

02-21-2002

FORM PTO-1595  
1-31-92101988350  
PATENTS ONLYU.S. DEPARTMENT OF COMMERCE  
Patent and Trademark Office  
SHEET

PD-201151

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

## 1. Name of conveying party(ies):

Ernest C. Chen  
Tiffany S. Furuya  
Philip R. Hilmes  
Joseph Santoru

Additional Name(s) of conveying party(ies) attached?

yes ☐no ☒

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

Name: HUGHES ELECTRONICS CORPORATION

Internal Address: Bldg. 001, M/S A109  
PO Box 956  
200 N. Sepulveda Blvd.  
El Segundo, CA 90245-0956

## 3. Nature of Conveyance:

- ☒
- Assignment
- ☐
- Merger
- 
- ☐
- Security Agreement
- ☐
- Change of Name
- 
- ☐
- Other

Execution Date: Dec. 21, 2001; Jan 7, 2002; Jan. 15, 2002Street Address: 200 N. Sepulveda Blvd.  
P.O. Box 956  
El Segundo, California 90245Additional name(s) & address(es) attached? ☐ yes ☒ no

## 4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is: Dec. 20, 2001;  
Dec. 21, 2001; Dec. 28, 2001; Jan. 7, 2002

A. Patent Application No.(s)

B. Patent No.(s)

Additional numbers attached? ☐ yes ☒ no

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

Name: HUGHES ELECTRONICS CORPORATION  
Internal Address: Bldg. 001, M/S A109  
PO Box 956  
200 N. Sepulveda Blvd.  
El Segundo, CA 90245-0956PLEASE ASSOCIATE THIS APPLICATION WITH  
CUSTOMER NO. 020991.

## 6. Total number of applications and patents involved: [ 1 ]

7. Total fee (37 CFR 3.41): \$40.00

- ☐
- Enclosed
- 
- ☒
- Authorized to be charged to deposit account

## 8. Deposit account number:

50-0383

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

02/20/2002 DBYNE 00000100 500383 10068047

01 FC:581 40.00 CH

DO NOT USE THIS SPACE

## 9. Statement and signature.

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*John A. Crook, Registration No. 30,830  
Name of Person Signing

Signature

February 4, 2002  
Date

Total number of pages: [ 8 ]

OMB No. 0651-0011 (exp. 4/94)

15946 v.1

PATENT  
REEL: 012582 FRAME: 0249

WHEREAS, I, as below named sole inventor (if only one name is listed below) or joint inventor (if plural names are listed below) of the city and state as stated below next to my name, have invented a(an) DUAL LAYER SIGNAL PROCESSING IN A LAYERED MODULATION DIGITAL SIGNAL SYSTEM for which application for Letters Patent of the United States has been executed by me on this day, or (if the following is completed) filed on \_\_\_\_\_ as Serial No. \_\_\_\_\_; and

WHEREAS, **HUGHES ELECTRONICS CORPORATION**, (hereinafter referred to as **HUGHES**), a Delaware Corporation, having its principal place of business in El Segundo, California, is desirous of acquiring the entire and exclusive right, title and interest in, to and under said invention, said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world;

NOW, THEREFORE, in consideration of the obligations voluntarily assumed by me and set forth in an invention agreement between me and my employer, effective the date as stated below next to my name, and other good and valuable consideration, receipt of which is hereby acknowledged, I do hereby sell, assign and transfer to HUGHES, its successors, assigns or other legal representatives, the entire and exclusive right, title and interest in and to said invention invented by me, to said application and any and all applications which are continuations, continuations-in- part, divisions or substitutes of said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world on any of said applications and to any and all reexaminations, reissues, renewals or extensions of said Letters Patent in the United States and throughout the world for the full term or terms for which said Letters patent may be granted in the United States and throughout the world; authorize and request The Commissioner of Patents and Trademarks of the United States and all foreign countries to issue all such Letters Patent to said HUGHES, its successors, assigns or other legal representatives; covenant that no assignment, sale, agreement, transfer or encumbrance has been, or will be, made or entered into which would conflict with this assignment, sale and transfer; and agree to communicate to HUGHES, its successors, assigns or other legal representatives, upon request and at no cost or expense to me, any facts known by me respecting said invention, do all lawful acts, including the execution and delivery of all papers and proper oaths and giving of testimony that is deemed necessary or desirable by HUGHES, its successors, assigns or other legal representatives with regard to said invention for protecting, obtaining, maintaining and enforcing any and all of said Letters Patent in the United States and throughout the world for said invention and for perfecting, affirming, recording and maintaining the title of HUGHES, its successors, assigns or other legal representatives, and generally cooperate to the fullest extent in all matters pertaining to said invention, and any and all of said Letters Patent and the title thereto in HUGHES, its successors, assigns or other legal representatives.

