FORM PTO-1619A Expires 06/30/99 OMB 0651-0027

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**PATENT** 

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FORM PTO-1619B Expires 06/30/99 OMB 0651-0027  Page 2  U.S. Department of Commerce Palent and Trademark Office PATENT													
Correspondent Name and Address  Area Code and Telephone Number 312-222-9350													
Name Stanley A. Schlitter													
Address (line 1) Jenner & Block													
Address (line 2) One IBM Plaza													
Address (line 3) Chicago, Illinois 60611													
Address (line 4)													
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4286877 4640617 4784488													
4852955 5011243 4843242													
4764676 4758088 4773757													
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Patent Cooperation Treaty (PCT)													
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only if a U.S. Application Number PCT PCT PCT PCT PCT													
Number of Properties  Enter the total number of properties involved. # 27													
Fee Amount Fee Amount for Properties Listed (37 CFR 3.41): \$ 1080													
Method of Payment: Enclosed Deposit Account X													
Deposit Account  (Enter for payment by deposit account or if additional fees can be charged to the account.)													
Deposit Account Number: # 10-0460													
Authorization to charge additional fees: Yes X No													
Statement and Signature													
To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. Charges to deposit account are authorized, as indicated herein.													
Name of Person Signing  Stanley A. Schlitter  Name of Person Signing  Signature  O/2/99  Date													

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## **Attachment to Form PTO-1619A**

### **Patent Numbers**

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4888714	4812041	4835389	4810093	4812241	5155551
5239409	5313269	4265540	4473295	4538910	4537508
4556316	4544272	4724329	4591266	4657390	Re.32912

PATENT REEL: 009987 FRAME: 0876

### PATENT ASSIGNMENT

WHEREAS, ANALECT INSTRUMENTS, INC., a California corporation ("Seller"), is record owner of all right, title and interest in and to the Patents listed on attached **Schedule 1.1**, as well as any right, title and interest which Seller may have in corresponding patents of jurisdictions other than the United States of America, if any, which is incorporated herein by reference (hereinafter collectively referred to as the "Patents"); and

WHEREAS, ORBITAL SCIENCES CORPORATION, a Delaware corporation ("Buyer"), is desirous of acquiring all right, title and interest in the Patents, pursuant to the Asset Purchase Agreement dated as of October , 1998, by and among Seller, Buyer and Stolberg Partners, L.P., a Delaware limited partnership, and Ohio Valley Venture Fund L.P., an Ohio limited partnership (the "Shareholders").

NOW, THEREFORE, in consideration of good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Seller does hereby irrevocably sell, assign and transfer to Buyer, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America, its territories and possessions, and in all foreign countries, in and to the inventions as described in the Patents and in and to the Patents, all divisions, renewals, reissues, continuations and continuations-in-part thereof, all Letters Patents of the United States which have been or may be granted thereon, together with the right to sue and recover damages for future or past infringements thereof and to fully and entirely stand in the place of Seller in all matters related thereto. Said assigned interest to be held and enjoyed by Buyer for its own use, and by its successors and assigns, to the full end of the terms of the Patents; as fully and entirely as the same would have been held by Seller had this Assignment not been made. Seller agrees to take such further action and to execute such additional documents as may be necessary to perfect Buyer's title in and to the Patents.

Executed this **EX** day of October, 1998

ANALECT INSTRUMENTS, INC.

a California corporation

By:

Roger Hefferman President and Chief Executive Officer

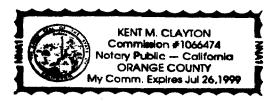
State of <u>CALIFORNIA</u> )

County of ORANGE

On October 3, 1998, before me, Kent M. Clayton, notary public, personally appeared ROGER HEFFERNAN, personally known to me OR proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed in the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the persons(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

(Seal)



