List of Exhibits – CGraham Declaration

A.	Plaintiff's FOIA Request, FOIA No. 08-270, dated June 28, 2008.
B.	Administrative Claim for Patent Infringement, dated June 7, 2003
C.	NASA Final Determination, Case I-222, dated March 19, 2009
D.	NASA's Initial Determination on Plaintiff's FOIA Request, FOIA No. 08-270, dated May 14, 2009.
E.	Margolin FOIA Appeal on FOIA Request, FOIA No. 08-270, dated June 10, 2009.
F.	NASA Final Determination on Plaintiff's FOIA Request, FOIA No. 08-270, dated August 5, 2009.
G.	NASA Headquarters Action Tracking System, No. A/2009-00202, dated August 11, 2009.
H.	E-Mail, ACTION REQUIRED: Margolin FOIA Suit, dated August 12, 2009.
I.	Margolin FOIA Withheld Index Final.
J.	Letter from Courtney Graham to Benjamin Allison, dated January 11, 2010.
K.	NASA Supplemental FOIA Response, dated November 5, 2009.
L.	NASA FOIA Report for Fiscal Year 2009 at page 17.

Exhibit A

Robinson, Kellie N. (HQ-NB000)

From: McConnell, Stephen (HQ-NB000)
Sent: Monday, June 30, 2008 8:13 AM
To: Robinson, Kellie N. (HQ-NB000)
Subject: Fw: FOIA Request

Attachments: jm_nasa.pdf

jm_nasa.pdf (106 KB)

----- Original Message -----
From: Jed Margolin <jm@jmargolin.com>
To: nasafoia@nasa.gov <nasafoia@nasa.gov>
Sent: Sat Jun 28 21:05:56 2008
Subject: FOIA Request

This request is made pursuant to the Freedom of Information Act.

I would like all documents related to the Administrative Claim of Jed Margolin for Infringement of U.S. Patent Nos. 5,566,073 and 5,904,724; NASA Case No. I-222.

I am attaching a letter dated June 11, 2003 from Alan Kennedy, Director, Infringement Division, Office of the Associate General Counsel as file jm_nasa.pdf. I provided the information requested, it was received by Mr. Kennedy, and thereafter Mr. Kennedy refused to respond to my attempts to find out the results of the investigation.

I believe NASA has had enough time to have completed its investigation by now.

Jed Margolin
1981 Empire Rd.
Reno, NV 89521-7430
775-847-7845
www.jmargolin.com <http://www.jmargolin.com>

08-270

Exhibit B

13 Sheets

Jed Margolin ***3570 Pleasant Echo Dr.*** ***San Jose, CA 95148-1916***
Phone: (408) 238-4564 ***Email:*** **jm@jmargolin.com** ***June 7, 2003***

Mr. Alan J. Kennedy
Office of the General Counsel
National Aeronautics and Space Administration
Mail Code GP, 300 E Street, S.W.
Washington DC USA 20546
Fax: 202-358-4341

Dear Mr. Kennedy,

Mr. Barry Gibbens of your Langley Research Center suggested I contact you. I missed you when I called on Friday so I am sending this fax to provide background.

I believe that NASA may have used one or more of my patents in connection with the X-38 project and may be using one or more of my patents in other projects using Synthetic Vision.

This fax contains a number of Internet links. If you would like an email version of this fax containing active links please send me an email (jm@jmargolin.com) with your email address.

Summary

In Synthetic Vision (NASA's term), the aircraft's position and orientation are used with a terrain database (such as the Digital Elevation Database) to produce a 3D projected view of the terrain over which the aircraft is flying. One of the advantages of this system is that the pilot is able to "see" the terrain regardless of weather conditions or whether it is day or night.

My U.S. Patent that pertains to this use of synthetic vision is: **U.S. Patent 5,566,073 Pilot Aid Using a Synthetic Environment** issued October 15, 1996 to Margolin. (I am the inventor and owner of the patent.) The patent application was filed August 9, 1995, and was a continuation of Application Ser. No. 08/274,394, filed July 11, 1994.

With synthetic vision it is not necessary for the pilot to be in the aircraft. I believe the X-38 project used this method.

My U.S. Patent that pertains to this use of synthetic vision is: **U.S. Patent 5,904,724 Method and Apparatus For Remotely Piloting an Aircraft** issued May 18, 1999 to Margolin. (I am the inventor and owner of the patent.) The patent application was filed January 19, 1996.

X-38 Project

I became aware that NASA was using synthetic vision in the X-38 project in the January 2003 issue of NASA Tech Briefs, page 40, **"Virtual Cockpit Window" for a Windowless Aerospacecraft**. The article is available at: http://www.nasatech.com/Briefs/Jan03/MSC23096.html

This led me to Rapid Imaging Software, Inc. and their press release (http://www.landform.com/pages/PressReleases.htm) which states:

> *"On December 13th, 2001, Astronaut Ken Ham successfully flew the X-38 from a remote cockpit using LandForm VisualFlight as his primary situation awareness display in a flight test at Edwards Air Force Base, California. This simulates conditions of a real flight for the windowless spacecraft, which will eventually become NASA's Crew Return Vehicle for the ISS. We believe that this is the first test of a hybrid synthetic vision system which combines nose camera video with a LandForm synthetic vision display. Described by astronauts as 'the best seat in the house', the system will ultimately make space travel safer by providing situation awareness during the landing phase of flight."*

The RIS press release provided a link to an article in Aviation Week & Space Technology: http://www.aviationnow.com/avnow/news/channel_space.jsp?view=story&id=news/sx381211.xml

As a result of more searching I have discovered a link to a Johnson Space Center SBIR Phase II award to Rapid Imaging Systems at http://sbir.gsfc.nasa.gov/SBIR/successes/ss/9-058text.html .

It includes a particularly relevant paragraph:

> *The Advanced Flight Visualization Toolkit (VisualFlight™) project is developing a suite of virtual reality immersive telepresence software tools which combine the real-time flight simulation abilities with the data density of a Geographic Information System (GIS). This technology is used for virtual reality training of crews, analysis of flight test data, and as an on-board immersive situation display. It will also find application as a virtual cockpit, and in teleoperation of remotely piloted vehicles.*
>
> {The emphasis on teleoperation of remotely piloted vehicles is mine.}

A search of the SBIR archive shows the following entries.

For 2001 Phase I:
Rapid Imaging Software, Inc.
1318 Ridgecrest Place S.E.
Albuquerque, NM 87108-5136
Mike Abernathy (505) 265-7020
01 H6.02-8715 JSC
Integrated Video for Synthetic Vision Systems

For 2001 Phase II:
Rapid Imaging Software, Inc.
1318 Ridgecrest Place S.E.
Albuquerque , NM 87108-5136

Carolyn Galceran (505) 265 - 7020
01-2-H6.02-8715 JSC
Integrated Video for Synthetic Vision Systems

My U.S. Patent that pertains to this use of synthetic vision is: **U.S. Patent 5,904,724 Method and Apparatus For Remotely Piloting an Aircraft** issued May 18, 1999 to Margolin. (I am the inventor and owner of the patent.) The patent application was filed January 19, 1996.

The patent can be downloaded from the UPTO Web site (www.uspto.gov) in html (no drawings) or in an odd tif format (with the drawings) that requires a special viewer.

An easier way to view and download the patent is through my Web site, on which I have posted the patent in PDF format. The link is http://www.jmargolin.com/patents2/rpv.htm .

While I have no way of knowing exactly what method(s) NASA used in controlling the X-38 (unless you are willing to make a full disclosure) my patent covers techniques as exemplified by claim 1.

1. A system comprising:

a remotely piloted aircraft including,

a position determining system to locate said remotely piloted aircraft's position in three dimensions; and

an orientation determining system for determining said remotely piloted aircraft's orientation in three dimensional space;

a communications system for communicating flight data between a computer and said remotely piloted aircraft, said flight data including said remotely piloted aircraft's position and orientation, said flight data also including flight control information for controlling said remotely piloted aircraft;

a digital database comprising terrain data;

said computer to access said terrain data according to said remotely piloted aircraft's position and to transform said terrain data to provide three dimensional projected image data according to said remotely piloted aircraft's orientation;

a display for displaying said three dimensional projected image data; and

a set of one or more remote flight controls coupled to said computer for inputting said flight control information, wherein said computer is also for determining a delay time for communicating said flight data between said computer and said remotely piloted aircraft, and wherein said computer adjusts the sensitivity of said set of one or more remote flight controls based on said delay time.

Although the X-38 project has been canceled, the methods developed to fly it are too good to waste and should be used in follow-up projects like CRV.

Synthetic Vision

I became aware of NASA's Synthetic Vision program perhaps two years ago from a program on NASA TV. I was unable to follow it up at that time due to health problems and the demands of my other patenting activity.

According to the NASA Aviation Safety Program Web site (http://avsp.larc.nasa.gov/program_svs.html)

Synthetic Vision Systems

TECHNOLOGY WOULD REDUCE AIRLINE FATALITIES
Synthetic Vision would give pilots clear skies all the time

A revolutionary cockpit display system being developed with seed money from NASA would help prevent the world's deadliest aviation accidents.

And I agree.

My U.S. Patent that pertains to this use of synthetic vision is: **U.S. Patent 5,566,073 Pilot Aid Using a Synthetic Environment** issued October 15, 1996 to Margolin. (I am the inventor and owner of the patent.) The patent application was filed August 9, 1995, and was a continuation of Application Ser. No. 08/274,394, filed July 11, 1994.

The patent can be downloaded from the USPTO Web site (www.uspto.gov) in html (no drawings) or in an odd tif format (with the drawings) that requires a special viewer.

The patent can also be downloaded from my Web site in PDF format at:
http://www.jmargolin.com/patents2/pilot.htm

As with the X-38 program I have no way of knowing exactly what method(s) NASA used in its Synthetic Vision program (unless you are willing to make a full disclosure). My patent covers techniques as exemplified by claim 1.

> *1. A pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:*
>
> *a position determining system for locating said aircraft's position in three dimensions;*
>
> *a digital data base comprising terrain data, said terrain data representing real terrestrial terrain as at least one polygon, said terrain data generated from elevation data of said real terrestrial terrain;*
>
> *an attitude determining system for determining said aircraft's orientation in three dimensional space;*
>
> *a computer to access said terrain data according to said aircraft's position and to transform said terrain data to provide three dimensional projected image data according to said aircraft's orientation; and*
>
> *a display for displaying said three dimensional projected image data.*

NASA's Visits to My Web Site

There is good reason to believe that NASA was aware of my work in these areas through visits to my Web site. NASA has been visiting my Web site (www.jmargolin.com) regularly since I started it in December 2000. (I have no objection to NASA's visits; I am flattered that NASA considers my Web site worth visiting.)

