p>EPO Classification (Dutch)</p>	<p>/IDT</p>	<p>Search the old EPO Dutch classification</p>	<p>/IDT 124PA2F4B3B /IDT 42K18C</p>
<p>EPO Classification (Berlin)</p>	<p>/BC</p>	<p>Search the old EPO Berlin Classification</p>	<p>/BC F02C-007/264 /BC B41J-021/02</p>

Citations

Citations (patent and non patent literature references) are available for the following publications:

AP - from 1984	AU - from 1974	BE - from 1988	CH - from 1963
CZ - from 1997	DE - from 1943	DK - from 1956	EP - from 1978
ES - from 1993	FR - from 1969	GB - from 1983	GR - from 1988
JP - from 1972	LU - from 1999	NL - from 1947	SG - from 2001
TR - from 1987	US - from 1971	WO - from 1978	

Search by	Index	Search Hints	Examples
Cited Patents	/CT	<p>Patents cited in search reports are displayed under the title "Search Report" or "Cited References" for all the countries listed above.</p> <p>For US, EP, WO, FR, DE, NL, BE, GR, CH, GB, TR, LU and DK publications this field also contains applicant citations</p> <p>For EP publications this field also contains opposition and applicant citations.</p> <p>For JP publications citations are listed in 4 categories: Opposition citations (reason for opposition), Opposition citations(reason for decision), Examiner citations (reason for refusal) and Citations in registration report .</p> <p>Format is the same as the PN field: CCNNNNNNNN.</p> <p><u>Search patent citations using:</u></p> <ul style="list-style-type: none"> - Standardized patent number - Two letter country code - Presence of the field 	<p>/CT US4352588</p> <p>/CT GB-222937</p> <p>/CT JP</p> <p>CT=YES</p>
Non Patent Literature Citations	/REF	<p>References to literature are displayed under the title "Search Report" or "Literature Citations" for all the countries listed above.</p> <p>For US, EP, WO, FR, DE, NL, BE, GR, CH, GB, TR, LU and DK publications the field also contains applicant literature citations.</p> <p>For EP publications the field also contains opposition and examiner references</p> <p>Search using single words or phrases (implied adjacency), using truncation on:</p> <ul style="list-style-type: none"> -Title - Authors - Source - The XP number assigned by the EPO examiners. 	<p>/REF RECOGNITION SYSTEM?</p> <p>/REF DESHMUKH</p> <p>/REF SIGNAL 1W MAGAZINE</p> <p>/REF XP 002058560</p>
Standardized publication/patent numbers in the CT field	/XCT	<p>To facilitate cross file searching with other patent databases, Questel has created a standardized citation number field: CCNNNNNNNN.</p> <p>Use MEM /XCT to extract standardized citation numbers. Use *MEM /XCT to search the standardized citation numbers. Use *MEM /XPN to search the extracted citation numbers as the standardized patent/publication numbers.</p>	<p>MEM /XCT</p> <p>*MEM /XCT</p> <p>*MEM /XPN</p>
Relevancy Category Codes	/XCTX /XCTY /XCTA /XCTO /XCTP /XCTT /XCTE /XCTD /XCTL	<p>Relevancy Category Codes, also known as relevance indicators, are used by the EPO in their Search Reports. Relevancy Category Codes are found in EP, FR and PCT search reports.</p> <p>Search by:</p> <ul style="list-style-type: none"> -For the presence of the field - In the standardized Questel format: <p>Definitions:</p> <ul style="list-style-type: none"> X - Particularly relevant if taken alone Y - Particularly relevant if combined with another document in the same family A - Technology background P - Intermediate document T - Theory or principle underlying the invention E - Earlier patent document, but published on, or after, the filing date D - Document cited in the application L - Document cited for other reasons 	<p>XCTX=YES</p> <p>/XCTX US4567890</p> <p>/XCTX US6000222</p> <p>/XCTY GB2000029</p> <p>/XCTA JP01003342</p> <p>/XCTP FR1135933</p> <p>/XCTT EP1225025</p> <p>/XCTE US20030235175</p> <p>/XCTD WO200000477</p> <p>/XCTL TW-296405</p>

Legal Status

Country coverage for Legal Status actions is found on page 4

Search by	Index	Search Hints	Examples
Owner – Current and Previous Available for US, EP, BE	/OWR	The field is present when there have been changes in ownership. Search by: -single words (operators) or -phrases (implied adjacency) Truncation may be used. Addresses are not included When using NBR, MEM and MEMS commands, use the /OWRN index	/OWR QUADRANT DRUG DELIVERY /OWR (INT+ BUS+ MAC+) OR IBM MEM /OWRN
Inventor Available for EP and DE	/INV	The field is present when there have been changes or corrections to an inventor's name or address. /INV contains the surname, first name, city and country code of the inventors. Search by: -single words (operators) or -phrases using the W operator or implied adjacency Truncation may be used. When using NBR, MEM and MEMS commands, use the /INVN index	/INV (PEREIRA W ALEXANDRE) AND FR
Representative Available for EP, DE, CH	/REP	The field is present when there have been changes to the representative. Search by: -single words (operators) or -phrases (implied adjacency) Truncation may not be used. Addresses are not included When using NBR, MEM and MEMS commands, use the /REPN index	/REP OBLON W SPIVAK
Opponent Available for EP	/OPP	Search opponent name by: -single words (operators) or -phrases using the W operator or implied adjacency Truncation may be used. When using NBR, MEM and MEMS commands, use the /OPPN index	
Requestor Available for AU, NZ	/REQ	The field is present when there are: mortgages, licenses, cancellation of financial interests. Search requestor name by: -single words (operators) or -phrases using the W operator or implied adjacency Truncation may not be used. When using NBR, MEM and MEMS commands, use the /REQN index	/REQ HSBC BANK
Names	/NAM	The Super-Index Names simultaneously searches the OWR, INV, REP, OPP and REQ fields.	/NAM (INT+ BUS+ MAC+) OR IBM

Legal Status (cont'd.)

Search by	Index	Search Hints	Examples
Event Groups	/EG	<p>Questel has introduced 13 event groups, which combine together similar event codes from different patent authorities.</p> <p>Search by single terms or with Boolean operators</p> <p>NIF - Not in force, lapses, expiries, refusals, withdrawals, revocations, suspensions & other similar events that negatively effect the applicant's claim for protection. PIF - Payment of fees, In force COR - Corrections, amendments, modifications RES - Restitution, reinstatements and restorations: in-force OPP - Opposition, Re-examination ADM - Administrative actions, official notifications, miscellaneous office actions, errata NMC - Name change applicants, owners, inventors; others: opponents, requestors SPC - Actions concerning complementary or supplementary certificates of protection. EXM - Examination requests, examination procedures and processes, search reports LIC - Rights related to Licensing and exploitation RGR - Registrations, Grants, In force ENP - Entry into national phase, translations (EP, PCT) RLW - Refusals, Lapses, expiries, withdrawals from national offices (EP)</p> <p>Search using the event groups above</p> <p>or by</p>	<p>/EG PIF /EG EXM AND SPC</p>
	/LEG	<p>The most recent Event Group is displayed along with the status indicator ALIVE or DEAD.</p>	<p>OPP/LEG /LEG ALIVE DEAD/LEG</p>
Action Code	/CO	<p>In the legal status records the action code appears in the 1st line, following the date.</p> <p>Search by the code corresponding to the standardized text in the ACT field in the format: CC/NNNN CC : country code NNNN : 2 – 4 character alphanumeric code</p>	<p>/CO EP/17Q /CO EP/AK</p>
Latest/Last Action Code	/LCO	<p>Search in the format described above, this limits the results to the most recent action(s).</p> <p>You may view the contents of these indexes using the NBR /CO or NBR /LCO command</p> <p>The list of legal status codes is available on the EPO website at the following address: http://www.epo.co.at/inpadoc/statistics_dwld.htm</p>	<p>/LCO US/356</p>

SDOC OPERATOR: The SDOC operators allows you to link searches in the Event Group (EG) field with specific countries in the FamPat family record.

Example: **US/ PN SDOC LIC/ EG**
 Finds US family records that have corresponding licensing information in the legal status record Event Group (EG).

Other Indexes

Search by	Index	Search Hints	Examples
Designated states for European Patents (EP) and PCT applications (WO)	/DS	Search by ISO country code using the two letter format CC. The EP designated states are from the last EP publication stage.	/ds AT /DS GB AND FR
Filing Details	/FD	Available for US Records ONLY Provides information such as whether one patent is based upon another or is a division of another. Search using: Standardized Questel format: YYYYCC-NNNNNNN Please Note: The USPTO Series Code is not used, infill with zeroes as necessary.) The exception is provisional applications beginning with series code 60. Replace 60 with P . Search by the US publication number using format USNNNNNNN Search by the presence of the field.	/FD 2000US-0730246 /FD 2001US-P132684 /FD US5105599 FD=yes
Original language	/LA	Language is provided for EP and WO documents and in all other cases where the language is not the sole official language of the country. Search LA using the ISO three letter language code: CHI Chinese CZE Czech DAN Danish DUT Dutch ENG English FIN Finnish FRE French GER German ICE Icelandic ITA Italian JPN Japanese KOR Korean NOR Norwegian POR Portuguese RUS Russian SER Serbian SLV Slovenian SPA Spanish SWE Swedish	/LA ENG ENGLISH/LA /LA GER OR FRE
Update codes	/QW /QM /UA /UAA4 /UAB /UAB4 /UABA /UCL /UCT /UE /UE4 /UMT4 /UMTA /UP /UP4 /EUP /LUP /LUP4	Search latest update for new publications, or publications receiving a TI, AB, PA, EC, FI, FTM for the 1st time. D0 documents and documents published prior to 2006 are not included Monthly update new publications Update Amendments Monthly Update All Abstracts – Human Abstract Update Monthly Abstracts All Abstracts – Human & Machine Translated Class Code Update Citations Update Update Equivalent /Stages Monthly Equivalent/Stages Monthly Update – Human & MT Abstracts Update Abstracts – Human & Machine Translated Standard Update Code Standard Monthly Update(3) Event Group Update - Weekly Update legal status actions – Weekly Update legal status actions - Monthly Use the relevant update code in the following format: YYYY-WW	/QW 2000-08 /QM 2000-02 /UA 2002-03 /UAA4 2009-01 /UAB 2008-52 /UAB4 2009-02 /UABA 2009-01 /UCL 2002-36 /UCT 2002-35 /UE 2001-33 /UE4 2009-01 /UMT4 2009-02 UMTA 2009-01 /UP 2000-08 /UP4 2001-03 /EUP 2010-08 /LUP 2010-08 /LUP4 2010-02
Family Accession Number Previous Family Accession Number		Producer number assigned to a record. If a family has been recomposed, the previous producer number assigned a record	/FAN/PFAN 20042802935754