Notary Public in and for said State

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# SCHEDULE 1.1 - PATENTS

LPC-15 18	LPC-14 15	LPC-13 16	LPC-12 10	T&C-11 08	LPC-10 08	LPC-09 04	LPC-08 92	LPC-07 92	TPC-08 98	LPC-05 90	LPC-04 90	LPC-03 70		File No. Ser	
181,068	158,214	161,007	100,985	085,403	086,843	045,368	921,212	921,066	907,995	907,993		707,022	061,010	Serial No. H	
88/04/13	88/02/19	88/02/26	87/09/25	87/08/14	87/08/19	87/05/01	86/10/20	86/10/20	86/09/16	86/09/16	86/08/27	85/02/28	79/07/26	Filing Date	
Doyle, Walter M.	Doyle Walter M.	Doyle, Walter M.	Dingle, Larry A.	Shafer, Kenneth H.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M. Hughes, Norman S.	Doyle, Walter M. Hughes, Norman S.	Hughes, Norman S. Doyle, Walter M.	Clarke, William L.	Inventor(s)	
On-line Spectral Analysis of Non-Opaque Sheets During Manufacture	Internal Reflection Spectroscopy for Deep Container Immersion	Spectrometer System Having Pivotally Mounted Internal Reflectance Element	Spectrometer System Having Interconnected Computers at Multiple Optical Heads	Sample Transfer for Infrared Analysis in Thin Layer Chromatography-Structure and Method	High Resolution Spectrometer Interferometer Having an Integrated Alignment Unit	Microscope Accessory Which Facilitates Radiations Transmission Measurements in the Reflectance Mode	Apparatus for Spectral Analysis of Chromatographic Fractions	Infrared Microscope Employing a Projected Field Stop	Reflectance Infrared Microscope Having High Radiation Throughput	Microscope for use in Modular FTIR Spectrometer System	Modular Radiation Transmission Apparatus for Spectrometers	Spectrometers Having Purge Retention During Sample Loading	Refractively Scanned Interferometer	Title	
Abandoned See LPC-19	4,835,389	4,812,041	4,888,714	Abandoned See LPC-17	4,773,757	4,758,088	4,764,676	4,843,242	5,011,243	4,852,955	4,784,488	4,640,617	4,286,877	Patcut No.	
Abandoned See LPC-19	89/05/30	89/03/14	89/12/19	Abandoned See LPC-17	88/09/27	88/07/19	88/08/16	89/06/27	91/04/30	10/80/68	88/11/15	87/02/03	81/09/01	Issue Date	
Abandoned See LPC-19	2008/02/19	2008/02/26	2007/09/25	Abandoned See LPC 17	2007/08/19	2007/05/01	2006/10/20	2006/10/20	2006/09/16	2006/09/16	2006/08/27	2005/02/28	99/07/26	Expires	
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754,416	687,240	92301748.7	92301748.7 92301748.7	4-44595	082,427		709,360	663,374		663,592	538,234	535,176	197,702	173,562	Serial No.	
76/12/27	76/05/17		92/02/28	92/03/02	93/06/28	93/09/17	91/06/03	91/03/01		91/03/01	90/06/13	90/04/19	88/05/23	88/03/25	Filing Date	
Doyle, Walter M.	Doyle, Walter M.	Vidrine, W.	Ponce; Pareja; Vidrine, W.	Ponce; Pareja; Vidrine, W.	Ponce; Vidrine; Parcja	Vidrine, Waren	Doyle, Walter M. Hughes, Norman S.	Vidrine W.; Ponce, F.		Ponce; Pareja; Vidrine, W.	Doyle, Walter M. & McIntosh, Bruce C.	Doyle, Walter M. Hughes, Norman S.	Shafer, Kenneth H.	Doyle, Walter M.	Inventor(s)	