A listing of NASA access statistics follows the end of this fax.

I also have regular visits from http://cap.nipr.mil, which I understand is a secure gateway to other military networks. I don't know if NASA uses nipr so I have not included it in my listing.

The Web Statistics software provided by my Web Hosting Service tell me who is visiting my Web site and what people are looking at but not who is looking at what, (In January of this year I discovered there are raw Web log files containing this information but my Web Hosting Service does not keep backup log files older than the previous month.)

I am including an example of the detailed Web log data; it's understandable why my Web Hosting Service abstracts it into a less detailed form.

The article being referenced is **Unit Vector Math for 3D Graphics**
(www.jmargolin.com/uvmath/uvmenu.htm)

Now that I can see what people are looking at I have noticed a great deal of interest in this article as well as **The Relationship between Unit Vector Rotations and Euler Angle Functions** .
(www.jmargolin.com/uvmath/euler.doc)

These articles also seem to interest military contractors like Lockheed Martin (lmco.com), Boeing (boeing.com), Northrop Grumman (northgrum.com), and SAIC (saic.hq.nasa.gov) as well as a large number of educational institutions.

Some accesses are obviously just for fun, to articles such as to **Gas Music From Jupiter**
(www.jmargolin.com/gmfj/gmfj.htm)

There are also visits from most of our national labs. I expect they are interested in **U.S. Patent 6,377,436 Microwave Transmission Using a Laser-Generated Plasma Beam Waveguide** issued April 23, 2002 to Jed Margolin.

Abstract

A directed energy beam system uses an ultra-fast laser system, such as one using a titanium-sapphire infrared laser, to produce a thin ionizing beam through the atmosphere. The beam is moved in either a circular or rectangular fashion to produce a conductive shell to act as a waveguide for microwave energy. Because the waveguide is produced by a plasma it is called a plasma beam waveguide. The directed energy beam system can be used as a weapon, to provide power to an unmanned aerial vehicle (UAV) such as for providing communications in a cellular telephone system, or as an ultra-precise radar system.

There is a possibility that this device could be used to make a linear Tokamak.
(www.jmargolin.com/debs/debs.htm)

Conclusion

I realize this is a great deal of material to wade through, but I would appreciate confirmation that you have received it and, if possible, an estimate as to when I can expect to hear NASA's decision on this claim.

Hopefully, then we can discuss compensation. The '724 patent is available for sale if NASA wishes to purchase it to avoid setting the precedent of the U.S. Government paying compensation for each flight of an aircraft using my patent. (I don't think this would be popular with DOD.) I expect that the first UAV to crash due to Pilot Induced Oscillation (or just Flight Computer Induced Oscillation, as occurred in the first flight of the Predator) would cost more than the cost of buying my patent. I believe this patent also has commercial applications like using UAVs for traffic reporting and in Law Enforcement so your Commercialization Department may be able to generate income with it.

Sincerely yours,

Jed Margolin

Jed Margolin
3570 Pleasant Echo Rd.
San Jose, CA 95148-1916
Phone: 408-238-4564
Email: jm@jmargolin.com

Here are NASA's visits to my Web site:

June 2001
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
2	0.02%	1	2	73232	0.02%	dhcp161-117.hst.nasa.gov

July 2001
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
24	0.27%	24	1	216909	0.08%	aavigil1.wff.nasa.gov
1	0.01%	1	1	96274	0.04%	antonius-dekorte-pc.jpl.nasa.gov
25	0.28%	25	2	313183	0.11%	

August 2001
nasa.gov

Total hits	Files	Pageview	Bytes sent	Hostname

40	0.38%	40	1	184514	0.06%	time2burn.larc.nasa.gov
24	0.23%	24	1	216909	0.07%	gerhard.gsfc.nasa.gov
64	0.61%	64	2	401423	0.12%	

October 2001
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
1	0.01%	1	1	549657	0.11%	halljm.nsstc.nasa.gov

November 2001
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
48	0.39%	24	2	216909	0.06%	aavigil1.wff.nasa.gov
42	0.34%	42	1	532111	0.14%	mac01291100705.jpl.nasa.gov
1	0.01%	1	1	21505	0.01%	dhcp-78-14-233.jpl.nasa.gov
91	0.73%	67	4	770525	0.21%	

December 2001
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
1	0.01%	1	1	90494	0.01%	pgrant.arc.nasa.gov

February 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
1	0.01%	1	0	120832	0.03%	csmad-nt-23.jpl.nasa.gov
1	0.01%	1	1	504805	0.11%	cielo2k.jpl.nasa.gov
2	0.01%	2	1	625637	0.13%	

March 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
58	0.35%	45	5	319389	0.05%	fantasy.arc.nasa.gov
6	0.04%	5	4	1299302	0.22%	fryepc.larc.nasa.gov
1	0.01%	1	0	120832	0.02%	shum.larc.nasa.gov

65	0.39%	51	9	1739523	0.29%	

April 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
40	0.23%	40	1	184514	0.03%	cevennes.jpl.nasa.gov
7	0.04%	7	2	45302	0.01%	doppler.jpl.nasa.gov
1	0.01%	1	1	5735	0.00%	math.jpl.nasa.gov
1	0.01%	1	0	120832	0.02%	k-137-78-152-182.jpl.nasa.gov
49	0.29%	49	4	356383	0.06%	

May 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
4	0.02%	0	0	0	0.00%	k1505776.ksc.nasa.gov
1	0.00%	1	0	120832	0.02%	manzanita-227-215.arc.nasa.gov
1	0.00%	1	1	96274	0.02%	seraph3.lerc.nasa.gov
6	0.03%	2	1	217106	0.03%	

June 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
3	0.02%	1	1	96694	0.02%	micronovich.gsfc.nasa.gov

July 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
43	0.19%	43	4	190275	0.03%	seraph3.lerc.nasa.gov
42	0.19%	42	3	189552	0.03%	varies01113104503.jpl.nasa.gov
2	0.01%	2	2	7802	0.00%	paulafinlayson-pc-pentium.jpl.nasa.gov
1	0.00%	1	1	350096	0.06%	brodbell1.gsfc.nasa.gov
1	0.00%	1	1	93686	0.02%	poes12.gsfc.nasa.gov
89	0.39%	89	11	831411	0.14%	

August 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
24	0.11%	24	1	216909	0.03%	envision.arc.nasa.gov

1	0.00%	1	1	90494	0.01%	pc02141110149.jpl.nasa.gov
1	0.00%	1	1	142144	0.02%	tizzie.nsstc.nasa.gov
26	0.12%	26	3	449547	0.06%	

September 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
5	0.02%	1	0	121528	0.02%	knepper.ivv.nasa.gov
1	0.00%	1	0	285696	0.04%	seraph2.lerc.nasa.gov
1	0.00%	1	0	120832	0.02%	webproxy2.dfrc.nasa.gov
7	0.03%	3	0	528056	0.08%	

October 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
98	0.45%	98	14	827297	0.11%	dial37.jsc.nasa.gov
1	0.00%	1	1	49690	0.01%	isdn-dial-050.gsfc.nasa.gov
1	0.00%	1	0	120832	0.02%	latema.jpl.nasa.gov
1	0.00%	1	0	285696	0.04%	dkiewicz-pc.jpl.nasa.gov
101	0.47%	101	15	1283515	0.16%	

November 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
27	0.12%	25	1	506284	0.06%	ntserve.gdscc.nasa.gov
7	0.03%	7	2	45342	0.01%	ecn1950165.gsfc.nasa.gov
2	0.01%	2	2	1155686	0.15%	zebra.arc.nasa.gov
1	0.00%	1	1	350096	0.04%	norton.gsfc.nasa.gov
37	0.17%	35	6	2057408	0.26%	

December 2002
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
7	0.03%	7	2	45269	0.01%	ws196.gsfc.nasa.gov

January 2003
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname

2	0.01%	2	2	29129	0.00%	csg- 686.cdscc.nasa.gov

February 2003
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
2	0.01%	2	2	29138	0.00%	odinssc609337.ssc.nasa.gov

April 2003
nasa.gov

Total hits		Files	Pageview	Bytes sent		Hostname
40	0.17%	40	1	184514	0.02%	khgmac.larc.nasa.gov
8	0.03%	5	4	40212	0.00%	kid-emillerw2k.saic.hq.nasa.gov
5	0.02%	1	0	121528	0.01%	psycho.larc.nasa.gov
4	0.02%	3	3	63471	0.01%	b03042144127.jpl.nasa.gov
3	0.01%	3	3	29881	0.00%	seraph2.grc.nasa.gov
60	0.25%	52	11	439606	0.05%	

Example of Detailed Web Log Data

This is an example of the detailed Web log data, so it's understandable why my Web Hosting Service abstracts it into a less detailed form.

The article being referenced is Unit Vector Math for 3D Graphics (www.jmargolin.com/uvmath/uvmenu.htm)

---

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/fig1.gif HTTP/1.1" 200 2590 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m1.gif HTTP/1.1" 200 2237 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m2.gif HTTP/1.1" 200 1464 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m3.gif HTTP/1.1" 200 715 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m4.gif HTTP/1.1" 200 1720 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m5.gif HTTP/1.1" 200 1738 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m7.gif HTTP/1.1" 200 1549 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m8.gif HTTP/1.1" 200 1939 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m6.gif HTTP/1.1" 200 1762 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m9.gif HTTP/1.1" 200 4152 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m10.gif HTTP/1.1" 200 2732 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m11.gif HTTP/1.1" 200 2572 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m12.gif HTTP/1.1" 200 2580 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m13.gif HTTP/1.1" 200 3915 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m14.gif HTTP/1.1" 200 2591 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m15.gif HTTP/1.1" 200 2224 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m16.gif HTTP/1.1" 200 1858 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m17.gif HTTP/1.1" 200 1742 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m18.gif HTTP/1.1" 200 2642 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m19.gif HTTP/1.1" 200 1738 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m20.gif HTTP/1.1" 200 1762 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:14 -0500] "GET /uvmath/m21.gif HTTP/1.1" 200 1696 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m22.gif HTTP/1.1" 200 2224 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m23.gif HTTP/1.1" 200 1858 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m24.gif HTTP/1.1" 200 1711 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/fig6.gif HTTP/1.1" 200 3304 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/fig7.gif HTTP/1.1" 200 995 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/fig8.gif HTTP/1.1" 200 4441 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/fig11.gif HTTP/1.1" 200 3186 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/fig12.gif HTTP/1.1" 200 3743 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/fig14.gif HTTP/1.1" 200 1936 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/fig16.jpg HTTP/1.1" 200 61706 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m25.gif HTTP/1.1" 200 1358 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m26.gif HTTP/1.1" 200 1413 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m27.gif HTTP/1.1" 200 1052 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m28.gif HTTP/1.1" 200 1017 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m29.gif HTTP/1.1" 200 1673 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:15 -0500] "GET /uvmath/m30.gif HTTP/1.1" 200 2224 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:24 -0500] "GET /uvmath/uvmath.htm HTTP/1.1" 200 40231 "http://www.google.com/search?q=+%22euler+angle%22+normal+openGL&hl=en&lr=&ie=UTF-8&oe=UTF-8&start=10&sa=N" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

khgmac.larc.nasa.gov - - [01/Apr/2003:09:32:24 -0500] "GET /uvmath/fig3.gif HTTP/1.1" 200 2524 "http://www.jmargolin.com/uvmath/uvmath.htm" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0; Q312461; .NET CLR 1.0.3705)"