Document Displays

▪ **Standard Formats:**

Fields	Formats													
	ABST	ALL	BIB	BRF	DOC	DOCF	FUF	PAGE	MAX (or FULL, FU)	PDFR	SCAN (or SC)	STDR (default)	TAB	TEST (or TR)
AB ⁽¹⁾	✓	✓			✓			✓	✓	✓			✓	
ADB		✓							✓				✓	
AP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
BC		✓		✓				✓	✓			✓		✓
CT	✓	✓	✓					✓	✓					
DESC		✓												
DS		✓		✓	✓	✓	✓	✓	✓	✓		✓		
EC		✓		✓				✓	✓			✓	✓	✓
ECLM ⁽³⁾		✓												
FAB ⁽²⁾						✓	✓							
FAN	✓	✓	✓	✓				✓	✓		✓	✓	✓	✓
FD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
FI		✓		✓				✓	✓	✓		✓	✓	✓
FT ⁽²⁾						✓	✓							
FTM		✓		✓				✓	✓	✓		✓	✓	✓
IC		✓		✓				✓	✓	✓		✓	✓	✓
ICAA		✓		✓				✓	✓	✓		✓	✓	✓
ICCA		✓		✓				✓	✓	✓		✓	✓	✓
ICLM		✓						✓	✓				✓	
ICO		✓		✓				✓	✓			✓		✓
IDT		✓		✓				✓	✓			✓		✓
IN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
IN0	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		
IT					✓	✓	✓							
LA							✓							
OBJ		✓							✓				✓	
OTI					✓	✓	✓							
PA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
PA0	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	
PAP	✓	✓			✓	✓	✓	✓	✓	✓		✓		
PCL		✓		✓				✓	✓	✓		✓	✓	✓
PN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
PPN	✓	✓			✓	✓	✓	✓	✓	✓		✓		
PR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
REF	✓	✓						✓	✓					
TI ⁽¹⁾	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UP	✓	✓						✓	✓			✓	✓	

The APD, PD and PRD fields are included respectively in the AP, PN and PR fields.

- (1) When the TI and AB fields are not present, then the FTI field (or if not present then GTI or OTI and the MTAB field (or if not present then FAB or GAB or OAB) is displayed.
- (2) When the FTI and FAB fields are not present, then the TI field (or if not present then GTI or OTI) and the AB field (or if not present MTAB or GAB or OAB) is displayed.
- (3) When the ECLM field is not present, then the FCLM field (or default or OCLM GCLM) is displayed.

The non-Latin characters contained in the fields OTI, OAB and OCLM are viewable only with QWEB3, QPAT or ORBIT.COM.

Field Displays & Options

PN and AP: Publication and Filing dates apply to all members, all stages of publication and are by default sorted in ascending chronological order.

The order can be modified with the user option **PSORT**.

(P) OP PSORT LAST For a descending chronological order

(P) OP FIRST PSORT To return to the ascending chronological order

For the TI, OTI, IT, AB, OBJ, ADB, ICLM, IN, PA0, ICAA, CICA, ICO, PCL, FI, FTM, and ECLM DESC fields, the content will be extracted from a single publication for the family, based on information listed in the user options.

DOCLA Option: Sets the preferred language for the title, abstract, claims and description. You can specify up to 3 languages.

By default, the option is set to DOCLA EN LA if the search language preference is set to 1 or DOCLA FR LA on if the option is set to 2.

To disable DOCLA: (P) OP DOCLA OFF

When DOCLA is disabled: If the English title is not available in TI, the contents of the field FT (or if GT or OTI) will be displayed in the TI field. If the abstract English AB is not available, the field content MTAB (or FAB or GAB or OAB) will be displayed in the field AB. If English claims are not available, the ECLM field will be replaced by FCLM or GCLM or OCLM. The DOCLA option supersedes/overrides the MFAM option.

MFAM Option: Set a list of preferred countries (up to 7). If no selection is made, the default is set as the PCT minimum documentation collection with the order as follows: EP, US, WO, GB, FR, DE, CH, BE, JP, SU/RU. This means that title, Assignee, Inventor, and Abstract data will be selected from the EP record as a basis for building the record. If there is no EP record in the family, title, assignee, inventor and abstract data will be selected from the US record. If there is no US record in the family, data from the WO record will be used.

For the AB, OBJ, ADB and ICLM fields, the content is retrieved from all family members when information is available in display formats ALL and TAB, regardless of the MFAM preferences.

The order of priority for displays is DOCLA then MFAM. If the DOCLA option is disabled, the display is managed by MFAM only.

Two other user options are available:

FTSTG Option: By default, for EP and US documents, claims and description are displayed from the application (A stage) The order can be modified to display granted patent claims and descriptions (when available):

(P) OP FTSTG TSO To view the description and claims of EP or US granted patents

(P) OP APP FTSTG To return to the display of claims and the description of the application

HITS Option: Displays the title, abstract, claims and descriptions that contain the search terms, which may give a composite view of the family, such as the title of one member, the abstract of a second member and the claims and the description of a third member.

If the search terms appear in the same field of several family members, the display of the hits is based on the DOCLA and MFAM selections. By default, HITS is disabled.

(P) OP HITS ON To enable

(P) OP HITS OFF To re-disable

The FTSTG and HITS options are mutually exclusive. If the HITS option is enabled, the FTSTG option is ignored.

PA, PR, IC and EC fields: The names of the applicant, the priority data, IPC's (excluding ICAA and CICA) and ECLA are extracted from all members at all stages of publication and are duplicate values. They are sorted alphabetically for applicants and classification codes, in ascending chronological order for priority data.

L Option:

These displays will show the corresponding stage, application and filing detail information after each publication number in the family.

ABST	----->	ABSL	PAGE	----->	PAGL
ALL	----->	ALLL*	MAX (or FU)	----->	MAXL (or FUL)
BIB	----->	BIBL	PDFR	----->	PDFL
BRF	----->	BRFL	STDR	----->	STDL
DOC	----->	DOCL	TAB	----->	TABL

*Unlike the ALL format the ALLL format contains all abstract (AB + FAB + GAB+ OAB + MTAB) of all members and all claims (ECLM + FCLM + GCLM + OCLM) of all members .

The FML format will display only the stages information for the PN, AP and FD fields.

Legal Status Displays:

Formats	Fields
LEGL	FAN PN TI PA PA0 IN IN0 AP PPN PAP FD PR DS LGL UP
LEGE	FAN PN TI PA PA0 IN IN0 AP PPN PAP FD PR DS LGLE UP

Detail Option :

The DETAIL option gives you the ability to display the record contents of each family member. The records are grouped by patent family to keep the context, **with the first publication stage displayed**. The DETAIL option gives you the ability to drill down to see the detail of each family member, including titles, assignees, inventors, classification and abstracts.

Images Feature:

To display the image in a reference, use the IMG parameter:

PRT IMG <N-N> <FORMAT> **Please note: IMG must directly follow PRT statement**
PRT IMG 1-10 MSTA

Crossfile Displays

In FamPat, you can get the display information from other patent databases.

Display including corresponding Legal Status record(s):

Legal Feature	Displays Legal Status Records from the following databases
LEGALEP	EPPATENT (European Patents)
LEGALIFI	CRXX (Claims Current Legal Status)
LEGALERT	LITA (LitAlert)
LEGALUS	CRXX (Claims Current Legal Status), LITA (LitAlert)
LEGALALL	LGST (Legal Status), CRXX (Claims Current Legal Status), and LITA (LitAlert)

Display contents of a field or format to another database:

PRT MAXL PLUS TI (DWPI) **Displays the FamPat record in MAXL followed by the Derwent Title**

*The display options above may only be used in single file mode and may not be used with the ID command.

List of Fields

All these fields may be used with the PRT, LI, BR and =YES commands.

AB	Abstract
ACT	Action Taken
ACTE	Action Taken (Eng)
AD	Action Date
ADB	Advantages Prev. Drawbacks
AN	Accession Number
AP	Application Nbr
APD	Application Date
API	Application details(internal use)
BC	EPO Berlin Class
CLMS	Claims
CO	Action Code
CT	Citations
DEF	ECLA Definition
DESC	Description
DS	Designated States
DT	Document Type
EC	ECLA
ECLM	English Claims
EG	Event Group
EUP	Event Update
FAB	Abstract in french
FAN *	Family Accession Nbr
FCLM	French Claims
FD	Filing Details
FI	FI-Terms
FID	Family ID
FPR	Family Priority
FT	French Title FT2 - FT9
FTM	F-Terms (File forming terms)
GAB	Abstract in german
GCLM	German Claims
GT	German Title GT2 - G9
IAB	Reference for AB
IAN	Internal Docdb AN
IC	IPC
IC2	IPC 2
IC3	IPC 3
IC4	IPC 4
IC5	IPC 5
IC6	IPC 6
IC7	IPC 7
IC8	IPC 8
IC9	IPC 9
ICA	IPC Additional
ICAA	IPC Advanced All
ICAI	IPC Advanced Inventive
ICAN	IPC Advanced non-inventive
ICCA	IPC Core All
ICCI	IPC Core Inventive

List of Fields

All these fields may be used with the PRT, LI, BR and =YES commands.

