

08-19-1999

T. 17:04/NO. 4860161513 P 4
PATENT AND TRADEMARK OFFICE

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

MRD
5-1-98



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To the Honorable Commissioner of Patents

101102046

and original documents or copy thereof.

1. Name of conveying party(ies):

Zenith Electronics Corporation
1000 Milwaukee Avenue
Glenview, IL 60025

Additional name(s) of conveying party(ies) attached? Yes No

2. Name and address of receiving party(ies)

Name: Citicorp North America, Inc.
Internal Address: 399 Park Avenue, as Agent
6th Floor, Zone 4

Street Address: _____

City: New York State: NY ZIP: 10043

Additional name(s) & address(es) attached? Yes No

3. Nature of conveyance: Patent Collateral Assignment
AND Security Agreement

- Assignment Merger
 Security Agreement Change of Name

Other Corrected Assignment; refer to
Document ID No. 100773074

Execution Date: March 31, 1998

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: _____

See Schedule A attached hereto

A. Patent Application No.(s)

B. Patent No.(s)

4907069

Additional numbers attached? Yes No

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

Name: Cindy J.K. Davis, Esq.
c/o Paul, Hastings, Janofsky & Walker LLP
Internal Address: _____

Street Address: 600 Peachtree Street, N.E.

Suite 2400

City: Atlanta State: GA ZIP: 30308

6. Total number of applications and patents involved: 112

7. Total fee (37 CFR 3.41).....\$ 4,480.00

Enclosed - previously delivered OK

Authorized to be charged to deposit account

8. Deposit account number:

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

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.

Jeffrey C. Narvil
Name of Person Signing

Jeffrey C. Narvil
Signature

August 17, 1999
Date

Total number of pages including cover sheet, attachments, and document: 19

Mail documents to be recorded with required cover sheet information to:
Commissioner of Patents & Trademarks, Box Assignments PATENT

REEL: 010033 FRAME: 0321

**PATENT COLLATERAL ASSIGNMENT
AND SECURITY AGREEMENT**

This PATENT COLLATERAL ASSIGNMENT AND SECURITY AGREEMENT (this "Assignment"), made as of this 31st day of March, 1998, by ZENITH ELECTRONICS CORPORATION, a Delaware corporation, having its chief executive office at 1000 Milwaukee Avenue, Glenview, Illinois 60025 ("Assignor") in favor of CITICORP NORTH AMERICA, INC., having an office located at 399 Park Avenue, 6th Floor Zone 4, New York, New York 10043, as Agent (the "Agent", and sometimes herein "Assignee") for the Issuing Bank and the Lenders party to the Credit Agreement (as hereinafter defined).

PRELIMINARY STATEMENTS.

(1) Assignor, the financial institutions party thereto from time to time (the "Lenders"), Citibank, N.A., as Issuing Bank (the "Issuing Bank") and the Agent are parties to that certain Credit Agreement dated as of March 31, 1997, as amended by that First Amendment to Credit Agreement dated as of October 29, 1997, as amended by that certain Second Amendment and Waiver to Credit Agreement dated as of December 31, 1997, and as further amended by that certain Third Amendment and Waiver to Credit Agreement (the "Third Amendment") dated as of March 31, 1998 (as previously amended and as hereafter amended, restated or otherwise modified from time to time, the "Credit Agreement"); and

(2) Assignor has requested, as more fully set forth in the Third Amendment, that the Agent, the Lenders and the Issuing Bank allow Assignor to incur the LGE Debt and to secure the LGE Debt by granting to LGE a subordinated lien on certain patents of Assignor; and

(3) The Agent, the Lenders and the Issuing Bank are willing to permit the incurrence of the LGE Debt and the grant of such subordinated lien, to the extent set forth in the Third Amendment, but only upon the condition, among other things, that Assignor shall have executed and delivered this Assignment in favor of the Agent for its benefit and the benefit of the Lenders and the Issuing Bank;

NOW, THEREFORE, in consideration of the premises set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor agrees as follows:

1. Incorporation of Credit Agreement. The Credit Agreement and the terms and provisions thereof are hereby incorporated herein in their entirety by this reference thereto. Terms used herein which are defined in the Credit Agreement shall have the respective meanings set forth in the Credit Agreement unless otherwise defined herein.