---end

Exhibit C

2

National Aeronautics and Space Administration
Headquarters
Washington, DC 20546-0001

March 19, 2009

Reply to Attn of: Office of the General Counsel

CERTIFIED MAIL

Dr. Robert Adams, CEO
Optima Technology Group
1981 Empire Road
Reno, NV 89521

RE: Administrative Claim for Infringement of US Patent No. 5,904,724;
NASA Case No. I-222

Dear Dr. Adams:

This letter concerns the above-identified administrative claim for patent infringement.

NASA received the initial notification of this claim in an email dated May 12, 2003, from Mr. Jed Margolin addressed to attorneys at the NASA Langley Research Center claiming that "NASA may have used one or more of [Mr. Margolin's] patents in connection with the X-38 project and may be using one or more of my patents in other projects using Synthetic Vision". Mr. Margolin identified two patents that he believed NASA may be infringing; the subject patent and Patent No. 5,566,073. On June 7, 2003, Mr. Margolin submitted his claim by fax to the NASA HQ attorney, Mr. Alan Kennedy. Mr. Kennedy responded by letter dated June 11, 2003 acknowledging the administrative claim and requesting that Mr. Margolin give a more detailed breakdown of the exact articles or processes that constitute the claim. Mr. Margolin responded by letter dated June 17, 2003, withdrawing his claim with regard to U.S. Patent No. 5,566,073, leaving the remaining claim for the subject patent. NASA is aware of the long pendency of this matter and we regret the delay.

On July 14, 2008 Optima Technology Group sent a letter addressed to Mr. Kennedy stating that they were the owners of the Jed Margolin patents due to an assignment and requesting that NASA now license the technology of the subject patent. With an email dated August 6, 2008 from Optima, NASA received a copy of a Patent Assignment, dated July 20, 2004, executed by Jed Margolin, the sole inventor on the subject patent, by which the entire right, title and interest in the patent has been assigned to Optima Technology Group, Inc. We previously noted in a letter dated August 20, 2008 from Mr. Jan McNutt of our office addressed to you that NASA believes there are certain irregularities surrounding this and collateral assignment documents associated with the subject patent. However, NASA will at this time forestall a detailed consideration of that issue. Instead, we will assume your *bona fides* in asserting that you are the legitimate owner of the subject patent and communicate

our findings directly with you. To the extent that Mr. Margolin has any interest in this matter, formally or informally, we will leave it up to you whether or not to communicate with him.

In light of the prior claim by Mr. Margolin, we consider your license proffer as an administrative claim of patent infringement. We turn now to the substance of your claim. In response to your initial letter dated July 14, 2008, Mr. McNutt's August 20, 2008 letter posed a number of questions, the purpose of which was to enable NASA to fully evaluate the details of your claim. Your organization failed to respond to these questions and, further, advanced the position that this matter does not involve a *new* claim (*Adams letter to McNutt, August 25, 2008*). We disagree that this is not a new claim. Nevertheless, NASA proceeds – in order to bring closure to this matter – on the basis that this claim centers around allegations that infringement arose from activities associated with NASA's X-38 Program, as advanced by Mr. Margolin. Accordingly, our investigation of this claim necessarily reflects the answers previously furnished by Mr. Margolin in response to NASA's June 11, 2003 letter to him containing substantially the same set of questions.

U.S. Patent No. 5,904,724 issued with twenty claims, claims 1 and 13 being the sole independent claims.

In order for an accused device to be found infringing, each and every limitation of the claim must be met by the accused device. To support a finding of literal infringement, each limitation of the claim must be met by the accused device exactly, any deviation from the claim precluding a finding of infringement. See *Lantech, Inc. v. Keip Mach. Co.*, 32 F.3d 542 (Fed. Cir. 1994). If an express claim limitation is absent from an accused product, there can be no literal infringement as a matter of law. See *Wolverine World Wide, Inc. v. Nike, Inc.*, 38 F.3d 1192, 1199 (Fed. Cir.1994).

In applying these legal precepts, reproduced below are the relevant portions of claims 1 and 13.

> Claim 1. A system comprising:
>
> * * *
>
> a computer
>
> * * *
>
> said computer is. . .for *determining a delay time* for communicating said flight data between said computer and said remotely piloted aircraft, and wherein said computer adjusts the sensitivity of said set of one or more remote flight controls based on said delay time. (emphasis added.)

> Claim 13. A station for flying a remotely piloted aircraft that is real or simulated comprising:
>
> * * *
>
> a computer
>
> * * *

> said computer. . . to *determine a delay time* for communicating. . .flight control information between said computer and [a] remotely piloted aircraft, and said computer to adjust the sensitivity of [a] set of remote flight controls based on said delay time. . . .(emphasis added.)

NASA has investigated activities surrounding the X-38 program at its Centers that conducted X-38 development efforts and has determined that no infringement has occurred. This result is compelled because none of NASA's X-38 implementations utilized a computer which is "for determining a delay time for communicating said flight data between said computer and said remotely piloted aircraft," as required by claim 1, nor a "computer ... to determine a delay time for communicating ... flight control information between said computer and [a] remotely piloted aircraft," as required by the limitations of claim 13.

Given that a computer which measures delay time is lacking from the NASA X-38 configuration, it follows that the NASA X-38 configuration had no "adjusting of the sensitivity of [a] set of one or more remote flight controls based on said delay time", as required in claim 1. Similarly, because the NASA X-38 configuration had no "computer to determine a delay time for communicating ... flight control information between said computer and [a] remotely piloted aircraft, the configuration also had no adjusting of "the sensitivity of [a] set of remote flight controls based on said delay time", as called for by claim 13.

For at least the above-explained exemplary reasons, claims 1 and 13 have not been infringed. It is axiomatic that none of the dependent claims may be found infringed unless the claims from which they depend have been found to be infringed. *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546 (Fed. Cir. 1989). One who does not infringe an independent claim cannot infringe a claim dependent on, and thus containing all the limitations of, that claim. *Id.* Thus, none of claims 2-12 and 14-20 have been infringed.

NASA's X-38 development efforts ended in 2002. There may also be other features in NASA's X-38 development efforts that, upon further analysis, would reveal yet more recited claim limitations that are lacking in the NASA configuration related to those efforts.

We also note as a point of particular significance that the limitations included in claims 1 and 13 discussed above were added by amendment during the prosecution of the patent application. It is clear from an analysis of the patent application file wrapper history that the individual prosecuting the application stressed the importance of "the measurement of a communication delay in order to adjust the sensitivity of flight controls based on that delay." Also noted is the distinguishing arguments that these claims require that there be a "computer ... located in the pilot station" and that "at least one real time measurement of the delay and some adjustment is contemplated." (See *Applicant's Amendment and Remark*, February 27, 1998 and *Response Under 37 C.F.R. § 1.116*, July 6, 1998). Clearly, the Patent Office Examiner allowed the application based on these prosecutorial arguments.

We have completed our investigation regarding the claim of patent infringement of U.S. Patent No. 5,904,724 and have determined that there is no patent infringement by, or

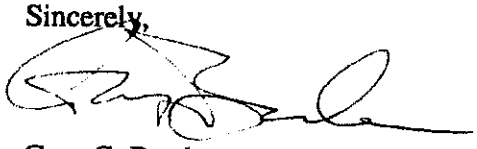
unauthorized use on behalf of, NASA. The above detailed discussion explains the basis for NASA's analysis and decision regarding the subject administrative claim.

As an aside, during NASA's investigation, numerous pieces of evidence were uncovered which would constitute anticipatory prior knowledge and prior art that was never considered by the U.S. Patent and Trademark Office during the prosecution of the application which matured into Patent No. 5,904,724. In view of the clear finding of lack of infringement of this patent, above, NASA has chosen to refrain from a discussion that would demonstrate, in addition to non-infringement, *supra*, invalidity of the subject patent. However, NASA reserves the right to introduce such evidence of invalidity in an appropriate venue, should the same become necessary.

This is a FINAL agency action and constitutes a DENIAL of the subject administrative claim for patent infringement.

Pursuant to 35 U.S.C. § 286, the statute of limitations for the filing of an action of patent infringement in the United States Court of Federal Claims is no longer tolled. Thus, any further appeal of this decision must be made by filing a claim for patent infringement in the United States Court of Federal Claims, pursuant to 28 U.S.C. § 1498(a).

Sincerely,



Gary G. Borda
Agency Counsel for Intellectual Property

Exhibit D

FOIA 08-270 May 14, 2009

Mr. Jed Margolin
1981 Empire Road
Reno, NV 89521-7430
jm@jmargolin.com

Dear Mr. Margolin:

This is in response to your request received on June 30, 2008, pursuant to the Freedom of Information Act (FOIA) for *documents related to the Administrative Claim of Jed Margolin for infringement of U.S. Patent Nos. 5,566, 073 and 5,904,724; NASA Case No. I-222.*

The NASA Headquarters Office of the General Counsel conducted a search and from that search provided the enclosed documents responsive to your request.

It has been determined that portions of the records found responsive to your request contain information which is exempt from disclosure under the deliberative process privilege of Exemption 5. This privilege covers advisory opinions, recommendations, and deliberations, which are part of the government decision-making process, 5. U.S.C.§552(b)(5).

