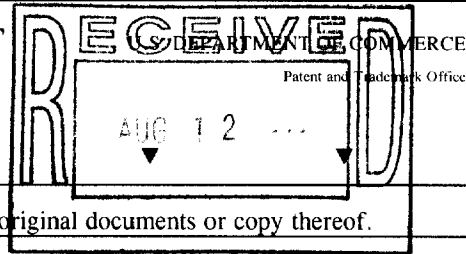


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10-21-1999



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Tab settings

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):
LOCKHEED MARTIN CORPORATION (MD Corporation)

8-12-99

Additional name(s) of conveying party(ies) attached? Yes No

2. Name and address of receiving party(ies):

Name: L-3 Communications Corporation

Internal Address: _____

Street Address: 600 Third Avenue

City: New York State: NY ZIP: 10016

Additional name(s) & addresses attached? Yes No

3. Nature of conveyance:

- Assignment Merger
- Security Agreement Change of Name
- Other _____

Execution Date: April 30, 1997

4. Application number(s) or patents number(s):

06/217378

If this document is being filed together with a new application, the execution date of the application is: _____

A. Patent Application No.(s)

see attached Continuation of Item Four

B. Patent No.(s)

see attached Continuation of Item Four

Additional numbers attached? Yes No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Lori E. Lesser, Esq.

Internal Address: Simpson Thacher & Bartlett

Street Address: 425 Lexington Avenue

City: New York State: New York ZIP: 10017

6. Total number of applications and patents involved: _____

252

7. Total fee (37 CFR 3.41): _____ \$10,080

- Enclosed
- Authorized to be charged to deposit account

8. Deposit account number: _____

(Attached duplicate copy of this page if paying by deposit account)

06/17/1999 MTH011 00000333 06217378

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FC:500 Statement and signature.

(10000.00 OP)

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.

Lori E. Lesser, Esq.
Name of Person Signing

Lori E. Lesser
Signature

8/11/99

Date

Total number of pages comprising cover sheet:

CONTINUATION OF ITEM FOUR FROM RECORDATION COVER SHEET**4. Application number(s) or patents number(s):**

Title	Application/Patent No.
High Frequency Probe	Appl. No. 262,360
Broadband Probe	Appl. No. 280,388
A Low Radar Cross Section (RCS) High Gain Lens Antenna	06/217,378
Low Radar Cross Section [RCS] Narrow Beam Lens Antenna	06/217,379
Shared Energy Signalling Apparatus	06/389,733
High Speed M-Sequence Generator and Decoder Circuit	06/626,127
Fast Acquisition Random Access Network System	07/244,188
Method and Apparatus for Determining Location of a Ground Station	07/629,506
Flight Crash Survivable Storage Unit with Boiler	08/317,687
Flight Crash Survivable Storage Unit with Aquarium Container	08/320,265
Inspection System and Spatial Resolution Technique for Detecting Explosives Using Combined Neutron Interrogation and X-Ray Imaging	08/332,519
Frequency Discriminator and Method and Receiver Incorporating Same	08/585,616
Stacked Memory for Flight Resources	08/602,066
Fluorescent Lamps with Current-Mode Driver Control	08/663,893
Wide Range Dual Backlight Display Apparatus	08/663,894
Coaxial Radio Frequency Test Probe	08/684,021
Dielectrically Loaded Wide Band Feed	08/696,437
Shrouded Horn Feed Assembly	08/698,234
Launcher for Plural Band Feed System	08/698,322
Plural Band Feed System	08/698,324
Inductor Ring for Providing Tuning and Coupling in a Microwave Dielectric Resonator Filter	08/757,147
Polarity Reversal Network	08/758,051

Title	Application/Patent No.
X-Ray Computer Tomography (CT) System for Detecting Thin Objects	08/854,349
Multilayer Optical Record	4,097,895
Vapor Phase Growth Technique of III-V Compounds Utilizing a Preheating Step	4,116,733
Digital Time Division Multiplex Switching System	4,119,807
Method and Apparatus for Determining a Signal	4,121,211
Frequency Deviation Digital Display Circuit	4,123,704
Circuit Test Apparatus	4,129,826
Direct Digital Frequency Synthesizer	4,134,072
Dynamic Channel Allocation Buffer Matrix	4,136,399
Idle-Busy Signalling Between Telephone System and Radiophone System	4,138,595
Disc Eccentricity Compensating System	4,138,741
Disc Track Servo System	4,142,209
Accurate Phase-Measuring System Using Arithmetic Synthesis	4,144,572
Arithmetic Synthesizer Frequency Generation with Reduced Phase Jitter	4,144,579
Time Displaced Signal Sorting Apparatus	4,147,941
Stripping of Protective Coatings from glass Fibers	4,149,929
Optical Waveguide with Prism Coupler for Parallel	4,152,045
Phase-Locked Loop with Variable Gain and Bandwidth	4,156,855
Method of Reducing Absorption Losses in Fused Quar...	4,157,253
Electronic Digital Arctangent Computational Apparatus	4,164,022
Time Interval Measurement	4,165,459
Rotating Head Recorder with Different Recording and Playback Speeds	4,167,023
Film Guide for Optical Scanners	4,168,506
Phase Lock Loop Data Timing Recovery Circuit	4,180,783

Title	Application/Patent No.
Optical Scanner and Recorder	4,180,822
Capacitance Distance Sensor Apparatus for Video Disc Player/Recorder	4,183,060
Record Playback Apparatus and Information Record Therefore	4,189,735
Method and Apparatus for Determining Focus Contiti...	4,189,746
Recording Methods for a Multilayer Optical Record	4,190,843
Switch matrix for Data Transfers	4,191,941
Two-Way Single Fiber Optical Communication	4,195,269
Recorder and Antireflective Record Blank Having an Optically Passive Transparent Layer	4,195,312
Antireflective Information Record having an Optical...	4,195,313
Defect Detection and Plotting System	4,197,011
Updateable Optical Storage Medium	4,202,928
Code Correlator Loop Using Arithmetic Synthesizer	4,203,002
Movement Detecting Apparatus and Method	4,203,063
Filter Which Tracks Changing Frequency of Input Si...	4,204,171
Digitized Phase Modulating Means	4,206,423
Digitized Phase Modulating Means	4,206,424
Digitized Frequency Synthesizer	4,206,425
Dynamic Cleaning Method and Apparatus for Removal of Remnant Material	4,209,342
Web Position Controller for Web Transport Systems	4,212,422
Voltage Measuring Circuit	4,213,088
Cadence Suppression System	4,214,126
Water Soluble Adhesive Coating for Mounting Components to Printed Wiring Boards	4,215,025
Optical Anti-reflective Information Record	4,216,501
Magnetic Transducer Head Core	4,217,613
Ablative Medium for Optical Recording	4,218,689

Title	Application/Patent No.
Optical Recording Medium	4,219,826
Optical Record Playback Apparatus Employing Light	4,219,848
Rotatable Polarization Duplexer	4,222,017
Sensitivity Information Record	4,222,071
Signal Correlation Means	4,224,679
Coding Method and System with Enhanced Security	4,225,935
Planar Optical Waveguide Comprising Thin Metal Oxide Film Incorporating a Relief Phase Grating	4,227,769
Method Of and Menas For Generating Complex Electri...	4,232,186
Interference Suppression for Imaging Optical System	4,233,501
Playback Information Record Using Phase Cancellation	4,233,626
Electroluminescent Diode and Optical Fiber Assembly	4,237,474
Ablative Optical Recording Medium	4,241,355
Optical memory with injection Laser as Light Source and Detector	4,241,423
Ablative Optical Recording Medium	4,242,689
Frequency Translation Means	4,247,822
Digital Drive Circuit for Electric Motor or the Like	4,249,119
Novel Reists and Recording Media	4,252,886
Signal Detection System	4,263,555
Optical Scanner with Variable Scan Line Angle	4,265,524
Etching of Optical Fibers	4,265,699
Information Record	4,270,132
Phaselocked Receiver with Orderwise Channel	4,270,221
Optical Disc Player System	4,271,489
Apparatus and Method for Measuring the Ratio of TW	4,272,197
Protective Cartridge for Optical Discs	4,273,342
Apparatus for Converting Rotary Motion to Linear Motion	4,274,294