IN WITNESS WHEREOF, I have executed this instrument.

FULL NAME OF SOLE OR JOINT INVENTOR Ernest C. Chen	INVENTOR'S SIGNATURE <i>Ernest C. Chen</i>	DATE 1-15-02
RESIDENCE (CITY AND STATE) San Pedro, California		INVENTION AGREEMENT DATE August 22, 1978

FULL NAME OF SOLE OR JOINT INVENTOR Tiffany S. Furuya	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE) Los Angeles, California		INVENTION AGREEMENT DATE

FULL NAME OF SOLE OR JOINT INVENTOR Philip R. Hilmes	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE) Santa Monica, California		INVENTION AGREEMENT DATE

FULL NAME OF SOLE OR JOINT INVENTOR Joseph Santoru	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE) Agoura Hills, California		INVENTION AGREEMENT DATE February 27, 1984

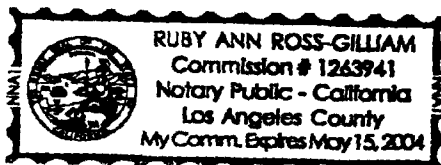
FULL NAME OF SOLE OR JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE)		INVENTION AGREEMENT DATE

STATE OF California )  
COUNTY OF Los Angeles ) SS:

On January 15, 2002 before me, Ruby Ann Ross-Gilliam,  
a Notary Public in and for said State, personally appeared \_\_\_\_\_  
Ernest C. Chen

☒ personally known to me or ☐ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.



Notary Public Ruby Ann Ross-Gilliam

WHEREAS, I, as below named sole inventor (if only one name is listed below) or joint inventor (if plural names are listed below) of the city and state as stated below next to my name, have invented a(an) DUAL LAYER SIGNAL PROCESSING IN A LAYERED MODULATION DIGITAL SIGNAL SYSTEM for which application for Letters Patent of the United States has been executed by me on this day, or (if the following is completed) filed on \_\_\_\_\_ as Serial No. \_\_\_\_\_; and

WHEREAS, **HUGHES ELECTRONICS CORPORATION**, (hereinafter referred to as **HUGHES**), a Delaware Corporation, having its principal place of business in El Segundo, California, is desirous of acquiring the entire and exclusive right, title and interest in, to and under said invention, said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world;

NOW, THEREFORE, in consideration of the obligations voluntarily assumed by me and set forth in an invention agreement between me and my employer, effective the date as stated below next to my name, and other good and valuable consideration, receipt of which is hereby acknowledged, I do hereby sell, assign and transfer to **HUGHES**, its successors, assigns or other legal representatives, the entire and exclusive right, title and interest in and to said invention invented by me, to said application and any and all applications which are continuations, continuations-in- part, divisions or substitutes of said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world on any of said applications and to any and all reexaminations, reissues, renewals or extensions of said Letters Patent in the United States and throughout the world for the full term or terms for which said Letters patent may be granted in the United States and throughout the world; authorize and request The Commissioner of Patents and Trademarks of the United States and all foreign countries to issue all such Letters Patent to said **HUGHES**, its successors, assigns or other legal representatives; covenant that no assignment, sale, agreement, transfer or encumbrance has been, or will be, made or entered into which would conflict with this assignment, sale and transfer; and agree to communicate to **HUGHES**, its successors, assigns or other legal representatives, upon request and at no cost or expense to me, any facts known by me respecting said invention, do all lawful acts, including the execution and delivery of all papers and proper oaths and giving of testimony that is deemed necessary or desirable by **HUGHES**, its successors, assigns or other legal representatives with regard to said invention for protecting, obtaining, maintaining and enforcing any and all of said Letters Patent in the United States and throughout the world for said invention and for perfecting, affirming, recording and maintaining the title of **HUGHES**, its successors, assigns or other legal representatives, and generally cooperate to the fullest extent in all matters pertaining to said invention, and any and all of said Letters Patent and the title thereto in **HUGHES**, its successors, assigns or other legal representatives.