You may appeal this initial determination to the NASA Administrator. Your appeal must (1) be addressed to the Administrator, National Aeronautics and Space Administration, Washington, DC 20546, (2) be clearly identified on the envelope and in the letter as an "Appeal under the Freedom of Information Act", (3) include a copy of the request for the agency record and a copy of this initial adverse determination, (4) to the extent possible, state the reasons why you believe this initial determination should be reversed, and (5) be sent to the Administrator within thirty (30) calendar days of the receipt of this initial determination.

I apologize for the delay in processing your request. I appreciate your patience.

Sincerely,

Original Signed

Kellie N. Robinson
FOIA Public Liaison Officer
Headquarters
NASA
300 E Street, SW
Washington, DC 20546

Enclosures

Exhibit E

Headquarters Action Tracking System (HATS)
Incoming Correspondence Action

AA/2009-00316

Title : **FOIA Appeal: re Patent for Method and Apparatus for Remotely Piloting an Aircraft**

Recipient: AA
Author: Margolin
Organization: Reno, NV

Date Written: 06/10/2009
Date Received: 06/12/2009
Date Concurred:
Date Submitted:
Date Signed:
Date Closed:
>>Current Due Date: 07/17/2009<<

Action Office: General Counsel

Status: Open

Signature Office: Office of Institutions and Management

Info Offices: AA, ADA, Office of Public Affairs

Abstract:

Via e-mail, Jed Margolin submits a FOIA appeal concerning his request for documents concerning a Patent for Method and Apparatus for Remotely Piloting an Aircraft.

Comments:

Enclosures: Per Mr. Margolin, the original documents will arrive via UPS.

Related Records:

Keywords: FOIA Appeal
File Plan:

Analyst: VCoates

Jed Margolin
Phone: 775-847-7845
1981 Empire Rd.
Email: jm@jmargolin.com
Reno, NV 89521-7430
June 10, 2009

Administrator
NASA Headquarters
Washington, DC 20546

Appeal under the Freedom of Information Act to the NASA Response dated May 14, 2009 and received via email May 18, 2009.

Jed Margolin **FOIA 08-270** **Filed: June 28, 2008**

Sir:

This is an Appeal under the Freedom of Information Act to the NASA Response dated May 14, 2009 and received via email May 18, 2009 [*Appendix NA1 - NA65*] in FOIA Request 08-270 filed June 28, 2008 [*Appendix NA66*].

Because NASA's response was sent (and received) on May 18, 2009 this appeal is timely.

Summary

In its very tardy response to FOIA Request 08-270 by Jed Margolin ("Margolin") NASA withheld documents, citing *5 U.S.C.§552(b(5).*

One of the documents that NASA withheld from Margolin is a letter dated March 19, 2009 that was sent by Gary G. Borda ("Borda") NASA Agency Counsel for Intellectual Property to Optima Technology Group ("OTG"). (This document was given to Margolin by OTG.) In this letter Borda denies Claim I-222 regarding NASA's infringement of U.S. Patent 5,904,724 ('724) in the X-38 project.

Margolin's FOIA 08-270 request to NASA was to produce documents relating to Claim I-222 and NASA withheld the most material document so far.

AA/2009-00316

The Borda letter asserts:

> "... numerous pieces of evidence were uncovered which would constitute anticipatory prior knowledge and prior art that was never considered by the U.S. Patent and Trademark Office during the prosecution of the application which matured into Patent No. 5,904,724."

And states, "... NASA reserves the right to introduce such evidence of invalidity in an appropriate venue, should the same become necessary."

Circulating the patent report solely within NASA or among other federal agencies is not an appropriate venue for NASA to use to have a patent declared invalid. The only appropriate venues for NASA to challenge the validity of a U.S. Patent are in the U.S. Court of Federal Claims and the Court of Appeals for the Federal Circuit. A Court will not accept NASA's word that a patent is invalid due to prior art; NASA would be required to produce the evidence.

Therefore, the exemption under *5 U.S.C.§552(b)(5)* does not apply.

The Borda letter also suggests the existence of other materials and/or documents, especially relating to whether NASA risked the X-38 by failing to provide compensation for the time delays in the synthetic vision flight control loop.

NASA has a record of acting in bad faith toward Margolin. See:

1. Letter from Jed Margolin to Alan Kennedy (NASA Office of the General Counsel) dated January 6, 2004 confirming a portion of the telephone conversation Margolin had with Kennedy on December 10, 2003 [*Appendix NA72*]

2. Fax from Jed Margolin to Acting Administrator Scolese dated April 27, 2009 detailing NASA's almost-6 years of bad faith shown to Margolin. [*Appendix NA73*]

Note that neither document was included in NASA's Response to Margolin's FOIA Request, which suggests NASA withheld them in an attempt to avoid embarrassment to the Agency and for no other reason. *5 U.S.C.§552(b)* does not include "embarrassment to the agency" as a reason to withhold documents.

NASA is still acting in bad faith toward Margolin.

One of the documents that NASA withheld from Margolin is a letter dated March 19, 2009 that was sent by Gary G. Borda ("Borda") NASA Agency Counsel for Intellectual Property to Optima Technology Group ("OTG"). (This document was given to Margolin by OTG.) In this letter Borda denies Claim I-222 regarding NASA's infringement of U.S. Patent 5,904,724 ('724) in the X-38 project. [*Appendix NA80*]

Margolin's FOIA 08-270 request to NASA was to produce documents relating to Claim I-222 and NASA withheld the most material document so far.

The Borda letter is so important that it will be reproduced here in its entirety.

Dear Dr. Adams:

This letter concerns the above-identified administrative claim for patent infringement.

NASA received the initial notification of this claim in an email dated May 12, 2003, from Mr. Jed Margolin addressed to attorneys at the NASA Langley Research Center claiming that "NASA may have used one or more of [Mr. Margolin's] patents in connection with the X-38 project and may be using one or more of my patents in other projects using Synthetic Vision". Mr. Margolin identified two patents that he believed NASA may be infringing; the subject patent and Patent No. 5,566,073. On June 7, 2003, Mr. Margolin submitted his claim by fax to the NASA HQ attorney, Mr. Alan Kennedy. Mr. Kennedy responded by letter dated June 11, 2003 acknowledging the administrative claim and requesting that Mr. Margolin give a more detailed breakdown of the exact articles or processes that constitute the claim. Mr. Margolin responded by letter dated June 17, 2003, withdrawing his claim with regard to U.S. Patent No. 5,566,073, leaving the remaining claim for the subject patent. NASA is aware of the long pendency of this matter and we regret the delay.

NASA has a record of acting in bad faith toward Margolin. See:

1. Letter from Jed Margolin to Alan Kennedy (NASA Office of the General Counsel) dated January 6, 2004 confirming a portion of the telephone conversation Margolin had with Kennedy on December 10, 2003 [*Appendix NA72*]

2. Fax from Jed Margolin to Acting Administrator Scolese dated April 27, 2009 detailing NASA's almost-6 years of bad faith shown to Margolin. [*Appendix NA73*]

Note that neither document was included in NASA's Response to Margolin's FOIA Request, which suggests NASA withheld them in an attempt to avoid embarrassment to the Agency and for no other reason. *5 U.S.C.§552(b)* does not include "embarrassment to the agency" as a reason to withhold documents.

NASA is still acting in bad faith toward Margolin.

One of the documents that NASA withheld from Margolin is a letter dated March 19, 2009 that was sent by Gary G. Borda ("Borda") NASA Agency Counsel for Intellectual Property to Optima Technology Group ("OTG"). (This document was given to Margolin by OTG.) In this letter Borda denies Claim I-222 regarding NASA's infringement of U.S. Patent 5,904,724 ('724) in the X-38 project. [*Appendix NA80*]

Margolin's FOIA 08-270 request to NASA was to produce documents relating to Claim I-222 and NASA withheld the most material document so far.

The Borda letter is so important that it will be reproduced here in its entirety.

Dear Dr. Adams:

This letter concerns the above-identified administrative claim for patent infringement.

NASA received the initial notification of this claim in an email dated May 12, 2003, from Mr. Jed Margolin addressed to attorneys at the NASA Langley Research Center claiming that "NASA may have used one or more of [Mr. Margolin's] patents in connection with the X-38 project and may be using one or more of my patents in other projects using Synthetic Vision". Mr. Margolin identified two patents that he believed NASA may be infringing; the subject patent and Patent No. 5,566,073. On June 7, 2003, Mr. Margolin submitted his claim by fax to the NASA HQ attorney, Mr. Alan Kennedy. Mr. Kennedy responded by letter dated June 11, 2003 acknowledging the administrative claim and requesting that Mr. Margolin give a more detailed breakdown of the exact articles or processes that constitute the claim. Mr. Margolin responded by letter dated June 17, 2003, withdrawing his claim with regard to U.S. Patent No. 5,566,073, leaving the remaining claim for the subject patent. NASA is aware of the long pendency of this matter and we regret the delay.

On July 14, 2008 Optima Technology Group sent a letter addressed to Mr. Kennedy stating that they were the owners of the Jed Margolin patents due to an assignment and requesting that NASA now license the technology of the subject patent. With an email dated August 6, 2008 from Optima, NASA received a copy of a Patent Assignment, dated July 20, 2004, executed by Jed Margolin, the sole inventor on the subject patent, by which the entire right, title and interest in the patent has been assigned to Optima Technology Group, Inc. We previously noted in a letter dated August 20, 2008 from Mr. Jan McNutt of our office addressed to you that NASA believes there are certain irregularities surrounding this and collateral assignment documents associated with the subject patent. However, NASA will at this time forestall a detailed consideration of that issue. Instead, we will assume your *bona fides* in asserting that you are the legitimate owner of the subject patent and communicate

our findings directly with you. To the extent that Mr. Margolin has any interest in this matter, formally or informally, we will leave it up to you whether or not to communicate with him.

In light of the prior claim by Mr. Margolin, we consider your license proffer as an administrative claim of patent infringement. We turn now to the substance of your claim. In response to your initial letter dated July 14, 2008, Mr. McNutt's August 20, 2008 letter posed a number of questions, the purpose of which was to enable NASA to fully evaluate the details of your claim. Your organization failed to respond to these questions and, further, advanced the position that this matter does not involve a new claim (*Adams letter to McNutt, August 25, 2008*). We disagree that this is not a new claim. Nevertheless, NASA proceeds — in order to bring closure to this matter — on the basis that this claim centers around allegations that infringement arose from activities associated with NASA's X-38 Program, as advanced by Mr. Margolin. Accordingly, our investigation of this claim necessarily reflects the answers previously furnished by Mr. Margolin in response to NASA's June 11, 2003 letter to him containing substantially the same set of questions.