Title	Application/Patent No.
Range Determining System	4,278,977
Folded-Cascode Amplifier Arrangement with Current Mirror Amplifier	4,284,958
Folded Cascode Amplifier Arrangement with Cascode Load Means	4,284,959
Replicable Optical Recording Medium	4,285,056
Optical Disc Changer Apparatus	4,286,790
System and Method for Frequency Discrimination	4,291,269
Frequency Demodulation System	4,291,275
Earth Self-Orienting Apparatus	4,292,861
Digitally Adjustable Phase Shifting Circuit	4,295,098
Incremental Encoder	4,300,039
Thin Protective Overcoat Layer for Optical Video D...	4,300,143
Compensation Apparatus for a Servo System with Peri...	4,300,226
Replicable Optical Recording Medium	4,300,227
Multilayer Record Blank for Use in Optical Recording	4,305,081
Symbols Communication System	4,306,308
Skylight Cover	4,307,549
Incremental Encoder for Measuring Positions of Objects such as Rotating Shafts	4,308,500
Method of Recording an Ablative Optical Recording	4,313,188
Thick Protective Overcoat Layer for Optical Video	4,315,269
Data Classifier	4,316,177
Multichannel Frequency Translation of Sampled Wave	4,316,282
On Line Quality Monitoring	4,317,206
Television Signal with Encoded Synchronization Signals	4,319,273
Reversible Optical Storage Medium and a Method for Recording Information Therein	4,320,489
Regulated Switching Apparatus	4,325,021

Title	Application/Patent No.
Encoder for Recording Incremental Changes	4,328,463
Information Record	4,329,697
Jam-Resistant TV System	4,333,107
Optimization Circuit for a Serrodyne Frequency Translator	4,338,528
Coated Printed Circuit Wiring Board and Method of Soldering	4,340,167
Optical Recording Medium with a Thick Overcoat	4,340,959
Method for Making Planar Optical Waveguide Comprising Thin Metal Oxide Film Incorporating a Relief Phase Grating	4,343,890
Sterrable Directional Antenna	4,345,256
Precise Digitally Programmed Frequency Source	4,349,887
System and Method for Frequency Discrimination	4,352,194
Miniaturized Symmetrization Optics for Junction Laser	4,362,367
Eccentricity Control Device	4,365,324
Phase Comparator System	4,370,653
Expandable FIFO System	4,374,428
Digital Fequency and Phase Lock Loop	4,374,438
Receiver for Jam-Resistant TV Signal	4,378,570
Optical recording medium and information record with indented overcoat	4,383,311
Optical Recording Medium and Information Record Wi...	4,387,381
Low Probablility of Intercept Transmitting Apparatus	4,397,034
Digital Sequency Detector	4,404,542
Microwave Radiation Monitor	4,424,483
Reversible Recording medium an information record	4,425,570
Random Binary Waveform Encoded Ranging Apparatus	4,429,310
Microwave Radiation Monitor	4,431,965
Track jump servo system for disk player	4,443,869
Stiffening clamp for self-erecting antenna	4,447,816

Title	Application/Patent No.
Multi-beam optical record and playback apparatus having means for splitting a single beam into a plurality of beams and dithering	4,449,212
Multi-beam optical record and playback apparatus having an improved beam splitter	4,459,690
Fast Frequency/Code Search	4,485,477
Protective cartridge for disc record	4,499,996
Automatic handling mechanism for an optical disc enclosed in a protective cartridge	4,502,133
Quasi Coherent Two-Way Ranging Apparatus	4,513,285
Radiation Detector	4,518,912
System and method employing two hop spread spectrum signal transmissions between small earth stations via a satellite and a large	4,532,635
Optical recording medium & information record and method of making same	4,547,876
Active, Bi-Directional Bus Tab	4,556,881
Switched bias scheme for high speed laser transmitter	4,558,465
Optical record blank and information record	4,568,952
Maximum Likelihood Sequence Decoder for Linear Cyclic Codes	4,573,155
Fail Safe Repeater for Fiber Optic Bus Distribution System	4,581,770
Apparatus for synchronizing spread spectrum transmissions from small earth stations used for satellite transmission	4,587,661
Amplifier Input Circuitry	4,605,905
Radiation Hazard Detector	4,611,166
Coder-Decoder for Purged Binary Block Codes	4,613,860
Synchronizing system for spread spectrum transmission	4,617,674
Hermetically Sealed Oscillator	4,628,283
Dipole Antenna	4,629,978

Title	Application/Patent No.
Fast acquisition burst mode spread spectrum communications with pilot carrier	4,630,283
Local area network with constant tap level	4,633,202
Headwheel for a multiple beam optical tape playback system	4,633,455
Wide Range Radiation Monitor	4,634,968
Speakerphone with adaptive cancellation of room echoes	4,636,586
Acousto-Optical Spectrum Analyzer with Expanded Frequency Resolution	4,636,718
Low Noise Amplifier with High Intercept Point	4,638,261
Power Density Spectrum Controller	4,638,417
Adaptive Interference Rejection for Improved Frequency Hop Direction	4,638,493
Clock rate spread spectrum	4,639,932
Announced Retransmission Random Access System	4,641,304
Frequency-Division Multiplex Communications System	4,646,295
Phase randomization to reduce detectability of phase or frequency modulated digital signals	4,652,838
Radar Reflection and Scanner with Electromagnetic Programmable Drive	4,656,484
Optical Video or data tape record and playback apparatus	4,661,941
Signal Format for Optical Tape record/playback system	4,669,070
Magnetic biasing apparatus for magneto-optic recording including a magnetic circuit	4,701,894
Magnetic biasing apparatus for magneto-optic recording including a permanent magnet	4,701,895
Semiconductor laser driver circuit	4,709,370
Laser bias current stabilization for burst mode fiber optic system	4,709,416
Active Balun Star Mixer	4,712,024

Title	Application/Patent No.
Apparatus for erasing information on a reversible optical medium	4,712,207
Transparent laser drive current update for burst mode fiber optic comm system	4,718,118
Consumer Radation Monitor	4,752,730
Antenna Stabilization and Enhancement by Rotation of Antenna Feed	4,786,912
Dipole Antenna	4,789,869
Apparatus to Maintain Arbitrary Polarization Stabilization of an Antenna	4,827,269
Coherent Pseudonoise Code Tracking Loop	4,852,121
Replaceable laser and lens assembly	4,856,871
Efficient Maximum-Likelihood Decoder for the Golay (24,12) Code	4,901,317
Coder-Decoder for Purged Extended Golay (22,7) Codes	4,926,169
Water removable solder stop	4,929,284
Channelized Binary-Level Hope Rate Detector	4,942,589
Phase lock clock recovery with aided frequency acquisition	4,949,051
Channelized Binary-Level Radiometer	4,956,644
Printed Wiring Board Substrate for Surface Mounted Components	4,963,425
Photon Energy Activated Radio Frequency Signal Switch	5,001,355
Switched Capacitor Interleaved Forward Power Converter	5,008,795
Detecting and Tracking Circuit for Component FN Codes	5,048,053
Jukebox	5,062,092
Doppler Frequency Compensation Circuit	5,063,387
Channelized Delay and Mix Chip Rate Detector	5,063,572
Magneto-optic media recording system including a directed magnetic bias flux	5,070,487