IN WITNESS WHEREOF, I have executed this instrument.

FULL NAME OF SOLE OR JOINT INVENTOR Ernest C. Chen	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE) San Pedro, California		INVENTION AGREEMENT DATE August 22, 1978

FULL NAME OF SOLE OR JOINT INVENTOR Tiffany S. Furuya	INVENTOR'S SIGNATURE <i>Tiffany S. Furuya</i>	DATE Jan 07, 2002
RESIDENCE (CITY AND STATE) Los Angeles, California		INVENTION AGREEMENT DATE

FULL NAME OF SOLE OR JOINT INVENTOR Philip R. Hilmes	INVENTOR'S SIGNATURE <i>Philip R. Hilmes</i>	DATE 1-7-02
RESIDENCE (CITY AND STATE) Santa Monica, California		INVENTION AGREEMENT DATE

FULL NAME OF SOLE OR JOINT INVENTOR Joseph Santoru	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE) Agoura Hills, California		INVENTION AGREEMENT DATE February 27, 1984

FULL NAME OF SOLE OR JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE)		INVENTION AGREEMENT DATE

STATE OF California )  
COUNTY OF Los Angeles )

SS:

On January 7, 2002 before me, Ruby Ann Ross-Gilliam -----  
a Notary Public in and for said State, personally appeared -----  
Tiffany S. Furuya and Philip R. Hilmes -----

☒ personally known to me ~~or approved to me~~ on the basis of satisfactory evidence to be the person(s) whose name(s) ~~is~~ are subscribed to the within instrument and acknowledged to me that ~~he~~ they executed the same in ~~his~~ their authorized capacity(ies), and that by ~~his~~ her signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.



Notary Public

*Ruby Ann Ross-Gilliam*

## ASSIGNMENT

# HUGHES

Page 1 of 2  
PD-201151

WHEREAS, I, as below named sole inventor (if only one name is listed below) or joint inventor (if plural names are listed below) of the city and state as stated below next to my name, have invented a(an) DUAL LAYER SIGNAL PROCESSING IN A LAYERED MODULATION DIGITAL SIGNAL SYSTEM for which application for Letters Patent of the United States has been executed by me on this day, or (if the following is completed) filed on \_\_\_\_\_ as Serial No. \_\_\_\_\_; and

WHEREAS, **HUGHES ELECTRONICS CORPORATION**, (hereinafter referred to as **HUGHES**), a Delaware Corporation, having its principal place of business in El Segundo, California, is desirous of acquiring the entire and exclusive right, title and interest in, to and under said invention, said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world;

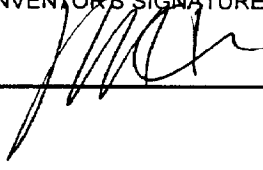
NOW, THEREFORE, in consideration of the obligations voluntarily assumed by me and set forth in an invention agreement between me and my employer, effective the date as stated below next to my name, and other good and valuable consideration, receipt of which is hereby acknowledged, I do hereby sell, assign and transfer to HUGHES, its successors, assigns or other legal representatives, the entire and exclusive right, title and interest in and to said invention invented by me, to said application and any and all applications which are continuations, continuations-in- part, divisions or substitutes of said application and any and all Letters Patent that may be granted therefor in the United States and throughout the world on any of said applications and to any and all reexaminations, reissues, renewals or extensions of said Letters Patent in the United States and throughout the world for the full term or terms for which said Letters patent may be granted in the United States and throughout the world; authorize and request The Commissioner of Patents and Trademarks of the United States and all foreign countries to issue all such Letters Patent to said HUGHES, its successors, assigns or other legal representatives; covenant that no assignment, sale, agreement, transfer or encumbrance has been, or will be, made or entered into which would conflict with this assignment, sale and transfer; and agree to communicate to HUGHES, its successors, assigns or other legal representatives, upon request and at no cost or expense to me, any facts known by me respecting said invention, do all lawful acts, including the execution and delivery of all papers and proper oaths and giving of testimony that is deemed necessary or desirable by HUGHES, its successors, assigns or other legal representatives with regard to said invention for protecting, obtaining, maintaining and enforcing any and all of said Letters Patent in the United States and throughout the world for said invention and for perfecting, affirming, recording and maintaining the title of HUGHES, its successors, assigns or other legal representatives, and generally cooperate to the fullest extent in all matters pertaining to said invention, and any and all of said Letters Patent and the title thereto in HUGHES, its successors, assigns or other legal representatives.