U.S. Patent No. 5,904,724 issued with twenty claims, claims 1 and 13 being the sole independent claims.

In order for an accused device to be found infringing, each and every limitation of the claim must be met by the accused device. To support a finding of literal infringement, each limitation of the claim must be met by the accused device exactly, any deviation from the claim precluding a finding of infringement. See *Lantech, Inc. v. Kelp Mach. Co.*, 32 F.3d 542 (Fed. Cir. 1994). If an express claim limitation is absent from an accused product, there can be no literal infringement as a matter of law. See *Wolverine World Wide, Inc. v. Nike, Inc.*, 38 F.3d 1192, 1199 (Fed. Cir.1994).

In applying these legal precepts, reproduced below are the relevant portions of claims 1 and 13.

Claim 1. A system comprising:

***

a computer

***

said computer is,.. for *determining a delay time* for communicating said flight data between said computer and said remotely piloted aircraft, and wherein said computer adjusts the sensitivity of said set of one or more remote flight controls based on said delay time. (emphasis added.)

Claim 13. A station for flying a remotely piloted aircraft that is real or simulated comprising:

***

a computer

***

said computer... to *determine a delay time* for communicating. . flight control information between said computer and [a] remotely piloted aircraft, and said computer to adjust the sensitivity of [al set of remote flight controls based on said delay time. ... (emphasis added.)

NASA has investigated activities surrounding the X-38 program at its Centers that conducted X-38 development efforts and has determined that no infringement has occurred. This result is compelled because none of NASA's X-38 implementations utilized a computer which is "for determining a delay time for communicating said flight data between said computer and said remotely piloted aircraft," as required by claim 1, nor a "computer ... to determine a delay time for communicating ... flight control information between said computer and [a] remotely piloted aircraft," as required by the limitations of claim 13.

Given that a computer which measures delay time is lacking from the NASA X-38 configuration, it follows that the NASA X-38 configuration had no "adjusting of the sensitivity of [a] set of one or more remote flight controls based on said delay time", as required in claim 1. Similarly, because the NASA X-38 configuration had no "computer to determine a delay time for communicating ... flight control information between said computer and [a] remotely piloted aircraft, the configuration also had no adjusting of "the sensitivity of [a] set of remote flight controls based on said delay time", as called for by claim 13.

For at least the above-explained exemplary reasons, claims 1 and 13 have not been infringed. It is axiomatic that none of the dependent claims may be found infringed unless the claims from which they depend have been found to be infringed. *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546 (Fed. Cir. 1989). One who does not infringe an independent claim cannot infringe a claim dependent on, and thus containing all the limitations of, that claim. *Id.* Thus, none of claims 2-12 and 14-20 have been infringed.

NASA's X-38 development efforts ended in 2002. There may also be other features in NASA's X-38 development efforts that, upon further analysis, would reveal yet more recited claim limitations that are lacking in the NASA configuration related to those efforts.

We also note as a point of particular significance that the limitations included in claims 1 and 13 discussed above were added by amendment during the prosecution of the patent application. It is clear from an analysis of the patent application file wrapper history that the individual prosecuting the application stressed the importance of "the measurement of a communication delay in order to adjust the sensitivity of flight controls based on that delay." Also noted is the distinguishing arguments that these claims require that there be a "computer ... located in the pilot station" and that "at least one real time measurement of the delay and some adjustment is contemplated." (See *Applicant's Amendment and Remark*, February 27, 1998 and *Response Under 37 C.F.R. § 1.116*, July 6, 1998). Clearly, the Patent Office Examiner allowed the application based on these prosecutorial arguments.

We have completed our investigation regarding the claim of patent infringement of U.S. Patent No. 5,904,724 and have determined that there is no patent infringement by, or

unauthorized use on behalf of, NASA. The above detailed discussion explains the basis for NASA's analysis and decision regarding the subject administrative claim.

As an aside, during NASA's investigation, numerous pieces of evidence were uncovered which would constitute anticipatory prior knowledge and prior art that was never considered by the U.S. Patent and Trademark Office during the prosecution of the application which matured into Patent No. 5,904,724. In view of the clear finding of lack of infringement of this patent, above, NASA has chosen to refrain from a discussion that would demonstrate, in addition to non-infringement, *supra*, invalidity of the subject patent. However, NASA reserves the right to introduce such evidence of invalidity in an appropriate venue, should the same become necessary.

This is a FINAL agency action and constitutes a DENIAL of the subject administrative claim for patent infringement.

Pursuant to 35 U.S.C. § 286, the statute of limitations for the filing of an action of patent infringement in the United States Court of Federal Claims is no longer tolled. Thus, any further appeal of this decision must be made by filing a claim for patent infringement in the United States Court of Federal Claims, pursuant to 28 U.S.C. § 1498(a).

Sincerely,

Gary G. Borda
Agency Counsel for Intellectual Property

The Borda letter is not just a material document, it's a smoking gun.

1. Despite the documents supplied by OTG, and Margolin's confirmation in a telephone conversation with Jan McNutt (Office of the General Counsel), that OTG owns the subject patent, NASA continues to cast doubt on the legal ownership of the patent.

> We previously noted in a letter dated August 20, 2008 from Mr. Jan McNutt of our office addressed to you that NASA believes there are certain irregularities surrounding this and collateral assignment documents associated with the subject patent.

2. NASA asserted it had found prior art to invalidate the patent.

> As an aside, during NASA's investigation, numerous pieces of evidence were uncovered which would constitute anticipatory prior knowledge and prior art that was never considered by the U.S. Patent and Trademark Office during the prosecution of the application which matured into Patent No. 5,904,724. In view of the clear finding of lack of infringement of this patent, above, NASA has chosen to refrain from a discussion that would demonstrate, in addition to non-infringement, supra, invalidity of the subject patent. However, NASA reserves the right to introduce such evidence of invalidity in an appropriate venue, should the same become necessary.

In order to make this statement, NASA must have produced a patent report showing how each reference is directed to the claims in the '724 patent. This patent report is not exempt under *5 U.S.C.§552(b)(5)* because it is not "inter-agency or intra-agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency;".

The reason it is not exempt is because "NASA reserves the right to introduce such evidence of invalidity in an appropriate venue, should the same become necessary."

Circulating the patent report solely within NASA or among other federal agencies is not an appropriate venue for NASA to use to have a patent declared invalid. The only appropriate venues for NASA to challenge the validity of a U.S. Patent are in the U.S. Court of Federal Claims and the Court of Appeals for the Federal Circuit. A Court will not accept NASA's word that a patent is invalid due to prior art; NASA would be required to produce the evidence.

Since this patent report is material under Margolin's FOIA Request and is not exempt under *5 U.S.C.§552(b)(5)* Margolin requests NASA immediately hand it over to him.

There is another reason NASA needs to hand over the patent report. Although Margolin no longer owns the '724 patent he is still the named inventor. By asserting it has evidence to invalidate the patent, and then withholding that evidence, NASA has defamed Margolin's reputation as an inventor. It also smacks of 1950s McCarthyism (making damaging accusations without providing proper evidence).

Margolin takes such attacks seriously. There is an article in the December 2008 issue of AUVSI's Unmanned Systems Magazine entitled **Synthetic Vision Technology for Unmanned Systems: Looking Back and Looking Forward** by Jeff Fox, Michael Abernathy, Mark Draper and Gloria Calhoun [*Appendix NB58*].

The article consists of a spurious history of synthetic vision. Many of the listed sources are from NASA, such as the HiMat project. [*Appendix NB8*] (While HiMat produced valuable results, it did not use synthetic vision.)

Margolin responded with the article **Synthetic Vision – The Real Story.** [*Appendix NB1*].

Although the editor of AUVSI Magazine had promised Margolin the opportunity to respond in the magazine, he later refused to even mention the controversy about the Abernathy article. [*Appendix NB60*]

NASA should be familiar with the name Mike Abernathy (Rapid Imaging Software). He provided the synthetic vision system for the X-38 project.

NASA should also be interested in the statements made on Abernathy's behalf in a letter from Abernathy's law firm to Optima Technology Group dated October 13, 2006. [*Appendix NA143*]

> As you know, RIS creates computer software, and does not use or manufacture UAV systems or ground control stations. RIS software is used in UAVs to provide situation awareness for sensor operators. It is not used for piloting air vehicles. The sensor operator does not pilot the aircraft, and instead sits at a separate workstation operating a payload containing one or more cameras, which may be controlled using a joystick to point the camera package during search or tracking operations.
>
> As you know, RIS refuses to allow its products to be used as a pilot aid, and RIS product licenses specifically prohibit use for piloting. None of RIS's customers use its software for piloting, for very good reason. Serious military regulations control placement of anything -synthetic vision included- on a pilot workstation. Before anything can be placed on the display in front of a pilot, it has to have met stringent criteria (MIL-STD 1787C, DO-178B, etc.), it must have been thoroughly ground tested, and it must have been fully flight tested. RIS software has never been through this process, and thus is prohibited from use for piloting. Accordingly, UAV manufacturers have purchased RIS products for use on the

sensor operator console, but none for the pilot console. This is a matter of Army doctrine and applies to Shadow, Warrior and Hunter.

Nor does RIS have its software in a form that would make it marketable for piloting. RIS software products are all based on the Microsoft Windows operating system. This offers many advantages, but is inappropriate to piloting aircraft because it is a not a POSIX compliant real-time operating system. POSIX compliance is required by flight safety regulations. To create such a version would entail a one- to two-year conversion program in which RIS has not invested.

It is important to realize that the market for RIS products is quite different from the relaxed civilian world. If a military pilot chose to use synthetic vision in spite of military regulations or in defiance of a software license agreement, his career would be damaged or destroyed. Military pilots cherish their wings and would not consider risking them on something like synthetic version.

Finally, it appears from your correspondence that you regard research activities like NASA's X-38 prototypes (before the program was cancelled in 2002) as infringing the Margolin patents. This was not the case because of the claim limitations of the Margolin patents. However all RIS work for government agencies, including NASA, was authorized and consented to by the U.S. Government, and is protected under 28 U.S.C. §1498(a). As you are aware, any remedies you may have are against the government and are circumscribed by that statute and related law.

Although we need not discuss the invalidity of the Margolin patents given the above circumstances, you should be aware that both patents were anticipated by profound prior art dating back to 1977. If it should ever become necessary, we are confident that both would be held invalid.