2. Assignment and Grant of Security. To secure the complete and timely payment of all the Obligations of Assignor, now or hereafter existing from time to time, Assignor hereby pledges and collaterally assigns to Assignee, for its own benefit and for the benefit of the Issuing Bank and the Lenders, and hereby grants to Assignee, for its own benefit and for the benefit of the Issuing Bank and the Lenders, a security interest in, Assignor's entire right, title and interest in and to all United States patents and patent applications for VSB technology or relating to and used in connection with the high definition television technology of Assignor (collectively, the "HDTV Patents"), including, without limitation, each patent and patent application listed on Schedule A attached hereto, and all future United States HDTV Patents and patent applications of Assignor, including all proceeds thereof, the right (but not the obligation) to sue for past, present and future infringements in the name of Assignor or in the name of Assignee, all rights (but not obligations) corresponding thereto and all reissues, divisions, continuations, renewals, extensions and continuations-in-part thereof (it being understood and agreed that the HDTV Patents assigned hereby shall include, without limitation, rights and interests pursuant to licensing or other contracts in favor of Assignor pertaining to the HDTV Patents, but in the case of third parties which are not Affiliates of Assignor, only to the extent permitted by such licensing or other contracts and, if not so permitted, only with the consent of such third parties).

3. Representations and Warranties. Assignor covenants and warrants as follows:

(a) A true and complete list of all HDTV Patents in existence as of the date hereof is set forth in Schedule A hereto.

(b) The HDTV Patents are subsisting and have not been adjudged invalid or unenforceable and Assignor is not aware of any claim by any third party that the HDTV Patents are invalid or unenforceable.

(c) To the best of Assignor's knowledge, each of the HDTV Patents is valid and enforceable.

(d) No claim has been made that the practice of any of the HDTV Patents does or may violate the rights of any third person.

(e) Assignor is the legal and beneficial owner of the HDTV Patents free and clear of any Lien, security interest, charge or encumbrance, including, without limitation, pledges, assignments, licenses, shop rights and covenants by Assignor not to sue third persons, except for the security interest and assignment created by this Assignment, the junior and subordinate lien securing the LGE Debt (the "LGE Debt Lien"), which LGE Debt Lien is and shall at all times be junior and subordinate to the Lien created by this Assignment, and the license agreements set forth on Schedule B attached hereto (the "Existing License Agreements"). No effective financing statement or other instrument similar in effect covering all or any part of the HDTV Patents is on file in any recording office, except such as may have been filed in favor of Assignee relating to this Assignment or for which duly executed termination statements have been recorded or delivered to Assignee or which relate to the LGE Debt Lien.

(f) This Assignment shall create in favor of Assignee a valid and perfected security interest in the HDTV Patents upon making the filings referred to in clause (g) below, free and clear of all Liens other than the LGE Debt Lien.

(g) Except for the filing of financing statements with the Secretary of State of Illinois under the UCC and filings with the United States Patent and Trademark Office, no authorization, approval or other action by, and no notice to or filing with, any governmental authority or regulatory body is required either (i) for the grant by Assignor of the security interest granted hereby or for the execution, delivery or performance of this Assignment by Assignor or (ii) for the perfection of or the exercise by Assignee of its rights and remedies hereunder to the HDTV Patents in the United States of America.

(h) The chief executive office of Assignor is located at the address set forth above for Assignor.

(i) None of Assignor's Affiliates or Subsidiaries has any right, title or interest in any HDTV Patents.

4. New HDTV Patents and Applications. If, at any time during the term of the Credit Agreement, Assignor shall become entitled to the benefit of any patent application or patent for any reissue, division, continuation, renewal, extension or continuation-in-part of any HDTV Patent or any improvement on any HDTV Patent, the provisions of this Assignment shall automatically apply thereto. With respect to all of the foregoing rights or benefits, Assignor shall give to Assignee prompt notice thereof in writing.