ICCN	IPC Core non-inventive
ICLM	Independent Claims
ICM	IPC Main
ICO	ICO Code
ICS	IPC Secondary
ICT	Reference for CT
IDT	Dutch Class
IKD	Internal Patent Kind Code
IN	Inventor(s)
IN0	Orig. Inventor(s)
IN2	IN2 - IN3
INC	Inventor Country
INN	Inventor Name
INN0	Orig. Inventor
INN2	INN2-INN9
INV	Inventor LGST
INVN	Inventor LGST
IT	Index Terms
IUP	Update History
IW	Index Words
LA	Language
LAD	Last Action Date
LAN	LGST Access. Number
LAST	Latest Actions
LCO	Latest Code
LEG	Latest Event Group
LGL	LGST
LGLE	LGST
LGUP*	Legal update code
LUP	Update Code
LUP4	Monthly Update
MTAB	Abstract (MT)
NPN *	Number of Patents
NPR *	Number of PR
OAB	Other Abstracts
OBJ	Object of Invention
OCLM	Original Claims
ODES	Original Description
OIN	Original Inventor
OPA	Original Assignee
OPD	Other Publication Dates
OPP	Opponent
OPPN	Opponent
OTI	Other Title OTI2 - OTI9
OWR	Owner LGST
OWRN	Owner LGST
PA	Patent Assignee
PA0	Orig. Patent Assignee
PA2	PA2-PA9
PAC	PA Country
PAN	Patent Assignee Name
PAN0	Orig. Patent Assignee
PAN2	PAN2- PAN9

PAP	PCT Appli.
PCL	US Class
PCLO	US Original Class
PD	Patent Date
PDA	First Date of Pub. Appl.
PDG	First Date of Issued Grant
PDL	Patent Date , last pub.
PFAN*	Previous Family Nbr
PN	Patent Number
PN2	PN2 - PN?
PPN	PCT Patent
PR	Priority Details
PRD	Priority Date
PRD1*	Oldest Priority Date
PRI	Priority Indicator
PUB	Publication Actions
QM *	Questel Month
QW *	Questel Week
REF	CT ref.
REP	Representative LGST
REPN	Representative LGST
REQ	Requestor LGST
REQN	Requestor LGST
SFM	Simple family
STG	Publication Stage
STG2	STG2-STG9
TI	Title
TI2	TI2-9
UA *	Update Amendments
UAA4*	Monthly UABA
UAB *	Abstract Update
UAB4*	Monthly UAB
UABA*	All abstracts - Human
UCL	Class Code Update
UCT *	CT Update
UE *	Update Equivalent stages
UE4 *	Monthly UE
UEC *	Update Ecla Classification
UMT4*	Monthly UMTA
UMTA*	MTAB Update
UP *	Update Code
UP4 *	Monthly Update
XAP	Cross Search AP
XCT	Cross Search CT
XCTA	Tech Background
XCTD	Cited in the appl.
XCTE	Earlierpub. After Rel.
XCTL	Rel. for other reasons
XCTO	Non-written disclosure
XCTP	Intmed. Relevancy
XCTT	Theoryprinciple Rel.
XCTX	High Relevancy
XCTY	High Rel. when combined
XPN	Cross Search PN
XPR	Cross Search PR
XR	Basic Cross Ref. Number

Extended Family Searching

In FamPat, the FAM or Family command should be used to find the extended family.

1. Extended Family search based on the patent

To create an extended patent family for a particular invention, use the FAM command with the known patent number. Note: the XPN, XAP, and XPR fields may also be used for family searching as long as the Questel standardized format is used.

Command Syntax:

FAM CCNNNNNNN/PN	using patent/publication number
FAM YYYYCC-NNNNNNN/AP	using application number
FAM YYYYCC-NNNNNNN/PR	using priority number

Examples:

- Publication number:	FAM EP---1234/PN	Standardized Format
- Application number:	FAM 1978EP-0100811/AP	Standardized Format
- Priority number:	FAM 1997DE-1020719/PR	Standardized Format

2. Extended Family Search based on the set of documents

To create an extended patent family on a set of documents, use the FAM command followed by the search set number. (SS N, where N is the number of the search set). Use HIS command to determine the search set number. Note: family search based on the SS number is limited to 1000 documents in the search set

Command Syntax: **FAM SS N** (where N is a search set number in a strategy)

Example: **FAM SS 1** (perform family search based on the results of search set number 1)

After performing a family search, by using a number or a search statement, Questel will respond by showing the total number of patent groups and the total number of FAMPAT records in the search statement.

After the extended family result set has been created, use the ID command. Records from the FAMED set of results can then be arranged and displayed as patent groups. Patent groups are records from a set that are grouped together because they belong to the same extended family. Groups can contain related records. Related records are those which share related priority information but contain additional patent number information.

Displaying Family Records

After performing a family search, by using a number or a search statement, Questel will respond by showing the total number of FAMPAT records and the number of family records in the search statement.

Use the **L Option** to display the corresponding stage, application, and filing details information after each patent number in the family, for each family record.

```
File : FAMPAT
SS Results
  1          3 (1) ..FAM US20050010034/PN
prt fabl set

1/3 FAMPAT - (C) QUESTEL
FAN - 20050200009464
PN - US20050010034 A1 20050113 [US20050010034]
      STG: Utility Patent Application published on or after January 2,
      2001
      AP : 2004US-0914665 20040809
      FD : Cont. of: US 09308329 - 19990519 [1999US-0308329] GRANTED
      FD : Cont. of: US 6193008 - 0 [US6193008]
      FD : Cont. of: US 09336036 - 19990618 [1999US-0336036] GRANTED
      FD : Cont. of: US 6774218 - 0 [US6774218]
      FD : Provisional: US 60091864 - 19980706 [1998US-P091864]
TI - Mutants of streptococcal toxin C and methods of use
PA - Regents of the University of Minnesota
PA0 - Regents of the University of Minnesota; Minneapolis, MN [US]
IN - Gahr Pamala J; Mitchell David T; Ohlendorf Douglas; Schlievert Patrick
M
```

PR - 1997WO-US22125 19971205
 IC - A61K-039/09 C07K-001/00 C07K-014/00 C07K-017/00
 PCL - ORIGINAL (O) : 530350000
 AB - (US20050010034])
 This invention is directed to mutant SPE-C toxins or fragments thereof, vaccine and pharmaceutical compositions, and methods of using the vaccine and pharmaceutical compositions. The preferred SPE-C toxin has at least one amino acid change and is substantially non-lethal compared with the wild type SPE-C toxin. The mutant SPE-C toxins can form vaccine compositions useful to protect animals against the biological activities of wild type SPE-C toxin.

UP - 2005-02

2/3 FAMPAT - (C) QUESTEL
 FAN - 20050200006957
 PN - US20050010033 A1 20050113 [US20050010033]
 STG: Utility Patent Application published on or after January 2, 2001
 AP : 2004US-0914417 20040809
 FD : Cont. of: US 09308229 - 19990520 [1999US-0308229] GRANTED
 FD : Cont. of: US 6784917 - 0 [US6784917]
 FD : Cont. of: US 09336036 - 19990618 [1999US-0336036] GRANTED
 FD : Cont. of: US 6774218 - 0 [US6774218]
 FD : Provisional: US 60091864 - 19980706 [1998US-P091864]
 FD : Provisional: US 60033251 - 19961206 [1996US-P033251]

TI - Mutants of streptococcal toxin C and methods of use
 PA - Regents of the University of Minnesota
 PA0 - Regents of the University of Minnesota; Minneapolis, MN [US]
 IN - Gahr Pamala J; Mitchell David T; Ohlendorf Douglas; Schlievert Patrick M

PR - 1997WO-US22125 19971205
 IC - A61K-039/09 C07K-001/00 C07K-014/00 C07K-017/00
 PCL - ORIGINAL (O) : 530350000
 AB - (US20050010033])
 This invention is directed to mutant SPE-C toxins or fragments thereof, vaccine and pharmaceutical compositions, and methods of using the vaccine and pharmaceutical compositions. The preferred SPE-C toxin has at least one amino acid change and is substantially non-lethal compared with the wild type SPE-C toxin. The mutant SPE-C toxins can form vaccine compositions useful to protect animals against the biological activities of wild type SPE-C toxin.

UP - 2005-02

3/3 FAMPAT - (C) QUESTEL- image
 FAN - 20042782317692
 PN - CA2273824 A1 19980611 [CA2273824]
 STG: Application laid open
 AP : 1997CA-2273824 19971205
 - WO9824910 A2 19980611 [WO9824910]
 STG: Publ. Of int. Appl. W/out int. Search rep
 AP : 1997WO-US22125 19971205
 - AU7625698 A 19980629 [AU9876256]
 STG: Open to public inspection
 AP : 1998AU-0076256 19971205
 - WO9824910 A3 19980903 [WO9824910]
 STG: Subsqu. Publ. Of int. Search report
 - EP0946730 A2 19991006 [EP-946730]
 STG: Pub. Of applic. Without search report
 AP : 1997EP-0949733 19971205
 - CN1240001 A 19991229 [CN1240001]
 STG: Unexamined application
 AP : 1997CN-0180372 19971205
 - AU734597 B2 20010621 [AU-734597]
 STG: Patent preceeded by A1
 - BR9713679 A 20010717 [BR9713679]
 STG: Patent Application
 AP : 1997BR-0013679 19971205
 - US2002018781 A1 20020214 [US20020018781]
 STG: Utility Patent Application published on or after January 2, 2001
 AP : 1999US-0336036 19990618
 - US2002039585 A1 20020404 [US20020039585]
 STG: Utility Patent Application published on or after January 2, 2001
 AP : 1999US-0308829 19990714
 - JP2002513278 T 20020508 [JP2002513278]
 STG: Unexam. Pat. Appl. On foreign appl.
 AP : 1998JP-0525766 19971205
 - US6774218 B2 20040810 [US6774218]
 STG: U.S. Patent (with pre-grant pub.) after Jan. 2, 2001
 FD : Prov. AP US60091864 19980706 [1998US-P091864]
 FD : Prov. AP US60033251 19961206 [1996US-P033251]