(emphasis added)

He is asserting that Abernathy's synthetic vision software may not be used for piloting an aircraft, either remotely or with the pilot onboard. And yet, it was used for remotely piloting the X-38. [*Appendix NB20*]

From *Appendix NB21*:

On December 13th, 2001, Astronaut Ken Ham successfully flew the X-38 from a remote cockpit using LandForm VisualFlight as his primary situation awareness display in a flight test at Edwards Air Force Base, California. This simulates conditions of a real flight for the windowless spacecraft, which will eventually become NASA's Crew Return Vehicle for the ISS. We believe that this is the first test of a hybrid synthetic vision system which combines nose camera video with a LandForm synthetic vision display. Described by astronauts as "the best seat in the

house", the system will ultimately make space travel safer by providing situation awareness during the landing phase of flight.

Did NASA really trust the safety of an expensive test vehicle (X-38) to a synthetic vision system using Microsoft Windows?

To end this section, note that in *5 U.S.C.§552(f)*:

(f) For purposes of this section, the term—

(1) "agency" as defined in section 551 (1) of this title includes any executive department, military department, Government corporation, Government controlled corporation, or other establishment in the executive branch of the Government (including the Executive Office of the President), or any independent regulatory agency; and

(2) "record" and any other term used in this section in reference to information includes—

(A) any information that would be an agency record subject to the requirements of this section when maintained by an agency in any format, including an electronic format; and

(B) any information described under subparagraph (A) that is maintained for an agency by an entity under Government contract, for the purposes of records management.

Under this definition, neither Margolin nor Optima Technology Group (the owner of Claim I-222) is an "agency." It also means that NASA is required to provide the records between NASA and Rapid Imaging Software (Mike Abernathy) which provided the synthetic vision system for the X-38 project which was referred to in the Borda letter.

3. The basis for NASA's rejection of Claim I-222 in the Borda letter is that the X-38 project did not implement one of the elements in the patent claims.

> said computer is,.. for determining a delay time for communicating said flight data between said computer and said remotely piloted aircraft, and wherein said computer adjusts the sensitivity of said set of one or more remote flight controls based on said delay time. (emphasis added.)

To be precise, said computer does more than determine and compensate for time delays.

Claim 1 says:

> 1. A system comprising:
>
> a remotely piloted aircraft including,
>
> > a position determining system to locate said remotely piloted aircraft's position in three dimensions; and
> >
> > an orientation determining system for determining said remotely piloted aircraft's orientation in three dimensional space;
>
> a communications system for communicating flight data between a computer and said remotely piloted aircraft, said flight data including said remotely piloted aircraft's position and orientation, said flight data also including flight control information for controlling said remotely piloted aircraft;
>
> a digital database comprising terrain data;
>
> said computer to access said terrain data according to said remotely piloted aircraft's position and to transform said terrain data to provide three dimensional projected image data according to said remotely piloted aircraft's orientation;
>
> a display for displaying said three dimensional projected image data; and
>
> a set of one or more remote flight controls coupled to said computer for inputting said flight control information, wherein said computer is also for determining a delay time for communicating said flight data between said computer and said remotely piloted aircraft, and wherein said computer adjusts the sensitivity of said set of one or more remote flight controls based on said delay time.

Claim 13 says:

> 13. A station for flying a remotely piloted aircraft that is real or simulated comprising:
>
> a database comprising terrain data;
>
> a set of remote flight controls for inputting flight control information;
>
> a computer having a communications unit configured to receive status information identifying said remotely piloted aircraft's position and orientation in three dimensional space, said computer configured to access said terrain data according to said status information and configured to transform said terrain data to provide three dimensional projected image data representing said remotely piloted aircraft's environment, said computer coupled to said set of remote flight controls and said communications unit for transmitting said flight control information to control said remotely piloted aircraft, said computer also to determine a delay time for communicating said flight control information between said computer and said remotely piloted aircraft, and said computer to adjust the sensitivity of said set of remote flight controls based on said delay time; and
>
> a display configured to display said three dimensional projected image data.

Is Borda saying that NASA did not determine and compensate for time delays in the X-38 synthetic vision flight control loop or simply that NASA did not use a computer to do so? If they did not use a computer, what did they use?

NASA is well aware of the problems caused by failing to compensate for time delays in flight control systems.

When a UAV is manually flown by a remote pilot, failure to compensate for delays in the communications link will lead to Pilot-Induced-Oscillation, which frequently leads to the loss of the aircraft.

This is a potential problem in Flight Control Systems even in aircraft with the pilot onboard.

The article **Fly-By-Wire - A Primer for Aviation Accident Investigators** (Air Line Pilot, February 2000, page 18 By F/O Steve Stowe (Delta), Local Air Safety Chairman, Delta Council 16) gives a basic explanation of the Control Systems Engineering analysis of the problem. From *Appendix NA87*:

> Now for the bad news. While FBW technology could make an aerodynamically unstable aircraft flyable, it can also destabilize an otherwise stable airframe.
>
> FBW flight control laws may not be stable for all values of gain or phase angle (the difference between pilot input and airplane response in terms of frequency; exactly opposite would be a 180-degree phase angle) that can be applied. Now costarring with static margin as stability factors are "gain margin" and "phase margin"--measures of how much additional gain or phase-angle lag are available until the system becomes unstable. Computer simulation or flight testing can determine these two margins. But these data are often the manufacturer's proprietary information, so don't look for it on your weight-and-balance sheet.
>
> Highly augmented aircraft, in which fly-by-wire transforms the basic aircraft aerodynamics, can exhibit cliff-like handling qualities.
>
> "One reason is that fly-by-wire systems are susceptible to time delay, from a number of causes, which can seriously degrade the pilot's ability to control the aircraft. Time delay may vary for different sizes or frequencies of inputs. U.S. military standards suggest that time delays should be less than one tenth of a second for good handling qualities and that loss of control may occur with delays more than one quarter of a second (MIL STD 1797)."

(emphasis added)

Fly-By-Wire" means the aircraft surfaces are controlled through a computer instead of being controlled directly by the pilot.

From the same article [*Appendix NA92*]:

> * **Time delay**--Delay from pilot input to FBW aircraft response. Caused by many factors including the effect of filters, computer processing time, task time-sharing by computers and signal processors, "higher order" effects of the feedback control system, digital sampling effects, and/or actuator rate limiting. Time delays of more than 0.25 second can cause enough lag to make the FBW aircraft unstable during certain tasks, especially in "high gain" situations.

(emphasis added)

There was a problem with Pilot-Induced-Oscillation during the development of the Space Shuttle. The following is from NASA Technical Memorandum NASA-TM-81366 **ANALYSIS OF A LONGITUDINAL PILOT-INDUCED OSCILLATION EXPERIENCED ON THE APPROACH AND LANDING TEST OF THE SPACE SHUTTLE** , Author: J. W. Smith, December 1981.

From the Introduction (*Appendix NA96*):

> During the final free flight (FF-5) of the shuttle's approach and landing test (ALT) phase, the vehicle underwent pilot-induced oscillations (PIO's) near touchdown (refs. 1 to 3). The oscillations were present in both the pitch and roll axes and were initiated when the pilot made pitch controller inputs in an effort to control sink rate by changing pitch attitude. Because the control inputs were large and fairly rapid, the elevons rate limited in the pitch axis at the maximum priority rate limit set in the computers. The elevon rate limit also limits the vehicle's roll control capability, and this was partially responsible for the lateral control problem.
>
> Several unpublished studies indicate that time delays as well as priority rate limiting were a significant factor in the PIO's. A simulator study of the effect of time delays on shuttle PIO's is reported in reference 4.
>
> This report describes the combined effect of pilot input rate limiting and time delays. Frequency responses are predicted for various parameters under rate saturated conditions by using nonlinear analysis.

(emphasis added)

Note that the above references were for Flight Control Systems for aircraft with the pilot onboard. When an aircraft is flown manually through a communications link, the delays caused by the communications link become part of the flight control system.

From U.S. Patent 5,904,724 column 8, lines 14 – 36 [*Appendix NA142*]:

> Flying an RPV is further complicated because there are additional time delays in the loop. The computer in the remote aircraft must first determine the aircraft's position and orientation. The additional processing for transmitting a secure signal by encryption and/or spread spectrum techniques may create additional delays. Transmission delay of signals between the remote aircraft and remote pilot station is negligible for a direct path. However, if the signals are relayed through other facilities the delay time may be appreciable, especially if an orbiting satellite is used. There are additional delays in the remote pilot station as the remote aircraft's position

and orientation are used to transform the data from the digital database to present the pilot with the synthesized 3D projected view from the remote aircraft. In one embodiment, the RPV system measures the various delays and modifies the control laws used by the computer in the remote pilot aircraft and in the feedback provided by the computer in the remote pilot station to the remote pilot. For example, the computer may adjust the sensitivity of the User Flight Controls 408 according to the delay (e.g., as the delay increases, the computer will decrease the sensitivity of the flight controls). The system also displays the measured delay to the remote pilot.

The issue of time delay in a UAV communications link was addressed in the literature by the Master's Thesis **Improving UAV Handling Qualities Using Time Delay Compensation** by Andrew J. Thurling (17 Sep 97-24 Feb 00, AIR FORCE INST OF TECH WRIGHT-PATTERSONAFB OH). From *Appendix NA139*:

Abstract

This study investigated control loop time delay and its effect on UAV handling qualities. Compensation techniques to improve handling qualities in the presence of varying amounts of time delay were developed and analyzed. One technique was selected and successfully flight-tested on a UAV.

Flight-testing occurred at a constant flight condition with varying levels of additional time delay introduced into the control loop. Research pilots performed a pitch tracking task and gave Cooper-Harper ratings and comments. Tracking errors were used as a quantitative measure of Pilot/Display/UAV system performance.

Predictive pitch compensation was found to significantly reduce pilot workload and improve Cooper-Harper ratings. Using the predictive display doubled the amount of system time delay that research pilots could tolerate while tracking the task bars. Overall system tracking performance, however, was not improved.

Parameter variations of +/- 20% in the aerodynamic model used to generate the predictive display produced statistically significant, although not operationally significant, changes in both pilot opinion and performance.

Analysis of flight test data and follow-on simulations resulted in predictor improvements that increased predictor accuracy to the point of restoring system tracking performance to equal that of the system with no additional time delay.

From *Appendix NA140*:

Preface

The effects of control system time delays on manned aircraft handling qualities are well understood. Unmanned aircraft have similar control, system delay, but have an additional latency caused by the datalink of the human operator's commands from control station to aircraft. The purpose of this thesis is to investigate the effects of time delay on the handling qualities of Unmanned Aerial Vehicles (UAV) and develop compensation strategies to mitigate the adverse effects of the delay. It is my hope that with techniques developed and investigated in this thesis future UAV operators will be able to employ UAVs from anywhere in the world thus increasing the flexibility of this already versatile platform.