Title	Application/Patent No.
Apparatus for connecting multiple passive stars in a fiber optic network	5,073,982
Optically activated waveguide type phase shifter and attenuator	5,099,214
Electronic steering of pattern of an antenna system	5,099,247
Low complexity method for improving the performance of correlation-based pitch detectors	5,127,053
Method & apparatus for coherent communications in non-coherent coding and non-coherent frequency hopping systems	5,150,378
Technique for frequency-hopped spread spectrum communications	5,166,953
Personal Electromagnetic Radiation Monitor	5,168,265
Two-axis motion apparatus utilizing piezoelectric material	5,170,089
Frame/slot synchronization for US digital cellular idma radio system	5,177,740
Antenna providing a spherical radiation pattern	5,194,873
Range Based Acquisition System	5,222,100
Tracking and reading system for an optical medium and medium for use therewith	5,233,583
Laser astigmatism compensation	5,239,414
High Speed Code Sequence Generator	5,257,282
Wide Power Range Radiation Monitor	5,266,888
Memory system having fault tolerance and graceful degradation	5,278,847
Interference Nulling System for Antennas	5,298,908
High Rate-Low Rate FN Code Tracking System	5,299,229
Masked Data Transmission	5,341,423
Personal VHF Electromagnetic Radiation Monitor	5,373,284
Personal Electromagnetic Radiation Monitor	5,373,285
Wide Power Range Radiation Monitor	5,381,086
Satellite Communication System	5,392,450

Title	Application/Patent No.
Human-Equivalent Antenna for Electromagnetic Fields	5,394,164
Rack Mountable chassis with Resilient side Panels	5,398,821
Wide Power Range Radiation Monitor	5,418,448
MSK Phase Acquisition and Tracking Method	5,425,058
DPSK Communications with Doppler Compensation	5,432,819
Integrated Data Link Concept for Air Traffic Control Applications	5,440,544
Induced Body Current Metering Workstation Mat	5,453,734
High Processing Gain Acquisition and Demodulation Apparatus	5,495,509
Coherent Sequential FN Code Extractor	5,504,787
Self-Compensating Spread Spectrum Hybrid	5,546,421
Thermal Activated Self Releasing Seal for Boiler	5,577,740
Contact Hazard Meter	5,610,526
X-Ray Computer Tomography (CT) System for Detecting Thin Objects	5,712,926
A Multi-User Acquisition Procedure for Multipoint-to-Point Synchronous CDMA Systems	PCT/US97/02654
A Multi-User Acquisition Procedure for Point-to-Multipoint Synchronous CDMA Systems	PCT/US97/01154
X-Ray Computer Tomography (CT) System for Detecting Thin Objects	PCT/US95/12629
Inspection System and Spatial Resolution Technique for Detecting Explosives Using Combined Neutron Interrogation and X-Ray Imaging	PCT/US95/12631

U.S. AND FOREIGN PATENT ASSIGNMENT

THIS ASSIGNMENT, effective as of the 30th day of April, 1997 ("Effective Date"), by and between Lockheed Martin Corporation, a Maryland corporation located at 6801 Rockledge Drive, Bethesda, Maryland 20817 ("Lockheed Martin"), on behalf of itself and its Business Units (as defined in the Transaction Agreement) (collectively, "Assignor") and L-3 Communications Corporation, a Delaware corporation located at 600 Third Avenue, New York, New York 10016 ("Assignee").

WHEREAS, Assignor is the exclusive owner of all right, title and interest in and to certain United States and foreign patents; and

WHEREAS, pursuant to the Transaction Agreement dated as of March 28, 1997 by and among Lockheed Martin, L-3 Communications Holdings, Inc. ("Holdings"), Lehman Brothers Capital Partners III, L.P., Frank C. Lanza and Robert V. Lapenta (the "Transaction Agreement"), Holdings is to acquire from Assignor the entirety of Assignor's right, title and interest in and to such patents; and

WHEREAS, Holdings will conduct the businesses sold to it under the Transaction Agreement through Assignee, a Subsidiary (as defined in the Transaction Agreement) of Holdings; and

WHEREAS, pursuant to Section 15.04 of the Transaction Agreement, Holdings may assign all or part of its rights and obligations thereunder to a wholly owned Subsidiary;

NOW, THEREFORE, for good and valuable consideration (including that recited in the Transaction Agreement), the receipt and adequacy of which is hereby acknowledged, Assignor does hereby assign, transfer and convey to Assignee and its successors, assigns and nominees forever, without any restrictions, reservations or limitations, Assignor's exclusive entire right, title and interest in and to the following:

1. All of its patents and patentable inventions, including without limitation the United States and foreign patents listed on Schedule A annexed hereto (the entirety of the above, collectively hereinafter "Patents");
2. Any and all other rights, priorities and privileges of Assignor provided under the laws of the United States and relevant nations, including without limitation the nations listed on Schedule A, or any multinational law, compact, treaty, protocol, convention or organization, with respect to the foregoing Patents ("Related Rights");
3. Any and all rights to sue at law or in equity for any infringement, impairment or other unauthorized use or conduct in derogation of the Patents and Related Rights occurring prior to the Effective Date, including the right to receive all proceeds and damages therefrom; and

4. Any and all rights to obtain renewals, reissues, re-examinations, divisions, extensions or other legal protections ("Renewals") pertaining to the Patents and Related Rights.

Assignee, its successors and assigns, shall hold the rights to the foregoing for and during the existence of such Patents and Related Rights, and all Renewals thereof, as fully and as entirely as the same would have been held and enjoyed by Assignor had this Assignment not been made.

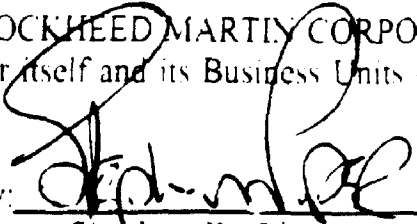
This Assignment is effective as of the Effective Date. Assignor shall, without further consideration, comply with a reasonable request by Assignee, at Assignee's expense, to execute promptly any additional documents provided by Assignee and to take promptly any further action necessary to protect, secure and vest good, valid and marketable title to the Patents and Related Rights in Assignee in all relevant nations, including without limitation the nations listed on Schedule A.

The parties agree that the assignment of each patent on Schedule A shall be construed as separable and divisible from the assignment of every other patent. The unenforceability or invalidity of this Assignment with respect to any one patent shall not limit its enforceability or validity, in whole or in part, with respect to any other patent.

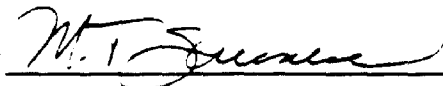
This Assignment may be signed in one or more counterparts, each of which shall be an original and all of which shall be considered one and the same agreement, and shall become effective when one or more such counterparts have been signed by each party and received by the other party.

IN WITNESS WHEREOF, the undersigned have caused this Assignment to be duly executed and delivered as of the 30th day of April, 1997.

