

PATENT ASSIGNMENT

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Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
Freescale Semiconductor, Inc.	04/11/2011
RECEIVING PARTY DATA	
Name:	Apple Inc.
Street Address:	1 Infinite Loop
City:	Cupertino
State/Country:	CALIFORNIA
Postal Code:	95014
PROPERTY NUMBERS Total: 255	
Property Type	Number
Application Number:	12028897
Application Number:	12052621
Application Number:	12053577
Application Number:	12891160
Application Number:	12056258
Application Number:	12058345
Application Number:	12250613
Application Number:	12192654
Application Number:	12262943
Application Number:	12263998
PCT Number:	US0961445
Application Number:	12264173
Application Number:	11360218
Application Number:	11247481
PCT Number:	US0639648

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PATENT
REEL: 026304 FRAME: 0200

CH \$10200.00 12028897

Application Number:	11362214
PCT Number:	US0762139
Application Number:	11284675
PCT Number:	US0660250
Application Number:	11460847
Application Number:	11562557
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Application Number:	11334606
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Application Number:	11346649
Application Number:	12591171
PCT Number:	US0763773
Application Number:	11412865
Application Number:	11830458
Application Number:	11833669
PCT Number:	US0869059
Application Number:	11537902
Application Number:	12762013
Application Number:	11540784
PCT Number:	US0775952
Application Number:	11619833
Application Number:	11620203
Application Number:	11688093
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Application Number:	11725423
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Application Number:	11742280
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Application Number:	10362031
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Application Number:	08451866
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Application Number:	10496524
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Application Number:	10280631
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Application Number:	11046910
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Application Number:	09481858
Application Number:	11841497
Application Number:	11895427
Application Number:	08771348
Application Number:	07503597
Application Number:	07591183

CORRESPONDENCE DATA

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Richard J. Lutton, Jr. - Reg. No. 39,756

Total Attachments: 20

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ASSIGNMENT OF PATENT RIGHTS

This Assignment of Patent Rights is entered into as of the below-date by and between Freescale Semiconductor, Inc., a company organized under the laws of Delaware with a principal place of business at 6501 William Cannon Drive West, Austin, TX 78735 ("**Assignor**"), and Apple Inc., a California corporation with principal place of business at 1 Infinite Loop, Cupertino, CA 95014 ("**Assignee**").

For good and valuable consideration, the receipt of which is hereby acknowledged, Assignor, does hereby irrevocably sell, assign, transfer, and convey unto Assignee, or its designees all right, title, and interest that exist today and may exist in the future in and to all of the following (collectively, the "**Patent Rights**");

- (a) the patent applications and patents listed in Attached Appendix A (the "**Assigned Patents**");
- (b) the right to prosecute reissues, reexaminations, extensions, continuations, continuations in part, continuing prosecution applications, requests for continuing examinations, and divisions of any item in the foregoing category (a) and any rights arising there under;
- (c) items in the foregoing category (a), whether or not expressly listed as Assigned Patents below and whether or not claims in any of the foregoing have been rejected, withdrawn, cancelled, or the like;
- (d) rights to all inventions, invention disclosures, and discoveries described in any item in the foregoing categories (a) through (c) and all other rights arising out of such inventions, invention disclosures, and discoveries;
- (e) rights to apply in any or all countries of the world for patents, certificates of invention, utility models, industrial design protections, design patent protections, or other governmental grants or issuances of any type related to any item in the foregoing categories (a) through (d), including, without limitation, under the Paris Convention for the Protection of Industrial Property, the International Patent Cooperation Treaty, or any other convention, treaty, agreement, or understanding;
- (f) causes of action (whether currently pending, filed, or otherwise) and other enforcement rights under, or on account of, any of the Assigned Patents and/or any item in any of the foregoing categories (a) through (e), including, without limitation, all causes of action and other enforcement rights for (i) damages, (ii) injunctive relief, and (iii) other remedies of any kind for past, current, and future infringement; and
- (g) all rights to collect royalties and other payments under or on account of any of the Assigned Patents and/or any item in the foregoing categories (b) through (f).

Assignor hereby authorizes the respective patent office or governmental agency in

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each jurisdiction to issue any and all patents, certificates of invention, utility models or other governmental grants or issuances that may be granted upon any of the Patent Rights in the name of Assignee, as the assignee to the entire interest therein.

The terms and conditions of this Assignment of Patent Rights will inure to the benefit of Assignee, its successors, assigns, and other legal representatives and will be binding upon Assignor, its successors, assigns, and other legal representatives.

Austin, Texas on 4/11/2011

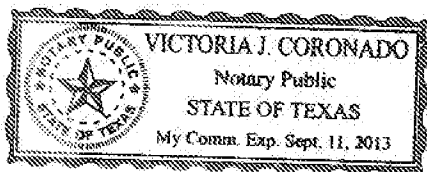
ASSIGNOR

By: Freescale Semiconductor, Inc.



Name: CHANGHAE PARK

Title: VP, IP Licensing



Victoria J. Coronado

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APPENDIX A – ASSIGNED PATENTS