5. Assignor's Covenants. On a continuing basis, Assignor shall make, execute, acknowledge and deliver, and file and record in the proper filing and recording places, all such instruments, including, without limitation, appropriate financing and continuation statements and security agreements, and take all such action as may reasonably be deemed necessary or advisable by Assignee to carry out the intent and purposes of this Assignment, or for assuring and confirming to Assignee the grant or perfection of a security interest in all HDTV Patents. Without limiting the generality of the foregoing sentence, Assignor (i) shall not enter into any agreement which would materially impair or conflict with Assignor's obligations hereunder without Assignee's prior written consent (which consent shall not be unreasonably withheld); (ii) upon the written request of

Assignee, shall use reasonable efforts to obtain any necessary consents of third parties to the grant or perfection of a security interest to Assignee with respect to the HDTV Patents; (iii) shall, from time to time, upon Assignee's reasonable request, cause its books and records to be marked with such legends or segregated in such manner as Assignee may reasonably specify, and take or cause to be taken such other action and adopt such procedures as Assignee may reasonably specify to give notice of or to perfect the security interest in the HDTV Patents intended to be created hereby; (iv) shall at all times keep at least one complete set of its records concerning substantially all of the HDTV Patents at its chief executive office or principal place of business as set forth above and shall not change the location of its chief executive office or such records without giving Assignee at least thirty (30) days' prior written notice thereof; (v) shall promptly, following its becoming aware thereof, notify Assignee of the institution of, or any adverse determination in, any proceeding in the United States Patent and Trademark Office or any United States or foreign court regarding Assignee's claim of ownership in any of the HDTV Patents; (vi) shall not permit the inclusion in any contract to which it becomes a party of any provisions which would impair or prevent the creation of a security interest in Assignor's rights and interest acquired under such contracts in any property included within the definition of the HDTV Patents; (vii) shall properly maintain and care for the HDTV Patents; (viii) shall not grant any security interest in any HDTV Patent except in the name of Assignee and except for the LGE Debt Lien; (ix) except as permitted under the Credit Agreement and herein, shall not sell or contract for sale or otherwise dispose of any HDTV Patent; (x) except with the consent of the Assignee, which consent shall not be unreasonably withheld, shall not license any HDTV Patent other than pursuant to the Existing License Agreements; (xi) upon any officer of Assignor obtaining knowledge thereof, shall promptly notify Assignee of any event which materially adversely affects the value of any HDTV Patent, the ability of Assignor or Assignee to dispose of any of the HDTV Patents or the rights and remedies of Assignee in relation thereto including, without limitation, the levy of any legal process against any of the HDTV Patents; (xii) until Assignee exercises its rights to make collection, shall diligently keep reasonable records respecting the HDTV Patents; (xiii) shall promptly notify Assignee of any suspected

infringement of any of the HDTV Patents by any third party and of all steps, including the commencement and course of litigation, taken to remedy such infringement; (xiv) shall apply proper statutory patent notice to all products covered by the HDTV Patents, and (xv) shall not terminate any Existing License Agreement or amend, modify or waive any provision of any Existing License Agreement in any manner that could reasonably be deemed to be materially adverse to the interests of Assignee, without the prior written consent of the Assignee.

6. Amounts Payable in Respect of the HDTV Patents.

Except as otherwise provided in this Section 6 or in the Credit Agreement, Assignor shall continue to collect, at its own expense, all amounts due or to become due to Assignor in respect of the HDTV Patents. Upon the occurrence and during the continuance of an Event of Default, Assignee is hereby given full power and authority, without notice or demand, (i) to notify any and all obligors with respect to any HDTV Patent which Assignor, except for the execution hereof, could ask for, and (ii) to demand, take, collect, sue for and receive for its own use all amounts due or to become due Assignor in respect of the HDTV Patents, and in connection therewith to enforce all rights and remedies with respect to any HDTV Patent which Assignor could enforce if this Assignment had not been made; and Assignor hereby ratifies any action which Assignee shall lawfully take to enforce Assignee's rights hereunder. Whether or not Assignee shall have so notified any obligors, Assignor shall at its expense render all reasonable assistance to Assignee in enforcing claims against such obligors.

7. Power of Attorney. Assignor hereby authorizes and empowers Assignee, upon the occurrence and during the continuance of an Event of Default, to make, constitute and appoint any officer or agent of Assignee as Assignor's true and lawful attorney-in-fact, with power (i) to endorse Assignor's name on all applications, documents, papers and instruments necessary or desirable for Assignee in the use or maintenance of the HDTV Patents, (ii) to take any other actions with respect to the HDTV Patents including, without limitation, commencement or continuation of any litigation or administrative proceeding, as Assignee deems in the best interests of the Issuing Bank and the Lenders, (iii) to grant or issue licenses to the HDTV Patents to

anyone on terms which Assignee in its reasonable judgment deems commercially reasonable, or (iv) to assign, pledge, convey or otherwise transfer title in or dispose of the HDTV Patents to anyone on terms which Assignee in its reasonable judgment deems commercially reasonable.