Wavelength Independent Optical Radiation Detector	Film Thickness Measuring Apparatus and Method	Having Removable Optical Cartridge.	Three-Dimensional Refractively Scanning Interferometer Having Removable Optical Cartridge	Three-Dimensional Refractively Scanning Interferometer Having Removable Optical Carridge	Three-Dimensional Refractively Scanning Interferometer Having Removable Optical Cartridge	Contaminant Removal Inside a Sealed Housing for Infrared Light Encoding Systems	Reflectance Infrared Microscope Having High Radiation Throughput	Laser Referencing System for Refractively Scanning Interferometer		Three-Dimensional Refractively Scanning Interferometer Structure	On-line Spectral Analysis of Non-Opaque Sheets During Manufacture	Reflectance Infrared Microscope Having High Radiation Throughput	Sample Transfer for Infrared Analysis in Thin Layer Chromatography - Structure & Method	Versatile and Efficient Radiation Transmission Apparatus and Method for Spectrometers	Title	
Abandoned	4,129,781		Pending	1,999,592	5,313,269	A bandoned 94/04/22	5,239,409	5,155,551		Abandoned Sec I PC-24	Abandoned See LPC-15	Abandoned See LPC-06	4,812,241	4,810,093	Patent No.	
Abandoned	78/12/12		Pending	95/12/08	94/05/17	Abandoned 94/04/22	93/08/24	92/10/13		Abandoned See I PC-24	Abandoned See LPC-15	Abandoned See LPC-06	89/03/14	89/03/07	Issue Date	
Abandoned	96/05/17		Pending	2012/03/02	2011/05/07	Abandoned 94/04/22	2006/09/11	2011/03/01	See LPC-24	Abandoned 92/11/27	Abandoned See LPC-15	Abandoned See LPC-06	2007/08/14	2006/08/11	Expires	
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WMD-18	WMD-17	WMD-16	WMD-15	WMD-14	WMD-13	WMD-12	WMD-11	WMD-10	WMD-09	WMD-08	WMD-07	WMD-06	WMD-05	WMD-04	WMD-03	Kile No.
042,056	895,211	703,762	580,120	539,487	472,013	470,936	470,937	431,346	298,067	291,402	080,287	939,271	830,576	808,951	790,457	Serial No.
87/04/24	86/08/11	85/02/21	84/02/14	83/10/06	83/03/04	83/03/01	83/03/01	82/09/30	81/08/31	81/08/10	79/10/01	78/09/05	77/09/06	77/06/22	77/04/25	Filing Date
Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M. Gentile, John R.	Doyle, Walter M.	Doyle, Walter M	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Doyle, Walter M.	Inventor(s)
Parabolic Focusing Apparatus for Optical Spectroscopy	Versaule and Efficient Radiation Transmission Apparatus and Method for Spectrometers	Universal Spectrometer System Having Modular Sampling Chamber	Parbolic Focusing Apparatus for Optical Spectroscopy	High Efficiency Radiation Source for Infrared Spectrometry	Alignment Apparatus and Method for Interferometer Spectrometers	Interferometer Spectrometer Having Simplified Scanning Motion Control	Interferometer Spectrometer Having Improved Scanning Reference Point	Dual Beam Fourier Spectrometer	Parabolic Focusing Apparatus for Optical Spectroscopy	Parabolic Focusing Apparatus for Optical Spectroscopy	Refractively Scanned Interferometer	Film Measuring Apparatus and Method	Dual Beam Fourier Spectrometer	Refractively Scanned Interferometer	Refractively Scanned Interferometer	Title
Re. 32,912; 4,591,266	Abandoned See LPC-16	4,657,390	4,591,266	4,724,329	4,544,272	4,556,316	4,537,508	4,538,910	4,473,295	Abandoned See WMD-15	4,265,540	4,207,467	4,183,669	4,165,938	4,190,366	Patent No.
89/04/25	Abandoned See LPC-16	87/04/14	86/05/27	88/02/09	85/10/01	81/12/03	85/08/27	85/09/03	84/09/25	Abandoned See WMD-15	81/05/05	80/06/10	80/01/15	79/08/28	80/02/26	Issue Date
2007/04/24	Abandoned See LPC-16	2005/02/21	2004/02/14	2005/02/09	2003/03/04	2003/03/01	2003/03/01	2002/09/30	2001/09/25	Abandoned See WMD-15	99/10/01	98/09/05	97/09/06	97/06/22	97/04/25	Expires
	4601	4388		4722	4104	4102	4102	4416	4278	4157	3773	3713	3674	3646	3691	Reel
	0079	0133		0933	0070	0128	0129	0073	0672	0436	0895	0582	0281	0947	0053	Krame

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