LOCKHEED MARTIN CORPORATION,
for itself and its Business Units ("Assignor")

By: 
Name: Stephen M. Piper
Title: Assistant Secretary

L-3 COMMUNICATIONS HOLDINGS, INC.,
for itself and L-3 Communications
Corporation ("Assignee")

By: 
Name: Michael T. Strianese
Title: Vice President, Finance and
Controller

Subscribed and sworn to before
me this 30th day of April, 1997



Notary Public

CAROLINE R. FRIEDMAN
NOTARY PUBLIC, State of New York
No. 01FR5050666
Qualified in New York County
Certificate Filed in New York County
Commission Expires October 10, 1997

Schedule A - U.S. and Foreign Patents

PATENTS

1. COMMUNICATIONS SYSTEMS
194 Patents (See Attached Listing)
2. WIDEBAND SYSTEMS
34 Patents, 18 Patent Applications (See Attached Listing)
3. DISPLAY SYSTEMS
1 Patent, 2 Patent Applications (See Attached Listing)
4. MICROWAVE NARDA WEST
2 Patent Applications (See Attached Listing)
5. RANDTRON
1 Patent (See Attached Listing)
6. ADVANCED RECORDERS
1 Patent, 2 Patent Applications (See Attached Listing)
7. MICROWAVE NARDA EAST
25 Patents, 5 Patent Applications (See Attached Listing)
8. HYCOR
No Patents or Patent Applications
9. MICROCOM
No Patents or Patent Applications
10. CONIC
No Patents or Patent Applications
11. TELEMETRY & INSTRUMENTATION
No Patents or Patent Applications
12. AIRPORT EXPLOSIVE DETECTION BUSINESS
4 Patent Applications (See Attached Listing)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class	Remarks
1.	80A102339	4856871	Replaceable laser and lens assembly	2006	recording, optical	x				
2.	80CS02362	4949051	Phase lock clock recovery with aided frequency acquisition	2007	radio, digital	x				
3.	80CS02559A	5233583	Tracking and reading system for an optical medium and medium for use therewith	2010	recording, optical	x				
4.	80CS02580	5073982	Apparatus for connecting multiple passive stars in a fiber optic network	2008	fiber optic network	x				
5.	80CS02625	4929284	Water removable solder stop	2007	manufacturing, process	x				
6.	80CS02760	5062092	Jukebox	2008	Optical Recording	x				
7.	80CS02769	5239414	Laser astigmatism compensation	2010	recording, optical	x		1939	EP JP	
8.	80CS02789	5432819	DPSK Communications with Doppler Compensation	2014		x		2038	CA EP JP	

♦ CLASS: 1- Keep; 2-Review; 3-Drop(ped)

Communications Systems Patent Portfolio

Ref	Docket #	Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
16.	80CS031	9.	80CS02792	5425058	MSK Phase Acquisition and Tracking Method	2013		x	CA EP JP	1743		
17.	80CS03	10.	80CS02797	5070487	Magneto-optic media recording system including a directed magnetic bias flux	2008	optical recording	x				
18.	80CS03	11.	80CS02799	Pend	Multibeam Optical Apparatus & Method for Tracking Control for an Optical Disk Having a Set of Tracks		Optical Recording					
19.	80CS03											
20.	80CS031	12.	80CS02810	5001355	Photon Energy Activated Radio Frequency Signal Switch	2008	Radio	x				
21.	80CS03	13.	80CS02882	5170089	Two-axis motion apparatus utilizing piezoelectric material	2010	recording	x				
22.	80CS03	14.	80CS02898	5099214	Optically activated waveguide type phase shifter and attenuator	2009	radio, rf, antenna array, optical	x				
		15.	80CS03024	5099247	Electronic steering of pattern of an antenna system	2009	Radio, RF, antenna array	x				

* CLASS: 1-K • CLASS: 1-Keep; 2-Review; 3-Drop(ped)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class.	Remarks
21.	80CS03237	Unrated	Flexible Interconnect stacking of electrical components							
24.	80CS03238	Unrated	SMT adapter facilitates non-invasive VLSI testing							
25.	80CS03240	Unrated	Internet application design system and method							
26.	RD 19267	5127053	Low complexity method for improving the performance of correlation-based pitch detectors	2009	Speech, compression	x				
27.	RD 20150	5166953	Technique for frequency-hopped spread spectrum communications	2009	radio, system, spread spectrum	x				
28.	RD 20186	5177740	Frame/slot synchronization for IS digital cellular tdma radio system	2010	radio, cellular	x	CA	233		
29.	RD 23348	5440544	Integrated Data Link Concept for Air Traffic Control Applications	2013	Comm Systems	x				

• CLASS: 1-Keep; 2-Review; 3-Drop(pcd)

Communications Systems Patent Portfolio

**1997
Fee**

Class*

For

US

Application

**Term
Date**

Title

**Patent
No.**

Docket No.

Ref

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
30.	RI MM23443	Unrated	Frequency estimation algorithm for low power communications models							
31.	RI D21994	Unrated	A simple coherent demodulator for digital modulation							
32.	RI D22444	Unrated	Three-dimensional magneto-optical storage system							
33.	RI D22456	Unrated	Multiple wavelength optical storage method and reader							
34.	RI D22464	Unrated	Parallel optical storage system using detector arrays							
35.	RI D22608	Unrated	Wavelet-based cryptography							
36.	RI D22635	Unrated	A wavelet-based communications system with a lipshitz receiver							
37.	RI D22921	Unrated	Ultra low power complimentary metal oxide semiconductor (CMOS) specific integrated circuit							

* CLASS: 1-Keep; 2-Review; 3-Drop(ped)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
38.	XRCA00251	4214126	Cadence Suppression System	2014		x				
39.	XRCA00466	4232186	Method Of and Means For Generating Complex Electri	2014		x				
40.	XRCA63766	4278977	Range Determining System	2015		x				
41.	XRCA67089	4203063	Movement Detecting Apparatus and Method	2014		x				
42.	XRCA68752	4224679	Signal Correlation Means	2014		x				
43.	XRCA68975	4144579	Arithmetic Synthesizer Frequency Generation with Reduced Phase Jitter	2013		x				
44.	XRCA69081A	4272197	Apparatus and Method for Measuring the Ratio of TW	2015		x				
45.	XRCA69528	4222017	Rotatable Polarization Duplexer	2014		x	CA			
46.	XRCA69628A	4313188	Method of Recording an Ablative Optical Recording	1999		x				

• CLASS: 1- Keep; 2-Review; 3-Drop(red)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class.	Remarks
47.	XRCA69629	--	Thin Protective Overcoat Layer for Optical video D	--			DE FR GB HK SG JP MY NL SG	4870		
48.	XRCA69629A	4300143	Thin Protective Overcoat Layer for Optical Video D	2015		x				
49.	XRCA69868	4203002	Code Correlator Loop Using Arithmetic Synthesizer	2014		x				
50.	XRCA70374	4144572	Accurate Phase-Measuring System Using Arithmetic Synthesis	2013		x				
51.	XRCA70385	4097895	Multilayer Optical Record	2012		x	FR GB HK JPNI. SG	5008		
52.	XRCA70385A	4190843	Recording Methods for a Multilayer Optical Record	2014		x				

♦ CLASS: 1-Keep; 2-Review; 3-Drop(pcd)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class.	Remarks
53.	XRCA70385B	4219848	Optical Record Playback Apparatus Employing Light	2014		x				
54.	XRCA70385C	4305081 ⁴	Multilayer Record Blank for Use in Optical Recording	2015		x				
55.	XRCA70537	4189746	Method and Apparatus for Determining Focus Contiti	2014		x				
56.	XRCA70682	4300226	Compensation Apparatus for a Servo System with Peri	2015		x	FR GB JP	3451		
57.	XRCA70683	4142209	Disc Track Servo System	2013		x	FR GB JP	3451		
58.	XRCA70684	4138741	Disc Eccentricity Compensating System	2013		x	FR GB JP	3451		
59.	XRCA70687A	4183060	Capacitance Distance Sensor Apparatus for Video Disc Player/Recorder	2014		x				
60.	XRCA70779	--	Rotating Head Recorder with Different Recording and Playback Speeds	--			CA			