1. LTE PATENTS

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	12/028897	US 2009-0201861 A1		11-Feb-08	Method for Efficient CQI Feedback	Filed
USA	12/052621	US 2009-0238121 A1		20-Mar-08	Techniques for Reducing Communication Errors in a Wireless Communication System	Filed
USA	12/053577		7821960	22-Mar-08	Channel rank updates in multiple input multiple output communication systems	Granted
USA	12/891160	US 2011-0009148 A1		22-Mar-08	Channel Rank Updates in Multiple-Input Multiple-Output Communication Systems	Filed
USA	12/056258	unpublished		26-Mar-08	User equipment buffer management in multiple-input multiple-output communication systems	Filed
USA	12/058345	US 2009-0245223 A1		28-Mar-08	Techniques for reducing buffer overflow in a communication system	Filed
USA	12/250613	US 2010-0091826 A1		14-Oct-08	Techniques for Improving Channel Estimation and Tracking in a Wireless Communication System	Filed
USA	12/192654	US 2010-0042881 A1		15-Aug-08	Management of ARQ Defection Threshold in Communication Networks	Filed
USA	12/262943	US 2010-0113105 A1		31-Oct-08	Transmit power measurement and control methods and apparatus	Filed
USA	12/263998	US 2010-0110901 A1		03-Nov-08	Techniques for radio link problem and recovery detection in a wireless communication system	Filed
PCT	PCT/US09/061445	WO2010062503		03-Nov-08		Filed
Taiwan	098137261			03-Nov-08		Filed
USA	12/264173	US 2010-0115358 A1		03-Nov-08	Method for Efficient Control Signaling of Two Codeword to One Codeword Transmission	Filed
USA	11/360218		7693128	23-Feb-06	Managing packets for transmission in a communication system	Granted
USA	11/247481		7590184	11-Oct-05	Blind preamble detection for an orthogonal frequency division multiplexed sample stream	Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
PCT	PCT/US06/39648	WO2007044770				Inactive
EPC	06816680.0	EP1938491		11-Oct-05		Filed
Japan	2008-535633	JP2009512348		11-Oct-05		Filed
Taiwan	095137386	200723793		11-Oct-05		Filed
USA	11/362214		7675844	24-Feb-06	Synchronization for OFDM signals	Granted
PCT	PCT/US07/62139	WO2007100982				Inactive
USA	11/284675		7623599	21-Nov-05	Blind bandwidth detection for a sample stream	Granted
PCT	PCT/US06/60250	WO2007126434				Inactive
EPC	06851171.6	EP1955466		21-Nov-05		Filed
Korea	10-2008-7011975	KR20080070826		21-Nov-05		Filed
Taiwan	095140121	200726154		21-Nov-05		Filed
USA	11/460847	US 2008-0025197 A1		26-Jul-06	Estimating Frequency Error of a Sample Stream	Filed
USA	11/562557		7813455	22-Nov-06	Decoding MIMO space time code symbol-pairs	Granted
USA	11/254392		7602837	20-Oct-05	Beamforming for non-collaborative, space division multiple access systems	Granted
USA	12/419701	US 2009-0190688 A1		20-Oct-05	Beamforming for Non-Collaborative, Space Division Multiple Access Systems	Filed
USA	11/535679	US 2008-0075058 A1		27-Sep-06	Methods for opportunistic multi-user beamforming in collaborative MIMO-SDMA	Filed
USA	11/535702	US 2008-0076370 A1		27-Sep-06	Methods for optimal collaborative MIMO-SDMA	Filed
USA	11/589874	US 2008-0101494 A1		31-Oct-06	System and method for generating MIMO signals	Filed
USA	11/536280	US 2008-0080440 A1		28-Sep-06	Generalized Codebook Design Method for Limited Feedback Systems	Filed
USA	11/529311	US 2008-0080632 A1		29-Sep-06	Method and device for operating a precoded MIMO system	Filed
USA	12/806944	US 2010-0322226 A1		18-Jan-06	Pilot signal in an FDMA communication system	Filed
USA	11/334006		7808860	18-Jan-06	Pilot signal in an FDMA communication system	Granted
PCT	PCT/US06/62389	WO2007/117328				Inactive
EPC	06860332.5	EP1990035		18-Jan-06		Filed
Japan	2008-561277	JP2009524348		18-Jan-06		Filed
Korea	10-2008-7017593	KR20080089602		18-Jan-06		Filed
USA	11/346649		7852811	03-Feb-06	Communication system with MIMO channel estimation using peak-limited pilot signals	Filed
USA	12/591171	US 2010-0061278 A1		28-Apr-06	System and method for controlling a wireless device	Filed
PCT	PCT/US07/63773	WO2007127532				Inactive

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	11/412865		7627325	28-Apr-06	System and method for controlling a wireless device	Granted
China	200780015466.7	CN101554036		28-Apr-06		Filed
EPC	07758332.6	EP2016748		28-Apr-06		Filed
India	8564/DELNP/2008			28-Apr-06		Filed
Japan	2009-507864	JP2009535918		28-Apr-06		Filed
USA	11/830458	US 2009-0034480 A1		30-Jul-07	Adaptive Antenna System Signal Detection	Filed
USA	11/833669	US 2009-0034636 A1		03-Aug-07	Feedback scheduling to reduce feedback rates in MIMO systems	Filed
PCT	PCT/US08/69059	WO2009020723				Inactive
China	200880101860.7	CN101785209		03-Aug-07		Filed
EPC	08781297.0	EP2176959		03-Aug-07		Filed
Japan	2010-520033	JP2010536245		03-Aug-07		Filed
Korea	10-2010-7004717	KR20100053599		03-Aug-07		Filed
USA	11/537902		7702029	02-Oct-06	MIMO precoding enabling spatial multiplexing, power allocation and adaptive modulation and coding	Granted
USA	12/762013	US 2010-0202553 A1		02-Oct-06	MIMO precoding enabling spatial multiplexing, power allocation and adaptive modulation and coding	Filed
USA	11/540784	US 2008-0080439 A1		29-Sep-06	Cell identifier encoding and decoding methods and apparatus	Filed
PCT	PCT/US07/75952	WO2008042507				Inactive
EPC	07800118.7	EP2074719		29-Sep-06		Filed
USA	11/619833	US 2008-0165717 A1		04-Jan-07	Novel MBMS user detection scheme for 3GPP LTE	Filed
USA	11/620203	US 2008-0165875 A1		05-Jan-07	Multi-user MIMO-SDMA for finite rate feedback systems	Filed
USA	11/688093	US 2008-0232234 A1		19-Mar-07	Channel Sounding Techniques for a Wireless Communication System	Filed
PCT	PCT/US08/55984	WO2008115698				Inactive
USA	11/725423	US 2008-0233992 A1		19-Mar-07	Resource allocation in a communication system	Filed
PCT	PCT/US08/54823	WO2008115660				Inactive
China	200880008937.6	CN101637058		19-Mar-07		Filed
EPC	08730594.2	EP2137994		19-Mar-07		Filed
Japan	2009-554819	JP2010523021		19-Mar-07		Filed
Korea	10-2009-7020506	KR20100014715		19-Mar-07		Filed
USA	11/725422	US 2008-0233964 A1		19-Mar-07	Uplink control channel allocation in a communication system and communicating the allocation	Filed
PCT	PCT/US08/54352	WO2008115649				Inactive
China	200880007575.9	CN101627656		19-Mar-07		Filed
EPC	08743498.1	EP2130394		19-Mar-07		Filed

