

4-19-01

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## PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Sheet 1 of 1

INVENTOR(S)					
Last Name	First Name	Middle Initial	Residence (City and either State or Foreign Country)		
AVIS	ROBERT		Woodbine, Maryland		
FICCO	MICHAEL		Silver Spring, Maryland		
<input type="checkbox"/> Additional inventors are named on the separately numbered sheets attached hereto.					
TITLE OF THE INVENTION (280 characters max)					
LAN based Satellite Antenna/Satellite Multiswitch					
CORRESPONDENCE ADDRESS					
Direct all correspondence to:					
<input checked="" type="checkbox"/> Customer Number <b>20991</b>		<div style="border: 1px solid black; padding: 5px; display: inline-block;">             Place Customer Number Bar Code Label here           </div>			
OR					
<input checked="" type="checkbox"/> Firm or Individual Name		HUGHES ELECTRONICS			
Address		Attn: Patent Docketing Administration			
Address		P.O. Box 956			
		Building 001 M/S-A109			
City	El Segundo	State	CA	ZIP	-902450956
Country	USA	Telephone	(310) 662-9937	Fax	(310) 322-0856
ENCLOSED APPLICATION PARTS (Check all that apply.)					
<input checked="" type="checkbox"/> Specification - Number of Sheets 11		<input type="checkbox"/> CD(s), Number			
<input type="checkbox"/> Drawing(s) - Number of Sheets		<input type="checkbox"/> Other - Specify			
<input type="checkbox"/> Application Data Sheet (See 37 CFR 1.76)					
METHOD OF PAYMENT OF FILING FEES (This form is being filed in triplicate)					
<input type="checkbox"/> Applicant claims small entity status (See 37 CFR 1.27).				FILING FEE AMOUNT	
<input type="checkbox"/> A check or money order is enclosed to cover the filing fee.					
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge the filing fee and credit any overpayments to Deposit Account Number: <b>50-0383</b>				<b>\$ 150.00</b>	
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input type="checkbox"/> No. <input type="checkbox"/> Yes, the name of the U.S. Government agency and the government contract number are:					

Respectfully submitted,

Signature:

Date:

04-18-01

Printed Name: John T. Whelan, Reg. No. 32,448

Attorney Docket No.

PD-201092

Telephone: 301-428-7172

Customer No:

20991

Certification under 37 CFR 1.10 (if applicable)

EJ398430535US  
EXPRESS MAIL Mailing No.4/17/2001  
Date of Deposit (m/d/yyyy)

I hereby certify that this application is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

**GINGER FOGLE**

(Type or printed name of person mailing application)

(Signature of person mailing application)

only 9 pages of specifications

SEND COMPLETE DISCLOSURE DIRECT TO:

**INVENTION DISCLOSURE**

**CORPORATE PATENTS AND LICENSING**

Loc. CO, Bldg. C1, M/S A126

THIS INVENTION DISCLOSURE IS MADE  
PURSUANT TO MY/OUR INVENTION AGREEMENT  
WITH HUGHES AIRCRAFT COMPANY

SHEET 1 OF 10

**1. TITLE OF INVENTION**

LAN based Satellite Antenna/Satellite Multiswitch

**2. INVENTOR(S)**

NAME	PAYROLL NO.	SOURCE CODE	LOC	BLDG	MS	PHONE	DEPARTMENT HEAD
Robert Davis	10777						Kepley
Mike Ficco							Kenyon

**3. PROOF OF CONCEPTION**

A. BY WHOM WAS FIRST DESCRIPTION WRITTEN OR DRAWING MADE?	DATE 1/18/01	TIME SPENT 1 hr	ACCT. CHARGED 13309	LOCATION OF FIRST DESCRIPTION/DRAWING Lab notebook
B. TO WHOM WAS INVENTION FIRST DISCLOSED?	DATE 1/19/01	Bob Kepley		

**4. REDUCTION TO PRACTICE**

A. WAS A DEVICE EMBODYING THE INVENTION CONSTRUCTED AND TESTED OR THE PROCESS PRACTICED?	YES ( ) NO (x)	BY WHOM	DATE STARTED	DATE COMPLETED	TIME SPENT
B. ACCT. CHARGED - TIME	ACCT. CHARGED - MATERIAL			PRESENT LOCATION OF DEVICE	
C. PRESENT LOCATION OF DOCUMENTS (DATE SIGNED AND WITNESSED), INCLUDING PHOTOS, DWGS, AND DATA SHEETS SHOWING REDUCTION TO PRACTICE. R. Davis office <b>NOTE: ALL EVIDENCE OF CONCEPTION (FIRST DRAWING AND FIRST WRITTEN DESCRIPTION) AND EVIDENCE OF REDUCTION TO PRACTICE (DEVICE EMBODYING THE INVENTION AND TEST DATA) MUST BE RETAINED.</b>					