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      FD : C.I.P. of US09308829
      FD : PCT/US97/22125 19971205 [1997WO-US22125]
    - US6835818      B2 20041228 [US6835818]
      STG: U.S. Patent (with pre-grant pub.) after Jan. 2, 2001
      FD : Prov. AP US60033251 19961206 [1996US-P033251]
      FD : PCT/US97/22125 19971205 [1997WO-US22125]
      FD : WO98/24910 19980611 [WO9824910]
TI - MUTANTS OF STREPTOCOCCAL TOXIN C AND METHODS OF USE
PA - GAHR PAMALA J; MERCHANT & GOULD; MERCHANT AND GOULD; MITCHELL DAVID T;
    OHLENDORF DOUGLAS; SCHLIEVERT PATRICK M; UNIV MINNESOTA
PA0 - Regents of the University of Minnesota, Minneapolis MN [US]
IN - SCHLIEVERT PATRICK M; OHLENDORF DOUGLAS; MITCHELL DAVID T; GAHR PAMALA
    J
PR - 1996US-P033251 19961206; 1997WO-US22125 19971205; 1998US-P091864
    19980706; 1999US-0308829 19990714; 1999US-0336036 19990618
IC - A61K-039/09 C07K-014/315 C12N-001/21 C12N-005/10 C12N-015/31
EC - C07K-014/315
PCL - ORIGINAL (O) : 530388400; CROSS-REFERENCE (X) : 424093440 424165100
    424183100 424184100 424190100 435007340 435036000 435069300
    435340000 930200000
AB - (US20020018781)
    This invention is directed to mutant SPE-C toxins or fragments
    thereof, vaccine and pharmaceutical compositions, and methods of using
    the vaccine and pharmaceutical compositions. The preferred SPE-C toxin
    has at least one amino acid change and is substantially non-lethal
    compared with the wild type SPE-C toxin. The mutant SPE-C toxins can
    form vaccine compositions useful to protect animals against the
    biological activities of wild type SPE-C toxin.
UP - 2002-08

```

Use the **DETAIL** option, which will allow you to drill-down into the family records, to display the individual bibliographic information for each patent authority record. After FAMing use the following syntax:

PRT <format> DETAIL SET

fam EP1276233/pn

```

1 Patent Groups
** SS 1: Results 1

Search statement 2

prt ful detail set

<< Patent family 1 >>

1/1 FAMPAT - (C) QUESTEL- image
FAN - 20042801501151
PN - GB0216065 D0 20020821 [GB200216065]
TI - (D0) Apparatus and method for controlling transmission power in a
    mobile communication system
PA - (D0) SAMSUNG ELECTRONICS CO LTD
IN - (A) JO SUNG-KWON (KR); OH JEONG-TAE (KR); YANG SANG-HYUN (KR)
PR - KR2001042312 20010713 [2001KR-0042312]
IC - (A) H03G-003/20
EC - H04B-007/005B6
ICO - T04B-007/005B2Q
CT - Cited in the search report
    - US5930299(A);US2001000456(A)
AB - An apparatus and method for maximizing the efficiency of a power
    amplifier by reducing the PAPR of a BS in a mobile communication
    system. A power controller between I and Q channel pulse shaping
    filters and a frequency converter calculates cancellation signals for
    signal pulses that increase the PAPR at each sampling period,
    pulse-shape-filters cancellation signals at the highest levels among
    the cancellation signals, and adds the filtered cancellation signals
    to the original signals. Thus, spectral regrowth outside a signal
    frequency band is suppressed. In the case of a system supporting
    multiple frequency allocations, the PAPR is controlled for each FA
    according to its service class. Therefore, minimum system performance
    is ensured and power use efficiency is increased.
UP - 2003-28

1/1 FAMPAT - (C) QUESTEL
FAN - 20042801501151
PN - EP1276233 A2 20030115 [EP1276233]
TI - (A2) Apparatus and method for controlling transmission power in a
    mobile communication system
PA - (A2) SAMSUNG ELECTRONICS CO LTD (KR)
IN - (A2) JO SUNG-KWON (KR); OH JEONG-TAE (KR); YANG SANG-HYUN (KR)
PR - KR2001042312 20010713 [2001KR-0042312]
IC - (A2) H03G-003/30
EC - H04B-007/005B6
ICO - T04B-007/005B2Q
DS - AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR
    - AL LT LV MK RO SI
AB - Abstract in publication language
    - An apparatus and method for maximizing the efficiency of a power
    amplifier by reducing the PAPR of a BS in a mobile communication
    system. A power controller between I and Q channel pulse shaping
    filters and a frequency converter calculates cancellation signals for
    signal pulses that increase the PAPR at each sampling period,
    pulse-shape-filters cancellation signals at the highest levels among
    the cancellation signals, and adds the filtered cancellation signals

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to the original signals. Thus, spectral regrowth outside a signal frequency band is suppressed. In the case of a system supporting multiple frequency allocations, the PAPR is controlled for each FA according to its service class. Therefore, minimum system performance is ensured and power use efficiency is increased.

UP - 2003-28

1/1 FAMPAT - (C) QUESTEL

FAN - 20042801501151

PN - FR2827445 A1 20030117 [FR2827445]

PA - (A1) SAMSUNG ELECTRONICS CO LTD (KR)

PAO - SAMSUNG ELECTRONICS CO LTD; 416 MAETAN DONG PALDAL KU SUWON CITY KYUNGKI DO COREE

IN - (A1) JO SUNG KWON; OH JEONG TAE; YANG SANG HYUN

PR - KR2001042312 20010713 [2001KR-0042312]

IC - (A1) H04B-007/005 H04Q-007/30

EC - H04B-007/005B6

ICO - T04B-007/005B2Q

AB - Publication abstract in french.

- Une unité de commande de puissance (2-8) intercalée entre des filtres de mise en forme d'impulsions de canal I et Q (2-3, 2-4) et un convertisseur de fréquence (2-5), calcule des signaux d'annulation pour des impulsions de signal qui augmentent le rapport entre la puissance de crête et la puissance moyenne à chaque période d'échantillonnage, applique un filtrage de mise en forme d'impulsions à des signaux d'annulation ayant les niveaux les plus élevés, et additionne aux signaux originaux les signaux d'annulation filtrés. Une croissance spectrale à l'extérieur d'une bande de fréquence de signal est ainsi atténuée. Dans le cas d'un système supportant de multiples allocations de fréquence, le rapport entre la puissance de crête et la puissance moyenne est commandé pour chaque allocation de fréquence conformément à sa classe de service. Ceci permet de garantir des performances de système minimales et d'augmenter l'efficacité d'utilisation de la puissance.

UP - 2003-28

1/1 FAMPAT - (C) QUESTEL

FAN - 20042801501151

PN - KR2003006512 A 20030123 [KR2003006512]

TI - (A) APPARATUS AND METHOD FOR CONTROLLING TRANSMISSION POWER IN MOBILE COMMUNICATION SYSTEM

PA - (A) SAMSUNG ELECTRONICS CO LTD (KR)

IN - (A) CHO SEONG GWON (KR); OH JEONG TAE (KR); YANG SANG HYEON (KR)

PR - KR2001042312 20010713 [2001KR-0042312]

IC - (A) H04B-007/26

UP - 2003-28

1/1 FAMPAT - (C) QUESTEL

FAN - 20042801501151

PN - CA2421235 A1 20030123 [CA2421235]

TI - (A1) APPARATUS AND METHOD FOR CONTROLLING TRANSMISSION POWER IN AMOBILE COMMUNICATION SYSTEM

PA - (A1) SAMSUNG ELECTRONICS CO LTD (KR)

IN - (A1) JO SUNG-KWON (KR); OH JEONG-TAE (KR); YANG SANG-HYUN (KR)

PR - KR2001042312 20010713 [2001KR-0042312]

- WOKR0201304 20020710 [2002WO-KR01304]

IC - (A1) H04B-007/216 H04B-007/26 H04L-027/34 H04Q-007/36

AB - An apparatus and method for maximizing the efficiency of a power amplifier by reducing the PAPR of a BS in a mobile communication system. A power controller between I and Q channel pulse shaping filters and a frequency converter calculates cancellation signals for signal pulses that increase the PAPR at each sampling period, pulse-shape-filters cancellation signals at the highest levels among the cancellation signals, and adds the filtered cancellation signals to the original signals. Thus, spectral regrowth outside a signal frequency band is suppressed. In the case of a system supporting multiple frequency allocations, the PAPR is controlled for each FA according to its service class. Therefore, minimum system performance is ensured and power use efficiency is increased.

UP - 2003-28

1/1 FAMPAT - (C) QUESTEL

FAN - 20042801501151

PN - DE20211598 U1 20030123 [DE20211598]

PA - (U1) SAMSUNG ELECTRONICS CO LTD (KR)

PR - KR2001042312 20010713 [2001KR-0042312]

IC - (U1) H04B-007/005

EC - H04B-007/005B6

ICO - T04B-007/005B2Q

UP - 2003-28

1/1 FAMPAT - (C) QUESTEL

FAN - 20042801501151

PN - WO03007507 A1 20030123 [WO200307507]

TI - (A1) APPARATUS AND METHOD FOR CONTROLLING TRANSMISSION POWER IN A MOBILE COMMUNICATION SYSTEM

PA - (A1) SAMSUNG ELECTRONICS CO LTD (KR)

PAO - SAMSUNG ELECTRONICS CO., LTD; 416, Maetan-dong, Paldal-gu, Suwon-shi, 442-370 Kyonggi-do (KR)

IN - (A1) JO SUNG-KWON; OH JEONG-TAE; YANG SANG-HYUN

PR - KR2001042312 20010713 [2001KR-0042312]

IC - (A1) H04B-007/26

EC - H04B-007/005B6

ICO - T04B-007/005B2Q

DS - AU; BR; CA; CN; IN; JP; RU

CT - Cited in the search report

- US5302914(A) (Cat. A); US5991262(A) (Cat. A)

- "Multi-rate modulation scheme with controlled peak-to-average power ration using balanced incomplete block design", Harvatin, D.T., Ziemer, R.E. (Univ. of Colorado), IEEE ICC 2001, Vol. 4, 11-14 June 2001, Pages 1028-1032 (Cat. A)

AB - An apparatus and method for maximizing the efficiency of a power

amplifier by reducing the PAPR of a BS in a mobile communication system. A power controller between I and Q channel pulse shaping filters and a frequency converter calculates cancellation signals for signal pulses that increase the PAPR at each sampling period, pulse-shape-filters cancellation signals at the highest levels among the cancellation signals, and adds the filtered cancellation signals to the original signals. Thus, spectral regrowth outside a signal frequency band is suppressed. In the case of a system supporting multiple frequency allocations, the PAPR is controlled for each FA according to its service class. Therefore, minimum system performance is ensured and power use efficiency is increased.