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	12/014530	US 2009-0181690 A1		15-Jan-08	Dynamic Allocation of Communication Resources in a Wireless System	Filed
USA	11/687441	US 2008-0227495 A1		16-Mar-07	Reference Signaling Scheme Using Compressed Feedforward Codebooks for Multi-user, Multiple Input, Multiple Output (MU-MIMO) Systems	Filed
USA	11/687508		7809074	16-Mar-07	Generalized reference signaling scheme for multi-user, multiple input, multiple output (MU-MIMO) using arbitrarily precoded reference signals	Granted
PCT	PCT/US08/54355	WO2008115650				Inactive
USA	12/897417	US 2011-0019631 A1		16-Mar-07	Generalized Reference Signaling Scheme for Multi-User, Multiple Input, Multiple Output MU-MIMO Using Arbitrarily Precoded Reference Signals	Filed
China	200880008640.X	CN101636929		16-Mar-07		Filed
USA	11/687376	US 2008-0229177 A1		16-Mar-07	Channel Quality Index Feedback Reduction for Broadband Systems	Filed
PCT	PCT/US08/55579	WO2008115735				Inactive
USA	11/688125	US 2008-0232308 A1		19-Mar-07	Method and System for Wireless Communications Between Base and Mobile Stations	Filed
USA	11/742291		7881721	30-Apr-07	Channel sounding techniques for a wireless communication system	Granted
PCT	PCT/US08/61265	WO2008137323				Inactive
USA	12/981423	unpublished		30-Apr-07	Channel sounding techniques for a wireless communication system	Filed
China	200880016424.X	CN101682392		30-Apr-07		Filed
EPC	08746649.6	EP2145402		30-Apr-07		Filed
USA	11/742265	US 2008-0268888 A1		30-Apr-07	Techniques for Improving Control Channel Acquisition in a Wireless Communication System	Filed
USA	12/400834	US 2009-0232097 A1		13-Mar-08	Method and Apparatus for Performing Handover in a Wireless Communication System	Filed
India	633/DEL/2008			13-Mar-08		Filed
USA	11/742260	US 2008-0268785 A1		30-Apr-07	UE-autonomous CFI reporting	Filed
PCT	PCT/US08/61218	WO2008137320				Inactive

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	11/742204	US 2008-0267057 A1		30-Apr-07	System and method for resource block-specific control signaling	Filed
PCT	PCT/US08/61704	WO2008137370				Inactive
USA	11/766888	US 2008-0318579 A1		22-Jun-07	Techniques for Resource Block Mapping in a Wireless Communication System	Filed
PCT	PCT/US08/66866	WO2009002714				Inactive
USA	11/838029	US 2009-0046788 A1		13-Aug-07	Techniques for Reducing Precoding Overhead in a Multiple-Input Multiple-Output Wireless Communication System	Filed
PCT	PCT/US08/68030	WO2009023379				Inactive
Japan	2010-521061	JP2010537495				Inactive
EPC	08780958.8					Filed
USA	12/204975	US 2010-0061468 A1		05-Sep-08	Method for estimating channel statistics in an OFDM receiver	Filed
USA	11/864066	US 2009-0304109 A1		28-Sep-07	Retransmission method for HARQ in MIMO systems	Filed
PCT	PCT/US08/72111	WO2009042290				Inactive
China	200880108325.4	CN101809922		28-Sep-07		Filed
EPC	08797118.0	EP2206264		28-Sep-07		Filed
India	1400/DELNP/2010			28-Sep-07		Filed
Taiwan	097132413	200917727		28-Sep-07		Filed
USA	11/865341		7912083	01-Oct-07	Techniques for Reducing a Cell Identification Falsing Rate in a Wireless Communication System	Granted
PCT	PCT/US08/75574	WO2009045681				Filed
USA	12/057514	US 2009-0245148 A1		28-Mar-08	Techniques for Channel Sounding in a Wireless Communication System	Filed
USA	12/351273	US 2009-0181691 A1		11-Jan-08	Channel Rank Feedback in Multiple-Input Multiple-Output Communication Systems	Filed
USA	11/935242		7710835	05-Nov-07	Techniques for Signaling Reference Signal Parameters in a Wireless Communication System	Granted
USA	11/466007	US 2008-0043883			Channel Estimation Using Dynamic-Range-Limited Pilot Signals	Inactive

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APPENDIX A - ASSIGNED PATENTS