8. Patent Applications; Maintenance and Litigation.

(a) Assignor shall have the duty to preserve and maintain all HDTV Patents as to which a security interest has been granted pursuant to this Assignment. Any expenses incurred in connection with such an application, or in protecting, maintaining or preserving the HDTV Patents, shall be borne by Assignor.

(b) Notwithstanding anything to the contrary in Section 2 hereof, Assignor shall have the right and obligation to commence and diligently prosecute in its own name, as real party in interest, for its own benefit and at its own expense, such suits, proceedings or other actions for infringement, or other damage or reexamination or reissue proceedings as are reasonable to protect any of the HDTV Patents. However, no such suit, proceeding or other action shall be settled or voluntarily dismissed, nor shall any party be released or excused of any claims of, or liability for, infringement without the prior written consent of Assignee, which consent shall not be unreasonably withheld. Assignee shall provide all reasonable and necessary cooperation in connection with any such suit, proceeding or action, including, without limitation, joining as a necessary party.

(c) Assignor hereby agrees to indemnify and hold harmless Assignee for any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, costs, expenses or disbursements (including reasonable attorneys' fees) of any kind whatsoever which may be imposed on, incurred by or asserted against Assignee in connection with or in any way rising out of any such suits, proceedings or other actions, or any other suits, proceedings or other actions relating to any or all of the HDTV Patents (including, without limitation, whether brought by Assignor

or any other Person, suits, proceedings or other actions in which an allegation of liability, strict or otherwise, is or may be made by any Person who alleges or may allege having suffered damages as a consequence of alleged improper, imprudent, reckless, negligent, willful, faulty, defective or substandard design, testing, specification, manufacturing supervision, manufacturing defect, manufacturing deficiency, publicity or advertisement or improper use, howsoever arising or by whomsoever caused, of any inventions disclosed and claimed in the HDTV Patents or any of them); unless with respect to any of the above, the Assignee is judicially determined to have acted or failed to act with gross negligence or wilful misconduct. The indemnification in this paragraph shall survive the termination of this Agreement.

9. Amendments, Etc. No amendment or waiver of any provision of this Assignment nor consent to any departure by Assignor herefrom, shall in any event be effective unless the same shall be in writing and signed by the parties hereto, and then such waiver or consent shall be effective only in the specific instance and for the specific purpose for which given, except as provided in Section 5 hereof, in which case the writing need only be signed by Assignee.

10. Addresses for Notices. All notices and other communications to any party provided for hereunder shall be in writing (including telecommunications) and mailed, transmitted or delivered to such party, addressed to it at the address first stated herein for such party, or as to either party at such other address as shall be designated by such party in a written notice delivered to the other party in accordance with the terms of this Section. All such notices and other communications shall be effective as provided in Section 10.1 of the Credit Agreement.

11. Continuing Assignment; Transfers by Lenders.

(a) This Assignment shall create a continuing security interest and collateral assignment of the HDTV Patents and shall (i) remain in full force and effect until payment in full of the Obligations and the termination of the Credit Agreement, (ii) be binding upon Assignor, its

successors and assigns and (iii) inure to the benefit of Assignee, the Issuing Bank, the Lenders and their respective successors, transferees and assigns. Without limiting the generality of the foregoing clause (iii), any Lender may assign or otherwise transfer any Obligations held by it, and such other benefits in respect thereof granted to Assignee herein or otherwise, to any other person or entity, subject, however, to the provisions of Section 10.5 of the Credit Agreement. Upon the payment in full of the Obligations (other than indemnities and other contingent liabilities, not then due and payable, that expressly survive the termination of the Loan Documents) and the termination of the Credit Agreement, the assignment hereunder shall terminate and all rights to the HDTV Patents shall revert to Assignor, subject to any disposition thereof which may have been made by Assignee pursuant hereto or pursuant to the Credit Agreement. Upon any such termination, Assignee shall, at Assignor's expense, execute and deliver to Assignor such documents as Assignor shall reasonably request to evidence such termination.

