

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: OPPEDAHL, Carl Oppendahl & Olson LLP P O Box 4850 Frisco Colorado 80443-4850 United States of America

PCT

**NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION**

(PCT Rule 44.1)

Applicant's or agent's file reference WIMA.P001 WO	Date of mailing (day/month/year) 26 MARCH 2007 (26.03.2007)
International application No. PCT/IB2006/053192	International filing date (day/month/year) 08 SEPTEMBER 2006 (08.09.2006)
Applicant SPD CONTROL SYSTEMS CORPORATION et al	

1. The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.
Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):
When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.
Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70
For more detailed instructions, see the notes on the accompanying sheet.
2. The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
 the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
 no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders


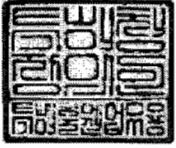
Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer COMMISSIONER Telephone No. 82-42-481-5131	
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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report and the written opinion of the International Searching Authority, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only (see PCT Applicant's Guide, Volume I/A, Annexes B1 and B2).

The attention of the applicant is drawn to the fact that amendments to the claims under Article 19 are not allowed where the International Searching Authority has declared, under Article 17(2), that no international search report would be established (see PCT Applicant's Guide, Volume I/A, paragraph 296).

What parts of the international application may be amended ?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examination Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When ? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments ?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How ? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are numbered, they must be renumbered consecutively (Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments ?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same manners; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in canceling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1 - 10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under Article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceed 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments and any accompanying statement, under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the time of filing the amendments (and any statement) with the International Bureau, also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and, where required, a translation of such amendments for the proceduer before that Authority (see Rule 55.3(a) and 62.2, first sentence). For further information, see the Notes to the demand form (PCT/IPEA/401).

If a demand for international preliminary examination is made, the written opinion of the International Searching Authority will, except in certain cases where the International Preliminary Examining Authority did not act as International Searching Authority and where it has notified the International Bureau under Rule 66.1bis(b), be considered to be a written opinion of the International Preliminary Examining Authority. If a demand is made, the applicant may submit to the International Preliminary Examining Authority a reply to the written opinion together, where appropriate, with amendments before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later (Rule 43bis.1(c)).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see the PCT Applicant's Guide, Volume II.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference WIMA.P001WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/IB2006/053192	International filing date (<i>day/month/year</i>) 08 SEPTEMBER 2006 (08.09.2006)	(Earliest) Priority Date (<i>day/month/year</i>) 08 SEPTEMBER 2005 (08.09.2005)
Applicant SPD CONTROL SYSTEMS CORPORATION et al		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of :

the international application in the language in which it was filed

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

as suggested by the applicant.



because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

b. none of the figure is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2006/053192

A. CLASSIFICATION OF SUBJECT MATTER		
<i>H04L 12/12(2006.01)i, H04L 12/24(2006.01)i</i>		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC8: H02M 3/07, G03B 21/26, G02F 1/153, H04B 1/38		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean Patents and applications for inventions since 1975		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPI, eKIPASS(KIPO internal)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2004-077649 A2 (RESEARCH FRONTIERS INCORPORATED CO., LTD.) 10 September 2004 See abstract; figures 5, 27, 29; page 12 line 2 - page 28 line 13, page 71 line 3 - line 28; claims 1, 4-10, 19, 20, 46, 96.	1-98
A	US 6481851 B1 (STEVE H. MCNELLEY. et al.) 19 November 2002 See abstract; figures 5-7; column 7 line 60 - column 8 line 4, column 8 line 30 - column 9 line 20.	1, 53, 59, 72
A	US 6594067 B2 (DAVID L. POLL. et al.) 15 July 2003 See abstract; column 1 line 15 - line 37.	1, 30-33, 59 1, 59, 72
A	KR 10-2004-0033210 A (LG ELECTRONICS INC., LTD.) 21 April 2004 See abstract.	
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
Date of the actual completion of the international search 26 MARCH 2007 (26.03.2007)		Date of mailing of the international search report 26 MARCH 2007 (26.03.2007)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer YANG, CHAN HO Telephone No. 82-42-481-5689 

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IB2006/053192

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO2004077649 A2	10.09.2004	AU2004214865A1	10.09.2004
		EP01599931A2	30.11.2005
		KR1020050097543	07.10.2005
		US06804040	12.10.2004
		US20040165251A1	26.08.2004
		US2004160660AA	19.08.2004
		US6897997BB	24.05.2005
US06481851 B1	19.11.2002	US2004165060A1	26.08.2004
		US2006181607AA	17.08.2006
US06594067 B2	15.07.2003	US20020075552A1	20.06.2002
		US2003137715A1	24.07.2003
		US2004095631A1	20.05.2004
		US2005117193A1	02.06.2005
		US2006077511AA	13.04.2006
		US6671080BB	30.12.2003
		US6842276BB	11.01.2005
		US6972888BB	06.12.2005
		US7154657BB	26.12.2006
KR2004033210 A	21.04.2004	None	