2. NON-LTE PATENTS

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	09/579934		6301306	26-May-00	Method and apparatus for generating a short-range wireless data communication link	Granted
PCT	PCT/US01/10208	WO0193433				Inactive
EPC	01922881.6	EP1297670		26-May-00		Filed
Japan	2002-500543	JP2004507129		26-May-00		Inactive
Korea	10-2002-7016034		718832	26-May-00		Granted
USA	08/055900		5363071	04-May-93	Apparatus and method for varying the coupling of a radio frequency signal	Granted
PCT	PCT/US94/03713	WO9425997				Inactive
Brazil	BR19940005339		BR9405339			Inactive
Canada	CA19942138029		CA2138029			Inactive
China	CN19941090259		CN1109265			Inactive
UK	GB19940026477		GB2284103			Inactive
Japan	JP19940524274		JP7508872			Inactive
USA	08/042956		5448770	05-Apr-93	Temperature-coefficient controlled radio frequency signal detecting circuitry	Granted
Australia	AU19940059133		AU667261			Inactive
Australia	AU19940059133		AU5913394			Inactive
Brazil	BR19940001376		BR9401376			Inactive
Canada	CA19942120095		CA2120095			Inactive
Germany	DE19944411733		DE4411733			Inactive
France	FR19940003657		FR2703860			Inactive
UK	GB19940006354		GB2276992			Inactive
Japan	JP19940085262		JP7030460			Inactive
Sweden	SE19940001053		SE516787			Inactive
Sweden	SE19940001053		SE9401053			Inactive
China	94103550.6		CN1104006	05-Apr-93		Granted
USA	08/144940		5493700	29-Oct-93	Automatic frequency control apparatus	Granted
PCT	PCT/US94/10324		WO9512253			Inactive
Brazil	BR19940005977		BR9405977			Inactive
Canada	CA19942150818		CA2150818			Inactive
China	CN19941090811		CN1116021	29-Oct-93		Granted
China	CN19941090811		CN1036561	29-Oct-93		Granted
Germany	DE19944498261T		DE4408261			Inactive
France	FR19940012601		FR2711868			Inactive
UK	GB19950013095		GB2289383			Inactive
Japan	JP19940512610T		JP8505508			Inactive
Korea	KR19950072674		KR0166656			Inactive
Sweden	SE19950002306		SE516224			Inactive
Sweden	SE19950002306D		SE9502306			Inactive
Singapore	SG19960000565		SG44455			Inactive
Japan	JP19940512610		JP3000673	29-Oct-93		Granted
USA	08/407787		5513382	31-Mar-93	Multi-ceramic layer switch circuit	Granted
USA	08/040780					Inactive
PCT	PCT/US94/02896		WO9422531			Inactive
Australia	AU19940065887		AU664672			Inactive
Australia	AU1994006588		AU6588794			Inactive

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
Canada	CA19942135799		CA2135799			Inactive
China	CN19941090155		CN1104023			Inactive
France	FR19940003656		FR2703536			Inactive
UK	GB19940022582		GB2282270			Inactive
Russia	RU19940046113		RU2127946			Inactive
South Africa	ZA19940002266		ZA9402266			Inactive
USA	08/201264		5430416	23-Feb-94	Power amplifier having nested amplitude modulation controller and phase modulation controller	Granted
PCT	PCT/US94/03713		WO9523463			Inactive
Australia	AU19950016749		AU672549			Inactive
Australia	AU19950015749		AU1674905			Inactive
China	CN19941091868		CN1121752			Inactive
Germany	DE19944480702		DE4480702			Inactive
France	FR19950000718		FR2716589			Inactive
UK	GB19950020613		GB2291754			Inactive
Japan	JP19950522330		JP8509589			Inactive
Russia	RU19950119833		RU2121756			Inactive
Sweden	SE19950003687		SE9503687			Inactive
Singapore	SG19960001069		SG69952			Inactive
South Africa	ZA19950000442		ZA9500442			Inactive
Taiwan	83112284		NI-076214	23-Feb-94		Granted
Thailand	025406			23-Feb-94		Inactive
USA	08/939157		6185411	09-Nov-93	Apparatus and method for enabling elements of a phase locked loop	Granted
PCT	PCT/US94/11470		WO9513669			Inactive
Australia	AU19950010392D		AU1039295			Inactive
Brazil	BR19940005782		BR9405782			Inactive
Canada	CA19942152181		CA2152181			Inactive
China	CN19941090894		CN1116474			Inactive
China	CN19941090894		CN1053072			Inactive
Germany	DE19944498746T		DE4498746			Inactive
France	FR19940013274		FR2713415			Inactive
UK	GB19950013637		GB2289174			Inactive
Japan	JP19940513822T		JP8505755			Inactive
Korea	KR19950072803		KR100188162			Inactive
Singapore	SG19960000580		SG81848			Inactive
USA	08/624329		5737327	29-Mar-96	Method and apparatus for demodulation and power control bit detection in a spread spectrum communication system	Granted
Argentina	P970101233		AR006417B1	29-Mar-96		Granted
Brazil	PI9704890-9		BR9704890	29-Mar-96		Granted
China	97103733.7		CN1084092	29-Mar-96		Granted
China	97116938.1		CN1087985	29-Mar-96		Granted
France	9703405		FR2746360	29-Mar-96		Granted
UK	GB19970019113		GB2322773	29-Mar-96		Granted
Germany	P19712830.0		DE19712830	29-Mar-96		Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
Germany	19758850.6			29-Mar-96		Filed
India	738/DEL/1997		214741	29-Mar-96		Granted
Japan	JP19970090149		JP3091711	29-Mar-96		Granted
Japan	09-278193	JP10032560	3089600	29-Mar-96		Granted
Korea	10-1997-0011223	243720	KR100243720	29-Mar-96		Granted
Korea	10-1997-0049413	296571		29-Mar-96		Granted
Mexico	972273	204936	MX9702273	29-Mar-96		Granted
USA	08/808331	5799011	5799011	29-Mar-96	CDMA power control channel estimation using dynamic coefficient scaling	Granted
USA	09/089992	6243410	6243410	29-Mar-96	Demodulator having an infinite-duration impulse response filter with dynamic coefficient scaling	Granted
USA	08/625658		5673003	29-Mar-96	Amplifier circuit having a variable bandwidth	Granted
Japan	09-094577	JP10041781	JP4015222	29-Mar-96		Granted
USA	08/760767		5867063	05-Dec-96	Gain distribution circuit	Granted
USA	09/515824		6400218	29-Feb-00	Variable gain control circuit for a receiver and method therefor	Granted
USA	09/042753		6049233	17-Mar-96	Phase detection apparatus	Granted
Brazil	9901014-3		BR9901014	17-Mar-98		Inactive
China	99104030.9	ZL99104030.9	CN1238600	17-Mar-98		Granted
Japan	11-067686	JP11330958	JP4216393	17-Mar-98		Granted
UK	GB19990005738		GB2335567			Inactive
USA	08/725871		5905757	04-Oct-96	Filter co-processor	Granted
PCT	PCT/US97/11435		WO9815056			Inactive
Australia	AU19970035875		AU3587597			Inactive
Canada	CA1997223829919970708		CA2238299			Inactive
China	97191376.5	ZL97191376.5	CN1205133	04-Oct-96		Granted
Germany	DE19971081047		DE19781047			Inactive
Spain	ES19970002065		ES2147693			Inactive
Finland	FI19980001263		FI981263			Inactive
France	FR19970010122		FR2754366			Inactive
UK	GB19980011085		GB2322057			Inactive
Italy	IT1997RM00553		IT1295391			Inactive
Russia	RU19980112274		RU2178949			Inactive
Sweden	SE19980001958		SE517510			Inactive
Sweden	SE19980001958		SE9801958			Inactive
India	2072/DEL/97		217376	04-Oct-96		Granted
Japan	10-516499		JP4494531	04-Oct-96		Granted
Korea	10-1998-0704193		KR306014	04-Oct-96		Granted
Taiwan	86111549		NI-096778	04-Oct-96		Granted
USA	08/511573		5584053	04-Aug-95	Commonly coupled high frequency transmitting/receiving switching module	Granted
PCT	PCT/US98/10140		WO9706698			Inactive

