

## PATENT ASSIGNMENT

Electronic Version v1.1  
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SUBMISSION TYPE:	NEW ASSIGNMENT								
NATURE OF CONVEYANCE:	ASSIGNMENT								
CONVEYING PARTY DATA									
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Donald C.D. Chang</td> <td>05/08/2001</td> </tr> <tr> <td>Wah L. Lim</td> <td>05/10/2001</td> </tr> <tr> <td>Ming U. Chang</td> <td>05/08/2001</td> </tr> </tbody> </table>		Name	Execution Date	Donald C.D. Chang	05/08/2001	Wah L. Lim	05/10/2001	Ming U. Chang	05/08/2001
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Donald C.D. Chang	05/08/2001								
Wah L. Lim	05/10/2001								
Ming U. Chang	05/08/2001								
RECEIVING PARTY DATA									
Name:	Hughes Electronics Corporation								
Street Address:	2230 E. Imperial Highway								
City:	El Segundo								
State/Country:	CALIFORNIA								
Postal Code:	90245								
PROPERTY NUMBERS Total: 1									
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13771601</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13771601				
Property Type	Number								
Application Number:	13771601								
CORRESPONDENCE DATA									
Fax Number:	3109640941								
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>									
Email:	janet.shibata@directv.com								
Correspondent Name:	The DIRECTV Group, Inc.								
Address Line 1:	2230 E. Imperial Highway								
Address Line 2:	CA/LA5/A109								
Address Line 4:	El Segundo, CALIFORNIA 90245								
ATTORNEY DOCKET NUMBER:	PD-201006B								
NAME OF SUBMITTER:	Janet Shibata								
Signature:	/Janet Shibata/								
Date:	09/25/2013								
Total Attachments: 3 source=PD-201006A-ASN#page1.tif source=PD-201006A-ASN#page2.tif source=PD-201006A-ASN#page3.tif									

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**ASSIGNMENT**Page 1 of 2  
PD-201006A

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) **COMMUNICATION SYSTEM MOBILE USERS USING ADAPTIVE ANTENNA** 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 which application claims benefit of U.S. provisional applications with Serial No. 60/266,684 (PD-201015) filed on February 5, 2001, Serial No. 60/262,717 (PD-201005) filed on January 19, 2001, Serial No. 60/262,701 (PD-201005) filed on January 19, 2001.

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.

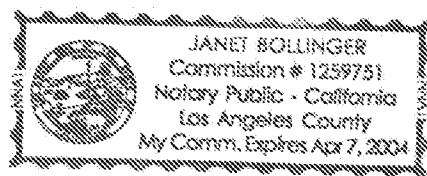
IN WITNESS WHEREOF, I have executed this instrument.

FULL NAME OF SOLE OR JOINT INVENTOR <b>DONALD C. D. CHANG</b>	INVENTOR'S SIGNATURE <i>Donald C. D. Chang</i>	DATE <i>5-8-2001</i>
RESIDENCE (CITY AND STATE) 2350 MOBERLY COURT, THOUSSAND OAKS, CALIFORNIA 91350		INVENTION AGREEMENT DATE September 11, 2978
FULL NAME OF SOLE OR JOINT INVENTOR <b>WAH L. LIM</b>	INVENTOR'S SIGNATURE <i>Wah L. Lim</i>	DATE <i>5-10-01</i>
RESIDENCE (CITY AND STATE) 30 CANYON FAIRWAY DRIVE, NEWPORT BEACH, CALIFORNIA 92660		INVENTION AGREEMENT DATE February 24, 1997
FULL NAME OF SOLE OR JOINT INVENTOR <b>MING U. CHANG</b>	INVENTOR'S SIGNATURE <i>Ming U. Chang</i>	DATE <i>5/8/2001</i>
RESIDENCE (CITY AND STATE) 28815 INDIAN VALLELY RD , RANCHO PALOS VERDES, CALIFORNIA 90275		INVENTION AGREEMENT DATE November 3, 1977
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 May 8, 2001 before me, Janet Bollinger  
a Notary Public in and for said State, personally appeared  
Donald C-D. Chang and Ming U. Chang

I personally known to me or o 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.



*Janet Bollinger*  
Notary Public

STATE OF CALIFORNIA )  
 )  
COUNTY OF LOS ANGELES )

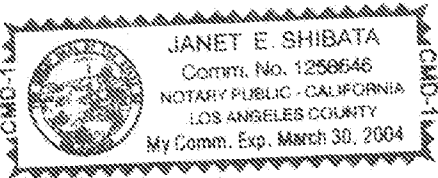
SS:

On May 10, 2001 before me, JANET E. SHIBATA

a Notary Public in and for said State, personally appeared  
WAH L. LIM

I personally known to me or o 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.



Janet E. Shibata  
Notary Public

STATE OF \_\_\_\_\_ )  
 )  
COUNTY OF \_\_\_\_\_ )

SS:

On \_\_\_\_\_ before me, \_\_\_\_\_

a Notary Public in and for said State, personally appeared  
\_\_\_\_\_

o personally known to me or o 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