UP - 2003-28

1/1 FAMPAT - (C) QUESTEL

FAN - 20042801501151

PN - US2003054851 A1 20030320 [US20030054851]

TI - (A1) Apparatus and method for controlling transmission power in a mobile communication system

PA - (A1) SAMSUNG ELECTRONICS CO LTD (KR)

PAO - SAMSUNG ELECTRONICS CO., LTD.; KYUNGKI-DO, [KR]

IN - (A1) JO SUNG-KWON (KR); OH JEONG-TAE (KR); YANG SANG-HYUN (KR)

PR - KR2001042312 20010713 [2001KR-0042312]

IC - (A1) H04B-001/00

EC - H04B-007/005B6

ICO - T04B-007/005B2Q

PCL - ORIGINAL (O) : 455522000; CROSS-REFERENCE (X) : 455069000

AB - An apparatus and method for maximizing the efficiency of a power amplifier by reducing the PAPR of a BS in a mobile communication system. A power controller between I and Q channel pulse shaping filters and a frequency converter calculates cancellation signals for signal pulses that increase the PAPR at each sampling period, pulse-shape-filters cancellation signals at the highest levels among the cancellation signals, and adds the filtered cancellation signals to the original signals. Thus, spectral regrowth outside a signal frequency band is suppressed. In the case of a system supporting multiple frequency allocations, the PAPR is controlled for each FA according to its service class. Therefore, minimum system performance is ensured and power use efficiency is increased.

UP - 2003-28

1/1 FAMPAT - (C) QUESTEL

FAN - 20042801501151

PN - CN1466826 T 20040107 [CN1466826]

TI - (T) Apparatus and method for controlling transmission power in mobile communication system

PA - (T) SAMSUNG ELECTRONICS CO LTD (KR)

IN - (T) JEONG-TAE OH (KR); SANG-HYUN KANG (KR); SUNG-KWON JO (KR)

PR - KR2001042312 20010713 [2001KR-0042312]

IC - (T) H04B-007/26

UP - 2003-28

1/1 FAMPAT - (C) QUESTEL

FAN - 20042801501151

PN - JP2004522374 T 20040722 [JP2004522374]

PR - KR2001042312 20010713 [2001KR-0042312]

- WOKR0201304 20020710 [2002WO-KR01304]

IC - (T) H04B-001/707 H04B-007/26 H04L-027/36

UP - 2003-28

Family Citation Display:

The **FAMCITE** command is available in the FAMPAT database, which has citations for EP, FR, GB, PCT and US patents. After conducting a family search for a single patent family, you can display a complete citation report with the FAMCITE command. The report display in three parts:

- The original source family
- The citing patent families (families with a patent citing a member of the source family)
- The cited patent families (families with a patent cited by a member of the source family)

The results in all three sections show complete families. These fields are included for each family in the citation report :

- PN Number and date of publication of all members
- TI English title of the first member
- OTI Non-English title of the first member
- PA Applicant of the first member
- IN Inventor of the first member
- AP Application numbers and dates of all members
- PR Priority numbers and dates of all members
- CT Citations
- AB Summary of first member

You can also display clipped images by adding the parameter IMG. The complete command syntax is:

FAMCITE IMG.

The maximum initial set size for both commands is 1,000 records.

File : FAMPAT

SS Results

1 1 (1) ..FAM US5898235/PN

<< Citation Report >>

<< Source Patent Family >>

1/1 FAMPAT - (C) Questel- image

PN - US5898235 A 19990427 [US5898235]

- JP10214487 A 19980811 [JP10214487]

TI - Integrated circuit with power dissipation control

PA - ST MICROELECTRONICS INC

PA0 - STMicroelectronics, Inc., Carrollton TX [US]

IN - MCCLURE DAVID C

AP - 1996US-0775611 19961231; 1997JP-0354340 19971224

PR - 1996US-0775611 19961231

CT - (US5898235)

Unspecified source

US4683382 [US4683382] 365227000

US5167024 [US5167024] 364273100

US5483464 [US5483464] 307064000

US5513361 [US5513361] 395750030

CT - (JP10214487)

(A) Examiner citations - reason for refusal [19]

JP (U1) 1985164237 [JP60164237U]

JP (A) 1991046193 [JP03046193]

JP (A) 1994012876 [JP06012876]

JP (A) 1994131876 [JP06131876]

AB - (US5898235)

An integrated circuit device such as an SRAM operating in a battery backup mode, or operating in a quiescent mode when deselected in the operation of a portable electronic device, includes a power dissipation control circuit that reduces the voltage on an internal power supply node so that the memory array is powered at a minimum level sufficient to retain the data stored therein intact.

<< Citing Patents: Subsequent Patents Citing Source Family >>

1/8 FAMPAT - (C) Questel- image

PN - JP2005165716 A 20050623 [JP2005165716]

TI - REGULATOR UNIT AND BACKWARD FLOW PREVENTION DIODE CIRCUIT USING THE SAME

PA - TOSHIBA CORP

PA0 - TOSHIBA CORP

IN - NAKAGAWARA TOMOMASA

AP - 2003JP-0404241 20031203

PR - 2003JP-0404241 20031203

CT - (JP2005165716)

(A) Examiner citations - reason for refusal [19]

JP (A) 2001326535 [JP2001326535]

JP (A) 1998214487 [JP10214487]

JP (A) 2002169618 [JP2002169618]

JP (A) 2002312044 [JP2002312044]

JP (A) 2003198346 [JP2003198346]

JP (A) 1987276908 [JP62276908]

JP (A) 1991021114 [JP03021114]

JP (A) 1996314553 [JP08314553]

JP (A) 2001282372 [JP2001282372]

JP (A) 1991186909 [JP03186909]

JP (A) 2000039923 [JP2000039923]

JP (A) 1996106331 [JP08106331]

JP (A) 1999176948 [JP11176948]

JP (A) 1998341141 [JP10341141]

JP (A) 2002344251 [JP2002344251]

JP (A) 2001166837 [JP2001166837]

AB - (JP2005165716)

PROBLEM TO BE SOLVED: To provide a regulator unit and a backward flow prevention diode circuit capable of miniaturizing and saving its space.

- SOLUTION: The backward flow prevention diode circuit comprises a MOS transistor M1 connecting a source with an input terminal IN and

connecting a drain with an output terminal OUT, a differential amplifier 13 comparing output voltage divided with a voltage dividing circuit 12 and outputting current proportional to its difference, a MOS transistor M2 forming a current mirror circuit 14 by means of the MOS transistor M1 and feeding current with times of a mirror ratio to the MOS transistor M1 on the basis of output current of the differential amplifier 13, and a MOS transistor M3 monitoring drain current of the MOS transistor M1 by forming a current mirror circuit 24 by means of the MOS transistor M2. Further, a MOS transistor M4 being a short circuit between a gate and a source and connecting a backgate with the source is set to be a backward flow prevention diode circuit 41.

- COPYRIGHT: (C)2005,JPO&NCIPI

2/8 FAMPAT - (C) Questel

PN - US2003057429 A1 20030327 [US20030057429]
 - US6710424 B2 20040323 [US6710424]

TI - RF chipset architecture

PA - AIRIP

PA0 - AirIP, Palo Alto CA [US]

IN - SCHMIDT DOMINIK J

AP - 2001US-0962717 20010921

PR - 2001US-0962717 20010921

CT - (US20030057429)

Examiner citations

US5898235 [US5898235] 307064000

US6087198 [US6087198] 438051000

US6125268 [US6125268] 455168100

US6380835 [US6380835] 336200000

US6400001 [US6400001] 257601000

US6407441 [US6407441] 257531000

US6477606 [US6477606] 710305000

US6484038 [US6484038] 455552100

US6548942 [US6548942] 310364000

US6627507 [US6627507] 257531000

US6627992 [US6627992] 257728000

AB - (US20030057429)

A set of radio frequency (RF) integrated circuits includes a transmit chip having a power amplifier and a receive chip adapted to work with the transmit chip. The receive chip has one or more low noise amplifiers to receive RF signals, and a processor coupled to the low noise amplifiers, the processor transmitting data through the transmit chip and receiving data from the on-chip low noise amplifiers.

3/8 FAMPAT - (C) Questel- image

PN - US2002071330 A1 20020613 [US20020071330]
 - US6560157 B2 20030506 [US6560157]

- JP2002176143 A 20020621 [JP2002176143]

- KR20020045498 A 20020619 [KR20020045498]

TI - Semiconductor device

PA - MITSUBISHI ELECTRIC CORP

PA0 - Mitsubishi Denki Kabushiki Kaisha, Tokyo [JP]

IN - SUGITA MITSURU; HASHIMOTO HIROYUKI

IN0 - HASHIMOTO HIROYUKI; SUGITA MITSURU

AP - 2000JP-0373966 20001208; 2001US-0860429 20010521; 2001KR-0047470 20010807

PR - 2000JP-0373966 20001208

CT - (US20020071330)

Unspecified source

US4683382 [US4683382] 365227000

US5612920 [US5612920] 365226000

US5898235 [US5898235] 307064000

US6426908 [US6426908] 365226000

JP11119844 A [JP11119844]

JP11213667 A [JP11213667]

AB - (US20020071330)

A semiconductor device of one chip has a first power supply terminal allowing connection with an external power supply IC, a second power supply terminal allowing connection with the external power supply IC, a main voltage dropping circuit connected with the first power supply terminal, a secondary voltage dropping circuit connected with the second power supply terminal, and an internal circuit connected with the main voltage dropping circuit and the secondary voltage dropping

circuit. A high voltage of the external power supply IC is received in the main voltage dropping circuit through the first power supply terminal and is dropped. The high or low voltage of the external power supply IC is received in the secondary voltage dropping circuit through the second power supply terminal and is dropped. The internal circuit is operated by using the dropped voltage obtained in the main or secondary voltage dropping circuit.