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1927 Fee	Class*	Remarks
61.	XRCA70779A	4167023	Rotating Head Recorder with Different Recording and Playback Speeds	2013		x				
62.	XRCA70803	--	Multimode Coupling System Including a Funnel-Shape Multimode Coupler	--			CA			
63.	XRCA70848	4136399	Dynamic Channel Allocation Buffer Matrix	2013		x				
64.	XRCA70927	--	Information Record	--			DE JP	3298		
65.	XRCA70927A	4233626	Playback Information Record Using Phase Cancellation	2014		x				
66.	XRCA70927B	4270132	Information Record	2015		x				
67.	XRCA71095	4247822	Frequency Translation Means	2015		x				
68.	XRCA71129	4197011	Defect Detection and Plotting System	2014		x				

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
69.	XRCA71184	--	Information Record	--			FR GB HK IT JP MY NL SG	1883		
70.	XRCA71184A	4216501	Optical Anti-reflective Information Record	2014		x				
71.	XRCA71184B	4329697	Information record	2016		x				
72.	XRCA71338	4233501	Interference Suppression for Imaging Optical System	2014		x				
73.	XRCA71361	4138595	Idle-Busy Signalling Between Telephone System and Radiophone System	2013		x	CA			
74.	XRCA71392	4168506	Film Guide for Optical Scanners	2013		x				
75.	XRCA71401A	4121211	Method and Apparatus for Determining a Signal	2012		x				

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
76.	XRCA71454	4156855	Phase-Locked Loop with Variable Gain and Bandwidth	2013		x				
77.	XRCA71483	4129826	Circuit Test Apparatus	2012		x				
78.	XRCA71515	--	Overcoat Structure for Optical Video Disc	--			DE FR GB HK JP MY NL SG	5045		
79.	XRCA71545	4315269	Thick Protective Overcoat Layer for Optical Video	2016		x	DE FR GB HK JP MY NL SG	5376		
80.	XRCA71546	4300039	Incremental Encoder	2015		x				
81.	XRCA71546A	4308500	Incremental Encoder for Measuring Positions of Objects such as Rotating Shafts	2015		x				

* CLASS: 1 - Keep; 2 - Review; 3 - Drop(pcd)

Communications Sys.ems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
82.	XRCA71546B	4328463	Encoder for Recording Incremental Changes	2016		x				
83.	XRCA71549	4241355	Ablative Optical Recording Medium	2014		x	CA DE FR GB HK IT JP MY NL SG	7070		
84.	XRCA71573	4180783	Phase Lock Loop Data Timing Recovery Circuit	2013		x				
85.	XRCA71579	4152045	Optical Waveguide with Prism Coupler for Parallel	2013		x				
86.	XRCA71616	4316177	Data Classifier	2016		x				
87.	XRCA71624	--	Optical Recording Medium	--					CA	
88.	XRCA71653	4202928	Updateable Optical Storage Medium	2014		x				

* CLASS: 1- Keep; 2-Review; 3-Drop(ped)

Communications Systems Patent Portfolio

Remarks

Class*

1997
Fee

For

US

Application

Term
Date

Title

Patent
No.

Docket No.

Ref

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
89.	XRCA71755	4119807	Digital Time Division Multiplex Switching System	2012		x				
90.	XRCA71783	4116733	Vapor Phase Growth Technique of III-V Compounds Utilizing a Preheating Step	2012		x				
91.	XRCA71838	4189735	Record Playback Apparatus and Information Record Thereof	2014		x	DE FR GB HK JP NL	13072		
92.	XRCA71844	4114072	Direct Digital Frequency Synthesizer	2013		x				
93.	XRCA71889	4284958	Folded-Cascade Amplifier Arrangement with Current Mirror Amplifier	2015		x				
94.	XRCA71889A	4284959	Folded Cascade Amplifier Arrangement with Cascade Load Means	2015		x				
95.	XRCA71907	4227769	Planar Optical Waveguide Comprising Thin Metal Oxide Film Incorporating a Relief Phase Grating	2014		x				

* CLASS: 1 - Keep; 2 - Review; 3 - Drop (ped)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
96.	XRCA71907A	4343890	Method for Making Planar Optical Waveguide Comprising Thin Metal Oxide Film Incorporating a Relief Phase Grating	2016		x				
97.	XRCA71946	4191941	Switch matrix for Data Transfers	2014		x				
98.	XRCA71994	4241423	Optical memory with Injection Laser as Light Source and Detector	2014		x				
99.	XRCA72024	4195269	Two-Way Single Fiber Optical Communication	2014		x				
100.	XRCA72102	4242689	Ablative Optical Recording Medium	2014		x				
101.	XRCA72105	4316282	Multichannel Frequency Translation of Sampled Wave	2016		x				
102.	XRCA72170	4165459	Time Interval Measurement	2013		x				
103.	XRCA72170A	4147941	Time Displaced Signal Sorting Apparatus	2013		x				

* CLASS: 1 - Keep; 2-Review; 3-Drop(pcd)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class²	Remarks
104.	XRCA72192	4292861	Earth Self-Orienting Apparatus	2015		x				
105.	XRCA72207	4195312	Recorder and Antireflective Record Blank Having an Optically Passive Transparent Layer	2014		x	DE FR GB HK IT JP NL	6350		
106.	XRCA72207A	4195313	Antireflective Information Record having an Optical	2014		x				
107.	XRCA72258	4218689	Ablatable Medium for Optical Recording	2014		x				
108.	XRCA72269	4149929	Stripping of Protective Coatings from glass Fibers	2013		x				
109.	XRCA72276	4237474	Electroluminescent Diode and Optical Fiber Assembly	2014		x				
110.	XRCA72292	4206424	Digitized Phase Modulating Means	2014		x		3		
111.	XRCA72292A	4206423	Digitized Phase Modulating Means	2014		x		3		

• CLASS: 1-Keep; 2-Review; 3-Drop(pcd)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
112.	XRCA72293	4206425	Digitized Frequency Synthesizer	2014		x				
113.	XRCA72295	4213088	Voltage Measuring Circuit	2014		x				
114.	XRCA72296	4319273	Television Signal with Encoded Synchronization Signals	2016		x				
115.	XRCA72348	4215025	Water Soluble Adhesive Coating for Mounting Components to Printed Wiring Boards	2015		x				
116.	XRCA72348A	4340167	Coated Printed Circuit Wiring Board and Method of Soldering	2016		x				
117.	XRCA72352	4291269	System and Method for Frequency Discrimination	2015		x				

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
118.	XRCA72387	4219826	Optical Recording Medium	2014		x	CA DE FR GB HK IT JP MY NL SG	6394		
119.	XRCA72396	4317206	On Line Quality Monitoring	2016		x				
120.	XRCA72532	4157253	Method of Reducing Absorption Losses in Fused Quar	2013		x				
121.	XRCA72560	4180822	Optical Scanner and Recorder	2013		x				
122.	XRCA72612	4338528	Optimization Circuit for a Serrodyne Frequency TRA	2016		x				
123.	XRCA72681	4217613	Magnetic Transducer Head Core	2014		x				
124.	XRCA72682	4212422	Web Position Controller for Web Transport Systems	2014		x				