(b) The HDTV Patents shall be subject to release from time to time in accordance with Section 9.15 of the Credit Agreement (the "Released Collateral"). The Liens under this Agreement shall terminate with respect to the Released Collateral upon such release, and upon the request of the Assignor, the Assignee shall execute and deliver such instrument or document as may be necessary to release the Liens granted hereunder; provided, however, that (i) the Assignee shall not be required to execute any such documents on terms which, in the Assignee's opinion, would expose the Assignee to liability and (ii) such release shall not in any manner discharge, affect or impair the Obligations of Assignor or any Liens on (or obligations of the Assignor in respect of) all interests retained by the Assignor, including without limitation, the proceeds of any sale, all of which shall continue to constitute part of the collateral covered by this Agreement.

12. Cumulative Remedies; Power of Attorney; Effect on Credit Agreement. All of Assignee's rights and remedies with respect to the HDTV Patents, whether established hereby, by the

Credit Agreement or by any other Loan Document, or by any other agreements or by law shall be cumulative and may be exercised singularly or concurrently. Assignor hereby acknowledges and agrees that this Assignment is not intended to limit or restrict in any way the rights and remedies of Assignee, the Issuing Bank or the Lenders under the Credit Agreement, but rather is intended to facilitate the exercise of such rights and remedies. The Agent shall have, upon the occurrence and during the continuation of an Event of Default, in addition to all other rights and remedies given it by this Assignment, those rights and remedies allowed by law and the rights and remedies of a secured party on default under the UCC as enacted in the State of New York at that time.

13. Counterparts. This Assignment may be executed in any number of counterparts, each of which shall be deemed to be an original, but all such separate counterparts shall together constitute but one and the same instrument.

14. Severability. Any provision of this Assignment which is prohibited or unenforceable shall be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining provisions hereof in that jurisdiction or affecting the validity or enforceability of such provision in any other jurisdiction.

15. Governing Law. THIS ASSIGNMENT SHALL BE CONSTRUED IN ACCORDANCE WITH AND GOVERNED BY THE LAWS OF THE STATE OF NEW YORK.

16. Termination of Letter Agreement. That certain letter agreement dated February 2, 1998 relating to the HDTV Patents, from Assignee to Assignor, is hereby terminated and superseded by this Assignment (except to the extent such letter agreement relates to foreign patents and foreign patent applications relating to and in connection with the high definition television technology of the Borrower).

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be executed by their respective officers thereunder duly authorized, as of the date first above written.

ZENITH ELECTRONICS CORPORATION

By: Wayne M. Koprowski
Name: Wayne M. Koprowski
Title: ASSISTANT SECRETARY

Agreed and Accepted as of
this 31st day of March, 1998.

CITICORP NORTH AMERICA, INC., as Agent,
Assignee

By: _____
Name: _____
Title: _____

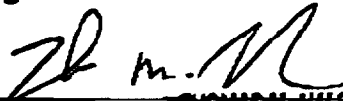
IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be executed by their respective officers thereunder duly authorized, as of the date first above written.

ZENITH ELECTRONICS CORPORATION

By: _____
Name: _____
Title: _____

Agreed and Accepted as of
this 31st day of March, 1998.

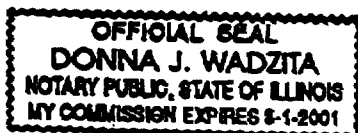
CITICORP NORTH AMERICA, INC., as Agent,
Assignee

By:  _____
Name: THOMAS M. HALSCH
Title: VICE PRESIDENT

STATE OF IL)
)
COUNTY OF Cook) ss.:

The foregoing Patent Collateral Assignment and Security Agreement was executed and acknowledged before me this 31st day of March, 1998, by Wayne M. Kaprowski, personally known to me to be the Assistant Secretary of Zenith Electronics Corporation, a Delaware corporation, on behalf of such corporation.

(SEAL)