4/8 FAMPAT - (C) Questel- image

PN - US6651176 B1 20031118 [US6651176]
- US2005198538 A1 20050908 [US20050198538]
- US7281147 B2 20071009 [US7281147]

TI - Systems and methods for variable control of power dissipation in a pipelined processor

PA - HEWLETT PACKARD DEVELOPMENT CO

PA0 - Hewlett-Packard Development Company, L.P., Houston TX [US]

IN - SOLTIS JR DONALD C; COLON-BONET GLENN T

AP - 1999US-0457169 19991208; 2003US-0644184 20030820

PR - 1999US-0457169 19991208; 2003US-0644184 20030820

CT - (US6651176)

Search Report [Examiner]
US4644466 (A) [US4644466]
US5559458 (A) [US5559458]
US5941991 (A) [US5941991]
US6122728 (A) [US6122728]
US6182232 (B1) [US6182232]
US6195756 (B1) [US6195756]
US6219723 (B1) [US6219723]
US6275928 (B1) [US6275928]
US6357016 (B1) [US6357016]
US6367023 (B2) [US6367023]

- Applicant citations

US5452215 (A) [US5452215]
US5521834 (A) [US5521834]
US5557531 (A) [US5557531]
US5666506 (A) [US5666506]
US5684422 (A) [US5684422]
US5751984 (A) [US5751984]
US5859999 (A) [US5859999]
US5860017 (A) [US5860017]
US5884061 (A) [US5884061]
US5898235 (A) [US5898235]
US5903768 (A) [US5903768]
US5938755 (A) [US5938755]

CT - (US20050198538)

Search Report [Examiner]
US5719800 (A) [US5719800]
US5740417 (A) [US5740417]
US6564332 (B1) [US6564332]

- Applicant citations

US4644466 (A) [US4644466]
US5452215 (A) [US5452215]
US5521834 (A) [US5521834]
US5557531 (A) [US5557531]
US5559458 (A) [US5559458]
US5666506 (A) [US5666506]
US5684422 (A) [US5684422]
US5751984 (A) [US5751984]
US5859999 (A) [US5859999]
US5860017 (A) [US5860017]
US5884061 (A) [US5884061]
US5898235 (A) [US5898235]
US5903768 (A) [US5903768]
US5938755 (A) [US5938755]
US5941991 (A) [US5941991]
US6122728 (A) [US6122728]
US6195756 (B1) [US6195756]
US6275928 (B1) [US6275928]
US6357016 (B1) [US6357016]
US6367023 (B2) [US6367023]

REF - (US6651176)

Applicant references

-Alexander Wolfe, "Patents shed light on Merced", Electronic

Engineering Times, Feb. 15, 1999, pp. 43-44.

REF - (US20050198538)
 Applicant references
 -Wolfe, Alexander; "Patents Shed Light On Merced"; Electronic
 Engineering Times; Feb. 15, 1999; pp. 43-44.

AB - (US6651176)
 The invention controls maximum average power dissipation by stalling high power instructions through the pipeline of a pipelined processor. A power dissipation controller stalls the high power instructions in order to control the processor's maximum average power dissipation. Preferably, the controller is modeled after a capacitive system with a constant output rate and a throttled input rate: the output rate represents the steady state maximum average power dissipation; while the input rate is stalled based upon current capacity, representing thermal response time. At start-up, the capacity is initialized. Yet for each high power instruction, the capacity increases by a weighted value. Each clock capacity is also decreased by a variable output rate. In particular, a low power operation is inserted to the stage execution circuit where the stall is desired, creating a low power state for that circuit. This stall effectively creates a "hole" at that pipeline stage, thus temporarily reducing power dissipation. The invention takes advantage of the fact that the presence of an instruction at any stage execution circuit dissipates power and that the absence (i.e., a "hole") of an instruction at any stage dissipates less power. By controlling where and when a hole occurs within the pipeline, the maximum average power dissipation of the processor is controlled.

5/8 FAMPAT - (C) Questel- image

PN - US6294404 B1 20010925 [US6294404]
 - JP2001155487 A 20010608 [JP2001155487]
 - TW527596 B 20030411 [TW-527596]

TI - Semiconductor integrated circuit having function of reducing a power consumption and semiconductor integrated circuit system comprising this semiconductor integrated circuit

PA - MITSUBISHI ELECTRIC CORP
 PA0 - Mitsubishi Denki Kabushiki Kaisha, Tokyo [JP]
 IN - SATO HIROTOSHI
 AP - 1999JP-0339609 19991130; 2000US-0568058 20000510; 2000TW-0116902 20000821
 PR - 1999JP-0339609 19991130
 CT - (US6294404)
 Unspecified source
 US5265060 [US5265060] 365208000
 US5543649 [US5543649] 257355000
 US5898235 [US5898235] 307064000
 US5955904 [US5955904] 327156000
 JP10-214487 [JP10214487]

AB - (US6294404)
 A semiconductor integrated circuit according to the present invention comprises a synchronous SRAM, a signal generation circuit generating a chip selection signal, a clock signal etc. supplied to the synchronous SRAM, a voltage set circuit setting the voltage of a system power supply line and a controller controlling the signal generation circuit and the voltage set circuit. When setting the synchronous SRAM in a power down mode, the chip selection signal is set in a nonselective state and the power supply voltage of the system power supply line is stepped down to a standby potential. Thus, the synchronous SRAM enters a standby state having extremely low power consumption.

6/8 FAMPAT - (C) Questel

PN - US2001028270 A1 20011011 [US2001028270]
 - US6396336 B2 20020528 [US6396336]
 - US6333671 B1 20011225 [US6333671]

TI - Sleep mode VDD detune for power reduction

PA - IBM
 PA0 - International Business Machines Corporation, Armonk NY [US]
 IN - ROBERTS ALAN L; WISTORT REID A
 AP - 1999US-0433279 19991103; 2001US-0883048 20010615
 PR - 1999US-0433279 19991103; 2001US-0883048 20010615
 CT - (US2001028270)
 Unspecified source
 US4130899 [US4130899] 365222000

US4683382 [US4683382] 327544000
 US4691123 [US4691123] 327546000
 US4716463 [US4716463] 348730000
 US5077518 [US5077518] 323275000
 US5477279 [US5477279] 348730000
 US5511026 [US5511026] 365189010
 US5530398 [US5530398] 327545000
 US5663919 [US5663919] 365226000
 US5747977 [US5747977] 323284000
 US5773966 [US5773966] 323284000
 US5898235 [US5898235] 307064000
 US6049245 [US6049245] 327544000
 US6118267 [US6118267] 323364000
 JP6-175956 [JP06175956]
 CT - (US6333671)
 Unspecified source
 US4130899 [US4130899] 365226000
 US4683382 [US4683382] 327306000
 US4691123 [US4691123] 327546000
 US4716463 [US4716463] 348730000
 US5077518 [US5077518] 323275000
 US5477279 [US5477279] 348730000
 US5511026 [US5511026] 365189090
 US5530398 [US5530398] 327545000
 US5663919 [US5663919] 365226000
 US5747977 [US5747977] 323284000
 US5773966 [US5773966] 323284000
 US5898235 [US5898235] 307064000
 US6049245 [US6049245] 327544000
 US6118267 [US6118267] 323364000
 JP6-175956 [JP06175956]
 REF - (US6333671)
 - "Leakage Current Reduction/Minimization through Substrate and/or Well Bias Control Coupled with Clock Power Management", IBM Technical Disclosure Bulletin, vol. 41 No. 01, Jan. 1998, pp. 547-549.
 AB - (US20010028270)
 The leakage current on a semiconductor is reduced while the semiconductor is in a sleep mode. This is accomplished by (1) placing the semiconductor in the sleep mode; (2) providing the semiconductor an internal supply voltage derived from an external supply voltage applied to the semiconductor chip (where the internal supply voltage is less in quantity than the external supply voltage); and (3) reducing the internal supply voltage when the semiconductor enters the sleep mode from an activated mode and returning the internal supply voltage to an activated mode level when the semiconductor returns to the activated mode. The reducing step includes supplying the external supply voltage to a reference circuit which outputs therefrom a reference voltage; and supplying the reference voltage to a regulator, where the regulator attempts to match the reference voltage and outputs therefrom the internal supply voltage. The reference circuit reduces the reference voltage when the semiconductor enters the sleep mode from an activated mode and returns the reference voltage to the activated mode level when the semiconductor returns to the activated mode. The reducing step can be performed by reducing the current flow to one or more diodes in the reference circuit when the semiconductor enters the sleep mode from the activated mode, and increasing the current flow to the diodes when the semiconductor reenters the activated mode from the sleep mode.
 7/8 FAMPAT - (C) Questel- image
 PN - JP2000163141 A 20000616 [JP2000163141]
 TI - STEP-DOWN POWER SOURCE CIRCUIT
 PA - NEC CORP
 PA0 - (A) NEC CORP
 IN - NARAHARA TETSUYA
 AP - 1998JP-0335418 19981126
 PR - 1998JP-0335418 19981126
 CT - (JP2000163141)
 (A) Examiner citations - reason for refusal [19]
 JP (A) 1993088765 [JP05088765]
 JP (A) 1985039219 [JP60039219]
 JP (A) 1998214487 [JP10214487]
 JP (A) 1991214212 [JP03214212]

AB - (JP2000163141)
 PROBLEM TO BE SOLVED: To reduce current consumption at the time of stand-by in a battery driving system.

- SOLUTION: This is a step-down power source circuit operated by an outside power source and provided with a regulator circuit for stepping-down an outside power supply voltage to an inside power supply voltage. A simple step-down circuit 7 is added between the outside power source and an inside power source line, and the regulator circuit is stopped by an STOP signal when a system clock is stepped, and the outside power supply voltage is stepped-down to the inside power supply voltage by the simple step-down circuit 7. The simple step-down circuit 7 is constituted by serially connecting a transistor which is turned on when the system clock is stopped with plural diode-connected transistors.

- COPYRIGHT: (C)2000,JPO

8/8 FAMPAT - (C) Questel- image

PN - US6377681 B1 20020423 [US6377681]

TI - Signal line driving circuit with self-controlled power dissipation

PA - NAT SEMICONDUCTOR CORP

PA0 - National Semiconductor Corporation, Santa Clara CA [US]

IN - BREMNER DUNCAN JAMES

AP - 1998US-0053110 19980401

PR - 1998US-0053110 19980401

CT - (US6377681)
 Unspecified source
 US5138658 [US5138658] 379378000
 US5323461 [US5323461] 379399000
 US5428682 [US5428682] 379413000
 US5881129 [US5881129] 379005000
 US5898235 [US5898235] 307064000
 US5912513 [US5912513] 379413000
 US6005934 [US6005934] 379398000

AB - (US6377681)
 A signal line driving circuit with power control for selectively reducing internal power dissipation when driving an external load. While driving the external load with a constant current the output voltage generated across such load is monitored. If the load impedance decreases sufficiently to cause the output voltage to fall below a predetermined threshold value and, therefore, cause the voltage across the signal line driving circuit to increase, the magnitude of the power supply voltage is automatically reduced, thereby reducing the voltage across the signal line driving circuit. Such a signal line driving circuit is particularly advantageous as a subscriber line interface circuit (SLIC). As the subscriber goes from an on-hook condition to an off-hook condition and if the subscriber loop is sufficiently short (or low in impedance), a lower power supply voltage is used to minimize the power dissipation of the SLIC while still maintaining the required subscriber loop current.