* CLASS: 1- Keep; 2-Review; 3-Drop(ped)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
125.	XRCA72859	4370651	Phase Comparator System	2017		x				
126.	XRCA72859A	4374438	Digital Frequency and Phase Lock Loop	2017		x				
127.	XRCA72894	4295098	Digitally Adjustable Phase Shifting Circuit	2015		x				
128.	XRCA72965	4204171	Filter Which Tracks Changing Frequency of Input Si	2014		x				
129.	XRCA72990	4285056	Replicable Optical Recording Medium	2015		x	CA DE FR GB HK IT JP MY NL SG	8724		
130.	XRCA73008	4273342	Protective Cartridge for Optical Discs	2015		x				
131.	XRCA73016	4286790	Optical Disc Changer Apparatus	2015		x				

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class.	Remarks
132	XRCA73053	4271489	Optical Disc Player System	2015		x				
133	XRCA73097	4252886	Novel Reists and Recording Media	2015		x				
134	XRCA73129	4249119	Digital Drive Circuit for Electric Motor or the Like	2015		x				
135	XRCA73140	4274294	Apparatus for Converting Rotary Motion to Linear Motion	2015		x				
136	XRCA73174	4265699	Etching of Optical Fibers	2015		x				
137	XRCA73199	4378570	Receiver for Jam-Resistant TV Signal	2017		x				
138	XRCA73231	4661941	Optical Video or data tape record and playback apparatus	2004	optical recording	x				
139	XRCA73232	4669070	Signal Format for Optical Tape record/playback system	2004	optical recording	x				
140	XRCA73261	4333107	Jam-Resistant TV System	2016		x				
141	XRCA73273	4340959	Optical Recording Medium with a Thick Overcoat	2016		x				

♦ CLASS: 1- Keep; 2-Review; 3-Drop(ped)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class^o	Remarks
142.	XRCA73293	4291275	Frequency Demodulation System	2015		x				
143.	XRCA73345	4222071	Sensitivity Information Record	2014		x				
144.	XRCA73377A	4306308	Symbols Communication System	2015		x				
145.	XRCA73381	4320489	Reversible Optical Storage Medium and a Method for Recording Information Therein	2016		x				
146.	XRCA73398	4263555	Signal Detection System	2015		x				
147.	XRCA73489	4374428	Expandable FIFO System	2017		x				
148.	XRCA73536	4485477	Fast Frequency/Code Search	2001	radio, system, spread spectrum, digital	x				
149.	XRCA73833	4365324	Eccentricity Control Device	2016		x				
150.	XRCA74110	4270221	Phase-locked Receiver with Orderwire Channel	2015		x				
151.	XRCA74202	4352194	System and Method for Frequency Discrimination	2016		x				

• CLASS: 1- Keep; 2-Review; 3-Drop(ped)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
152.	XRCA74296	4307549	Skylight Cover	2015		x	CA			
153.	XRCA74474	4300227	Replicable Optical Recording Medium	2015		x	CA DE FR GB HK IT JP MY NL SG	8724		
154.	XRCA74603	4149887	Precise Digitally Programmed Frequency Source	2016		x				
155.	XRCA74695	4162367	Miniaturized Symmetrization Optics for Junction Laser	2016		x				
156.	XRCA74934	4265524	Optical Scanner with Variable Scan Line Angle	2015		x				
157.	XRCA75198	4325021	Optical Scanner with Variable Scan Line Angle <i>Regulated Switching Apparatus</i>	2016		x				

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	FOR	1997 Fee	Class*	Remarks
158.	XRCA75312	4383311	Optical recording medium and information record with indented overcoat	2001	optical recording	x	DE FR GB JP NL	3876		
159.	XRCA75516		Information record and method of reversibly recording	2001	optical recording.		DE FR GB HK MY SG			
160.	XRCA75614	4447816	Stiffening clamp for self-erecting antennas	2001		x				Useful to REMBASS vendor ?
161.	XRCA75918	4404542	Digital Sequency Detector	2017		x				
162.	XRCA75984	4425570	Reversible Recording medium an information record	2002	optical recording	x	DE FR GB NL JP	6996		
163.	XRCA76211	--	Optical Recording Medium and Information Record and Method of Making Same	--		-	DE FR GB JP NL	4865		

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
164.	XRCA76211A	4547876	Optical recording medium & information record and method of making same	2002	optical recording	x	DE FR GB NL JP	4865		
165.	XRCA76278	4387381	Optical Recording Medium and Information Record Wt	2017		x				
166.	XRCA76623	4449212	Multi-beam optical record and playback apparatus having means for splitting a single beam into a plurality of beams and dithering	2001	recording, optical	x				
167.	XRCA76669		Optical Recording Medium	2002	optical recording		DE FR GB JP	3029		
168.	XRCA77019A	4459690	Multi-beam optical record and playback apparatus having an improved beam splitter	2001	optical recording	x				
169.	XRCA77309	4443869	Track jump servo system for disk player	2001	optical recording	x				

* CLASS: 1- Keep; 2-Review; 3-Drop(pdf)

Communications Systems Patent Portfolio

Ref	Docket No.	Patent No.	Title	Term Date	Application	US	For	1997 Fee	Class*	Remarks
170.	XRCA78471	4617674	Synchronizing system for spread spectrum transmission	2003	comm systems	x				
171.	XRCA78472	4587661	Apparatus for synchronizing spread spectrum transmissions from small earth stations used for satellite transmission	2003	radio, system, spread spectrum, satellite					
172.	XRCA78472	4587661	Apparatus for Synchronizing Spread Spectrum Transm	2020		x				
173.	XRCA78595	4502133	Automatic handling mechanism for an optical disc enclosed in a protective cartridge	2002	recording, optical	x				
174.	XRCA78701	4512615	System and method employing two hop spread spectrum signal transmissions between small earth stations via a stellite and a large	2003	radio, system, spread spectrum, satellite	x				
175.	XRCA79102	4556881	Active, Bi-Directional Bus Tap	2002		x				
176.	XRCA79158	4581770	Fail Safe Repeater for Fiber Optic Bus Distribution System	2003		x				

Communications Systems Patent Portfolio

<u>Ref</u>	<u>Docket No.</u>	<u>Patent No.</u>	<u>Title</u>	<u>Term Date</u>	<u>Application</u>	<u>US</u>	<u>For</u>	<u>1997 Fee</u>	<u>Class*</u>	<u>Remarks</u>
177	XRCA79162	4568952	Optical record blank and information record	2004	recording, optical	x				
178	XRCA79776	4712207	Apparatus for erasing information on a reversible optical medium	2005	recording, optical	x				
179	XRCA79779	4558465	Switched bias scheme for high speed laser transmitter	2003	optical communications, laser, recording, optical	x	CA DE GB JP SE	2362		
180	XRCA79912	4499906	Protective cartridge for disc record	2003	recording, optical	x				
181	XRCAR0136	4646295	Frequency-Division Multiplex Communications System	2005		x				
182	XRCAR0442A	4641304	Announced Retransmission Random Access System	2006		x				
183	XRCA80449	4633202	Local area network with constant tap level	2004	Fiber optic communications	x				

♦ CLASS: 1 - Keep; 2-Review; 3-Drop(ped)