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

OPPEDAHL, Carl

Opendahl & Olson LLP P O Box 4850 Frisco Colorado
80443-4850 United States of America

Date of mailing
(day/month/year) **26 MARCH 2007 (26.03.2007)**

Applicant's or agent's file reference

WIMA.P001WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/IB2006/053192

International filing date (day/month/year)

08 SEPTEMBER 2006 (08.09.2006)

Priority date(day/month/year)

08 SEPTEMBER 2005 (08.09.2005)

International Patent Classification (IPC) or both national classification and IPC

H04L 12/12(2006.01)i, H04L 12/24(2006.01)i

Applicant

SPD CONTROL SYSTEMS CORPORATION et al

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application


2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR

 Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon
302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Date of completion of this opinion

26 MARCH 2007 (26.03.2007)

Authorized officer

YANG, CHAN HO

Telephone No.82-42-481-5685



WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/IB2006/053192

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :

- the international application in the language in which it was filed
- a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- a sequence listing
- table(s) related to the sequence listing

b. format of material

- on paper
- in electronic form

c. time of filing/furnishing

- contained in the international application as filed.
- filed together with the international application in electronic form.
- furnished subsequently to this Authority for the purposes of search.

3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IB2006/053192

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-98	YES
	Claims	None	NO
Inventive step (IS)	Claims	1-98	YES
	Claims	None	NO
Industrial applicability (IA)	Claims	1-98	YES
	Claims	None	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: WO 2004-077649 A2 (RESEARCH FRONTIERS INCORPORATED CO., LTD.) 10 September 2004

D2: US 6,481,851 B1 (McNelly et al.) 19 November 2002

D1 relates to a method and device for controlling voltage provided to a Suspended Particle Device (SPD).

D2 relates to an adjustable contrast reflected display system.

(1) Novelty (N) and Inventive Step (IS)

The invention relates to an SPD control apparatus and an associated network installed in large arrays in order to dynamically control glass windows.

Claim 1 relates to a system comprising: SPD, radio transceiver, and controllers (master, first, second).

Claims 28 and 47 relate to a control apparatus which controls the opacity of SPD which provides a first lookup table of mapping received commands and a drive giving rise to various opacity values.

Claim 35 relates to a control apparatus which controls the opacity of SPD which provides a first lookup table and responds to manual control information.

Claim 47 relates to a control apparatus which controls the opacity of SPD which provides a sensor circuit and an annunciating means.

Claim 51 relates to a control apparatus which controls the opacity of SPD in which SPD film is activated according to external temperature.

Claim 52 relates to a controller which controls opacity of SPD in which phase or wave shape is successively changed for avoiding resonance forming.

Claim 53 relates to a control apparatus which controls the opacity of SPD in which transparency level using a light source and a photodetector, and the operational parameters of the controller must be auto-adjusted.

Claim 55 relates to a control apparatus which controls the opacity of SPD in which the switching time of SPD material uniformly kept, regardless of the external temperature of SPD material.

(continued on the Supplemental sheet)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IB2006/053192

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claims 28 and 48 are contrary to PCT Rule 6.2(a) because the claims are the same.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IB2006/053192

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of :

Box No. V.

Claim 56 relates to a control apparatus which controls the opacity of SPD in which a power generation circuit is turned off equal to the number of cycles per second.

Claim 57 relates to a control apparatus which controls the opacity of SPD in which a higher-than-normal operating frequency is kept, until it reaches a transparency level.

Claim 58 relates to a control apparatus which controls the opacity of SPD for detecting a break in the SPD material, including a sensor circuit.

Claims 59, 62-65 and 67-71 relate to a method which obviously can be derived from the above system.

Claim 72 differs from claim 1 in using a network interface.

D1 discloses a voltage controller for controlling voltage which is provided to SPD, including: a controller, an AC power supply, an SPD terminal, a photo detector and an input apparatus. The controller has the functions, including: SPD voltage monitoring, voltage dividing device controlling, and alarm signal providing. The photo detector is a device for monitoring the photo level in SPD. The input device has a function of providing voltage level information from a user.

D2 relates to a display system for controlling transparent and opaque degrees by controlling SPD with an electronic controller.

The components of the present application differ from D1 and D2. The characteristic of controlling opacity of SPD by using a radio transceiver and a network interface, and the component of a first lookup table are not disclosed in D1 nor D2. It is not easily invented by a person skilled in the art.

Therefore, claims 1-98 are considered to be novel(PCT Article 33(2)) and to involve an inventive step(PCT Article 33(3)).

(2) Industrial Applicability (IA)

The invention relates to an SPD control apparatus and an associated network installed in large arrays in order to dynamically control glass windows. There is no reason to deny the industrial applicability.

Therefore, claims 1-98 meet the requirement of PCT Article 33(4).