**5. RELATION TO GOVERNMENT CONTRACT**

A. DOES THIS INVENTION RELATE TO WORK PERFORMED UNDER A GOVERNMENT CONTRACT?	YES ( ) NO (x)	CONTRACT NUMBER AND TITLE
B. IS INVENTION BEING USED ON A GOVERNMENT CONTRACT?	YES ( ) NO (x)	CONTRACT NUMBER AND TITLE

**6. RELATED DOCUMENTS AND DISCLOSURE (BY YOU OR BY ANOTHER). PLEASE ATTACH COPY.**

A. IS THERE A PUBLICATION OR PUBLIC PRESENTATION RELATED TO THE INVENTION?	YES ( ) NO (x)	DATE	IDENTIFY
B. ARE THERE ANY RELATED INVENTION DISCLOSURES OR PATENT APPLICATIONS?	YES ( ) NO (x)	DATE	IDENTIFY PD NO. ETC.
C. ARE THERE ANY PROPOSALS OR REPORTS OR OTHER DOCUMENTS RELATING TO THIS INVENTION?	YES ( ) NO (x)	DATE	IDENTIFY
D. HAS THE INVENTION BEEN USED, DISCUSSED, DEMONSTRATED OR OTHERWISE DISCLOSED OUTSIDE THE COMPANY (SUCH AS TO A VENDOR OR CUSTOMER)?	YES ( ) NO (x)	DATE	TO/FOR WHOM (COMPANY/PERSON)

**7. SALE**

A. HAS PRODUCT EMBODYING INVENTION OR MADE BY INVENTION BEEN PROPOSED, SOLD, OR OFFERED FOR SALE?	YES ( ) NO (x)	ORDER NO.	ORDER DATE	DELIVERY DATE	DATE OFFERED OR PROPOSED
B. IS PRODUCT EMBODYING INVENTION OR MADE BY INVENTION IN A DELIVERABLE ITEM?	YES ( ) NO (x)	DELIVERY DATE			

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THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION, AND EXCEPT WITH WRITTEN PERMISSION OF HUGHES AIRCRAFT COMPANY, SUCH INFORMATION SHALL NOT BE PUBLISHED, OR DISCLOSED TO OTHERS, OR USED FOR ANY PURPOSE, AND THE DOCUMENT SHALL NOT BE DUPLICATED IN WHOLE OR IN PART. THIS LEGEND SHALL BE APPLIED TO ALL DOCUMENTS CONTAINING THIS INFORMATION.

PATENT DOCKET NO.

SIGNATURE INVENTOR

DATE

H7970 (6/96P)

SIGNATURE INVENTOR

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DATE \_\_\_\_\_

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## INVENTION DISCLOSURE

### 8. SUMMARY OF THE INVENTION

SHEET 3 OF 10

- A. GIVE A BRIEF DESCRIPTION OF YOUR INVENTION, PARTICULARLY POINTING OUT WHAT IS BELIEVED TO BE NOVEL (THE "HEART" OF WHAT IS NEW)

Current Satellite antennas use cables to connect the antenna with what is commonly called the "indoor unit", the device that the user connects to to send/receive data. (Data can include digitized A/V material, such as DIRECTV). As satellite based services evolve, more and more cables are required. Units are now being built that have 2 receive cables, or a receive and transmit cable. In the short term the number of cables could increase to 5 or 10 with currently envisioned services. This invention replaces these cables with one (power) or two (power plus phone, or power plus wired LAN), using industry standard interface mechanisms, while simultaneously greatly increasing the flexibility of the installation to allow future services without adding any new cables.

- B. EXPLAIN THE PURPOSE AND ADVANTAGES OF YOUR INVENTION (WHAT WILL THE INVENTION DO BETTER THAN DONE PREVIOUSLY?)

- Minimizes number of cables to be run from the outdoor unit (maximum 2)
- Minimizes cables to be run between outdoor unit and any particular indoor unit
- Allows many indoor units to access one outdoor unit.
- Allows new indoor units/new services to be added after initial installation without any new cables
- Greatly simplifies installation in MDU's (Multi dwelling units)
- Enables subscription services like home security and diagnostics/maintenance of appliances.

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\_\_\_\_\_  
SIGNATURE INVENTOR

\_\_\_\_\_  
DATE

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SIGNATURE INVENTOR

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DATE

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PATENT DOCKET  
NO.

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## INVENTION DISCLOSURE

### 8. SUMMARY OF THE INVENTION (Continued)

SHEET 5 OF 10

- C. IDENTIFY THE COMPANY PROGRAM OR PRODUCT LINE TO WHICH THE INVENTION APPLIES, AND THE EXPECTED VALUE TO THE PROGRAM OR PRODUCT LINE. ALSO IDENTIFY POTENTIAL COMMERCIAL APPLICATIONS OF THIS INVENTION, INCLUDING AUTOMOTIVE APPLICATIONS, IF ANY.