Communications Systems Patent Portfolio

<u>Ref</u>	<u>Docket No.</u>	<u>Patent No.</u>	<u>Title</u>	<u>Term Date</u>	<u>Application</u>	<u>US</u>	<u>For</u>	<u>1997 Fee</u>	<u>Class*</u>	<u>Remarks</u>
184.	XRCA80860	4652838	Phase randomization to reduce detectability of phase or frequency modulated digital signals	2005	radio, system, spread spectrum	x				
185.	XRCA81171	4633455	Headwheel for a multiple beam optical tape playback system	2005	Recording, optical	x				
186.	XRCA81275	4630283	Fast acquisition burst mode spread spectrum communications with pilot carrier	2005	radio, system, spread spectrum	x				
187.	XRCA81276	4639932	Clock rate spread spectrum	2005	radio, system, spread spectrum	x				
188.	XRCA81346	4636586	Speakerphone with adaptive cancellation of room echoes	2005	Terminals, telephone	x				
189.	XRCA81420	4709370	Semiconductor laser driver circuit	2005	fiber optic communications, laser	x				
190.	XRCA82031	4718118	Transparent laser drive current update for burst mode fiber optic comm system	2006	fiber optic communications, laser	x	DE GB JP	1284		

* CLASS: 1 - Keep; 2 - Review; 3 - Drop(pcd)

Communications Systems Patent Portfolio

<u>Ref</u>	<u>Docket No.</u>	<u>Patent No.</u>	<u>Title</u>	<u>Term Date</u>	<u>Application</u>	<u>US</u>	<u>EP</u>	<u>1927 Fee</u>	<u>Class.</u>	<u>Remarks</u>
191.	XRCA82419	4709416	Laser bias current stabilization for burst mode fiber optic system	2006	fiber optic communications, laser	x	DE GB JP	1284		
192.	XRCA82459	4701894	Magnetic biasing apparatus for magneto-optic recording including a magnetic circuit	2006	recording, optical	x				
193.	XRCA82757	4701895	Magnetic biasing apparatus for magneto-optic recording including a permanent magnet	2006	recording, optical	x				
194.	XRCA83124	5341423	Masked Data Transmission	2011		x				

• CLASS: 1-Keep; 2-Review; 3-Drop(ped)

WIDEBAND SYSTEMS

TRANSFERRED ASSETS TO BE ASSIGNED BY LOCKHEED MARTIN

U.S. Patents

U.S. Patent No. 4,123,704, "Frequency Deviation Digital Display Circuit" by Kenneth C. Johnson, U.S.S.N. 873,449

U.S. Patent No. 4,164,022, "Electronic Digital Arctangent Computational Apparatus" by Glen D. Rattigourd and John W. Zachala, Jr., U.S.S.N. 903,278

U.S. Patent No. 4,209,342, "Dynamic Cleaning Method and Apparatus for Removal of Resinous Material", by David B. Workman, U.S.S.N. 921,923

U.S. Patent No. 4,225,935 "Coding Method and System with Enhanced Security" by John W. Zachala, Jr. and Billie M. Spencer, U.S.S.N. 890,174

U.S. Patent No. 4,345,256, "Steerable Directional Antenna" by Lawrence L. Raitweter, U.S.S.N. 216,455

U.S. Patent No. 4,397,034, "Low Probability of Intercept Transmitting Apparatus" by Benjamin V. Cox, Billie M. Spencer and John W. Zachala, Jr., U.S.S.N. 247,686

U.S. Patent No. 4,429,310, "Random Binary Waveform Encoded Ranging Apparatus", by John W. Zachala, Jr., and Steven L. Bennett, U.S.S.N. 256,448

U.S. Patent No. 4,513,285, "Quasi Coherent Two-Way Ranging Apparatus" by Lawrence W. Pike, John W. Zachala, Jr. and Billie M. Spencer, U.S.S.N. 289,688

U.S. Patent No. 4,573,155, "Maximum Likelihood Sequence Decoder for Linear Cyclic Codes" by Robert J. Curria, Billie M. Spencer, John W. Zachala, Jr. and Glen D. Rattigourd, U.S.S.N. 561,502

U.S. Patent No. 4,613,860, "Coder-Decoder for Purged Binary Block Codes" by Robert J. Curria, Craig K. Rushforth and John W. Zachala, Jr., U.S.S.N. 561,503

U.S. Patent No. 4,636,712, "Acousto-Optical Spectrum Analyzer with Expanded Frequency Resolution" by Joseph H. Labrum and Allan Weiss, U.S.S.N. 632,728

U.S. Patent No. 4,638,261, "Low Noise Amplifier with High Intercept Point" by Charles F. McGuire and John M. Fossinas, U.S.S.N. 769,377

U.S. Patent No. 4,638,417, "Power Density Spectrum Controller" by Hubert C. Martin, Jr., Gene D. Elder and David W. Parsley, U.S.S.N. 766,186

U.S. Patent No. 4,638,493, "Adaptive Interference Rejection for Improved Frequency Hop Detection" by F. Avery Bishop and Ronald S. Leahy, U.S.S.N. 745,487

U.S. Patent No. 4,656,484, "Radar Reflection and Scanner with Electromagnetic Programmable Drive" by Ralph A. Brown and Gerald H. Piale, U.S.S.N. 762,415

U.S. Patent No. 4,712,024 "Active Baham Star Mount" by Charles F. McGuire, David J. Weber and Gordon C. Stoyart, U.S.S.N. 766,187

U.S. Patent No. 4,786,912 "Antenna Stabilization and Enhancement by Rotation of Antenna Feed" by Ralph A. Brown and Lowell N. Shering, U.S.S.N. 882,839

U.S. Patent No. 4,827,269 "Apparatus to Maintain Arbitrary Polarization Stabilization of an Antenna" by Lowell N. Shering, John W. Zschelle, Jr., Alan E. Lundquist and Glen S. Kirkpatrick, U.S.S.N. 882,838

U.S. Patent No. 4,852,121 "Coherent Pseudonoise Code Tracking Loop" by Samuel C. Kingston and John W. Zschelle, Jr., U.S.S.N. 111,372

U.S. Patent No. 4,901,317, "Efficient Maximum-Likelihood Decoder for the Galois (24,12) Code" by Craig K. Rushforth and Ayyoob P. Abbaszadeh, U.S.S.N. 231,125

U.S. Patent No. 4,926,188, "Coder-Decoder for Purgal Extended Galois (22,7) Codes" by Po Tong, Elwyn R. Berlekamp, Robert J. Curtis and Craig K. Rushforth, U.S.S.N. 276,757

U.S. Patent No. 4,948,589 "Channelized Binary-Level Hop Rate Detector" by Patrick J. Smith, Ronald S. Leahy and Scott R. Bullock, U.S.S.N. 417,175

U.S. Patent No. 4,956,644 "Channelized Binary-Level Radiometer" by Ronald S. Leahy, Patrick J. Smith and Scott R. Bullock, U.S.S.N. 417,124

U.S. Patent No. 4,963,425 "Printed Wiring Board Substrata for Surface Mounted Components" by Alan M. Buchanan, Jay S. Abramowitz and Roberts A. Y. Flygare, U.S.S.N. 708,588

U.S. Patent No. 5,008,795 "Switched Capacitor Interleaved Forward Power Converter" by David W. Parsley and Hubert C. Martin, Jr., U.S.S.N. 498,863

U.S. Patent No. 5,048,053 "Demodulating and Tracking Circuit for Composite PN Codes" by Vaughn L. Mower and John W. Zschelle, Jr., U.S.S.N. 439,133

U.S. Patent No. 5,063,387 "Doppler Frequency Compensation Circuit" by Vaughn L. Mower, U.S.S.N. 439,907

U.S. Patent No. 5,063,572 "Channelized Delay and Mix Chip Rate Detector" by Ronald S. Leaby and Patrick J. Smith, U.S.S.N. 533,183