(emphasis added)

And from the same report (*Appendix NA141*):

2.3.4 Time Delay Effects on Handling Qualities. Control difficulties during the 1977 Space Shuttle Approach and Landing Tests and YF-17 development resulted in efforts to investigate whether time delays associated with digital flight computers might be a contributing factor to the handling qualities problems. As discussed above, delays in flight control systems may come from a variety of sources. The effects of phase lag due to higher order effects, or analog time delay, had been studied (15) and were relatively well understood. A detailed study of the effects of pure delay, transport delay due to digital systems, had yet to be accomplished. In 1978 a NASA study employed an F-8 fighter aircraft modified with a digital flight control system to accomplish a detailed study of the effects of pure time delays on aircraft handling qualities (7, 4, 6). In 1979, Hodgkinson and others (29) conducted a study on the USAF/Calspan NT-33 inflight simulator in which they tested how mismatches between the higher order system and the LOES affected pilot opinion. They also investigated how well the delay term, e^{-sT}, in the LOES approximated the higher order phase lags and if the difference caused variations in pilot opinion. Both studies showed a strong correlation between pilot rating and the magnitude of the time delay, see Figures 2.8 and 2.10. The NT-33 data also showed that the degradation in pilot rating was similar for both digital transport delay and analog delay, or delay due to phase lag from higher order effects. The insidious nature of time delay's effects on handling qualities is demonstrated in a pilot comment during the F-8 research (7)

Pilots desire some response immediately upon stick input. It doesn't have to be much, but if he doesn't get response, his gains skyrocket.

> The pilots in the NT-33 study also voiced similar concerns with delay after control inputs and the rapidity of the response following the delay. The authors of the F8 study (7) make a further observation that aircraft dynamics have an impact on system sensitivity to time delay.

(emphasis added)

So, is Borda saying that NASA did not determine and compensate for time delays in the X-38 synthetic vision flight control loop or simply that NASA did not use a computer to do so?

Which is it, because when a UAV is manually flown by a remote pilot, failure to compensate for delays in the communications link will lead to Pilot-Induced-Oscillation, which frequently leads to the loss of the aircraft.

Did NASA risk the X-38 by failing to provide compensation for the time delays in the synthetic vision flight control loop?

Conclusion

In its very tardy response to FOIA Request 08-270 by Jed Margolin ("Margolin") NASA withheld documents, citing *5 U.S.C.§552(b)(5).*

One of the documents that NASA withheld from Margolin is a letter dated March 19, 2009 that was sent by Gary G. Borda ("Borda") NASA Agency Counsel for Intellectual Property to Optima Technology Group ("OTG"). (This document was given to Margolin by OTG.) In this letter Borda denies Claim I-222 regarding NASA's infringement of U.S. Patent 5,904,724 ('724) in the X-38 project.

Margolin's FOIA 08-270 request to NASA was to produce documents relating to Claim I-222 and NASA withheld the most material document so far.

The Borda letter asserts:

> "... numerous pieces of evidence were uncovered which would constitute anticipatory prior knowledge and prior art that was never considered by the U.S. Patent and Trademark Office during the prosecution of the application which matured into Patent No. 5,904,724."

And states, "... NASA reserves the right to introduce such evidence of invalidity in an appropriate venue, should the same become necessary."

Circulating the patent report solely within NASA or among other federal agencies is not an appropriate venue for NASA to use to have a patent declared invalid. The only appropriate venues for NASA to challenge the validity of a U.S. Patent are in the U.S. Court of Federal Claims and the Court of Appeals for the Federal Circuit. A Court will not accept NASA's word that a patent is invalid due to prior art; NASA would be required to produce the evidence.

Therefore, the exemption under *5 U.S.C.§552(b)(5)* does not apply.

Margolin requests NASA produce the evidence that Borda refers to when he asserted:

> "... numerous pieces of evidence were uncovered which would constitute anticipatory prior knowledge and prior art that was never considered by the U.S. Patent and Trademark Office during the prosecution of the application which matured into Patent No. 5,904,724."

Margolin also requests that NASA show how such materials and/or documents are directed to the '724 claims.

And, finally, under *5 U.S.C.§552(f)* NASA is required to provide the records between NASA and Rapid Imaging Software (Mike Abernathy) which provided the synthetic vision system for the X-38 project which was referred to in the Borda letter.

Respectfully,

Dated: June 10, 2009

/Jed Margolin/

Jed Margolin
1981 Empire Rd.
Reno, NV 89521-7430
775-847-7845
jm@jmargolin.com

Exhibit F

National Aeronautics and Space Administration
Headquarters
Washington, DC 20546-0001

August 5, 2009

Reply to Attn of: Office of the General Counsel

Mr. Jed Margolin
1981 Empire Road
Reno, NV 89521-7430

Re: Appeal of FOIA 08-270

Dear Mr. Margolin:

This is a response to your letter dated June 10, 2009, appealing an initial determination under the Freedom of Information Act (FOIA), 5 U.S.C. § 552 et seq., issued on May 14, 2009, by Ms. Kellie N. Robinson, FOIA Public Liaison Officer, NASA Headquarters. Your original FOIA request of June 30, 2008, sought to obtain "all documents related to the Administrative Claim of Jed Margolin for Infringement of U.S. Patent Nos. 5,566,073 and 5,904,724; NASA Case No. I-222."

In the initial determination Ms. Robinson informed you that NASA Headquarters Office of General Counsel conducted a search and from that search certain enclosed documents were provided that were responsive to your request. In addition Ms. Robinson informed you that certain other documents found responsive to your request contain information that is exempt from disclosure under the deliberative process privilege of Exemption 5, 5 U.S.C. §552(b)(5).

In your appeal letter dated June 10, 2009, you assert that NASA did not give an estimate of the volume of the documents being withheld, in violation of 5 U.S.C. §552(a)(6)(F), which states that:

> In denying a request for records, in whole or in part, an agency shall make a reasonable effort to estimate the volume of any requested matter the provision of which is denied, and shall provide any such estimate to the person making the request, unless providing such estimate would harm an interest protected by the exemption in subsection (b) pursuant to which the denial is made.

In addition to the alleged failure to provide this information your appeal letter requests documentation including:

1) Letter dated March 19, 2009, written by Mr. Gary G. Borda and addressed to Optima Technology Group (OTG);

2) Evidence (patent report) that Mr. Borda refers to in his letter and how such materials and/or documents are directed to the '724 claims; and

3) Records between NASA and Rapid Imaging Software (Mike Abernathy), which provided the synthetic vision system for the X-38 project which was referred to in the Borda letter.

Your appeal has been reviewed and processed pursuant to applicable statutes and regulations, specifically 14 CFR Part 1206. This process involved an examination of your original request, FOIA case law, the initial determination, the assertions made in your appeal, and related documentation.

First, in response to your assertion that you were not provided an estimate of the volume of documents withheld under Exemption 5, we now inform you that the withheld documents constitute approximately one hundred (100) pages in total volume.

Second, the document requested under item 1) above is already in your possession. You quoted the document verbatim in your appeal letter to NASA and included an exact copy in your materials (Appendix NA) that you returned to NASA accompanying your letter of appeal.

Third, I have determined that the documents you request under item 2) above are exempt from release under FOIA Exemption 5. The documents concerning the patent reports were prepared by attorneys in anticipation of litigation under NASA Case No. I-222. The preparation of the patent report was done in close collaboration between agency attorneys and agency personnel. Exemption 5 excludes from disclosure any documents that are "inter-agency or intra agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency." 5 U.S.C. 552 (b)(5). This exemption protects from disclosure those documents and other memoranda prepared by an attorney in contemplation of litigation. See Hickman v. Taylor, 329 U.S. 495, 509-10 (1947); Fed. R. Civ. P. 26(b)(3). The exemption is not limited to civil proceedings, but extends to administrative proceedings. See Environmental Protection Services v. EPA, 364 F. Supp. 2d 575, 586 (N.D. W.Va. 2005). In addition the exemption protects "confidential communications between an attorney and his client relating to a legal matter for which the client has sought professional advice." See Mead Data Cent., Inc. v. U.S. Dep't of the Air Force, 566 F.2d 242, 252 (D.C. Cir. 1977); Electronic Privacy Information Center v. Dep't of Homeland Security, 384 F. Supp. 2d 100, (D.D.C. 2005). Your request that NASA show how such materials and/or documents are directed to the '724 claims is also protected by the attorney client privilege.

Finally, with regard to the documents you request under item 3), these documents exceed the scope of the original FOIA request you submitted on June 30, 2008. Your original request identified documents related to the Administrative Claim of Jed Margolin for Infringement of U.S. Patent Nos. 5,566,073 and 5,904,724; NASA Case No. I-222. That request was forwarded to the Office of General Counsel, NASA HQ, which maintains the administrative claim file that includes all the documents the Agency holds in connection with the patent infringement claim. However, your request did not identify documents relating to an independent program conducted through a contractual arrangement made over a decade ago at other NASA Centers. See Chester Kowalczyk v. Dep't of Justice, 73 F.3d 386 (D.C. Cir. 1996). You will need to make a separate request for these additional documents and provide more specificity as to the nature of the documents you are requesting.

In response to your appeal, I will affirm the initial determination.

This is a final determination and is subject to judicial review under the provisions of 5 U.S.C. § 552 (a)(4), a copy of which is enclosed.

Sincerely,

Thomas S. Luedtke
Associate Administrator
for Institutions and Management

Enclosure

cc:
HQ/Mr. Hargrove

Freedom of Information Act, Section 552(a)(4), as amended

(4)(A)(i) In order to carry out the provisions of this section, each agency shall promulgate regulations, pursuant to notice and receipt of public comment, specifying the schedule of fees applicable to the processing of requests under this section and establishing procedures and guidelines for determining when such fees should be waived or reduced. Such schedule shall conform to the guidelines which shall be promulgated, pursuant to notice and receipt of public comment, by the Director of the Office of Management and Budget and which shall provide for a uniform schedule of fees for all agencies.

(ii) Such agency regulations shall provide that—

(I) fees shall be limited to reasonable standard charges for document search, duplication, and review, when records are requested for commercial use;

(II) fees shall be limited to reasonable standard charges for document duplication when records are not sought for commercial use and the request is made by an educational or noncommercial scientific institution, whose purpose is scholarly or scientific research; or a representative of the news media; and

(III) for any request not described in (I) or (II), fees shall be limited to reasonable standard charges for document search and duplication.