<< Cited Patents: Previous Patents Cited by Source Family >>

1/8 FAMPAT - (C) Questel- image

PN - US5513361 A 19960430 [US5513361]

TI - Method and apparatus for reducing power consumption of a fan in a computer system

PA - INTEL CORP

PA0 - Intel Corporation, Santa Clara CA [US]

IN - YOUNG BRUCE A

AP - 1994US-0279544 19940725

PR - 1994US-0279544 19940725

CT - (US5513361)
 Unspecified source
 US4151611 [US4151611] 365227000
 US4279020 [US4279020] 395750000
 US4293927 [US4293927] 395750000
 US4381552 [US4381552] 364707000
 US4615005 [US4615005] 395550000
 US4642441 [US4642441] 392365000
 US4698748 [US4698748] 395750000
 US4712196 [US4712196] 365229000
 US4809163 [US4809163] 395750000
 US4842431 [US4842431] 400719000
 US4980836 [US4980836] 364483000

US5247805 [US5247805] 062184000
AB - (US5513361)
A circuit for controlling power consumption of a fan within a computer system having a central processing unit (CPU) is described. The circuit includes a filter circuit coupled to receive a periodical pulse signal for detecting duty cycle of the periodical pulse signal by converting the periodical pulse signal into an analog signal. The analog signal has a voltage level proportional to the duty cycle of the periodical pulse signal. The periodical pulse signal is generated to control the CPU to be operational between predetermined intervals when the CPU is in an inactive state. A comparator circuit is coupled to the filter circuit for comparing the voltage level of the analog signal with a predetermined voltage level. When the voltage level of the analog signal is below the predetermined voltage level, the comparator circuit generates a switching signal. A switching circuit is coupled to (1) a power supply, (2) the fan, and (3) the comparator circuit for disconnecting the power supply from the fan when the switching signal is generated by the comparator circuit so as to substantially reduce the power consumption of the fan in the computer system when the CPU is in the inactive state. A computer system having the circuit for controlling power consumption of a fan in the system and a method for controlling power consumption of a fan in a computer system are also described.

2/8 FAMPAT - (C) Questel- image

PN - US5483464 A 19960109 [US5483464]
- KR950005216 B1 19950522 [KR9505216]
TI - Power saving apparatus for use in peripheral equipment of a computer
PA - SAMSUNG ELECTRONICS CO LTD
PA0 - SamSung Electronics Company, Ltd., Kyungki-do [KR]
IN - SONG MOON-JONG
AP - 1993KR-0005332 19930331; 1993US-0176450 19931230
PR - 1993KR-0005332 19930331
CT - (US5483464)

Unspecified source

US4365290 [US4365290] 364707000
US4591914 [US4591914] 307064000
US4593349 [US4593349] 364492000
US4667289 [US4667289] 364707000
US4674031 [US4674031] 364492000
US4677566 [US4677566] 364492000
US4747041 [US4747041] 364707000
US5059961 [US5059961] 345010000
US5163124 [US5163124] 395750000
US5175845 [US5175845] 364707000
US5214785 [US5214785] 395800000
US5237692 [US5237692] 395725000
US5249298 [US5249298] 395750000
US5251320 [US5251320] 395750000
US5293494 [US5293494] 395275000
US5347167 [US5347167] 364493000
US5375245 [US5375245] 395750000
US5384721 [US5384721] 364707000
US5408668 [US5408668] 395750000

AB - (US5483464)
An apparatus for use in the peripheral equipment of a computer reduces the needless consumption of power. Once it has been determined that the computer has not been used for a predetermined period of time, an operation control signal indicative of a specific control mode is supplied for controlling the supply of power to the computer's peripheral equipment and the computer's operating state. The operation of a power supply means for generating operating power to a computer's peripheral equipment is controlled in response to a detected control mode. Accordingly, energy is conserved by controlling the supply of power and the operating state of a computer's peripheral equipment according to the peripheral equipment's operational state.

3/8 FAMPAT - (C) Questel- image

PN - US5367487 A 19941122 [US5367487]
- JP6131876 A 19940513 [JP06131876]
- JP2752304 B2 19980518 [JP2752304]
TI - Semiconductor memory device
PA - TOSHIBA KK
PA0 - Kabushiki Kaisha Toshiba, Kawasaki [JP]

IN - YOSHIDA MUNEHIRO
 AP - 1992JP-0283004 19921021; 1993US-0101701 19930804
 PR - 1992JP-0283004 19921021
 CT - (US5367487)
 Search Report [Examiner]
 US4691123(A) [US4691123]
 US5046052(A) [US5046052]
 US5222044(A) [US5222044]

CT - (JP06131876)
 (A) Examiner citations - reason for refusal [19]
 JP (A) 1990306492 [JP02306492]
 JP (A) 1985045997 [JP60045997]
 JP (A) 1992015949 [JP04015949]
 JP (A) 1991230389 [JP03230389]
 JP (A) 1982172761 [JP57172761]
 - (B2) Search Report [Examiner]
 JP57172761(A) [JP57172761]
 JP3230389(A) [JP03230389]
 JP4015949(A) [JP04015949]
 JP60045997(A) [JP60045997]
 JP2306492(A) [JP02306492]

AB - (US5367487)
 An external source voltage is received by a semiconductor memory chip. A first source voltage corresponding to the external source voltage and a second source voltage which is lower than the first source voltage are supplied to an internal circuit of the semiconductor memory chip. The memory chip includes a memory cell array section, having at least a sense amplifier, and a peripheral circuit. The first source voltage is supplied to the memory cell array section when data is transferred between the semiconductor memory chip and an external device, and the second source voltage is supplied thereto to read and write data within the semiconductor memory chip when data is maintained only. The first source voltage is supplied to the peripheral circuit, when the second source voltage is supplied to the memory cell array section to maintain data.

4/8 FAMPAT - (C) Questel- image

PN - JP6012876 A 19940121 [JP06012876]
 - JP3195052 B2 20010806 [JP3195052]

TI - CHANGEOVER CIRCUIT FOR POWER SOURCE

PA - ROHM CO LTD

PA0 - (A) ROHM CO LTD

IN - TANAKA TOSHIMASA

AP - 1992JP-0167502 19920625

PR - 1992JP-0167502 19920625

CT - (JP06012876)

(A) Examiner citations - reason for refusal [19]

JP (U) 1993008800 [JP05008800U]

AB - (JP06012876)

PURPOSE: To eliminate a voltage loss caused by a switching element and to stabilize the voltage by operating a MOS transistor by means of a controlling circuit and performing switching operation.

- CONSTITUTION: MOS transistors P1 and P2 are provided between a main power source 1 and an output terminal 3 and between a backup power source 2 and the output terminal 3, respectively, and switching operation is executed. When a load SRAM 4 is allowed to operate, a low level and a high level voltages are applied on the gates of P1 and P2 from a switching control circuit 5, respectively, P1 is turned on, P2 is turned off and SRAM 4 is connected to the main power source. When SRAM 4 is set to be the backup state, a high and a low voltages are given to the gates of P1 and P2, respectively, P1 is turned off, P2 is turned on and the backup power source 2 is connected to the SRAM. Thus, by using the MOS transistors as a switching means, a voltage loss approaches zero, the allowable range of voltages is extended and the voltage is stably supplied.

- COPYRIGHT: (C)1994,JPO&Japio

5/8 FAMPAT - (C) Questel- image

PN - US5167024 A 19921124 [US5167024]
 - AU6016890 A 19910314 [AU9060168]
 - AU629019 B2 19920924 [AU-629019]
 - CA2024552 A1 19910309 [CA2024552]
 - DE4028175 A1 19910321 [DE4028175]

- GB9018259 D0 19901003 [GB9018259]
 - GB2235797 A 19910313 [GB2235797]
 - GB2235797 B 19930818 [GB2235797]
 - HK36394 A 19940429 [HK9400363]
 - JP3171317 A 19910724 [JP03171317]
 - SE9002838 D0 19900906 [SE9002838]
 - SE9002838 L 19910309 [SE9002838]
 - SE9002838 A 19910309 [SE9002838]
 - SG7294 G 19940610 [SG9400072]

TI - Power management for a laptop computer with slow and sleep modes
 OTI - POWER MANAGEMENT FOR A LAPTOP COMPUTER
 PA - APPLE COMPUTER
 PA0 - Apple Computer, Inc., Cupertino CA [US]
 IN - SMITH R STEVEN; HANLON MIKE S; BAILEY ROBERT L
 INO - SMITH R STEVEN; HANLON MIKE S; BAILEY ROBERT L
 AP - 1990AU-0060168 19900803; 1990GB-0018259 19900820; 1990CA-2024552
 19900904; 1990DE-4028175 19900905; 1990SE-0002838 19900906;
 1990JP-0237294 19900910; 1992US-0845781 19920305; 1994SG-0000072
 19940117; 1994HK-0000363 19940421
 PR - 1989US-0405637 19890908; 1992US-0845781 19920305; 1994SG-0000072
 19940117
 CT - (US5167024)
 Unspecified source
 US4019068 [US4019068] 307205000
 US4074351 [US4074351] 364200000
 US4151611 [US4151611] 365227000
 US4279020 [US4279020] 364900000
 US4293927 [US4293927] 364900000
 US4317181 [US4317181] 364707000
 US4381552 [US4381552] 364900000
 US4409665 [US4409665] 364707000
 US4611289 [US4611289] 364492000
 US4615005 [US4615005] 364200000
 US4698748 [US4698748] 395750000
 US4712196 [US4712196] 365229000
 US4747041 [US4747041] 364707000
 US4809163 [US4809163] 364200000

 US4851987 [US4851987] 364200000
 US4907150 [US4907150] 364200000
 US4980836 [US4980836] 364200000
 EP1723394 [EP1723394] 364707000
 CT - (GB9018259)
 Search Report [Examiner]
 US4698748(A) [US4698748]

CT - (AU9060168)
 Search Report [Examiner]
 US4698748(A) [US4698748]

AB - (US5167024)
 A power manager within a portable laptop computer provides power and
 clocking control to various units within the computer in order to
 conserve battery power. Transistor switches controlled by the power
 manager control the distribution of power and/or clock signals to the
 various units within the computer. The power manager includes a
 software routine for continually monitoring the various units and when
 these units are either not needed and/or not currently in use, power
 and/or clock signals are removed from a given unit.