U.S. Patent No. 5,222,100 "Range Based Acquisition System" by Alan E. Lundquist, John W. Zechala, Jr. and Samuel C. Kingston, U.S.S.N. 903,407

U.S. Patent No. 5,257,282 "High Speed Code Sequence Generator" by Willis B. Addison, Glen D. Rantingourd, Billie M. Spencer and John W. Zechala, Jr., U.S.S.N. 625,497

U.S. Patent No. 5,298,908 "Interference Nulling System for Antennas" by Gerald H. Piale, U.S.S.N. 125,832

U.S. Patent No. 5,299,229 "High Rate-Low Rate PN Code Tracking System" by John W. Zechala, Jr., Alan E. Lundquist and Samuel C. Kingston, U.S.S.N. 010,723

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U.S. Patent No. 5,504,787 "Coherent Sequential PN Code Extractor" by John W. Zechala, Jr., Alan E. Lundquist and Robert A. Wright, U.S.S.N. 216,744

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U.S.S.N. 06/217,378 "A Low Radar Cross Section (RCS) High Gain Lens Antenna" by Samuel C. Kingston, Robert B. Burdoin and David Lammendorf

U.S.S.N. 06/217,379 "Low Radar Cross Section [RCS] Narrow Beam Lens Antenna" by Lawrence L. Reigwater

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U.S.S.N. 07/244,188 "Fast Acquisition Random Access Network System" by John W. Zechala, Jr., Samuel C. Kingston and Billie M. Spencer

U.S.S.N. 07/629,906 "Method and Apparatus for Determining Location of a Ground Station" by Lamar K. Timothy, John W. Zechala, Jr. and Craig S. Maddox

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U.S.S.N. 08/606,285 "A Multi-User Acquisition Procedure for Multipoint-to-Point Synchronous CDMA Systems" by Samuel C. Kingston, Thomas R. Galloruzzi, Robert W. Szeagal and David W. Matalak

U.S.S.N. 08/606,378 "A Multi-User Acquisition Procedure for Point-to-Multipoint Synchronous CDMA Systems" by Samuel C. Kingston, Thomas R. Galloruzzi, Randal R. Sylvester, David W. Matalak and Patrick I. Smith

U.S.S.N. 08/684,021 "Coaxial Radio Frequency Test Probe" by James E. Frey

U.S.S.N. 08/696,437 "Dielectrically Loaded Wide Band Feed" by Bryant F. Anderson, Mark I. Yamamoto and Douglas M. Ulmer

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U.S.S.N. 08/698,322 "Launcher for Plural Band Feed System" Bryant F. Anderson, Charles A. Demaris, Kevin L. Teucher, Paul J. Gerzide and Douglas M. Harrison

U.S.S.N. 08/698,324 "Plural Band Feed System" by Bryant F. Anderson, Joseph M. Baird, Douglas M. Harrison, Charles A. Demaris, Paul J. Gerzide, Friedrich J. Fisher and Mark I. Yamamoto

Foreign Patent Applications

PCT International Patent Application PCT/US97/02654 (based on U.S.S.N. 08/606,285)

Indian Patent Application based on U.S.S.N. 08/606,285

PCT International Patent Application PCT/US97/01154 (based on U.S.S.N. 08/606,378)

Indian Patent Application based on U.S.S.N. 08/606,378

DISPLAY SYSTEMS PATENT LISTING:

Expired

~~U.S. PATENT NO. 5,168,199 "Horizontal Linearity Correction Circuitry for Cathode-Ray Tube Display".~~

08 / 663,893

U.S. PATENT APPLICATION SERIAL NO. ^ (Loral Ref. 96-15)
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08 / 663,894

U.S. PATENT APPLICATION SERIAL NO. ^ (Loral Ref 96-16) "Wide Range Dual Backlight Display Apparatus".

MICROWAVE NARDA WEST PATENT LISTING

08 / 758,051

U.S. PATENT APPLICATION SERIAL NO. ^ (PAR 300-006419-US)
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08 / 757,147

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U.S. PATENT NO. 4,658,262 'Dual Polarized Sinuous Antennas'.

Licensed from the
Raymond DuHamel
Estate

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U.S. PATENT NO. 5,577,740 "Thermal Activated Self Releasing Seal for Boiler".
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U.S. PATENT APPLICATION SERIAL NO. ^ "Flight Crash Survivable
Storage Unit with Aquarium Container". 08/317,687

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MICROWAVE NARDA EAST PATENT LISTING

U.S. PATENT NO. TITLE

4,752,730	"Consumer Radiation Monitor"
4,253,409	"Implantable Temperature Probe" <i>Expired</i>
4,628,283	"Hermetically Sealed Oscillator"
4,789,869	"Dipole Antenna"
4,611,166	"Radiation Hazard Detector"
4,424,483	"Microwave Radiation Monitor"
4,431,965	"Microwave Radiation Monitor"
4,629,978	"Dipole Antenna"
4,605,905	"Amplifier Input Circuitry"
4,518,912	"Radiation Detector"
4,634,968	"Wide Range Radiation Monitor"
5,168,265	"Personal Electromagnetic Radiation Monitor"
5,266,888	"Wide Power Range Radiation Monitor"
5,418,448	"Wide Power Range Radiation Monitor"
5,373,284	"Personal VHF Electromagnetic Radiation Monitor"
5,453,734	"Induced Body Current Metering Workstation Mat"
5,394,164	"Human-Equivalent Antenna for Electromagnetic Fields"
5,381,086	"Wide Power Range Radiation Monitor"
5,373,285	"Personal Electromagnetic Radiation Monitor"

FOREIGN PATENT NO. TITLE

1,093,046 Canada	"Implantable Temperature Probe" <i>Expired</i>
1,067,411,972 Japan	"Radiation Detector"
2,181,562 UK	"Electromagnetic Field Sensitive Probe"
2,133,895 UK	"Electromagnetic Field Detector"
1,848,773 Japan	"Electromagnetic Field Detector for Ind. Energy of Electric Field".
2,083,871 Canada	"Electromagnetic Radiation Monitor"

PATENT APPLICATIONS TITLE

262,360 U.S.	"High Frequency Probe"
280,388 U.S.	"Broadband Probe"
07/980,454 U.S.	"Contact Hazard Meter" / US Patent 5,610,526
103,912 Israel	"Electromagnetic Radiation Meter"
93,888,99 Italy	"Wide Power Range Radiation Monitor" <i>Not pursued</i>

AIRPORT EXPLOSION DETECTION BUSINESS PATENT LISTING

U.S. PATENT APPLICATION SERIAL NO. 08/325,145 "X-Ray Computer Tomography (CT) System for Detecting Thin Objects" ; now US Patent 5,712,926

PCT Application PCT/US95/12629 "X-Ray Computer Tomography (CT) System for Detecting Thin Objects"

U.S. PATENT APPLICATION SERIAL NO. 08/332,519 "Inspection System and Spatial Resolution Technique for Detecting Explosives Using Combined Neutron Interrogation and X-Ray Imaging"

PCT Application PCT/US95/12631 "Inspection System and Spatial Resolution Technique for Detecting Explosives Using Combined Neutron Interrogation and X-Ray Imaging"

U.S. PATENT APPLICATION SERIAL NO.
08/854,349 "X-Ray Computer Tomography (CT) System for Detecting Thin Objects,"
a continuation of 08/325,145 above.

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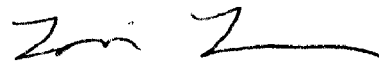
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