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	07/700966		5128632	16-May-91	Adaptive lock time controller for a frequency synthesizer and method therefor	Granted
USA	08/537196		5758275	29-Sep-95	Method and apparatus for scheduling adaptation for a notch filter	Granted
USA	09/515843		6356217	29-Feb-00	Enhanced DC offset correction through bandwidth and clock speed selection	Granted
USA	09/515834		6317064	29-Feb-00	DC offset correction adaptable to multiple requirements	Granted
USA	09/473673		6327313	29-Dec-99	Method and apparatus for DC offset correction	Granted
PCT	PCT/US00/34343		WO0148925			Inactive
Taiwan	89124413	TW530462	NI-176508	29-Dec-99		Granted
USA	08/745345		5778306	08-Nov-96	Low loss high frequency transmitting/receiving switching module	Granted
USA	09/973596		6845233	09-Oct-01	RF receivers with reduced spurious response for mobile stations and methods therefor	Granted
PCT	PCT/US02/31243		WO2003032611			Inactive
Australia	AU20020334762		AU2002334762			Inactive
China	02819472.1	ZL02819472.1	CN100435488	09-Oct-01		Granted
EP	EP20020800866		EP1436902			Inactive
Japan	2003-535443		JP4203419	09-Oct-01		Granted
Korea	10-2004-7004931	10-928850	KR20050032501	09-Oct-01		Granted
Taiwan	091123282	TW583850	NI-199560	09-Oct-01		Granted
USA	09/329578		6487398	14-Aug-01	Low noise architecture for a direct conversion transmitter	Granted
PCT	PCT/US02/22756		WO03021718			Inactive
USA	10/008939		6950910	08-Nov-01	Mobile wireless communication device architectures and methods therefor	Granted
USA	11/220735		7127563	08-Nov-01	Shared memory architecture	Granted
USA	10/092968		6693490	07-Mar-02	Adjustable gain control system and method thereof	Granted
PCT	PCT/US03/06370		WO03077416			Inactive
AU	AU20030216484		AU2003216484			Inactive
EPC	EP20030744142		EP1490966			Inactive
Japan	2003-575507	JP2005519559	JP4489438	07-Mar-02		Granted
Korea	10-2004-7014043	10-1006826		07-Mar-02		Granted
Taiwan	092104805		NI-297239	07-Mar-02		Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	10/092932		6889036	07-Mar-02	Integrated frequency selectable resonant coupling network and method thereof	Granted
PCT	PCT/US03/08021		WO2003077418			Inactive
AU	AU20030212448		AU2003212448			Inactive
USA	07/792568		5194833	15-Nov-91	Airbridge compensated microwave conductors	Granted
Japan	04-324707		JP3502405	15-Nov-91		Granted
USA	07/965319		5387547	15-Nov-91	Process for adjusting the impedance of a microwave conductor using an air bridge	Granted
USA	08/279376		5696797	22-Jul-94	Demodulator with baseband doppler shift compensation and method	Granted
USA	09/892987		7042909	27-Jun-01	Method and apparatus for controlling the timing of a communication device	Granted
USA	11/412761		7324558	27-Jun-01	Method and apparatus for controlling the timing of a communication device	Granted
USA	09/791950		6996158	22-Feb-01	Signal detection using a CDMA receiver	Granted
USA	10/904196	US 2005-0111529		22-Feb-01		Inactive
PCT	PCT/US05/38856		WO20060350055			Inactive
China	200580034889.4	200580034889.4	CN101040454	28-Oct-04		Granted
India	1578/DELNP/2007			28-Oct-04		Filed
Japan	2007-539146	JP2008519486		28-Oct-04		Filed
Korea	10-2007-709613	KR20070072898		28-Oct-04		Inactive
PCT	PCT/US05/38856			28-Oct-04		Inactive
SING	200702192-6		130852	28-Oct-04		Granted
USA	09/941101		6961011	27-Aug-01	Data compression system	Granted
USA	09/982190		7016398	15-Jun-01	Multicode receiver	Granted
USA	11/336500		7313166	15-Jun-01	Multicode receiver	Granted
USA	09/669015		6604501	25-Sep-00	Receiver having gain control and narrowband interference detection	Granted
USA	09/245636		6370211	05-Feb-99	Method and apparatus for facilitating reception of a signal on one of a plurality of contiguous channels	Granted
USA	09/362267		6594328	28-Jul-99	Method and apparatus for facilitating an estimation of a carrier frequency error in a receiver of a wireless communication system	Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	09/408398		6625233	29-Sep-99	Method and apparatus in a wireless receiver for demodulating a continuous-phase frequency-shift-keyed signal	Granted