6/8 FAMPAT - (C) Questel- image

PN - US5079744 A 19920107 [US5079744]
 - DE4022157 A1 19910124 [DE4022157]
 - DE4022157 C2 19920305 [DE4022157]
 - JP3046193 A 19910227 [JP03046193]
 - KR930009544 B1 19931006 [KR93009544]

TI - TEST APPARATUS FOR STATIC-TYPE SEMICONDUCTOR MEMORY DEVICES
 PA - MITSUBISHI ELECTRIC CORP
 PA0 - Mitsubishi Denki Kabushiki Kaisha, Tokyo [JP]
 IN - TOBITA YUICHI; KIHARA YUJI
 AP - 1989JP-0180969 19890713; 1990US-0547251 19900703; 1990DE-4022157
 19900712; 1990KR-0010671 19900713
 PR - 1989JP-0180969 19890713
 CT - (US5079744)

Unspecified source
 US4267583 [US4267583] 365201000
 US4553225 [US4553225] 365201000
 EP0192121 [EP-192121]
 DE2947764 [DE2947764]
 JP61-280095 [JP61280095]

CT - (DE4022157)
 Search Report [Examiner]
 DE2947764(C2) [DE2947764]
 US4553225(A) [US4553225]
 EP0192121(A2) [EP-192121]
 JP61280095(A) [JP61280095]

REF - (US5079744)
 - 1977 Mitsubishi Integrated Circuit Databook (LSI), vol. 5, pp. 3-6.

AB - (US5079744)
 A static type semiconductor memory device is provided with a power circuit for a disturb test, in which MOS transistors constituting a memory cell are examined for an abnormal threshold voltage. A P-channel MOS transistor is provided between a power supply, and the memory cells. The P-channel MOS transistor is rendered conductive in the normal mode, allowing the voltage to the memory cells as under normal circumstances. In addition, between the power supply and the memory cells, there is provided a series-connection of a diode-connected N-channel MOS transistor and a P-channel MOS transistor. In the disturb test, this P-channel MOS transistor is rendered conductive. As a result, the supply voltage reduced by the N-channel MOS transistor, or a voltage lower than the supply voltage by the threshold voltage of this N-channel MOS transistor is supplied to the memory cells. By configuring the static type semiconductor memory device in this manner, the time required for the potential difference between the two storage nodes in a memory cell to become small enough, due to a defective transistor in the memory cell, to cause malfunction of the device is reduced. Thus, the time required for the disturb test is shortened.

7/8 FAMPAT - (C) Questel
 PN - JP60164237 U 19851031 [JP60164237U]
 AP - 1984JP-U046639 19840330
 PR - 1984JP-U046639 19840330

8/8 FAMPAT - (C) Questel- image
 PN - EP0157905 A2 19851016 [EP-157905]
 - EP0157905 A3 19870729 [EP-157905]
 - EP0157905 B1 19900411 [EP-157905]
 - DE3481957 D1 19900517 [DE3481957]
 - JP60176121 A 19850910 [JP60176121]
 - JP5047848 B 19930719 [JP93047848]
 - JP1838072 C 19940411 [JP1838072]
 - US4683382 A 19870728 [US4683382]

TI - Semiconductor device.
 PA - TOSHIBA KK
 PA0 - KABUSHIKI KAISHA TOSHIBA; 72, Horikawa-cho, Saiwai-ku; Kawasaki-shi, Kanagawa-ken 210 (JP)

IN - SAKURAI TAKAYASU C O PATENT DI; IIZUKA TETSUYA C O PATENT DIVI
 AP - 1984JP-0032068 19840222; 1984DE-3481957 19841030; 1984EP-0113078 19841030; 1984US-0667417 19841101
 PR - 1984JP-0032068 19840222
 CT - (EP-157905)
 Search Report [Examiner]
 US4054830(A) (Cat. A) [US4054830]
 US4390833(A) (Cat. A) [US4390833]
 GB2034937(A) (Cat. A) [GB2034937]
 EP0063483(A2) (Cat. A) [EP--63483]
 JP56153415(A) (Cat. X) [JP56153415]
 JP54137246(A) (Cat. A) [JP54137246]

CT - (US4683382)
 Search Report [Examiner]
 US4580063(A) [US4580063]
 US4581551(A) [US4581551]

REF - (EP-157905)
 Search Report references [Examiner]
 -PATENT ABSTRACTS OF JAPAN, vol. 6, no. 34 (P-104)[912], 2nd March 1982; & JP-A-56 153 415 (SHINDENGEN KOGYO K.K.) 27-11-1981 (Cat. X)

-PATENT ABSTRACTS OF JAPAN, vol. 3, no. 156 , 21st December 1979, page 43 E 161; & JP-A-54 137 246 (OKI DENKI KOGYO K.K.) 24-10-1979 (Cat. A)
 -MOTOROLA TECHNICAL DEVELOPMENTS, vol. 2, January 1982, page 30, Motorola, Schaumburg, Illinois, US; LAL SOOD: "Circuit for reducing standby power for a memory device" (Cat. A)
 REF - (US4683382)
 Search Report references [Examiner]
 -Mano et al., Submission VLSI Memory Circuits, ISSCC Digest of Technical Papers, pp. 234 235, Feb. 1983.
 -Itoh et al., An Experimental IBM DRAW with On Chip Voltage Limiter, ISSCC Digest of Technical Papers, pp. 282 283, Feb. 1983.
 AB - (EP-157905)
 In a semiconductor device according to the invention, first and second voltage dropping circuits (100, 200) for generating voltages (Vin1, Vin2) respectively having smaller values than that of an external power supply voltage (Vext) are provided. The first voltage dropping circuit (100) which consumes relatively less power is always in an operative mode, and the second voltage dropping circuit (200) which consumes more power than that of the first voltage dropping circuit is operated during an interval other than a standby interval. The voltages (Vin1, Vin2) generated by the first and second voltage dropping circuits (100, 200) are supplied to an internal power supply line (12) in parallel with each other.

Extended Family Display

It is possible to display extended family results in one record. This "virtual" record contains the following:

- Publication, application and priority numbers and dates for all members
- Title, Assignee, and Inventor data elements are selected from a specific patent country / authority (see default order below)
- Abstract data may be provided from one preferred patent country /authority or from all family member records with abstracts.
- Cited references
- Designated States will appear for every EP and PCT publication. The EP designated states are from the last EP publication stage.
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This means that title, Assignee, Inventor, and Abstract data will be selected from the EP record as a basis for building the record. If there is no EP record in the family, title, assignee, inventor and abstract data will be selected from the US record. If there is no US record in the family, data from the WO record will be used.

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This is controlled by the POP or OP options.

Example: POP MFAM US

In this example, the Title, Assignee, Inventor, and Abstract for the US member will be used for creating the records and the US numbers will appear first in the merged record. If there is not a US family member, then the default display will be used.

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Order for Patent Country / Authority Publication Numbers in a merged record:

POP/OP MFAM preference then Publication stages in alpha order, e.g.: AT , AU - ZW

Merged Family Display Formats

Examples: PRT MABS 1-5 PRT SS 2 MTST SET

MTST TI OTI IC ICAA ICCA EC ICO PCL FI FTM IDT BC

MINI	PN	TI	PA	PA0	IN	IN0	AP	PR				
MMSS	PN	TI	OTI	PA	PA0	IN	IN0	AP	PR	DS		
MSTD	PN ICCA	TI EC	OTI ICO	PA PCL	PA0 FI	IN FTM	IN0 IDT	AP BC	PR DS	IC	ICAA	
MSTG	PN ICAA	STG ICCA	TI EC	OTI ICO	PA PCL	PA0 FI	IN FTM	IN0 IDT	AP BC	PR DS	IC	
MASE	PN	TI	PA	PA0	IN	IN0	AP	PR	AB			
MSTE	PN ICO	TI PCL	PA FI	PA0 FTM	IN IDT	IN0 BC	AP DS	PR AB	IC	ICAA	ICCA	EC
MSTA	PN ICCA	TI EC	OTI ICO	PA PCL	PA0 FI	IN FTM	IN0 IDT	AP BC	PR DS	IC AB	ICAA	
MMAX	PN ICCA ICO	TI EC PCL	OTI ICO FI	PA PCL FTM	PA0 FI IDT	IN FTM BC	IN0 IDT DS	AP BC AB	PR DS	IC ICAA	ICAA ICCA	EC
MABS	PN ICCA	TI EC	OTI ICO	PA PCL	PA0 FI	IN FTM	IN0 IDT	AP BC	PR DS	IC CT	ICAA REF	AB
MCIT	PN	TI	OTI	PA	PA0	IN	IN0	AP	PR	CT	REF	AB
MALL	PN ICCA	TI EC	OTI ICO	PA PCL	PA0 FI	IN FTM	IN0 IDT	AP BC	PR DS	IC CT	ICAA REF	AB

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The Simple Patent Family

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D2 and D3 belong to family P1-P2,
D4 belongs to family P2-P3, and
D5 to family P3.

Document D1	Priority P1			FAMILY P1
Document D2	Priority P1	Priority P2		FAMILY P1-P2
Document D3	Priority P1	Priority P2		FAMILY P1-P2
Document D4		Priority P2	Priority P3	FAMILY P2- P3
Document D5			Priority P3	FAMILY P3

If all the priorities of two documents are the same, they are referred to as "equivalents". This definition is used in esp@cenet for listing the documents under "also published as" on the bibliographic data view.

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- The Simple Family, use MEM SFM /*MEM SFM (see below)
- Extended or INPADOC family, use FAM or FAM SS command
- FAMPAT family, use FamPat database

FID Family Identification Number

This field contains the unique family identification number attributed by the EPO.
Format : NNNNNNNN and the designation of rep

Note: Not all documents have a FID number and SFM numbers. Among the documents without these numbers are: US designs, very recent documents and back file documents added uniquely by Questel (no DocDB record yet).

SFM Simple Family Member

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MEM /FID RK 1	To select the FID number from relevant document
*MEM /FID	To search for all simple family member documents with this FID numbers
MEM /SFM	To select all the Simple Family Member numbers from relevant document
*MEM /SFM	To search for all simple family member documents by the SFM numbers