IN WITNESS WHEREOF, I have executed this instrument.

FULL NAME OF SOLE OR JOINT INVENTOR Ernest C. Chen	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE) San Pedro, California		INVENTION AGREEMENT DATE August 22, 1978

FULL NAME OF SOLE OR JOINT INVENTOR Tiffany S. Furuya	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE) Los Angeles, California		INVENTION AGREEMENT DATE

FULL NAME OF SOLE OR JOINT INVENTOR Philip R. Hilmes	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE) Santa Monica, California		INVENTION AGREEMENT DATE

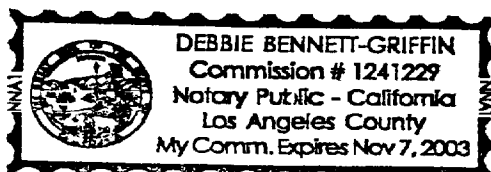
FULL NAME OF SOLE OR JOINT INVENTOR Joseph Santoru	INVENTOR'S SIGNATURE 	DATE 12/21/01
RESIDENCE (CITY AND STATE) Agoura Hills, California		INVENTION AGREEMENT DATE February 27, 1984

FULL NAME OF SOLE OR JOINT INVENTOR	INVENTOR'S SIGNATURE	DATE
RESIDENCE (CITY AND STATE)		INVENTION AGREEMENT DATE

STATE OF California )  
COUNTY OF Los Angeles ) SS:  
On December 21, 2001 before me, Debbie Bennett-Griffin,  
a Notary Public in and for said State, personally appeared Joseph Santoru.

☐ personally known to me or ☒ proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity~~(ies)~~, and that by his/~~her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

WITNESS my hand and official seal.



Notary Public Debbie Bennett-Griffin

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

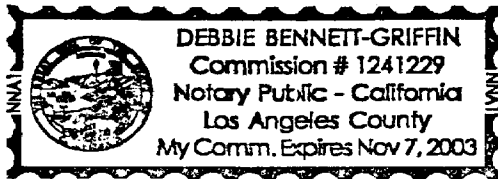
State of California

County of Los Angeles } ss.

On December 21, 01, before me, Debbie Bennett-Griffin,  
Date Name and Title of Officer (e.g., "Jane Doe, Notary Public")

personally appeared Ernest C. Chen,  
Name(s) of Signer(s)

☐ personally known to me  
☒ proved to me on the basis of satisfactory evidence



to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity~~(ies)~~, and that by his/~~her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

WITNESS my hand and official seal.

Debbie Bennett-Griffin  
Signature of Notary Public

Place Notary Seal Above

## OPTIONAL

*Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.*

### Description of Attached Document

Title or Type of Document: Patent Application PD 201151

Document Date: 12-21-01 Number of Pages: \_\_\_\_\_

Signer(s) Other Than Named Above: \_\_\_\_\_

### Capacity(ies) Claimed by Signer

Signer's Name: \_\_\_\_\_

- ☐ Individual  
☐ Corporate Officer — Title(s): \_\_\_\_\_  
☐ Partner — ☐ Limited ☐ General  
☐ Attorney in Fact  
☐ Trustee  
☐ Guardian or Conservator  
☐ Other: \_\_\_\_\_

Signer Is Representing: \_\_\_\_\_

RIGHT THUMBPRINT  
OF SIGNER

Top of thumb here