USA	09/571872		6269060	12-May-00	Method and apparatus for performing a generalized viterbi search to demodulate a sequence of symbols	Granted
PCT	PCT/US01/13146		WO0189080			Inactive
Australia	AU20010057194		AU5719401			Inactive
USA	08/566518		5630222	04-Dec-95	Method and apparatus for generating multiple signals at multiple frequencies	Granted
PCT	PCT/US96/17668		WO9721278			Inactive
USA	08/941913		6275540	01-Oct-97	Selective call receiver having an apparatus for modifying an analog signal to a digital signal and method therefor	Granted
USA	07/710637		5175729	05-Jun-91	Radio with fast lock phase-locked loop	Granted
PCT	PCT/US92/04604		WO9222147			Inactive
Australia	AU19920021785		AU650362			Inactive
Australia	AU19920021785D		AU2178592			Inactive
Brazil	BR19920006080		BR9206080			Inactive
Canada	CA19922102496		CA2102496			Inactive
EP	EP19920913445		EP0587760			Inactive
Finland	FI19930005416		FI935416			Inactive
Japan	JP19920500613T		JP6510642			Inactive
Norway	NO19930004391		NO934391			Inactive
USA	08/329103		5481226	25-Oct-94	Low-voltage intermediate frequency amplifier providing automatic gain control of a source amplifier	Granted
USA	08/399785		5678223	07-Mar-95	Method and apparatus for an automatic frequency control receiver	Granted
USA	08/399805		5606731	07-Mar-95	Zerox-IF receiver with tracking second local oscillator and demodulator phase locked loop oscillator	Granted
USA	08/399784		5604926	07-Mar-95	Phase locked loop circuit current mode feedback	Granted
USA	08/503366		5670951	17-Jul-95	Radio communication device and method for generating threshold levels in a radio communication device for receiving four-level signals	Granted
USA	08/324634		5471665	18-Oct-94	Differential DC offset compensation circuit	Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	08/511081		5633895	03-Aug-95	Communication device with synchronized zero-crossing demodulator and method	Granted
USA	08/502997		5701600	17-Jul-95	Radio receiver and method of calibrating same	Granted
PCT	PCT/US96/07192		WO9704530			Inactive
EP	EP19960920289		EP0839410			Inactive
USA	08/625435		5734974	27-Mar-96	Selective call receivers with stepwise variable gain control	Granted
USA	08/825984		6233287	04-Apr-97	Method and apparatus for mixing signals	Granted
USA	08/601081		5943378	01-Aug-96	Digital signal clock recovery	Granted
USA	08/867498		5799043	02-Jun-97	Method and apparatus for decoding a two-level radio signal	Granted
USA	08/886356		5960042	01-Jul-97	Method in a selective call receiver for synchronizing to a multi-level radio signal	Granted
USA	09/086628		6400821	29-May-98	Digital tone generator	Granted
USA	PCT/US99/08004		WO9963733	29-May-98		Inactive
China	CN19998007909		CN1371568	29-May-98		Inactive
USA	09/650411		6445790	29-May-98	Digital tone generator	Granted
USA	08/996900		6130921	23-Dec-97	Frequency shift modulation automatic frequency correction circuit and method	Granted
USA	09/072056		6073002	04-May-98	Mixer circuit and communication device using the same	Granted
USA	09/010043		6055436	20-Jan-98	Method and apparatus for detecting simulcast channel conditions	Granted
USA	09/285977		6487260	05-Apr-99	Method and apparatus for efficient correlation detection	Granted
USA	09/798216		6560447	05-Mar-01	DC offset correction scheme for wireless receivers	Granted
PCT	PCT/US02/04927	WO02071636	WO02071636			Inactive
China	02800519.8	ZL02800519.8	CN1215687	05-Mar-01		Granted
EPC	EP20020706333		EP1368901			Inactive
Japan	2002-570426		JP4072061	05-Mar-01		Granted
Korea	10-2002-7014779		KR682773	05-Mar-01		Granted
USA	09/885487		6952572	20-Jun-01	Image rejection mixer with switchable high or low side injection	Granted
USA	08/758832		5874860	06-Feb-96	High frequency amplifier and control	Granted
Germany	DE19976014881	DE69714881	DE69714881			Inactive
EP	EP19970101439	EP0789451	EP0789451			Inactive
France	FR19960001392	FR2744578	FR2744578			Inactive