Donna J. Wadzita
Notary Public
My Commission expires: 3/1/01

SCHEDULE B

HDTV Patents

ZENITH ELECTRONICS CORPORATION

List of Existing License Agreements

None

4/13/98

VSBMDM

ID	DF Number	Serial No	Patent No	GASP	GAIP	16VSB	Description
946613		516031			yes		Selective RE circuit for high quality tuner
956895		537155	5684827	yes	yes		Equalizer controlled by DC variation of received signal
966919		539169	5572547	yes	yes		Equalizer controlled by differences in received FSYNC
976926		569775		yes	yes		CIP of 6789, plus using DC to control eq & inversion
986940	CIP	575008		yes			Replacement Cb of 6894
9967370		586441	5400677	yes			Trellis modulator design for terrestrial VSB
1006917		610171			yes		VSB modulation using digital and analog techniques
1016730C		593733	5636261	yes			Receiver for kets coded ATV signal
1026921		627826		yes	yes		Slip points predicted by lowest path metric
1036957		645175	5668498	yes			Pilot used to determine FPL polarity and use of input inverter
1046967		661241					VSB mode detector
1056961		691656	5675283				Recover pilot by sub DC of demod output with & without pilot
1066962		691480	5699011				Determining DC offsets under zero carrier condition
1076957	CIP	691657	5675284				Frequency lock detector responsive to zero crossings
1086969		694427					Site phase FPL
1096893		671464					MPEG transport MUX for independently clocked transport streams
1106976		697544					Transport Mux with PCR retention
1116944		678902	5745004				FPL with relocated 3rd multiplier
1126971		687866					Data de-rotator and de-interleave
1136993		725870					SMPTE VSB input interface
1146969		726498					Adjustment of sync levels in multi-mode VSB signal
1156966		726997					Adjustment of sync levels in an AGC system
1166966A		726501					Smaller of 1st & 3rd compared to other generates AGC signal
1176954		728611					1st & 2nd filters for comb filter reducing co-channel & noise
1186934		583733	5692010				Adaptive equalizer with impulse noise protection
1196994		734724					Stabilizing IF in HDTV modulator
1206946		751895					Two step field sync identification system
1216979		713778					Rolling data symbols to maintain proper decoding sequence
1226998		745549					On-line non-linear amplitude correction for ATV transmitter
1237018		815560					Improved oscillator for ATV tuner
1247017		815561					Hybrid transformer for ATV tuner mixer
1257016		815559					Pin diode attenuator for ATV AGC circuit
1266983		791521					Symbol sync recovery
1276974		735855					Horiz sync separator for multi-standard synchs
1286975		735815					HDTV compatible vertical sync separator
1297046		933744					Terling arrangement for MPEG decoder
1307049		951269					Frame to field converter for MPEG data
1317098		949216					Double conv. tuner with adjacent channel rejection
1326904C		971746					VSB mode selection signal

4/13/98

VSBMDM

ID	OF Number	Serial No	Patent No	GASP	GAIIP	16VSB	Description
44	6482	887624	5283653		yes		Carrier regeneration in dual NTSC/HDTV receiver
45	6481	907283			yes		Data transmission fee for interleaving
46	600CIPFWC	67408	5285276				Bi-robe
47	6072FWC	967957	5377319				PLL & SAW resonator on common substrate
48	6047	887729	5461674				HDTV signal playback control
49	5892CIP2	746387	5280648				Double balanced mixer
50	6682	88285	5461619		yes	yes	Multiplexed transmission of compressed video & aux data
51	6669	14889	5406587				Phase noise tracking loop
53	6614	931172	5311318			yes	Both osc's of double conv filter circuit controlled by micro
54	6604	947024	5301019				Data compression with perceptually weighted motion vector
55	6592	931177	5438369				Vertically correlating symbols of data segments
56	6591	931176	5410569				Slicer with soft & hard stages
57	6571A	18658	5563920				Processing variable size blocks
58	6571	18668	5424733			yes	Processing variable length encoded signals
61	6753	175833	5410368			yes	Switched oscillator for carrier generation (also cap coupling to AD)
63	6738	175870	5631645			yes	Symbol to byte converter
66	6717	175014	5452009			yes	Lower VSB modes for higher frequency channels
67	6726	221133	5475438		yes	yes	Five field motion detector for scan line doubler
69	6767CIP	225201	5508748				Data level selection for multilevel VSB
70	6789	252284	5475714		yes	yes	Feedback circuit for removing DC from demodulated signal
71	6732	272181	5583889		yes		M/S decoder with linear (comb) filter
72	6732A	272857	5620958	yes			Last 12 symbols of field coded to next field sync segment
73	6770	301931	5642154			yes	Cable maintenance responsive to field sync
74	6823	335603	5665932		yes		AGC controlled in response to received data
75	6811CIP	315153	5572532		yes		Convolutional differential over (CIP of 6727)
76	6754CIP	324054	5546138		yes		Dual mode AGC
77	6413C	303989	5534938	yes			Digital transmission system with field & data segment sync
78	6810	366656	5574502		yes		Orienting HDTV antenna
79	6669CIPA	366656	5533070			yes	Phase tracking loop improvement
80	6669CIPB	366844	5533071			yes	Phase tracking loop improvement
81	6771CIP	354408	5627604			yes	Bi-phase stable FPLL with pilot synchronization
82	6858	386589	5602583			yes	NTSC selection filter with switched termination resistor
83	6753D	345886	5638140			yes	AFC filter for FPLL
84	6812	411000	5563884			yes	Reducing multiplex filter in ATM/MPEG system
85	6737CIP	417581	5627911	yes		yes	Integer number of data bytes & RS blocks for all VSB modes
86	6874	481664	5619269	yes		yes	Field sync with middle 63 FN sequence alternately inverted
87	6769	475713	5594496		yes	yes	Field comb used to determine switching for NTSC selection filter
88	6873CIP	479428	5602953	yes		yes	Use of segment sync instead of MPEG sync in 207 byte blocks
89	6875	474049	5574496		yes		Optimal offset NTSC/AV & AV/AV
90	3139DC	493129	4449145		yes		Clamp-equivalent implementation (FIR filter used for CCD)
91	6755C	509272	5621463			yes	FPLL polarity selector operated in response to segment sync
92	6904	501966				yes	VSB mode selection system
93	6894	520544			yes		NTSC selection filter selection in response to energy comparison