In this clause, the term 'a representative of the news media' means any person or entity that gathers information of potential interest to a segment of the public, uses its editorial skills to turn the raw materials into a distinct work, and distributes that work to an audience. In this clause, the term 'news' means information that is about current events or that would be of current interest to the public. Examples of news-media entities are television or radio stations broadcasting to the public at large and publishers of periodicals (but only if such entities qualify as disseminators of 'news') who make their products available for purchase by or subscription by or free distribution to the general public. These examples are not all-inclusive. Moreover, as methods of news delivery evolve (for example, the adoption of the electronic dissemination of newspapers through telecommunications services), such alternative media shall be considered to be news-media entities. A freelance journalist shall be regarded as working for a news-media entity if the journalist can demonstrate a solid basis for expecting publication through that entity, whether or not the journalist is actually employed by the entity. A publication contract would present a solid basis for such an expectation; the Government may also consider the past publication record of the requester in making such a determination.

(iii) Documents shall be furnished without any charge or at a charge reduced below the fees established under clause (ii) if disclosure of the information is in the public interest because it is likely to contribute significantly to public understanding of the operations or activities of the government and is not primarily in the commercial interest of the requester.

(iv) Fee schedules shall provide for the recovery of only the direct costs of search, duplication, or review. Review costs shall include only the direct costs incurred during the initial examination of a document for the purposes of determining whether the documents must be disclosed under this section and for the purposes of withholding any portions exempt from disclosure under this section. Review costs may not include any costs incurred in resolving issues of law or policy that may be raised in the course of processing a request under this section. No fee may be charged by any agency under this section—

(I) if the costs of routine collection and processing of the fee are likely to equal or exceed the amount of the fee; or

(II) for any request described in clause (ii)(II) or (III) of this subparagraph for the first two hours of search time or for the first one hundred pages of duplication.

(v) No agency may require advance payment of any fee unless the requester has previously failed to pay fees in a timely fashion, or the agency has determined that the fee will exceed $250.

(vi) Nothing in this subparagraph shall supersede fees chargeable under a statute specifically providing for setting the level of fees for particular types of records.

(vii) In any action by a requester regarding the waiver of fees under this section, the court shall determine the matter de novo: Provided, That the court's review of the matter shall be limited to the record before the agency.

(viii) An agency shall not assess search fees (or in the case of a requester described under clause (ii)(II), duplication fees) under this subparagraph if the agency fails to comply with any time limit under paragraph (6), if no unusual or exceptional circumstances (as those terms are defined for purposes of paragraphs (6)(B) and (C), respectively) apply to the processing of the request. [Effective one year from date of enactment of Public Law 110-175]

(B) On complaint, the district court of the United States in the district in which the complainant resides, or has his principal place of business, or in which the agency records are situated, or in the District of Columbia, has jurisdiction to enjoin the agency from withholding agency records and to order the production of any agency records improperly withheld from the complainant. In such a case the court shall determine the matter de novo, and may examine the contents of such agency records in camera to determine whether such records or any part thereof shall be withheld under any of the exemptions set forth in subsection (b) of this section, and the burden is on the agency to sustain its action. In addition to any other matters to which a court accords substantial weight, a court shall accord substantial weight to an affidavit of an agency concerning the agency's determination as to technical feasibility under paragraph (2)(C) and subsection (b) and reproducibility under paragraph (3)(B).

(C) Notwithstanding any other provision of law, the defendant shall serve an answer or otherwise plead to any complaint made under this subsection within thirty days after service upon the

defendant of the pleading in which such complaint is made, unless the court otherwise directs for good cause is shown.

[(D) Repealed. Pub. L. 98-620, title IV, Sec. 402(2), Nov. 8, 1984, 98 Stat. 3357.]

(E)(i) The court may assess against the United States reasonable attorney fees and other litigation costs reasonably incurred in any case under this section in which the complainant has substantially prevailed.

(ii) For purposes of this subparagraph, a complainant has substantially prevailed if the complainant has obtained relief through either—

(I) a judicial order, or an enforceable written agreement or consent decree; or

(II) a voluntary or unilateral change in position by the agency, if the complainant's claim is not insubstantial.

(F)(i) Whenever the court orders the production of any agency records improperly withheld from the complainant and assesses against the United States reasonable attorney fees and other litigation costs, and the court additionally issues a written finding that the circumstances surrounding the withholding raise questions whether agency personnel acted arbitrarily or capriciously with respect to the withholding, the Special Counsel shall promptly initiate a proceeding to determine whether disciplinary action is warranted against the officer or employee who was primarily responsible for the withholding. The Special Counsel, after investigation and consideration of the evidence submitted, shall submit his findings and recommendations to the administrative authority of the agency concerned and shall send copies of the findings and recommendations to the officer or employee or his representative. The administrative authority shall take the corrective action that the Special Counsel recommends.

(ii) The Attorney General shall—

(I) notify the Special Counsel of each civil action described under the first sentence of clause (i); and

(II) annually submit a report to Congress on the number of such civil actions in the preceding year.

(iii) The Special Counsel shall annually submit a report to Congress on the actions taken by the Special Counsel under clause (i).

(G) In the event of noncompliance with the order of the court, the district court may punish for contempt the responsible employee, and in the case of a uniformed service, the responsible member.

Exhibit G

Headquarters Action Tracking System (HATS)
Correspondence Information Only

A/2009-00202

Title :	**Sensitive: Summons in Civil Action 3:09-vc-0042**
NASA Recip/Originator:	**Administrator**
Ext Author/Recip:	Margolin
Organization:	VC Highlands, NV
Date Written:	**07/31/2009**
Date Received:	08/11/2009
Action Office:	**General Counsel**
Status:	Closed
Info Offices:	**Administrator, Associate Administrator, Chief of Staff, Deputy Administrator, Associate Deputy Administrator**

Abstract:

Jed Margolin sent copy of the subject summons. The original will be hand delivered to General Counsel. Copy of the HATS and summons cover sheet will be secured in the Executive Secretariat.

Comments:

Enclosures:

Related Records:

Keywords:
File Plan: Analyst: VCoates

AO 440 (Rev. 02/09) Summons in a Civil Action

UNITED STATES DISTRICT COURT

for the

DISTRICT OF NEVADA

Jed Margolin *Plaintiff* v. Charles F. Bolden, Administrator, NASA *Defendant*	)	Civil Action No. 3:09-cv-00421

SUMMONS IN A CIVIL ACTION

To: *(Defendant's name and address)*

Charles F. Bolden, Administrator
NASA Headquarters
300 E Street SW
Washington, DC 20024-3210

A lawsuit has been filed against you.

Within 20 days after service of this summons on you (not counting the day you received it) — or 60 days if you are the United States or a United States agency, or an officer or employee of the United States described in Fed. R. Civ. P. 12 (a)(2) or (3) — you must serve on the plaintiff an answer to the attached complaint or a motion under Rule 12 of the Federal Rules of Civil Procedure. The answer or motion must be served on the plaintiff or plaintiff's attorney, whose name and address are:

Jed Margolin
1981 Empire Rd.
VC Highlands, NV 89521-7430

If you fail to respond, judgment by default will be entered against you for the relief demanded in the complaint. You also must file your answer or motion with the court.

CLERK OF COURT

Date: July 31, 2009

Signature of Clerk or Deputy Clerk

UNITED STATES DISTRICT COURT FOR THE DISTRICT OF NEVADA

Exhibit H

Graham, Courtney B. (HQ-MC000)

From: Graham, Courtney B. (HQ-MC000)
Sent: Wednesday, August 12, 2009 11:33 AM
To: Borda, Gary G. (HQ-MC000); Mcnutt, Jan (HQ-MC000); Rotella, Robert F. (HQ-MC000); Hammerle, Kurt G. (JSC-AL111); Fein, Edward K. (JSC-AL111); Homer, Mark W. (HQ-MA000)
Cc: Roan, Bernard J. (JSC-AL111); Steptoe, Jay (HQ-MC000); Sherman, Richard W. (HQ-MA000)
Subject: ACTION REQUIRED: Margolin FOIA Suit

Importance: High

August 12, 2009

All –

Mr. Jed Margolin has filed suit against NASA in Nevada on his June 30, 2008, FOIA request, which requested "all documents related to the Administration Claim of Jed Margolin for Infringement of U.S. Patent Nos. 5,566,073 and 5,904,724; NASA Case No. I-222." I will need to prepare a litigation report to support this action and we also need to start preparing to answer discovery requests in this matter. Because the FOIA is tied to the administrative claim for patent infringement, I will need copies of all records that each of you may have in your possession relating to either the FOIA request or the administrative claim for patent infringement.

This includes any correspondence or your notes relating to this matter. If you have voluminous electronic documents, please put them on CD. Kurt, Ed, and Mark, I will also ask for your support to preliminarily identify any relevant documents in the possession of your Center clients and provide me with an estimate of the time required to collect those documents as well. I anticipate having more specific requests developed once we receive the initial discovery requests.

Because we are in a litigation posture, please do not destroy, delete or alter any documents that may be relevant to the administrative claim or to the HQ FOIA request. Please also advise any NASA employees who might have responsive documents to ensure they maintain their records pending this matter.

Ed/Kurt/Mark, I'd appreciate any materials delivered to my attention at HQ NLT than end of next week (8/21). HQ folks – the sooner the better.

Thanks in advance for your help on this.

Courtney Bailey Graham
Associate General Counsel (Acting)
Commercial and Intellectual Property Law
Office of the General Counsel
NASA Headquarters
300 E Street, SW, Suite 9T39
Washington, DC 20546
Phone: (202) 358-3648
Cell: (202) 251-0827
Fax: (202) 358-4341

Tracking:

Recipient	Read
Borda, Gary G. (HQ-MC000)	Read: 8/12/2009 11:34 AM
Mcnutt, Jan (HQ-MC000)	Read: 8/12/2009 12:00 PM
Rotella, Robert F. (HQ-MC000)	Read: 8/12/2009 11:42 AM
Hammerle, Kurt G. (JSC-AL111)	Read: 8/12/2009 2:30 PM
Fein, Edward K. (JSC-AL111)	
Homer, Mark W. (HQ-MA000)	Read: 8/12/2009 11:50 AM
Roan, Bernard J. (JSC-AL111)	Read: 8/12/2009 11:42 AM
Steptoe, Jay (HQ-MC000)	
Sherman, Richard W. (HQ-MA000)	Read: 8/12/2009 12:04 PM