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
Japan	JP19970034399	JP9232875	JP3901780	06-Feb-96		Granted
USA	08/696080		5777516	13-Aug-96	High frequency amplifier in CMOS	Granted
USA	08/696076		5812027	13-Aug-96	Spike insensitive intermediate frequency amplifier	Granted
USA	09/232004		6393071	15-Jan-98	Circuit and method of identifying a burst frequency	Granted
France	98400064.6		EP0930745	15-Jan-98		Granted
UK	98400064.6		EP0930745	15-Jan-98		Granted
Germany	98400064.6	DE19986029456 T	DE6982945 6	15-Jan-98		Granted
USA	09/364289		6782038	30-Jul-98	Method and apparatus for radio communications	Granted
China	99111904.5	ZL99111904.5	CN1145388	30-Jul-98		Granted
Germany	DE19986021751T		DE6982175 1			Inactive
EPC	EP19980401954		EP0977351			Inactive
Japan	JP19990214878	JP2000106533				Inactive
USA	10/362031		6933766	17-Aug-00	Apparatus and method for improved chopping mixer	Granted
PCT	PCT/EP01/08154		WO2002015 385			Inactive
Australia	AU20010089658D		AU8965801			Inactive
China	CN20018014137		CN1448006			Inactive
EPC	EP20000402301		EP1184871			Inactive
Japan	JP20020520399T	JP2004507139				Inactive
Korea	10-2003-7002318		KR799473	17-Aug-00		Granted
Taiwan	090127410	TW543285	NI-181817	17-Aug-00		Granted
USA	08/451866		5478773	28-Apr-94	Method of making an electronic device having an integrated inductor	Granted
USA	10/433750		7117234	07-Dec-00	Waveform generator for use in IQ modulation	Granted
PCT	PCT/EP01/12402		WO0247344			Inactive
Austria	AT20000403442		AT260521			Inactive
Australia	AU20020023650		AU2365002			Inactive
Germany	DE20008008551		DE6000855 1			Inactive
Germany	DE20008030337		DE6003033 7			Inactive
EP	EP20000403442		EP1213889			Inactive
EP	EP20030291689		EP1376868			Inactive
Japan	JP20020548943	JP2004515970				Inactive
USA	10/451094		7158578	20-Dec-00	Quadrature modulator with pulse-shaping	Granted
PCT	PCT/EP0111563		WO0251083			Inactive
Austria	AT20000403609		AT266287			Inactive
Australia	AU20020018211		AU1821102			Inactive
China	01821117.8	ZL01821117.8	CN1266903	20-Dec-00		Granted
Germany	DE20006010512		DE6001051 2			Inactive
EP	EP20000403609		EP1239640			Inactive
Japan	2002-552259		JP3931140	20-Dec-00		Granted
Korea	10-2003-7008358		KR855515	20-Dec-00		Granted
USA	10/154126		6950634	23-May-02	Transceiver circuit arrangement and method	Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	08/686876		5748042	26-Jul-96	Method for altering a difference frequency signal and amplifier circuit thereof	Granted
USA	08/673588					Inactive
USA	08/908927		5926052	01-Jul-96	Variable phase shifter and method	Granted
USA	08/703243		5757237	28-Aug-96	Method for dynamically biasing an amplifier and circuit therefor	Granted
USA	08/673465		5757236	01-Jul-96	Amplifier bias circuit and method	Granted
USA	10/496524		7046977	19-Nov-01	Apparatus for generating multiple clock signals of different frequency characteristics	Granted
PCT	PCT/EP02/12270		WO03044952			Inactive
China	02826750.8	ZL02826750.8	CN1613182	19-Nov-01		Granted
Australia	AU20020365982		AU2002365982			Inactive
EP	EP20010402965		EP1313220			Inactive
Japan	JP20030546479T	JP2005510166				Inactive
Taiwan	091133383		TWI262372	19-Nov-01		Granted
USA	09/980220		6049703	28-Nov-97	Amplifier circuit and method for increasing linearity of the amplifier circuit	Granted
USA	09/039502		6487395	16-Mar-98	Radio frequency electronic switch	Granted
USA	09/211168		6263199	14-Dec-98	Circuit and method of signal frequency conversion	Granted
USA	09/122730		6133793	27-Jul-98	Circuit and method of amplifying a signal for a receiver	Granted
USA	09/128428		6137997	04-Aug-98	Circuit for receiving and transmitting signals and method	Granted
USA	09/323236		6490440	01-Jun-99	Digital transmitter circuit and method of operation	Granted
USA	09/241669		6100721	01-Feb-99	Circuit and method of extending the linear range of a phase frequency detector	Granted
USA	09/322048		6259318	28-May-99	Method for extending the linear range of an amplifier	Granted
USA	09/605084		6600344	26-Jun-00	Predistortion circuit for RF detector	Granted
USA	09/441022		6424825	16-Nov-99	Feedforward and feedback control in a radio	Granted
Germany	DE2006001900	DE60001900				Inactive
EPC	00124894.7		EP1102410	16-Nov-99		Granted
Japan	2000-347431	JP2001186032		16-Nov-99		Filed
USA	09/790445		6914935	21-Feb-01	Fractional N synthesizer with reduced fractionalization spurs	Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	09/916915		6760386	27-Jul-01	Receiver and method therefor	Granted
China	200810210281.8	CN101340229		27-Jul-01		Filed
China	02816359.1	ZL02816359.1	CN1545772	27-Jul-01		Granted
EPC	EP20020744721		EP1415414			Inactive
Japan	2003-535363		JP4275530	27-Jul-01		Granted
Japan	2008-133143	JP2008263627		27-Jul-01		Filed
Taiwan	091115349	TW582141	NI-198811	27-Jul-01		Granted
USA	09/916,684		6751264			Granted
USA	09/916,685	US20030035498				Inactive
USA	10/033513		6959035	26-Dec-01	Post-correlation interpolation for delay locked loops	Granted
USA	10/208959		6768353	31-Jul-02	Prescaler method and apparatus	Granted
USA	10/330852		7158603	26-Dec-02	Method and apparatus for compensating deviation variances in a 2-level FSK FM transmitter	Granted
PCT	PCT/US03/30587		WO2004062085			Inactive
EP	EP200030770537		EP1579568			Inactive
AU	AU20030279029		AU2003279029			Inactive
China	03825721.1	CN1717861		26-Dec-02		Filed
Taiwan	092128564			26-Dec-02		Inactive
USA	10/427581		6982605	01-May-03	Transformer coupled oscillator and method	Granted
USA	10/280631		7010278	25-Oct-02	Sideband suppression method and apparatus for quadrature modulator using magnitude measurements	Granted
USA	10/391978		6973142	19-Mar-03	Timing synchronization for M-DPSK channels	Granted
PCT	PCT/US04/03095		WO2004095720			Inactive
EP	EP20040708129		EP1606874			Inactive
Japan	2006-508656		JP4383445	19-Mar-03		Granted
Korea	10-2005-7017460	KR20050118285		19-Mar-03		Filed
Taiwan	093102641		NI-335165	19-Mar-03		Granted
USA	10/420664		6812802	22-Apr-03	Method and apparatus for controlling a voltage controlled oscillator	Granted
USA	10/649427		7227916	26-Aug-03	Receiver with automatic gain control that operates with multiple protocols and method thereof	Granted
USA	10/648468		7209720	26-Aug-03	Multiband and multimode transmitter and method	Granted
USA	10/623047		6930554	18-Jul-03	Variable gain low noise amplifier and method	Granted
USA	10/721950		7346098	25-Nov-03	Communication receiver	Granted
USA	10/625957		7412006	24-Jul-03	Method and apparatus for RF carrier feedthrough suppression	Granted
USA	10/896268		7231586	21-Jul-04	Multi-rate viterbi decoder	Granted
USA	11/743157	US20070201586				Inactive