PATENT

REEL: 010033 FRAME: 0338

SCHEDULE A

VSS/MDM

ID	DF Number	Serial No	Patent No	GASP	GAIIP	16VSB	Description
15872	201137	4907042					Two channel ATV
25984	298324	4941049					Reverse scan to minimize ghost visibility
36072	298081	4951144					Directionally controlled dispersive filter
46096	458525	5016103					Hybrid with adaptive delta modulation
55872	281156	5077163		yes			High level wideband RF filter
65930	232155	5079002		yes			787.5 line progressive display
75779CIP5	408159	5040083					Hybrid
85779CIP2	370722	5043806	yes				HD TV transmission on "Jobos" channel
95779CIP5C	566784	5043812					Hybrid
106228	573436	5049972			yes		HD TV receiver operable at different resolutions
116314	618188	5060067		yes			Alternately inverted field sync for reducing DC offset in equalizer
126228/6331	601169	5086340	yes		yes		Pre-encoder, NISC, rejection comb & digital post-encoder
136364	611236	5097975	yes		yes		Digital VSB & comb filtering (replaced by Reitsue)
146045	458228	5100312					Time variable dispersive filter
156284	551076	5107348					Compression with block filter
165779CIP2D	673444	511287	yes				HD TV transmission on "Jobos" channel
176393	653560	5113258		yes			Perceptual video model with C1 associated in H.V. & D. regions
186376	636303	5115815					Reversible dispersive filter
196342	600458	5121203					QAM implementation of precode/comb filter
206274	600457	5121208					Reverse hybrid
216247	539770	5128757					2D compressor with perceptual modulation
226328	600469	5152797					Comb chip intersymbol interference filter
236192	553922	5136375					Entropy encoding
245779CIP4	407596	5136881					Hybrid
255779CIP3	408152	5144481					Hybrid
266305	709960	5151785					Co-channel reduction with prefilter & inverse postfilter
276477	734841	5153723					Audio sampling rate = 3H/146 kHz adopted
286367CIP	678778	5161015					Video peaking based on image classification
296280CIP	784334	5162900					Controlable comb & intersymbol interference filter
30	99373	4263616					Signal peaking
316323	629323	5179774					Receiver for 525 line NISC & 787.5 line HD TV
326382	667153	5181112					Selectively offsetting symbols to generate pilot
336390CIP	926008	5241385					QAM implementation of precode/comb filter
346320C	802153	5258838					Select comb/digital post-encoder based on interference present
356413ACIP	893486	5260793		yes			Hybrid
365779CIP6C	908772	5270816					AGC for double conversion tuner
376372	815711	5270824		yes			Double balanced RF mixer
385892CIP2	746382	5280448		yes			Data treatment sync & use for sampling data
396402CIP2	894386	5416524	yes		yes		Field sync detection
406413CIP2	204972	5598720	yes		yes		FIR filter coefficient updating
416520	936144	5392315					Bandwidth LO for double conversion synthesizer
426510	815721	5420846		yes			Complementary transmit & receive filters for reducing cochannel
436509	865407	5291231					