The interface between the indoor units(s) and outdoor unit of DirecPC/DIRECTV/DirecWay/Spaceway all could use this invention.

- D. IDENTIFY THE PRIOR ART KNOWN TO YOU WHICH IS IMPROVED UPON OR DISPLACED BY YOUR INVENTION, AND STATE IN DETAIL, IF KNOWN, THE DISADVANTAGES OF THE CLOSEST PRIOR ART.

Wireless connections between ODU and IDU have been proposed before. As far as I know, these have been analog repeaters of the signals on the IDU/ODU cable, and performing essentially the same function as the cable. Using a LAN allows multiple access, and greatly increased flexibility for future services via an industry standard method.

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_____ SIGNATURE INVENTOR		_____ DATE
_____ SIGNATURE INVENTOR		_____ DATE
READ AND UNDERSTOOD BY:		
_____ WITNESS NAME (TYPE)	_____ SIGNATURE	_____ DATE
_____ WITNESS NAME (TYPE)	_____ SIGNATURE	_____ DATE

PATENT DOCKET  
NO.

236 A-1 CS AUG 90 (EACH PAGE UPON WHICH INFORMATION IS ENTERED SHOULD BE SIGNED AND WITNESSED)

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## INVENTION DISCLOSURE

### 9. DETAILED DESCRIPTION

SHEET 9 OF 10

DESCRIBE YOUR INVENTION IN DETAIL, USING NECESSARY ADDITIONAL SHEETS.

- A. BE SURE THAT EACH SHEET IS DATED AND SIGNED BY EACH INVENTOR AND TWO WITNESSES (HAC FORM 236B CS SHOULD BE USED, IF PRACTICAL).
- B. ATTACH COPIES OF DRAWINGS OR DETAILED REPORTS HELPFUL IN UNDERSTANDING HOW YOUR INVENTION WORKS.
- C. IF YOUR INVENTION HAS BEEN TESTED, BRIEFLY SUMMARIZE THE TEST RESULTS WHICH CONFIRM THE FUNCTIONS AND ADVANTAGES LISTED IN 8B ABOVE.

Current practice will often use what is called a "multiswitch" in an installation. This is a device that has one cable for each LNB on the ODU side, and one cable for each IDU satellite input on the IDU side. The multiswitch is responsible for connecting the correct LNB to each IDU as commanded by the IDU. This multiswitch can be co located with the antenna, or remotely mounted.

This invention uses the same connectivity as the multiswitch on the ODU side (one cable for each LNB) but replaces the multiswitch to IDU cable with a LAN. To do this, this invention has receivers inside for each LNB that convert the RF input to digital base band information. This digital baseband information can be filtered to discard unwanted information, can be compressed if it is not already, and can be encrypted for privacy if desired. The digital baseband data is then multiplexed together and sent via the LAN to the receiveing IDU (s). Data can be sent point to point or broadcast.

Data to be transmitted over the satellite and control data for the receivers in this invention is sent over the LAN to the unit from the transmitting IDU. A cable connection exists from this invention to the transmitter on the ODU, as is current practice.

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SIGNATURE INVENTOR		DATE	

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WITNESS NAME (TYPE)	SIGNATURE	DATE
WITNESS NAME (TYPE)	SIGNATURE	DATE

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## INVENTION DISCLOSURE

SHEET 9 OF 10

### HUGHES PROPRIETARY

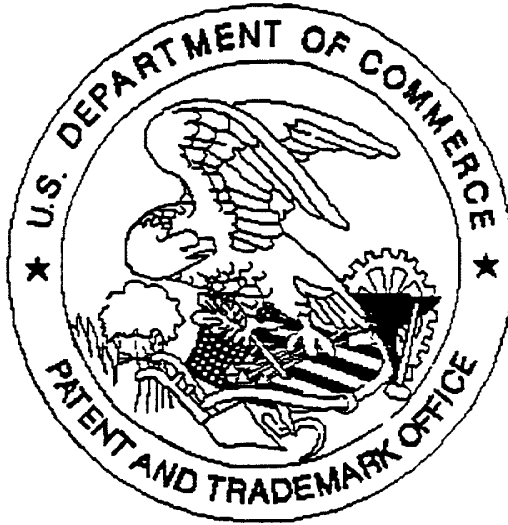
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SIGNATURE INVENTOR		DATE	
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WITNESS NAME (TYPE)	SIGNATURE	DATE	
WITNESS NAME (TYPE)	SIGNATURE	DATE	

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Application deficiencies found during scanning:

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for scanning. (Document title)

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*There are only 9 sheet of specifications.*

☐ *Scanned copy is best available.*