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	10/731069		7215972	09-Dec-03	Adaptive transmit power control system	Granted
PCT	PCT/US04/37061		WO2005060451			Inactive
China	200480033964.0		CN1947438	09-Dec-03		Granted
EPC	04810478.0	EP1917714		09-Dec-03		Filed
India	1999/DELNP/2006		235688	09-Dec-03		Granted
Japan	2006-543820	JP2007514370		09-Dec-03		Filed
USA	11/046075		7109816	30-Jan-04	Dual port modulator comprising a frequency synthesizer	Granted
Austria	AT20040290262T		AT365397			Inactive
EP	EP20040290262		EP1560336			Inactive
France	04290262.7		EP1560336	30-Jan-04		Granted
UK	04290262.7		EP1560336	30-Jan-04		Granted
Germany	DE200460007095		602004007095.50	30-Jan-04		Granted
USA	10/790516		7120402	01-Mar-04	Method and apparatus for a high performance and high dynamic range baseband power control system	Granted
USA	10/917891		7177616	13-Aug-04	High linearity and low noise CMOS mixer and signal mixing method	Granted
USA	10/963387		7266359	12-Oct-04	DC interference removal in wireless communications	Granted
USA	11/099179		7346317	04-Apr-05	Dynamic gain and phase compensation for power amplifier load switching	Granted
PCT	PCT/US06/12238		WO2006107641			Inactive
EPC	06740361.8	EP1869778		04-Apr-05		Filed
Japan	2008-505413	JP2008538869		04-Apr-05		Filed
USA	11/046910		7148749	31-Jan-05	Closed loop power control with high dynamic range	Granted
PCT	PCT/US05/45206		WO2006083403			Inactive
China	200580044361.5	CN101116242		31-Jan-05		Filed
EPC	05854005.5	EP1851851		31-Jan-05		Filed
India	3391/DELNP/2007			31-Jan-05		Filed
Japan	2007-553099	JP2008529408		31-Jan-05		Filed
Korea	10-2007-7017601	KR20070110280		31-Jan-05		Filed
Taiwan	094146732			31-Jan-05		Filed
USA	11/282734		7301402	17-Nov-05	Soft saturation detection for power amplifiers	Granted
USA	11/114366		7469020	26-Apr-05	Systems, methods, and apparatus for reducing dynamic range requirements of a power amplifier in a wireless device	Granted
USA	11/099278		7486341	04-Apr-05	Method and apparatus for dynamic gain and phase compensations	Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
PCT	PCT/US06/11569		WO2006107690			Inactive
China	200680010175.4	CN101218749		04-Apr-05		Filed
Japan	2008-504332	JP2008535396		04-Apr-05		Filed
Taiwan	095112033			04-Apr-05		Filed
USA	11/096520		7369820	01-Apr-05	System and method for DC offset correction in transmit baseband	Granted
PCT	PCT/US06/010739		WO2006107614			Inactive
EPC	06739491.6	EP1869785		01-Apr-05		Filed
Japan	2008-504186	JP2008535388		01-Apr-05		Filed
USA	11/199737		7539462	08-Aug-05	Configurable multi-mode modulation system and transmitter	Granted
USA	11/243633		7403758	04-Oct-05	Linearized and balanced mixer apparatus and signal mixing method	Granted
Japan	2006-096226			04-Apr-05		Filed
USA	11/098490		7392026	04-Apr-05	Multi-band mixer and quadrature signal generator for a multi-mode radio receiver	Granted
USA	11/365774		7599321	28-Feb-06	Prioritization of connection identifiers for an uplink scheduler in a broadband wireless access communication system	Granted
USA	11/195478		7421252	02-Aug-05	Center frequency control of an integrated phase rotator band-pass filter using VCO coarse trim bits	Granted
PCT	PCT/US06/26255		WO2007018849			Inactive
Japan	2008-524975	JP2008504085		02-Aug-05		Filed
Korea	10-2008-7002833	KR20080034142		02-Aug-05		Filed
USA	11/363463	7609779	7609779	27-Feb-06	RF transmitter with interleaved IQ modulation	Granted
PCT	PCT/US07/061915		WO2007117761			Inactive
EPC	07756821.0	EP1992135		27-Feb-06		Filed
Korea	10-2008-7023528	KR20080098545		27-Feb-06		Filed
USA	11/290367		7539272	30-Nov-05	Frequency error estimation and correction in a SAIC linear equalizer	Granted
USA	11/433590		7590419	12-May-06	Frequency correction channel burst detector in a GSM/EDGE communication system	Granted
USA	11/443199		7593485	30-May-06	Wireless receiver for removing direct current offset component	Granted
USA	11/495500		7602861	30-May-06	Wireless receiver for removing direct current offset component	Granted

CONFIDENTIAL

Country	App #	Publication #	Patent #	Priority Date	Title	Status
USA	11/452457		7603094	14-Jun-06	DC offset correction for direct conversion receivers	Granted
USA	09/024482		5945878	17-Feb-98	Single-ended to differential converter	Granted
USA	09/131213		6310856	07-Aug-98	CDMA communications system having a searcher receiver and method therefor	Granted
USA	09/481858		6839381	12-Jan-00	Method and apparatus for coherent detection in a telecommunications system	Granted
USA	11/841497		7489202	20-Aug-07	RF amplifier with stacked transistors, transmitting device, and method therefor	Granted
USA	11/895427		7495515	24-Aug-07	Low-noise amplifier	Granted
USA	08/771348		5886547	16-Dec-96	Circuit and method of controlling mixer linearity	Granted
USA	07/503,597		5061911	03-Apr-90	SINGLE FAULT/TOLERANT MMIC SWITCHES	Expired
USA	07/591,183		5072193	01-Oct-90	WIRE SHIELDING FOR RF CIRCUIT BOARDS AND AMPLIFIERS	Expired

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